

SENTRON 3VL

Molded Case Circuit Breakers

according to UL 489/IEC

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Catalog

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SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Introduction

Overview



Type VL150X UL, CG frame VL150 UL, DG frame VL250 UL, FG frame VL400 UL, JG frame

3VL molded case circuit breakers acc. to UL 489/IEC 60947-2 up to 1600 A

Rated current I_n ¹⁾ at 40 °C ambient temperature	A	20 to 150	30 to 150	40 to 250	70 to 400
Number of poles		3	3	3	3
Rated operational voltage U_e (UL)					
AC 50/60 Hz	V	480, 600/347	600	600	600
DC ²⁾	V	250	500	500	500

Electronic trip units

Thermal-magnetic		✓	✓	✓	✓
Solid-State LCD ETU		--	✓	✓	✓

Dimensions

	mm	105	105	105	139
A	mm	157	175	175	279
B	mm	81	81	81	102
C	mm	107	107	107	138
D	mm				

Breaking capacity

Standard switching capacity N

Up to 240 V AC	kA	65	65	65	65
Up to 480 V AC	kA	35	35	35	35
Up to 600 V AC	kA	8	18	18	25
Up to 250 V DC ³⁾	kA	30	30	30	30
Up to 500 V DC ³⁾	kA	--	18	18	25
Up to 600 V DC ³⁾	kA	--	--	--	--
Switching capacity I_{cu}/I_{cs}					
RMS value acc. to IEC 60947-2					
Up to 240 V AC	kA	65/65	65/65	65/65	65/65
Up to 415 V AC	kA	40/40	40/40	40/40	45/45
Up to 690 V AC	kA	8/4 ⁴⁾	12/6	12/6	12/6
Up to 250 V DC ³⁾	kA	30/30	30/30	30/30	30/30

High switching capacity H

Up to 240 V AC	kA	100	100	100	100
Up to 480 V AC	kA	65	65	65	65
Up to 600 V AC	kA	10	20	20	25
Up to 250 V DC ³⁾	kA	30	30	30	30
Up to 500 V DC ³⁾	kA	--	18	25	35
Up to 600 V DC ³⁾	kA	--	--	--	--
Switching capacity I_{cu}/I_{cs}					
RMS value acc. to IEC 60947-2					
Up to 240 V AC	kA	100/75	100/75	100/75	100/75
Up to 415 V AC	kA	70/70	70/70	70/70	70/70
Up to 690 V AC	kA	10/5 ⁴⁾	12/6	12/6	15/8
Up to 250 V DC ³⁾	kA	30/30	30/30	30/30	30/30

Very high switching capacity L

Up to 240 V AC	kA	--	200	200	200
Up to 480 V AC	kA	--	100	100	100
Up to 600 V AC	kA	--	25	25	25
Up to 250 V DC ³⁾	kA	--	30	30	30
Up to 500 V DC ³⁾	kA	--	18	30	35
Up to 600 V DC ³⁾	kA	--	--	--	--
Switching capacity I_{cu}/I_{cs}					
RMS value acc. to IEC 60947-2					
Up to 240 V AC	kA	--	200/150	200/150	200/150
Up to 415 V AC	kA	--	100/75	100/75	100/75
Up to 690 V AC	kA	--	12/6	12/6	15/8
Up to 250 V DC ³⁾	kA	--	30/30	30/30	30/30

✓ Available
-- Not available

¹⁾ Rated value 80 % according to UL 489, 100 % according to IEC 60947-2.

²⁾ Rated DC voltage applies only for circuit breakers with thermal-magnetic trip unit.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Introduction



VL400X UL, LG frame

VL800 UL, MG frame

VL1200 UL, NG frame

VL1600 UL, PG frame

3VL molded case circuit breakers acc. to UL 489/IEC 60947-2 up to 1600 A

VL400X UL, LG frame	VL800 UL, MG frame	VL1200 UL, NG frame	VL1600 UL, PG frame
150 to 600	200 to 800	300 to 1200	400 to 1600
3	3	3	3
600 500	600 500	600 500	600 500
✓ ✓	✓ ✓	✓ ✓	✓ ✓
139 279 102 138	190 406 118 151	229 406 157 209	229 406 157 209

65 35 25	65 35 25	65 35 25	65 35 25
30 25 --	22 35 --	22 35 --	22 35 --
65/65 45/45 12/6 30/30	65/65 50/50 20/10 30/30	65/35 50/25 20/10 30/30	65/35 50/25 20/10 30/30

100 65 25	100 65 35	100 65 35	100 65 35
30 35 --	25 50 --	25 50 --	25 50 --
100/75 70/70 15/8 30/30	100/75 70/70 20/10 30/30	100/50 70/35 30/15 30/30	100/50 70/35 30/15 30/30

200 100 25	200 100 50	200 100 65	200 100 65
30 35 --	42 65 --	42 65 --	42 65 --
200/150 100/75 15/8 30/30	200/150 100/75 20/10 30/30	200/100 100/50 35/17 30/30	200/100 100/50 35/17 30/30

3) The maximum permitted DC voltage for each conducting path needs to be taken into account for DC switching applications.

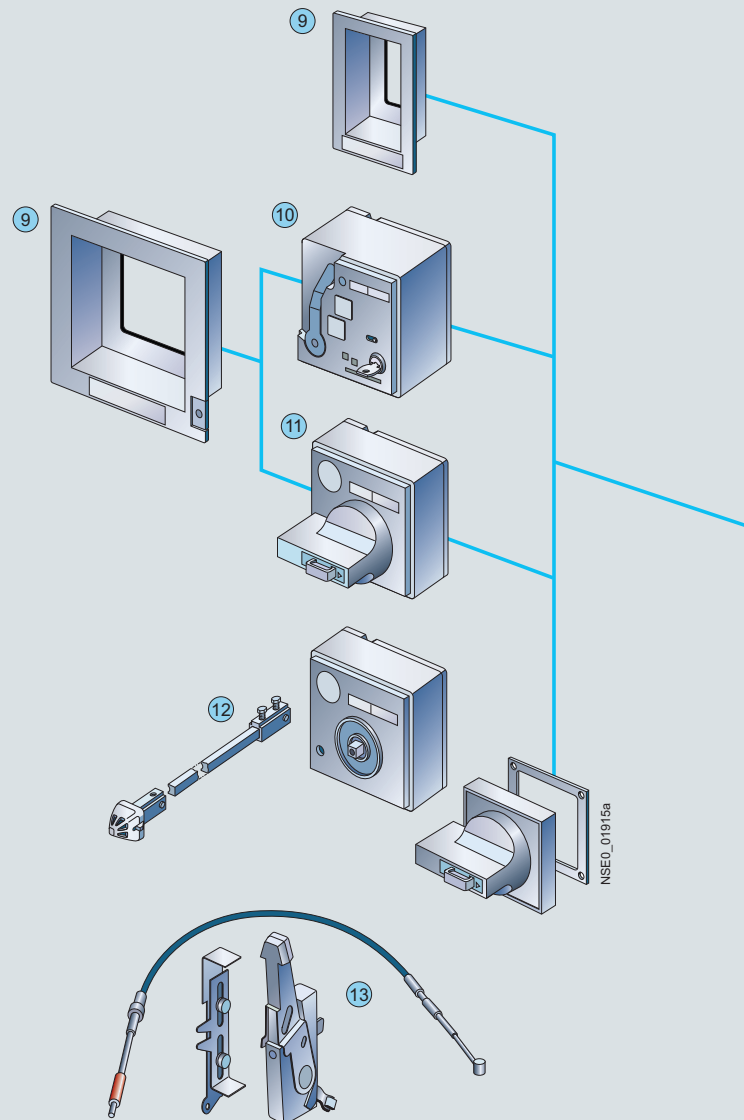
4) Rated current $I_n \geq 25$ A.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Introduction

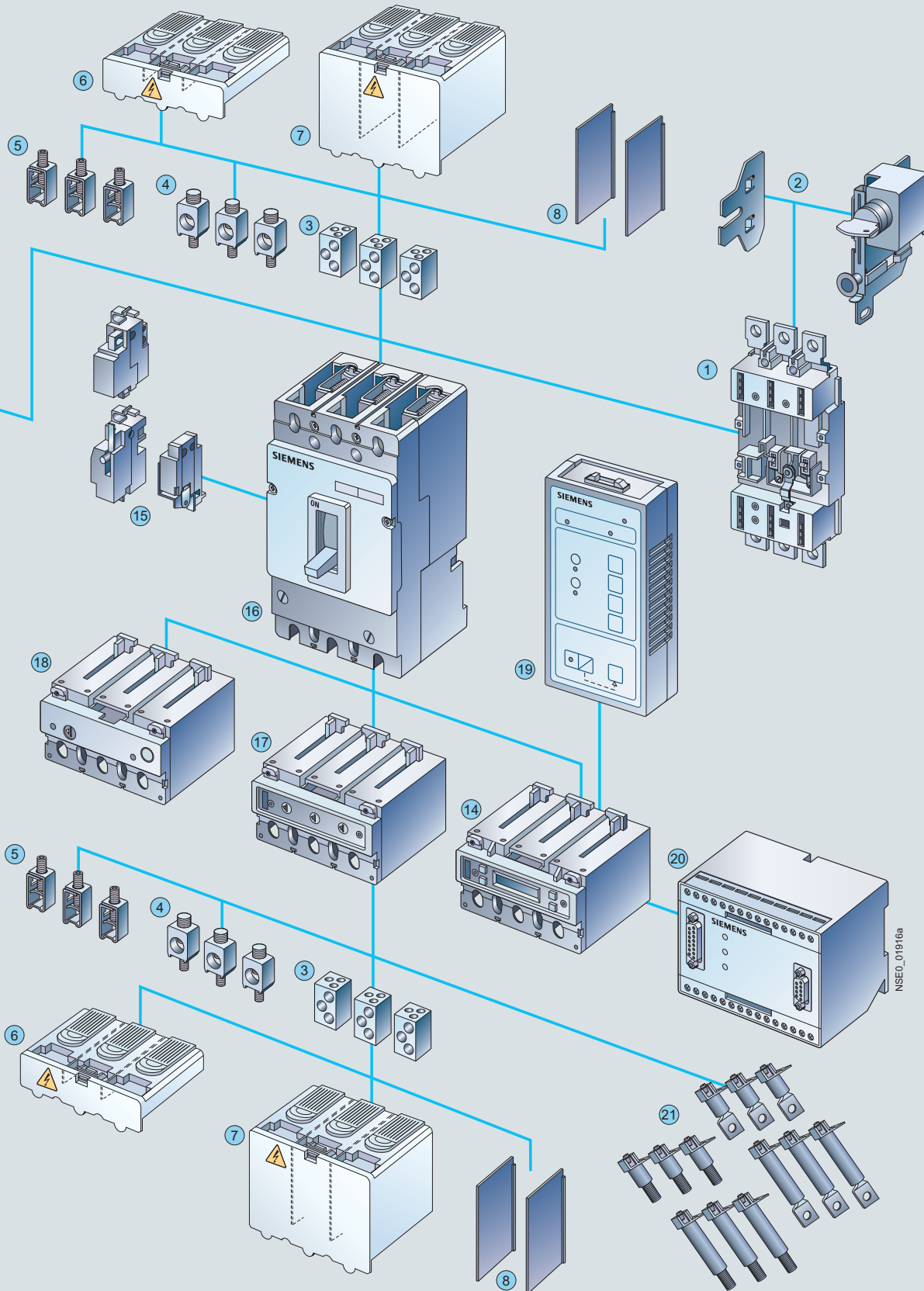
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- ① Withdrawable/plug-in bases
- ② Side walls of withdrawable unit
- ③ Multiple feed-in terminals for Al/Cu (size-dependent)
- ④ Circular conductor terminals for Al/Cu
- ⑤ Box terminals for Cu
- ⑥ Standard terminal covers
- ⑦ Extended terminal covers
- ⑧ Phase barriers
- ⑨ Masking frames/cover frames for door cut-out
- ⑩ Motorized operating mechanisms (synchronizable)
- ⑪ Front-operated rotary operating mechanisms
- ⑫ Door-coupling rotary operating mechanisms
- ⑬ Max Flex operating mechanisms
- ⑭ Solid-state overcurrent trip units (LCD ETU)
- ⑮ Internal accessories
- ⑯ 3VL UL molded case circuit breakers (LCD ETU)
- ⑰ Solid-state overcurrent trip units (ETU)
- ⑱ TM Thermal/magnetic overcurrent trip units
- ⑲ Function testers for electronic trip units
- ⑳ COM10 PROFIBUS modules
- ㉑ Rear terminals – flat and round

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According to UL 489/IEC 60947-2 up to 1600 A



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SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Benefits



- The compact design of the SENTRON 3VL circuit breakers coupled with excellent characteristics fulfills the high demands of today's electrical distribution systems.
- These circuit breakers offer a broad product range, improved technology, space savings and easy operation.
- They are available both in thermal-magnetic (20 A to 1600 A) and in solid-state versions (30 A to 1600 A).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Application

The different versions of SENTRON 3VL UL circuit breakers are suitable for the following applications:

- Incoming (feeder) and outgoing (branch) circuit breakers in distribution systems
- Switching and protection devices for motors (motor protection together with contactor and motor protection relay), transformers and capacitors
- Disconnecter units with features for stopping and switching off in an emergency (main control switches and EMERGENCY-STOP switches) in conjunction with lockable rotary operating mechanisms.

The SENTRON 3VL UL circuit breakers are available in the following versions:

1. For system protection (in 3-pole versions)
The overload and short-circuit releases are designed for the protection of cables, leads and non-motor loads.
2. For starter combinations (in 3-pole version)
These circuit breakers are used both for short-circuit protection as well as for isolating functions, which may be required in starter combinations consisting of circuit breakers, overload relays and motor contactors. These circuit breakers exclusively feature adjustable, instantaneous short-circuit releases.
3. As non-automatic air circuit breakers (in 3-pole versions)
These circuit breakers can be used as feeder circuit breakers, main control switches or disconnectors without overload protection. They incorporate an integrated short-circuit self-protection system.

Switching capacity

- N** Circuit breakers with standard switching capacity N (I_{cu} up to 35 kA at 480 V)
- H** Circuit breakers with high switching capacity H (I_{cu} up to 65 kA at 480 V)
- L** Circuit breakers with very high switching capacity H (I_{cu} up to 100 kA at 480 V)

These circuit breakers are indicated in the selection and ordering data by orange backgrounds.

Standards and specifications

SENTRON 3VL UL circuit breakers comply with:

UL 489,
CSA (CSA — C22.2),
IEC/EN 60947-2,
isolating features according to IEC 60947-2, EN 60947-2,
NOM (NMJ-J-266-ANCE-2002) on request.

Please contact Siemens for details of other standards.

Operating conditions

The SENTRON 3VL UL circuit breakers are designed for operation in enclosed areas.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

Selection and ordering data

Type	Rated current I_n	Current setting of the inverse-time delayed overload trip unit "L" I_R	Operating current of the instantaneous short-circuit releases "I" I_i	DT	I_{cu} up to 35 kA at 480 V, standard switching capacity N See "Overview".					
					Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	A	A	A		Order No. supplement required, see page 5/19					(N) kg

Fixed-mounted circuit breakers, VL150X UL (CG frame) to VL1600 UL (PG frame), thermal-magnetic trip units (UL file: E10848, CCN¹⁾: DIVQ)

System protection, TM, LI function

With permanently set thermal overload releases, adjustable short-circuit releases,

VL150X UL: Permanently set short-circuit releases

Connection type:

Circuit breakers without preassembled terminals,

terminals must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 5/29 to 5/35 and under "Accessories", "Connection methods for fixed-mounted circuit breakers", pages 5/35 to 5/40.

VL150X UL, CG frame	20	20	300	B	3VL11 02-1KM30-....	1	1 unit	113	1,900	
	25	25	300	B	3VL11 25-1KM30-....	1	1 unit	113	2,000	
	30	30	300	B	3VL11 03-1KM30-....	1	1 unit	113	2,000	
	35	35	600	B	3VL11 35-1KM30-....	1	1 unit	113	2,000	
	40	40	600	B	3VL11 04-1KM30-....	1	1 unit	113	2,000	
	50	50	600	B	3VL11 05-1KM30-....	1	1 unit	113	2,000	
	60	60	600	B	3VL11 06-1KM30-....	1	1 unit	113	2,000	
	70	70	1000	B	3VL11 07-1KM30-....	1	1 unit	113	2,000	
	80	80	1000	B	3VL11 08-1KM30-....	1	1 unit	113	2,000	
	90	90	1000	B	3VL11 91-1KM30-....	1	1 unit	113	2,000	
	100	100	1000	B	3VL11 10-1KM30-....	1	1 unit	113	2,000	
	125	125	1000	B	3VL11 12-1KM30-....	1	1 unit	113	2,000	
	150	150	1500	B	3VL11 15-1KM30-....	1	1 unit	113	2,000	
	VL150 UL, DG frame	50	50	450-700	B	3VL21 05-1KN30-....	1	1 unit	113	2,200
		60	60	450-700	B	3VL21 06-1KN30-....	1	1 unit	113	2,200
70		70	450-700	B	3VL21 07-1KN30-....	1	1 unit	113	2,200	
80		80	450-800	B	3VL21 08-1KN30-....	1	1 unit	113	2,200	
90		90	500-1000	B	3VL21 91-1KN30-....	1	1 unit	113	2,200	
100		100	500-1000	B	3VL21 10-1KN30-....	1	1 unit	113	2,200	
110		110	550-1100	B	3VL21 11-1KN30-....	1	1 unit	113	2,200	
125		125	625-1250	B	3VL21 12-1KN30-....	1	1 unit	113	2,200	
150		150	800-1600	B	3VL21 15-1KN30-....	1	1 unit	113	2,200	
VL250 UL, FG frame		100	100	625-1250	B	3VL31 10-1KN30-....	1	1 unit	113	2,300
	110	110	800-1600	B	3VL31 11-1KN30-....	1	1 unit	113	2,300	
	125	125	800-1600	B	3VL31 12-1KN30-....	1	1 unit	113	2,300	
	150	150	800-1600	B	3VL31 15-1KN30-....	1	1 unit	113	2,300	
	175	175	1000-2000	B	3VL31 17-1KN30-....	1	1 unit	113	2,300	
	200	200	1000-2000	B	3VL31 20-1KN30-....	1	1 unit	113	2,300	
	225	225	1250-2500	B	3VL31 22-1KN30-....	1	1 unit	113	2,300	
	250	250	1250-2500	B	3VL31 25-1KN30-....	1	1 unit	113	2,300	
VL400 UL, JG frame	250	250	1250-2500	B	3VL41 25-1KN30-....	1	1 unit	113	5,700	
	300	300	1500-3000	B	3VL41 30-1KN30-....	1	1 unit	113	5,700	
	350	350	1750-3500	B	3VL41 35-1KN30-....	1	1 unit	113	5,700	
	400	400	2000-4000	B	3VL41 40-1KN30-....	1	1 unit	113	5,700	
VL400X UL, LG frame	400	400	2000-4000	B	3VL45 40-1KN30-....	1	1 unit	113	5,700	
	500	500	2500-5000	B	3VL45 50-1KN30-....	1	1 unit	113	5,700	
	600	600	2750-5500	B	3VL45 60-1KN30-....	1	1 unit	113	5,700	
VL800 UL, MG frame	600	600	3000-6000	B	3VL61 60-1KN30-....	1	1 unit	113	14,000	
	700	700	3250-6500	B	3VL61 70-1KN30-....	1	1 unit	113	14,000	
	800	800	3250-6500	B	3VL61 80-1KN30-....	1	1 unit	113	14,000	
VL1200 UL, NG frame	800	800	4000-8000	B	3VL71 80-1KN30-....	1	1 unit	113	21,800	
	900	900	5000-10000	B	3VL71 90-1KN30-....	1	1 unit	113	21,800	
	1000	1000	5000-10000	B	3VL71 10-1KN30-....	1	1 unit	113	21,800	
	1200	1200	7000-12000	B	3VL71 12-1KN30-....	1	1 unit	113	21,800	
VL1600 UL, PG frame ²⁾	1200	1200	7000-12000	B	3VL81 12-1KN30-....	1	1 unit	113	32,800	
	1400	1400	7000-12000	B	3VL81 14-1KN30-....	1	1 unit	113	32,800	
	1600	1600	7000-12000	B	3VL81 16-1KN30-....	1	1 unit	113	32,800	

¹⁾ UL Code Classification Number.

²⁾ Operation of the circuit breaker within the scope of UL 489/CSA is permitted only in conjunction with the mounting base (see page 5/40).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

DT I_{cu} up to 65 kA at 480 V, high switching capacity H						DT I_{cu} up to 100 kA at 480 V, very high switching capacity L					
Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Order No. supplement required, see page 5/19						Order No. supplement required, see page 5/19					
B 3VL11 02-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 25-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 03-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 35-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 04-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 05-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 06-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 07-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 08-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 91-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 10-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 12-2KM30-....		1	1 unit	113	2,000	--					
B 3VL11 15-2KM30-....		1	1 unit	113	2,000	--					
B 3VL21 05-2KN30-....		1	1 unit	113	2,200	B 3VL21 05-3KN30-....		1	1 unit	113	2,200
B 3VL21 06-2KN30-....		1	1 unit	113	2,200	B 3VL21 06-3KN30-....		1	1 unit	113	2,200
B 3VL21 07-2KN30-....		1	1 unit	113	2,200	B 3VL21 07-3KN30-....		1	1 unit	113	2,200
B 3VL21 08-2KN30-....		1	1 unit	113	2,200	B 3VL21 08-3KN30-....		1	1 unit	113	2,200
B 3VL21 91-2KN30-....		1	1 unit	113	2,200	B 3VL21 91-3KN30-....		1	1 unit	113	2,200
B 3VL21 10-2KN30-....		1	1 unit	113	2,200	B 3VL21 10-3KN30-....		1	1 unit	113	2,200
B 3VL21 11-2KN30-....		1	1 unit	113	2,200	B 3VL21 11-3KN30-....		1	1 unit	113	2,200
B 3VL21 12-2KN30-....		1	1 unit	113	2,200	B 3VL21 12-3KN30-....		1	1 unit	113	2,200
B 3VL21 15-2KN30-....		1	1 unit	113	2,200	B 3VL21 15-3KN30-....		1	1 unit	113	2,200
B 3VL31 10-2KN30-....		1	1 unit	113	2,300	B 3VL31 10-3KN30-....		1	1 unit	113	2,300
B 3VL31 11-2KN30-....		1	1 unit	113	2,300	B 3VL31 11-3KN30-....		1	1 unit	113	2,300
B 3VL31 12-2KN30-....		1	1 unit	113	2,300	B 3VL31 12-3KN30-....		1	1 unit	113	2,300
B 3VL31 15-2KN30-....		1	1 unit	113	2,300	B 3VL31 15-3KN30-....		1	1 unit	113	2,300
B 3VL31 17-2KN30-....		1	1 unit	113	2,300	B 3VL31 17-3KN30-....		1	1 unit	113	2,300
B 3VL31 20-2KN30-....		1	1 unit	113	2,300	B 3VL31 20-3KN30-....		1	1 unit	113	2,300
B 3VL31 22-2KN30-....		1	1 unit	113	2,300	B 3VL31 22-3KN30-....		1	1 unit	113	2,300
B 3VL31 25-2KN30-....		1	1 unit	113	2,300	B 3VL31 25-3KN30-....		1	1 unit	113	2,300
B 3VL41 25-2KN30-....		1	1 unit	113	5,700	B 3VL41 25-3KN30-....		1	1 unit	113	5,700
B 3VL41 30-2KN30-....		1	1 unit	113	5,700	B 3VL41 30-3KN30-....		1	1 unit	113	5,700
B 3VL41 35-2KN30-....		1	1 unit	113	5,700	B 3VL41 35-3KN30-....		1	1 unit	113	5,700
B 3VL41 40-2KN30-....		1	1 unit	113	5,700	B 3VL41 40-3KN30-....		1	1 unit	113	5,700
B 3VL45 40-2KN30-....		1	1 unit	113	5,700	B 3VL45 40-3KN30-....		1	1 unit	113	5,700
B 3VL45 50-2KN30-....		1	1 unit	113	5,700	B 3VL45 50-3KN30-....		1	1 unit	113	5,700
B 3VL45 60-2KN30-....		1	1 unit	113	5,700	B 3VL45 60-3KN30-....		1	1 unit	113	5,700
B 3VL61 60-2KN30-....		1	1 unit	113	14,000	B 3VL61 60-3KN30-....		1	1 unit	113	14,000
B 3VL61 70-2KN30-....		1	1 unit	113	14,000	B 3VL61 70-3KN30-....		1	1 unit	113	14,000
B 3VL61 80-2KN30-....		1	1 unit	113	14,000	B 3VL61 80-3KN30-....		1	1 unit	113	14,000
B 3VL71 80-2KN30-....		1	1 unit	113	21,800	B 3VL71 80-3KN30-....		1	1 unit	113	21,800
B 3VL71 90-2KN30-....		1	1 unit	113	21,800	B 3VL71 90-3KN30-....		1	1 unit	113	21,800
B 3VL71 10-2KN30-....		1	1 unit	113	21,800	B 3VL71 10-3KN30-....		1	1 unit	113	21,800
B 3VL71 12-2KN30-....		1	1 unit	113	21,800	B 3VL71 12-3KN30-....		1	1 unit	113	21,800
B 3VL81 12-2KN30-....		1	1 unit	113	32,800	B 3VL81 12-3KN30-....		1	1 unit	113	32,800
B 3VL81 14-2KN30-....		1	1 unit	113	32,800	B 3VL81 14-3KN30-....		1	1 unit	113	32,800
B 3VL81 16-2KN30-....		1	1 unit	113	32,800	B 3VL81 16-3KN30-....		1	1 unit	113	32,800

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* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

Type	Rated current I_n	Operating current of the instantaneous short-circuit releases "I" I_i	DT	I_{cu} up to 35 kA at 480 V, standard switching capacity N See "Overview".					
	A	A		Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
				Order No. supplement required, see page 5/19					

Fixed-mounted circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), magnetic and electronic trip units



Circuit breakers for starter combination, I function (motor circuit protector; UL file: E10848, CCN⁴⁾: DKPUZ¹⁾

Without overload release, with adjustable short-circuit releases

Connection type:

Circuit breakers without preassembled terminals, terminals must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 5/29 to 5/35 and under "Accessories", "Connection methods for fixed-mounted circuit breakers", pages 5/35 to 5/40.

VL150 UL, DG frame	150	450-900	--						
	150	750-1500	--						
	150	1250-2500	--						
VL250 UL, FG frame	250	600-1200	--						
	250	1000-2000	--						
	250	1750-3500	--						
VL400 UL, JG frame	400	1250-2500	--						
	400 ²⁾	2000-4000	--						
VL400X UL, LG frame	600	2000-4000	--						
	600 ²⁾	2750-5500	--						
VL800 UL, MG frame	800	3250-6500	--						
VL1200 UL, NG frame	1200	7000-12000	--						



Molded case switches (UL file: E68312, CCN⁴⁾: WJAZ)

Without overload release, with permanently set short-circuit releases (for intrinsic protection only)

Connection type:

Circuit breakers without preassembled terminals, terminals must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 5/29 to 5/35 and under "Accessories", "Connection methods for fixed-mounted circuit breakers", pages 5/35 to 5/40.

VL150X UL, CG frame	100	1800	B	3VL11 10-1KE30-....		1	1 unit	113	2.000
	150	1800	B	3VL11 15-1KE30-....		1	1 unit	113	2.000
VL150 UL, DG frame	150	2500	--						
VL250 UL, FG frame	250	3500	--						
VL400 UL, JG frame	400	4400	--						
VL400X UL, LG frame	600	5500	--						
VL800 UL, MG frame	800	6500	--						
VL1200 UL, NG frame	1200	12000	--						
VL1600 UL, PG frame ³⁾	1600	14000	--						

1) UL recognized.

2) Motor current according to NEC 430-110.

3) Operation of the circuit breaker within the scope of UL 489/CSA is permitted only in conjunction with the mounting base (see page 5/40).

4) UL Code Classification Number.

5

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

DT	I_{cu} up to 65 kA at 480 V, high switching capacity H						DT	I_{cu} up to 100 kA at 480 V, very high switching capacity L					
	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.		Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Order No. supplement required, see page 5/19					kg		Order No. supplement required, see page 5/19					kg

B	3VL21 15-2KJ30-....		1	1 unit	113	2.200	--						
B	3VL21 15-2KK30-....		1	1 unit	113	2.200	--						
B	3VL21 15-2KL30-....		1	1 unit	113	2.200	--						
B	3VL31 25-2KJ30-....		1	1 unit	113	2.300	--						
B	3VL31 25-2KK30-....		1	1 unit	113	2.300	--						
B	3VL31 25-2KL30-....		1	1 unit	113	2.300	--						
B	3VL41 40-2KJ30-....		1	1 unit	113	5.700	--						
B	3VL41 40-2KK30-....		1	1 unit	113	5.700	--						
B	3VL45 60-2KJ30-....		1	1 unit	113	5.700	--						
B	3VL45 60-2KK30-....		1	1 unit	113	5.700	--						
B	3VL61 80-2KK30-....		1	1 unit	113	14.000	--						
B	3VL71 12-2KK30-....		1	1 unit	113	21.800	--						

B	3VL11 10-2KE30-....		1	1 unit	113	2.000	--						
B	3VL11 15-2KE30-....		1	1 unit	113	2.000	--						
B	3VL21 15-2KE30-....		1	1 unit	113	2.200	B	3VL21 15-3KE30-....	1	1 unit	113	2.200	
B	3VL31 25-2KE30-....		1	1 unit	113	2.300	B	3VL31 25-3KE30-....	1	1 unit	113	2.300	
B	3VL41 40-2KE30-....		1	1 unit	113	5.700	B	3VL41 40-3KE30-....	1	1 unit	113	5.700	
B	3VL45 60-2KE30-....		1	1 unit	113	5.700	B	3VL45 60-3KE30-....	1	1 unit	113	5.700	
B	3VL61 80-2KE30-....		1	1 unit	113	15.700	B	3VL61 80-3KE30-....	1	1 unit	113	15.700	
B	3VL71 12-2KE30-....		1	1 unit	113	23.500	B	3VL71 12-3KE30-....	1	1 unit	113	23.500	
B	3VL81 16-2KE30-....		1	1 unit	113	29.800	B	3VL81 16-3KE30-....	1	1 unit	113	29.800	

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

Type	Rated current I_n	Current setting of the inverse-time delayed overload trip unit "L" I_R	Operating current of the instantaneous short-circuit releases "I" I_i	S function (short-time delayed short-circuit releases) I_{sd}	DT	I_{cu} up to 35 kA at 480 V, standard switching capacity N See "Overview".					
						Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	A	A	A	A		Order No. supplement required, see page 5/19					kg

Fixed-mounted circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), electronic trip units (UL file: E10848)



System and generator protection

With electronic trip unit ETU (model 545)
LSI function ($t_{sd} = 0$ to 0.5 s)

Connection type:

Circuit breakers without preassembled terminals, terminals must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 5/29 to 5/35 and under "Accessories", "Connection methods for fixed-mounted circuit breakers", pages 5/35 to 5/40.

VL150 UL, DG frame	60	30- 60	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL21 06-1GE30-....	1	1 unit	113	2.400
	100	40- 100	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL21 10-1GE30-....	1	1 unit	113	2.400
	150	60- 150	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL21 15-1GE30-....	1	1 unit	113	2.400
VL250 UL, FG frame	100	40- 100	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL31 10-1GE30-....	1	1 unit	113	2.500
	150	60- 150	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL31 15-1GE30-....	1	1 unit	113	2.500
	250	70- 250	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL31 25-1GE30-....	1	1 unit	113	2.500
VL400 UL, JG frame	250	70- 250	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL41 25-1GE30-....	1	1 unit	113	5.900
	400	150- 400	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL41 40-1GE30-....	1	1 unit	113	5.900
VL400X UL, LG frame	400	150- 400	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL45 40-1GE30-....	1	1 unit	113	5.900
	600	200- 600	$10 \times I_n$	$1.5 - 9 \times I_R$	B	3VL45 60-1GE30-....	1	1 unit	113	5.900
VL800 UL, MG frame	600	200- 600	$10 \times I_n$	$1.5 - 9 \times I_R$	B	3VL61 60-1GE30-....	1	1 unit	113	16.000
	800	300- 800	$8 \times I_n$	$1.5 - 7 \times I_R$	B	3VL61 80-1GE30-....	1	1 unit	113	16.000
VL1200 UL, NG frame	800	300- 800	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL71 80-1GE30-....	1	1 unit	113	25.000
	1000	400-1000	$11 \times I_n$	$1.5 - 10 \times I_R$	B	3VL71 10-1GE30-....	1	1 unit	113	25.000
	1200	400-1200	$10 \times I_n$	$1.5 - 10 \times I_R$	B	3VL71 12-1GE30-....	1	1 unit	113	25.000
VL1600 UL, PG frame ¹⁾	1200	400-1200	$10 \times I_n$	$1.5 - 10 \times I_R$	B	3VL81 12-1GE30-....	1	1 unit	113	31.300
	1600	700-1600	$6 \times I_n$	$1.5 - 8 \times I_R$	B	3VL81 16-1GE30-....	1	1 unit	113	31.300

L = Overload

S = Short-circuit protection, short-time delayed

I = Short-circuit protection, instantaneous

¹⁾ Operation of the circuit breaker within the scope of UL 489/CSA is permitted only in conjunction with the mounting base (see page 5/40).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

DT I_{cu} up to 65 kA at 480 V, high switching capacity H							DT I_{cu} up to 100 kA at 480 V, very high switching capacity L						
						(H)							(L)
Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.		Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
Order No. supplement required, see page 5/19						kg	Order No. supplement required, see page 5/19						kg
B	3VL21 06-2GE30-....		1	1 unit	113	2.400	B	3VL21 06-3GE30-....		1	1 unit	113	2.400
B	3VL21 10-2GE30-....		1	1 unit	113	2.400	B	3VL21 10-3GE30-....		1	1 unit	113	2.400
B	3VL21 15-2GE30-....		1	1 unit	113	2.400	B	3VL21 15-3GE30-....		1	1 unit	113	2.400
B	3VL31 10-2GE30-....		1	1 unit	113	2.500	B	3VL31 10-3GE30-....		1	1 unit	113	2.500
B	3VL31 15-2GE30-....		1	1 unit	113	2.500	B	3VL31 15-3GE30-....		1	1 unit	113	2.500
B	3VL31 25-2GE30-....		1	1 unit	113	2.500	B	3VL31 25-3GE30-....		1	1 unit	113	2.500
B	3VL41 25-2GE30-....		1	1 unit	113	5.900	B	3VL41 25-3GE30-....		1	1 unit	113	5.900
B	3VL41 40-2GE30-....		1	1 unit	113	5.900	B	3VL41 40-3GE30-....		1	1 unit	113	5.900
B	3VL45 40-2GE30-....		1	1 unit	113	5.900	B	3VL45 40-3GE30-....		1	1 unit	113	5.900
B	3VL45 60-2GE30-....		1	1 unit	113	5.900	B	3VL45 60-3GE30-....		1	1 unit	113	5.900
B	3VL61 60-2GE30-....		1	1 unit	113	16.000	B	3VL61 60-3GE30-....		1	1 unit	113	16.000
B	3VL61 80-2GE30-....		1	1 unit	113	16.000	B	3VL61 80-3GE30-....		1	1 unit	113	16.000
B	3VL71 80-2GE30-....		1	1 unit	113	25.000	B	3VL71 80-3GE30-....		1	1 unit	113	25.000
B	3VL71 10-2GE30-....		1	1 unit	113	25.000	B	3VL71 10-3GE30-....		1	1 unit	113	25.000
B	3VL71 12-2GE30-....		1	1 unit	113	25.000	B	3VL71 12-3GE30-....		1	1 unit	113	25.000
B	3VL81 12-2GE30-....		1	1 unit	113	31.300	B	3VL81 12-3GE30-....		1	1 unit	113	31.300
B	3VL81 16-2GE30-....		1	1 unit	113	31.300	B	3VL81 16-3GE30-....		1	1 unit	113	31.300

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

Type	Rated current I_n	Current setting of the inverse-time delayed overload release "L" I_R	DT	I_{cu} up to 35 kA at 480 V, standard switching capacity N See "Overview".					(N)
	A	A		Order No. Order No. supplement required, see page 5/19	Price see page 5/18	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg

Fixed-mounted circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), up to 1600 A, electronic trip units (UL file: E10848)

Circuit breakers with electronic trip unit ETU

Connection type:

Circuit breakers without preassembled terminals, terminals must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 5/29 to 5/35 and under "Accessories", "Connection methods for fixed-mounted circuit breakers", pages 5/35 to 5/40.

VL150 UL, DG frame	60 100 150	30- 60 40- 100 60- 150	B B B	3VL21 06-1□□30-.... 3VL21 10-1□□30-.... 3VL21 15-1□□30-....		1 1 1	1 unit 1 unit 1 unit	113 113 113	2.400 2.400 2.400
VL250 UL, FG frame	100 150 250	40- 100 60- 150 70- 250	B B B	3VL31 10-1□□30-.... 3VL31 15-1□□30-.... 3VL31 25-1□□30-....		1 1 1	1 unit 1 unit 1 unit	113 113 113	2.500 2.500 2.500
VL400 UL, JG frame	250 400	70- 250 150- 400	B B	3VL41 25-1□□30-.... 3VL41 40-1□□30-....		1 1	1 unit 1 unit	113 113	5.900 5.900
VL400X UL, LG frame	400 600	150- 400 200- 600	B B	3VL45 40-1□□30-.... 3VL45 60-1□□30-....		1 1	1 unit 1 unit	113 113	9.300 9.300
VL800 UL, MG frame	600 800	200- 600 300- 800	B B	3VL61 60-1□□30-.... 3VL61 80-1□□30-....		1 1	1 unit 1 unit	113 113	16.000 16.000
VL1200 UL, NG frame	800 1000 1200	300- 800 400-1000 400-1200	B B B	3VL71 80-1□□30-.... 3VL71 10-1□□30-.... 3VL71 12-1□□30-....		1 1 1	1 unit 1 unit 1 unit	113 113 113	25.000 25.000 25.000
VL1600 UL, PG frame ¹⁾	1200 1600	400-1200 700-1600	B B	3VL81 12-1□□30-.... 3VL81 16-1□□30-....		1 1	1 unit 1 unit	113 113	31.300 31.300

Order No. supplements

GB

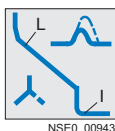
GD

GE

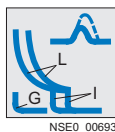
GH

5

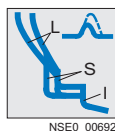
ETU trip units, 3-pole version



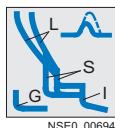
System protection with LI function



System protection with LIG function
For 4-wire three-phase systems²⁾



System and generator protection with LSI function



System and generator protection with LSIG function
For 4-wire three-phase systems²⁾

- L = Overload
- S = Short-circuit protection, short-time delayed
- I = Short-circuit protection, instantaneous
- G = Ground-fault protection

¹⁾ Operation of the circuit breaker within the scope of UL 489/CSA is permitted only in conjunction with the mounting base (see page 5/40).

²⁾ Vectorial summation current formation for the currents.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

DT I_{cu} up to 65 kA at 480 V, high switching capacity H (H)						DT I_{cu} up to 100 kA at 480 V, very high switching capacity L (L)					
Order No.	Price see page 5/18	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	Order No.	Price see page 5/18	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg

B	3VL21 06-2□□30-....	1	1 unit	113	2.400	B	3VL21 06-3□□30-....	1	1 unit	113	2.400
B	3VL21 10-2□□30-....	1	1 unit	113	2.400	B	3VL21 10-3□□30-....	1	1 unit	113	2.400
B	3VL21 15-2□□30-....	1	1 unit	113	2.400	B	3VL21 15-3□□30-....	1	1 unit	113	2.400
B	3VL31 10-2□□30-....	1	1 unit	113	2.500	B	3VL31 10-3□□30-....	1	1 unit	113	2.500
B	3VL31 15-2□□30-....	1	1 unit	113	2.500	B	3VL31 15-3□□30-....	1	1 unit	113	2.500
B	3VL31 25-2□□30-....	1	1 unit	113	2.500	B	3VL31 25-3□□30-....	1	1 unit	113	2.500
B	3VL41 25-2□□30-....	1	1 unit	113	5.900	B	3VL41 25-3□□30-....	1	1 unit	113	5.900
B	3VL41 40-2□□30-....	1	1 unit	113	5.900	B	3VL41 40-3□□30-....	1	1 unit	113	5.900
B	3VL45 40-2□□30-....	1	1 unit	113	9.300	B	3VL45 40-3□□30-....	1	1 unit	113	9.300
B	3VL45 60-2□□30-....	1	1 unit	113	9.300	B	3VL45 60-3□□30-....	1	1 unit	113	9.300
B	3VL61 60-2□□30-....	1	1 unit	113	16.000	B	3VL61 60-3□□30-....	1	1 unit	113	16.000
B	3VL61 80-2□□30-....	1	1 unit	113	16.000	B	3VL61 80-3□□30-....	1	1 unit	113	16.000
B	3VL71 80-2□□30-....	1	1 unit	113	25.000	B	3VL71 80-3□□30-....	1	1 unit	113	25.000
B	3VL71 10-2□□30-....	1	1 unit	113	25.000	B	3VL71 10-3□□30-....	1	1 unit	113	25.000
B	3VL71 12-2□□30-....	1	1 unit	113	25.000	B	3VL71 12-3□□30-....	1	1 unit	113	25.000
B	3VL81 12-2□□30-....	1	1 unit	113	31.300	B	3VL81 12-3□□30-....	1	1 unit	113	31.300
B	3VL81 16-2□□30-....	1	1 unit	113	31.300	B	3VL81 16-3□□30-....	1	1 unit	113	31.300

Order No. supplements

GB

GD

GE

GH

Order No. supplements

GB

GD

GE

GH

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

Type	Rated current I_n	Current setting of the inverse-time delayed overload release "L" I_R	DT	I_{cu} up to 35 kA at 480 V, standard switching capacity N See "Overview".					(N)
	A	A		Order No. Order No. supplement required, see page 5/19	Price see page 5/18	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg

Fixed-mounted circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), up to 1600 A, electronic trip units (UL file: E10848)

Circuit breakers with electronic trip unit ETU

Connection type:

Circuit breakers without preassembled terminals, terminals must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 5/29 to 5/35 and under "Accessories", "Connection methods for fixed-mounted circuit breakers", pages 5/35 to 5/40.

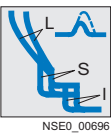
VL150 UL, DG frame	60 100 150	30- 60 40- 100 60- 150	B B B	3VL21 06-1□□30-.... 3VL21 10-1□□30-.... 3VL21 15-1□□30-....		1 1 1	1 unit 1 unit 1 unit	113 113 113	2.400 2.400 2.400
VL250 UL, FG frame	100 150 250	40- 100 60- 150 70- 250	B B B	3VL31 10-1□□30-.... 3VL31 15-1□□30-.... 3VL31 25-1□□30-....		1 1 1	1 unit 1 unit 1 unit	113 113 113	2.500 2.500 2.500
VL400 UL, JG frame	250 400	70- 250 150- 400	B B	3VL41 25-1□□30-.... 3VL41 40-1□□30-....		1 1	1 unit 1 unit	113 113	5.900 5.900
VL400X UL, LG frame	400 600	150- 400 200- 600	B B	3VL45 40-1□□30-.... 3VL45 60-1□□30-....		1 1	1 unit 1 unit	113 113	9.300 9.300
VL800 UL, MG frame	600 800	200- 600 300- 800	B B	3VL61 60-1□□30-.... 3VL61 80-1□□30-....		1 1	1 unit 1 unit	113 113	16.000 16.000
VL1200 UL, NG frame	800 1000 1200	300- 800 400-1000 400-1200	B B B	3VL71 80-1□□30-.... 3VL71 10-1□□30-.... 3VL71 12-1□□30-....		1 1 1	1 unit 1 unit 1 unit	113 113 113	25.000 25.000 25.000
VL1600 UL, PG frame ¹⁾	1200 1600	400-1200 700-1600	B B	3VL81 12-1□□30-.... 3VL81 16-1□□30-....		1 1	1 unit 1 unit	113 113	31.300 31.300

Order No. supplements

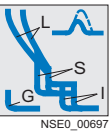
JH

JM

LCD ETU trip unit, 3-pole version



System protection with L/LS/LSI function



System protection with LSIG function

For 4-wire three-phase systems^{2) 3)}

- L = Overload
- S = Short-circuit protection, short-time delayed
- I = Short-circuit protection, instantaneous
- G = Ground-fault protection

¹⁾ Operation of the circuit breaker within the scope of UL 489/CSA is permitted only in conjunction with the mounting base (see page 5/40).
²⁾ External current transformer required in addition (on request).
³⁾ Vectorial summation current formation for the currents.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

DT I_{cu} up to 65 kA at 480 V, high switching capacity H (H)							DT I_{cu} up to 100 kA at 480 V, very high switching capacity L (L)						
Order No.	Price see page 5/18	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.		Order No.	Price see page 5/18	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
Order No. supplement required, see page 5/19						kg	Order No. supplement required, see page 5/19						kg

B	3VL21 06-2□□30-....	1	1 unit	113	2.400	B	3VL21 06-3□□30-....	1	1 unit	113	2.400
B	3VL21 10-2□□30-....	1	1 unit	113	2.400	B	3VL21 10-3□□30-....	1	1 unit	113	2.400
B	3VL21 15-2□□30-....	1	1 unit	113	2.400	B	3VL21 15-3□□30-....	1	1 unit	113	2.400
B	3VL31 10-2□□30-....	1	1 unit	113	2.500	B	3VL31 10-3□□30-....	1	1 unit	113	2.500
B	3VL31 15-2□□30-....	1	1 unit	113	2.500	B	3VL31 15-3□□30-....	1	1 unit	113	2.500
B	3VL31 25-2□□30-....	1	1 unit	113	2.500	B	3VL31 25-3□□30-....	1	1 unit	113	2.500
B	3VL41 25-2□□30-....	1	1 unit	113	5.900	B	3VL41 25-3□□30-....	1	1 unit	113	5.900
B	3VL41 40-2□□30-....	1	1 unit	113	5.900	B	3VL41 40-3□□30-....	1	1 unit	113	5.900
B	3VL45 40-2□□30-....	1	1 unit	113	9.300	B	3VL45 40-3□□30-....	1	1 unit	113	9.300
B	3VL45 60-2□□30-....	1	1 unit	113	9.300	B	3VL45 60-3□□30-....	1	1 unit	113	9.300
B	3VL61 60-2□□30-....	1	1 unit	113	16.000	B	3VL61 60-3□□30-....	1	1 unit	113	16.000
B	3VL61 80-2□□30-....	1	1 unit	113	16.000	B	3VL61 80-3□□30-....	1	1 unit	113	16.000
B	3VL71 80-2□□30-....	1	1 unit	113	25.000	B	3VL71 80-3□□30-....	1	1 unit	113	25.000
B	3VL71 10-2□□30-....	1	1 unit	113	25.000	B	3VL71 10-3□□30-....	1	1 unit	113	25.000
B	3VL71 12-2□□30-....	1	1 unit	113	25.000	B	3VL71 12-3□□30-....	1	1 unit	113	25.000
B	3VL81 12-2□□30-....	1	1 unit	113	31.300	B	3VL81 12-3□□30-....	1	1 unit	113	31.300
B	3VL81 16-2□□30-....	1	1 unit	113	31.300	B	3VL81 16-3□□30-....	1	1 unit	113	31.300

Order No. supplements

JH

JM

Order No. supplements

JH

JM

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

3-pole

Order No. supplement (for complete Order No., see pages 5/14 to 5/17) 3VL. ...- □□3.-.....	Switching capacity	Type	VL150 UL (DG frame)			VL250 UL (FG frame)			VL400 UL (JG frame)		VL400X UL (LG frame)	
		Rated current I_n	60 A	100 A	150 A	100 A	150 A	250 A	250 A	400 A	400 A	600 A
		Price										
GB												
GD												
GE												
GH												
JH												
JM												

Order No. supplement (for complete Order No., see pages 5/14 to 5/17) 3VL. ...- □□3.-.....	Switching capacity	VL800 UL (MG frame)		VL1200 UL (NG frame)			VL1600 UL (PG frame) ¹⁾	
		600 A	800 A	800 A	1000 A	1200 A	1200 A	1600 A
		Price						
GB								
GD								
GE								
GH								
JH								
JM								

¹⁾ Operation of the circuit breaker within the scope of UL 489/CSA is permitted only in conjunction with the mounting base (see page 5/40).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Options

Selection and ordering data

1. Order No. supplement: Undervoltage releases or shunt trip units, wiring directly to accessories

Rated control supply voltage U_g /frequency		Order No. supplement	Circuit breakers	
AC 50/60 Hz DC		3VL - - - - - □ □ ..	Type	Type
			VL150X UL (CG frame) to VL400X UL (LG frame) ¹⁾	VL800 UL (MG frame) to VL1600 UL (PG frame)
			Additional price	Additional price
Without auxiliary trip units		0 A	None	None
With undervoltage releases Only right pole				
V AC	V DC			
--	12	2 N	x ¹⁾	x
--	24	2 P	x ¹⁾	x
--	48	2 U	x ¹⁾	x
--	60	2 V	x ¹⁾	x
--	110-127	2 R	x ¹⁾	x
--	220-250	2 S	x ¹⁾	x
24	--	2 D	x ¹⁾	x
110-127	--	2 G	x ¹⁾	x
220-250	--	2 H	x ¹⁾	x
208	--	2 M	x ¹⁾	x
277	--	2 Q	x ¹⁾	x
380-415	--	2 J	x ¹⁾	x
440-480	--	2 K	x ¹⁾	x
500-525	--	2 L	x ¹⁾	x
With shunt trip units Only right pole				
V AC	V DC			
24	24	8 C	x ¹⁾	x
--	48-60	8 J	x ¹⁾	x
--	110-127	8 K	x ¹⁾	x
--	220-250	8 Q	x ¹⁾	x
48-60	--	8 M	x ¹⁾	x
110-127	--	8 R	x ¹⁾	x
208-277	--	8 T	x ¹⁾	x
380-600	--	8 V	x ¹⁾	x

2. Order No. supplement: Auxiliary switches (HS) and alarm switches (AS), left/right pole, directly wired to accessories

Equipment	Order No. supplement	Circuit breakers	
HS = 1 NO or 1 NC switching block AS = 1 NO switching block	3VL - - - - - □ □	Type	Type
		VL150X UL (CG frame) to VL400X UL (LG frame)	VL800 UL (MG frame) to VL1600 UL (PG frame)
		Additional price	Additional price
Without auxiliary/alarm switches		None	None
2 HS (1 NO/1 NC) ³⁾	B 1	x ²⁾	--
4 HS (2 NO/2 NC)	C 1	--	x
2 HS (1 NO/1 NC) + 1 AS (1 NO)	D 1	x ²⁾	--
2 HS (1 NO/1 NC) + 1 AS (1 NO) ⁴⁾	E 1	--	x

x = additional price

-- Not available

¹⁾ For SENTRON VL150 UL (DG frame)/VL250 UL (FG frame) circuit breakers with solid-state overcurrent trip units, the only option is one undervoltage release or shunt trip unit, or one auxiliary/alarm switch combination.

²⁾ Except for mounting in the left accessory sub-section of the SENTRON VL150 UL (DG frame)/VL250 UL (FG frame) circuit breakers with solid-state overcurrent trip units, since this sub-section is occupied by the tripping solenoid.
Only one auxiliary trip unit or one auxiliary/alarm switch combination can be installed on the right-hand side.

³⁾ With mounting adapter up to 3 HS.

⁴⁾ With mounting adapter up to 2 HS + 2 AS.

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SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Options

When ordering, add "-Z" to the complete Order No. and add the relevant order code(s).

Order No. with "-Z"
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
3VL -Z
 and additional order code(s)
 + . . . + . . .

Additional price

Code for further versions **-Z**

For fixed-mounted circuit breakers (wired in factory)

Wiring for internal accessories (Auxiliary switches, alarm switches, auxiliary trip units not included in scope of supply) with connecting cables (3 m long) brought out at the rear	VL150X UL (CG frame) to VL1600 UL (PG frame)	L 0 2	x
Wiring for motorized operating mechanisms (Motorized operating mechanism not included in the scope of supply, to order see pages 5/24 to 5/28) with connecting cables (3 m long), brought out at the top on VL150X UL (CG frame) to VL400X UL (LG frame) or brought out at the right on VL800 UL (MG frame) to VL1600 UL (PG frame)	VL150X UL (CG frame) to VL1600 UL (PG frame)	L 1 2	x
Motorized operating mechanisms (24 V DC) Mounted on the circuit breaker (motorized operating mechanism included in scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame) VL400 UL (JG frame) to VL400X UL (LG frame)	M 2 4	x
With wiring for internal accessories of the circuit breaker with connecting cables (3 m long) brought out at the rear, (auxiliary switches, alarm switches, auxiliary trip units not included in scope of supply)	VL800 UL (MG frame) VL1200 UL (NG frame) to VL1600 UL (PG frame)		x
Motorized operating mechanisms (42-48 V AC/DC) Mounted on the circuit breaker (motorized operating mechanism included in scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame) VL400 UL (JG frame) to VL400X UL (LG frame)	M 4 2	x
With wiring for internal accessories of the circuit breaker with connecting cables (3 m long) brought out at the rear, (auxiliary switches, alarm switches, auxiliary trip units not included in scope of supply)	VL800 UL (MG frame) VL1200 UL (NG frame) to VL1600 UL (PG frame)		x
Motorized operating mechanisms (60 V AC/DC) Mounted on the circuit breaker (motorized operating mechanism included in scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame) VL400 UL (JG frame) to VL400X UL (LG frame)	M 6 0	x
With wiring for internal accessories of the circuit breaker with connecting cables (3 m long) brought out at the rear, (auxiliary switches, alarm switches, auxiliary trip units not included in scope of supply)	VL800 UL (MG frame) VL1200 UL (NG frame) to VL1600 UL (PG frame)		x
Motorized operating mechanisms (110-127 V AC/DC) Mounted on the circuit breaker (motorized operating mechanism included in scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame) VL400 UL (JG frame) to VL400X UL (LG frame)	M 1 1	x
With wiring for internal accessories of the circuit breaker with connecting cables (3 m long) brought out at the rear, (auxiliary switches, alarm switches, auxiliary trip units not included in scope of supply)	VL800 UL (MG frame) VL1200 UL (NG frame) to VL1600 UL (PG frame)		x
Motorized operating mechanisms (220-250 V AC/DC) Mounted on the circuit breaker (motorized operating mechanism included in scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame) VL400 UL (JG frame) to VL400X UL (LG frame)	M 2 2	x
With wiring for internal accessories of the circuit breaker with connecting cables (3 m long) brought out at the rear, (auxiliary switches, alarm switches, auxiliary trip units not included in scope of supply)	VL800 UL (MG frame) VL1200 UL (NG frame) to VL1600 UL (PG frame)		x

x = additional price

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SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Selection and ordering data

Wiring directly at accessories	DT	For VL150X UL (CG frame) to VL400X UL (LG frame)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Order No.	Price per PU			kg

Auxiliary switches and auxiliary trip units (UL file: E69455)

3-pole

Auxiliary switches (HS) and alarm switches (AS)

For retrofitting

Assembly kits	Mounting side						
2 HS (1 NO + 1 NC)	N, left ¹⁾ , right	B	3VL9 400-2AB01	1	1 unit	113	0.027
4 HS (2 NO + 2 NC)	N, left, right		--				
2 HS (1 NC + 1 NO)	Left, right ³⁾	B	3VL9 400-2AD01	1	1 unit	113	0.051
+ 1 AS (1 NO) (assembly kit)	Left		--				

Additional auxiliary switch/alarm switch combinations [See page 5/23.](#)

Shunt trip units²⁾

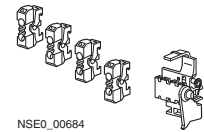
For retrofitting

V AC	V DC	Mounting side						
24	24	Right pole only	B	3VL9 400-1SC01	1	1 unit	113	0.075
--	48-60	Right pole only	B	3VL9 400-1SJ01	1	1 unit	113	0.075
--	110-127	Right pole only	B	3VL9 400-1SK01	1	1 unit	113	0.075
--	220-250	Right pole only	B	3VL9 400-1SQ01	1	1 unit	113	0.075
48-60	--	Right pole only	B	3VL9 400-1SM01	1	1 unit	113	0.075
110-127	--	Right pole only	B	3VL9 400-1SR01	1	1 unit	113	0.075
208-277	--	Right pole only	B	3VL9 400-1ST01	1	1 unit	113	0.075
380-600	--	Right pole only	B	3VL9 400-1SV01	1	1 unit	113	0.075

Undervoltage releases

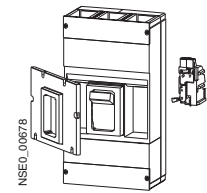
For retrofitting

V AC	V DC	Mounting side						
--	12	Right pole only	B	3VL9 400-1UN01	1	1 unit	113	0.075
--	24	Right pole only	B	3VL9 400-1UP01	1	1 unit	113	0.075
--	48	Right pole only	B	3VL9 400-1UU01	1	1 unit	113	0.075
--	60	Right pole only	B	3VL9 400-1UV01	1	1 unit	113	0.075
24	--	Right pole only	B	3VL9 400-1UD01	1	1 unit	113	0.075
110-127	--	Right pole only	B	3VL9 400-1UG01	1	1 unit	113	0.075
--	110-127	Right pole only	B	3VL9 400-1UR01	1	1 unit	113	0.075
208	--	Right pole only	B	3VL9 400-1UM01	1	1 unit	113	0.075
220-250	--	Right pole only	B	3VL9 400-1UH01	1	1 unit	113	0.075
--	220-250	Right pole only	B	3VL9 400-1US01	1	1 unit	113	0.075
277	--	Right pole only	B	3VL9 400-1UQ01	1	1 unit	113	0.075
380-415	--	Right pole only	B	3VL9 400-1UJ01	1	1 unit	113	0.075
440-480	--	Right pole only	B	3VL9 400-1UK01	1	1 unit	113	0.075
500-525	--	Right pole only	B	3VL9 400-1UL01	1	1 unit	113	0.075
600	--	Right pole only	B	3VL9 400-1UT01	1	1 unit	113	0.075



NSE0_00684

3VL9 400-2A.01



NSE0_00678

3VL9 400-1S.01,
3VL9 400 1U.01

- 1) Except for mounting in the left accessory sub-section of the SENTRON VL150 UL (DG frame)/VL250 UL (FG frame) circuit breakers with solid-state overcurrent trip units, since this sub-section is occupied by the tripping solenoid.
- 2) Shunt trip unit with disconnection contact (3SB3 for ON/OFF position) non-floating (see "Schematics").
- 3) For VL400 UL (JG frame)/VL400X UL (LG frame): Unsuitable for mounting in the right-hand accessory sub-section. The 3VL9 400-2AB01 assembly kit with auxiliary switches only is recommended.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Wiring directly at accessories	DT	For VL800 UL (MG frame) to VL1600 UL (PG frame)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Order No.	Price per PU			kg

Auxiliary switches and auxiliary trip units (UL file: E69455)

3-pole

Auxiliary switches (HS) and alarm switches (AS)

For retrofitting

Assembly kits	Mounting side					
2 HS (1 NO + 1 NC)	N, left, right	--				
4 HS (2 NO + 2 NC)	N, left, right	B	3VL9 800-2AC01	1	1 unit	113 0.058
2 HS (1 NC + 1 NO) + 1 AS (1 NO) (assembly kit)	Left, right Left	B	3VL9 800-2AE01	1	1 unit	113 0.060

Additional auxiliary switch/alarm switch combinations

See page 5/23.

Shunt trip units¹⁾

For retrofitting

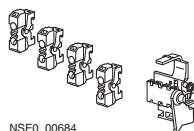
V AC	V DC	Mounting side				
24	24	Right pole only	B	3VL9 800-1SC01	1	1 unit 113 0.175
--	48-60	Right pole only	B	3VL9 800-1SJ01	1	1 unit 113 0.140
--	110-127	Right pole only	B	3VL9 800-1SK01	1	1 unit 113 0.177
--	220-250	Right pole only	B	3VL9 800-1SQ01	1	1 unit 113 0.163
48-60	--	Right pole only	B	3VL9 800-1SM01	1	1 unit 113 0.162
110-127	--	Right pole only	B	3VL9 800-1SR01	1	1 unit 113 0.160
208-277	--	Right pole only	B	3VL9 800-1ST01	1	1 unit 113 0.170
380-600	--	Right pole only	B	3VL9 800-1SV01	1	1 unit 113 0.181

Undervoltage releases

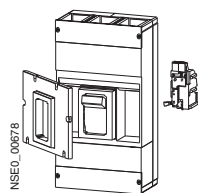
For retrofitting

V AC	V DC	Mounting side				
--	12	Right pole only	B	3VL9 800-1UN01	1	1 unit 113 0.127
--	24	Right pole only	B	3VL9 800-1UP01	1	1 unit 113 0.136
--	48	Right pole only	B	3VL9 800-1UU01	1	1 unit 113 0.125
--	60	Right pole only	B	3VL9 800-1UV01	1	1 unit 113 0.146
24	--	Right pole only	B	3VL9 800-1UD01	1	1 unit 113 0.088
110-127	--	Right pole only	B	3VL9 800-1UG01	1	1 unit 113 0.088
--	110-127	Right pole only	B	3VL9 800-1UR01	1	1 unit 113 0.127
208	--	Right pole only	B	3VL9 800-1UM01	1	1 unit 113 0.136
220-250	--	Right pole only	B	3VL9 800-1UH01	1	1 unit 113 0.137
--	220-250	Right pole only	B	3VL9 800-1US01	1	1 unit 113 0.135
277	--	Right pole only	B	3VL9 800-1UQ01	1	1 unit 113 0.138
380-415	--	Right pole only	B	3VL9 800-1UJ01	1	1 unit 113 0.131
440-480	--	Right pole only	B	3VL9 800-1UK01	1	1 unit 113 0.132
500-525	--	Right pole only	--	--		
600	--	Right pole only	--	--		

¹⁾ Shunt trip unit with disconnection contact (3SB3 for ON/OFF position) non-floating (see 'Schematics').



NSE0_00684
3VL9 800-2A.01



NSE0_00678
3VL9 800-1S.01,
3VL9 800-1U.01

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

For circuit breakers	Maximum combination of auxiliary switches (HS) and alarm switches (AS)	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Type

3SB adapters and 3SB contact blocks

Mounting adapters for auxiliary and alarm switch combinations (UL file: E69455)

For installation in the left pole of the circuit breaker

VL150X UL (CG frame), VL150 UL (DG frame), VL250 UL (FG frame), VL400 UL (JG frame), VL400X UL (LG frame)	Up to 3 HS ¹⁾	B	3VL9 400-2AH01		1	1 unit	113	0.009
	2 HS + 1 AS ¹⁾²⁾	B	3VL9 400-2AJ11		1	1 unit	113	0.001
VL800 UL (MG frame), VL1200 UL (NG frame), VL1600 UL (PG frame)	Up to 4 HS	B	3VL9 816-2AL01		1	1 unit	113	0.075
	2 HS + 2 AS	B	3VL9 816-2AN11		1	1 unit	113	0.072

For installation in the right pole of the circuit breaker

VL150X UL (CG frame), VL150 UL (DG frame), VL250 UL (FG frame), VL400 UL (JG frame), VL400X UL (LG frame) ²⁾	Up to 3 HS ¹⁾	B	3VL9 400-2AH01		1	1 unit	113	0.009
	2 HS + 1 AS ¹⁾²⁾	B	3VL9 400-2AJ21		1	1 unit	113	0.001
VL800 UL (MG frame), VL1200 UL (NG frame), VL1600 UL (PG frame)	Up to 4 HS	B	3VL9 816-2AL01		1	1 unit	113	0.075
	2 HS + 2 AS		--					

¹⁾ Except for mounting in the left accessory sub-section of the SENTRON VL150 UL (DG frame)/VL250 UL (FG frame) with solid-state overcurrent trip unit.

Only one auxiliary trip unit or one auxiliary/alarm switch combination can be installed on the right-hand side.

²⁾ For VL400 UL (JG frame)/VL400X UL (LG frame): 3VL9 400-2AJ21 unsuitable for mounting in the right-hand accessory sub-section.

For auxiliary/alarm switches	DT	Circuit breakers Type	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		VL150X UL (CG frame) to VL1600 UL (PG frame)				
		Order No.	Price per PU			kg

Switching blocks for auxiliary and alarm switch combinations

1 NO	B	3SB34 00-0J		1	1 unit	102	0.010
1 NC	B	3SB34 00-0K		1	1 unit	102	0.010

For auxiliary switch or alarm switch combinations not included in the installation kits provided as standard, the mounting adapters specified can be ordered separately together with the required contact blocks:

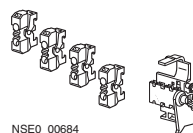
1 HS or 1 AS with NO contact 3SB34 00-0J

1 HS or 1 AS with NC contact 3SB34 00-0K

Note:

A maximum of 6 contact blocks (HS) are possible for each (VL150X UL (CG frame) to VL400X UL (LG frame)) circuit breaker and a maximum of 8 contact blocks (HS) are possible for each (VL800 UL (MG frame) to VL1600 UL (PG frame)) circuit breaker.

Four 3SB3 auxiliary contact blocks and one mounting adapter (right), suitable for VL800 UL (MG frame) to VL1600 UL (PG frame) circuit breakers.



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For retrofitting/for possible complements, see "Design", "Auxiliary Trip Units and Auxiliary Switches".

SENTRON 3VL Molded Case Circuit Breakers

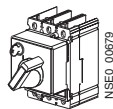
According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL150X UL (CG frame) to VL250 UL (FG frame)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.				
		Price per PU				

Operating mechanisms

3-pole



3VL9 .00-3H.01

Front-operated rotary operating mechanisms (UL file: E69455)

For direct mounting on the circuit breaker,
without leading auxiliary switch,
degree of protection IP30¹⁾, black

EMERGENCY-STOP version

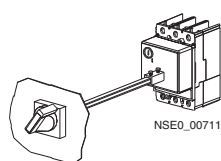
Red knob, yellow indicator plate

[Safety locks for installation by the customer](#)

For installation see pages 5/41 to 5/45.

B	3VL9 300-3HA01		1	1 unit	113	0.362
---	-----------------------	--	---	--------	-----	-------

B	3VL9 300-3HC01		1	1 unit	113	0.362
---	-----------------------	--	---	--------	-----	-------



3VL9 .00-3H.06

Door-coupling rotary operating mechanisms, complete

Installation in doors and covers (UL file: E69455)

Degree of protection IP65, including black
knob with masking plate, indicator plate,
removable door coupling, 300 mm extension
shaft and front-operated rotary operating
mechanism for the respective circuit breaker

EMERGENCY-STOP version,
Red knob, yellow indicator plate,
without leading auxiliary switch

[Safety locks for installation by the customer](#)

For installation see pages 5/41 to 5/45.

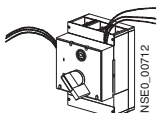
B	3VL9 300-3HF06		1	1 unit	113	0.970
---	-----------------------	--	---	--------	-----	-------

B	3VL9 300-3HG06		1	1 unit	113	0.620
---	-----------------------	--	---	--------	-----	-------

UL 508A interlocking modules³⁾

For use with 3VL1, 3VL2, 3VL3, 3VL4, 3VL4X and A
3RV19 .6-2

A	8UC94 00		1	1 unit	103	0.850
---	-----------------	--	---	--------	-----	-------



3VL9 .00-3A.11

Leading auxiliary switches for installation in a front-operated rotary operating mechanism or door-coupling rotary operating mechanism (UL file: E69455)

Standard or EMERGENCY-STOP version

"OFF after ON"

Leading auxiliary switches when switching on

1 changeover contacts with 1.5 m long cables

2 changeover contacts with 1.5 m long cables

"ON after OFF"

Leading auxiliary switches when switching off

1 changeover contacts with 1.5 m long cables

2 changeover contacts with 1.5 m long cables

B	3VL9 300-3AS11		1	1 unit	113	0.080
---	-----------------------	--	---	--------	-----	-------

B	3VL9 300-3AT11		1	1 unit	113	0.130
---	-----------------------	--	---	--------	-----	-------

B	3VL9 300-3AU11		1	1 unit	113	0.080
---	-----------------------	--	---	--------	-----	-------

B	3VL9 300-3AW11		1	1 unit	113	0.130
---	-----------------------	--	---	--------	-----	-------

Rotary operating mechanisms with shaft end, without selector switch²⁾

without leading auxiliary switch,
for auxiliary switches see above

B	3VL9 300-3HE01		1	1 unit	113	0.267
---	-----------------------	--	---	--------	-----	-------

¹⁾ IP40 with additional masking frame mounted on the door cut-out.

²⁾ Usable with interlocking module 8UC94 00.

³⁾ In combination with 3VL4/3VL4X the interlocking module can be used with all 3VL9 400-.... door-coupling rotary operating mechanisms.
In combination with 3VL1/3VL2/3VL3 the components of the door-coupling rotary operating mechanism must be ordered separately:

	3VL1/3VL2/3VL3	3VL4/3VL4X
Door-coupling rotary operating mechanism, complete	--	3VL9 400-3HF06
• Black knob, light-gray indicator plate	--	3VL9 400-3HG06
• Red knob, yellow indicator plate		
Handle		
• Black knob, light-gray indicator plate	8UC71 10-6BD or	--
• Red knob, yellow indicator plate	8UC71 20-8BD +	--
Coupling drivers	8UC60 17-2AA +	--
Extension shafts	8UC60 32 +	--
Spacers	8UC60 22 +	--
Rotary operating mechanism shaft ends	3VL9 300-3HE01	--

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

DT	For VL400 UL (JG frame) to VL400X UL (LG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	DT	For VL800 UL (MG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
	Order No.	Price per PU						Order No.	Price per PU				
B	3VL9 400-3HA01		1	1 unit	113	0.725	B	3VL9 600-3HA01		1	1 unit	113	0.834
B	3VL9 400-3HC01		1	1 unit	113	0.725	B	3VL9 600-3HC01		1	1 unit	113	0.834
B	3VL9 400-3HF06		1	1 unit	113	0.630	B	3VL9 600-3HF06		1	1 unit	113	1.837
B	3VL9 400-3HG06		1	1 unit	113	0.630	B	3VL9 600-3HG06		1	1 unit	113	1.837
A	8UC94 00		1	1 unit	103	0.850		--					
B	3VL9 400-3AS11		1	1 unit	113	0.080	B	3VL9 600-3AS11		1	1 unit	113	0.080
B	3VL9 400-3AT11		1	1 unit	113	0.130	B	3VL9 600-3AT11		1	1 unit	113	0.130
B	3VL9 400-3AU11		1	1 unit	113	0.080	B	3VL9 600-3AU11		1	1 unit	113	0.080
B	3VL9 400-3AW11		1	1 unit	113	0.130	B	3VL9 600-3AW11		1	1 unit	113	0.130
B	3VL9 400-3HE01		1	1 unit	113	0.267	B	3VL9 600-3HE01		1	1 unit	113	0.755

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

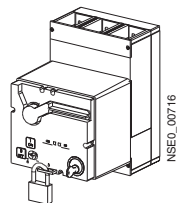
According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL150X UL (CG frame) to VL250 UL (FG frame)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Order No.				kg
		Price per PU				

Operating mechanisms

3-pole



3VL9 .00-3M.01

Motorized operating mechanisms with spring energy store¹⁾ (UL file: E69455)

Degree of protection IP30, with locking device for
3 padlocks, suitable for synchronizing

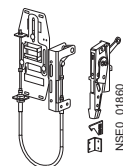
AC 50/60 Hz V

V DC

AC 50/60 Hz V	V DC		Order No.	PU	PS*	PG	Weight per PU approx.
--	24	C	3VL9 300-3MJ01	1	1 unit	113	2.140
42-48	42-48	C	3VL9 300-3ML01	1	1 unit	113	0.001
60	60	C	3VL9 300-3MS01	1	1 unit	113	2.140
110-127	110-127	C	3VL9 300-3MN01	1	1 unit	113	2.140
220-250	220-250	C	3VL9 300-3MQ01	1	1 unit	113	2.140

Toggle handle extensions

--



3VL9 .00-3JM01

Max Flex operating mechanisms, complete²⁾

with operating mechanism, lever and Bowden wire,
degree of protection NEMA 1, 3R, 12

Bowden wire length 0.9 m

B

Bowden wire length 1.2 m

3VL9 300-3JM01

1 1 unit 113 0.001

--

¹⁾ For safety lock as an assembly kit for retrofitting see pages 5/41 to 5/45.

²⁾ Solely for use within the scope of UL 489/CSA.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

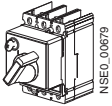
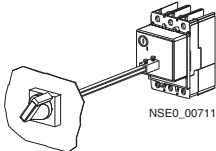
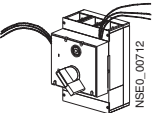
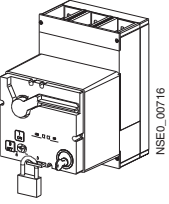
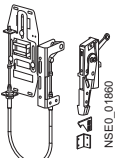
DT	For VL400 UL (JG frame) to VL400X UL (LG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	DT	For VL800 UL (MG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Order No.	Price per PU						Order No.	Price per PU				
						kg							kg
C	3VL9 400-3MJ01		1	1 unit	113	3.910	C	3VL9 600-3MJ01		1	1 unit	113	4.800
C	3VL9 400-3ML01		1	1 unit	113	3.910	C	3VL9 600-3ML01		1	1 unit	113	4.800
C	3VL9 400-3MS01		1	1 unit	113	3.910	C	3VL9 600-3MS01		1	1 unit	113	4.800
C	3VL9 400-3MN01		1	1 unit	113	3.910	C	3VL9 600-3MN01		1	1 unit	113	4.800
C	3VL9 400-3MQ01		1	1 unit	113	3.910	C	3VL9 600-3MQ01		1	1 unit	113	4.800
B	3VL9 400-3HN01		1	1 unit	113	0.100	B	3VL9 600-3HN01		1	1 unit	113	0.140
B	-- 3VL9 400-3JM01		1	1 unit	113	0.001	B	-- 3VL9 600-3JM01		1	1 unit	113	0.001

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL1200 UL (NG frame) to VL1600 UL (PG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.	Price per PU				
Operating mechanisms							
3-pole							
 NSE0_00679 3VL9 .00-3H.01	Front-operated rotary operating mechanisms (UL file: E69455) For direct mounting on the circuit breaker, without leading auxiliary switch, degree of protection IP30 ¹⁾ , <u>black</u>		B	3VL9 800-3HA01	1	1 unit	113 2.831
	EMERGENCY-STOP version Red knob, yellow indicator plate <u>Safety locks for installation by the customer</u> For installation see pages 5/41 to 5/45.		B	3VL9 800-3HC01	1	1 unit	113 2.831
 NSE0_00711 3VL9 .00-3H.06	Door-coupling rotary operating mechanisms, complete Installation in doors and covers (UL file: E69455) Degree of protection IP65, including <u>black</u> knob with masking plate, indicator plate, removable door coupling, 300 mm extension shaft and front-operated rotary operating mechanism for the respective circuit breaker		B	3VL9 800-3HF06	1	1 unit	113 3.257
	EMERGENCY-STOP version, Red knob, yellow indicator plate, without leading auxiliary switch <u>Safety locks for installation by the customer</u> For installation see pages 5/41 to 5/45.		B	3VL9 800-3HG06	1	1 unit	113 3.257
 NSE0_00712 3VL9 .00-3A.11	Leading auxiliary switches for installation in a front-operated rotary operating mechanism or door-coupling rotary operating mechanism (UL file: E69455) Standard or EMERGENCY-STOP version "OFF after ON" Leading auxiliary switches when switching on		B	3VL9 800-3AS11	1	1 unit	113 0.080
	2 changeover contacts with 1.5 m long cables		B	3VL9 800-3AT11	1	1 unit	113 0.130
	"ON after OFF" Leading auxiliary switches when switching off		B	3VL9 800-3AU11	1	1 unit	113 0.080
	2 changeover contacts with 1.5 m long cables		B	3VL9 800-3AW11	1	1 unit	113 0.130
Rotary operating mechanisms with shaft end, without selector switch Without leading auxiliary switch, for auxiliary switches see above			B	3VL9 800-3HE01	1	1 unit	113 2.175
 NSE0_00716 3VL9 .00-3M.01	Motorized operating mechanisms²⁾ (UL file: E69455) Degree of protection IP30, with locking device for 3 padlocks, not suitable for synchronizing						
	AC 50/60 Hz V		V DC				
	--	24	C	3VL9 800-3MJ01	1	1 unit	113 6.800
	42-48	42-48	C	3VL9 800-3ML01	1	1 unit	113 6.800
	60	60	C	3VL9 800-3MS01	1	1 unit	113 6.800
	110-127	110-127	C	3VL9 800-3MN01	1	1 unit	113 6.800
220-250	220-250	C	3VL9 800-3MQ01	1	1 unit	113 6.800	
Toggle handle extensions			B	3VL9 800-3HN01	1	1 unit	113 0.234
 NSE0_01860 3VL9 .00-3JM01	Max Flex operating mechanisms, complete³⁾ with operating mechanism, lever and Bowden wire, degree of protection NEMA 1, 3R, 12 Bowden wire length 0.9 m						
	Bowden wire length 1.2 m		B	3VL9 800-3JM01	1	1 unit	113 0.001

¹⁾ IP40 with additional masking frame mounted on the door cut-out.

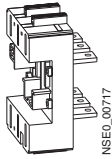
²⁾ For safety lock as an assembly kit for retrofitting see pages 5/41 to 5/45.

³⁾ Solely for use within the scope of UL 489/CSA.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

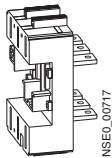
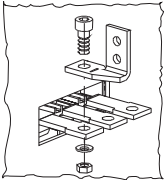
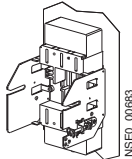
Version	DT	For VL150X UL (CG frame)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.	Price per PU			
Plug-in versions/withdrawable versions (UL file: E69455)						
<i>3-pole</i>						
Plug-in base installation kits Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin						
 3VL9 .00-4PA31						
	Rear-accessible terminals					
	3-pole	B	3VL9 100-4PA31	1	1 unit	113 2.170
	Front-accessible terminals					
	3-pole	B	3VL9 100-4PC31	1	1 unit	113 1.980
	Blade contacts As replacement for converting fixed-mounted circuit breakers into plug-in circuit breakers, including trip pin					
1 set = 6 units 3-pole	B	3VL9 100-4PS31	1	1 unit	113 0.248	
Trip pins and springs As replacement for plug-in circuit breaker	B	3VL9 100-4PF01	1	1 unit	113 0.013	
Auxiliary circuit plug connections for plug-in bases Accessory connections for plug-in circuit breakers (factory-wired connectors) and for plug-in bases (coupling with screw terminal)		1)				
8 terminals	B	3VL9 300-4PJ01	1	1 unit	113 0.134	
Position indicator switches (connected/disconnected position) For plug-in base, maximum 1 changeover contact 2 signal switches possible	B	3VL9 000-4WL01	1	1 unit	113 0.019	

¹⁾ It is recommended to use a maximum of 2 auxiliary circuit plug-in systems per circuit breaker (16 terminals).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL150 UL (DG frame)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.	Price per PU			
Plug-in versions/withdrawable versions (UL file: E69455)						
3-pole						
		Plug-in base installation kits Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin				
3VL9 .00-4PA31						
		Rear-accessible terminals 3-pole	B	3VL9 200-4PA31	1	1 unit 113 2.170
		90° angle connecting adapters For rear connection, 3-pole	B	3VL9 300-4PE31	1	1 unit 113 0.375
3VL9 .00-4PE31						
		Front-accessible terminals 3-pole	B	3VL9 200-4PC31	1	1 unit 113 1.980
		Withdrawable version Same as plug-in base installation kit, with additional				
		Rear-accessible terminals 3-pole	B	3VL9 200-4WA31	1	1 unit 113 3.430
3VL9 .00-4WA31						
		Front-accessible terminals 3-pole	B	3VL9 200-4WC31	1	1 unit 113 3.240
		Blade contacts As replacement for converting fixed-mounted circuit breakers into plug-in/withdrawable circuit breakers, 1 set = 6 units 3-pole	B	3VL9 200-4PS31	1	1 unit 113 0.248
		Trip pins and springs As replacement for plug-in/withdrawable circuit breaker	B	3VL9 300-4PF01	1	1 unit 113 0.013
		Auxiliary circuit plug connections for plug-in bases Accessory connections for plug-in circuit breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw terminal)	B	¹⁾ 3VL9 300-4PJ01	1	1 unit 113 0.134
		Position indicator switches (connected/disconnected position) For plug-in/withdrawable base, 1 changeover contact, max. 2 signal switches possible	B	3VL9 000-4WL01	1	1 unit 113 0.019

¹⁾ It is recommended to use a maximum of 2 auxiliary circuit plug-in systems per circuit breaker (16 terminals).

²⁾ It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per circuit breaker (24 terminals).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

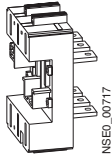
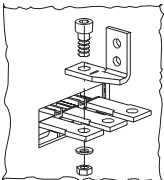
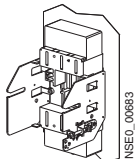
DT	For VL250 UL (FG frame)				DT	For VL400 UL (JG frame)							
	Order No.	Price per PU	PU (UNIT, SET, M)	Weight per PU approx. kg		Order No.	Price per PU	PU (UNIT, SET, M)	Weight per PU approx. kg				
B	3VL9 300-4PA31		1	1 unit	113	2.280	B	3VL9 400-4PA31		1	1 unit	113	5.869
B	3VL9 300-4PE31		1	1 unit	113	0.375		--					
B	3VL9 300-4PC31		1	1 unit	113	2.090	B	3VL9 400-4PC31		1	1 unit	113	5.424
B	3VL9 300-4WA31		1	1 unit	113	3.540	B	3VL9 400-4WA31		1	1 unit	113	8.769
B	3VL9 300-4WC31		1	1 unit	113	3.350	B	3VL9 400-4WC31		1	1 unit	113	8.324
B	3VL9 300-4PS31		1	1 unit	113	0.342	B	3VL9 400-4PS31		1	1 unit	113	0.720
B	3VL9 300-4PF01		1	1 unit	113	0.013	B	3VL9 400-4PF01		1	1 unit	113	0.015
B	¹⁾ 3VL9 300-4PJ01		1	1 unit	113	0.134	B	²⁾ 3VL9 400-4PJ01		1	1 unit	113	0.144
B	3VL9 000-4WL01		1	1 unit	113	0.019	B	3VL9 000-4WL01		1	1 unit	113	0.019

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL400X (LG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Plug-in versions/withdrawable versions (UL file: E69455)							
3-pole							
 NSE0_00717 3VL9 .00-4PA31		Plug-in base installation kits Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin					
		Rear-accessible terminals 3-pole					
	B	3VL9 460-4PA31		1	1 unit	113	8.200
		90° angle connecting adapters For rear connection, 3-pole					
 NSE00581 3VL9 .00-4PE31							
		Front-accessible terminals 3-pole					
	B	3VL9 460-4PC31		1	1 unit	113	7.400
		Withdrawable version Same as plug-in base installation kit, with additional					
		Rear-accessible terminals¹⁾ 3-pole					
	B	3VL9 460-4WA31		1	1 unit	113	11.000
		Front-accessible terminals 3-pole					
	B	3VL9 460-4WC31		1	1 unit	113	10.300
 NSE0_00683 3VL9 .00-4WA31							
		Blade contacts As replacement for converting fixed-mounted circuit breakers into plug-in/withdrawable circuit breakers, 1 set = 6 units 3-pole					
	B	3VL9 460-4PS31		1	1 unit	113	1.260
		Trip pins and springs As replacement for plug-in/withdrawable circuit breaker					
	B	3VL9 460-4PF01		1	1 unit	113	0.018
		Auxiliary circuit plug connections for plug-in bases Accessory connections for plug-in circuit breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw terminal) 8 terminals					
	B	3VL9 460-4PJ01		1	1 unit	113	0.144
		Position indicator switches (connected/disconnected position) For plug-in/withdrawable base, 1 changeover contact, max. 2 signal switches possible					
	B	3VL9 000-4WL01		1	1 unit	113	0.019

¹⁾ With VL800 UL (MG frame) to VL1200 UL (NG frame) as vertical connection.

²⁾ It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per circuit breaker (24 terminals).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

For VL800 UL (MG frame)						For VL1200 UL (NG frame)							
DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
						kg							kg
	--							--					
	--							--					
	--							--					
B	3VL9 600-4WA31		1	1 unit	113	40.104	B	3VL9 700-4WA31		1	1 unit	113	40.608
B	3VL9 600-4WC31		1	1 unit	113	40.716	B	3VL9 700-4WC31		1	1 unit	113	39.996
B	3VL9 600-4PS31		1	1 unit	113	1.500	B	3VL9 800-4PS31		1	1 unit	113	2.000
B	3VL9 600-4PF01		1	1 unit	113	0.025	B	3VL9 800-4PF01		1	1 unit	113	0.030
B	²⁾ 3VL9 600-4PJ01		1	1 unit	113	0.144	B	²⁾ 3VL9 800-4PJ01		1	1 unit	113	0.144
B	3VL9 000-4WL01		1	1 unit	113	0.019	B	3VL9 000-4WL01		1	1 unit	113	0.019

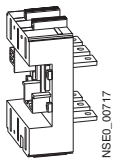
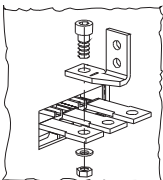
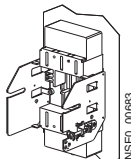
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* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts





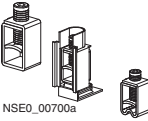

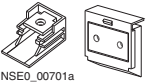



Version	DT	For VL1600 UL (PG frame)	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Order No.	Price per PU			kg
Plug-in versions/withdrawable versions (UL file: E69455)						
3-pole						
 NSE0_00717 3VL9 .00-4PA31		Plug-in base installation kits Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin				
		Rear-accessible terminals 3-pole	--			
 NSE00581 3VL9 .00-4PE31		90° angle connecting adapters For rear connection, 3-pole				
		Front-accessible terminals 3-pole	--			
 NSE0_00683 3VL9 .00-4WA31		Withdrawable version Same as plug-in base installation kit, with additional side panels and racking mechanism				
		Rear-accessible terminals 3-pole	--			
		Front-accessible terminals 3-pole	--			
		Blade contacts As replacement for converting fixed-mounted circuit breakers into plug-in/withdrawable circuit breakers, including trip pin 1 set = 6 units 3-pole	B	3VL9 800-4PS31	1	1 unit
	Trip pins and springs As replacement for plug-in/withdrawable circuit breaker	B	3VL9 800-4PF01	1	1 unit	113 0.030
	Auxiliary circuit plug connections for plug-in bases Accessory connections for plug-in circuit breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw terminal) 8 terminals	B	3VL9 800-4PJ01 1)	1	1 unit	113 0.144
	Position indicator switches (connected/disconnected position) For plug-in/withdrawable base, 1 changeover contact, max. 2 signal switches possible	B	3VL9 000-4WL01	1	1 unit	113 0.019

1) It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per circuit breaker (24 terminals).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL150X UL (CG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	
Connection parts for fixed-mounted circuit breakers								
3-pole								
Rear-mounting terminals								
  NSE0_00723 3VL9 .00-4RA01, 3VL9 .00-4RB01	Short terminal (1 unit)	B	3VL9 100-4RA01		1	1 unit	113 0.126	
	Long terminal (1 unit)	B	3VL9 100-4RB01		1	1 unit	113 0.229	
	Terminal kit (2 short + 1 long) 3-pole	B	3VL9 100-4RC31		1	1 unit	113 0.408	
  NSE0_00724 3VL9 .00-4RK01, 3VL9 .00-4RL01	Short flat connector (1 unit)	B	3VL9 100-4RK01		1	1 unit	113 0.104	
	Long flat connector (1 unit)	B	3VL9 100-4RL01		1	1 unit	113 0.200	
	Flat connector kit (2 short + 1 long) 3-pole	B	3VL9 100-4RM31		1	1 unit	113 0.408	
Box terminals								
 NSE0_00700a 3VL9 ...-4TC.1	Connection for flexible flat copper busbar or cable							
	1 set = 3 units	B	3VL9 120-4TC31		1	1 unit	113 0.084	
Circular conductor terminals¹⁾								
 NSE0_01529 3VL9 ...-4TD.1	Only for cables (Al or Cu) Aluminum terminal (tinned)							
	1 set = 3 units	B	3VL9 130-4TD31		1	1 unit	113 0.041	
Terminals with screw connection								
 NSE0_00701a 3VL9 .00-4TA.1	With insulator (for rear) for use with busbars and cable lugs							
	1 set = 3 units	Metric thread	B	3VL9 100-4TA31		1	1 unit	113 0.055
Connection covers (terminal covers) for circuit breakers								
 NSE0_00681 3VL9 .00-3CA.1	Degree of protection IP30 for main circuit connections							
	1 set = 2 units							
	Extended	3-pole	B	3VL9 300-8CA31		1	1 unit	113 0.204
 NSE0_00730 3VL9 .00-3CB.1	Standard	3-pole	B	3VL9 300-8CB31		1	1 unit	113 0.053
	1 set = 2 units							
Phase barriers for circuit breakers, fixed-mounted, plug-in or withdrawable versions								
 NSE0_00731 3VL9 .00-8CE01	1 set = 2 units							
	B	3VL9 300-8CE01		1	1 unit	113 0.023		

Note:



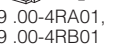


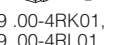














Only rear-accessible terminals with different lengths are allowed to be mounted side by side (e.g. short-long-short or long-short-long).

¹⁾ Circular conductor terminal for VL150X UL (CG frame) suitable for 60 to 150 A.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL150 UL (DG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg			
Connection parts for fixed-mounted circuit breakers										
3-pole										
Rear-mounting terminals										
   NSE0_00723 3VL9 .00-4RA01, 3VL9 .00-4RB01	Short terminal (1 unit)	B	3VL9 200-4RA01		1	1 unit	113	0.126		
	Long terminal (1 unit)	B	3VL9 200-4RB01		1	1 unit	113	0.229		
	Terminal kit (2 short + 1 long) 3-pole	B	3VL9 200-4RC31		1	1 unit	113	0.408		
   NSE0_00724 3VL9 .00-4RK01, 3VL9 .00-4RL01	Short flat connector (1 unit)	B	3VL9 200-4RK01		1	1 unit	113	0.104		
	Long flat connector (1 unit)	B	3VL9 200-4RL01		1	1 unit	113	0.200		
	Flat connector kit (2 short + 1 long) 3-pole	B	3VL9 200-4RM31		1	1 unit	113	0.408		
 NSE0_00725 3VL9 .00-4R..1	Flat connecting bar (1 unit)	--								
	Flat connecting bar 1 set = 3 units, 3-pole	--								
   NSE0_00700a 3VL9 ...-4TC.1	Box terminals Connection for flexible flat copper busbar or cable									
	1 set = 3 units	B	3VL9 220-4TC31		1	1 unit	113	0.084		
 NSE0_01529 3VL9 ...-4TD.1	Circular conductor terminals¹⁾ Only for cables (Al or Cu) <u>Aluminum terminal (tinned)</u>									
	1 set = 3 units	B	3VL9 230-4TD31		1	1 unit	113	0.041		
  NSE0_01542 NSE0_01543 3VL9 ...-4TF.1	Multiple feed-in terminals Only for cables (Al or Cu) double <u>Aluminum terminal (tinned)</u> 3 units									
		--								
  NSE0_00701a 3VL9 .00-4TA.1	Terminals with screw connection With insulator (for rear) for use with busbars and cable lugs									
	1 set = 3 units		Metric thread	B	3VL9 200-4TA31		1	1 unit	113	0.055
	1 set = 3 units		Inch thread	B	3VL9 200-4TB31		1	1 unit	113	0.055
 NSE0_00681 3VL9 .00-3CA.1	Cable lug connection 1 set = 3 units	B	3VL9 220-4TM31		1	1 unit	113	0.001		
	Connection covers (terminal covers) for circuit breakers Degree of protection IP30 for main circuit connections 1 set = 2 units									
  NSE0_00730 3VL9 .00-3CB.1	Extended		3-pole	B	3VL9 300-8CA31		1	1 unit	113	0.204
	Standard		3-pole	B	3VL9 300-8CB31		1	1 unit	113	0.053
  NSE0_00731 3VL9 .00-8CE01	Phase barriers for circuit breakers, fixed-mounted, plug-in or withdrawable versions 1 set = 2 units	B	3VL9 300-8CE01		1	1 unit	113	0.023		

Note:

Only rear-accessible terminals with different lengths are allowed to be mounted side by side (e.g. short-long-short or long-short-long).

¹⁾ Circular conductor terminal for VL150 UL suitable for 60 up to 150 A.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

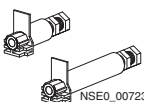
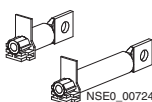

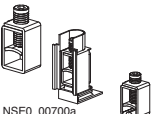

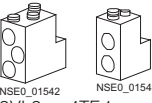
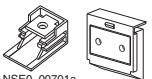



DT	For VL250 UL (FG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	DT	For VL400 UL (JG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
	Order No.	Price per PU						Order No.	Price per PU				
B	3VL9 300-4RA01		1	1 unit	113	0.126	B	3VL9 400-4RA01		1	1 unit	113	0.219
B	3VL9 300-4RB01		1	1 unit	113	0.229	B	3VL9 400-4RB01		1	1 unit	113	0.377
B	3VL9 300-4RC31		1	1 unit	113	0.481	B	3VL9 400-4RC31		1	1 unit	113	0.816
B	3VL9 300-4RK01		1	1 unit	113	0.104	B	3VL9 400-4RK01		1	1 unit	113	0.343
B	3VL9 300-4RL01		1	1 unit	113	0.200	B	3VL9 400-4RL01		1	1 unit	113	1.190
B	3VL9 300-4RM31		1	1 unit	113	0.408	B	3VL9 400-4RM31		1	1 unit	113	0.502
--							--						
--							--						
B	3VL9 335-4TC31		1	1 unit	113	0.084	B	3VL9 460-4TC31		1	1 unit	113	0.423
B	3VL9 335-4TD31		1	1 unit	113	0.159	B	3VL9 475-4TD31		1	1 unit	113	0.041
--							B	3VL9 425-4TF31		1	1 unit	113	0.420
B	3VL9 300-4TA31		1	1 unit	113	0.055	B	3VL9 400-4TA31		1	1 unit	113	0.055
B	3VL9 300-4TB31		1	1 unit	113	0.055	--						
B	3VL9 335-4TM31		1	1 unit	113	0.001	B	3VL9 460-4TM31		1	1 unit	113	0.001
B	3VL9 300-8CA31		1	1 unit	113	0.204	B	3VL9 400-8CA31		1	1 unit	113	0.450
B	3VL9 300-8CB31		1	1 unit	113	0.053	B	3VL9 400-8CB31		1	1 unit	113	0.120
B	3VL9 300-8CE01		1	1 unit	113	0.023	B	3VL9 600-8CE01		1	1 unit	113	0.130

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL400X UL (LG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Connection parts for fixed-mounted circuit breakers							
3-pole							
Rear-mounting terminals							
		Short terminal (1 unit)	--				
		Long terminal (1 unit)	--				
		Terminal kit (2 short + 1 long) 3-pole	--				
3VL9 .00-4RA01, 3VL9 .00-4RB01							
		Short flat connector (1 unit)	--				
		Long flat connector (1 unit)	--				
		Flat connector kit (2 short + 1 long) 3-pole	--				
3VL9 .00-4RK01, 3VL9 .00-4RL01							
		Flat connecting bar (1 unit)	B	3VL9 460-4RG01	1	1 unit	113 0.358
		Flat connecting bar 1 set = 3 units, 3-pole	B	3VL9 460-4RH31	1	1 unit	113 1.075
3VL9 .00-4R..1							
Box terminals							
<u>Connection for flexible flat copper busbar or cable</u>							
		1 set = 3 units	--				
NSE0_00700a 3VL9 .00-4TC.1							
Circular conductor terminals							
<u>Only for cables (Al or Cu)</u>							
<u>Aluminum terminal (tinned)</u>							
		1 set = 3 units	B	3VL9 475-4TD31	1	1 unit	113 0.041
NSE0_01529 3VL9 .00-4TD.1							
Multiple feed-in terminals							
<u>Only for cables (Al or Cu)</u>							
<u>Aluminum terminals (tinned)</u>							
		1 set = 3 units					
		double	--				
		• Terminal on incoming side ¹⁾	B	3VL9 460-4TX31	1	1 unit	113 0.420
NSE0_01542 NSE0_01543 3VL9 ...-4TF.1		• Terminal on outgoing side ¹⁾	B	3VL9 460-4TY31	1	1 unit	113 0.420
		triple	--				
		quadruple	--				
Terminals with screw connection							
<u>With insulator (for rear) for use with busbars and cable lugs</u>							
		1 set = 3 units					
		Metric thread	B	3VL9 460-4TA31	1	1 unit	113 0.055
3VL9 .00-4TA.1		1 set = 3 units	B	3VL9 460-4TB31	1	1 unit	113 0.055
		Inch thread					
Connection covers (terminal covers) for circuit breakers							
<u>Degree of protection IP30 for main circuit connections</u>							
		1 set = 2 units					
NSE0_00681 3VL9 .00-3CA.1							
		Extended					
		3-pole	B	3VL9 400-8CA31	1	1 unit	113 0.450
NSE0_00730 3VL9 .00-3CB.1		Standard	B	3VL9 400-8CB31	1	1 unit	113 0.120
		3-pole					
Phase barriers for circuit breakers, fixed-mounting, plug-in or withdrawable versions²⁾							
		1 set = 2 units	B	3VL9 600-8CE01	1	1 unit	113 0.130
NSE0_00731 3VL9 .00-8CE01							

Note:

Only rear-accessible terminals with different lengths are allowed to be mounted side by side (e.g. short-long-short or long-short-long).

¹⁾ Extended terminal cover is included in the scope of supply.

²⁾ Plug-in version: Not for VL1200 UL (NG frame); withdrawable version: Not for VL800 UL (MG frame) and VL1200 UL (NG frame).

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts



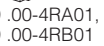


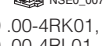



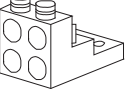
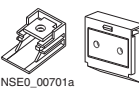
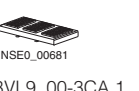







For VL800 UL (MG frame)						For VL1200 UL (NG frame)							
DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
	--							--					
	--							--					
	--							--					
	--							--					
	--							--					
B	3VL9 600-4RG01		1	1 unit	113	1.604	B	3VL9 700-4RG01		1	1 unit	113	1.604
B	3VL9 600-4RH31		1	1 unit	113	4.812	B	3VL9 700-4RH31		1	1 unit	113	4.812
	--							--					
	--							--					
	--							--					
B	3VL9 675-4TF31		1	1 unit	113	0.420		--					
	--							--					
	--							--					
B	3VL9 650-4TG31		1	1 unit	113	0.918	B	3VL9 775-4TG31		1	1 unit	113	0.918
	--						B	3VL9 750-4TH31		1	1 unit	113	0.918
B	3VL9 600-4TA31		1	1 unit	113	0.055	B	3VL9 800-4TA31		1	1 unit	113	0.055
B	3VL9 600-4TB31		1	1 unit	113	0.055	B	3VL9 800-4TB31		1	1 unit	113	0.055
B	3VL9 600-8CA31		1	1 unit	113	0.450	B	3VL9 800-8CA31		1	1 unit	113	1.060
B	3VL9 600-8CB31		1	1 unit	113	0.120	B	3VL9 800-8CB31		1	1 unit	113	0.360
B	3VL9 600-8CE01		1	1 unit	113	0.130	B	3VL9 800-8CE01		1	1 unit	113	0.130

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

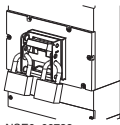
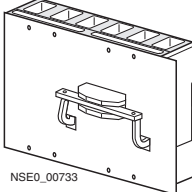
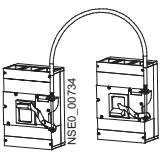
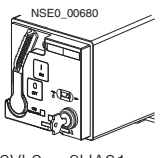
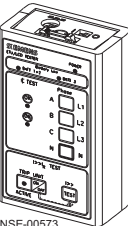
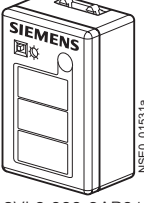
Version	DT	For VL1600 UL (PG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Connection parts for fixed-mounted circuit breakers							
3-pole							
Rear-mounting terminals							
							--
							--
							--
3VL9 .00-4RA01, 3VL9 .00-4RB01							
							--
							--
							--
3VL9 .00-4RK01, 3VL9 .00-4RL01							
							--
3VL9 .00-4R..1							--
Box terminals							
Connection for flexible flat copper busbar or cable							
							--
3VL9 ...-4TC.1							
Circular conductor terminals							
Only for cables (Al or Cu)							
<u>Aluminum terminal (tinned)</u>							
							--
3VL9 ...-4TD.1							
Multiple feed-in terminals							
Only for cables (Al or Cu)							
<u>Aluminum terminals (tinned)</u>							
							
3VL9 ...-4T..1							
							
3VL9 ...-4T..1							
							
3VL9 .00-4TA.1							
							
3VL9 .00-4TB.1							
Connection covers (terminal covers) for circuit breakers							
Degree of protection IP30 for main circuit connections							
							
3VL9 .00-3CA.1							
							
3VL9 .00-3CB.1							
							
3VL9 .00-8CE01							
Phase barriers for fixed-mounted circuit breakers							
							
3VL9 .00-8CE01							
Mounting bases							
Operation of the circuit breaker within the scope of UL 489/CSA is permitted only in conjunction with the mounting base							
							
3VL9 .00-4TU31							
							
3VL9 .00-4TV31							

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL150X UL (CG frame) and VL150 UL (DG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Interlocks							
3-pole							
Locking devices for toggle levers For locking the circuit breaker in the "OFF" position. Up to 3 padlocks with Ø 5–8 mm can be used. Removable (padlocks not included)							
 NSE0_00732 3VL9_00-3HL01	B	3VL9 300-3HL01			1 unit	113	0.052
Rear interlocking modules For the mechanical interlocking of two adjacent circuit breakers. The circuit breakers must be of the same installation type and size. (mounting plate not included in scope of supply) Fixed-mounted circuit breakers							
 NSE0_00733 3VL9_00-8L01	B	3VL9 300-8LC01		1	1 unit	113	0.215
Interlocking modules for Bowden wire interlocking¹⁾ For the mechanical interlocking of two circuit breakers. Interlocking module for one circuit breaker Combinations of next size up/down possible (see Order No.)							
 NSE0_00734 3VL9_00-8LA01	B	3VL9 300-8LA01		1	1 unit	113	0.174
Bowden wires for Bowden wire interlocking ¹⁾							
	B	3VL9 000-8LH11		1	1 unit	113	0.206
	B	3VL9 000-8LH21		1	1 unit	113	0.298
	B	3VL9 000-8LH31		1	1 unit	113	0.412
Sets of fixing screws (metric thread) Including the screws, washers and nuts required to secure a circuit breaker to a prepared surface Set with 4 screws							
 NSE0_00680 3VL9_...-8HA01	A	3VL9 300-8SA40		1	1 unit	113	0.030
Safety lock assembly kits Key can be removed with the circuit breaker in the "OFF" position <u>For front-operated rotary operating mechanisms</u> Lock types Ronis							
	B	3VL9 715-8HA01		1	1 unit	113	0.309
	B	3VL9 321-8HA01		1	1 unit	113	0.053
Transparent covers for trip units, sealable To prevent access by unqualified personnel and unauthorized changes to settings (seal not included) Solid-state overcurrent trip unit							
 NSE-00573 3VL9 000-8AK01	B	3VL9 700-8BL01		1	1 unit	113	0.002
	B	3VL9 300-8BM01		1	1 unit	113	0.015
Function testers for electronic trip units For ETU/LCD ETU trip unit							
	B	3VL9 000-8AK01		1	1 unit	113	0.419
Universal power supplies for function testers (AC 50/60 Hz 120–240 V) Adapter unit required if the battery power for the function tester is not used							
	B	3VL9 000-8AL01		1	1 unit	113	0.368
Battery power supplies for activating/parameterizing the LCD ETU trip unit (two 9 V blocks are required in addition)							
 NSE0_01531a 3VL9 000-8AP01	B	3VL9 000-8AP01		1	1 unit	113	0.605

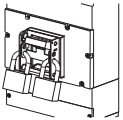
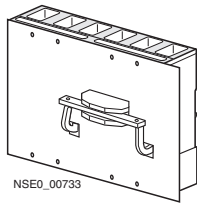
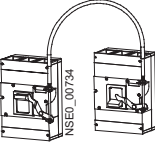
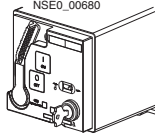
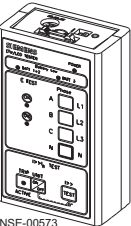
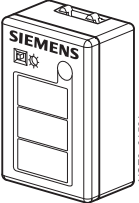
1) Two interlocking modules and one Bowden wire are required. Cannot be used in conjunction with motorized operating mechanism.

2) Also suitable for VL150X UL (CG frame).

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL250 UL (FG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Interlocks							
<i>3-pole</i>							
 NSE0_00732 3VL9_00-3HL01		Locking devices for toggle levers For locking the circuit breaker in the "OFF" position. Up to 3 padlocks with Ø 5–8 mm can be used. Removable (padlocks not included)	B	3VL9 300-3HL01	1	1 unit	113 0.052
 NSE0_00733 3VL9_00-8L01		Rear interlocking modules For the mechanical interlocking of two adjacent circuit breakers. The circuit breakers must be of the same installation type and size. (mounting plate not included in scope of supply) Fixed-mounted circuit breakers	B	3VL9 300-8LC01	1	1 unit	113 0.215
		Interlocking modules for Bowden wire interlocking¹⁾ For the mechanical interlocking of two circuit breakers. Interlocking module for one circuit breaker	B	3VL9 300-8LA01	1	1 unit	113 0.174
		Bowden wires for Bowden wire interlocking ¹⁾ Bowden wire length 0.5 m	B	3VL9 000-8LH11	1	1 unit	113 0.206
		Bowden wire length 1.0 m	B	3VL9 000-8LH21	1	1 unit	113 0.298
		Bowden wire length 1.5 m	B	3VL9 000-8LH31	1	1 unit	113 0.412
 NSE0_00734 3VL9_00-8LA01		Safety lock assembly kits Key can be removed with the circuit breaker in the "OFF" position <u>For front-operated rotary operating mechanisms</u> Lock types Ronis	B	3VL9 715-8HA01	1	1 unit	113 0.309
 NSE0_00680 3VL9 ...-8HA01		<u>For motorized operating mechanism with spring energy store</u> Lock types Ronis Filli Giussani	B	3VL9 321-8HA01	1	1 unit	113 0.053
		Sets of fixing screws (metric thread) Including the screws, washers and nuts required to secure a circuit breaker to a prepared surface Set with 4 screws	A	3VL9 300-8SA40	1	1 unit	113 0.030
 NSE-00573 3VL9 000-8AK01		Transparent covers for trip units, sealable To prevent access by unqualified personnel and unauthorized changes to settings (seal not included) Solid-state overcurrent trip unit	B	3VL9 700-8BL01	1	1 unit	113 0.002
		Thermal-magnetic	B	3VL9 300-8BM01	1	1 unit	113 0.015
		Function testers for electronic trip units For ETU/LCD ETU trip unit	B	3VL9 000-8AK01	1	1 unit	113 0.419
		Universal power supplies for function testers (AC 50/60 Hz 120–240 V) Adapter unit required if the battery power for the function tester is not used	B	3VL9 000-8AL01	1	1 unit	113 0.368
 NSE0_01531a 3VL9 000-8AP01		Battery power supplies for activating/parameterizing the LCD ETU trip unit (two 9 V blocks are required in addition)	B	3VL9 000-8AP01	1	1 unit	113 0.605

¹⁾ Two interlocking modules and one Bowden wire are required. Cannot be used in conjunction with motorized operating mechanism.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

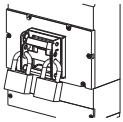
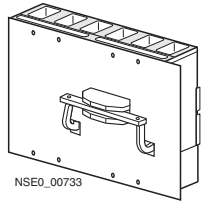
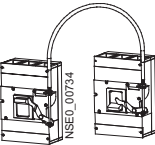
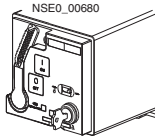
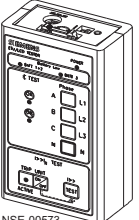
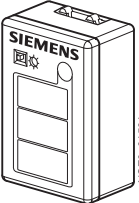
DT	For VL400 UL (JG frame)					DT	For VL400X UL (LG frame)						
	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG		Weight per PU approx.	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					kg								kg
B	3VL9 400-3HL01		1	1 unit	113	0.122	B	3VL9 400-3HL01		1	1 unit	113	0.122
B	3VL9 400-8LC01		1	1 unit	113	0.386	B	3VL9 400-8LC01		1	1 unit	113	0.386
Combinations of next size up/down possible (see Order No.)													
B	3VL9 400-8LA01		1	1 unit	113	0.196	B	3VL9 400-8LA01		1	1 unit	113	0.196
B	--		1	1 unit	113	0.298	B	--		1	1 unit	113	0.298
B	3VL9 000-8LH21		1	1 unit	113	0.412	B	3VL9 000-8LH21		1	1 unit	113	0.412
B	3VL9 000-8LH31		1	1 unit	113	0.412	B	3VL9 000-8LH31		1	1 unit	113	0.412
B	3VL9 715-8HA01		1	1 unit	113	0.309	B	3VL9 715-8HA01		1	1 unit	113	0.309
B	3VL9 715-8HA01		1	1 unit	113	0.309	B	3VL9 715-8HA01		1	1 unit	113	0.309
B	--						B	--					
A	3VL9 500-8SA40		1	1 unit	113	0.090	A	3VL9 500-8SA40		1	1 unit	113	0.090
B	3VL9 700-8BL01		1	1 unit	113	0.002	B	3VL9 700-8BL01		1	1 unit	113	0.002
B	3VL9 400-8BM01		1	1 unit	113	0.017	B	3VL9 400-8BM01		1	1 unit	113	0.017
B	3VL9 000-8AK01		1	1 unit	113	0.419	B	3VL9 000-8AK01		1	1 unit	113	0.419
B	3VL9 000-8AL01		1	1 unit	113	0.368	B	3VL9 000-8AL01		1	1 unit	113	0.368
B	3VL9 000-8AP01		1	1 unit	113	0.605	B	3VL9 000-8AP01		1	1 unit	113	0.605

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

Version	DT	For VL800 UL (MG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Interlocks							
3-pole							
 NSE0_00732 3VL9 .00-3HL01		Locking devices for toggle levers For locking the circuit breaker in the "OFF" position. Up to 3 padlocks with Ø 5–8 mm can be used. Removable (padlocks not included)	B	3VL9 600-3HL01	1	1 unit	113 0.130
 NSE0_00733 3VL9 .00-8L.01		Rear interlocking modules For the mechanical interlocking of two adjacent circuit breakers. The circuit breakers must be of the same installation type and size. (mounting plate not included in scope of supply) Fixed-mounted circuit breakers	B	3VL9 600-8LC01	1	1 unit	113 1.499
		Interlocking modules for Bowden wire interlocking¹⁾ For the mechanical interlocking of two circuit breakers. Interlocking module for one circuit breaker	B	Combinations of next size up/down possible (see Order No.) 3VL9 600-8LA01	1	1 unit	113 0.244
 NSE0_00734 3VL9 .00-8LA01		Bowden wires for Bowden wire interlocking ¹⁾ Bowden wire length 0.5 m Bowden wire length 1.0 m Bowden wire length 1.5 m	B B B	-- 3VL9 000-8LH21 3VL9 000-8LH31	1 1	1 unit 1 unit	113 0.298 113 0.412
 NSE0_00680 3VL98HA01		Safety lock assembly kits Key can be removed with the circuit breaker in the "OFF" position For front-operated rotary operating mechanisms Lock types Ronis For motorized operating mechanism with spring energy store Lock types Ronis Filli Giussani	B B	3VL9 715-8HA01 3VL9 715-8HA01 --	1 1	1 unit 1 unit	113 0.309 113 0.309
		Sets of fixing screws (metric thread) Including the screws, washers and nuts required to secure a circuit breaker to a prepared surface Set with 4 screws	A	3VL9 600-8SA40	1	1 unit	113 0.090
 NSE-00573 3VL9 000-8AK01		Transparent covers for trip units, sealable To prevent access by unqualified personnel and unauthorized changes to settings (seal not included) Solid-state overcurrent trip unit Thermal-magnetic	B	3VL9 700-8BL01 --	1	1 unit	113 0.002
		Function testers for electronic trip units For ETU/LCD ETU trip unit	B	3VL9 000-8AK01	1	1 unit	113 0.419
		Universal power supplies for function testers (AC 50/60 Hz 120–240 V) Adapter unit required if the battery power for the function tester is not used	B	3VL9 000-8AL01	1	1 unit	113 0.368
 NSE0_01531a 3VL9 000-8AP01		Battery power supplies For activating/parameterizing the LCD ETU trip unit (two 9 V blocks are required in addition)	B	3VL9 000-8AP01	1	1 unit	113 0.605

¹⁾ Two interlocking modules and one Bowden wire are required.
Cannot be used in conjunction with motorized operating mechanism.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

DT	For VL1200 UL (NG frame)					DT	For VL1600 UL (PG frame)						
	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG		Weight per PU approx.	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					kg								kg
B	3VL9 800-3HL01		1	1 unit	113	0.238	B	3VL9 800-3HL01		1	1 unit	113	0.238
B	3VL9 800-8LC01		1	1 unit	113	2.935	B	3VL9 800-8LC01		1	1 unit	113	2.935
B	Combinations of next size up/down possible (see Order No.) 3VL9 800-8LA01		1	1 unit	113	0.283	B	3VL9 800-8LA01		1	1 unit	113	0.283
B	-- 3VL9 000-8LH31		1	1 unit	113	0.412	B	-- 3VL9 000-8LH31		1	1 unit	113	0.412
B	3VL9 715-8HA01		1	1 unit	113	0.309	B	3VL9 715-8HA01		1	1 unit	113	0.309
B	3VL9 715-8HA01 --		1	1 unit	113	0.309	B	3VL9 715-8HA01 --		1	1 unit	113	0.309
A	3VL9 800-8SA40		1	1 unit	113	0.090	A	3VL9 800-8SA40		1	1 unit	113	0.090
B	3VL9 700-8BL01 --		1	1 unit	113	0.002	B	3VL9 700-8BL01 --		1	1 unit	113	0.002
B	3VL9 000-8AK01		1	1 unit	113	0.419	B	3VL9 000-8AK01		1	1 unit	113	0.419
B	3VL9 000-8AL01		1	1 unit	113	0.368	B	3VL9 000-8AL01		1	1 unit	113	0.368
B	3VL9 000-8AP01		1	1 unit	113	0.605	B	3VL9 000-8AP01		1	1 unit	113	0.605

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

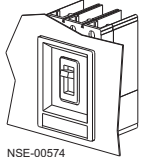
Accessories and spare parts

Version	DT	For VL150X UL (CG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.	Price per PU				

Further accessories

3-pole

Masking frames (cover frames) For door cut-outs



NSE-00574
Masking frame A

A IP40 Fixed-mounted or plug-in circuit breaker

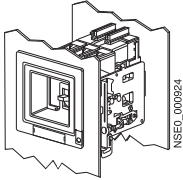
B **3VL9 300-8BC01** 1 1 unit 113 0.038



NSE-00575
Masking frame B

B¹⁾ IP40 Fixed-mounted, plug-in or withdrawable circuit breaker with front-operated rotary operating mechanism or motorized operating mechanism

B **3VL9 300-8BG01** 1 1 unit 113 0.099



NSE0_000824
Masking frame C

C IP20 Withdrawable circuit breaker with toggle lever actuation. Assembly kit contains masking frame and extended escutcheon (cannot be used together with a motorized operating mechanism/rotary operating mechanism)

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Version	DT	For VL800 UL (MG frame)		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
		Order No.	Price per PU				

Further accessories

3-pole

Masking frames (cover frames) For door cut-outs

A IP40 Fixed-mounted or plug-in circuit breaker

B **3VL9 600-8BC01** 1 1 unit 113 0.055

B¹⁾ IP40 Fixed-mounted, plug-in or withdrawable circuit breaker with front-operated rotary operating mechanism or motorized operating mechanism

B **3VL9 600-8BG01** 1 1 unit 113 0.177

C IP20 Withdrawable circuit breaker with toggle lever actuation. Assembly kit contains masking frame and extended escutcheon (cannot be used together with a motorized operating mechanism/rotary operating mechanism)

B **3VL9 600-8BH01** 1 1 unit 113 0.575

¹⁾ For withdrawable version IP20.

For type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
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Accessories for communication

3-pole

Data transmission through COM10

VL150 UL (DG frame) to VL1600 UL (PG frame)

COM10 (PROFIBUS module for SENTRON 3VL UL)

Module for connecting the SENTRON 3VL UL to the PROFIBUS DP, including switching function and Zone Selective Interlocking functionality, including connection cable to LCD ETU.

B **3VL9 000-8AR01** 1 1 unit 113 1.038

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Accessories and spare parts

For VL150 UL (DG frame) and VL250 UL (FG frame)						For VL400 UL (JG frame) and VL400X UL (LG frame)							
DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
B	3VL9 300-8BC01		1	1 unit	113	0.038	B	3VL9 400-8BC01		1	1 unit	113	0.017
B	3VL9 300-8BG01		1	1 unit	113	0.099	B	3VL9 400-8BG01		1	1 unit	113	0.017
B	3VL9 300-8BH01		1	1 unit	113	0.267	B	3VL9 400-8BH01		1	1 unit	113	0.017

For VL1200 UL (NG frame)						For VL1600 UL (PG frame)							
DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
B	3VL9 800-8BC01		1	1 unit	113	0.043	B	3VL9 800-8BC01		1	1 unit	113	0.043
B	3VL9 800-8BG01		1	1 unit	113	0.192	B	3VL9 800-8BG01		1	1 unit	113	0.192
B	3VL9 800-8BH01		1	1 unit	113	0.531	B	3VL9 800-8BH01		1	1 unit	113	0.531

* You can order this quantity or a multiple thereof.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Design

- Rated current range from 20 A to 1600 A
- Different switching capacity for each size

N	Standard (35 kA)
H	High (65 kA)
L	Very high (100 kA)

- No derating or loss of performance up to 40 °C
- Solid-state overcurrent trip units from size 150 A (VL150 UL, DG frame), particularly for time-based discrimination and ground-fault protection
- 2 families of internal accessories
- Full range of external accessories e.g. terminals for aluminum cable.

All circuit breakers are supplied with integrated electronic trip units. The SENTRON VL150X UL (CG frame) to VL1600 UL (PG frame) circuit breakers are available with different connection variants (see "Main Circuit Connections, Basic Equipment and Options", page 5/52). Auxiliary switches/alarm switches or auxiliary trip units can be easily adapted by the customer, or they are also available ready installed if required.

The breaking capacity is shown on the front side of every circuit breaker.

- Standard switching capacity:
 $I_{cu} = 35 \text{ kA}$ at AC 50/60 Hz 480 V
- High switching capacity:
 $I_{cu} = 65 \text{ kA}$ at AC 50/60 Hz 480 V
- Very high switching capacity:
 $I_{cu} = 100 \text{ kA}$ at AC 50/60 Hz 480 V

Standards and specifications

SENTRON 3VL UL circuit breakers comply with:

UL 489,
CSA (CSA – C22.2),
IEC/EN 60947-2,
isolating features according to IEC 60947-2, EN 60947-2,
NOM (NMX-J-266-ANCE-2002) on request.

Please contact Siemens for details of other standards.

The SENTRON 3VL UL circuit breakers also comply with requirements for "disconnecter units with features for stopping and switching off in an emergency" (EMERGENCY-STOP switches) in conjunction with lockable rotary operating mechanisms (red-yellow) and terminal covers.

Please contact Siemens for details of other standards.



Connections

The following connection types are available for the SENTRON 3VL circuit breakers approved according to UL 489:

- Box terminal, suitable for stranded conductors
- Screw terminals for flat connection
- Round cable/multiple feed-in terminal for Al/Cu cable
- Cable lug connection

The incoming and outgoing terminals for the circuit breaker can be freely selected. The electrical specifications remain the same.

Bare conductors at the top connections must be insulated in the arc quenching space that is necessary above the arc chutes.

For the SENTRON VL150X UL (CG frame) to VL1600 UL (PG frame) circuit breakers, the connections for the internal accessories (auxiliary trip units, auxiliary switches and alarm switches) are supplied with terminal screws.

The auxiliary trip units (shunt trip units and undervoltage releases), auxiliary switches and alarm switches for all SENTRON 3VL circuit breakers can be connected easily and directly.

The motorized operating mechanisms with stored-energy feature are always equipped with terminals. The leading auxiliary switches for the rotary operating mechanisms are always supplied with connecting cables.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

SENTRON VL150X UL (CG frame) to VL1600 UL (PG frame) circuit breakers

The main components of the SENTRON 3VL UL circuit breakers are the three conducting paths with the incoming and outgoing terminals. The fixed and moving contacts are designed in such a way that the contacts are magnetically repelled if there is a short-circuit. In conjunction with the arcing chambers, a dynamic impedance is created that causes current limiting due to a reduction in the damaging effects of I^2t and I_p energy that arises during short-circuits.

The circuit breaker is trip-free.

To the right and left of the operating mechanism, the double-insulated accessory sub-sections are situated for the auxiliary trip units and auxiliary switches.

The trip units for the SENTRON VL150X UL (CG frame) to VL1600 UL (PG frame) have the following features:

- The trip units are available in thermal-magnetic and electronic¹⁾ versions.
- The thermal-magnetic trip units have permanently set overload releases and adjustable²⁾ short-circuit releases.

As is the case for all versions of the SENTRON 3VL UL circuit breakers with electronic trip units, the current transformers are in the same enclosure as the trip units. They send a signal which is proportional to the load current to the electronic overcurrent tripping unit.

All SENTRON 3VL UL circuit breakers with electronic trip units measure the actual r.m.s. current. This type of measurement is the most accurate method. Currents in today's electrical distribution systems with many harmonics are evaluated reliably.

Electronic trip unit systems

The trip units are delivered complete with the factory-installed contact unit. The incoming and outgoing terminals of the circuit breaker can only be freely selected with complete circuit breakers.

1. Electronic trip unit for the SENTRON VL150X UL (DG frame) to VL1600 UL (PG frame) thermal-magnetic circuit breakers

The overcurrent and short-circuit releases function with bimetallic and magnetic trip units. They are available with permanently set overload releases and adjustable short-circuit releases.

The circuit breakers for starter combination applications are usually combined with a motor contactor and a suitable overload relay.

¹⁾ VL150X UL (CG frame) only in thermal-magnetic version.

²⁾ VL150X UL (CG frame) only with permanently set short-circuit release.

The non-automatic air circuit breakers have an integrated short-circuit self-protection system eliminating the need for back-up fuses. Non-automatic air circuit breakers have no overload protection.

2. Electronic trip unit for the SENTRON VL150 UL (DG frame) to VL1600 UL (PG frame) circuit breakers electronic, ETU

The electronic overcurrent trip unit system consists of:

- 3 current transformers
- Evaluation electronics with microprocessor
- Internal power supply, no external auxiliary voltage necessary
- Tripping solenoid.

For the SENTRON VL150 UL (DG frame) and VL250 (FG frame) circuit breakers, the tripping solenoid is installed in the left accessory sub-section.

The protection functions of the solid-state overcurrent trip units are maintained without additional auxiliary voltage. The electronic trip units are supplied with energy through circuit breaker-internal current transformers.

The solid-state overcurrent trip unit has to be activated for parameterizing. This requires a load current of at least 20 % of the respective rated current I_n of the circuit breaker. If this load current is not available, the necessary auxiliary power can be fed in through a 3VL9 000-8AP01 battery power supply or through the 3VL9 000-8AK01 function tester. For communication-capable circuit breakers the trip unit is supplied with energy through COM10.

At the output of the electronic overcurrent trip unit module there is a tripping solenoid which trips in the case of overload or short-circuit.

Abbreviations (functions)		
L	= Long Time Delay	= Overload protection
S	= Short Time Delay	= Short-circuit protection (short-time delayed)
I	= Instantaneous	= Short-circuit protection (instantaneous)
N	= Neutral Protection	= Neutral conductor protection
G	= Ground Fault	= Ground-fault protection

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Electronic trip unit VL150 UL (DG frame) to VL1600 UL (PG frame) – functional overview

Order No. supplement	Trip unit/model	System protection	Starter protection	Generator protection	Function	Setting options				
						L	S ¹⁾		I ¹⁾	G
						Overload protection $I_r = \times I_n$	Short-circuit protection (short-time delayed) $I_{sd} = \times I_r$ t_{sd} [s]		Short-circuit protection (instantaneous) $I_i = \times I_n$	Ground-fault protection $I_g = \times I_n$
KJ	M	--	✓	--	I	--	--	--	3-6	--
KK	M	--	✓	--	I	--	--	--	4-10	--
KL	M	--	✓	--	I	--	--	--	7-16	--
KN	525 (corresponds to TM) ²⁾	✓	--	--	LI	--	--	--	5-10	--
GB	545 (corresponds to ETU10)	✓	--	--	LI	0.4-1	--	--	1.25-11	--
GD	545 (corresponds to ETU12)	✓	--	--	LIG	0.4-1	--	--	1.25-11	1
GE	545 (corresponds to ETU20)	✓	--	✓	LSI	0.4-1	1.5-10	0-0.5	11	--
GH	545 (corresponds to ETU22)	✓	--	✓	LSIG	0.4-1	1.5-10	0-0.5	11	1
JH	576 (corresponds to LCD ETU 40)	✓	--	--	LI, LSI	0.4-1	1.25-10	0-0.5	1.25-11	--
JM	576 (corresponds to LCD ETU 42)	✓	--	--	LSIG	0.4-1	1.25-10	0-0.5	1.25-11	0.4-1 ³⁾

Order No. supplement	Trip unit/model	Thermal image	Phase failure	Communication-capable	Ground-fault protection	Number of poles	I^2t (ON/OFF)	Trip class (t_c)	Time-lag class (t_H)	Thermo-magnetic trip unit	Magnetic trip unit	Solid-state trip unit	LCD display
KJ	M	--	--	--	--	3	--	--	--	--	✓	--	--
KK	M	--	--	--	--	3	--	--	--	--	✓	--	--
KL	M	--	--	--	--	3	--	--	--	--	✓	--	--
KN	525 (corresponds to TM) ²⁾	✓	--	--	--	3	--	--	--	✓	--	--	--
GB	545 (corresponds to ETU10)	✓	--	--	--	3	--	--	2.5-30	--	--	✓	--
GD	545 (corresponds to ETU12)	✓	--	--	①	3	✓	--	2.5-30	--	--	✓	--
GE	545 (corresponds to ETU20)	✓	--	--	--	3	✓	--	--	--	--	✓	--
GH	545 (corresponds to ETU22)	✓	--	--	①	3	✓	--	--	--	--	✓	--
JH	576 (corresponds to LCD ETU 40)	✓	--	✓	--	3	✓	--	2.5-30	--	--	✓	✓
JM	576 (corresponds to LCD ETU 42)	✓	--	✓	①/②	3	✓	--	2.5-30	--	--	✓	✓

Ground-fault protection

① Vectorial summation current formation (4-conductor system)

② Direct detection of ground-fault current in the neutral point of the transformer

1) Size dependent.

2) TM up to $I_n = 1600$ A.

3) t_g 0.1-0.5 s.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Internal accessories (auxiliary switches, undervoltage releases, shunt trip units)

The SENTRON 3VL UL circuit breakers can be supplied with all the internal accessories (e.g. auxiliary switches, undervoltage releases or shunt trip units). The available versions can be found in the tables with the Order No. supplements.

Fixed-mounted, plug-in or withdrawable version

The fixed-mounted circuit breaker is the basic version. This can be converted very easily into a plug-in or withdrawable version with the aid of the appropriate assembly kit. This assembly kit contains blade contacts, a locking pin and terminal covers for the plug-in version. The assembly kit for the withdrawable version also contains side covers and a moving mechanism. Even with the masking frame mounted, it is still possible to move using the handle with the door closed.

Operating mechanisms

The basic versions of the SENTRON 3VL UL circuit breakers are equipped with a toggle lever as an operating mechanism which is also used as a switch position indicator. In addition to "ON" and "OFF", "Tripped" is also indicated.

The toggle lever assumes the "tripped" position when the internal tripping mechanism is activated by an overcurrent tripping, e.g. an overload or short-circuit. The activation of an undervoltage release or shunt trip unit also causes the toggle lever to assume the "tripped" position. The toggle lever must be put into the "OFF/RESET" position before the circuit breakers can be reclosed. It will then be possible to reset the internal tripping mechanism and reclose the main contacts on the circuit breaker ([see image](#)).

A toggle handle extension is supplied with the SENTRON VL 1200 UL (NG frame) and VL1600 UL (PG frame) circuit breakers. This accessory must be ordered separately for SENTRON VL400 UL (JG frame) to VL800 UL (MG frame) circuit breakers, if required.

Front-operated rotary operating mechanisms

These operating mechanisms have been designed for direct mounting to the circuit breaker and change the toggle lever movement from a linear to a rotary motion.

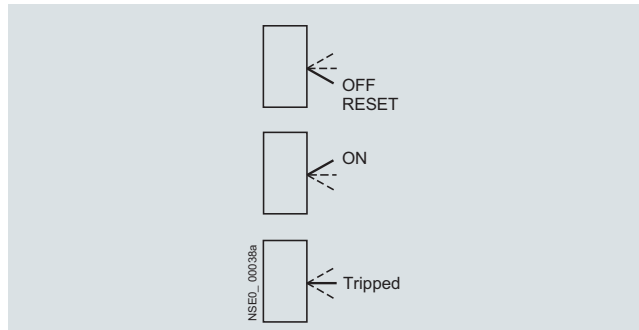
A leading voltage can be applied to the undervoltage release of a circuit breaker with leading auxiliary switches which makes the circuit breaker ready-to-close.

Door-coupling rotary operating mechanisms (complete operating mechanisms)

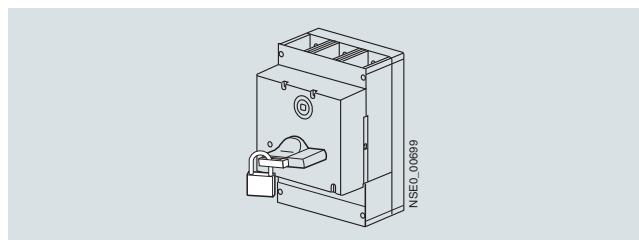
Door-coupling rotary operating mechanisms and removable covers are available for circuit breakers which are installed into control cabinets and distribution boards. These are supplied as complete assembly kits, including an articulated-shaft mechanism.

With regard to the switch position indication and the "RESET" position, the same applies to the rotary operating mechanisms as to the toggle lever. The position of the operator lever (knob) indicates the status.

This means that all SENTRON 3VL UL circuit breakers which have these rotary operating mechanisms as well as the corresponding terminal covers can be used as main control switches.



Toggle lever operating mechanism positions



Rotary operating mechanism secured with a padlock

Motorized operating mechanisms

The SENTRON VL150X UL (CG frame) to VL1600 UL (PG frame) circuit breakers can be equipped with motorized operating mechanisms for remote opening and closing during operation.

The motorized operating mechanisms for SENTRON VL150X UL (CG frame) to VL800 UL (MG frame) circuit breakers have a spring energy store (for synchronization) with a maximum ON period of $t_E \leq 100$ ms.

For SENTRON VL1200 UL (NG frame) and VL1600 UL (PG frame) circuit breakers, there are motorized operating mechanisms without a spring energy store for remote-controlled ON and OFF switching.

All motorized operating mechanisms are always supplied with a locking device for padlocks. Optional safety locks are also available for motorized operating mechanisms with spring energy store.

These locking devices can be used to block the operating mechanism electrically and mechanically. All remote-controlled operating mechanisms are equipped with a manual operation option for maintenance purposes.

The motorized operating mechanisms with spring energy store for VL150X UL (CG frame) to VL800 UL (MG frame) as well as the motorized operating mechanisms for VL1200 UL (NG frame) and VL1600 UL (PG frame) are each equipped inside with a signaling contact (NO) for the following functions:

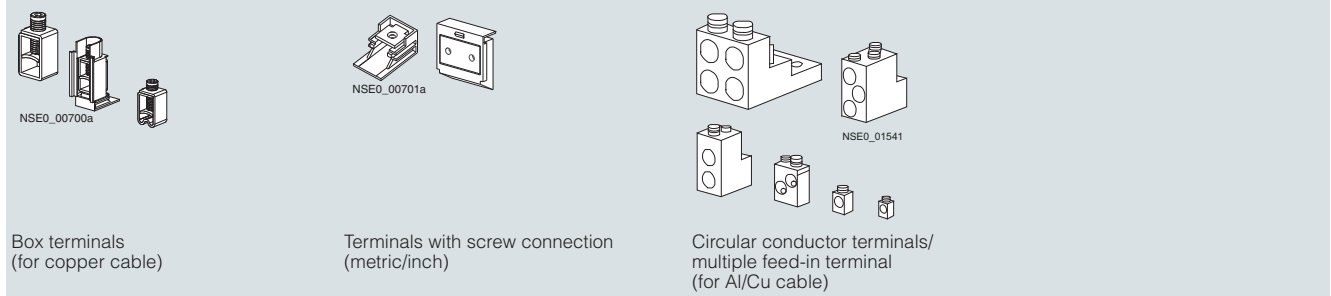
- querying the auto/manual selector switch for VL150X UL (CG frame) to VL800 UL (MG frame)
- actuating the mechanical OFF/O button

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Main circuit connections, basic equipment and options



Main circuit connections (see operating instructions for conductor cross-sections)

Circuit breaker	Connection overview and further options						
	Box terminals	Screw terminals for flat connection		Circular conductor terminals/ multiple feed-in terminals	Rear-mounting terminals	Cable lug connection	Direct connection of busbars is possible (for IEC-approved circuit breakers only)
	Only Cu	With metric thread	With inch thread	Cu or Al			
VL150X UL (CG frame)	x	x	--	x	x	--	x
VL150 UL (DG frame)	x	x	x	x	x	x	x
VL250 UL (FG frame)	x	x	x	x	x	x	x
VL400 UL (JG frame)	x	x	--	x ¹⁾²⁾	x	x	x
VL400X UL (LG frame)	--	x	x	x ¹⁾²⁾	x	x	x
VL800 UL (MG frame)	--	x	x	x ¹⁾	x	x	x
VL1200 UL (NG frame)	--	x	x	x ¹⁾	x	x	x
VL1600 UL (PG frame)	--	x	x	x ¹⁾	x	--	x

x Available
-- Not available

¹⁾ Multiple feed-in terminal
²⁾ Circular conductor terminal also available.

Auxiliary trip units and auxiliary switches

Undervoltage releases, leading auxiliary switches

If there is no voltage present, closing of the circuit breaker is not possible. If voltage is not applied to the trip units, operation of the circuit breaker will result in no-load switching.

Frequent re-tripping should be avoided because of its adverse effect on the endurance of the circuit breaker.

A leading voltage can be applied to the undervoltage release of a circuit breaker with leading auxiliary switches which makes the circuit breaker ready-to-close.

For SENTRON 3VL UL circuit breakers, the leading auxiliary switch can be supplied with the front rotary operating mechanism or complete operating mechanism. For more detailed information, please refer to the selection and ordering data tables for accessories.

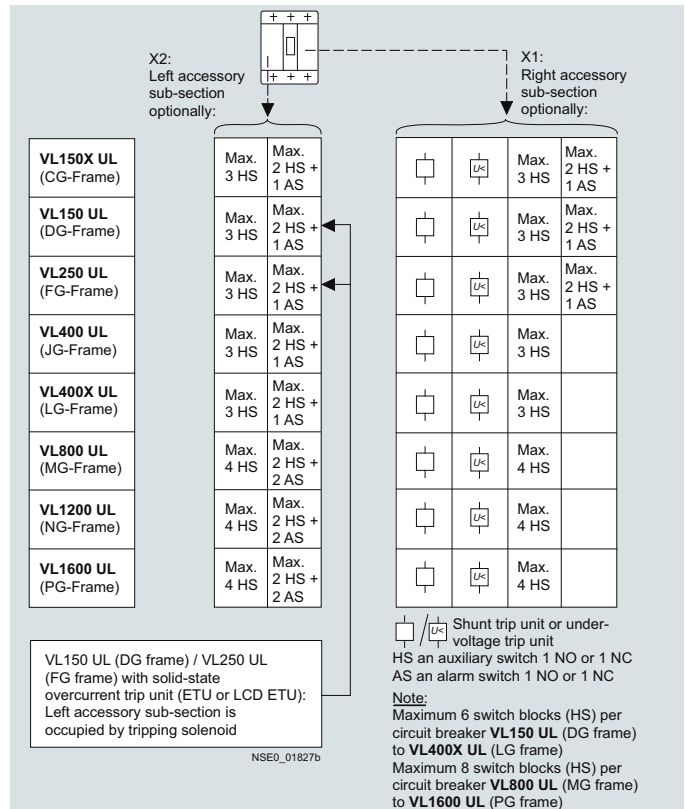
Shunt trip units

The shunt trip unit is used for remote tripping of the circuit breaker.

The coil of the shunt trip unit is designed for short-time operation only. A coil trip is implemented internally.

It is not permissible to apply a continuous trip command to a shunt trip unit to prevent closing when the circuit breaker is tripped.

A central tap is provided as standard for checking the conductivity of the coil.



Possible complements for the insulated accessory subsections in the SENTRON 3VL UL circuit breakers

Before ordering, use the table above to check whether the required combination of shunt trip units, undervoltage releases and auxiliary/alarm switches is feasible.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Auxiliary switches

Auxiliary switches are used for indication and control. The contacts of the auxiliary switch close and open together with the main contacts.

Alarm switch

The alarm switches (AS) are active when the circuit breaker has been tripped due to an overcurrent e.g. overload or short-circuit. However, they are also activated if the circuit breaker has been tripped by a shunt trip unit or undervoltage release.

Installation of internal accessories

The insulated accessory subsections for installing accessories (auxiliary trip units and auxiliary switches/alarm switches) have the designations X1, X2 and X4.

The equipping of the circuit breaker with internal accessories and the configuration options for circuit breakers with auxiliary trip units and auxiliary/alarm switches depend on the mounting position and size of the circuit breaker (see the image "Possible Complements for the Insulated Accessory Subsections of the 3VL UL Circuit Breakers").

PLC control

The auxiliary and alarm switches can be used to send signals to programmable controllers. These switching blocks are part of the Siemens 3SB3 range.

Leading auxiliary switches

The leading auxiliary switches OFF to ON or ON to OFF are available as a retrofit set for rotary operating mechanisms.

Function

Current limiting¹⁾

The SENTRON 3VL UL circuit breakers utilize the design principle of magnetic repulsion of the contacts. The contacts open before the anticipated peak value of the short-circuit current is achieved. The current-limiting effects of the SENTRON 3VL UL circuit breakers provide effective protection for system components against the thermal and dynamic effects of the short-circuit current in the event of an electrical fault.

Ground-fault protection

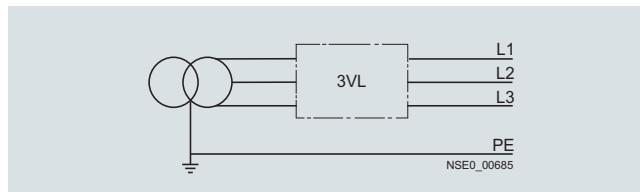
Ground-fault trip unit "G" sense fault currents that flow to ground and that can cause fire in the plant. Several circuit breakers connected in series can provide graduated discrimination by means of the adjustable delay time.

The following measurement methods can be used to detect neutral conductor and ground-fault currents:

Vectorial summation current formation (measurement method 1)

Ground-fault detection in symmetrically loaded systems

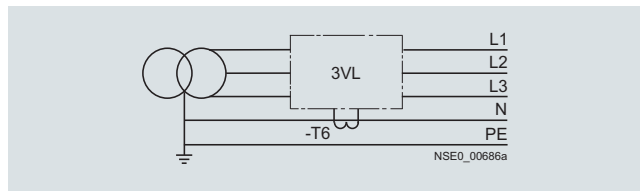
The three phase currents are evaluated with the help of the vectorial summation current formation.



Ground-fault detection in asymmetrically loaded systems

The neutral conductor current is measured directly. For the 3-pole circuit breakers, this measurement is only evaluated for ground-fault protection.

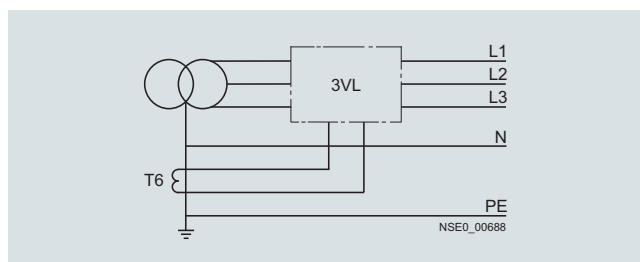
The electronic trip unit determines the ground-fault current for the three phase currents and neutral conductor current by means of vectorial summation current formation.



3-pole circuit breaker, current transformer in the neutral conductor

Direct detection of the ground-fault current through a current transformer in the grounded neutral point of the transformer (measurement method 2)

The current transformer is installed directly in the grounded neutral point of the transformer.



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

Transformer protection

The SENTRON 3VL UL circuit breakers protect power distribution systems against overload and short-circuit on the low-voltage side of the infeed transformer. The resulting requirements with respect to current-based and/or time-based discrimination are reliably fulfilled by the SENTRON 3VL UL circuit breakers for system protection – equipped with thermal-magnetic (TM) or solid-state overcurrent trip units (ETU or LCD ETU).

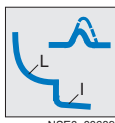
¹⁾ Current limiting according to IEC 60947-2.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Thermal-magnetic overcurrent trip units

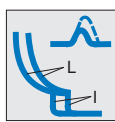


NSEO_00689

Application: System protection –
TM, LI/LIN function

Overload protection, fixed, short-circuit protection, fixed; see "Selection and Ordering Data" for VL150X UL (CG frame), trip units installed in the switch enclosure;

Version KM.



NSEO_00691

Application: System protection –
TM/model 525, LI/LIN function

Overload protection, fixed, short-circuit protection, adjustable $I_t = 5$ to $10 \times I_n$, for VL150 UL (DG frame) to VL1600 UL (PG frame);

Version KN.

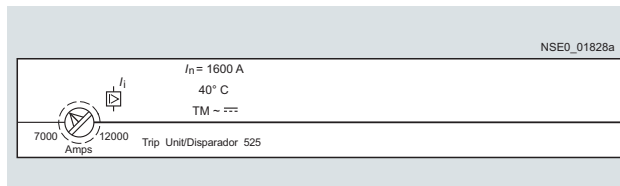


NSEO_01539

Application: Starter protection –
M, I function

Short-circuit protection, adjustable $I_t = 3$ to $16 \times I_n^{(1)}$, for VL150 UL (DG frame) to VL1200 UL (NG frame)

Version KJ, KK, KL



NSEO_01828a

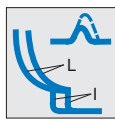
Electronic trip units ETU

For types VL150 UL (DG frame) to VL1600 UL (PG frame)

General information:

- No auxiliary voltage for tripping unit required
- All ETUs have a thermal image
- Flashing green LED indicates faultless operation of microprocessor

- Overload status ($I > 1.05 \times I_R$) is indicated by continuous yellow LED (alarm)
- Integrated self-test function
- Female connector for test unit



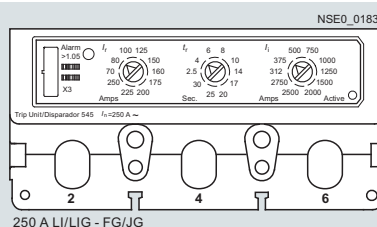
NSEO_00691

Application: System protection – model 545, LI/LIN function (corresponds to ETU10)

Overload protection $I_R = 0.4$ to $1 \times I_n$, time-lag class $t_R = 2.5$ to 30

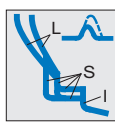
Short-circuit protection (instantaneous) $I_t = 1.25$ to $11 \times I_n^{(1)}$;

Version GB



NSEO_01831

250 A LI/LIG - FG/JG



NSEO_00920

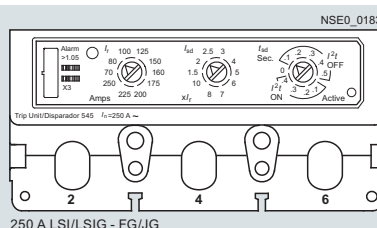
Application: System and generator protection – model 545, LSI/LSIG function (corresponds to ETU20)

Overload protection $I_R = 0.4$ to $1 \times I_n$, short-circuit protection (short-time delayed) $I_{sd} = 1.5$ to $10 \times I_n^{(1)}$, $t_{sd} = 0$ to 0.5 s,

I^2t selectable on/off

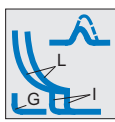
Short-circuit protection (instantaneous) $I_t = 11 \times I_n$ (fixed)¹⁾

Version GE



NSEO_01830

250 A LSI/LSIG - FG/JG



NSEO_00693

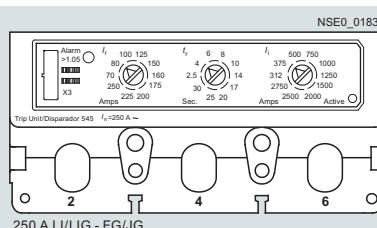
Application: System protection – model 545, LIG/LING function (corresponds to ETU12)

Overload protection $I_R = 0.4$ to $1 \times I_n$, time-lag class $t_R = 2.5$ to 30

Short-circuit protection (instantaneous) $I_t = 1.25$ to $11 \times I_n^{(1)}$

Ground-fault protection: Measurement method 1: (G_R) vectorial summation current formation for the currents of the three phases/and neutral conductor (four-conductor systems); $I_{\Delta n} = I_n$.

Version GD



NSEO_01831

250 A LI/LIG - FG/JG

¹⁾ Size dependent, see "Selection and Ordering Data".

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data



Application: System and generator protection – model 545, LSI/LSING function (corresponds to ETU22)

Overload protection $I_R = 0.4$ to $1 \times I_N$,

Short-circuit protection (short-time delayed)

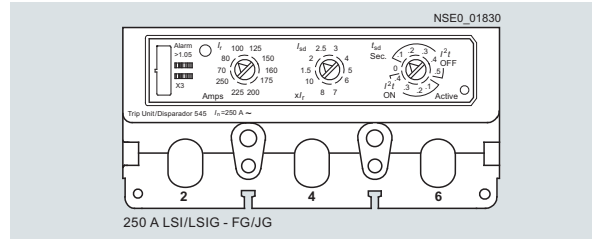
$I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s,

I^2t selectable on/off

Short-circuit protection (instantaneous) $I_i = 11 \times I_N$ (fixed)¹⁾

Ground-fault protection: Measurement method 1: (G_R) vectorial summation current formation for the currents of the three phases/and neutral conductor (four-conductor systems); $I_{\Delta n} = I_N$.

Version GH.

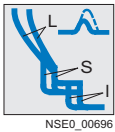


Electronic trip units LCD ETU

General information:

- No auxiliary voltage for tripping unit required
- Current indicator
- Illuminated LCD display indicates faultless operation of microprocessor
- The overload status ($I > 105\% I_R$) is indicated by "overload" on the LCD display

- User-friendly, menu-driven setting of protection parameters in absolute ampere values by means of keys
- Integrated self-test function
- Female connector for test unit
- Communication link to PROFIBUS DP is possible.



Application: System protection – model 576, LSI/LSIN functions (corresponds to ETU40)

Overload protection $I_R = 0.4$ to $1 \times I_N$, time-lag class $t_R = 2.5$ to 30

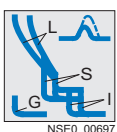
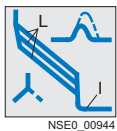
On/off selectable thermal image

Short-circuit protection (short-time delayed) $I_{sd} = 1.25$ to $10 \times I_R$ ¹⁾, $t_{sd} = 0$ to 0.5 s,

I^2t selectable on/off

Short-circuit protection (instantaneous) $I_i = 1.25$ to $11 \times I_N$ ¹⁾

Version JH.



Application: System protection – model 576, LSI/LSING function (corresponds to ETU42)

Overload protection $I_R = 0.4$ to $1 \times I_N$, time-lag class $t_R = 2.5$ to 30

On/off selectable thermal image

short-circuit protection (short-time delayed) $I_{sd} = 1.25$ to $10 \times I_R$ ¹⁾, $t_{sd} = 0$ to 0.5 s,

I^2t selectable on/off

Short-circuit protection (instantaneous) $I_i = 1.25$ to $11 \times I_N$ ¹⁾

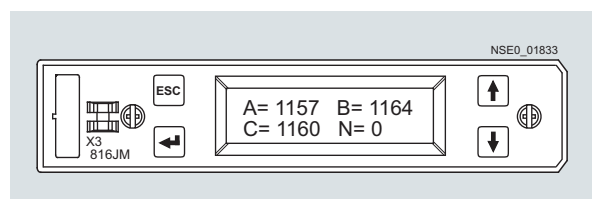
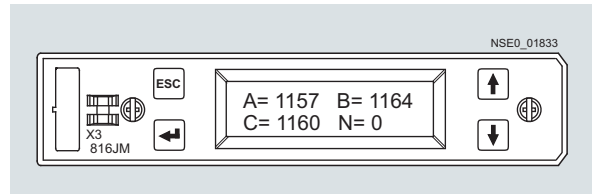
Ground-fault protection: Measurement method 1: (G_R) vectorial summation current formation for the currents of the three phases/and neutral conductor (four-conductor systems);

$I_{\Delta n} = 0.4$ to $1 \times I_N$.

Measurement method 2:

(G_{GND}) direct detection of ground-fault current by means of current transformer, $I_g = 0.4$ to $1 \times I_N$, $t_g = 0.1$ to 0.5 s

Version JM



¹⁾ Size dependent, see "Selection and Ordering Data".

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Configuration

Communication

Two alternatives are available for communication. An LCD ETU (model 576) is required in addition for the more extensive communication with COM10. It can be switched on and off using an optional motorized operating mechanism.


		Data transmission through COM10
Transmittable data		
Commands		
Switch on/off		✓
Alarm and tripping memory, min./max. measured values and maintenance information		✓
Operating statuses		
ON or OFF status trip position		✓
Event signals		
Tripped signals with tripping current and time stamp		✓
Alarm signals with time stamp (e.g. overload, phase unbalance, current etc.)		✓
Threshold value warning, with time stamp (e.g. phase currents)		✓
Measured values		
Phase currents and neutral conductor current, each with min./max. value and time stamp		✓
Parameter values		
Read and write		✓
Maintenance information		
(e.g. number of tripping operations, number of switching operations)		✓
Device identification data		
		✓
Time synchronization		
		✓

✓ Available -- Not available

Function	Electronic trip unit version			COM10 module	Breaker Data Adapter	Breaker Data Adapter Plus
	TM	ETU	LCD ETU			
Functions of the communication components						
Transmission of the operating state (ON, OFF, tripped, warnings, causes of tripping, event log) to the PROFIBUS	--	--	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>
Display of measured values (current only) and parameters in trip unit, change parameters through display	--	--	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transmission of maximum value of present current in %	✓	✓	✓	--	<input type="checkbox"/>	<input type="checkbox"/>
Transmission of individual present phase currents incl. min./max. and time stamp	--	--	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>
Transmission of identification data	--	--	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>
Transmission of switch information on HTML basis locally to a PC	--	--	✓	<input type="checkbox"/>	✓	✓
Transmission of switch information on HTML basis through Ethernet	--	--	✓	<input type="checkbox"/>	--	✓
Read out and adjust protection parameters through PROFIBUS	--	--	✓	✓	<input type="checkbox"/>	<input type="checkbox"/>

✓ Required

 Function can optionally be taken over by more than one trip unit.

 Function can optionally be taken over by one of these adapters.

Not necessary for this function, optionally combinable

-- Function not available

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Switching of DC currents

The VL150X UL (CG frame) to VL1600 UL (PG frame) circuit breakers (for system protection with TM, for starter combinations, non-automatic air circuit breakers) can also be used for DC switching and protection applications.

The VL150 UL (DG frame) to VL1600 UL (PG frame) circuit breakers with electronic trip units (ETU) are not suitable for DC applications.

However, the maximum permitted DC voltage for each conducting path needs to be taken into account for DC switching applications.

For voltages above 250 V for VL150 UL (DG frame) to VL1600 UL (PG frame), a series connection of 2 or 3 conducting paths is required.

As the current has to flow through all of the conducting paths, the following connections are recommended in order to satisfy the thermal tripping characteristics.

With DC applications, the response values of the instantaneous short-circuit releases ("I" releases) are increased by 30 to 40 %.

Recommended connection/Maximum permitted DC voltage U_e		Remarks
Circuit A	Circuit B	
For 3-pole circuit breaker		
250 V DC NSE0_01861	500 V DC NSE0_00741a	2-pole switching (non-grounded system) If there is no possibility of a ground fault, or if every ground fault is rectified immediately (ground-fault monitoring), then the maximum permitted DC voltage is 500 V for both circuits (circuit B). In the event of a ground fault in circuit A, there must always be 2 conducting paths in series, and 3 conducting paths in series in the event of a ground fault in circuit B.

Technical specifications

Type		VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame	
Max. rated current I_n		A 150	150	250	400	600	800	1200	1600	
Rated insulation voltage U_i only acc. to IEC 60947-2										
Main current paths	AC V	800	800	800	800	800	800	800	800	
Auxiliary circuits	AC V	690	690	690	690	690	690	690	690	
Rated operational voltage U_e										
NEMA 50/60 Hz	AC V	600	600	600	600	600	600	600	600	
IEC 50/60 Hz	DC ¹⁾ V	250	500	500	500	500	500	500	500	
	AC V	690	690	690	690	690	690	690	690	
Utilization category		A	A	A	A	A B ²⁾	A B ²⁾	A B ²⁾	A B ²⁾	
Permissible ambient temperature										
Operation	°C	-25 to +70	-25 to +70	-25 to +70	-25 to +70	-25 to +70	-25 to +70	-25 to +70	-25 to +70	
Storage	°C	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	
Permissible load at various ambient temperatures										
Close to the circuit breaker, related to the rated current of the circuit breaker										
• Circuit breakers for system protection	TM/ETU	up to 40 °C	% 100	100/100	100/100	100/100	100/100	--/100	--/100	--/100
	TM/ETU	at 50 °C	% 93	93/95	93/95	93/95	93/95	--/95	--/95	--/95
	TM/ETU	at 60 °C	% 86	86/80	86/80	86/80	86/80	--/80	--/80	--/80
• Circuit breakers for starter combinations and non-automatic air circuit breakers		up to 40 °C	% 100	100	100	100	100	100	100	100
		at 50 °C	% 93	93	93	93	93	93	93	93
		at 60 °C	% 86	86	86	86	86	86	86	86
Weights of 3-pole circuit breakers										
Basic unit without electronic trip unit	kg	--	1.5	1.6	4.2	7.8	14.2	21	27.3	
Thermal-magnetic overcurrent trip unit	kg	--	0.7	0.7	1.5	1.2	--	--	--	
Solid-state overcurrent trip unit	kg	--	0.9	0.9	1.7	1.5	1.8	4.0	4.0	
Basic unit										
• With thermal-magnetic overcurrent trip unit	kg	2.5	2.2	2.3	5.7	9.0	--	--	--	
• With solid-state overcurrent trip unit	kg	--	2.4	2.5	5.9	9.3	16.0	25.0	31.3	

Rated short-circuit breaking capacity

For rated short-circuit breaking capacity see table under "Overview".

¹⁾ Rated DC data apply only for thermal-magnetic overcurrent trip units.

²⁾ On request.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Type		VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame
Endurance	Operating cycles	20000	20000	20000	20000	10000	10000	3000	3000
Electrical endurance	Operating cycles	10000	10000	10000	10000	5000	3000	1500	1500
Max. switching frequency	1/h	120	120	120	120	60	60	30	30
Connection types	See "Main Circuit Connections, Basic Equipment and Options"								
Conductor cross-sections for stranded cable									
Box terminals (Cu)	AWG/kcmil	1 x (14-1/0)	1 x (8-1/0)	1 x (3-250)	1 x (1/0-600)	--	--	--	--
	mm ²	1 x (2.5-50)	1 x (10-50)	1 x (35-120)	1 x (70-300)	--	--	--	--
Circular conductor terminals (Cu/Al)	AWG/kcmil	1 x (6-3/0)	1 x (6-3/0)	1 x (4-350)	1 x (250-750)	1 x (250-750)	--	--	--
	mm ²	1 x (16-70)	1 x (16-70)	1 x (25-150)	1 x (150-300)	1 x (150-300)	--	--	--
Multiple feed-in terminals terminals (Cu/Al)	AWG/kcmil	--	--	--	2 x (3/0-250)	2 x (2-600)	2 x (500-750)	--	--
	mm ²	--	--	--	2 x (95-120)	2 x (35-300)	2 x 300	--	--
	AWG/kcmil	--	--	--	--	--	3 x (1/0-500)	3 x (500-750)	--
	mm ²	--	--	--	--	--	3 x (70-240)	3 x 300	--
	AWG/kcmil	--	--	--	--	--	--	4 x (1/0-500)	--
	mm ²	--	--	--	--	--	--	4 x (70-240)	--
Direct connection of busbars (Cu/Al, only for IEC)	mm	17 x 7	22 x 7	24 x 7	32 x 10	32 x 10	2 x 40 x 10	2 x 50 x 10	2 x 60 x 10
Screw for connection with screw terminal	Metric Inch	M 6 --	M 6 10-32 UNF	M 8 5/16	M 8 --	M10 3/8	M 8 5/16	M8 5/16	M8 5/16
Power loss per circuit breaker at max. rated current									
System protection	TM 0.8-1.0	W --	15-48	32-80	60-175	85-230	--	--	--
System protection	ETU or LCD ETU	W --	40	60	90	160	250	210	260
For starter combinations or non-automatic air circuit breaker		W --	40	60	90	160	250	210	260
Permissible mounting position¹⁾									
Auxiliary and alarm switches									
Continuous free-air thermal current I_{th}	A	10	10	10	10	10	10	10	10
Rated making capacity	A	10	10	10	10	10	10	10	10
AC									
Rated operational voltage	V	24	48	110	230	400	600		
Rated operational current	AC-12	A 10	10	10	10	10	10		
	AC-15	A 6	6	6	6	3	1		
DC									
Rated operational voltage	V	24	48	110	230				
Rated operational current	DC-12	A 10	5	2.5	1				
	DC-13	A 3	1.5	0.7	0.3				
Back-up fuse/ miniature circuit breaker	A	10 TDz/10	10 TDz/10	10 TDz/10	10 TDz/10	10 TDz/10	10 TDz/10	10 TDz/10	10 TDz/10
Leading auxiliary switch with rotary operating mechanism									
Rated thermal current I_{th}	A	2	2	2	2	2	2	2	2
Rated making capacity	A	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)
Rated operational voltage	V AC	230	230	230	230	230	230	230	230
Rated operational current	A	2	2	2	2	2	2	2	2
Rated breaking capacity, inductive, p.f. = 0.7	A	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rated breaking capacity	A	2	2	2	2	2	2	2	2
Back-up fuse, quick	A	2	2	2	2	2	2	2	2
Position indicator switches									
Rated thermal current I_{th}	A	16	16						
Rated making capacity	A	16	10						
Rated operational voltage	V AC	250	400						
Rated operational current	A	16	10						
Rated breaking capacity, inductive, p.f. = 0.7	A	4	4						
Rated breaking capacity	A	16	10						
Back-up fuse, quick	A	16	10						

¹⁾ For VL800 UL (MG frame) to VL1600 UL (PG frame) circuit breakers with guide frame in lateral mounting position. Adapter set on request.

²⁾ Permissible current load factor 0.9; only with internal accessories.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Type	VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame
Trip units	Group 1: VL150X UL (CG frame) to VL400X UL (LG frame)					Group 2: VL800 UL (MG frame) to VL1600 UL (PG frame)		
Undervoltage releases								
Response voltage:								
Release (circuit breaker is tripped)	V $0.35-0.70 \times U_s$					0.35-0.70 $\times U_s$		
Pick-up (circuit breaker can be closed)	V $0.85-1.1 \times U_s$					0.85-1.1 $\times U_s$		
Power consumption (uninterrupted duty) at:								
AC 50/60 Hz 24 V ¹⁾	VA 1.4					1.2		
AC 50/60 Hz 110-127 V	VA 1.0					1.8		
AC 50/60 Hz 220-250 V	VA 1.0					1.8		
AC 50/60 Hz 208 V	VA 1.0					1.8		
AC 50/60 Hz 277 V	VA 1.0					1.8		
AC 50/60 Hz 380-415 V	VA 1.0					1.8		
AC 50/60 Hz 440-480 V	VA 1.0					1.8		
AC 50/60 Hz 500-525 V	VA 1.0					1.8		
AC 50/60 Hz 600 V ¹⁾	VA 1.0					1.8		
12 V DC	W 0.8					1.5		
24 V DC	W 0.8					1.5		
48 V DC	W 0.8					1.5		
60 V DC	W 0.8					1.5		
110-127 V DC	W 0.8					1.5		
220-250 V DC	W 0.8					1.5		
Max. opening time	ms 50					50		
Shunt trip units								
Response voltage:	U_s					U_s		
Pick-up (circuit breaker is tripped)	V 0.7-1.1					0.7-1.1		
Power consumption (short time) at:								
AC 50/60 Hz 24 V	VA 310					330		
AC 50/60 Hz 48-60 V	VA 335-465					380-460		
AC 50/60 Hz 110-127 V	VA 470-630					330-430		
AC 50/60 Hz 208-277 V	VA 585-1000					520-800		
AC 50/60 Hz 380-600 V	VA 180-500					228-750		
24 V DC	W 360					385		
48-60 V DC	W 380-590					480-720		
110-127 V DC	W 506-680					362-424		
220-250 V DC	W 470-580					418-476		
Max. opening time	ms 50					50		
Max. duration of operational voltage	s Interrupts automatically, less than 10 ms					Interrupts automatically, less than 10 ms		

¹⁾ On request.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Type		VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame	
Motorized operating mechanisms										
Motorized operating mechanisms with spring energy store (synchronizable)		x	x	x	x	x	x	--	--	
Motorized operating mechanisms										
Power consumption	VAW	--	--	--	--	--	--	< 250	< 250	
Rated control supply voltage U_s	AC 50/60 Hz V	--	--	--	--	--	--	42-48 / 60	110-127 / 220-250	
	V DC	--	--	--	--	--	--	24 / 42-48 / 60	110-127 / 220-250	
Melting fuse (gG operational class, characteristic slow)	A	--	--	--	--	--	--	4	2	
Miniature circuit breakers (MCBs)	A	--	--	--	--	--	--	4	2	
Operating range	V	--	--	--	--	--	--	0.85 -1.1 x U_s	0.85 -1.1 x U_s	
Minimum command duration at U_s	ms	--	--	--	--	--	--	50	50	
Max. command duration, depends on circuit ¹⁾		Non-maintained or continuous command				--	--	Non-maintained or continuous command		
Total make-time	s	--	--	--	--	--	--	< 5	< 5	
Break-time	s	--	--	--	--	--	--	< 5	< 5	
Interval time between OFF and ON commands	s	--	--	--	--	--	--	> 5	> 5	
Interval time between ON and OFF commands	s	--	--	--	--	--	--	> 5	> 5	
Max. permissible switching frequency	1/h	--	--	--	--	--	--	30	30	
Motorized operating mechanisms with spring energy store (synchronizable)										
Power consumption	VAW	< 100	< 100	< 100	< 200	< 250	< 250	--	--	
Rated control supply voltage U_s	AC 50/60 Hz V	42-48 / 60			110-127 / 220-250		--	--	--	
	V DC	24 / 42-48 / 60			110-127 / 220-250		--	--	--	
Melting fuse (gG operational class, characteristic slow)	A	4			2		--	--	--	
Miniature circuit breakers (MCBs)	A	4			2		--	--	--	
Operating range	V	0.85 -1.1 x U_s	0.85 -1.1 x U_s	0.85 -1.1 x U_s	0.85 -1.1 x U_s	0.85 -1.1 x U_s	0.85 -1.1 x U_s	--	--	
Minimum command duration at U_s	ms	50	50	50	50	50	50	--	--	
Max. command duration, depends on circuit ¹⁾		Non-maintained or continuous command							--	--
Total make-time	ms	< 100	< 100	< 100	< 100	< 100	< 100	--	--	
Break-time	s	< 5	< 5	< 5	< 5	< 5	< 5	--	--	
Interval time between OFF and ON commands	s	> 5	> 5	> 5	> 5	> 5	> 5	--	--	
Interval time between ON and OFF commands	s	> 1	> 1	> 1	> 1	> 1	> 1	--	--	
Max. permissible switching frequency	1/h	120	120	120	120	60	60	--	--	

x Available

-- Not available

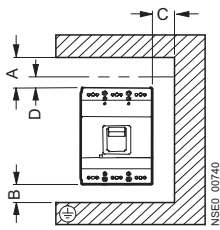
¹⁾ Changeover contact also permissible, note dead times between ON and OFF commands.

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

General data

Space requirements above arc chutes, safety clearance



Arcing spaces

Minimum clearances from adjacent grounded parts and from non-insulated live parts.

Plain conductors and busbars must be insulated with phase barriers within the arcing space.

The specific mounting instructions for the various sizes must be observed for plain conductors and busbars outside the arcing space.

For mounting instructions refer to the Internet

Space requirements above arc chutes acc. to IEC 60947-2

Circuit breaker	Switching capacity	Minimum enclosure volume m ³	A			B		C		D	
			≤ 415 V	>415 – 690 V	>415 – 690 V	≤ 690 V	≤ 690 V	≤ 690 V	≤ 690 V		
Type			Without/with terminal cover	Without terminal cover	With terminal cover						
VL150X UL (CG frame)	Standard High Very high	0.011	35	70	35	25	25	35			
VL150 UL (DG frame)	Standard High Very high	0.011	50	100	50	25	25	35			
VL250 UL (FG frame)	Standard High Very high	0.015	50	100	50	25	25	35			
VL400 UL (JG frame)	Standard High Very high	0.036	50	100	50	25	25	35			
VL400X UL (LG frame)	Standard High Very high	0.18	50	100	50	25	25	35			
VL800 UL (MG frame)	Standard High Very high	0.22	50	100	50	25	25	35			
VL1200 UL (NG frame)	Standard High Very high	0.22	70	100	70	30	30	50			
VL1600 UL (PG frame)	Standard High Very high	0.264	100	100	100	100	30	100			

Definition of the permissible safety clearances

Clearance between

- A: Circuit breaker and busbars (bare metal and grounded metal); terminal cover required above 600 V AC, 500 V DC
- B: Circuit breaker connection and floor
- C: Side of the circuit breaker and the side panels (bare metal and grounded metal)
- D: circuit breaker and non-conducting parts with an insulation thickness of at least 3 mm (insulator, insulated busbar, painted plate)

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

Characteristic curves

Characteristic curves and certificates

- General information:

The indicated tripping values for the inverse-time delayed electronic trip units (thermal overload releases, "L" releases) are mean values taken from the spread of all setting ranges from the cold state and under even load conditions on the conducting paths.

The tripping characteristic curves of the instantaneous (electromagnetic) short-circuit releases ("I" releases) are based on the phase rated current I_n .

- For thermomagnetic trip units (TM) the following applies:

The characteristic curves apply to the cold state; at operating temperature, the tripping times of the thermal trip units are reduced to approximately 25 %.

Under normal operating conditions, all three poles of the device must be loaded. The three main current paths must be connected in series in order to protect single-phase or DC loads.

- Tripping characteristic curves of the SENTRON VL150 UL (DG frame) to VL1600 UL (PG frame) circuit breakers for generator protection with solid-state overcurrent trip units.

The tripping times of the inverse-time delayed electronic trip units apply to the non-preloaded (cold) state. In the operating/warm state (after application of a load at the rated current), the tripping times are reduced to approx. 33 %. After a tripping operation due to overcurrent, the tripping times are reduced in accordance with the dynamic tripping response, which means that a cooling time of a few minutes is required before the next motor start.

Time/current characteristic curves, current limiting characteristic curves, I^2t curves and certificates can be ordered from "Technical Assistance" (e-mail: technical-assistance@siemens.com) or downloaded from the following Internet sites:

<http://www.siemens.com/lowvoltage/characteristics>

or

<http://support.automation.siemens.com>

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

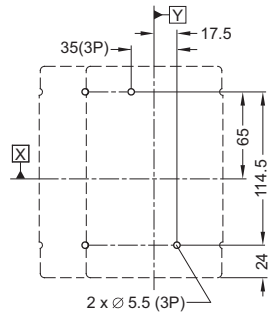
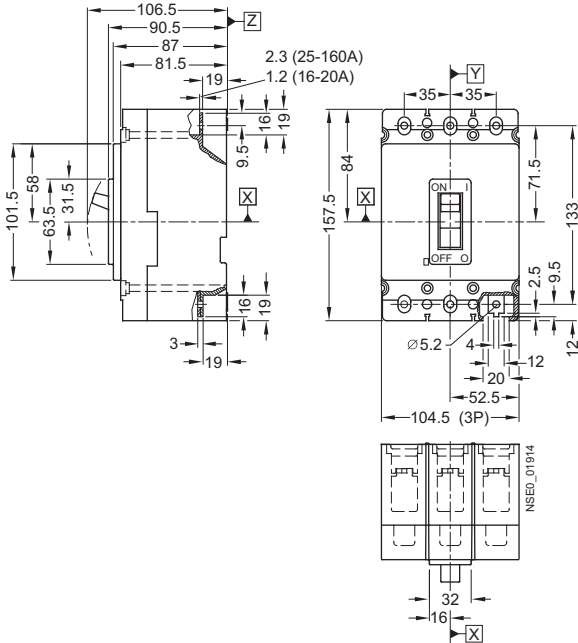
Dimensional drawings

**VL150X UL (CG frame),
3-pole, up to 150 A**

Circuit breakers

SENTRON VL150X UL circuit breakers (CG frame)

Circuit breaker installation instructions



**VL150 UL (DG frame) and VL250 UL (FG frame),
3- and 4-pole, up to 250 A**

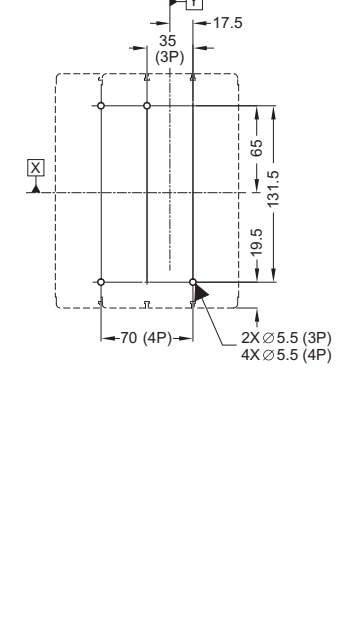
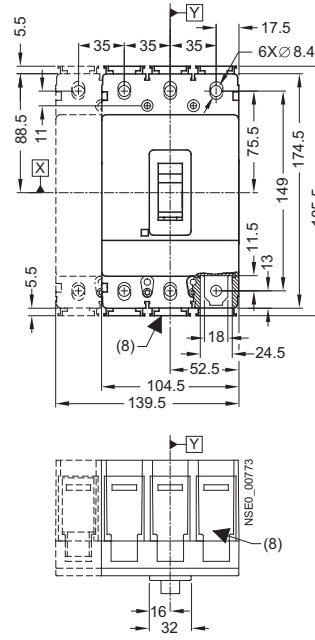
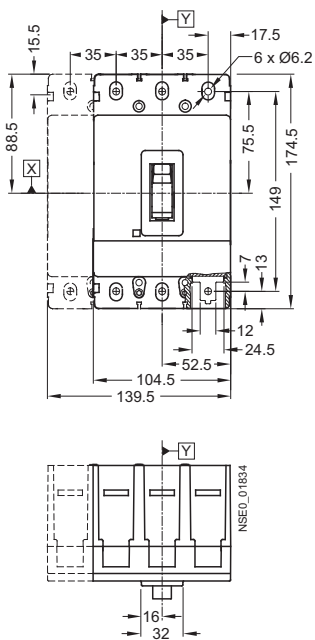
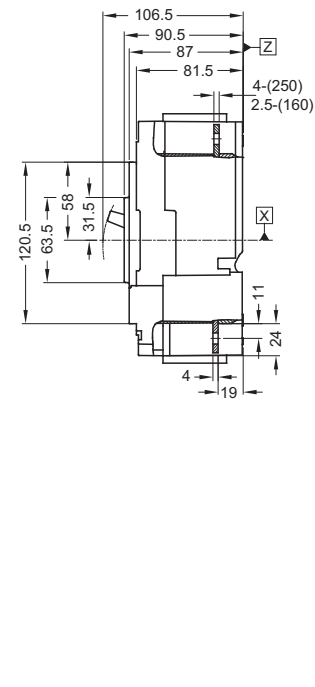
Circuit breakers

**SENTRON VL150 UL/VL250 UL
circuit breakers
(DG frame and FG frame)**

**SENTRON VL150 UL
circuit breakers
(DG frame)**

**SENTRON VL250 UL
circuit breakers
(FG frame)**

**SENTRON VL150 UL and VL250 UL
circuit breakers
(DG frame and FG frame)
Installation instructions**



Note:
The 5.5 mm extension at each end of the SENTRON VL250 UL (FG frame) circuit breaker only applies when using box terminals or circular conductor terminals (8).

SENTRON 3VL Molded Case Circuit Breakers

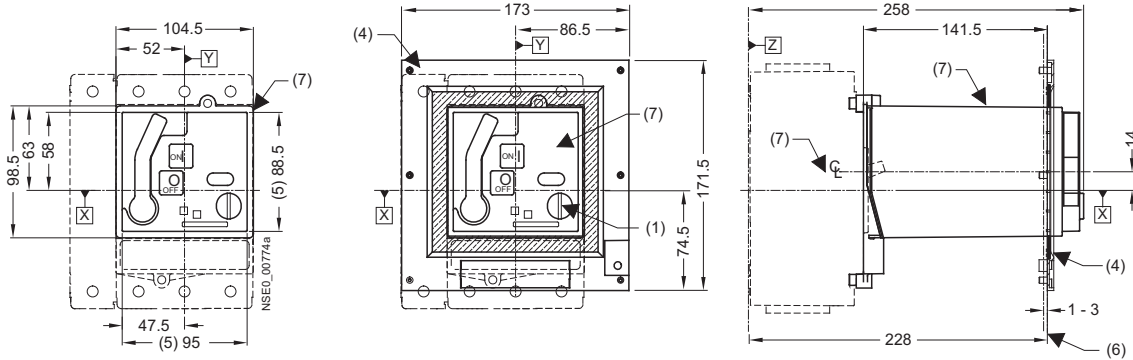
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

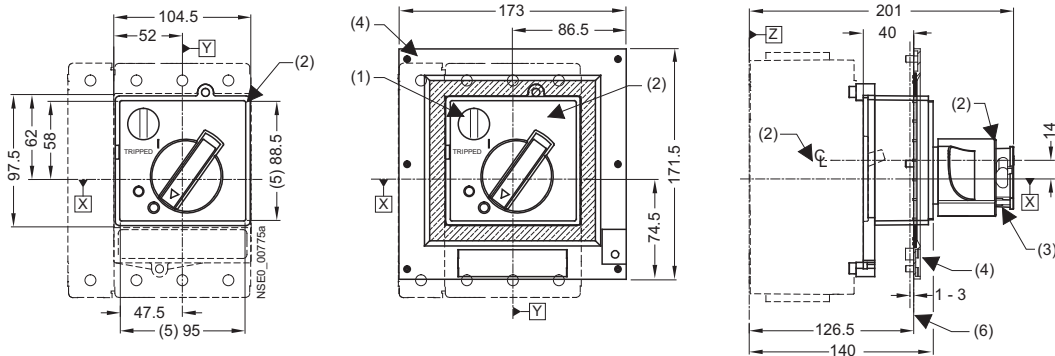
VL150X UL (CG frame), 3-pole, up to 150 A,
 VL150 UL (DG frame) and VL250 UL (FG frame),
 3- and 4-pole, up to 250 A

Operating mechanisms

Motorized operating mechanism with spring energy store



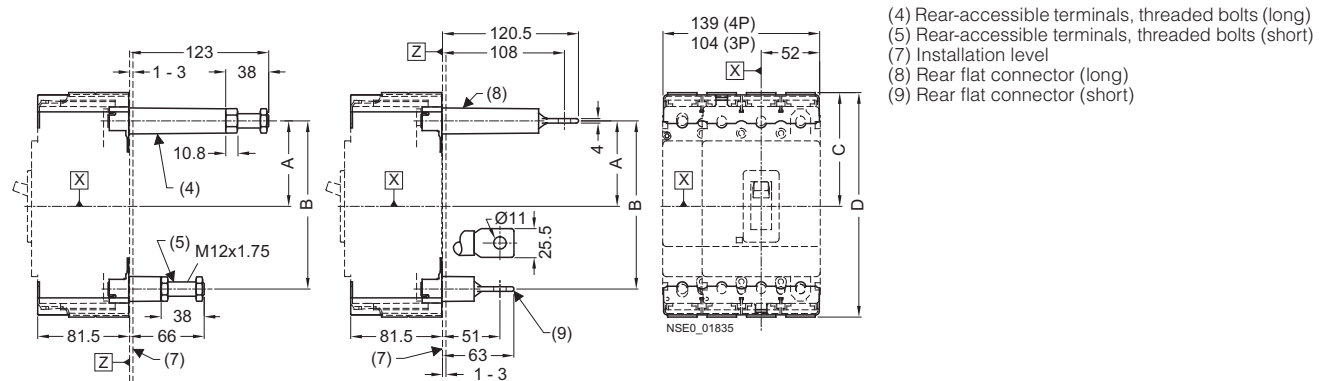
Front-operated rotary operating mechanisms



- (1) Safety locks
- (2) Front-operated rotary operating mechanism
- (3) Padlock
- (4) Masking frame for door cut-out (for circuit breaker with operating mechanism)
- (5) Step for cover
- (6) Outside surface of cabinet door
- (7) Motorized operating mechanism with spring energy store
- (8) Terminal insulation

Connections

Circuit breakers with rear terminals – long and short



- (4) Rear-accessible terminals, threaded bolts (long)
- (5) Rear-accessible terminals, threaded bolts (short)
- (7) Installation level
- (8) Rear flat connector (long)
- (9) Rear flat connector (short)

Type	A	B	C	D
VL150X UL (CG frame)	71.5	133	96	182
VL150 UL (DG frame)	75.5	149	101	199
VL250 UL (FG frame)	75.5	149	101	199

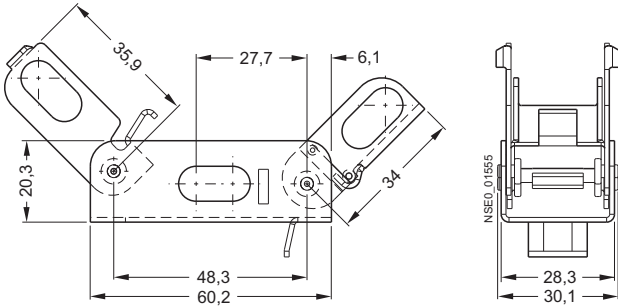
SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL150X UL (CG frame), 3-pole, up to 150 A,
VL150 UL (DG frame) and VL250 UL (FG frame),
3- and 4-pole, up to 250 A

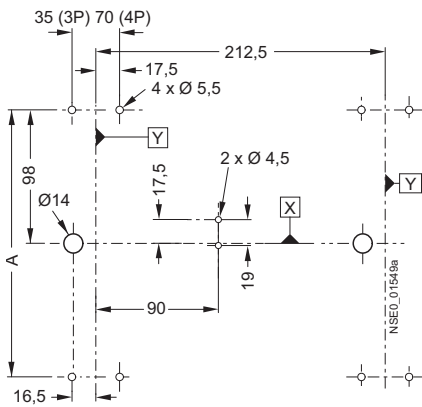
Locking devices for toggle levers



Rear interlocking modules

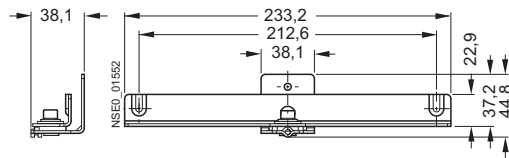
Rear interlocking modules
for plug-in/withdrawable circuit breakers,
with front connection

For more detailed dimensional drawings see
"Mounting Instructions for Rear Interlocking Module".

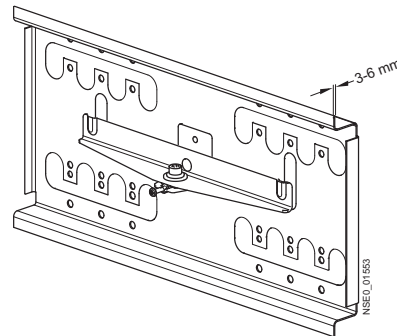


Type	A
VL150X UL (CG frame), VL150 UL (DG frame), VL250 UL (FG frame)	194

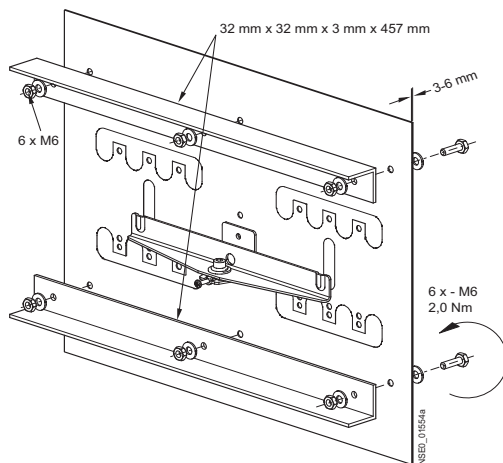
Rear interlocking modules



Mounting plate, example 1, not included in scope of supply



Mounting plate, example 2, not included in scope of supply



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SENTRON 3VL Molded Case Circuit Breakers

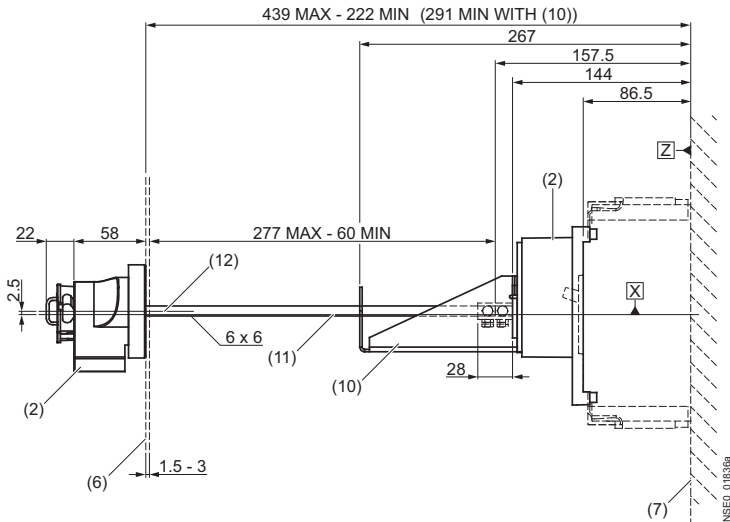
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

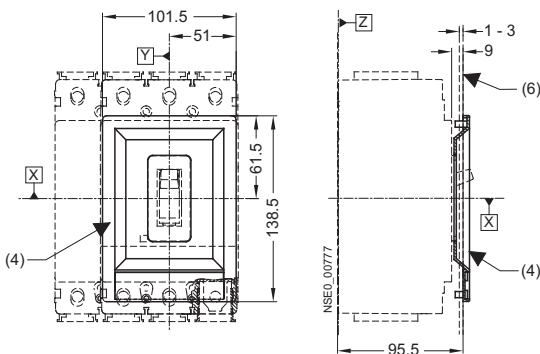
VL150X UL (CG frame), 3-pole, up to 150 A,
 VL150 UL (DG frame) and VL250 UL (FG frame),
 3- and 4-pole, up to 250 A

Accessories

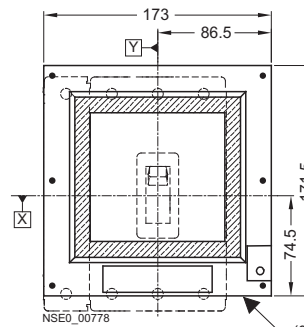
Circuit breaker with door-coupling rotary operating mechanism



Masking frame for door cut-out for circuit breakers with toggle lever



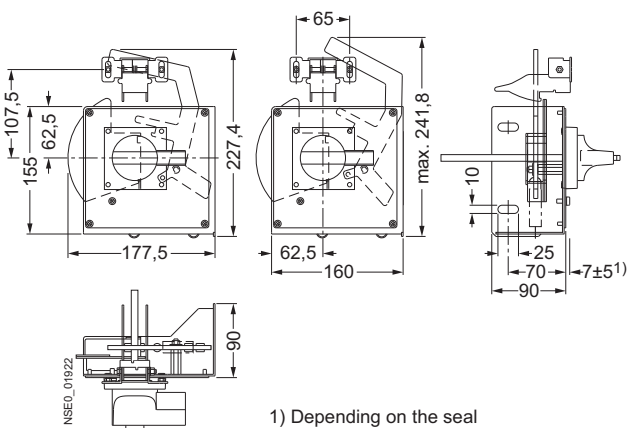
Masking frame for door cut-out for circuit breakers with operating mechanism



- (2) Door-coupling rotary operating mechanism
- (3) Masking frame for door cut-out
(for circuit breaker with operating mechanism)
- (4) Masking frame for door cut-out
(for circuit breaker with toggle lever)

- (6) Outside surface of cabinet door
- (7) Installation level
- (10) Support bracket
- (11) Extension
- (12) Center line of operating shaft

UL 508A interlocking modules, 8UC94 00



1) Depending on the seal

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SENTRON 3VL Molded Case Circuit Breakers

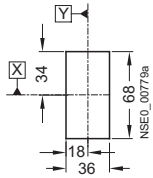
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

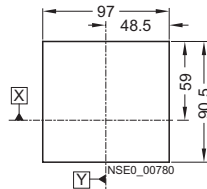
VL150X UL (CG frame), 3-pole, up to 150 A, VL150 UL (DG frame) and VL250 UL (FG frame), 3- and 4-pole, up to 250 A

Door cut-outs

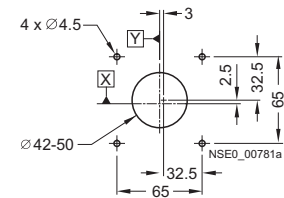
Door cut-out for toggle lever (without masking frame)



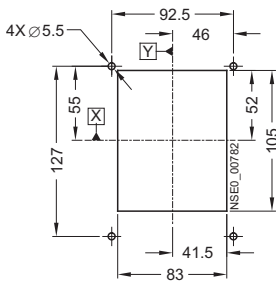
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (without masking frame)



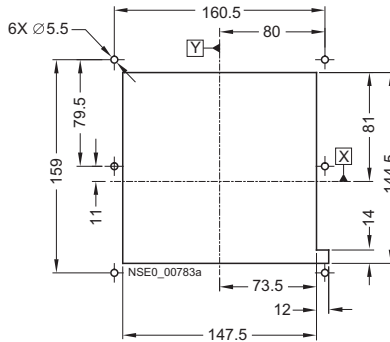
Door cut-out for door-coupling rotary operating mechanism



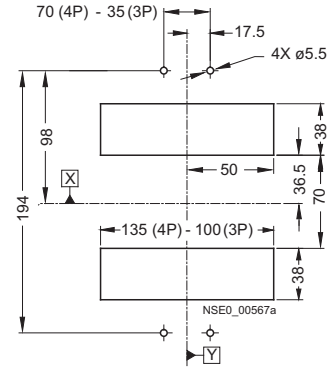
Door cut-out for toggle lever (with masking frame)



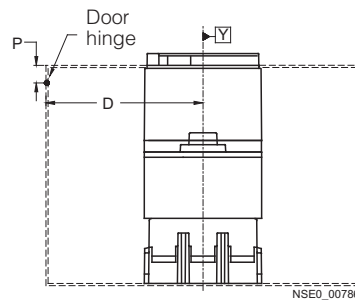
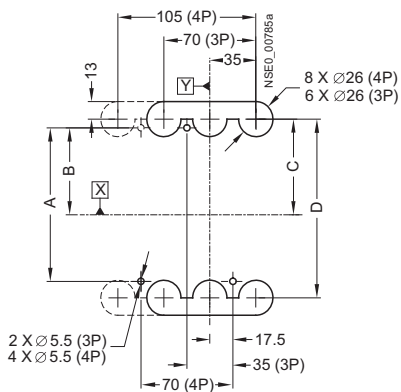
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



Hole pattern and cut-out for plug-in base with rear connecting bars



Hole pattern and cut-out for rear-accessible terminals



$D > A$ from table + $(P \times 5)$

Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

Type	A	B	C	D
VL150X UL (CG frame)	114.5	65	71.5	133
VL150 UL (DG frame)	131.5	65	75.5	149
VL250 UL (FG frame)	131.5	65	75.5	149

Combination	A
Circuit breaker only	100
Circuit breaker + plug-in base + motorized operating mechanism with spring energy store	100
Circuit breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit breaker + withdrawable version	200

SENTRON 3VL Molded Case Circuit Breakers

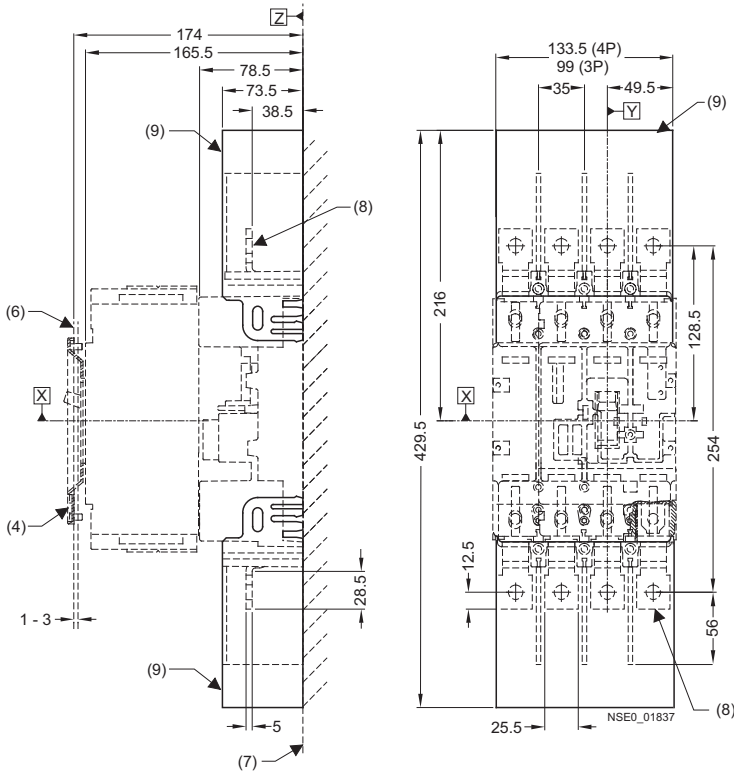
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

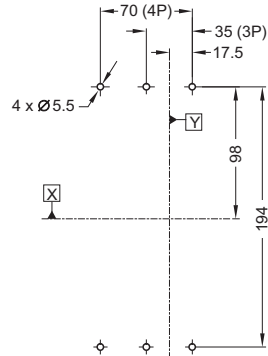
VL150X UL (CG frame), 3-pole, up to 150 A,
 VL150 UL (DG frame) and VL250 UL (FG frame),
 3- and 4-pole, up to 250 A

Plug-in bases and accessories

Plug-in base with front connecting bars

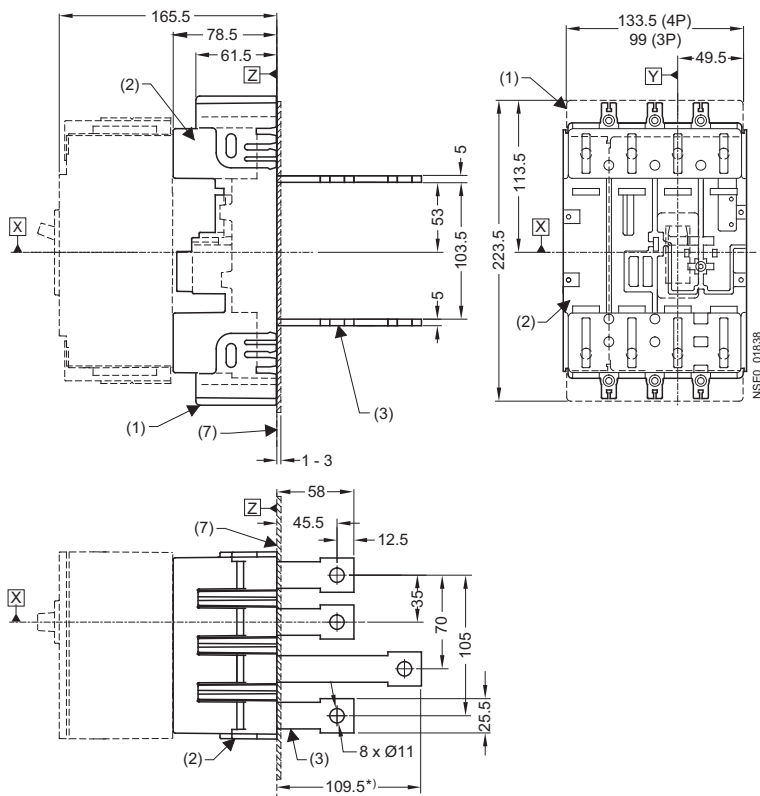


Hole pattern for plug-in base with front connecting bars



5

Plug-in base with rear flat bar connection



- (1) Plug-in base with rear terminal covers
- (2) Plug-in base
- (3) Plug-in base with rear flat bar connection
- (4) Masking frame for door cut-out (for circuit breaker with toggle lever)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Plug-in base with front connecting bars
- (9) Plug-in base with terminal covers on the front
- * Extended middle phase with 3-pole circuit breaker

SENTRON 3VL Molded Case Circuit Breakers

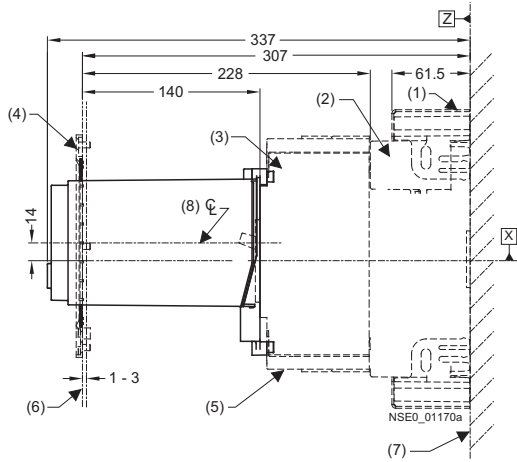
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL150X UL (CG frame), 3-pole, up to 150 A

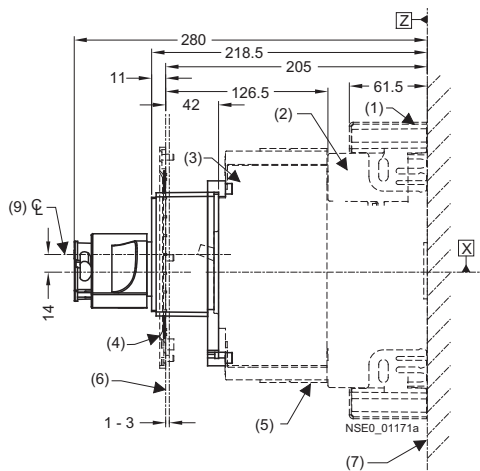
Plug-in bases and accessories

SENTRON VL150X UL circuit breakers (CG frame) with motorized operating mechanism with spring energy store, mounted on plug-in base

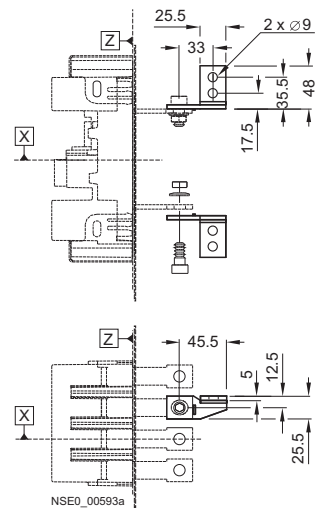


- (1) Plug-in base with terminal covers
- (2) Plug-in base
- (3) Circuit breaker
- (4) Masking frame for door cut-out (for circuit breaker with operating mechanism)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Motorized operating mechanism with spring energy store
- (9) Front-operated rotary operating mechanism

SENTRON VL150X UL circuit breakers (CG frame) with front-operated rotary operating mechanism mounted on plug-in base



90° angle connecting adapters



SENTRON 3VL Molded Case Circuit Breakers

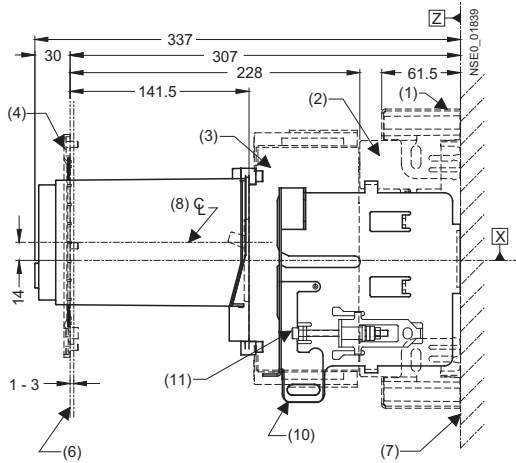
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

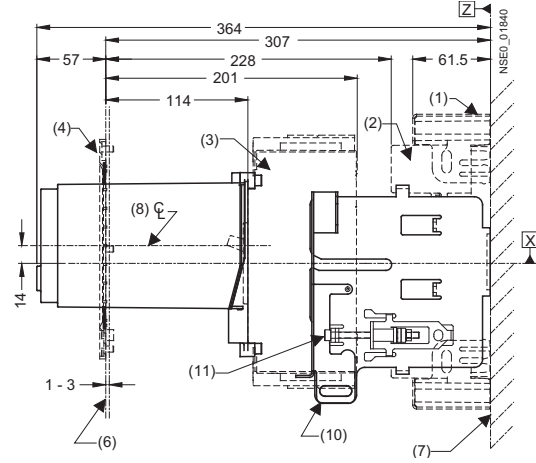
VL150 UL (DG frame) and VL250 UL (FG frame), 3- and 4-pole, up to 250 A

Withdrawable version and accessories

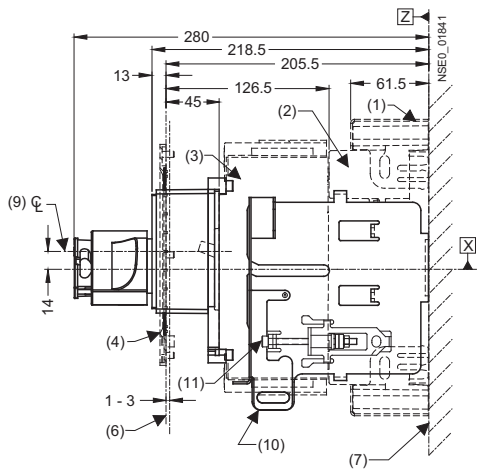
SENTRON VL150 UL (DG frame) and VL250 UL (FG frame) circuit breakers with motorized operating mechanism with spring energy store (connected position)



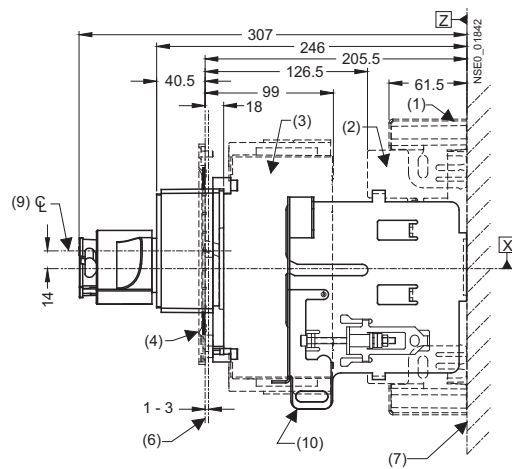
SENTRON VL150 UL (DG frame) and VL250 UL (FG frame) circuit breakers with motorized operating mechanism with spring energy store (disconnected position)



SENTRON VL150 UL (DG frame) and VL250 UL (FG frame) circuit breakers with front-operated rotary operating mechanism (connected position)



SENTRON VL150 UL (DG frame) and VL250 UL (FG frame) circuit breakers with front-operated rotary operating mechanism (disconnected position)



- (1) Plug-in base with terminal covers
- (2) Plug-in base
- (3) Circuit breaker
- (4) Masking frame for door cut-out (for circuit breaker with operating mechanism)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Motorized operating mechanism with spring energy store
- (9) Front-operated rotary operating mechanism
- (10) Locking device for racking mechanism
- (11) Racking mechanism

SENTRON 3VL Molded Case Circuit Breakers

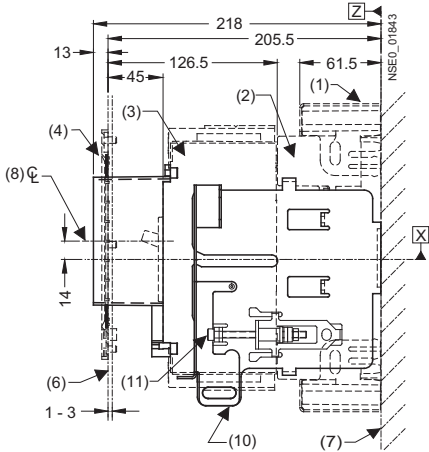
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

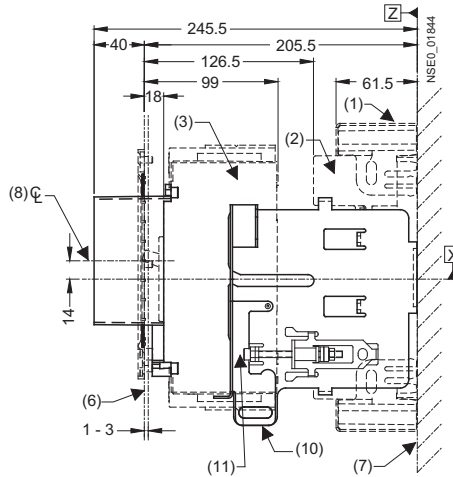
VL150 UL (DG frame) and VL250 UL (FG frame),
3- and 4-pole, up to 250 A

Withdrawable version and accessories

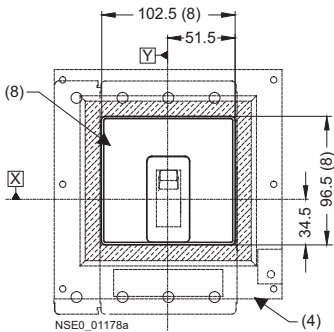
SENTRON VL150 UL (DG frame) and VL250 UL (FG frame)
circuit breakers with extended escutcheon (connected position)



SENTRON VL150 UL (DG frame) and VL250 UL (FG frame)
circuit breakers with extended escutcheon (disconnected position)

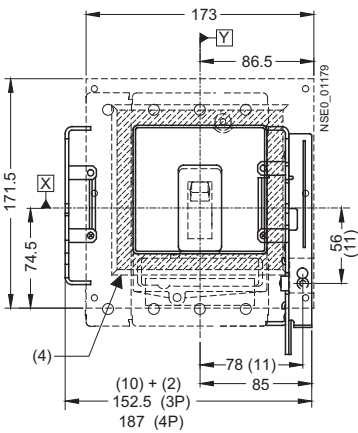


Dimensions of extended escutcheon



- (1) Plug-in base with terminal covers
- (2) Plug-in base
- (3) Circuit breaker
- (4) Masking frame for door cut-out
(for circuit breaker with operating mechanism)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Extended escutcheon
- (10) Locking device for racking mechanism
- (11) Racking mechanism

Dimensions of withdrawable version



SENTRON 3VL Molded Case Circuit Breakers

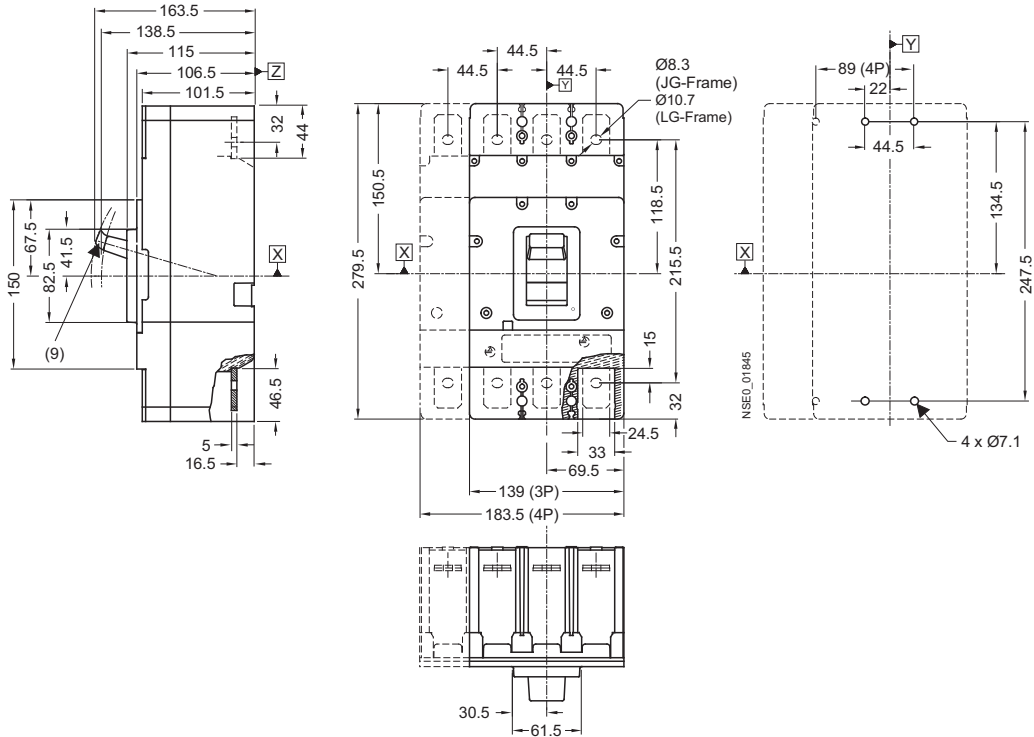
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

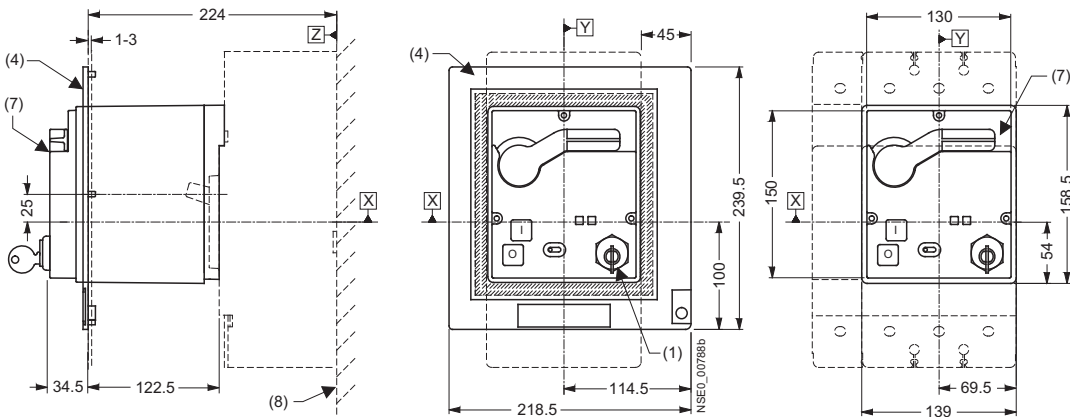
VL400 UL (JG frame) and VL400X UL (LG frame), 3- and 4-pole, up to 600 A
Circuit breakers

SENTRON VL400 UL (JG frame) and VL400X UL (LG frame) circuit breakers

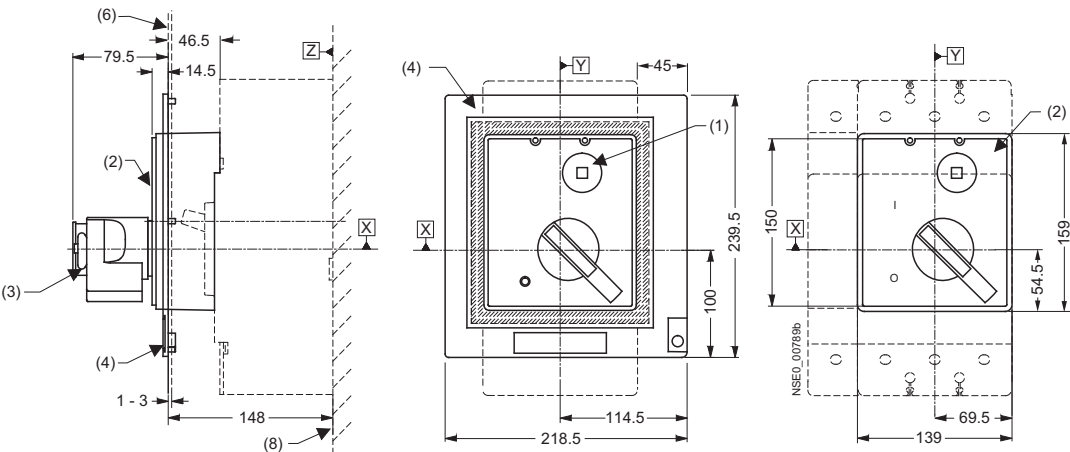
Circuit breaker installation instructions



Motorized operating mechanism with spring energy store



Front-operated rotary operating mechanisms



- (1) Safety lock
 - (2) Front-operated rotary operating mechanism
 - (3) Padlock
 - (4) Masking frame for door cut-out (for circuit breaker with operating mechanism)
 - (6) Outside surface of cabinet door
 - (7) Motorized operating mechanism with spring energy store
 - (8) Installation level
 - (9) Toggle lever extension
- For interlocking modules UL 508A, 8UC94 00, see page 5/66.

5

SENTRON 3VL Molded Case Circuit Breakers

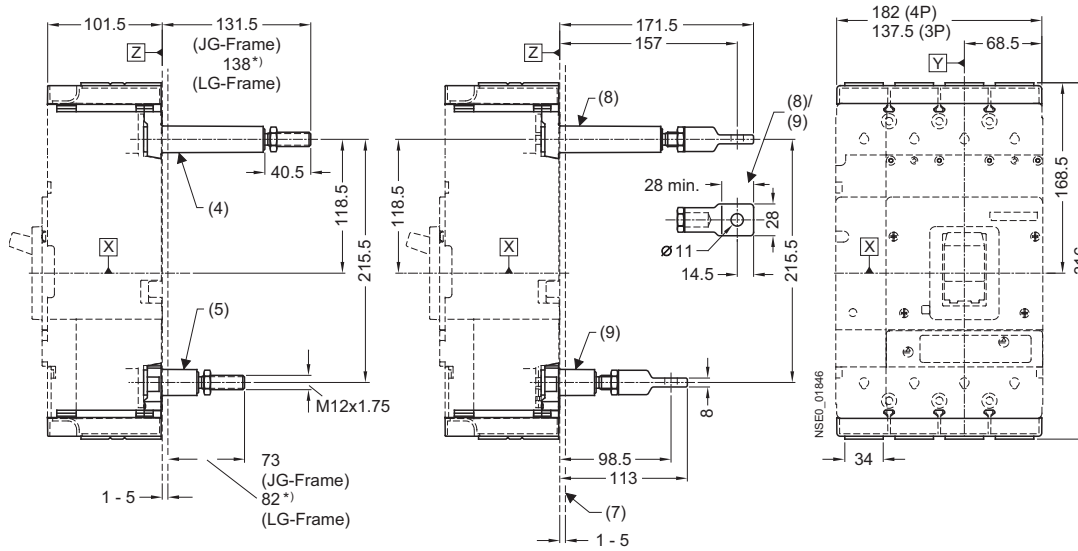
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL400 UL (JG frame) and VL400X UL (LG frame), 3- and 4-pole, up to 600 A

Connections

Only for VL400 UL (JG frame)



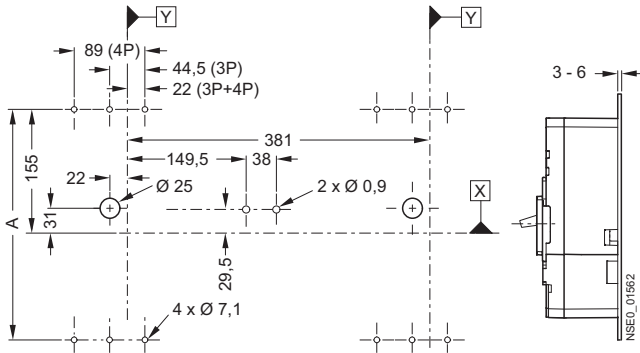
- (4) Rear-accessible terminal (long)
- (5) Rear-accessible terminal (short)
- (7) Installation level
- (8) Rear flat connector (long, VL400 UL, JG frame)
- (9) Rear flat connector (short, VL400 UL, JG frame)

* Rear terminals for VL400X UL (LG frame) are flat connections
 For more detailed dimensional drawings, see "Mounting Instructions for Rear Terminals".

Rear interlocking modules

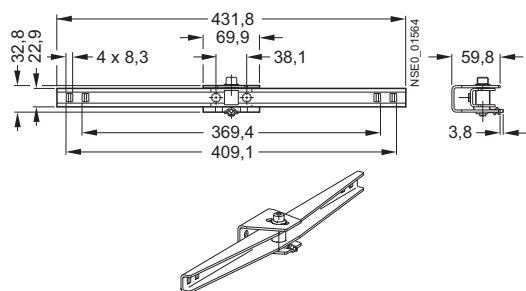
Rear interlocking modules for plug-in/withdrawable circuit breakers for front connection

For more detailed dimensional drawings see "Mounting Instructions for Rear Interlocking Module".



Type	A
VL400 UL (JG frame) and VL400X UL (LG frame)	289

Rear interlocking modules



5

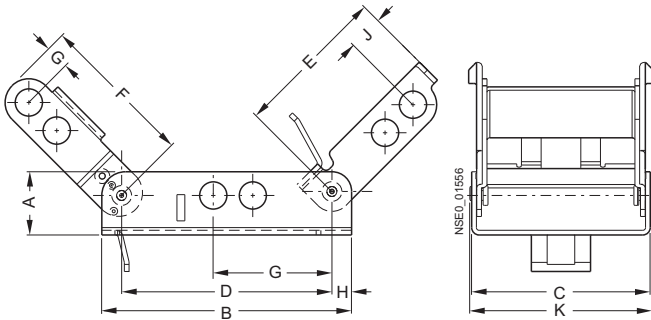
SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL400 UL (JG frame) and VL400X UL (LG frame), 3- and 4-pole, up to 600 A

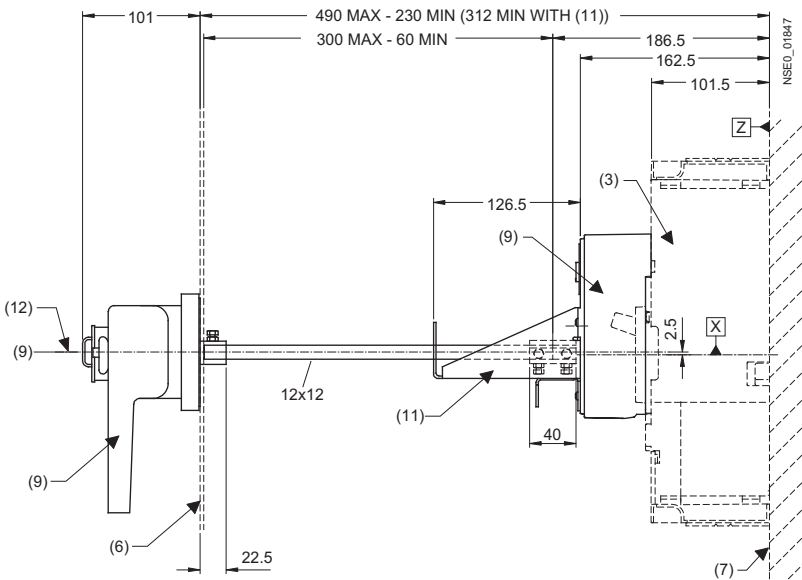
Locking devices for toggle levers



Type	a	b	c	d	e	f	g	h	i	k
3VL9 4	20.3	80.3	57.4	52.8	49.3	49.8	6.35	6.3	11.2	58.5
3VL9 6	21.6	79.8	71.1	62.0	50.4	46.5	12.9	8.9	8.6	72.2
3VL9 8	21.6	110.5	88.9	96.5	77.2	69.1	11.7	5.1	24.8	90.0

Accessories

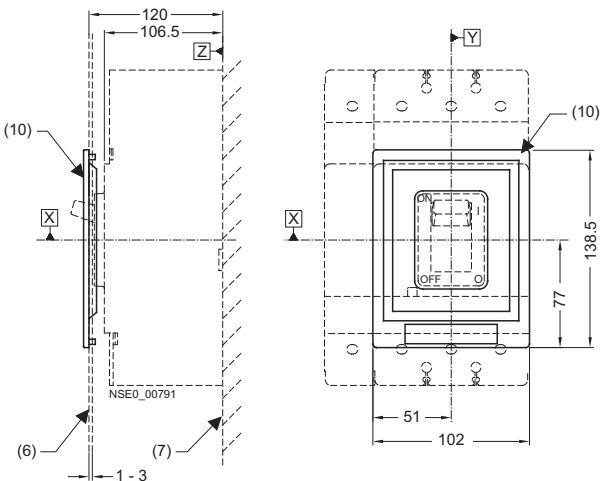
Plug-in base for door-coupling rotary operating mechanism



For interlocking modules UL 508A, 8UC94 00, see page 5/66.

5

Masking frame for door cut-out for circuit breaker with toggle lever



- (3) Circuit breaker
- (6) Outside surface of cabinet door
- (7) Installation level
- (9) Door-coupling rotary operating mechanism
- (10) Masking frame for door cut-out (for circuit breaker with toggle lever)
- (11) Support bracket
- (12) Center line of operating shaft

SENTRON 3VL Molded Case Circuit Breakers

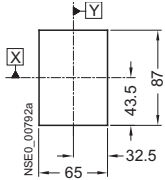
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

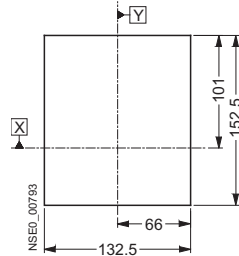
VL400 UL (JG frame) and VL400X UL (LG frame), 3- and 4-pole, up to 600 A

Door cut-outs

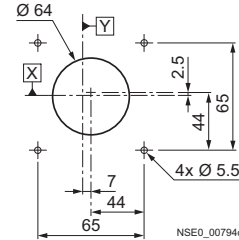
Door cut-out for toggle lever operating mechanism (without masking frame)



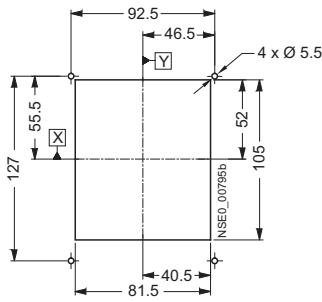
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (without masking frame)



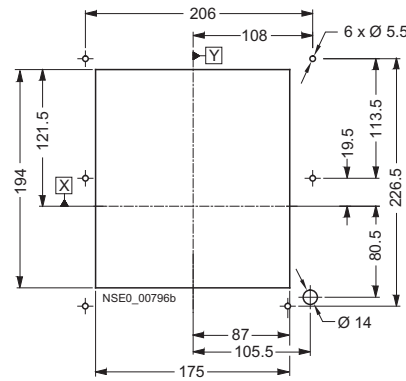
Door cut-out for door-coupling rotary operating mechanism



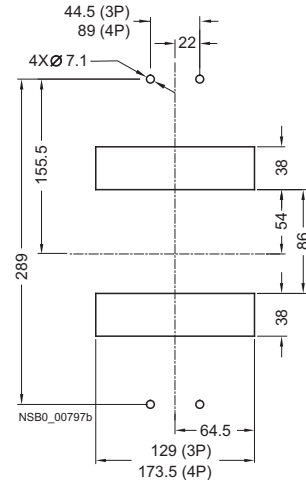
Door cut-out for toggle lever operating mechanism (with masking frame)



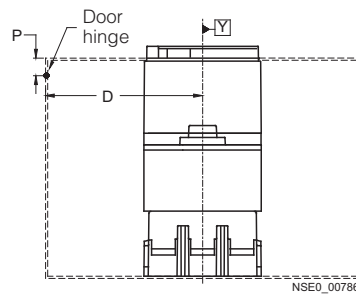
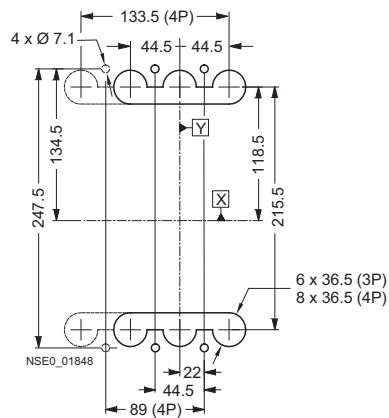
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



Hole pattern and cut-out for plug-in base with rear flat connection bars



Hole pattern and cut-out for rear terminals



D > A from table + (P x 5)

Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

Combination	A
Circuit breaker only	150
Circuit breaker + plug-in base + motorized operating mechanism with stored-energy feature	150
Circuit breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit breaker + withdrawable version	200

SENTRON 3VL Molded Case Circuit Breakers

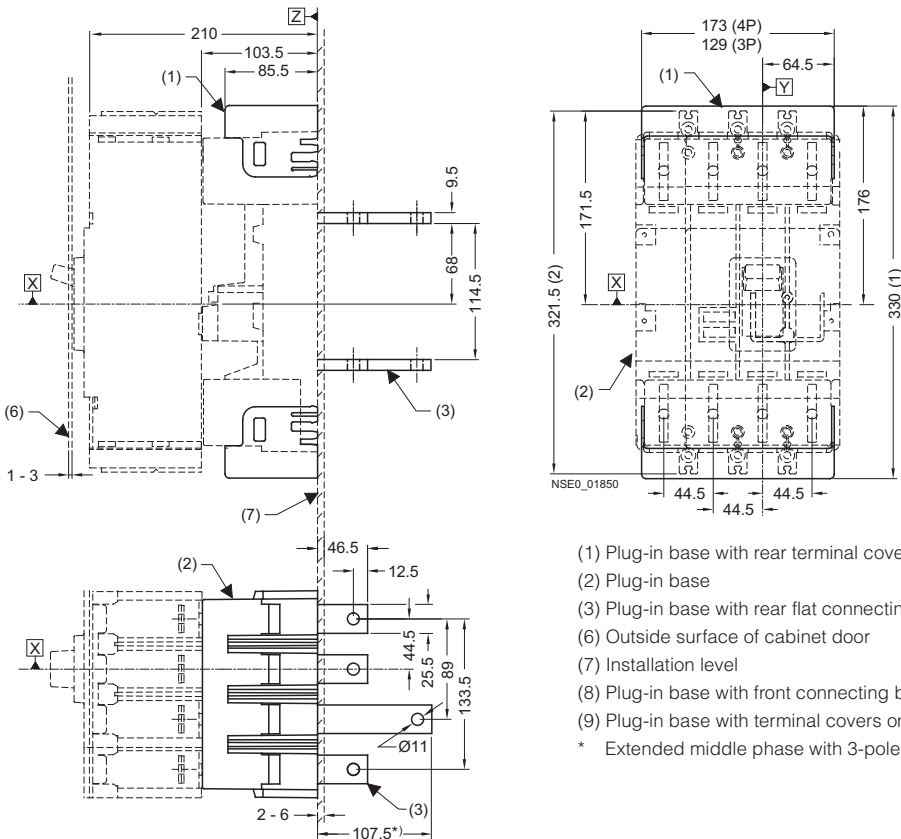
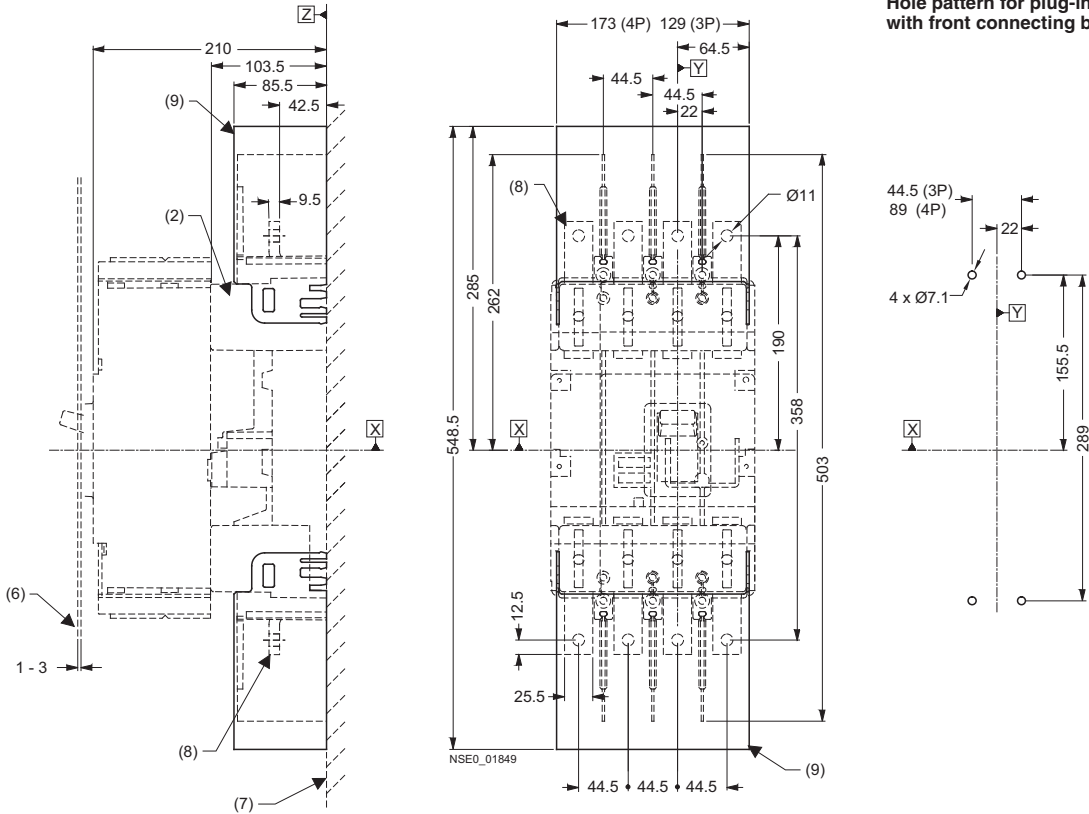
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL400 UL (JG frame) and VL400X UL (LG frame), 3- and 4-pole, up to 600 A

Plug-in bases and accessories

Hole pattern for plug-in base with front connecting bars



- (1) Plug-in base with rear terminal covers
 - (2) Plug-in base
 - (3) Plug-in base with rear flat connecting bars
 - (6) Outside surface of cabinet door
 - (7) Installation level
 - (8) Plug-in base with front connecting bars
 - (9) Plug-in base with terminal covers on the front
- * Extended middle phase with 3-pole circuit breaker

SENTRON 3VL Molded Case Circuit Breakers

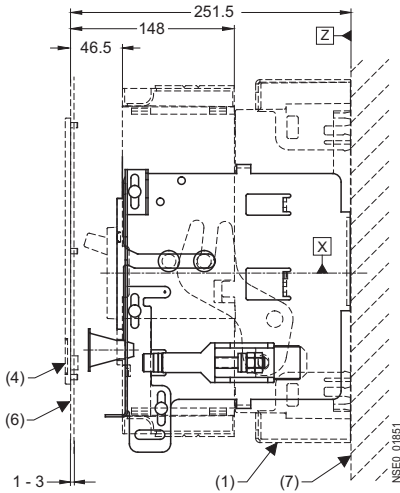
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

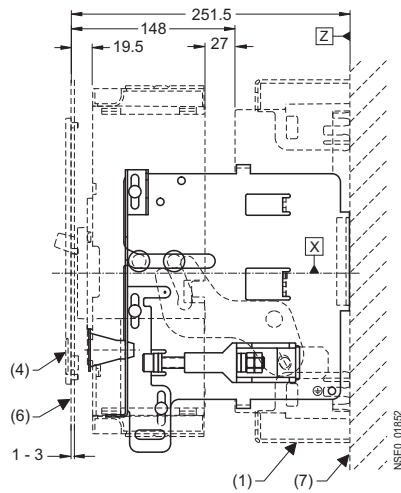
VL400 UL (JG frame) and VL400X UL (LG frame), 3- and 4-pole, up to 600 A

Plug-in bases and accessories

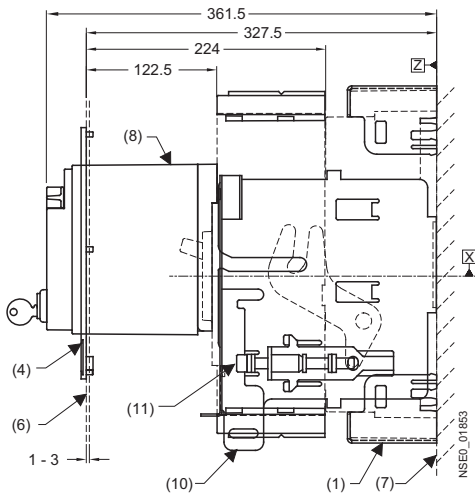
Plug-in base for front-operated rotary operating mechanism (connected position)



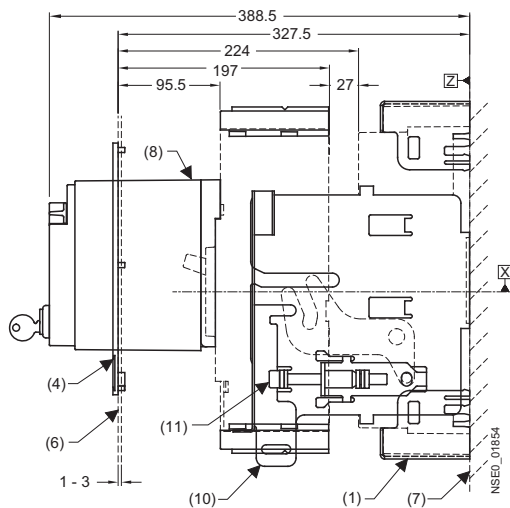
Plug-in base for front-operated rotary operating mechanism (disconnected position)



Plug-in base for motorized operating mechanism with spring energy store (connected position)



Plug-in base for motorized operating mechanism with spring energy store (disconnected position)



- (1) Plug-in base with terminal covers
- (4) Masking frame for door cut-out (for circuit breaker with operating mechanism)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Motorized operating mechanism with spring energy store
- (9) Front-operated rotary operating mechanism
- (10) Locking device for racking mechanism
- (11) Racking mechanism

SENTRON 3VL Molded Case Circuit Breakers

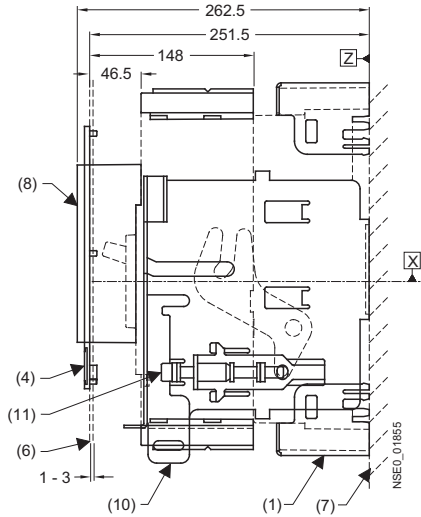
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

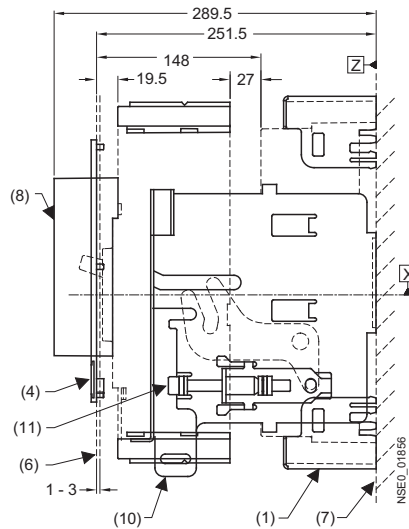
VL400 UL (JG frame) and VL400X UL (LG frame), 3- and 4-pole, up to 600 A

Plug-in bases and accessories

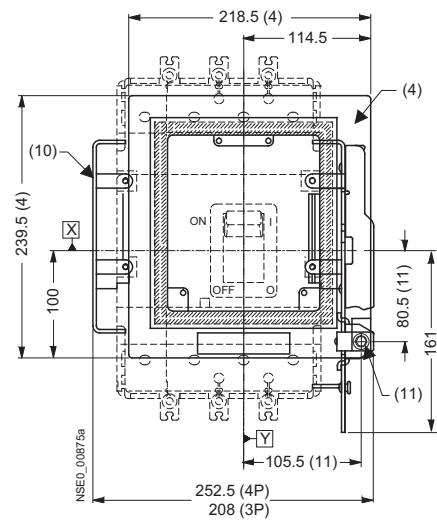
Plug-in base for extended escutcheon (connected position)



Plug-in base for extended escutcheon (disconnected position)



Extended escutcheon mounted on withdrawable version



Locking device for racking mechanism

- (1) Plug-in base with terminal covers
- (4) Masking frame for door cut-out (for circuit breaker with operating mechanism)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Extended escutcheon
- (10) Locking device for racking mechanism
- (11) Racking mechanism

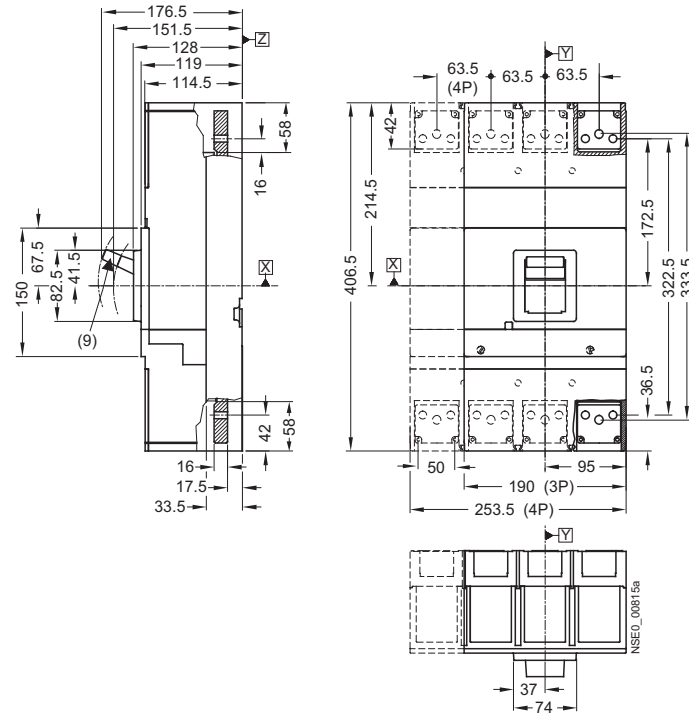
SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

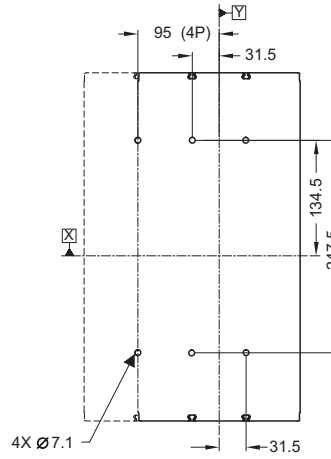
Project planning aids

VL800 UL (MG frame), 3- and 4-pole, up to 800 A Circuit breakers

SENTRON VL800 UL (MG frame) circuit breaker

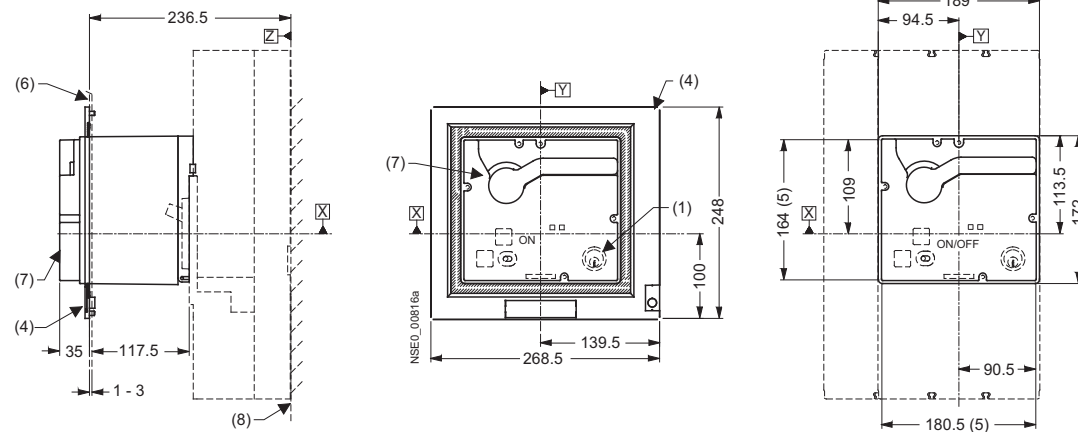


Circuit breaker installation instructions

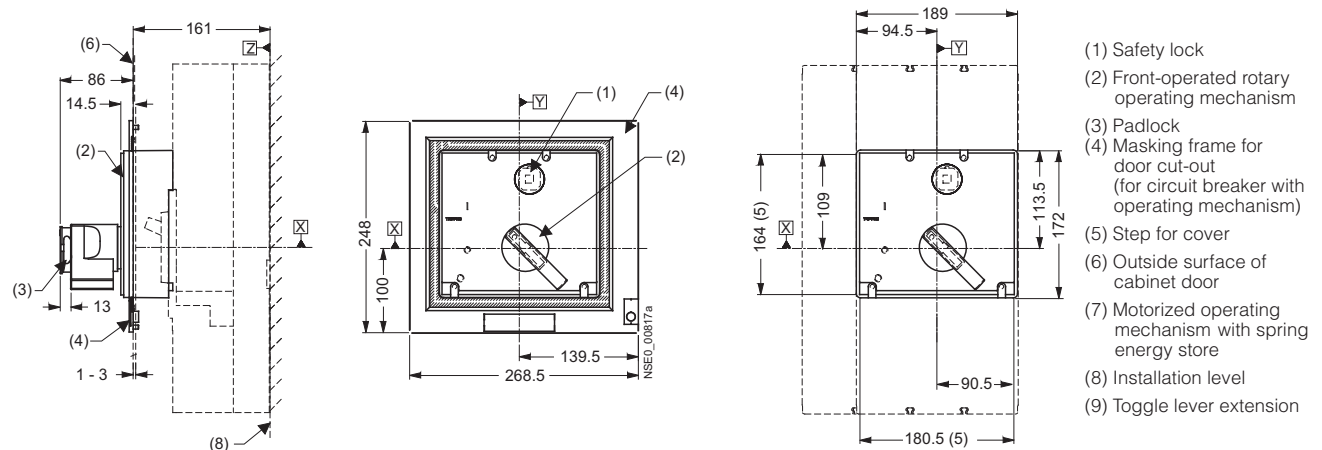


Operating mechanisms

Motorized operating mechanism with spring energy store



Front-operated rotary operating mechanisms



- (1) Safety lock
- (2) Front-operated rotary operating mechanism
- (3) Padlock
- (4) Masking frame for door cut-out (for circuit breaker with operating mechanism)
- (5) Step for cover
- (6) Outside surface of cabinet door
- (7) Motorized operating mechanism with spring energy store
- (8) Installation level
- (9) Toggle lever extension

5

SENTRON 3VL Molded Case Circuit Breakers

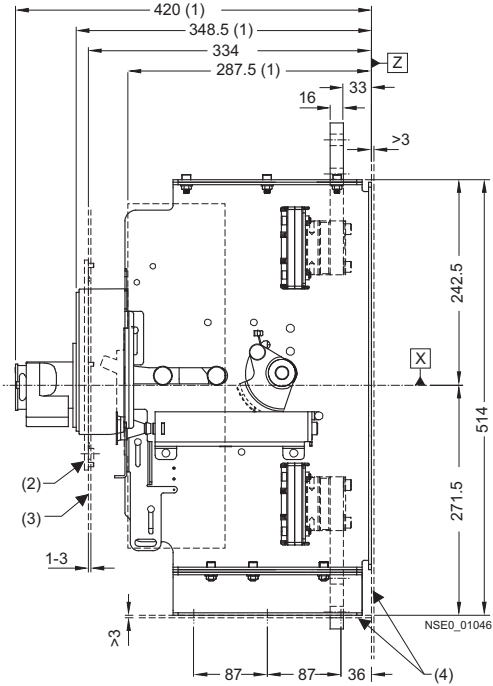
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

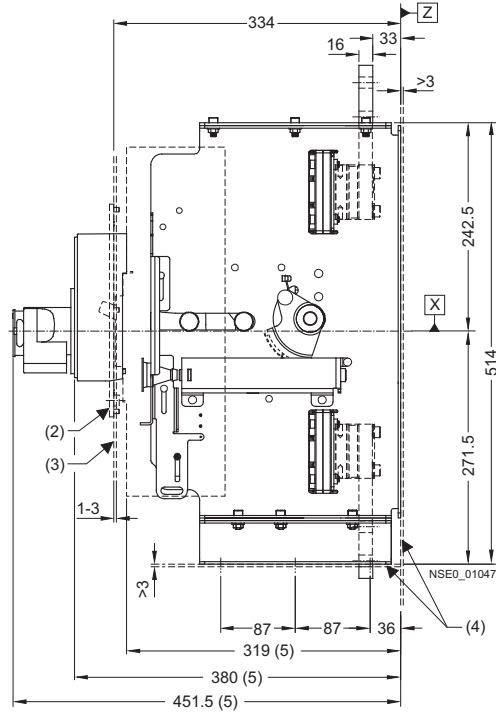
VL800 UL (MG frame), 3- and 4-pole, up to 800 A

Withdrawable versions

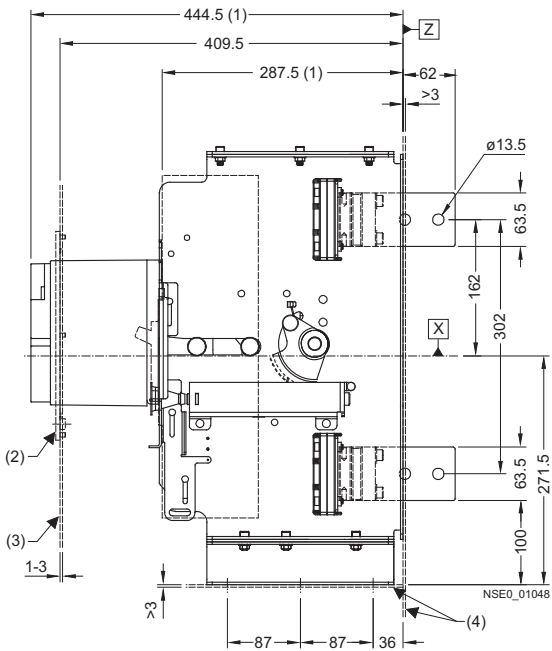
Withdrawable version with front-operated rotary operating mechanism
Insert position



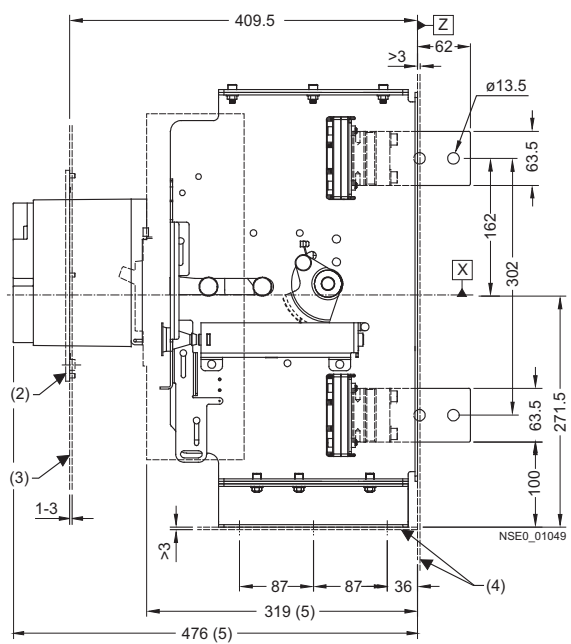
Withdrawable version with front-operated rotary operating mechanism
Withdraw position



Withdrawable version with motorized operating mechanism with spring energy store
Insert position



Withdrawable version with motorized operating mechanism with spring energy store
Withdraw position



- (1) Connected position
- (2) Masking frame for door cut-out
- (3) Outside surface of cabinet door
- (4) Installation level
- (5) Disconnected position

5

SENTRON 3VL Molded Case Circuit Breakers

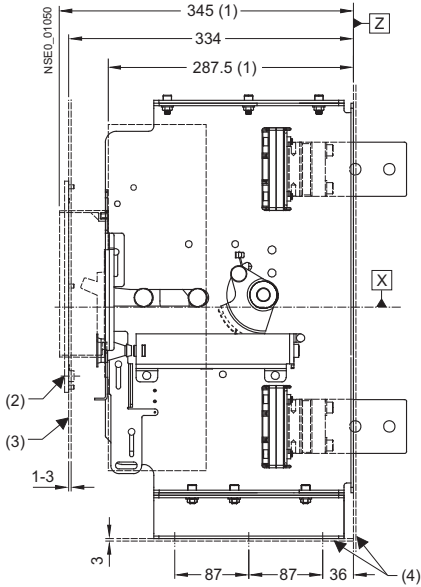
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL800 UL (MG frame), 3- and 4-pole, up to 800 A

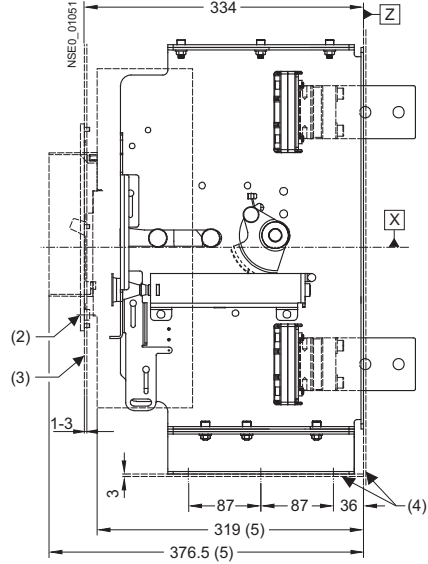
Withdrawable version with extended escutcheon
(without masking frame)

Insert position



Withdrawable version with extended escutcheon
(without masking frame)

Withdraw position



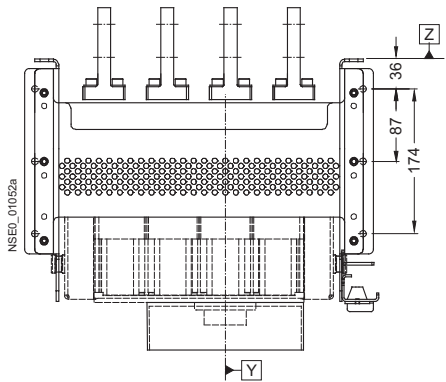
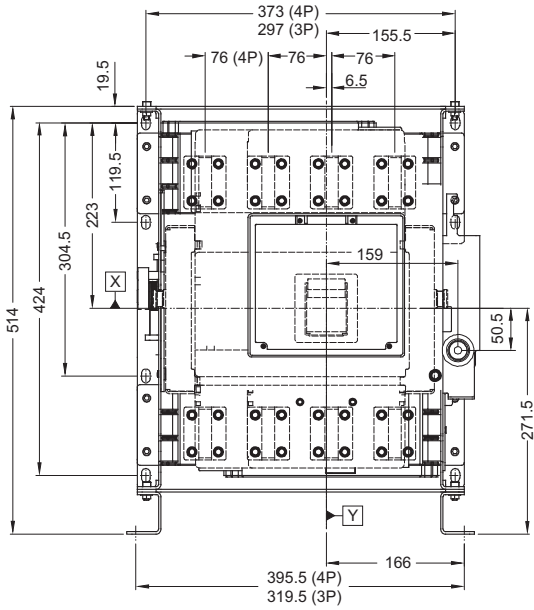
- (1) Connected position
- (2) Masking frame for door cut-out
- (3) Outside surface of cabinet door
- (4) Installation level
- (5) Disconnected position

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

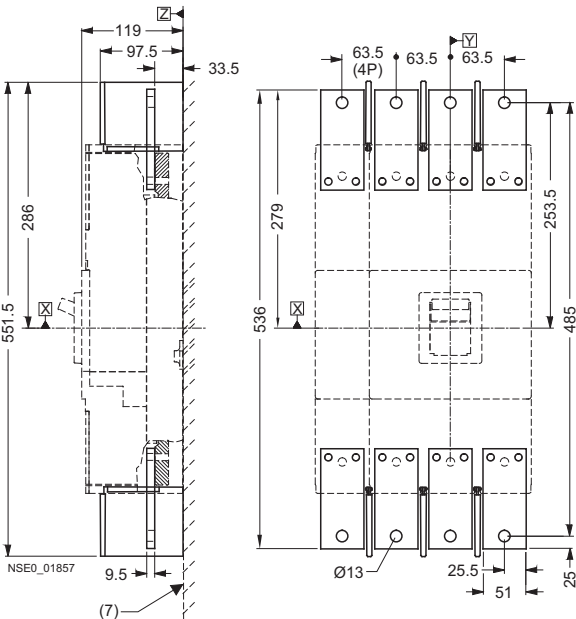
Project planning aids

VL800 UL (MG frame), 3- and 4-pole, up to 800 A
 Withdrawable versions



5

Connections



(7) Installation level

SENTRON 3VL Molded Case Circuit Breakers

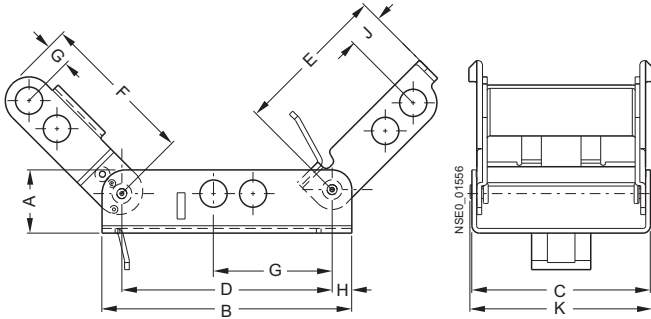
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL800 UL (MG frame), 3- and 4-pole, up to 800 A

Interlocks

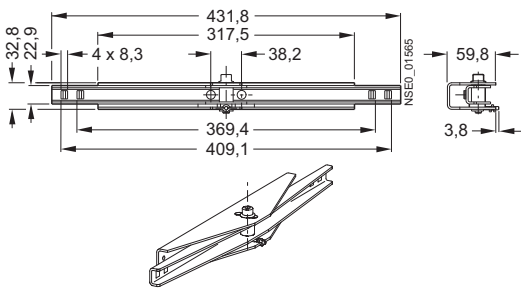
Locking devices for toggle levers



Type	a	b	c	d	e	f	g	h	i	k
3VL9 4	20.3	80.3	57.4	52.8	49.3	49.8	6.35	6.3	11.2	58.5
3VL9 6	21.6	79.8	71.1	62.0	50.4	46.5	12.9	8.9	8.6	72.2
3VL9 8	21.6	110.5	88.9	96.5	77.2	69.1	11.7	5.1	24.8	90.0

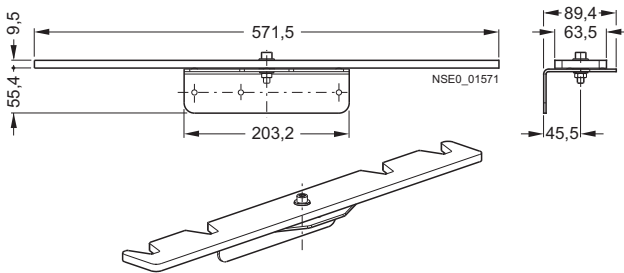
Rear interlocking modules

Rear interlocking modules
3-pole circuit breaker

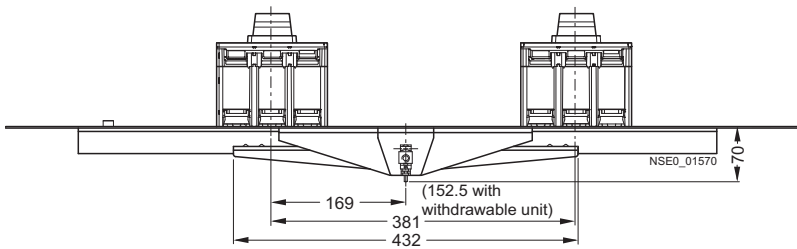


For more detailed dimensional drawings see "Mounting Instructions for Rear Interlocking Module".

Rear interlocking modules
4-pole circuit breaker



Rear interlocking modules



SENTRON 3VL Molded Case Circuit Breakers

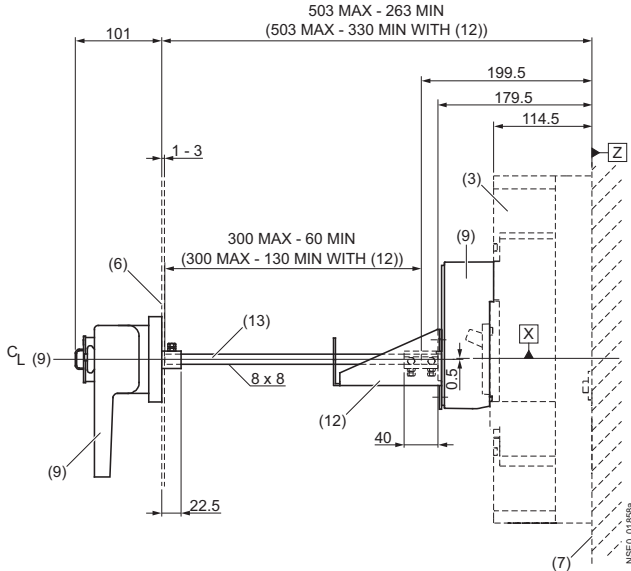
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

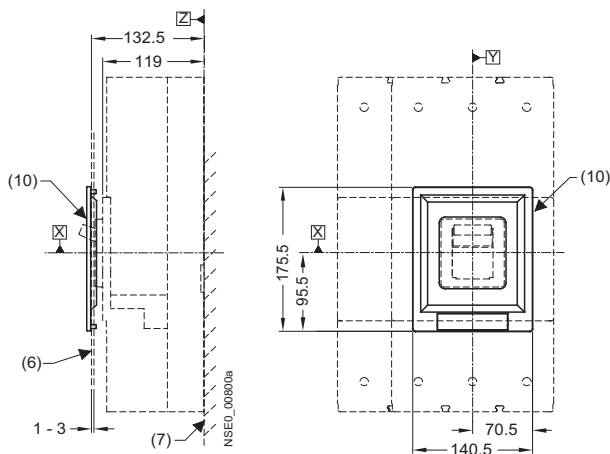
VL800 UL (MG frame), 3- and 4-pole, up to 800 A

Accessories

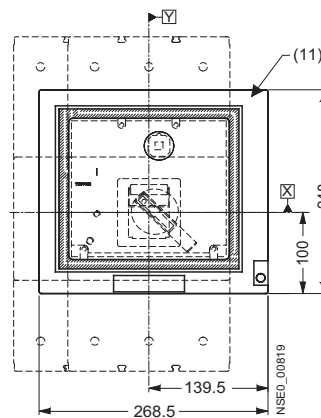
Door-coupling rotary operating mechanism



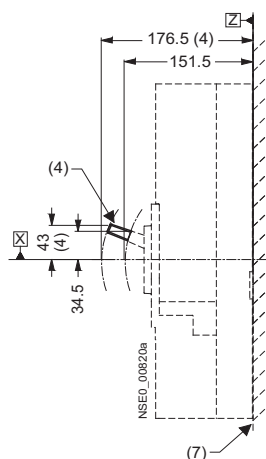
Masking frame for door cut-out for circuit breaker with toggle lever



Masking frame for door cut-out for circuit breaker with operating mechanism



Toggle handle extensions



- (3) Circuit breaker
- (4) Toggle handle extension
- (6) Outside surface of cabinet door
- (7) Installation level
- (9) Door-coupling rotary operating mechanism
- (10) Masking frame for door cut-out (for circuit breaker with toggle lever)
- (11) Masking frame for door cut-out (for circuit breaker with operating mechanism)
- (12) Support bracket
- (13) Center line of operating shaft

5

SENTRON 3VL Molded Case Circuit Breakers

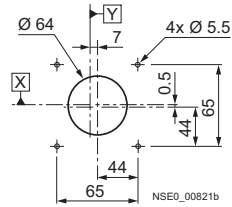
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

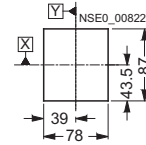
VL800 UL (MG frame), 3- and 4-pole, up to 800 A

Door cut-outs

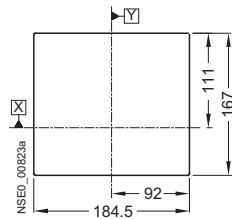
Door cut-out
Door-coupling rotary operating mechanism



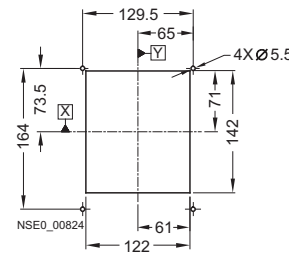
Door cut-out for toggle lever
(without masking frame)



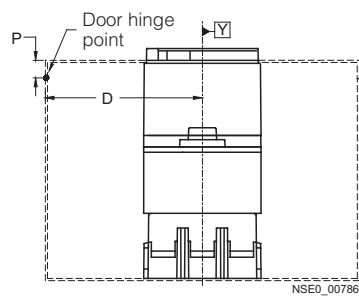
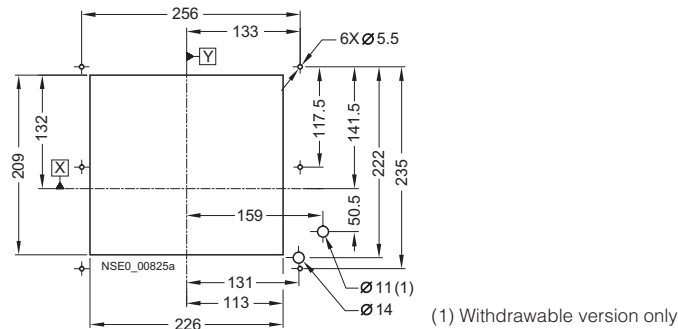
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (without masking frame)



Door cut-out for toggle lever
(with masking frame)



Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

$D > A$ from table + $(P \times 5)$

Combination	A
Circuit breaker only	150
Circuit breaker + plug-in base + motorized operating mechanism with stored-energy feature	150
Circuit breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit breaker + withdrawable version	200

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

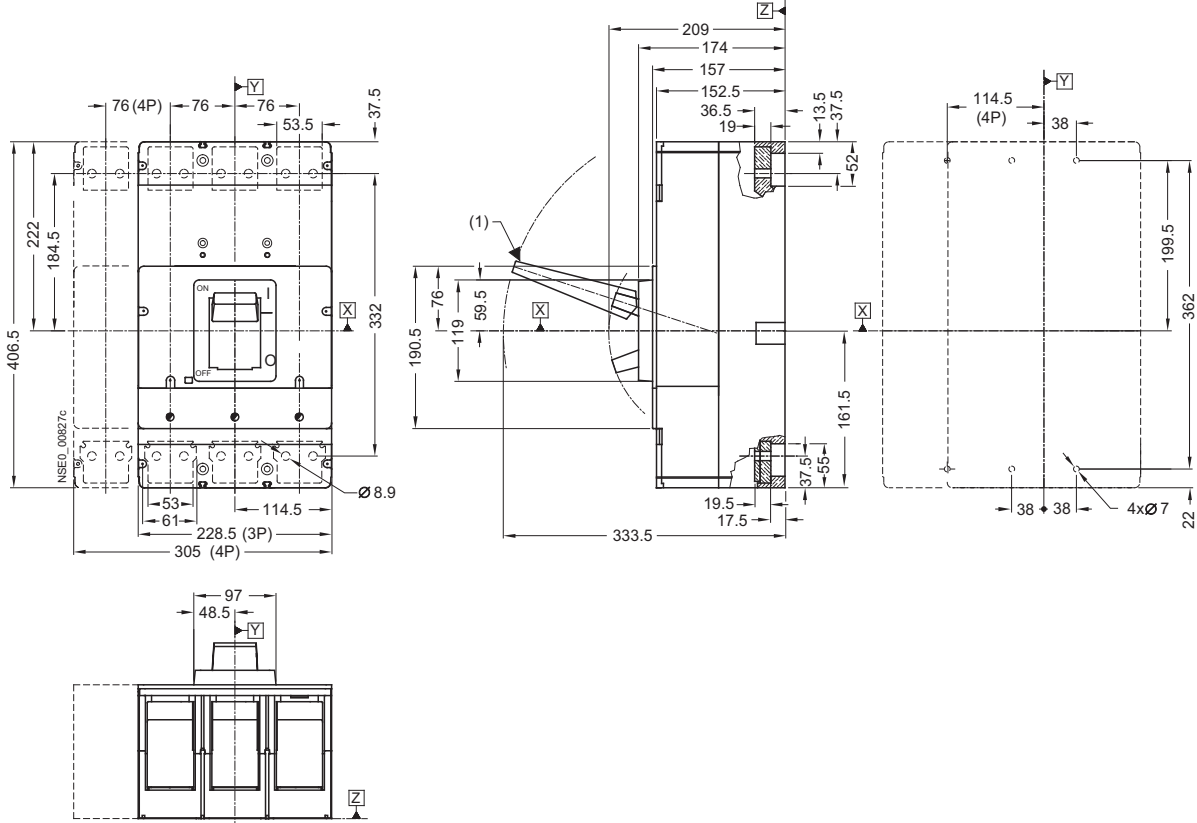
Project planning aids

VL1200 UL (NG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A

Circuit breakers

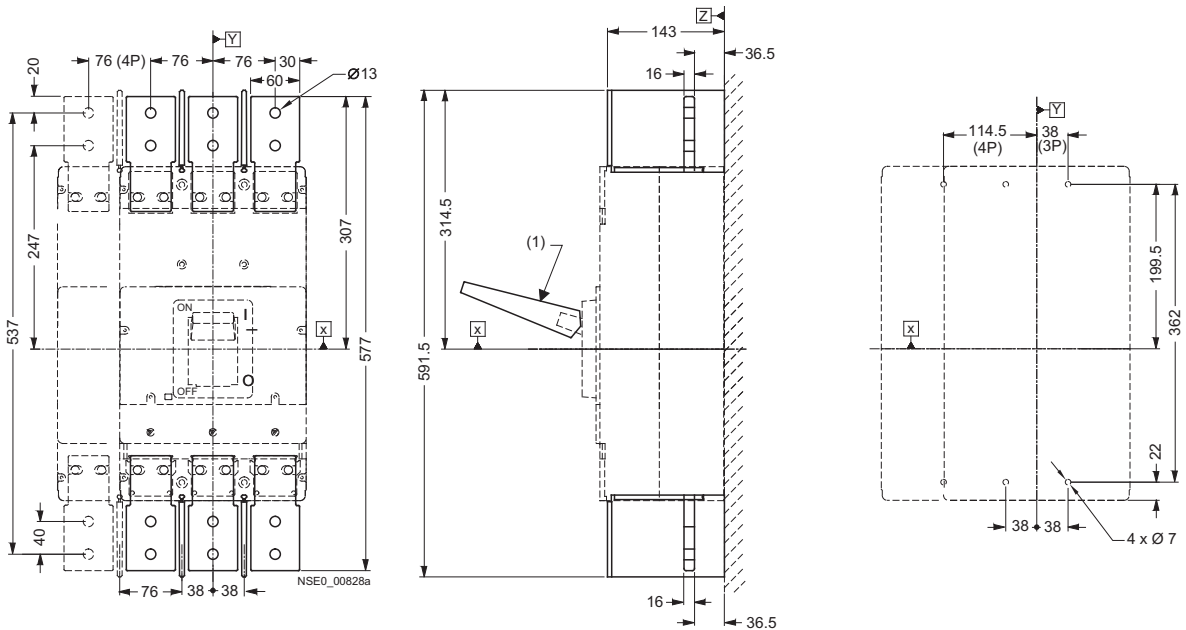
SENTRON VL1200 UL (NG frame) circuit breaker

Circuit breaker installation instructions



SENTRON VL1600 UL (PG frame) circuit breaker

Circuit breaker installation instructions



(1) Toggle handle extension

SENTRON 3VL Molded Case Circuit Breakers

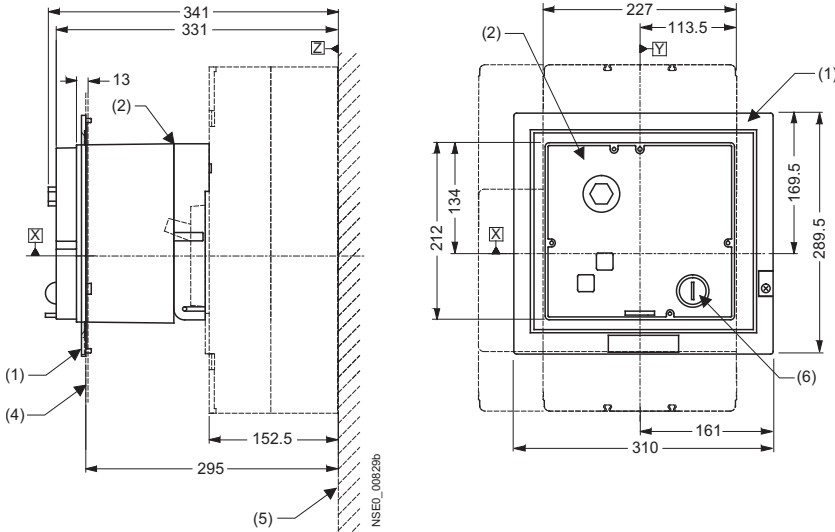
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

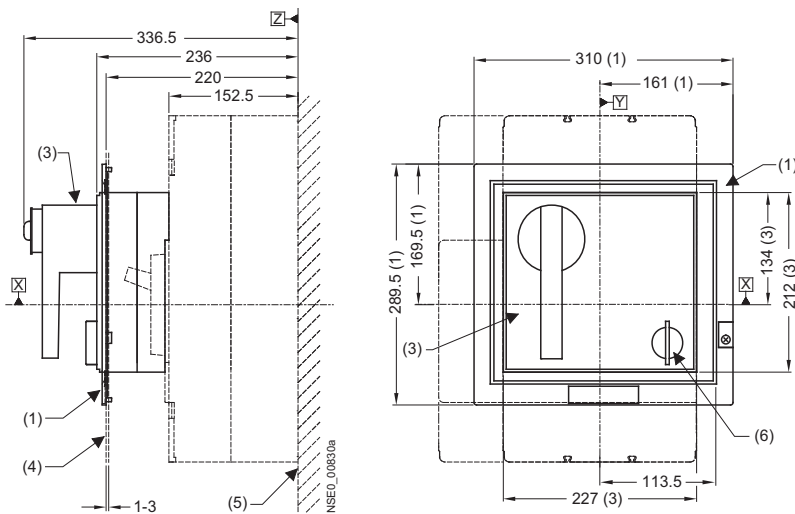
VL1200 UL (NG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A

Operating mechanisms

Motorized operating mechanisms



Front-operated rotary operating mechanisms



- (1) Masking frame for door cut-out
(for circuit breaker with operating mechanism)
- (2) Motorized operating mechanism
- (3) Front-operated rotary operating mechanism
- (4) Outside surface of cabinet door
- (5) Installation level
- (6) Safety lock

5

SENTRON 3VL Molded Case Circuit Breakers

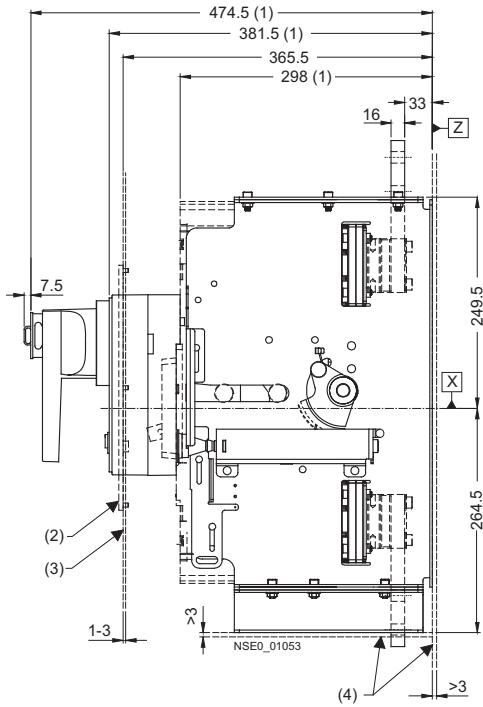
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

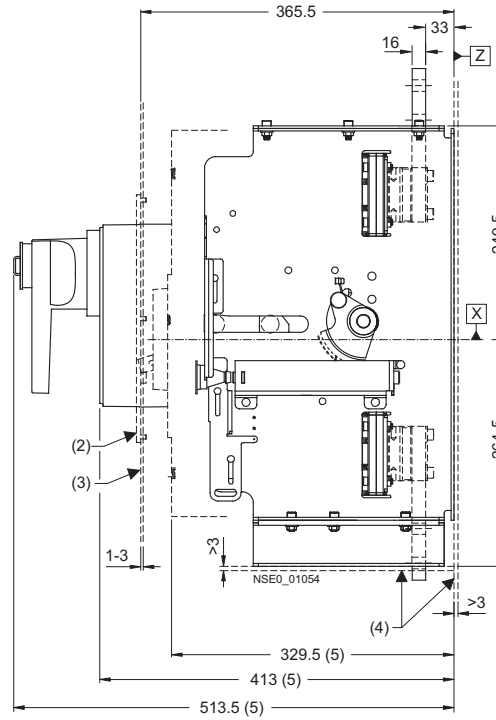
VL1200 UL (NG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A

Withdrawable versions

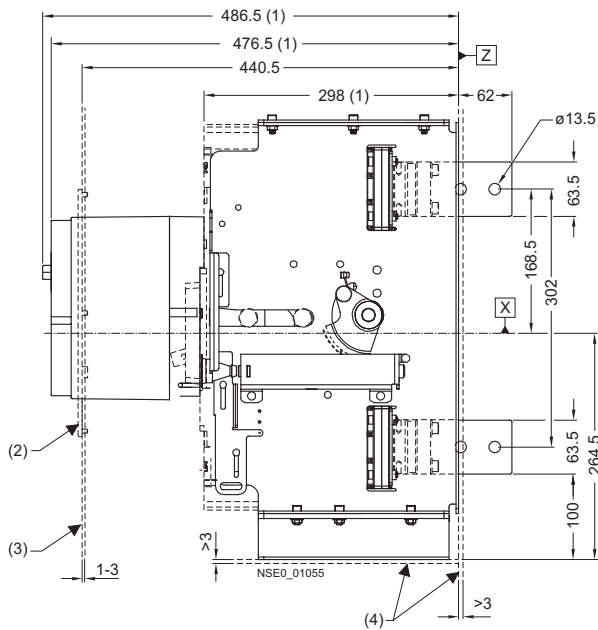
Withdrawable version with front-operated rotary operating mechanism
Insert position



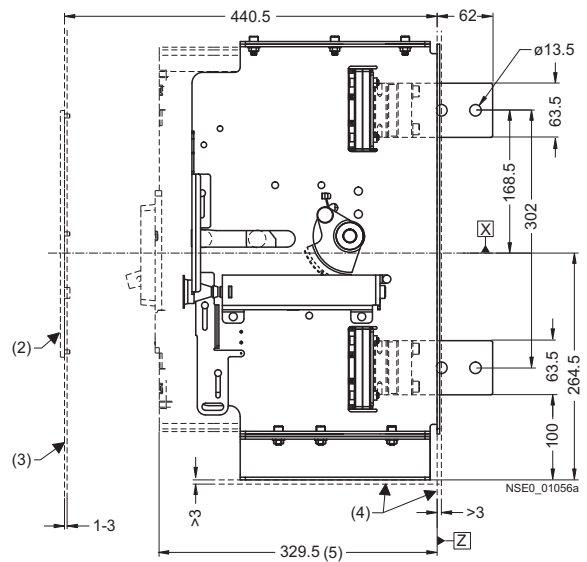
Withdrawable version with front-operated rotary operating mechanism
Withdraw position



Withdrawable version with motorized operating mechanism with spring energy store
Insert position



Withdrawable version with motorized operating mechanism with spring energy store
Withdraw position



- (1) Connected position
- (2) Masking frame for door cut-out
- (3) Outside surface of cabinet door
- (4) Installation level
- (5) Disconnected position

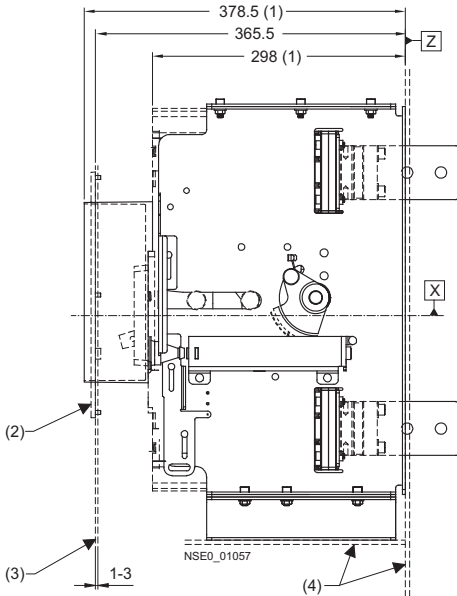
SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

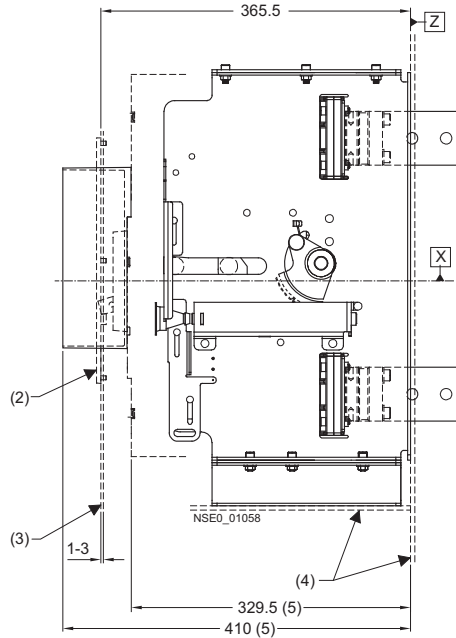
Project planning aids

VL1200 UL (NG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A
Withdrawable versions

Withdrawable version with extended escutcheon (without masking frame)
Insert position

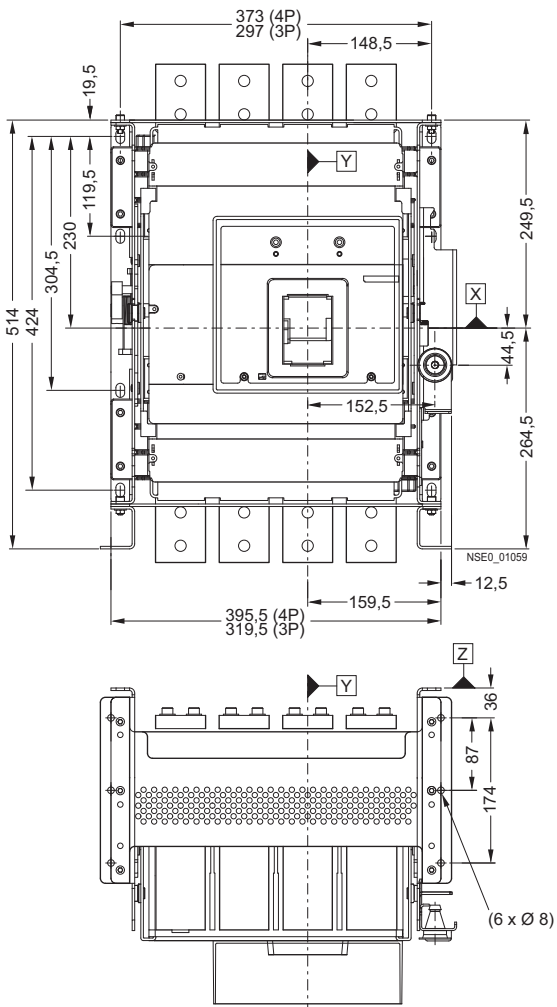


Withdrawable version with extended escutcheon (without masking frame)
Withdraw position



- (1) Connected position
- (2) Masking frame for door cut-out
- (3) Outside surface of the cabinet door
- (4) Installation level
- (5) Disconnected position

Withdrawable version



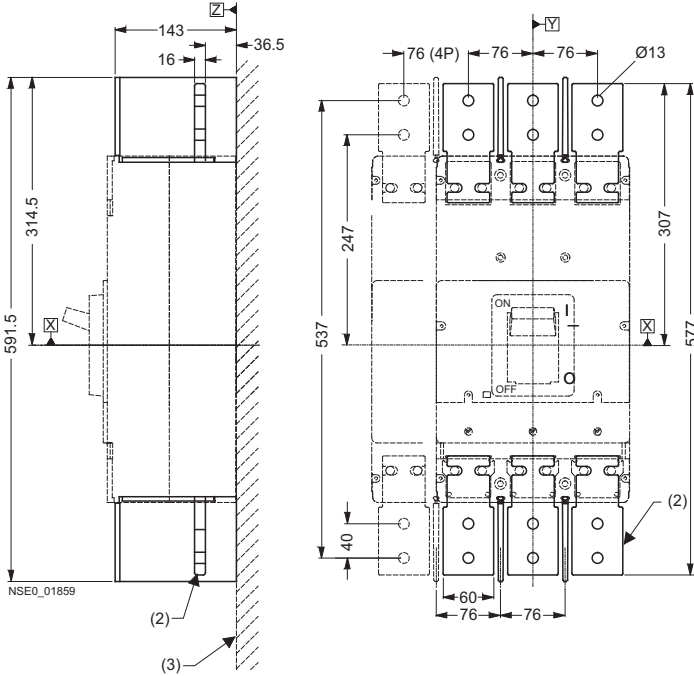
SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL1200 UL (NG frame) and VL1600 UL (PG frame),
3- and 4-pole, up to 1600 A

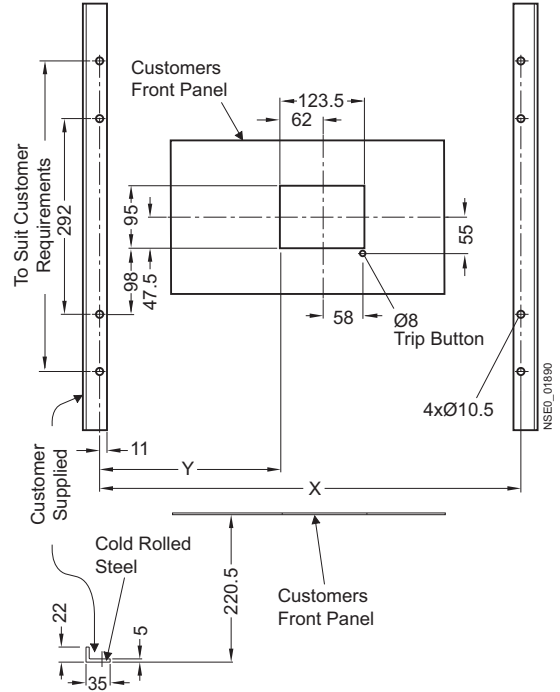
Connections



- (2) Front connecting bars (only for VL1600 UL)
- (3) Installation level

VL1600 UL (PG frame),
3-pole, up to 1600 A

Mounting bases

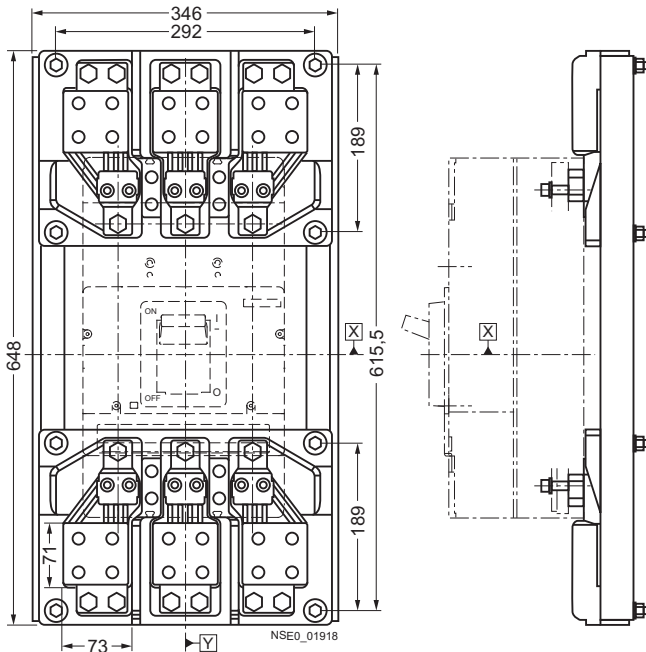


Type	X	Y
Front-accessible terminals 3VL9 800-4TU31	616	264
Rear-accessible terminals 3VL9 800-4TV31	444	180

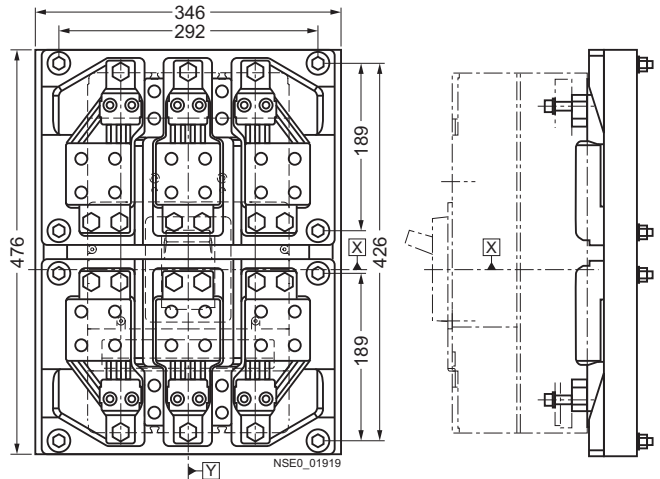
5

VL1600 UL (PG frame), 3-pole, up to 1600 A

Mounting bases, front-accessible terminals



Mounting bases, rear-accessible terminals



SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

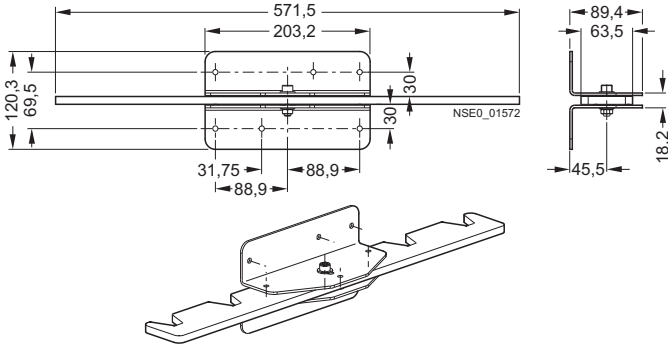
Project planning aids

VL1200 UL (NG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A

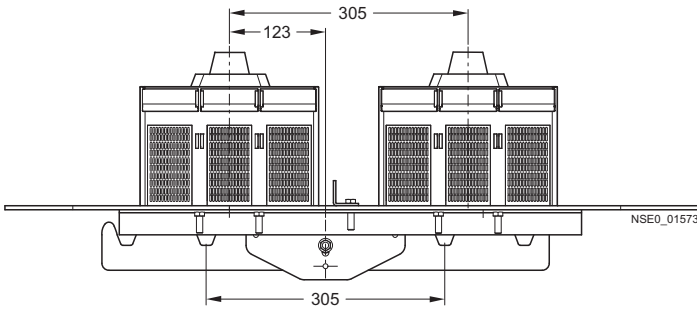
Rear interlocking modules

Rear interlocking modules

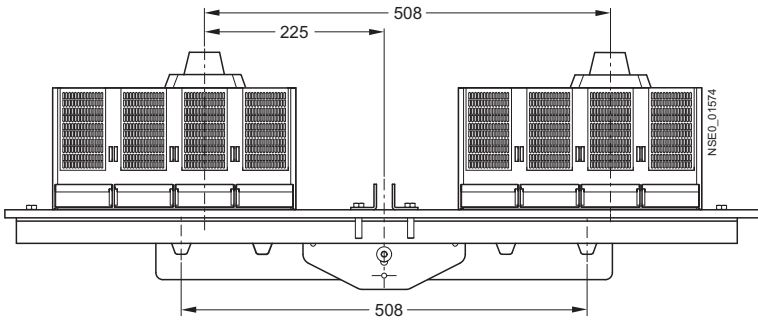
For more detailed dimensional drawings see "Mounting Instructions for Rear Interlocking Module".



3-pole version



4-pole version



SENTRON 3VL Molded Case Circuit Breakers

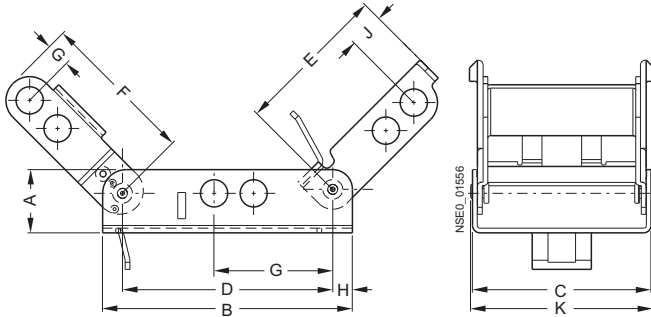
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

VL1200 UL (NG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A

Interlocks

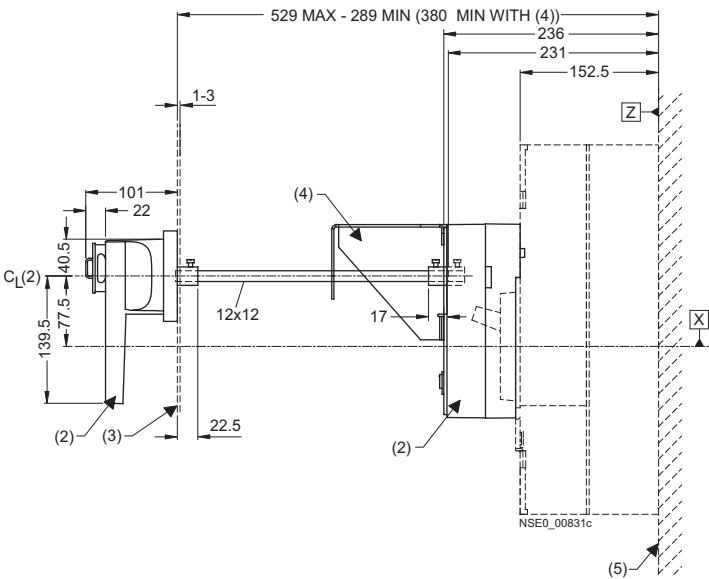
Locking devices for toggle levers



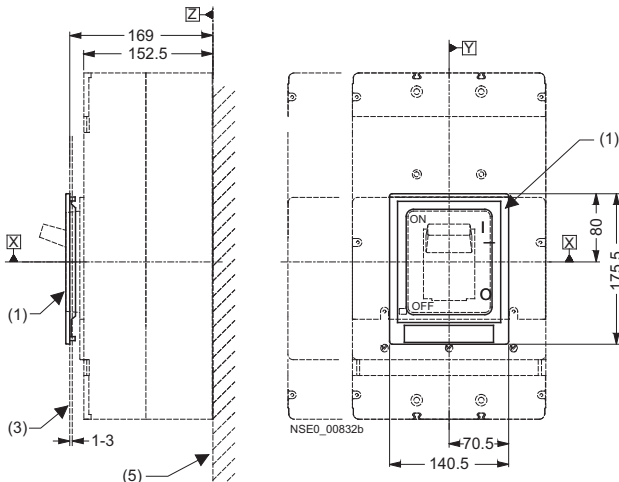
Type	a	b	c	d	e	f	g	h	i	k
3VL9 4	20.3	80.3	57.4	52.8	49.3	49.8	6.35	6.3	11.2	58.5
3VL9 6	21.6	79.8	71.1	62.0	50.4	46.5	12.9	8.9	8.6	72.2
3VL9 8	21.6	110.5	88.9	96.5	77.2	69.1	11.7	5.1	24.8	90.0

Accessories

Door-coupling rotary operating mechanism



Masking frame for door cut-out for circuit breaker with toggle lever



- (1) Masking frame for door cut-out (for circuit breaker with toggle lever)
- (2) Door-coupling rotary operating mechanism
- (3) Outside surface of cabinet door
- (4) Support bracket
- (5) Installation level

5

SENTRON 3VL Molded Case Circuit Breakers

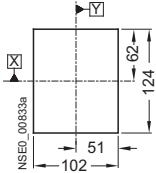
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

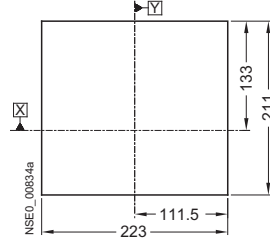
VL1200 UL (NG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A

Door cut-outs

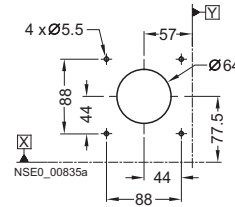
Door cut-out for toggle lever (without masking frame)



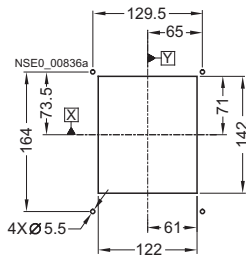
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism (without masking frame)



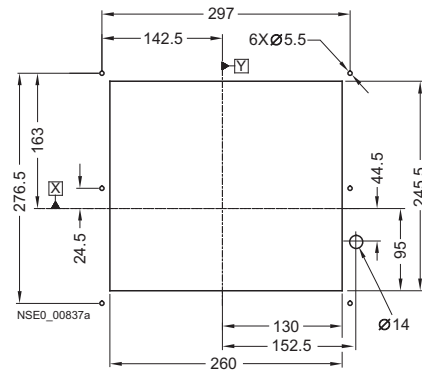
Door cut-out for door-coupling rotary operating mechanism



Door cut-out for toggle lever (with masking frame)



Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism and extended escutcheon (with masking frame)



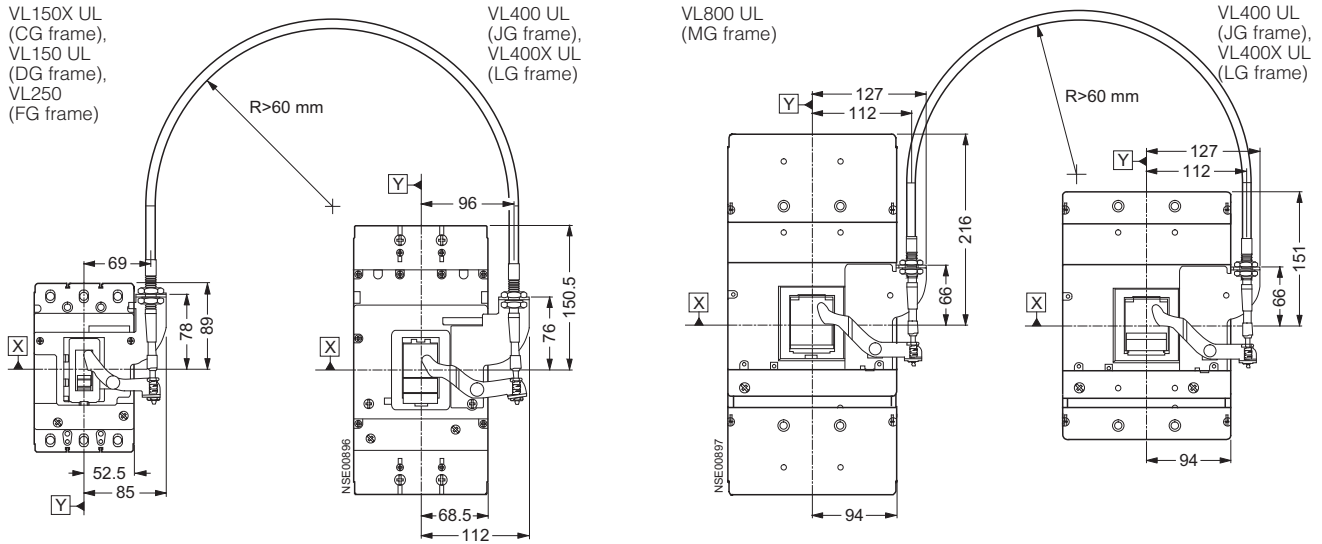
SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

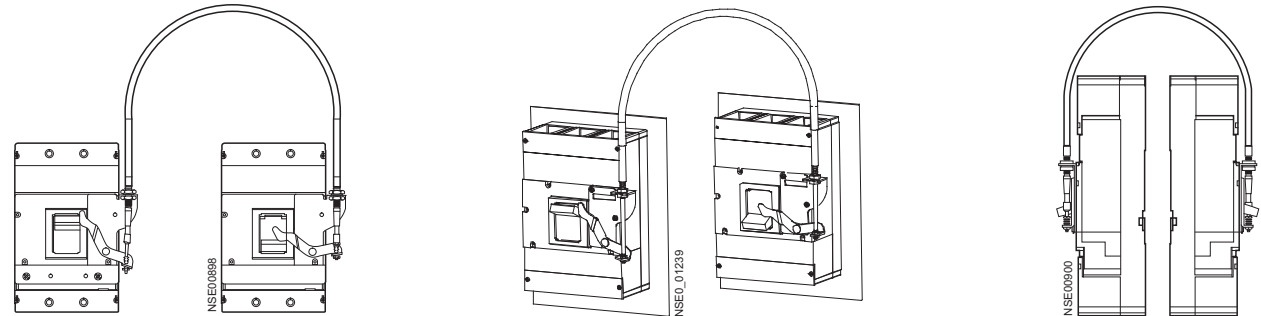
Project planning aids

VL150X UL (CG frame), 3-pole, up to 150 A,
 VL150 UL (DG frame) and VL1600 UL (PG frame), 3- and 4-pole, up to 1600 A

Interlock with Bowden wire



Combination options



5

	3VL9 300-8LA01 For VL150X UL (CG frame), VL150 UL (DG frame) and VL250 UL (FG frame)	3VL9 400-8LA01 For VL400 UL (JG frame) and VL400X UL (LG frame)	3VL9 600-8LA01 For VL800 UL (MG frame)	3VL9 800-8LA01 For VL1200 UL (NG frame) and VL1600 UL (PG frame)
--	---	--	---	---

Interlocks with Bowden wire

3VL9 300-8LA01 For VL150X UL (CG frame), VL150 UL (DG frame) and VL250 UL (FG frame)	✓	✓	✓	--
3VL9 400-8LA01 For VL400 UL (JG frame) and VL400X UL (LG frame)	✓	✓	✓	--
3VL9 600-8LA01 For VL800 UL (MG frame)	✓	✓	✓	✓
3VL9 800-8LA01 For VL1200 UL (NG frame) and VL1600 UL (PG frame)	--	--	✓	✓

✓ Combination possible

SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

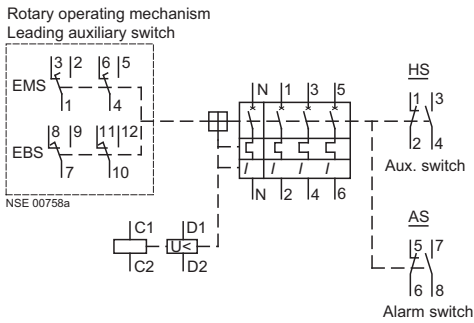
Project planning aids

Schematics

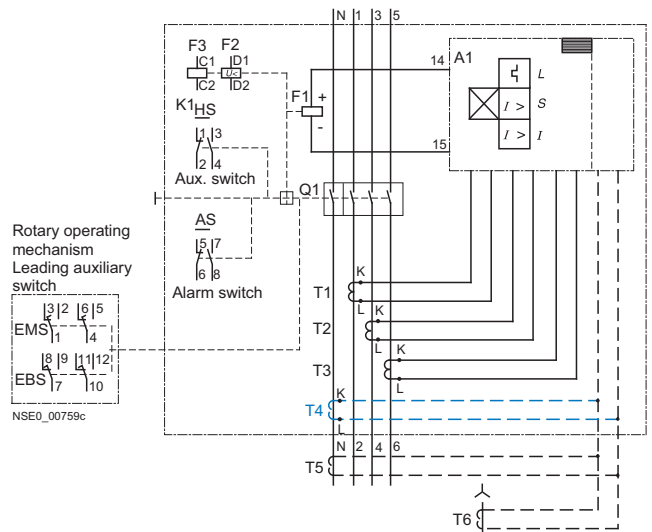
The graphical symbols used in the internal circuit diagrams provide information about the type, circuit and mode of operation of the devices, but contain no information about the design.

As it is not possible to show all of the potential combinations here, it may be necessary to alter the schematics accordingly for different versions.

The purpose of these circuit diagrams is merely to help improve the understanding of the way in which the devices function.

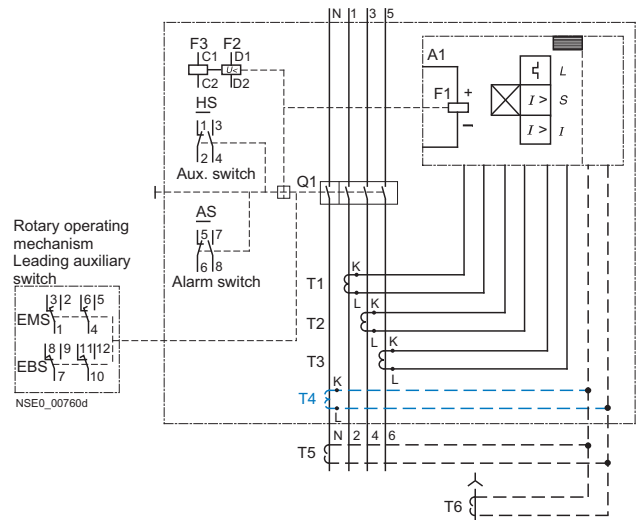


Connection diagram for SENTRON VL150X UL (CG frame) to VL1600 UL (PG frame), circuit breakers for system protection with thermal-magnetic overcurrent trip units



Internal circuit diagram for SENTRON VL150X UL (CG frame) to VL250 UL (FG frame), circuit breakers for system protection with solid-state overcurrent trip units

- Q1 Main contacts
- A1 Solid-state overcurrent trip unit
- F1 Tripping solenoid for A1
- F2 Undervoltage releases
- F3 Shunt trip units
- HS Auxiliary switches
- AS Alarm switch
- EBS Leading auxiliary switch from ON to OFF (installed in rotary operating mechanism)
- EMS Leading auxiliary switch from OFF to ON (installed in rotary operating mechanism)
- T1 ... T6 Current transformers

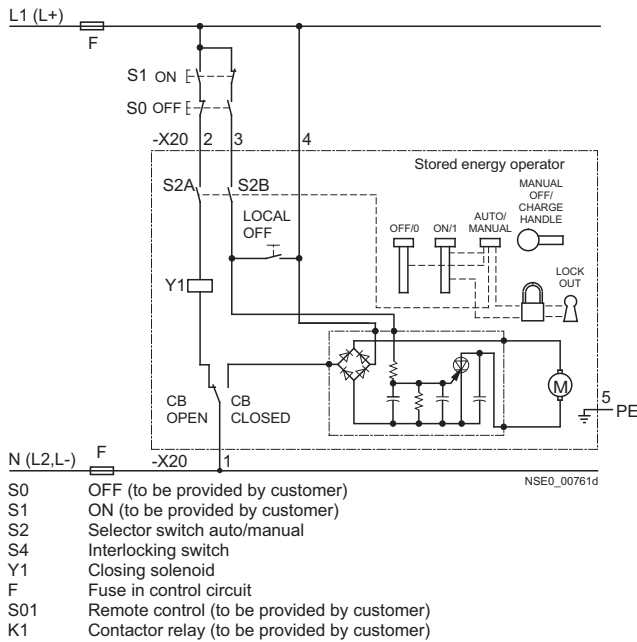


Internal circuit diagram for SENTRON VL400 UL (JG frame) to VL1600 UL (PG frame), circuit breakers for system protection with solid-state overcurrent trip units

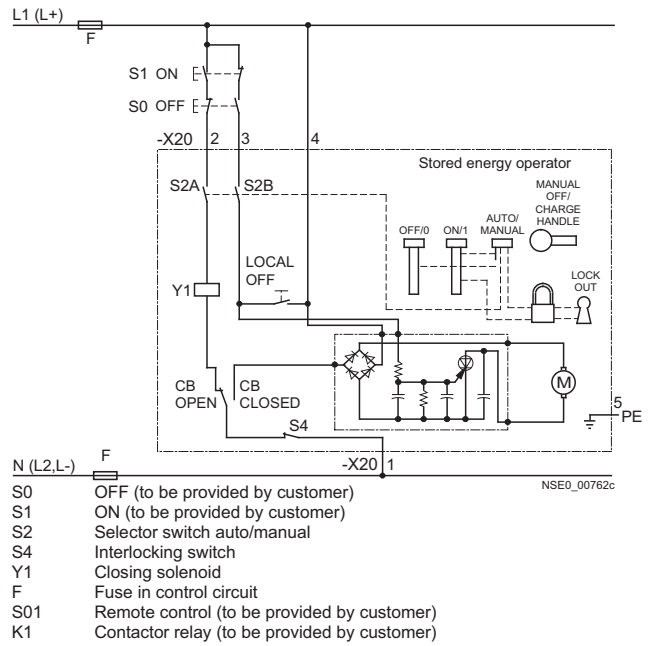
SENTRON 3VL Molded Case Circuit Breakers

According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

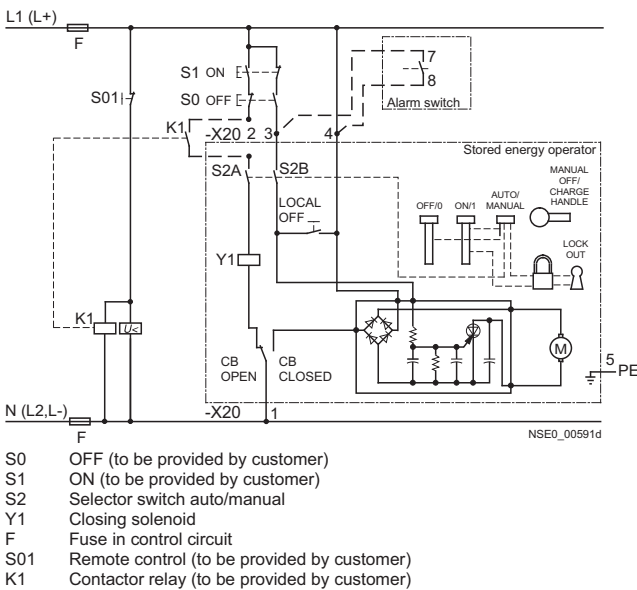


Motorized operating mechanism with spring energy store for SENTRON VL150X UL (CG frame) to VL250 UL (FG frame) circuit breakers without undervoltage releases



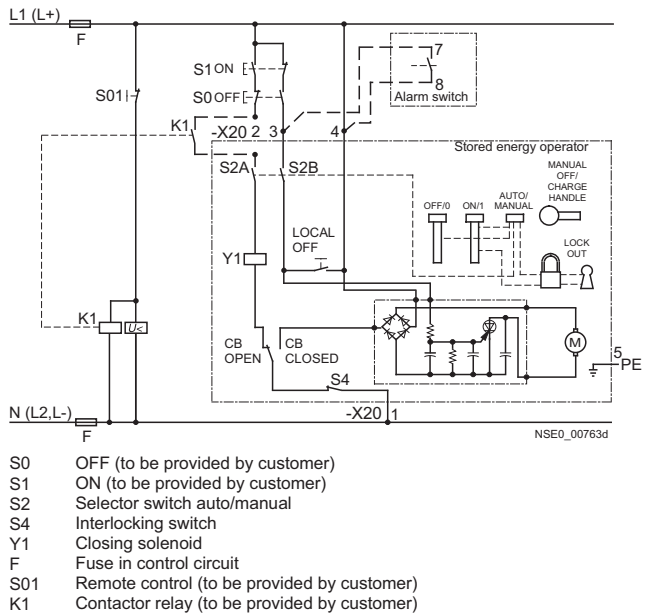
Motorized operating mechanism with spring energy store for SENTRON VL400 UL (JG frame) to VL800 UL (MG frame) circuit breakers without undervoltage releases

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Note: A separate alarm switch (7-8) can be incorporated for automatic charging after a release. Automatic closing of a tripped circuit breaker is not recommended, in order to prevent a switch of the circuit breaker to a fault in the protected circuit.

Motorized operating mechanism with spring energy store for SENTRON VL150X UL (CG frame) to VL250 UL (FG frame) circuit breakers with undervoltage releases



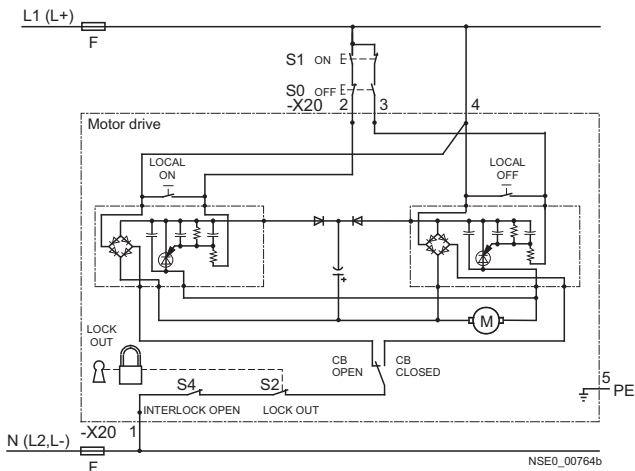
Note: A separate alarm switch (7-8) can be incorporated for automatic charging after a release. Automatic closing of a tripped circuit breaker is not recommended, in order to prevent a switch of the circuit breaker to a fault in the protected circuit.

Motorized operating mechanism with spring energy store for SENTRON VL400 UL (JG frame) to VL800 UL (MG frame) circuit breakers with undervoltage releases

SENTRON 3VL Molded Case Circuit Breakers

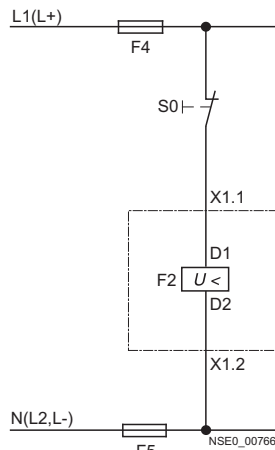
According to UL 489/IEC 60947-2 up to 1600 A

Project planning aids

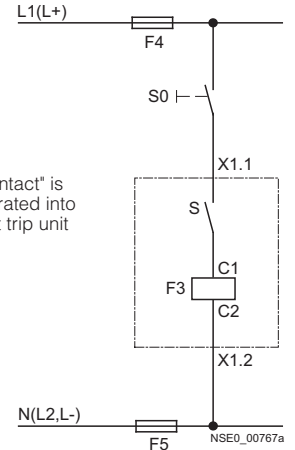


- S0 OFF (to be provided by customer))
- S1 ON (to be provided by customer)
- S2 Lock out
- S4 Interlock open
- F Fuse in control circuit
- S01 Remote control
- K1 Contactor relay

Motorized operating mechanism for SENTRON VL1200 UL (NG frame) and VL1600 UL (PG frame) circuit breakers without undervoltage releases



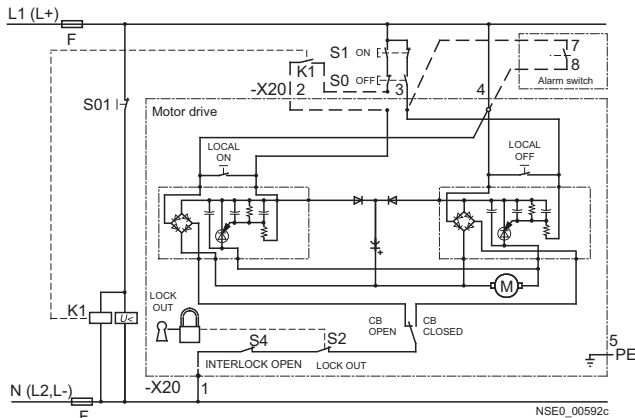
UNDERVOLTAGE RELEASE



SHUNT TRIP UNIT

"S contact" is integrated into shunt trip unit

Undervoltage and shunt trip unit for SENTRON VL150X UL (CG frame) to VL1600 UL (PG frame) circuit breakers



- S0 OFF (to be provided by customer)
- S1 ON (to be provided by customer)
- S2 Lock out
- S4 Interlock open
- F Fuse in control circuit
- S01 Remote control
- K1 Contactor relay

Note: A separate alarm switch (7-8) can be incorporated for automatic charging after a release. Automatic closing of a tripped circuit breaker is not recommended, in order to prevent a switching of the circuit breaker to a fault in the protected circuit.
Motorized operating mechanism for SENTRON VL1200 UL (NG frame) and VL1600 UL (PG frame) circuit breakers with undervoltage releases

SENTRON 3VL Molded Case Circuit Breakers

Notes

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