Circuit breaker characteristics
ComPact NSX100 DC to NSX250 DC


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A

ComPact NSX DC circuit breaker

Basic frame	Number of poles			
Electrical characteristics as per IEC 60947-1/ 60947-2 and EN 60947-1 / 60947-2				
Rated current at 40 °C	**In**	(A)		
Rated insulation voltage	**Ui**	(V)		
Rated impulse withstand voltage	**Uimp**	(kV peak)		
Rated operational voltage	**Ue**	(V DC)		
Type of circuit breaker				
Ultimate breaking capacity (L/R = 5 ms and L/R = 15 ms)	**Icu**	(kA rms)	V DC	24-125 V (1P) [1]
				250 V (1P) [1]
				500 V (2P) [1]
				750 V (3P) [1]
Service breaking capacity	**Ics**	% Icu		
Rated making capacity	**Icm**	% Icu		
Utilisation category				
Breaking time		(ms)		
Suitability for isolation				
Pollution degree (as per IEC 60664-1)				
Protection against overcurrents (see trip-unit table page A-19)				
				Built-in
Trip units				Interchangeable
Protection				Overloads
				Short-circuits
Durability				
(O/C cycles)	Mechanical			
	Electrical			250 V In
				250 V In/2
				500 V In
				500 V In/2
				750 V In
				750 V In/2
Indication and control auxiliaries				
Auxiliary contacts				
Voltage release	MX shunt release			
	MN undervoltage release			
Installation and connections				
Fixed				Front connection
				Rear connection
Plug-in (base)				Front connection
				Rear connection
Withdrawable (chassis)				Front connection
				Rear connection
Control	Manual	with toggle		
		with direct or extended rotary handle		
	Electrical	with remote control		
Dimensions and weight				
Dimensions H x W x D (mm) connected in series	Fixed	(mm)		1P
				2P
				3P
				4P
Weight (kg) connected in series	Fixed	(kg)		1P
				2P
				3P
				4P

[1] Number of poles in series taking part in current interruption.
Example. The NSX100N DC circuit breaker exists in the following versions:
- 1 pole with an Icu of 50 kA, for systems ≤ 250 V
- 2 poles with an Icu of 85 kA, for systems ≤ 500 V; 1 pole can be used in a 250 V system.

Circuit breaker characteristics
ComPact NSX100 DC to NSX250 DC

	NSX100 DC								NSX160 DC								NSX250 DC	
	1			2			3/4		1			2			3/4		3/4	
	100								160								250	
	750								750								750	
	8								8								8	
	250			500			750		250			500			750		750	
	F	**N**	**M**	**F**	**M**	**S**	**F**	**S**	**F**	**N**	**M**	**F**	**M**	**S**	**F**	**S**	**F**	**S**
	36	50	85	36	85	100	36	100	36	50	85	36	85	100	36	100	36	100
	36	50	85	36	85	100	36	100	36	50	85	36	85	100	36	100	36	100
	-	-	-	36	85	100	36	100	-	-	-	36	85	100	36	100	36	100
	-	-	-	-	-	-	36	100	-	-	-	-	-	-	36	100	36	100
	100 %																	
	100 %																	
	A																	
	< 10 ms																	
	◉																	
	3																	
	◉	◉	◉	◉	◉	◉	-		◉	◉	◉	◉	◉	◉	-		-	
	-	-	-	-	-	-	◉		-	-	-	-	-	-	◉		◉	
	◉	◉	◉	◉	◉	◉	◉		◉	◉	◉	◉	◉	◉	◉		◉	
	◉	◉	◉	◉	◉	◉	◉		◉	◉	◉	◉	◉	◉	◉		◉	
	10000																	
	5000																	
	10000																	
	5000																	
	10000																	
	5000																	
	10000																	
	-			◉			◉		-			◉			◉		◉	
	-			◉			◉		-			◉			◉		◉	
	-			◉			◉		-			◉			◉		◉	
	◉																	
	◉																	
	-	-	-	-	-	-	◉		-	-	-	-	-	-	◉		◉	
	-	-	-	-	-	-	◉		-	-	-	-	-	-	◉		◉	
	-	-	-	-	-	-	◉		-	-	-	-	-	-	◉		◉	
	-	-	-	-	-	-	◉		-	-	-	-	-	-	◉		◉	
	◉						◉		◉						◉			
	-						◉		-						◉			
	-						◉		-						◉			
	161 x 35 x 86			-			-		161 x 35 x 86			-			-			
	-			161 x 70 x 86			-		-			161 x 70 x 86			-			
	-			-			161 x 105 x 86		-			-			161 x 105 x 86			
	-			-			161 x 140 x 86		-			-			161 x 140 x 86			
	0.7			-			-		0.7			-			-			
	-			1.2			-		-			1.2			-			
	-			-			1.6 to 1.9		-			-			1.6 to 1.9			
	-			-			2.1 to 2.3		-			-			2.1 to 2.3			

Circuit breaker characteristics
ComPact NSX400 DC to NSX1200 DC


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ComPact NSX DC circuit breaker

Basic frame	Number of poles			
Electrical characteristics as per IEC 60947-1/ 60947-2 and EN 60947-1 / 60947-2				
Rated current at 40 °C	**In**	(A)		
Rated insulation voltage	**Ui**	(V)		
Rated impulse withstand voltage	**Uimp**	(kV peak)		
Rated operational voltage	**Ue**	(V DC)		
Type of circuit breaker				
Ultimate breaking capacity (L/R = 5 ms and L/R = 15 ms)	**Icu**	(kA rms)	V DC	24-125 V (1P) [1]
				250 V (1P) [1]
				500 V (2P) [1]
				750 V (3P) [1]
	Icu	(kA rms)	V DC	24-300 V (1P) [1]
				300-600 V (2P) [1]
Service breaking capacity	**Ics**	% Icu		
Rated making capacity	**Icm**	% Icu		
Utilisation category				
Breaking time		(ms)		
Suitability for isolation				
Pollution degree (as per IEC 60664-1)				
Protection against overcurrents (see trip-unit table page A-19)				
Trip units				Interchangeable
Protection				Overloads
				Short-circuits
Durability				
(O/C cycles)	Mechanical			
	Electrical			250 V In
				250 V In/2
				500 V In
				500 V In/2
				750 V In
				750 V In/2
				600 V In
				600 V In/2
Indication and control auxiliaries				
Auxiliary contacts				
Voltage release	MX shunt release			
	MN undervoltage release			
Installation and connections				
Fixed				Front connection
				Rear connection
Plug-in (base)				Front connection
				Rear connection
Withdrawable (chassis)				Front connection
				Rear connection
Control	Manual	with toggle		
		with direct or extended rotary handle		
	Electrical	with remote control		
Dimensions and weight				
Dimensions H x W x D (mm) connected in series	Fixed	(mm)		1P
				2P
				3P
				4P
Weight (kg) connected in series	Fixed	(kg)		1P
				2P
				3P
				4P

[1] Number of poles in series taking part in current interruption.
Example. The NSX100N DC circuit breaker exists in the following versions:
- 1 pole with an Icu of 50 kA, for systems ⩽ 250 V
- 2 poles with an Icu of 85 kA, for systems ⩽ 500 V; 1 pole can be used in a 250 V system.

Circuit breaker characteristics
ComPact NSX400 DC to NSX1200 DC

	NSX400 DC						NSX630 DC				NSX1200 DC			
	3/4						3/4		3/4		2			
	250		320		400		500		600		630	800	1000	1200
	750		750		750		750		750		600	600	600	600
	8		8		8		8		8		8	8	8	8
	750		750		750		750		500		600	600	600	600
	F	**S**	**F**	**S**	**F**	**S**	**F**	**S**	**F**	**S**	**N**			
	36	100	36	100	36	100	36	100	36	100	-	-	-	-
	36	100	36	100	36	100	36	100	36	100	-	-	-	-
	36	100	36	100	36	100	36	100	36	100	-	-	-	-
	36	100	36	100	36	100	36	100	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	50	50	50	50
	-	-	-	-	-	-	-	-	-	-	50	50	50	50
	100 %						100 %				25 %			
	100 %						100 %				100 %			
	A													
	10ms													
	◉													
	3													
	-													
	◉													
	◉													
	5000						5000		5000		-			
	1000						1000		1000		-			
	2000						2000		2000		-			
	1000						1000		1000		-			
	2000						2000		2000		-			
	1000						1000		-		-			
	2000						2000		-		-			
	-						-		-		1000			
	-						-		-		2000			
	◉													
	◉													
	◉						◉				◉	◉	◉	◉
	◉						◉				-	-	-	-
	◉						◉				-	-	-	-
	◉						◉				-	-	-	-
	◉						◉				-	-	-	-
	◉						◉				-	-	-	-
	◉						◉				◉	◉	◉	◉
	◉						◉				◉	◉	◉	◉
	◉						◉				◉	◉	◉	◉
	-													
	-										350 x 185 x 110			
	255 x 140 x 110													
	255 x 185 x 110										-			
	-													
	-										9.4			
	8										-			
	8.4										-			

Trip-unit characteristics

Types of trip units - Trip units for ComPact NSX DC


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Trip units for ComPact NSX100 DC - NSX160 DC

Single-pole and two-pole (not interchangeable)

Type of trip unit			TM-D										
Rating		In (A) at 40 °C	16	20	25	30	40	50	63	80	100	125	160
ComPact circuit breaker	NSX100N/H DC		◉	◉	◉	◉	◉	◉	◉	◉	◉	-	-
	NSX160N/H DC		-	-	-	-	-	-	-	-	-	◉	◉
Overload protection (thermal)													
Tripping threshold		Ir (A) at 40 °C	Fixed										
			16	20	25	30	40	50	63	80	100	125	160
Protection against short-circuits (magnetic)													
Pick-up		Im (A)	Fixed										
ComPact circuit breaker	NSX100/ 160N/H DC	Marked AC value [1]	190	190	300	300	500	500	500	640	800	1000	1250
		True DC value	260	260	400	400	700	700	700	800	1000	1200	1250


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Trip units for ComPact NSX100 DC - NSX160 DC - NSX250 DC

Three-pole 3P-3d and four-pole 4P-4d (interchangeable trip units)

Type of trip unit			TM-D						TM-DC					
Rating (A)		In (A) at 40 °C	16	25	32	40	50	63	80	100	125	160	200	250
ComPact circuit breaker	NSX100 DC		◉	◉	◉	◉	◉	◉	◉	◉	-	-	-	-
	NSX160 DC		-	-	-	-	-	-	-	-	◉	◉	-	-
	NSX250 DC		-	-	-	-	-	-	-	-	-	-	◉	◉
Overload protection (thermal)														
Tripping threshold (A)		Ir (at 40 °C)	Adjustable											
			0.7 to 1 x In											
Protection against short-circuits (magnetic)														
Pick-up (A)		Im	Fixed										Adjustable	
ComPact circuit breaker	NSX100/160/ NSX250 DC	Marked AC value [1]	190	300	400	500	500	500	-	-	-	-	-	-
		True DC value	260	400	550	700	700	700	800	800	1250	1250	5 to 10 x In	


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Trip units for ComPact NSX100 DC - NSX160 DC - NSX250 DC

Three-pole 3P-3d and four-pole 4P-4d (interchangeable trip units)

Type of trip unit			TM-G									
Rating (A)		In (A) at 40 °C	16	25	40	63	80	100	125	160	200	250
ComPact circuit breaker	NSX100 DC		◉	◉	◉	◉	◉	◉				
	NSX160 DC		-	-	-	-	-	-	◉	◉		
	NSX250 DC		-	-	-	-	-	-	-	-	◉	◉
Overload protection (thermal)												
Tripping threshold (A)		Ir (at 40 °C)	Adjustable									
			0.7 to 1 x In									
Protection against short-circuits (magnetic)												
Pick-up (A)		Im	Fixed									
ComPact circuit breaker	Marked AC value [1]	NSX100 DC	63	80	80	125	200	320	-	-	-	-
		NSX160 DC	-	80	80	125	200	320	440	440	-	-
		NSX250 DC	-	-	-	-	200	320	440	-	440	520
	True DC value	NSX100 DC	80	100	100	150	250	400	530	530	530	625
		NSX160 DC	-	100	100	150	250	400	530	530	-	-
		NSX250 DC	-	-	-	-	-	-	-	-	530	625


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[1] The pick-up values for single-pole and two-pole, TMD and TMG magnetic trip units up to 63 A are marked with AC values. A correction coefficient is required to obtain the DC pick-up values indicated on the next line.
The magnetic-protection pick-up values for TM-DC trip units are indicated directly in DC values.


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Trip units for ComPact NSX400DC - NSX1200DC

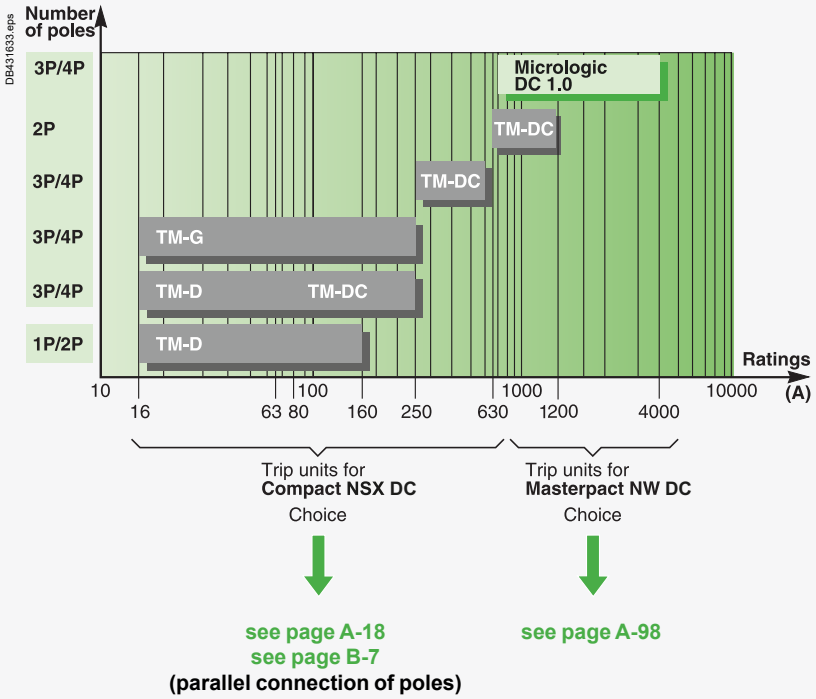
Three-pole, four- pole (not interchangeable) / Two-pole (not interchangeable)

Type of trip unit			TM-DC								
Rating (A)		In(A) at 40 °C	250 [2]	320	400	500	600	630	800	1000	1200
ComPact		NSX400DC	◉	◉	◉	-	-	-	-	-	-
circuit		NSX630DC	-	-	-	◉	◉	-	-	-	-
breaker		NSX1200DC	-	-	-	-	-	◉	◉	◉	◉
Overload protection (thermal)											
Tripping threshold (A)		Ir (at 40 °C)	Adjustable 0.7 to 1 x in								
Protection against short-circuits (magnetic)											
Pick-up (A)		Im	Adjustable 2.5 to 5 x in								

[2] TM-DC 250 Adjustable range is 2.5 to 4 x In.

A

Types of trip units

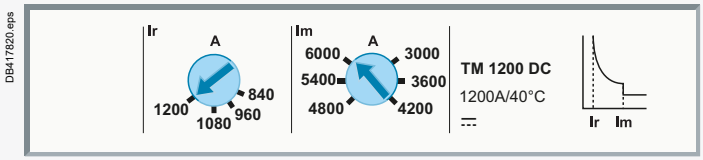


see page A-18
see page B-7
(parallel connection of poles)

see page A-98

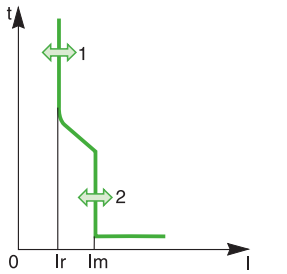
Trip units for ComPact NSX DC

TM thermal-magnetic trip unit up to 1200 A



Up to 1200 A for ComPact NSX DC, protection is provided by thermal-magnetic trip units.

- TM-D up to 160 A: fixed thermal threshold and magnetic pick-up.
- TM-D up to 63 A: adjustable thermal threshold and fixed magnetic pick-up.
- TM-DC from 80 to 250 A: fixed or adjustable (for 200 and 250 A) magnetic pick-up and adjustable thermal threshold.
- TM-DC from 250 A to 1200 A adjustable magnetic pick-up and adjustable thermal threshold.
- TM-G, up to 250 A: adjustable thermal threshold and fixed low magnetic pick-up to protect long cables.



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1 overload protection threshold.
2 short-circuit protection pick-up.

Switch-disconnectors

Characteristics and performance of ComPact NSX switch-disconnectors from 100 to 250 NA

Installation standards require upstream protection. However ComPact NSX100 to 630 NA switch-disconnectors are self-protected by their high-set magnetic release.

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ComPact NSX100 to 250 NA.

Common characteristics

Rated voltages			
Insulation voltage (V)	**Ui**		750
Impulse withstand voltage (kV)	**Uimp**		8
Operational voltage (V)	**Ue**		750
Suitability for isolation		IEC/EN 60947-3	yes
Utilisation category	DC 22 A/DC 23 A		
Pollution degree		IEC 60664-1	3

Switch-disconnectors

Electrical characteristics as per IEC 60947-3 and EN 60947-3

Conventional thermal current (A)	**Ith 60 °C**			
Number of poles				
Operational current (A) depending on the utilisation category	**Ie**	DC		
			250 V (1 pole)	
			500 V (2 poles in series)	
			750 V (3 poles in series)	
Short-circuit making capacity (kA peak)	**Icm**	min. (switch-disconnector alone)		
		max. (protection by upstream NSX DC circuit breaker)		
Rated short-time withstand current (A rms)	**Icw**	for	1 s	
			3 s	
			20 s	
Durability (C-O cycles)	mechanical			
	electrical	DC	250 V (1 pole) and 500 V (2 poles in series)	In/2 In
Positive contact indication				
Pollution degree				

Protection

Add-on earth-leakage protection	By VigiPact relay

Additional indication and control auxiliaries

Indication contacts	
Voltages releases	MX shunt release
	MN undervoltage release
Voltage-presence indicator	
Current-transformer module	
Ammeter module	
Insulation monitoring module	

Remote communication by bus

Device-status indication	
Device remote operation	
Operation counter	

Installation / connections

Dimensions (mm)	fixed, front connections	2/3P
W x H x D		4P
Weight (kg)	fixed, front connections	3P
		4P

TransferPact source-changeover systems (see chapter on TransferPact source-changeover systems)

Manual source-changeover systems
Remote-operated or automatic source-changeover systems

[1] 2P in 3P case.
[2] Suitable for 480 V NEMA.
Note: for more information, please see catalog ComPact NSX LVPED217032EN.

Switch-disconnectors

Characteristics and performance of ComPact NSX switch-disconnectors from 100 to 250 NA

Common characteristics			
Control			
	Manual	With toggle	◉
		With direct or extended rotary handle	◉
	Electrical	With remote control	◉
Versions			
	Fixed		◉
	Withdrawable	Plug-in base	◉
		Chassis	◉

NSX100NA	NSX160NA	NSX250NA
100	**160**	**250**
2 [1], 3, 4	2 [1], 3, 4	2 [1], 3, 4
DC22A / DC23A	**DC22A / DC23A**	**DC22A / DC23A**
100	160	250
100	160	250
100	160	250
2.6	3.6	4.9
100	100	100
1800	2500	3500
1800	2500	3500
690	960	1350
50000	40000	20000
10000	10000	10000
5000	5000	5000
◉	◉	◉
3	3	3
◉		
◉		
◉		
◉		
◉		
◉		
◉		
◉		
◉		
◉		
105 x 161 x 86		
140 x 161 x 86		
1.5 to 1.8		
2.0 to 2.2		
◉		
◉		

Switch-disconnectors characteristics
ComPact NSX400/630 NA DC

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ComPact NSX630 NA DC.

PB114537-L31_cgs

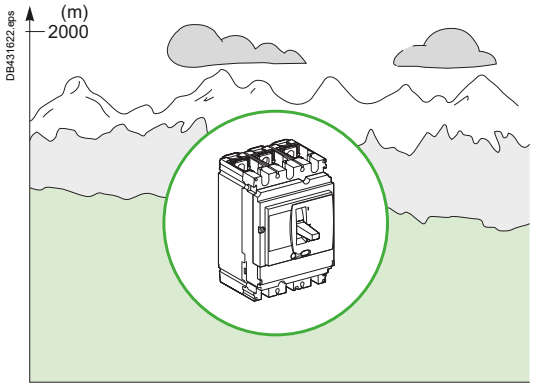
ComPact NSX630 NA DC.

ComPact NSX DC switch-disconnector			
Number of poles			
Electrical characteristics as per IEC 60947-3			
Rated current (A) (free air + no venting)	In	40 °C	
Altitude	m	2000	
Rated insulation voltage (V)	Ui		
Rated impulse withstand voltage (kV)	Uimp		
Rated operational voltage (V)	Ue	DC	
Type of circuit breaker			
Rated short circuit withstand current (kA rms)	Icw/Icm	t = 1 s	
Rated conditionnal short-circuit current	Iq	kA	
	with back-up fuse	A gG	
Rated conditionnal short-circuit current	Iq with NSX DC circuit breaker	kA with MCCB	
Utilization category			
Suitability for isolation			
Pollution degree			
Durability			
Endurance (C-O cycles)	mechanical		
	electrical (In)	750 V	
Installation and connections			
Control	manual	toggle	
		direct or extended rotary handle	
	motor mechanism		
Connections	fixed	front connection	
		long rear connection	
	plug-in (on base)	front connection	
		rear connection	
	withdrawable (on chassis)	front connection	
		rear connection	
Additional measurement, indication and control auxiliaries			
Indication contacts	OF	auxiliary contact	
	SD, SDE	trip, fault-trip	
Voltage releases	MX, MN	shunt trip/undervoltage release	
Installation			
Accessories	crimp lugs / bare cable connector		
	terminal extensions and spreaders		
	escutcheons		
	terminal shields and interphase barriers		
	Din rail adapter		
Dimensions and weight			
Dimensions (mm) H x W x D (w/o series connection)			3P
			4P
Weight (kg) (w/o series connection)			3P
			4P

Switch-disconnectors characteristics
ComPact NSX400/630 NA DC

	NSX400 NA DC	NSX630 NA DC
	3/4	3/4
	400	630
	◉	◉
	750	750
	8	8
	750	750
	7.5	7.5
	10	10
	400	630
	100	100
	DC22-A	DC22-A
	◉	◉
	3	3
	5000	5000
	1000	1000
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	◉	◉
	-	-
	255 x 140 x 110	255 x 140 x 110
	255 x 185 x 110	255 x 185 x 110
	6	6
	7.8	7.8

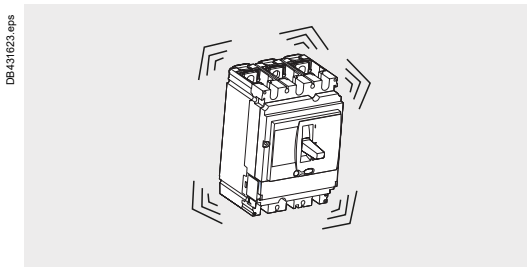
General characteristics of ComPact NSX DC and DC PV
Operating conditions



Altitude

ComPact NSX circuit breakers are designed to operate at their rated values at altitudes under 2000 metres.
Above 2000 metres, the changes in the characteristics of the ambient air (electrical resistance, cooling capacity) result in a reduction of the characteristics below.

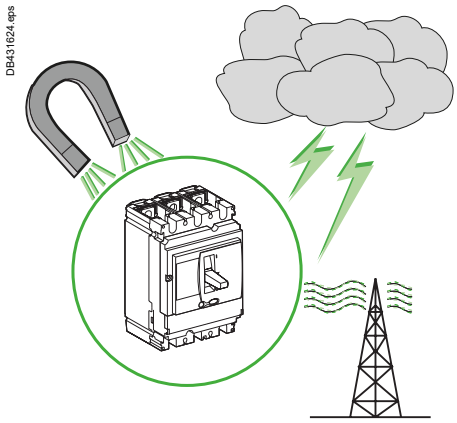
Altitude (m)	2000	3000	4000	5000
ComPact NSX DC				
Impulse withstand voltage Uimp (kV)	8	7.1	6.4	5.6
Rated insulation voltage (Ui)	750	710	635	560
Maximum rated operationnal DC voltage	1 x Ue	0.88 x Ue	0.8 x Ue	0.7 x Ue
Rated current (A)	1 x In	0.96 x In	0.93 x In	0.9 x In
ComPact NSX DC PV				
Impulse withstand voltage Uimp (kV)	8	7.1	6.4	5.6
Rated insulation voltage (Ui)	1000	900	800	700
Maximum rated operationnal DC voltage	1000	900	800	700
Rated current (A)	1 x In	0.96 x In	0.93 x In	0.9 x In



Vibrations

ComPact NSX circuit breakers are guaranteed against electromagnetic or mechanical vibrations.
Tests are carried out in compliance with standard IEC 68-2-6 for the levels required by merchant-marine inspection organisations (Veritas, Lloyd's, etc.):
- 2 to 13.2 Hz: amplitude ±1 mm
- 13.2 to 100 Hz: constant acceleration 0.7 g.

Excessive vibration may cause tripping, breaks in connections or damage to mechanical parts.



Electromagnetic compatibility

ComPact NSX circuit breakers are protected against:
- overvoltages caused by devices that generate electromagnetic disturbances
- overvoltages caused by atmospheric disturbances or by a distribution-system outage (e.g. failure of a lighting system) and devices emitting radio waves (radios, walkie-talkies, radar, etc.)
- electrostatic discharges produced by users. The circuit breakers have successfully passed the electromagnetic-compatibility tests (EMC) defined by international standard IEC 60947-2, appendix F.

The above tests guarantee that:
- ☐ no nuisance tripping occurs
- ☐ tripping times are respected.

ComPact NSX circuit breakers comply with the following electromagnetic-compatibility standards:
- IEC/EN 61000-4-2 - electrostatic immunity discharge test, part 2 (circuit breakers)
- IEC/EN 61000-4-3 - electromagnetic-field immunity test
- IEC/EN 61000-4-4 - electrical fast transient/burst immunity test
- IEC/EN 61000-4-5 - surge immunity test
- IEC/EN 61000-4-6 - immunity to conducted disturbances, induced by radiofrequency fields
- CISPR 11 - radio-frequency conducted and radiated emission tests required for CE marking:
  - ☐ EN 61000-6-2 - immunity standard for industrial environments
  - ☐ EN 50081-1-2 - emissions in commercial and industrial environments.

Ambient temperature

Operating-temperature range

- ComPact NSX circuit breakers and switches may be used between -25 °C and +70 °C.
- For temperatures higher than 40 °C (65 °C for circuit breakers used to protect motor feeders), devices must be derated as indicated in the documentation.
- Circuit breakers and switches should be put into service under the normal, ambient operating temperatures indicated above. Exceptionally, they may be put into service when the ambient temperature is between -35 °C and -25 °C.

Derating

Above 40 °C, it is necessary to take into account the derating values.

Storage-temperature range

- ComPact NSX circuit breakers and switches may be stored in their original packing between -50 °C and +85 °C.

ComPact NSX100 to NSX1200 DC
Temperature derating

These values are valid for fixed and withdrawable circuit breakers with or without terminal shields.
- "⩽ 500 V" means that 2 poles only are used, for isolated system, this table shall be used up to 250 V only.
- "> 500 V" means that 3 or 4 poles are used, for isolated system, this table shall be used up to 500 V only.

When the ambient temperature is greater than 40 °C, overload-protection characteristics are slightly modified.
To determine tripping times using time/current curves, use the values of the current indicated in the table below, corrected to take into account the ambient temperature.

ComPact NSX DC temperature derating

NSX DC configuration	Type of trip unit	Rating In (A) for a given temperature						
		Ambient temp. 40 °C	Ambient temp. 45 °C	Ambient temp. 50 °C	Ambient temp. 55 °C	Ambient temp. 60 °C	Ambient temp. 65 °C	Ambient temp. 70 °C
NSX100 DC 1/2P 1P 250 V - 2P 500 V	TM16D	16	15.6	15.2	14.8	14.5	14	13.8
	TM25D	25	24.5	24	23.5	23	22	21
	TM30D	30	31.3	30.5	30	29.5	29	28.5
	TM40D	40	39	38	37	36	35	34
	TM50D	50	49	48	47	46	45	44
	TM63D	63	61.5	60	58	57	55	54
	TM80D	80	78	76	74	72	70	68
	TM100D	100	97.5	95	92.5	90	87.5	85
NSX160 DC 1/2P 1P 250 V - 2P 500 V	TM125D	125	122	119	116	113	109	106
	TM160D	160	156	152	147	144	140	136
NSX100 DC 3/4P ⩽ 500 V	TM16D	16.8	16.4	16	15.5	15.2	14.7	14.5
	TM25D	26.3	25.7	25.2	24.7	24.2	23.1	22.1
	TM32D	33.6	33	32	31.5	31	30.5	30
	TM40D	42	41	40	39	38	37	36
	TM50D	53	51	50	49	48	47	46
	TM63D	66	65	63	61	60	58	57
	TM80DC	84	82	80	78	76	74	71
	TM100DC	105	102	100	97	95	92	89
NSX160 DC 3/4P ⩽ 500 V	TM125DC	131	128	125	122	119	114	111
	TM160DC	168	164	160	154	151	147	143
NSX250 DC 3/4P ⩽ 500 V	TM200DC	210	205	200	194	189	184	179
	TM250DC	250	240	235	230	220	210	200
NSX100 DC 3/4P > 500 V	TM16D	16	15.6	15.2	14.8	14.5	14	13.8
	TM25D	25	24.5	24	23.5	23	22	21
	TM32D	32	31.3	30.5	30	29.5	29	28.5
	TM40D	40	39	38	37	36	35	34
	TM50D	50	49	48	47	46	45	44
	TM63D	63	61.5	60	58	57	55	54
	TM80DC	80	78	76	74	72	70	68
	TM100DC	100	97.5	95	92.5	90	87.5	85
NSX160 DC 3/4P > 500 V	TM125DC	125	122	119	116	113	109	106
	TM160DC	160	156	152	147	144	140	136
NSX250 DC > 500 V	TM200DC	200	195	190	185	180	175	170
	TM250DC	230	225	220	210	200	190	180
NSX400 DC ⩽ 500 V	TM250DC	250 A	250 A	240 A	230 A	220 A	205 A	195 A
	TM320DC	320 A	320 A	315 A	305 A	295 A	280 A	270 A
	TM400DC	400 A	400 A	395 A	380 A	370 A	355 A	340 A
NSX400 DC > 500 V	TM250DC	250 A	250 A	240 A	230 A	220 A	205 A	195 A
	TM320DC	320 A	320 A	315 A	305 A	295 A	280 A	270 A
	TM400 DC	400 A	400 A	395 A	380 A	370 A	350 A	340 A
NSX630 DC ⩽ 500 V	TM500DC	500 A	500 A	490 A	475 A	460 A	440 A	420 A
	TM600DC	600 A	600 A	585 A	560 A	535 A	510 A	485 A
NSX630 DC > 500 V	TM500DC	500 A	480 A	465 A	450 A	440 A	420 A	410 A
	TM600DC	-	-	-	-	-	-	-
NSX1200 DC 600 V	TM630DC	630 A	610 A	590 A	570 A	550 A	520 A	500 A
	TM800DC	800 A	775 A	740 A	720 A	695 A	665 A	640 A
	TM1000DC	1000 A	970 A	930 A	905 A	870 A	830 A	800 A
	TM1200DC	1200 A	1160 A	1115 A	1085 A	1040 A	995 A	955 A
NSX400 NA DC ⩽ 500 V		400 A	400 A	400 A	400 A	400 A	400 A	400 A
NSX400 NA DC > 500 V		400 A	400 A	400 A	400 A	400 A	400 A	400 A
NSX600 NA DC ⩽ 500 V		630 A	600 A	580 A	560 A	540 A	520 A	500 A
NSX600 NA DC > 500 V		605 A	585 A	570 A	550 A	530 A	505 A	485 A

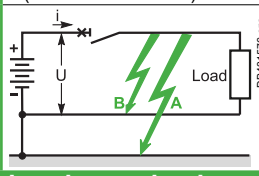
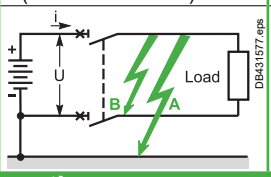
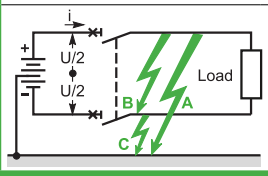
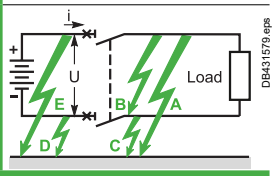
Example : ComPact NSX100 DC equipped with a TM80DC trip unit has a rating of:
84 A at 40 °C
78 A at 55 °C.

Selection guide for DC circuit breakers

Solutions depending on the distribution system and the voltage

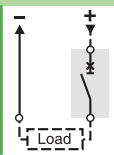
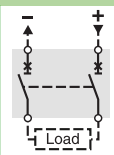
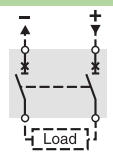
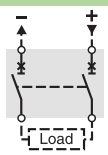
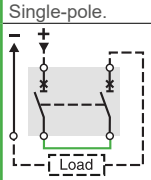
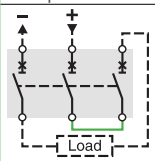
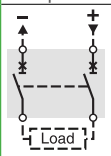
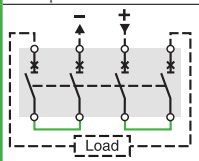
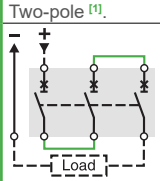
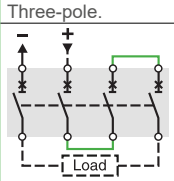
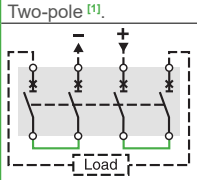
Series connection of poles

Type of distribution system

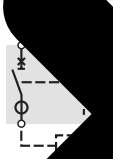
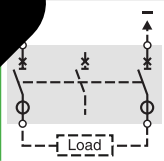
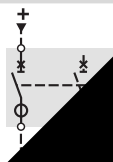
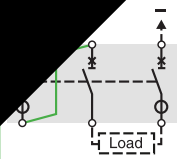
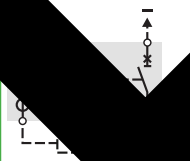
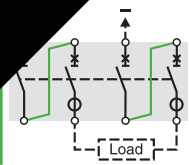
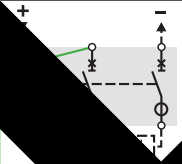
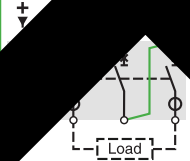
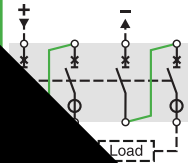
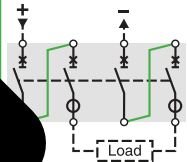
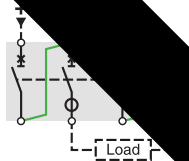
Type	Earthed			Isolated
Source	One polarity (negative here) connected to earth (or exposed conductive parts)		Mid-point connected to earth	Isolated polarities
Protected polarities	1 (disconnection of 1P)	2 (disconnection of 2P)	2	2
Diagrams (and types of faults)				

Selection of circuit breaker and pole connection

ComPact NSX DC

24 V ⩽ Un ⩽ 250 V	 Single-pole.	 Two-pole [1].	 Two-pole [1].	 Two-pole [1].
NSX100-600 250 V < Un ⩽ 500 V	 Two-pole [1].	 Three-pole.	 Two-pole [1].	 Four-pole.
NSX100-500 500 V < Un ⩽ 750 V	 Three-pole.	 Four-pole.	 Four-pole.	[2]

ComPact NW DC

2 V		 Version C.	 Version C.	
Type H				
24 V ⩽ Un ⩽ 500 V		 Version D.	 Version E.	 Version E.
500 V < Un ⩽ 750 V		 Version E.	 Version E.	 Version E.
750 V < Un ⩽ 9		 Version E.	 Version E.	 Version E.

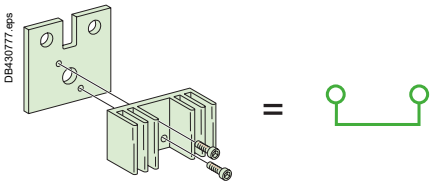
[1] A 3P circuit breaker can be used if a 2P version does not exist. In this case, the central pole is not connected.

[2] ComPact NSX DC circuit breakers (and switch disconnectors) are designed to break the rated current or fault current at the rated operational voltage (Ue) with all poles. To break the current at voltage > 500 V, three poles in series are required. In double earth fault situations (A + D or C + E), the circuit breaker (and Switch disconnectors) must break the current at full voltage with only half of the poles. ComPact NSX DC circuit breakers (and Switch disconnectors) are not designed for this purpose and could sustain irremediable damage if used to break the current in a double earth fault situation for voltage > 500 V.

Great flexibility in adapting to DC applications

Overview of series connection of poles for ComPact NSX DC

With ComPact NSX DC circuit breakers, it is easy to create a large number of series pole arrangements using prefabricated connections mounted on site during equipment installation.



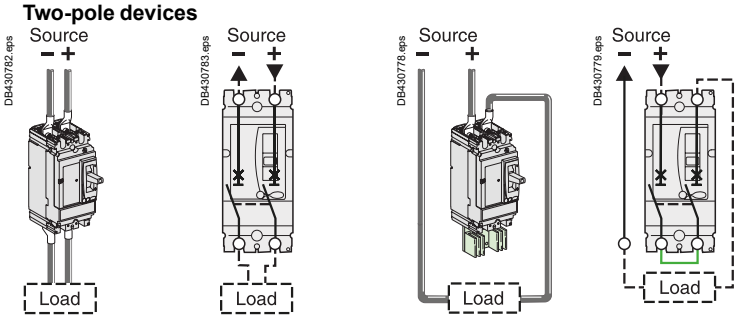
One type of connection per framesize, two catalog numbers for all series connections.

- All connections are possible for the fixed and withdrawable versions.
- Indifferent connection of polarities, from left to right or right to left.
- Indifferent connection of upstream and downstream cables to top or bottom terminals.
- Series connection of poles is possible by upstream/downstream connections. Creation of the connections is the responsibility of the panel builder or the installer.

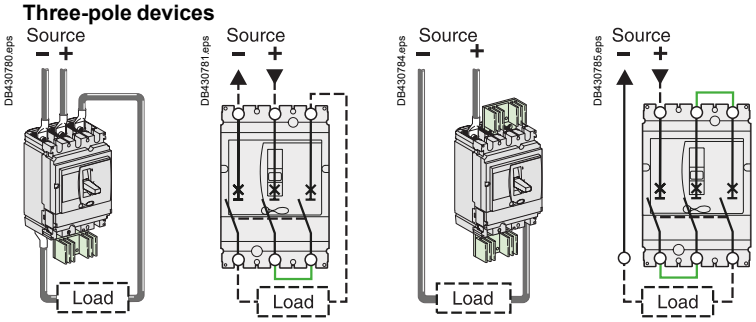
ComPact NSX DC

Examples of series connection

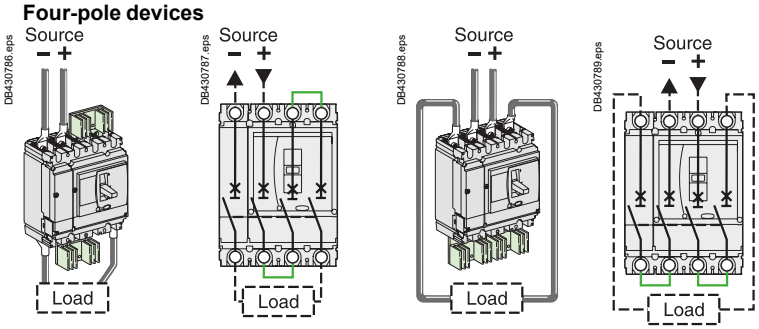
Two-pole devices



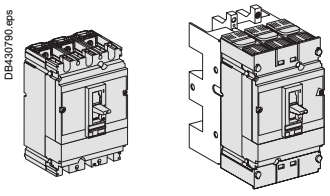
Three-pole devices



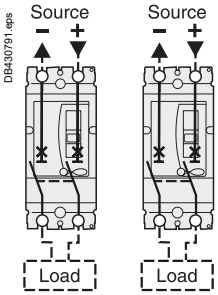
Four-pole devices



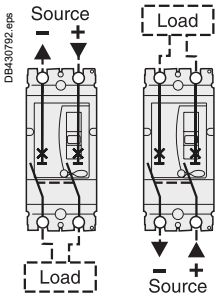
Great flexibility for connections



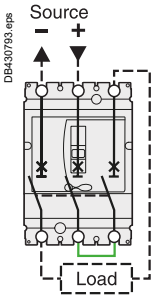
All connections are possible for the fixed and withdrawable versions.



Indifferent connection of polarities.



Upstream/downstream connections to top or bottom connectors.



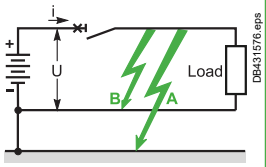
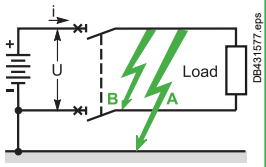
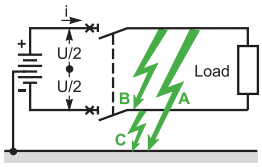
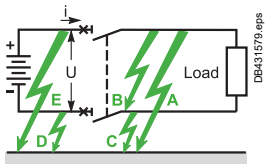
Series connection of poles is possible by upstream/downstream connections (user made).

Selection guide for DC circuit breakers

Solutions depending on the distribution system and the voltage

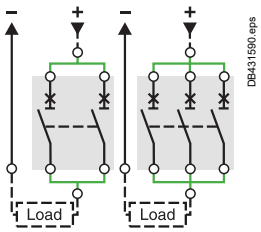
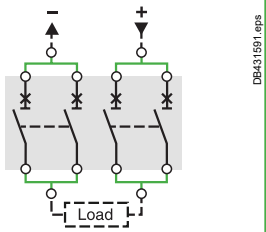
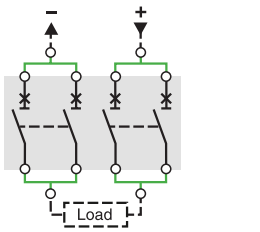
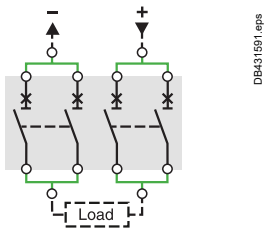
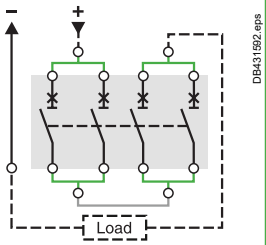
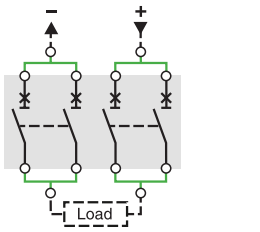
Parallel connection of poles

Type of distribution system

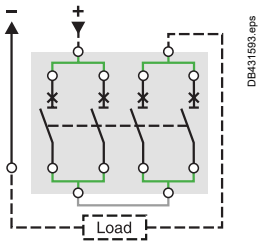
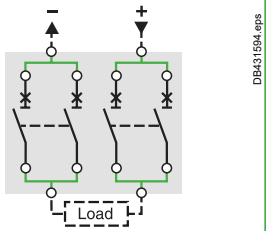
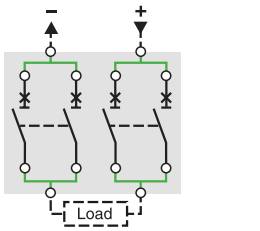
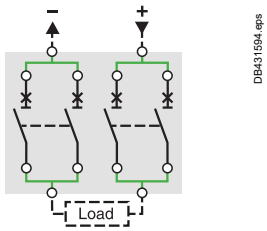
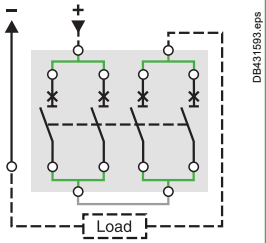
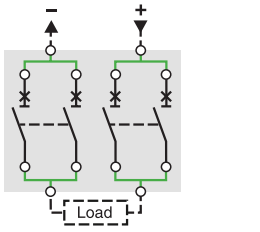
Type	Earthed			Isolated
Source	One polarity (negative here) connected to earth (or exposed conductive parts)		Mid-point connected to earth	Isolated polarities
Protected polarities	1 (disconnection of 1P)	2 (disconnection of 2P)	2	2
Diagrams (and types of faults)	 DB431576.eps	 DB431577.eps	 DB431578.eps	 DB431579.eps

Selection of circuit breaker and pole connection

ComPact NSX DC

Un ⩽ 250 V	 DB431590.eps Two, three-pole, 2, 3P in parallel, four-pole, 4P in parallel.	 DB431591.eps Four-pole, 2 x 2P in parallel.	 DB431591.eps Four-pole, 2 x 2P in parallel.	 DB431591.eps Four-pole, 2 x 2P in parallel.
250 V < Un ⩽ 500 V	 DB431592.eps Four-pole, 2 x 2P in parallel, connected in series.		 DB431591.eps Four-pole, 2 x 2P in parallel.	(1)

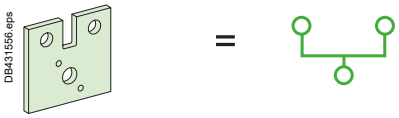
ComPact NSX1200 DC (2)

Un ⩽ 300 V	 DB431593.eps	 DB431594.eps	 DB431594.eps	 DB431594.eps
300 V < Un ⩽ 600 V	 DB431593.eps		 DB431594.eps	(3)

(1) ComPact NSX DC circuit breakers (and switch disconnectors) are designed to break the rated current or fault current at the rated operational voltage (Ue) with all poles. To break the current at voltage > 250 V, two poles in series are required. In double earth fault situations (A + D or C + E), the circuit breaker (and switch disconnectors) must break the current at full voltage with only half of the poles. ComPact NSX DC circuit breakers (and switch disconnectors) are not designed for this purpose and could sustain irremediable damage if used to break the current in a double earth fault situation for voltage > 250 V.
(2) Do not remove parallel connectors.
(3) ComPact NSX DC circuit breakers (and switch disconnections) are designed to break the rated current or fault current at the rated operational voltage (Ue) with all poles. To break the current at voltage > 300 V, two poles in series are required. In double earth fault situations (A + D or C + E), the circuit breaker (and switch disconnectors) must break the current at full voltage with only half of the poles. ComPact NSX DC circuit breakers (and switch disconnectors) are not designed for this purpose and could sustain irremediable damage if used to break the current in a double earth fault situation for voltage > 300 V.

Great flexibility in adapting to DC applications
Parallel connection of poles

The exceptional performance levels of ComPact NSX DC and DC PV circuit breakers mean the poles can be parallel connected. This technique virtually doubles, triples or quadruples the current rating depending on the type of circuit breaker and thus reduces the cost of solutions.

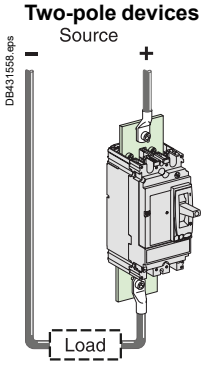


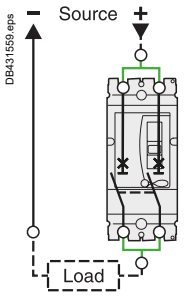
Parallel pole connection accessories are identical to those for series connections. The are equipped with heat sinks.
Customer connections are made directly to the connection plates after removing the heat sinks.

Specific connections are required for parallel connection of three poles.

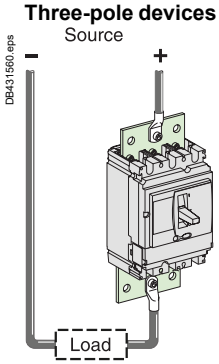
Examples of parallel connection

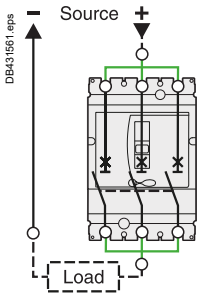
Two-pole devices



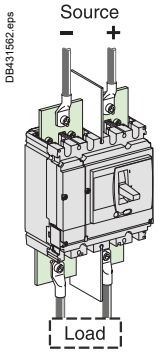


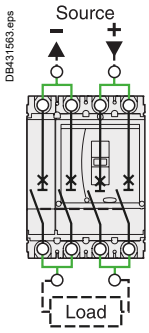
Three-pole devices



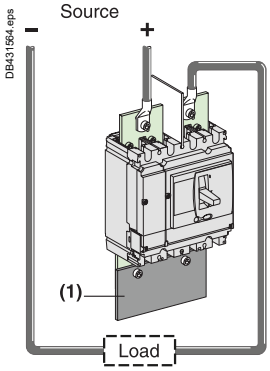


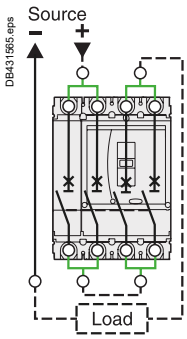
Four-pole devices (2 x 2 poles in parallel)





It is possible to mix series and parallel connections





Note: creation of the additional connection **[1]** is the responsibility of the panel builder or the installer.