

Introduction

Characteristics and performance of Compact NSX circuit breakers from 100 to 250 A up to 690 V

pb107518_15.eps



Compact NSX single-pole.

PB107524_23.eps



Compact NSX two-pole

Compact circuit breakers

Number of poles		
Control	manual	toggle direct or extended rotary handle

Connections	electric	
	fixed	front connection rear connection
	withdrawable	front connection rear connection

Electrical characteristics as per IEC 60947-2 and EN 60947-2

Rated current (A)	In	40 °C
Rated insulation voltage (V)	Ui	
Rated impulse withstand voltage (kV)	Uimp	
Rated operational voltage (V)	Ue	AC 50/60 Hz DC

Type of circuit breaker

Ultimate breaking capacity (kA rms)	Icu	AC	220/240 V 50/60 Hz	380/415 V 440 V 500/525 V 660/690 V
		DC	250 V (1P) 500 V (2P)	
Service breaking capacity (kA rms)	Ics	% Icu		

Suitability for isolation	
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Utilisation category	
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Durability (C-O cycles)	mechanical		
	electrical	277 V	In/2 In

Electrical characteristics as per NEMA AB1

Breaking capacity (kA)	240 V
V AC 50/60 Hz	277 V 480 V 600 V

Protection and measurements

Type of trip units	
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Ratings	In
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Overload protection (thermal)	long time threshold	Ir
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Short-circuit protection (magnetic)	instantaneous pickup	Im	value indicated for AC ⁽¹⁾ real value for DC
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Add-on earth-leakage protection	add-on Vigi module combination with Vigirex relay
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Additional indication and control auxiliaries

Indication contacts	
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Voltages releases	MX shunt release MN undervoltage release
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Installation

Accessories	terminal extensions and spreaders terminal shields and interphase barriers escutcheons
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Dimensions (mm)	W x H x D
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Weight (kg)	
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Source changeover system

Interlocking systems	
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⁽¹⁾ The thresholds for TMD and TMG 1-pole and 2-pole magnetic trip units up to 63 A are indicated for AC. The real DC thresholds are indicated on the following line.

NSX100						NSX160						NSX250										
1						2						1				2			1			
■						■						■				■			■			
-						-						-				-			-			
-						-						-				-			-			
■						■						■				■			■			
■						■						■				■			■			
-						-						-				-			-			
-						-						-				-			-			
100						100						160				160			250			
750						750						750				750			750			
8						8						8				8			8			
277						690						277				690			277			
250						500						250				500			500			
F	N	M				F	M	S				F	N	M		F	M	S	N			
18	25	40				36	85	100				18	25	40		36	85	100		25		
-	-	-				18	25	70				-	-	-		18	25	70		-		
-	-	-				15	25	65				-	-	-		15	25	65		-		
-	-	-				10	18	35				-	-	-		10	18	35		-		
-	-	-				5	8	10				-	-	-		5	8	10		-		
36	50	85				36	85	100				36	50	85		36	85	100		-		
-	-	-				36	85	100				-	-	-		36	85	100		-		
100 %						100 %						100 %				100 %			100 %			
■						■						■				■			■			
A						A						A				A			A			
20000						20000						20000				20000			10000			
20000						20000						20000				20000			10000			
10000						10000						10000				10000			5000			
F	N	M				F	M	S				F	N	M		F	M	S	N			
18	25	40				36	85	100				18	25	40		36	85	100		25		
18	25	40				-	-	-				18	25	40		-	-	-		25		
-	-	-				10	18	35				-	-	-		10	18	35		-		
-	-	-				5	8	10				-	-	-		5	8	10		-		
built-in thermal-magnetic						built-in thermal-magnetic						built-in thermal-magnetic										
16	20	25	30	40	50	63	80	100				125	160			160	200	250				
fixed						fixed						fixed				fixed						
16	20	25	30	40	50	63	80	100				125	160			160	200	250				
fixed						fixed						fixed				fixed						
190	190	300	300	500	500	500	500	640	800			1000	1250			850	850	850				
260	260	400	400	700	700	700	700	800	1000			1200	1250			-	-	-				
-						-						-				-			-			
-						■						-				■			-			
-						■						-				■			-			
-						■						-				■			-			
■						■						■				■			■			
■						■						■				■			■			
■						■						■				■			■			
35 x 161 x 86						70 x 161 x 86						35 x 161 x 86				70 x 161 x 86			35 x 161 x 86			
0.7						1.2						0.7				1.2			0.7			
-						-						-				-			-			

Introduction

Characteristics and performance of Compact NSX circuit breakers from 100 to 250 A up to 690 V

PB105112.eps



Compact NSX100/160/250.

PB110406_40.eps



Compact NSX250 R.

PB110400_40.eps



Compact NSX250 HB2.

- (1) OSN: Over Sized Neutral protection for neutrals carrying high currents (e.g. 3rd harmonics).
- (2) ZSI: Zone Selective Interlocking using pilot wires.
- (3) Vigi module is not available for breaking capacity levels HB1/HB2.
- (4) There is no 160 A frame, use 250 A frame with lower rating trip units for R, HB1, HB2.
- (5) 2P circuit breaker in 3P case for B and F types, only with thermal-magnetic trip unit.

Common characteristics

Rated voltages			
Insulation voltage (V)	Ui		800
Impulse withstand voltage (kV)	Uimp		8
Operational voltage (V)	Ue	AC 50/60 Hz	690
Suitability for isolation		IEC/EN 60947-2	yes
Utilisation category			A
Pollution degree		IEC 60664-1	3

Circuit breakers

Breaking capacity levels

Electrical characteristics as per IEC 60947-2

Rated current (A)	In	40 °C	
Number of poles			
Breaking capacity (kA rms)			
	Icu	AC 50/60 Hz	220/240 V 380/415 V 440 V 500 V 525 V 660/690 V

Service breaking capacity (kA rms)

	Ics	AC 50/60 Hz	220/240 V 380/415 V 440 V 500 V 525 V 660/690 V
Durability (C-O cycles)			
		Mechanical	
		Electrical	440 V In/2 690 V In/2 In

Characteristics as per Nema AB1

Breaking capacity (kA rms)	AC 50/60 Hz	240 V 480 V 600 V
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Characteristics as per UL 508

Breaking capacity (kA rms)	AC 50/60 Hz	240 V 480 V 600 V
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Protection and measurements

Short-circuit protection	Magnetic only
Overload / short-circuit protection	Thermal magnetic Electronic
	with neutral protection (Off-0.5-1-OSN) ⁽¹⁾
	with ground-fault protection
	with zone selective interlocking (ZSI) ⁽²⁾

Display / I, U, f, P, E, THD measurements / interrupted-current measurement

Options	Power Meter display on door Operating assistance Counters Histories and alarms Metering Com Device status/control Com
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Earth-leakage protection	By Vigi module ⁽³⁾ By Vigirex relay
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Installation / connections

Dimensions and weights

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

Connections

Connection terminals	Pitch	With/without spreaders
Large Cu or Al cables	Cross-section	mm ²

Common characteristics

Control

Manual	With toggle	■
	With direct or extended rotary handle	■
Electrical	With remote control	■

Versions

Fixed		■
Withdrawable	Plug-in base	■
	Chassis	■

NSX100

B F N H S L R HB1 HB2

NSX160⁽⁴⁾

B F N H S L

NSX250

B F N H S L R HB1 HB2

100

2⁽⁵⁾, 3, 4

40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-
15	25	36	50	65	70	80	85	100
-	22	35	35	40	50	65	80	100
-	8	10	10	15	20	45	75	100

40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-
7	12	36	50	65	70	80	85	100
-	11	35	35	40	50	65	80	100
-	4	10	10	15	20	45	75	100

50000						20000		
50000						20000		
30000						10000		
20000						10000		
10000						5000		

40	85	90	100	120	150	200	-	-
20	35	50	65	90	130	150	85	100
-	8	20	35	40	50	50	75	100

-	85	85	85	-	-	-	-	-
-	25	50	65	-	-	-	-	-
-	10	10	10	-	-	-	-	-

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160

2⁽⁵⁾, 3, 4

40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-
15	30	36	50	65	70	80	85	100
-	22	35	35	40	50	65	80	100
-	8	10	10	15	20	45	75	100

40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-
15	30	36	50	65	70	80	85	100
-	22	35	35	40	50	65	80	100
-	8	10	10	15	20	45	75	100

40000						20000		
40000						20000		
20000						10000		
15000						10000		
7500						5000		

40	85	90	100	120	150	200	-	-
20	35	50	65	90	130	150	85	100
-	20	20	35	40	50	50	75	100

-	85	85	85	-	-	-	-	-
-	35	50	65	-	-	-	-	-
-	10	10	10	-	-	-	-	-

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250

2⁽⁵⁾, 3, 4

40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-
15	30	36	50	65	70	80	85	100
-	22	35	35	40	50	65	80	100
-	8	10	10	15	20	45	75	100

40	85	90	100	120	150	200	-	-
25	36	50	70	100	150	200	-	-
20	35	50	65	90	130	200	-	-
15	30	36	50	65	70	80	85	100
-	22	35	35	40	50	65	80	100
-	8	10	10	15	20	45	75	100

20000						10000		
20000						10000		
10000						10000		
10000						5000		
5000						5000		

40	85	90	100	120	150	200	-	-
20	35	50	65	90	130	150	85	100
-	20	20	35	40	50	50	75	100

-	85	85	85	-	-	-	-	-
-	35	50	65	-	-	-	-	-
-	15	15	15	-	-	-	-	-

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105 x 161 x 86
140 x 161 x 86

2.05
2.4

35/45 mm
300

105 x 161 x 86
140 x 161 x 86

2.4
2.8

35/45 mm
300

105 x 161 x 86
140 x 161 x 86

2.2
2.6

35/45 mm
300

105 x 161 x 86
140 x 161 x 86

2.4
2.8

35/45 mm
300