

Smart Panel integration Components I/O Application module

General characteristics

Environmental characteristics

Conforming to standards	UL 508, UL 60950, IEC 60950, IEC 60947-6-2
Certification	cULus, GOST, FCC, CE
Ambient temperature	-20 to +70 °C (-4 to +158 °F)
Relative humidity	5 - 85 %
Level of pollution	Level 3
Flame resistance	ULV0 conforming to IEC/EN 60068-2-30

Mechanical characteristics

Shock resistance	1000 m/s ²
Resistance to sinusoidal vibrations	5 Hz < f < 8.4 Hz

Electrical characteristics

Resistance to electromagnetic discharge	Conforming to IEC/EN 61000-4-3
Immunity to radiated fields	10 V/m
Immunity to surges	Conforming to IEC/EN 61000-4-5
Consumption	165 mA

Physical characteristics

Dimensions	71.7 x 116 x 70.6 mm
Mounting	DIN rail
Weight	229.5 g (0.51 lb)
Degree of protection of the installed I/O application module	On the front panel (wall mounted enclosure): IP4x I/O parts: IP3x Connectors: IP2x
Connections	Screw type terminal blocks

Digital inputs

Digital input type	Self powered digital input with current limitations as per IEC 61131-2 type 2 standards (7 mA)
Input limit values at state 1 (close)	19.8 - 25.2 V DC, 6.1 - 8.8 mA
Input limit values at state 0 (open)	0 - 19.8 V DC, 0 mA
Maximum cable length	10 m (33 ft)

Note: for a length greater than 10 m (33 ft) and up to 300 m (1.000 ft), it is mandatory to use a shielded twisted cable. The shield cable is connected to the I/O functional ground of the I/O application module.

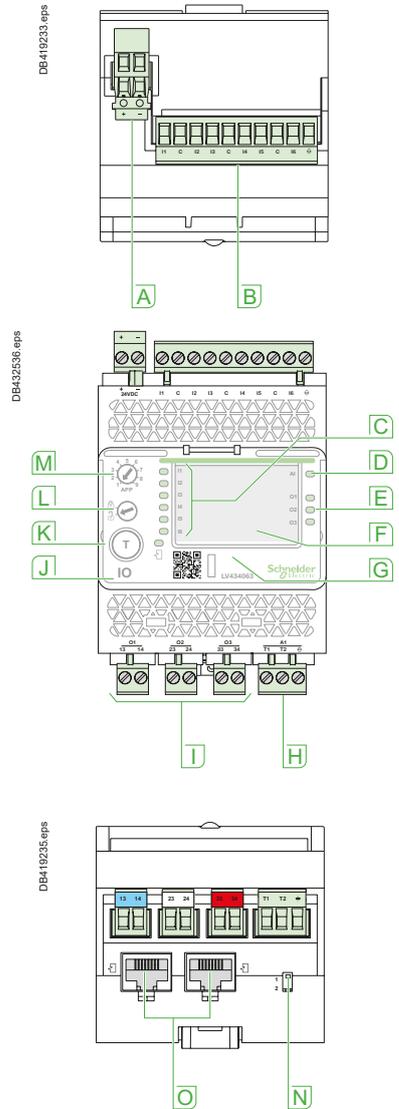
Digital outputs

Digital output type	Bistable relay
Rated load	5 A at 250 Vac
Rated carry current	5 A
Maximum switching voltage	380 Vac, 125 Vdc
Maximum switch current	5 A
Maximum switching power	1250 VA, 150 W
Minimum permissible load	10 mA at 5 V DC
Contact resistance	30 mΩ
Maximum operating frequency	18000 operations/hr (Mechanical) 1800 operations/hr (Electrical)
Digital output relay protection by an external fuse	External fuse of 5 A or less
Maximum cable length	10 m (33 ft)

Analog inputs

I/O application module analog input can be connected to a Pt100 temperature sensor.

Range	-30 to 200 °C	-22 to 392 °F
Accuracy	±2 °C from -30 to 20 °C ±1 °C from 20 to 140 °C ±2 °C from 140 to 200 °C	±3.6 °F from -22 to 68 °F ±1.8 °F from 68 to 284 °F ±3.6 °F from 284 to 392 °F
Refresh interval	5 s	5 s



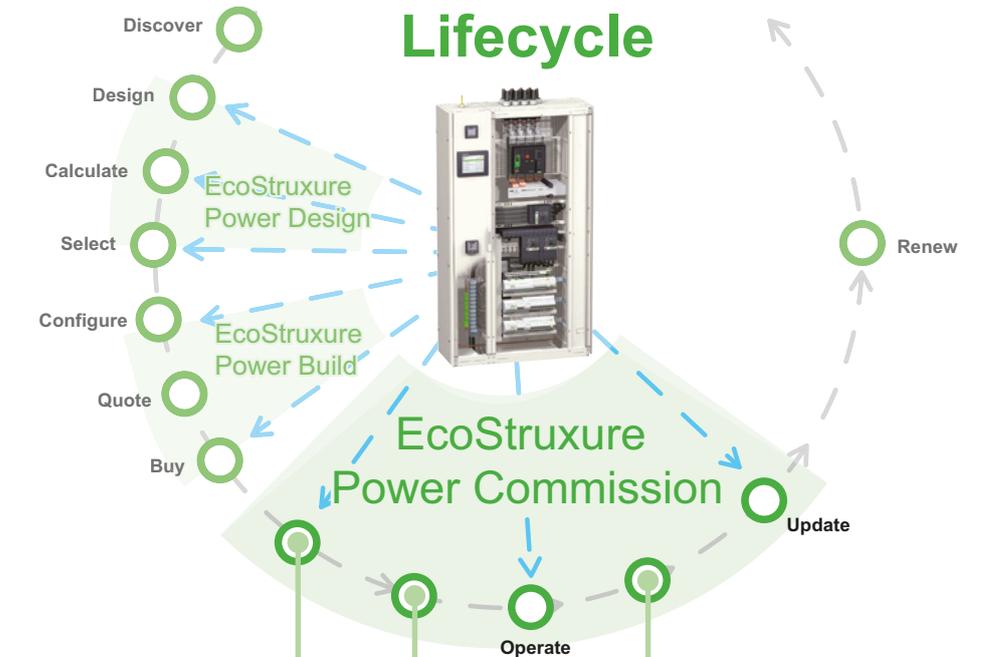
- A** 24 Vdc power supply terminal block.
- B** Digital input terminal block: 6 inputs, 3 commons and 1 shield.
- C** 6 input status LEDs.
- D** Analog input status LED.
- E** 3 output status LEDs.
- F** I/O application module identification labels.
- G** Sealable transparent cover.
- H** Analog input terminal block.
- I** Digital output terminal blocks.
- J** ULP status LED.
- K** Test/reset button (accessible with cover closed).
- L** Setting locking pad.
- M** Application rotary switch: 1 to 9.
- N** Switch for I/O addressing (I/O 1 or I/O 2).
- O** ULP connectors.



Customer engineering tool: EcoStruxure Power Commission software

EcoStruxure Power Commission Experience

Project Lifecycle



Key Features

Build

I want to test & deliver a “ready to commission” panel

- Device Discovery
- Switchboard setting & testing
- Communication Test & Reports
- Save my project & reports

Commission

I want to “shorten” my commissioning time

- Device Discovery
- Multi Device Configuration
- Communication Test & Reports
- Save my project & reports

Maintain

I want to ensure “continuity” of services in “safe conditions”

- Settings consistency check
- Firmware upgrade
- Standard Diagnostic data
- Save my project & reports

Build



Panel builders

Simple & easy software to set up and test a panelboard with smart phones

Commission



Electrical contractors & system integrator

Shorten commissioning time and speed up SAT delivery with easy-to-use software

Maintain



Facility managers

Software to track installation changes & diagnostic features for preventive maintenance

D

Customer engineering tool: EcoStruxure Power Commission software

Operation and Maintenance

- Devices monitoring and control.
- Measurement parameter logs.
- Log reports.
- Download of current devices settings, compare with previous settings saved in EcoStruxure Power Commission.
- Firmware upgrade and compatibility matrix.

Compatibility

Devices

Configuration of below devices through the range of Enerlin'X interfaces devices.

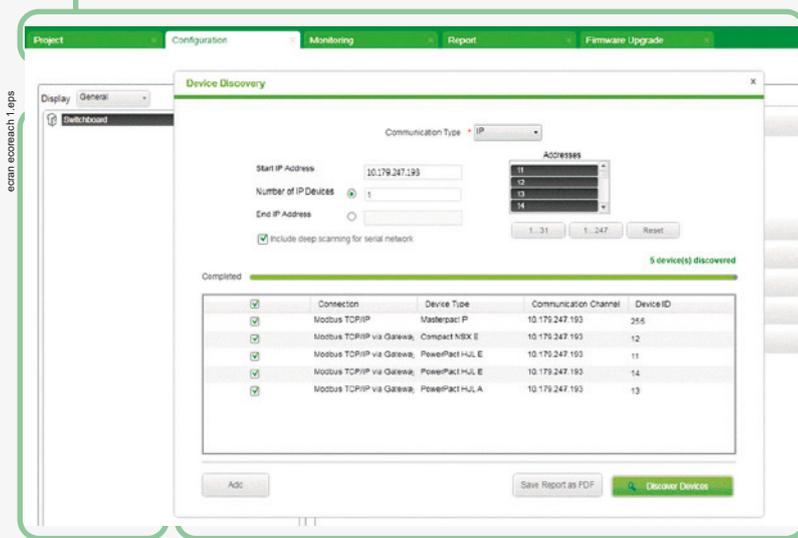
- Circuit breakers: MasterPact MTZ, ComPact NSX ranges.
- Circuit breakers and control components: Acti 9 range.

EcoStruxure Power Commission software for PC

- Compatible with Windows XP pro, Windows Seven.

Example of EcoStruxure Power Commission win

Browsing tabs



Smart Panels architecture

Contextual window, for monitoring, settings...

Key Features:

- Device Discovery: EcoStruxure Power Commission helps the user to discover the communicating devices in a switchboard either through Ethernet or a serial network. Once the devices in the switchboard are discovered, the user can add those devices to the project area.
- Communication Test: When a user has installed communicating devices in a switchboard, EcoStruxure Power Commission offers the capability to test the communication network. Once a communication test is done, the user can generate a time stamped communication test report.
- Reports: EcoStruxure Power Commission offers the following reports to the users
 - Communication Test Report.
 - Comprehensive project report.
 - Logs and trip history reports.
- Firmware Upgrade: EcoStruxure Power Commission offers the compatibility check and firmware upgrade for the following devices.
 - MicroLogic X control units,
 - EIFE / IFE,
 - I/O modules.



Switchboard integration

ComPact NSX & NSXm

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ComPact NSX power loss/ resistance

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Switchboard integration

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Switchboard integration

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ComPact NSXm

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ComPact NSX

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ComPact NSX & NSXm

Operating and installation conditions

ComPact NSXm may be mounted vertically, horizontally or flat on their back or on their side without any derating of characteristics.



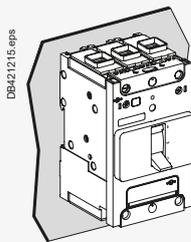
ComPact NSXm.



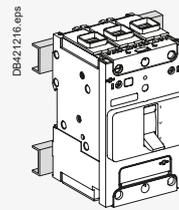
Fixed circuit breakers

ComPact NSXm may be mounted vertically, horizontally or flat on their back or on their side without any derating of characteristics. These devices can be mounted on a DIN rail using the integrated DIN rail mounting feature.

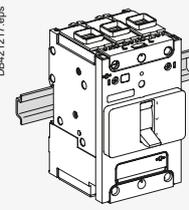
For backplate mounting, the devices are supplied with two mounting screws (M4), washers and nuts. These mounting screws can be inserted through mounting holes molded into the device case and threaded into the mounting enclosure, rails or plate.



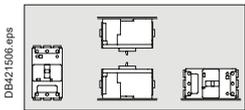
Mounting on a backplate.



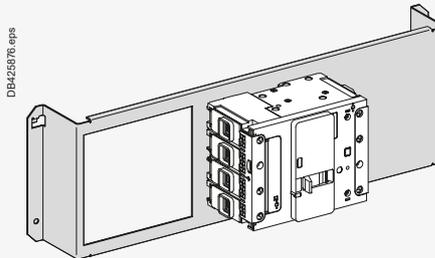
Mounting on rails.



Mounting on DIN rail.



Fixed device installation positions.



Mounting on a Prisma mounting plate.

ComPact NSX & NSXm

Operating and installation conditions

ComPact NSX circuit breakers may be installed horizontally, vertically or flat on their back, without derating performance levels.

There are three installation versions:

- fixed
- plug-in (on a base)
- withdrawable (on a chassis).

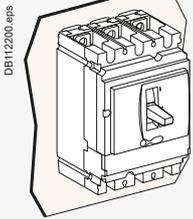
For the last two, components must be added (base, chassis) to the fixed version.

Many connection components are shared by the three versions.

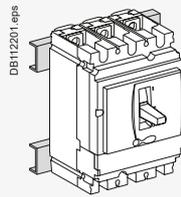
Fixed circuit breakers

Fixed circuit breakers are designed for standard connection using bars or cables with lugs. Bare-cable connectors are available for connection to bare copper or aluminium cables.

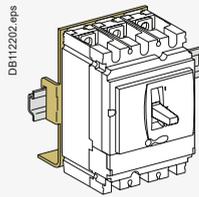
For connection of large cables, a number of solutions with spreaders may be used for both cables with lugs or bare cables.



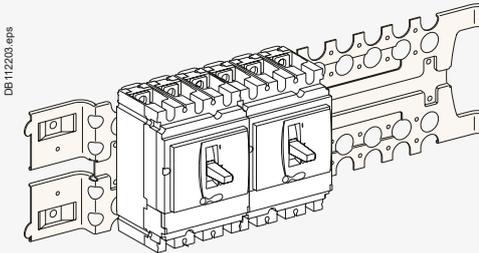
Mounting on a backplate.



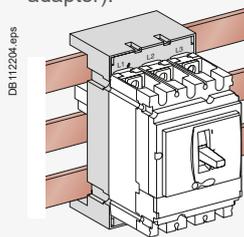
Mounting on rails.



Mounting on DIN rail (with adapter).



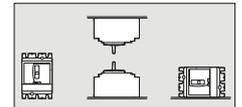
Mounting on a Prisma mounting plate.



Mounting on busbars with an adapter.



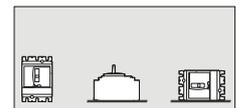
Fixed ComPact NSX250.



Fixed device installation positions.



Plug-in ComPact NSX250.



Withdrawable device installation positions.



ComPact NSX & NSXm

Operating and installation conditions

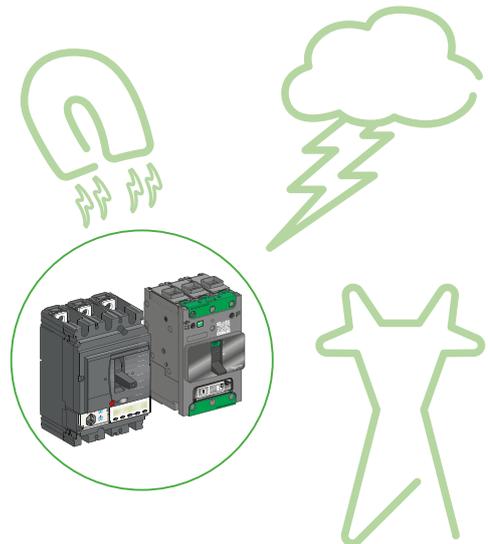
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Altitude derating

Altitude does not significantly affect the characteristics of ComPact NSX and NSXm circuit breakers up to 2000 m. Above this altitude, it is necessary to take into account the decrease in the dielectric strength and cooling capacity of air. The following table gives the corrections to be applied for altitudes above 2000 m. The breaking capacities remain unchanged.

Altitude (m)		2000	3000	4000	5000
Impulse withstand voltage (kV)		8	7.1	6.4	5.6
Insulation voltage (V)	Ui	800	710	635 ^[1]	560
for ELCB ^[3]	Ui	500	445	400	350
Maximum operational voltage (V)	Ue	690	690	635 ^[1]	560
for ELCB ^[3]	Ue	440	440	400	350
Average current capacity (A) at 40 °C	In x	1.0	0.98 ^[2]	0.96	0.94

Vibrations

ComPact NSX and NSXm devices resist mechanical vibrations. They meet IEC 60068-2-6:

- 2.0 to 13.2 Hz and amplitude ± 1 mm
- 13.2 to 100 Hz acceleration ± 0.7 g.

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

Electromagnetic disturbances

ComPact NSX and NSXm devices are protected against:

- overvoltages caused by circuit switching
- overvoltages caused by an atmospheric disturbances or by a distribution-system outage (e.g. failure of a lighting system)
- devices emitting radio waves (radios, walkie-talkies, radar, etc.)
- electrostatic discharges produced directly by users.

ComPact NSX and NSXm devices have successfully passed the electromagnetic-compatibility tests (EMC) defined by the international standards listed [page A-15](#).

These tests ensure that:

- no nuisance tripping occurs
- tripping times are respected.

[1] 640 for ComPact NSX.

[2] 0.99 for ComPact NSX.

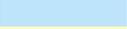
[3] Earth Leakage Circuit Breaker.

ComPact NSX & NSXm

Operating and installation conditions

Protection degree

Protection degree of the product, according to IEC 60529, depends of its configuration:

Colours	Definition
	IP54/65: side / front extended rotary handle
	IP40: front cover, side, back, long terminal shield, direct rotary handle
	IP20: power connection cover
	may be IP20 or less depending of the kind of power connections and cable size used



Power supply from the top or bottom

ComPact NSXm circuit breakers can be supplied from either the top or the bottom, even when equipped with a MicroLogic Vigi 4.1 with integrated earth leakage protection, without any reduction in performance. This capability facilitates connection when installed in a switchboard.

All connection and insulation accessories can be used on circuit breakers supplied either from the top or bottom.



Power supply from the top or bottom^[1]

ComPact NSX circuit breakers can be supplied from either the top or the bottom, even when equipped with a Vigi add-on, without any reduction in performance. This capability facilitates connection when installed in a switchboard.

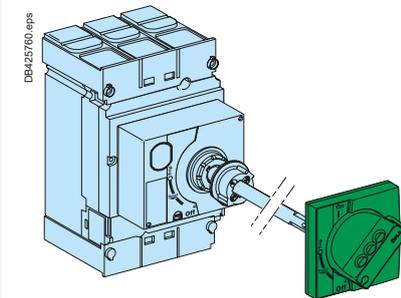
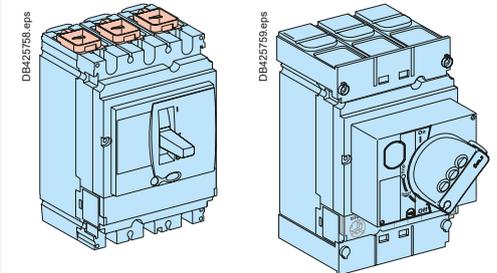
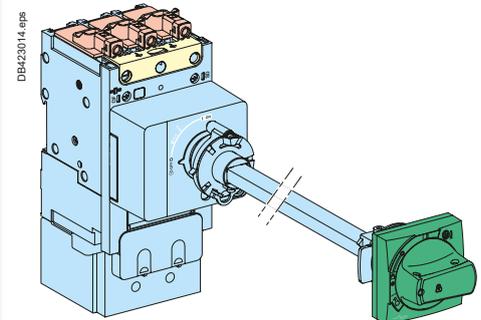
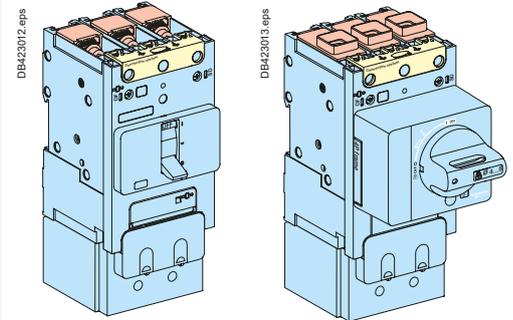
All connection and insulation accessories can be used on circuit breakers supplied either from the top or bottom.

^[1] All R, HB1, and HB2 circuit breakers are restricted for use as line-load connection. They can not have power fed into the bottom of the circuit breaker. They will be marked with Line and Load markings.

Weight

The table below presents the weights (in kg) of the circuit breakers and the main accessories, which must be summed to obtain the total weight of complete configurations. The values are valid for all performance categories.

Type of device	Circuit breakers	Base	Chassis	Vigi add-on	Visu module	Motor mech.	
NSX100	3P/2D	1.79	0.8	2.2	0.87	2	1.2
	3P/3D	2.05	0.8	2.2	0.87	2	1.2
	4P/4D	2.4	1.05	2.2	1.13	2.2	1.2
NSX160	3P/2D	1.85	0.8	2.2	0.87	2	1.2
	3P/3D	2.2	0.8	2.2	0.87	2	1.2
	4P/4D	2.58	1.05	2.2	1.13	2.2	1.2
NSX250	3P/2D	1.94	0.8	2.2	0.87	2	1.2
	3P/3D	2.4	0.8	2.2	0.87	2	1.2
	4P/4D	2.78	1.05	2.2	1.13	2.2	1.2
NSX400/630	3P/3D	6.19	2.4	2.2	2.8	4.6	2.8
	4P/4D	8.13	2.8	2.2	3	4.9	2.8



ComPact NSXm

Operating and installation conditions

Derating and correction factor depending of temperature

The overload protection is calibrated at 40 °C in the lab. This means that when the ambient temperature is less or greater than 40 °C, the Ir protection pick-up is slightly modified.

Choosing the right rating depending of the temperature:

Over the reference temperature of 40 °C, the circuit breaker has to be derated following the table below:

Temperature derating for thermal-magnetic (TM-D) NSXm at In

Temperature °C						
40	45	50	55	60	65	70
Rating (A) In						
16	16	15	15	14	14	13
25	24	24	23	23	22	21
32	31	30	30	29	28	27
40	39	38	37	36	34	33
50	49	48	46	45	44	42
63	61	60	58	56	54	53
80	77	73	70	67	64	60
100	96	94	90	87	83	80
125	120	117	113	109	104	100
160	155	149	144	139	133	126

Temperature derating for NSXm with MicroLogic Vigi 4.1 at In

Temperature °C						
40	45	50	55	60	65	70
Rating (A) In						
25	25	25	25	25	25	25
50	50	50	50	50	50	50
100	100	100	100	100	100	100
160	155	150	145	140	135	130

Doing the setting or calculating the tripping time for a given temperature:

After having determine the corrected ratio I/I_n , the tripping time at 40 °C is defined with the tripping curves (see pages H-2 to H-3).

To obtain the right setting or the tripping time at a different temperature, the ratio I/I_n has to be corrected with the correction factor below:

Correction factor table for thermal magnetic (TM-D) NSXm to determine setting or tripping time at I_n													
Rating (A) I_n	Temperature °C												
	10	15	20	25	30	35	40	45	50	55	60	65	70
16	1.16	1.13	1.11	1.08	1.05	1.03	1.00	0.97	0.94	0.91	0.88	0.85	0.81
25	1.13	1.11	1.09	1.07	1.05	1.02	1.00	0.98	0.95	0.93	0.90	0.88	0.85
32	1.14	1.11	1.09	1.07	1.05	1.02	1.00	0.98	0.95	0.93	0.90	0.87	0.84
40	1.15	1.12	1.10	1.08	1.05	1.03	1.00	0.97	0.95	0.92	0.89	0.86	0.83
50	1.13	1.11	1.09	1.07	1.05	1.02	1.00	0.98	0.95	0.93	0.90	0.87	0.85
63	1.14	1.12	1.10	1.07	1.05	1.02	1.00	0.97	0.95	0.92	0.89	0.86	0.83
80	1.21	1.18	1.14	1.11	1.07	1.04	1.00	0.96	0.92	0.88	0.83	0.80	0.75
100	1.18	1.16	1.12	1.10	1.06	1.04	1.00	0.96	0.94	0.90	0.87	0.83	0.80
125	1.17	1.14	1.11	1.08	1.06	1.03	1.00	0.96	0.93	0.90	0.87	0.84	0.80
160	1.17	1.15	1.12	1.09	1.06	1.03	1.00	0.97	0.93	0.90	0.87	0.83	0.79

Doing the right setting depending of the temperature:

Example: What is the setting to obtain a real I_r of 105 A, taking into account the temperature, for a ComPact NSXm 125 A?

The necessary dial setting, in amperes, is shown below.

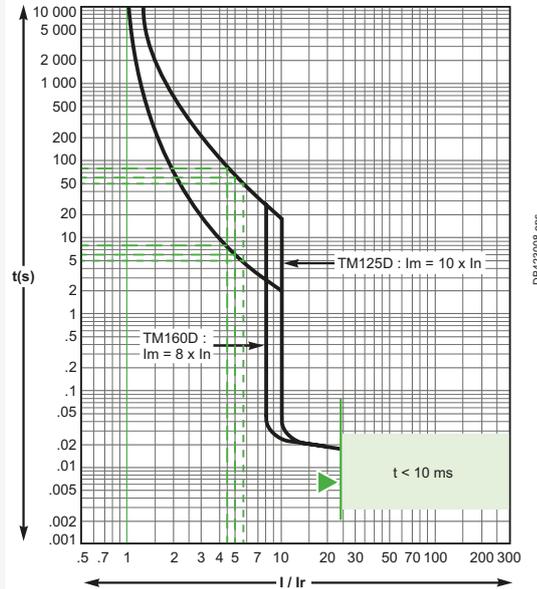
- At 40 °C, $I_r = 105 / 1 = 105$ A
- At 20 °C, $I_r = 105 / 1.11 = 95$ A
- At 60 °C, $I_r = 105 / 0.87 = 121$ A.

Calculating the tripping time at $I_r = I_n$ for a given temperature:

Example: What is the tripping time of a ComPact NSXm 100A at $I_r = I_n$ for an overload of 500 A?

- At 40 °C, $I/I_r = 5$, tripping time is between 6 and 60 seconds
- At 20 °C, $I/I_r = 5 / 1.12 = 4.46$, tripping time is between 8 and 80 seconds
- At 60 °C, $I/I_r = 5 / 0.87 = 5.75$, tripping time is between 5 and 50 seconds

For $I_r = 0.7$ to $0.9 I_n$, additional correction factor need to be applied - please consult us.



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ComPact NSXm

Safety clearances and minimum distances

General rules

When installing a circuit breaker, minimum distances (safety clearances) must be maintained between the device and panels, bars and other protection devices installed nearby. These distances, which depend on the ultimate breaking capacity, are defined by tests carried out in accordance with standard IEC 60947-2.

If installation conformity is not checked by type tests, it is also necessary to:

- use insulated bars for circuit-breaker connections
- segregate the busbars using insulating screens.

For ComPact NSXm devices, terminal shields and interphase barriers are recommended and may be mandatory depending on the kind of power connections of the device and type of installation.

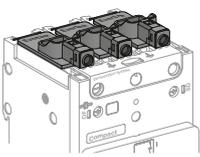
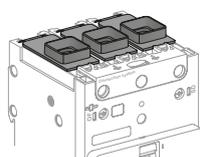
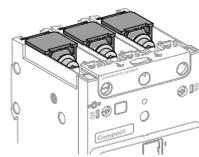
Power connections

The table below indicates the rules to be respected for ComPact NSXm devices to ensure insulation of live parts for the various types of connection.

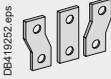
Connection accessories such as crimp lugs, power distribution connectors, and spreaders are supplied with interphase barriers.

Long terminal shields provide a degree of protection of IP40 (ingress) and IK07 (mechanical impact).

ComPact NSXm: rules to be respected to ensure insulation of live parts

	EverLink connector with or without control wire terminal	Mechanical lug connector	Compression lug / busbar connector
	 DB421518 eps	 DB418827 eps	 DB421519 eps

Insulation accessory options per conductor type

Type of conductor	No insulating accessory	Interphase barriers	Long terminal shield	No insulating accessory	Interphase barriers	Long terminal shield	No insulating accessory	Interphase barriers	Long terminal shield
Cables  DB419248 eps	Possible	-	-	Possible	Possible	Possible	-	-	-
Insulated bars  DB419249 eps	-	-	-	-	-	-	Possible [2]	Possible	Possible
Cables + crimp lugs  DB419250 eps	-	-	-	-	-	-	Forbidden	Mandatory [3]	Possible [1]
Cables + crimp lugs with heat-shrinkable sheath  DB419251 eps	-	-	-	-	-	-	Possible [2]	Possible	Possible
Extension terminals: spreader  DB419252 eps	-	-	-	-	-	-	Forbidden	Mandatory [4]	-

[1] Instead of phase barriers.

[2] Safety air clearance of 8 mm has to be respected between live parts.

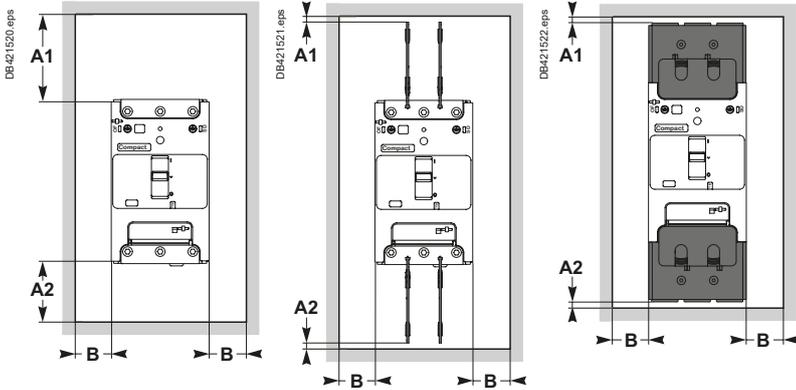
[3] When > 5 mm clearance between devices Interphase barriers are mandatory otherwise for < 5 mm Long terminal shields are mandatory.

[4] When > 5 mm clearance between devices Interphase barriers are mandatory otherwise > 5 mm clearance between devices is forbidden.

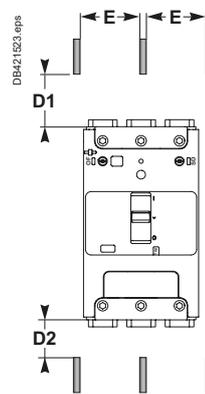
Note: For uninsulated bar connections, please consult us.

IEC standard

Minimum safety clearances



Minimum safety clearances to bare busbars



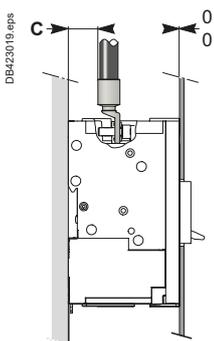
Operating voltage	Clearance (mm)						
	Between devices	Between device and sheet metal			Bare sheet metal		
		Painted sheet metal	A2	B	A1	A2	B
$U \leq 690 \text{ V}$		A1	A2	B	A1	A2	B
for devices equipped with:							
no accessories	0	30 mm	5 mm	0	40 mm	5 mm	5 mm
interphase barriers [1]	0	0	0	0	0	0	5 mm
long terminal shields	0	0	0	0	0	0	5 mm

[1] 20 mm clearance when using spreaders and 5mm clearance when using crimp lugs between devices is mandatory.

Operating voltage	Clearances to live bare busbars [2]			
	Spacing $E \leq 60 \text{ mm}$		Spacing $E > 60 \text{ mm}$	
	D1	D2	D1	D2
$U \leq 690 \text{ V}$	200 mm	100 mm	120 mm	60 mm

[2] These clearances can be reduced for special installations as long as the configuration is checked by tests.

Compression lug safety clearance

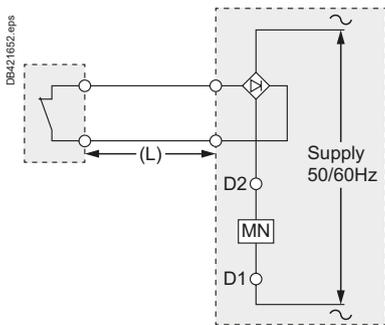
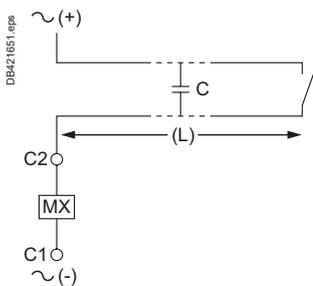
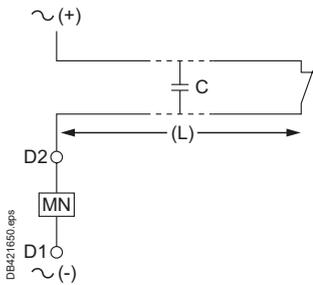


An insulating screen or long terminal shield is required if $C < 8 \text{ mm}$.



ComPact NSXm

Voltage release wiring rules



Shunt trip (MX) and undervoltage release (MN)

Recommended maximum cable lengths

In certain circumstances, high cable capacitance due to an excessive cable length could prevent an undervoltage release MN from dropping out resulting in safety issues. In case of a shunt trip MX, an untimely trip may occur due to capacitive current leak.

To avoid these dysfunction due to cable capacitance C, the maximum cable length (L) is defined by the following table for a 1.5 mm² cable.

Power supply voltage (Un)	Maximum cable length undervoltage trip (MN) [1]	Shunt trip (MX) [1]
24 V AC	1 243 m	3 653 m
24 V DC	unlimited	> 3653 m
48 V AC	583 m	1 667 m
48 V DC	unlimited	> 1667 m
110...130 V AC	126 m	913 m
110...130 V DC	unlimited	> 913 m
208-240 V AC	109 m	160 m
250 V DC	unlimited	> 160 m
277 V AC	98 m	120 m
380-415 V AC	86 m	80 m
440-480 V AC	56 m	67 m

[1] Make sure auxiliaries supply voltage is within working range (0.85 Un mini...1.1 Un maxi).

If a longer cable length is required, several solutions are possible to counteract excessive cable capacitance:

- use DC operated auxiliaries
- use lower control voltage (make sure auxiliaries supply voltage is within working range: 0.85 Un minimum...1.1 Un maximum)
- if high voltage and long control cables are required for an AC undervoltage release (MN), add a rectifier bridge (ref LV426899 – DIN rail compatible) in the control circuit. It will prevent drop out problems but increase operating time.

Electrical characteristics of MN/MX

Characteristics			AC	DC
Rated voltage (V)			24, 48, 110...130, 208...240, 277, 380...415, 440...480	24, 48, 125, 250
Power requirements	MX	Pickup (< 50 ms)	< 6 VA	< 10 W
		Seal-in	< 4 VA	< 1 W
	MN		< 7 VA	< 2 W
Clearing time (ms)			< 50	< 50
Operating range			up to 1.1 Un	

Switchboard integration

ComPact NSXm

Power loss / Resistance

ComPact NSXm thermal power loss values are used to calculate total temperature rise in the switchboard in which the circuit breakers are installed.

The values indicated in the tables below are typical values for a device at full rated load and 50/60 Hz.

Power loss per pole (P/pole) in Watts (W)

The value indicated is the power loss at I_n , 50/60 Hz, for a three-pole or four-pole circuit breaker. Measurement and calculation of power loss are carried out in compliance with the recommendations of Annex G of standard IEC 60947-2.

Resistance per pole (R/pole) in milliohms (mΩ)

The value of the resistance per pole is provided as a general indication for a new device.

The value of the contact resistance is determined on the basis of the measured voltage drop, in accordance with the manufacturer's test procedure.

Note: this measurement is not sufficient to determine the quality of the contacts, i.e. the capacity of the circuit breaker to carry its rated current.

Calculation of total power loss

Total power loss at full rated load and 50/60 Hz is equal to power losses per pole multiplied by the number of poles (3 or 4).

ComPact NSXm with TM-D

Rating (A)	R total / pole (mΩ)	P / Pole (W)
16	8.87	2.3
25	4.50	2.8
32	3.10	3.3
40	2.30	3.8
50	1.85	4.6
63	1.44	5.7
80	0.90	5.8
100	0.75	7.5
125	0.59	9.3
160	0.53	13.7

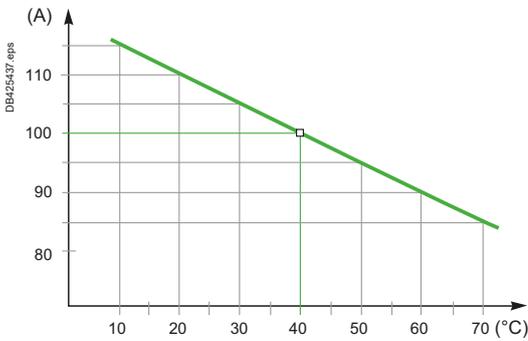
ComPact NSXm with MicroLogic Vigi 4.1

Rating (A)	R total / pole (mΩ)	P / Pole (W)
25	2.44	1.5
50	0.48	1.2
100	0.48	4.8
160	0.48	12.3

ComPact NSX temperature derating

Equipped with thermal-magnetic trip units

When thermal-magnetic trip units are used at ambient temperatures other than 40 °C, the I_r pick-up is modified.



Temperature derating curve for ComPact NSX100.

Derating and correction factor depending of temperature

The overload protection is calibrated at 40 °C in the lab. This means that when the ambient temperature is less or greater than 40 °C, the I_r protection pick-up is slightly modified.

Choosing the right rating depending of the temperature:

Over the reference temperature of 40 °C, the circuit breaker has to be derated following the table below:

Temperature derating for thermal-magnetic (TM-D) NSX at I _n						
Temperature °C						
40	45	50	55	60	65	70
Rating (A) I _n						
16	15.6	15.2	14.8	14.5	14	13.8
25	24.5	24	23.5	23	22	21
32	31.3	30.5	30	29.5	29	28.5
40	39	38	37	36	35	34
50	49	48	47	46	45	44
63	61.5	60	58	57	55	54
80	78	76	74	72	70	68
100	97.5	95	92.5	90	87.5	85
125	122	119	116	113	109	106
160	156	152	148	144	140	136
200	195	190	185	180	175	170
250	244	238	231	225	219	213

Doing the setting or calculating the tripping time for a given temperature:

After having determine the corrected ratio I/I_n, the tripping time at 40 °C is defined with the tripping curves (see pages H-5 to H-7).

To obtain the right setting or the tripping time at a different temperature, the ratio I/I_n has to be corrected with the correction factor below:

Correction factor table for thermal magnetic (TM-D) NSX to determine setting or tripping time at I _n													
Rating (A) I _n	Temperature °C												
	10	15	20	25	30	35	40	45	50	55	60	65	70
16	1.15	1.17	1.13	1.13	1.06	1.04	1.00	0.98	0.95	0.93	0.91	0.88	0.86
25	1.15	1.12	1.10	1.08	1.05	1.02	1.00	0.98	0.96	0.94	0.92	0.88	0.84
32	1.15	1.13	1.10	1.07	1.05	1.03	1.00	0.98	0.95	0.94	0.92	0.91	0.89
40	1.15	1.13	1.10	1.08	1.05	1.03	1.00	0.98	0.95	0.93	0.9	0.88	0.85
50	1.15	1.12	1.10	1.08	1.05	1.02	1.00	0.98	0.96	0.94	0.92	0.90	0.88
63	1.14	1.13	1.10	1.08	1.05	1.03	1.00	0.98	0.95	0.92	0.90	0.87	0.86
80	1.15	1.13	1.10	1.08	1.05	1.03	1.00	0.98	0.95	0.93	0.90	0.88	0.85
100	1.15	1.13	1.10	1.08	1.05	1.03	1.00	0.98	0.95	0.93	0.90	0.88	0.85
125	1.15	1.128	1.10	1.07	1.05	1.02	1.00	0.98	0.95	0.93	0.90	0.87	0.85
160	1.15	1.125	1.10	1.08	1.05	1.03	1.00	0.98	0.95	0.93	0.90	0.88	0.85
200	1.15	1.125	1.10	1.08	1.05	1.03	1.00	0.98	0.95	0.93	0.90	0.88	0.85
250	1.15	1.124	1.11	1.08	1.05	1.02	1.00	1.63	0.95	0.92	0.90	0.88	0.85

For I_r = 0.7 to 0.9 I_n, additional correction factor need to be applied - please consult us.

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ComPact NSX temperature derating

Equipped with thermal-magnetic trip units

Example 1. What is the tripping time of a ComPact NSX100 equipped with a TM100D trip unit set to 100 A, for an overload $I = 500$ A?
 The overload I/I_r is calculated as a function of the temperature. Use the above values and the curve on page H-6 (shown on the left) to determine the corresponding time.

- At 40 °C, $I_r = 100$ A, $I/I_r = 5$ and the tripping time is between 6 and 60 seconds.
- At 20 °C, $I_r = 110$ A, $I/I_r = 4.54$ and the tripping time is between 8 and 80 seconds.
- At 60 °C, $I_r = 90$ A, $I/I_r = 5.55$ and the tripping time is between 5 and 50 seconds.

Example 2. What is the setting to obtain a real I_r of 210 A, taking into account the temperature, for a ComPact NSX250 equipped with a TM250D trip unit?
 The necessary dial setting, in amperes, is shown below.

- At 40 °C, $I_r = (210/250) \times 250$ A = 210 A
- At 20 °C, $I_r = (210/277) \times 250$ A = 189.5 A
- At 60 °C, $I_r = (210/225) \times 250$ A = 233 A

Additional derating coefficient for an add-on module

The values indicated in the previous tables are valid for **fixed** circuit breakers equipped with one of the following modules:

- Vigi add-on
- Vigi add-on Alarm
- ammeter module
- current-transformer module.

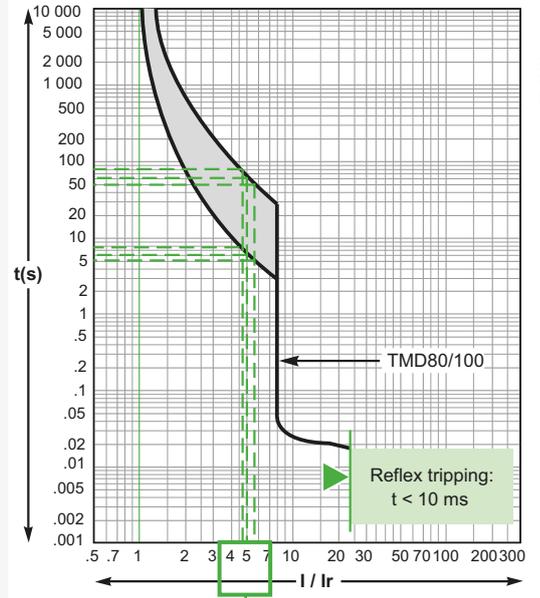
They also apply for **plug-in or withdrawable** circuit breakers equipped with:

- ammeter module
- current-transformer module.

However, for **plug-in or withdrawable** circuit breakers equipped with a Vigi add-on or a Vigi add-on Alarm, the coefficient 0.84 must be applied.

The table below sums up the situation for add-on modules.

Type of device	Circuit breaker	TM-D trip-unit rating	Vigi add-on or Vigi add-on Alarm	Ammeter, current transformer module, or PowerTag NSX
Fixed	NSX100	16 to 100	1	1
	NSX160 to 250	125 to 160		
	NSX250	200 to 250		
Plug-in or withdrawable	NSX100	16 to 100	0.84	
	NSX160	125 to 160		
	NSX250	200 to 250		



Example 1. Fault $I = 500$ A

I/I_r	4.5	5	5.5
$T^{\circ}\text{C}$	20 °C	40 °C	60 °C
t min.	8 s	6 s	5 s
t max.	80 s	60 s	50 s

Thermal-protection curve with minimum and maximum values.

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ComPact NSX temperature derating

Equipped with electronic trip units

Changes in temperature do not affect measurements by electronic trip units.

- The built-in CT sensors with Rogowski toroids measure the current.
- The control electronics compare the value of the current to the settings defined for 40 °C.

Because temperature has no effect on the toroid measurements, the tripping thresholds do not need to be modified.

However, the temperature rise caused by the flow of current and the ambient temperature increase the temperature of the device. To avoid reaching the thermal withstand level of the equipment, it is necessary to limit the current flowing through the device, i.e. the maximum I_r setting as a function of the temperature.

ComPact NSX100/160/250

The table below indicates the maximum long-time (LT) protection setting I_r (A) depending on the ambient temperature.

Type of device	Rating (A)	Temperature (°C)						
		40	45	50	55	60	65	70
NSX100/160								
Fixed, plug-in	100	no derating						
or withdrawable	160	no derating						
NSX250 + MicroLogic 2.2/5.2/6.2								
Fixed	250	250	250	250	245	237	230	225
Plug-in or withdr.	250	250	245	237	230	225	220	215
NSX250 + MicroLogic Vigi 4.2/7.2								
Fixed	250	250	250	245	237	230	225	218
Plug-in or withdr.	250	225	220	215	210	205	198	190

ComPact NSX400 and 630

The table below indicates the maximum long-time (LT) protection setting I_r (A) depending on the ambient temperature.

Type of device	Rating (A)	Temperature (°C)						
		40	45	50	55	60	65	70
NSX400 + MicroLogic 2.3/5.3/6.3								
Fixed	400	400	400	400	390	380	370	360
Plug-in/withdr.	400	400	390	380	370	360	350	340
NSX400 + MicroLogic Vigi 4.3/ 7.3								
Fixed	400	400	400	390	380	370	360	350
Plug-in/withdr.	400	400	390	380	370	360	350	340
NSX630 + MicroLogic 2.3/5.3/6.3								
Fixed	630	630	615	600	585	570	550	535
Plug-in/withdr.	630	570	550	535	520	505	490	475
NSX630 + MicroLogic Vigi 4.3/7.3								
Fixed	630	570	555	540	530	515	500	485
Plug-in/withdr.	630	480	470	457	445	435	420	405

Example. A fixed ComPact NSX400 equipped with a MicroLogic can have a maximum I_r setting of:

- 400 A up to 50 °C
- 380 A up to 60 °C.

ComPact NSX temperature derating

Equipped with electronic trip units

Additional derating coefficient for an add-on module

For **fixed** or **plug-in / withdrawable** circuit breakers, the addition of a:

- Vigi add-on
- Vigi add-on Alarm
- ammeter module
- current-transformer module

can modify the derating values. Apply the coefficients shown below.

Derating of a ComPact NSX equipped with a MicroLogic trip unit

Type of device	Circuit breaker	MicroLogic type	Vigi add-on or Vigi add-on Alarm	PowerTag NSX	Coupling busbar	Current transformer	
Fixed	NSX100	2.2/5.2/6.2	1	1	1	1	
		4.2/7.2	-		1		
	NSX160	2.2/5.2/6.2	1		1		
		4.2/7.2	-		1		
	NSX250	2.2/5.2/6.2	1		1		
		4.2/7.2	-		0.95		
Plug-in or withdrawable	NSX100	2.2/5.2/6.2	1		-		
		4.2/7.2	-				
	NSX160	2.2/5.2/6.2	1				
		4.2/7.2	-				
	NSX250	2.2/5.2/6.2	0.86				
		4.2/7.2	-				
Fixed	NSX400	2.3/5.3/6.3	0.97	0.97	1	1	
		4.3/7.3	-		0.97		
	NSX630	2.3/5.3/6.3	0.9	0.9	1		
		4.3/7.3	-		0.9		
	Plug-in or withdrawable	NSX400	2.3/5.3/6.3	0.97	1		-
			4.3/7.3	-			
NSX630		2.3/5.3/6.3	0.9				
		4.3/7.3	-				

Note:

- Coupling busbar is forbidden with Vigi add-on.
- Current transformer is forbidden with Vigi add-on and coupling busbar.
- Coupling busbar is forbidden with withdrawable installation.
- To provide the Visu function, ComPact NSX circuit breakers, with or without a Vigi add-on, are combined with INV switch-disconnectors. Tripping values for the selected combination are indicated in the ComPact INS/INV catalog.

ComPact NSX installation in switchboards

Safety clearances and minimum distances

General rules

When installing a circuit breaker, minimum distances (safety clearances) must be maintained between the device and panels, bars and other protection devices installed nearby. These distances, which depend on the ultimate breaking capacity, are defined by tests carried out in accordance with standard IEC 60947-2.

If installation conformity is not checked by type tests, it is also necessary to:

- use insulated bars for circuit-breaker connections
- segregate the busbars using insulating screens.

For ComPact NSX100 to 630 devices, terminal shields and interphase barriers are recommended and may be mandatory depending on the operating voltage of the device and type of installation (fixed, withdrawable, etc.).

Power connections

The table below indicates the rules to be respected for ComPact NSX100 to 630 devices to ensure insulation of live parts for the various types of connection.

- fixed devices with front connection (FC) or rear connection (RC)
- plug-in or withdrawable devices.

Connection accessories such as crimp lugs, bare-cable connectors, terminal extensions (straight, right-angle, double-L and 45°) and spreaders are supplied with interphase barriers.

Long terminal shields provide a degree of protection of IP40 (ingress) and IK07 (mechanical impact).

ComPact NSX100 to 630: rules to be respected to ensure insulation of live parts

Type of connection		Fixed, front connection			Fixed, rear connection	Plug-in or withdrawable	
						On backplate 	Through panel
Possible, recommended or mandatory accessories:		No insulating accessory	Interphase barriers 	Long terminal shields 	Short terminal shields 	Short terminal shields 	Short terminal shields
With:							
operating voltage	type of conductor						
< 500 V	Insulated bars 	Possible	Possible	Possible	Recommended	Recommended	Mandatory
	Extension terminals Cables + crimp lugs 	No	Mandatory (supplied)	Possible (instead of ph. barriers)	Recommended	Recommended	Mandatory
	Bare cables + connectors 	Possible for cable connectors NSX100 to 250	Possible for cable connectors NSX100 to 250	Possible for cable connectors NSX100 to 250	Recommended	Recommended	Mandatory
≥ 500 V	Insulated bars 	No	No	Mandatory (use of short terminal shield possible)	Mandatory [2]	Mandatory [2]	Mandatory [2]
	Extension terminals Cables + crimp lugs 	No	No	Mandatory	Mandatory [2]	Mandatory [2]	Mandatory [2]
	Bare cables + connectors 	No	No	Mandatory	Mandatory [2]	Mandatory [2]	Mandatory [2]

[1] Long terminal shields, mandatory if the device is fixed through the door, whatever the voltage.

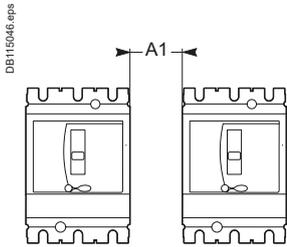
[2] LV433693 (3P) or LV433694 (4P) Short Terminal Shield are mandatory for R/HB1/HB2 400 A and 630 A performance.

ComPact NSX installation in switchboards

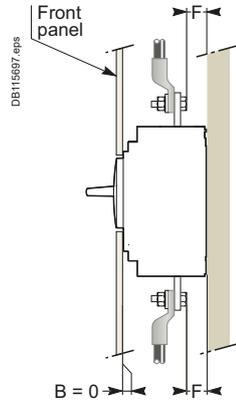
Installation example

Safety clearance

Minimum distance between two adjacent circuit breakers



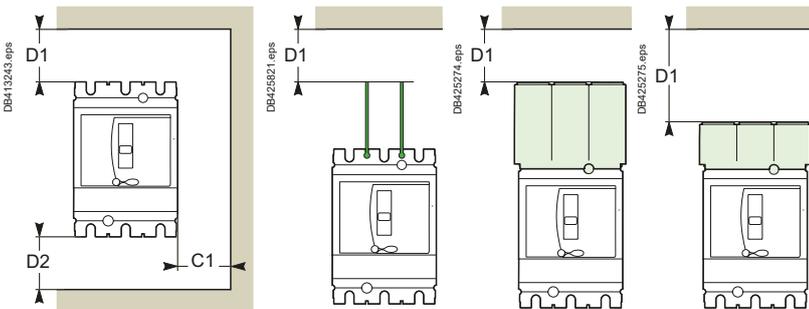
Minimum distance between circuit breaker and front or rear panels



Bare or painted sheetmetal

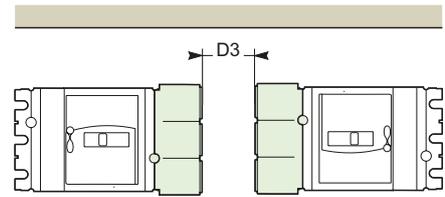
Note: if $F < 8$ mm: an insulating screen or long terminal shield is mandatory (see page C-23).

Minimum distance between circuit breaker and top, bottom or side panels



Devices without accessories.

Devices with interphase barriers or long or short terminal shields.



Short terminal shield rear connected.

Minimum safety clearances for ComPact NSX100 to 630

Operating voltage	Clearance (mm)							
	Between devices A1	Between device and sheetmetal						
		Between devices C1	Painted sheet metal D1	D2	Bare sheet metal C1	D1	D2	D3
U ≤ 440 V for devices equipped with:								
■ no accessories	0	0	30	30	5	40	40	-
■ short terminal shields	0	0	30	30	5	40	40	50
■ interphase barriers	0	0	0	0	5	0	0	-
■ long terminal shields	0	0	0	0	0	0	0	-
440 V < U ≤ 500 V for devices equipped with:								
■ short terminal shields	0	0	30	30	10	40	40	50
■ interphase barriers ^[1]	0	0	0	0	20	10	10	-
■ long terminal shields ^[2]	0	0	0	0	10	10	10	-
U > 500 V for devices equipped with:								
■ short terminal shields	0	10	50	50	20	100	100	50
■ long terminal shields	0	10	30	30	20	40	40	-

[1] Only for NSX100 to 250.

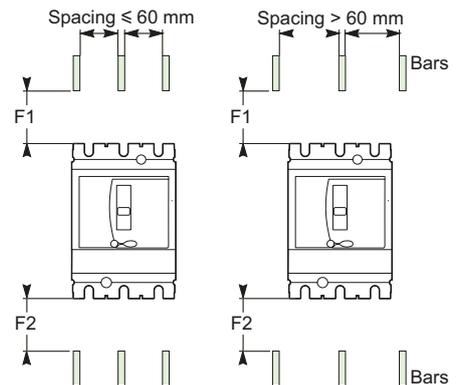
[2] For all cases.

Clearances with respect to live bare busbars

Minimum clearances for ComPact NSX100 to 630

Operating voltage	Clearances with respect to live bare busbars			
	spacing ≤ 60 mm		spacing > 60 mm	
	F1	F2	F1	F2
U < 440 V	350	350	80	80
440 V ≤ U ≤ 500 V	350	350	120	120
U > 500 V	prohibited: insulating screen required between device and busbars			

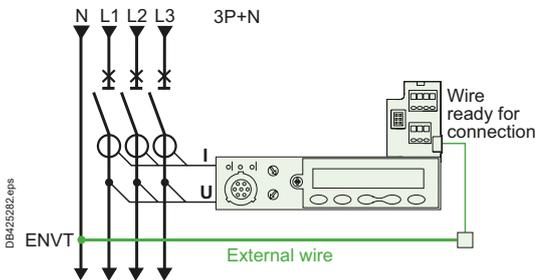
These clearances can be reduced for special installations as long as the configuration is checked by tests.



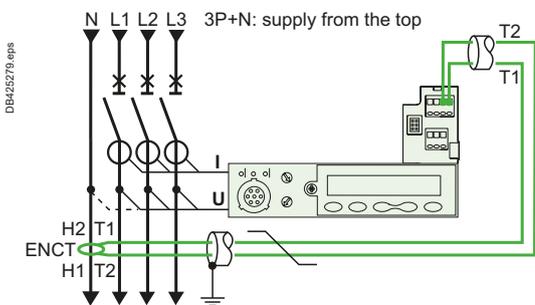
Live busbars.

ComPact NSX

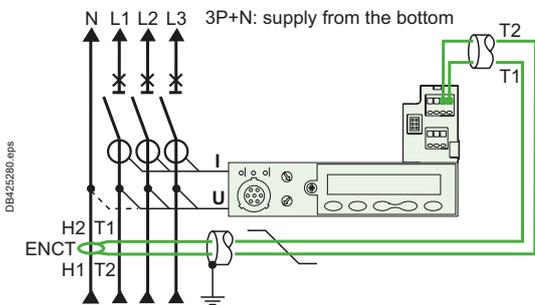
Control wiring



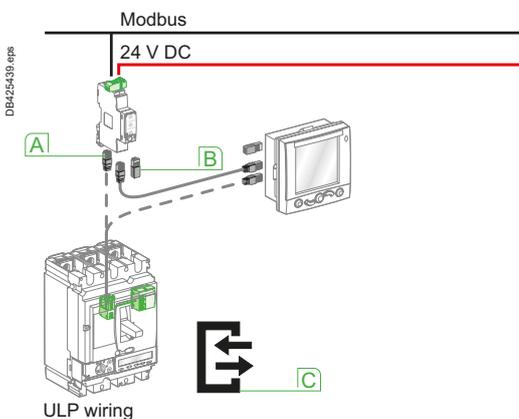
External neutral voltage tap (ENVT).



External neutral current transformer (ENCT).



External neutral current transformer (ENCT).



ULP connection system.

- A** RJ45
- B** Line terminator
- C** ULP symbol

Remote tripping by MN or MX release

Power consumption is approximately:

- 30 VA for pick-up of the MN and MX releases
- 300 VA to 500 VA for the motor mechanism.

The table below indicates the maximum permissible cable length for different supply voltages and cable cross-sectional areas.

Recommended maximum cable lengths (in metres)

Power supply voltage (V DC)		12 V		24 V		48 V	
Cable cross-section (mm ²)		1.5	2.5	1.5	2.5	1.5	2.5
MN	U source 100 %	15	–	160	–	640	–
	U source 85 %	7	–	40	–	160	–
MX	U source 100 %	60	–	240	–	960	–
	U source 85 %	30	–	120	–	480	–
Motor mechanism	U source 100 %	–	–	10	16	65	110
	U source 85 %	–	–	2	4	17	28

Note: the indicated length is that of each of the two wires.

External neutral voltage tap (ENVT)

This connection is required for accurate power measurements on 3-pole circuit breakers equipped with MicroLogic 5 / 6 E trip units in installations with a distributed neutral. It can be used to measure phase-neutral voltages and calculate power using the 3 wattmeter method.

ComPact NSX 3-pole circuit breakers come with a wire installed on the device for the connection to the ENVT.

This wire is equipped with a connector for connection to an external wire with the following characteristics:

- cross-sectional area of 1 mm² to 2.5 mm²
- maximum length of 10 metres.

External neutral current transformer (ENCT)

This connection is required to protect the neutral on 3-pole circuit breakers equipped with MicroLogic 5 / 6 A or E trip units in installations with a distributed neutral. For MicroLogic 6 A or E, it is required for type G ground-fault protection.

The ENCT is connected in the same way for fixed, plug-in or withdrawable devices:

- fixed devices are connected via terminals T1 and T2 of the internal terminal block.
- plug-in and withdrawable devices are not connected via the auxiliary terminals. The wires must be connected/disconnected inside the device via terminals T1 and T2.

The ENCT must be connected to the MicroLogic trip unit by a shielded twisted pair. The shielding should be connected to the switchboard earth only at the CT end, no more than 30 cm from the CT.

- the power connections of the CT to the neutral (H2 and H1) must be made in the same way for power supply from the top or the bottom (see figure). Make sure they are not reversed for devices with power supply from the bottom.

- cross-sectional area of 0.4 mm² to 1.5 mm²
- maximum length of 10 metres.

ULP connection system between MicroLogic, FDM121 switchboard display and Modbus interface

The ULP (Universal Logic Plug) wiring system used by ComPact NSX for connections through to the Modbus network requires neither tools nor settings. The prefabricated cords are used for both data transfer and distribution of 24 V DC power. Connectors on each component are identified by ULP (Universal Logic Plug) symbols, ensuring total compatibility between each component.

Available cords

All connections are made with prefabricated cords:

- NSX cord for connection of the internal terminal block to the Modbus interface or the FDM121 display via an RJ45 connector. The cord is available in three lengths, 0.35 m, 1.3 m and 3 m
- ULP cords with RJ45 connectors at each end for the other connections between components. The cord is available in six lengths, 0.3 m, 0.6 m, 1 m, 2 m, 3 m and 5 m. For greater distances, two cords can be interconnected using the RJ45 female/female accessory.

Maximum length of 10 m between 2 modules and 30 m in all.

A line terminator must be fitted to all components with an unused RJ45 connector.

External 24 V DC power-supply module (AD)

The external power-supply module makes it possible:

- to use the display even if the circuit breaker is open or not supplied (for the exact conditions of use, see the “electrical diagrams” part of this catalog)
- to display fault currents after tripping
- to modify settings when the circuit breaker is open (OFF position)

An external 24 V DC power supply is required for installation with communication, whatever the type of trip unit.

This module is not designed to power on 24 V DC voltage releases and electric motor mechanism.

This module powers both the control unit and the M2C programmable contacts. We recommended using the AD power supply due to its low stray primary secondary capacitance. Good operation of the MicroLogic control unit in noisy environment is not guaranteed with other power supplies.

If the COM option is used, a second dedicated power supply shall be used.

This module powers both the control unit and the M2C programmable contacts or ESM module.

Characteristics

- Power supply AC-to-DC or DC-to-DC
- Output voltage: 24 V DC $\pm 5\%$.
- Output current: 1 A.
- DIN rail or platine Fixing with Acti9 form factor
- Conducted emissions power line: class B per EN/IEC 61000-6-3.

Wiring (see page E-89)

MicroLogic 5 / 6 / 7 not using the Communication function

The external 24 V DC supply is connected via the circuit breaker terminal block. Use of a 24 V DC battery provides backup power for approximate 3 hours (100 mA) in the event of an interruption in the external supply.

MicroLogic 5 / 6 / 7 using the Communication function

The external 24 V DC supply is connected via the Modbus interface using a five-pin connector, including two for the power supply. Stacking accessories (see page D-2) can be used to supply a number of interfaces by fast clip-on connection. The 24 V DC power is distributed downstream by the ULP (Universal Logic Plug) communication cords with RJ45 connectors. This system ensures both data transfer and power distribution to the connected modules.

Recommendations for 24 V DC wiring

- Do not connect the positive terminal to earth.
- Do not connect the negative terminal to earth.
- The maximum length for each conductor (+/-) is ten metres.
- For connection distances greater than ten metres, the plus and minus conductors of the 24 V DC supply must be twisted to improve EMC.
- The 24 V DC conductors must cross the power cables perpendicularly. If this is difficult or impossible, the plus and minus conductors must be twisted.

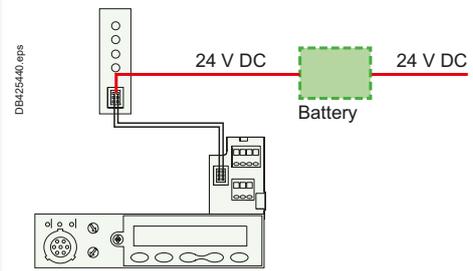
Modbus (see page E-89)

Each ComPact NSX circuit breaker equipped with MicroLogic 5 / 6 / 7 and an FDM121 display is connected to the Modbus network via the Modbus interface module.

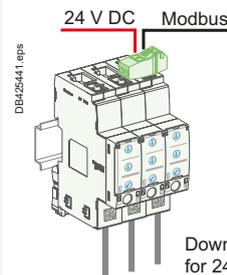
Connection of all the circuit breakers and other Modbus devices in the switchboard to a Modbus bus is made much easier by using a Modbus RJ45 junction block installed in the switchboard.

Recommendations for Modbus wiring

- The shielding may be earthed.
- The conductors must be twisted to improve immunity (EMC).
- The Modbus conductors must cross the power cables perpendicularly.



Power supply, without the Communication function, via the terminal block with a backup battery.



Supply, with the Communication function, via the Modbus interface.



External 24 V DC power supply module (AD)





ABL8 RPS power supply.

PF106348SE_ABL8RPS24050.eps

24 V DC Universal Phaseo™ ABL8 power supplies

The Universal Phaseo ABL8 RPS 24050 and ABL8 RPS 24030 power supplies can be connected phaseto-neutral or phase-to-phase.

They deliver a voltage that is precise to 3%, whatever the load and whatever the value of the AC

supply, within the ranges 85 to 132 V AC and 170 to 550 V AC.

The Universal Phaseo ABL8 powers:

- circuit breaker communication module and interface
- programmable MicroLogic.

Characteristics

- Power supply AC-to-DC,
- Network frequency: 50/60 Hz (±5 %).
- Output voltage: 24 V DC ±3%.
- Output current: 3 or 5 A
- DIN rail or platine Fixing
- Conducted emissions power line: class B per EN/IEC 61000-6-3.

To assist cooling there must be sufficient clearance around the Universal range Phaseo power supplies:

- 50 mm above and below
- 10 mm on the side.

		ABL8RPS●●●●	Module AD
Over Voltage Category		Cat I per VDE 0106-1	Cat IV per IEC 62477-1 (AC model) Cat III per IEC 62477-1 (DC model) Cat III per UL 61010-1
Degree of pollution as per IEC 60664-1		2	3
Input supply voltage AC		100...120 V AC and 200...500 V AC	110-130 or 200-240 V AC
Input supply voltage DC		N/A	24-30 or 48-60 or 100-125 V DC
Dielectric	Input/Output	4 kV rms -1 mn.	3 kV rms - 1 mn. (110-130 V AC and 200-240 V AC model) 3 kV rms - 1 mn. (110-125 V DC model) 2 kV rms - 1 mn. (24-30 V DC and 48-60 V DC model)
	Input/Ground	3.5 kV rms -1 mn.	3 kV rms - 1 mn.
	Output /Ground	0,5 kV rms - 1 mn.	1.5 kV rms - 1 mn.
Temperature		<ul style="list-style-type: none"> ■ 50 °C ■ 60 °C with 80 % of the rated current maximum 	70°C
Output current		3 A (ABL8RPS24030) 5 A (ABL8RPS24050)	1 A
Inrush current for 2 ms		< 30 A	< 20 A
Ripple		200 mV peak-peak	200 mV peak-peak
Output voltage limits		24 to 28.8 V DC	22.8 to 25.2 V DC
Protection degree		IP20	IP4x front face / IP2x terminals / IP3x other

Note: For the applications requiring an over voltage category higher than 2, a surge arrester shall be associated to ABL8 RPS power supplies. The iQuick20pr type 2 surge arrester is recommended.

ComPact NSX power loss/ resistance

Equipped with thermal-magnetic trip units

ComPact NSX thermal power loss values are used to calculate total temperature rise in the switchboard in which the circuit breakers are installed.

The values indicated in the tables below are typical values for a device at full rated load and 50/60 Hz.

Power loss per pole (P/pole) in Watts (W)

The value indicated is the power loss at I_N , 50/60 Hz, for a three-pole or four-pole circuit breaker. Measurement and calculation of power loss are carried out in compliance with the recommendations of Annex G of standard IEC 60947-2.

Resistance per pole (R/pole) in milliohms (mΩ)

The value of the resistance per pole is provided as a general indication for a new device.

The value of the contact resistance must be determined on the basis of the measured voltage drop, in accordance with the manufacturer's test procedure (ABT instruction document no. 1 - BEE - 02.2 -A).

Note: this measurement is not sufficient to determine the quality of the contacts, i.e. the capacity of the circuit breaker to carry its rated current.

Additional power loss

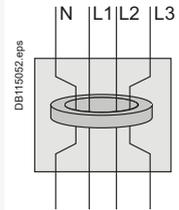
Additional power loss is equal to the sum of the power dissipated by the following:

- **Vigi add-on:** note that the deviation of the N and L3 bars required to pass through the toroid results in higher power losses compared to those of the L1 and L2 bars (diagram opposite). When calculating total power loss, use L1, L2, L3 for a 3P device and N, L1, L2, L3 for a 4P device
- disconnecting contacts (plug-in and withdrawable devices)
- ammeter module
- transformer module.

Calculation of total power loss

Total power loss at full rated load and 50/60 Hz is equal to the sum of the device and additional power losses per pole multiplied by the number of poles (2, 3 or 4).

If a Vigi is installed, it is necessary to differentiate between N and L3 on one hand and L1 and L2 on the other.



With a Vigi add-on, the deviation of the N and L3 bars required to pass through the toroid results in higher power losses compared to those of the L1 and L2 bars.

ComPact NSX100 to 250 equipped with TM-D and TM-G trip units

Type of device	Fixed device			Additional power / pole						
	3/4 poles	Rat. (A)	R/pole	P/pole	Vigi add-on (N, L3)	Vigi add-on (L1, L2)	Plug-in / withdr.	Ammeter module	Transfo. module	PowerTag NSX module
NSX100	16	11.42	2.92	0	0	0	0	0	0	0
	25	6.42	4.01	0	0	0.1	0	0	0	0
	32	3.94	4.03	0.06	0.03	0.15	0.1	0.1	0.1	0
	40	3.42	5.47	0.10	0.05	0.2	0.1	0.1	0.1	0
	50	1.64	4.11	0.15	0.08	0.3	0.1	0.1	0.1	0.1
	63	2.17	8.61	0.3	0.15	0.4	0.1	0.1	0.1	0.1
	80	1.37	8.77	0.4	0.2	0.6	0.1	0.1	0.1	0.1
	100	0.88	8.8	0.7	0.35	1	0.2	0.2	0.2	0.2
NSX160	80	1.26	8.06	0.4	0.2	0.6	0.1	0.1	0.1	0.1
	100	0.77	7.7	0.7	0.35	1	0.2	0.2	0.2	0.2
	125	0.69	10.78	1.1	0.55	1.6	0.3	0.3	0.3	0.3
	160	0.55	13.95	1.8	0.9	2.6	0.5	0.5	0.5	0.5
NSX250	125	0.61	9.45	1.1	0.55	1.6	0.3	0.3	0.3	0.3
	160	0.46	11.78	1.8	0.9	2.6	0.5	0.5	0.5	0.5
	200	0.39	15.4	2.8	1.4	4	0.8	0.8	0.8	0.8
	250	0.3	18.75	4.4	2.2	6.3	1.3	1.3	1.3	1.3

ComPact NSX100 to 630 equipped with MA/1.3-M trip units

Type of device	Fixed device			Additional power / pole						
	3 poles	Rat. (A)	R/pole	P/pole	Vigi add-on (N, L3)	Vigi add-on (L1, L2)	Plug-in / withdr.	Ammeter module	Transfo. module	PowerTag NSX module
NSX100	2.5	148.42	0.93	0	0	0	0	0	0	0
	6.3	99.02	3.93	0	0	0	0	0	0	0
	12.5	4.05	0.63	0	0	0	0	0	0	0
	25	1.66	1.04	0	0	0.1	0	0	0	0
	50	0.67	1.66	0.2	0.1	0.3	0.1	0.1	0.1	0.1
	100	0.52	5.2	0.7	0.35	1	0.2	0.2	0.2	0.2
NSX160	150	0.38	8.55	1.35	0.68	2.6	0.45	0.45	0.45	0.5
NSX250	220	0.3	14.52	2.9	1.45	4.89	0.97	0.97	0.97	1
NSX400	320	0.12	12.29	3.2	1.6	6.14	1.54	1.54	1.54	1.43
NSX630	500	0.1	25	13.99	7	15	3.75	3.75	3.75	3.5



ComPact NSX power loss/ resistance

Equipped with electronic trip units

The values indicated in the table below are typical values for a device at full rated load and 50/60 Hz. The definitions and information are the same as that for circuit breakers equipped with thermal-magnetic trip units.

ComPact NSX100 to 630 equipped with MicroLogic trip units

Type of device 3/4 poles	Rating (A)	Fixed device		Additional power (W)/ pole						
		R/pole (mΩ)	P/Pole (w)	Vigi add-on (N/L3)	Vigi add-on (L1/L2)	Plug-In	Transfo Module	PowerTag NSX module		
NSX + MicroLogic 2.2/5.2/6.2										
NSX100	<40 A	0.84	1.3	0.1	0.06	0.2	0.1	0		
	40 A ≤ 100 A	0.47	4.7	0.7	0.35	1	0.2	0.2		
NSX160	<40 A	0.73	1.2	0.4	0.2	0.6	0.1	0		
	40 A ≤ 160 A	0.36	9.2	1.8	0.9	2.6	0.5	0.5		
NSX250	<40 A	0.27	2.7	1.1	0.55	1.6	0.2	0		
	40 A ≤ 250 A	0.28	17.6	4.4	2.2	6.3	1.3	1.3		
NSX + MicroLogic 2.3/5.3/6.3										
NSX400	<400 A	0.12	19.2	3.2	1.6	9.6	2.4	2.24		
NSX630	<630 A	0.1	39.7	6.5	3.25	19.49	5.95	5.56		
NSX + MicroLogic add-on 4.2/7.2										
		N/L1/L3	L2	N/L1/L3	L2					
NSX100	<100 A	0.58	0.49	5.8	4.9	-	-	1	0.2	0.2
NSX160	<160 A	0.48	0.39	12.3	10.0	-	-	2.6	0.5	0.5
NSX250	<250 A	0.4	0.33	25	20.6	-	-	6.3	1.3	1.3
NSX + MicroLogic add-on 4.3/7.3										
NSX400	<400 A	0.16	0.14	25.6	22.4	-	-	9.6	2.4	2.24
NSX630 ^[1]	<630 A	0.14	0.12	55.6	47.6	-	-	19.49	5.95	5.56

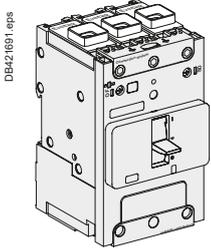
Power loss/resistance values presented above are not contractual.

[1] The power loss values for Vigi add-on and withdrawable circuit breakers are given for 570 A.

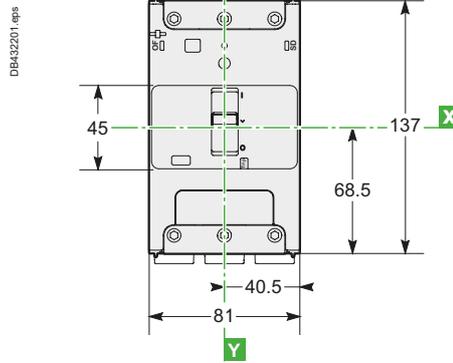
ComPact NSXm dimensions and mounting

Circuit breaker and switch-disconnector

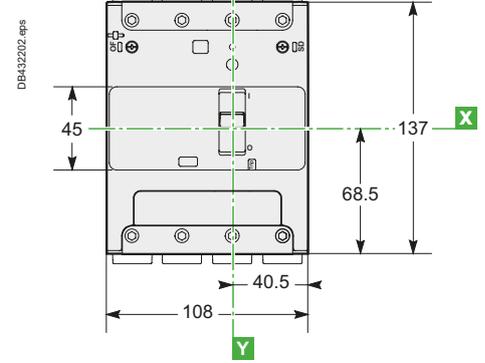
Circuit breaker



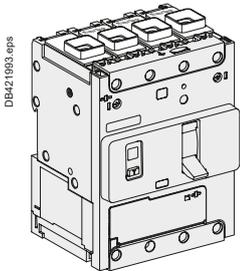
3P



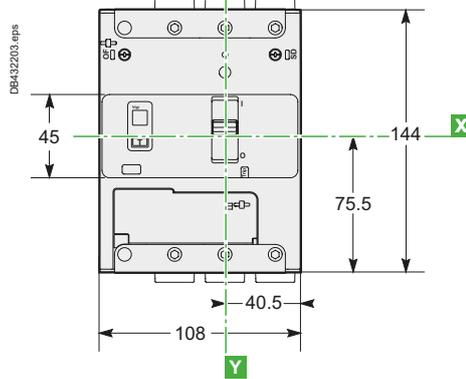
4P



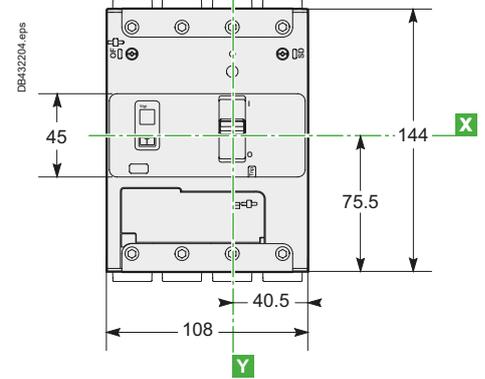
Circuit breaker with MicroLogic Vigi 4.1



3P

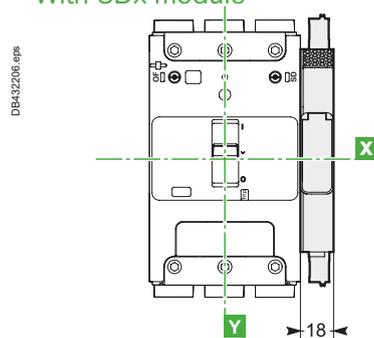
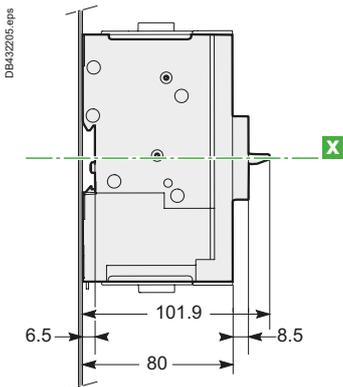


4P

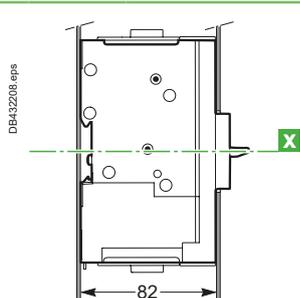
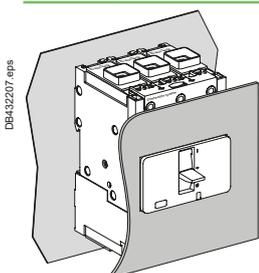


Side view

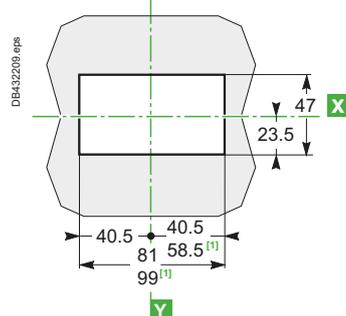
With SDx module



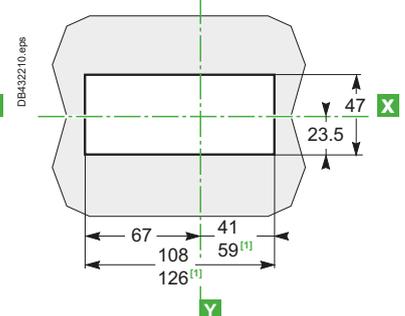
Front-panel cutouts



3P



4P



[1] With SDx module.

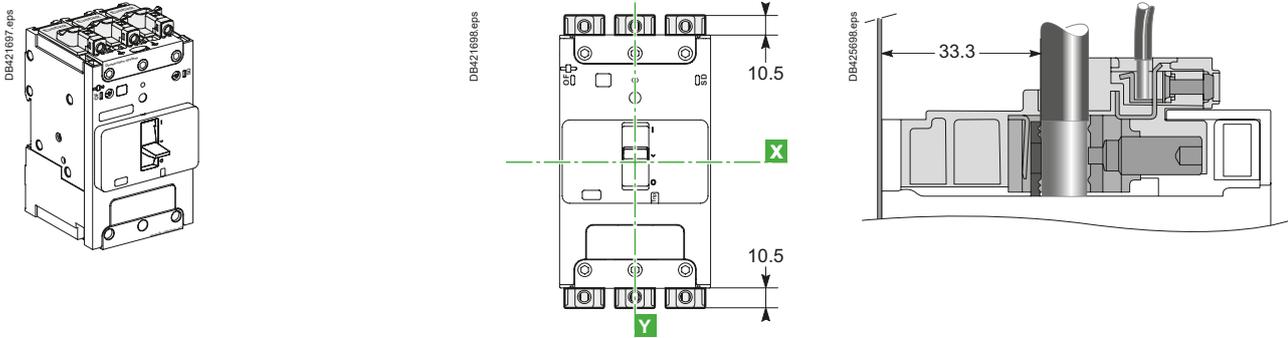


ComPact NSXm dimensions and mounting

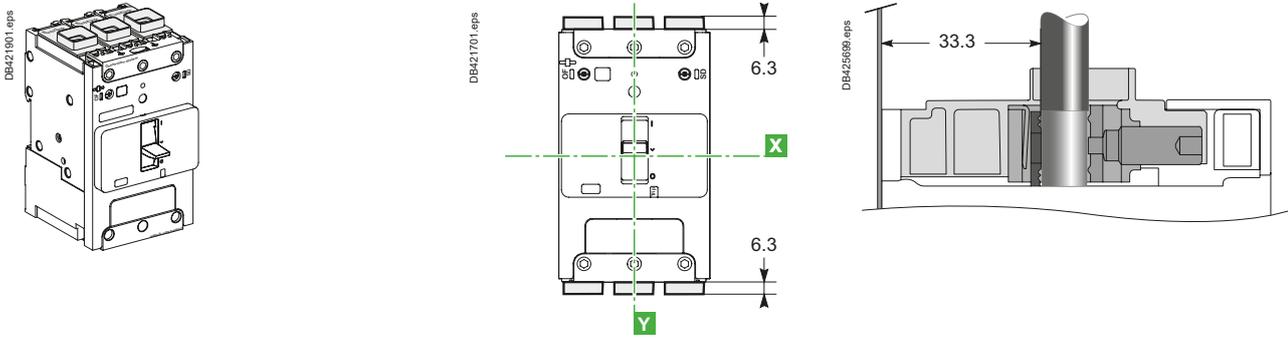
Circuit breaker and switch-disconnector

Connectors

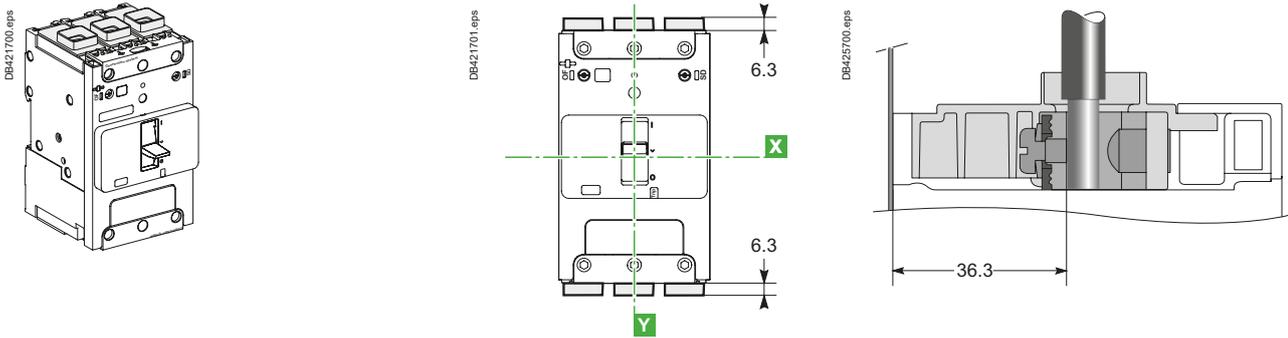
EverLink with control wire terminal connector



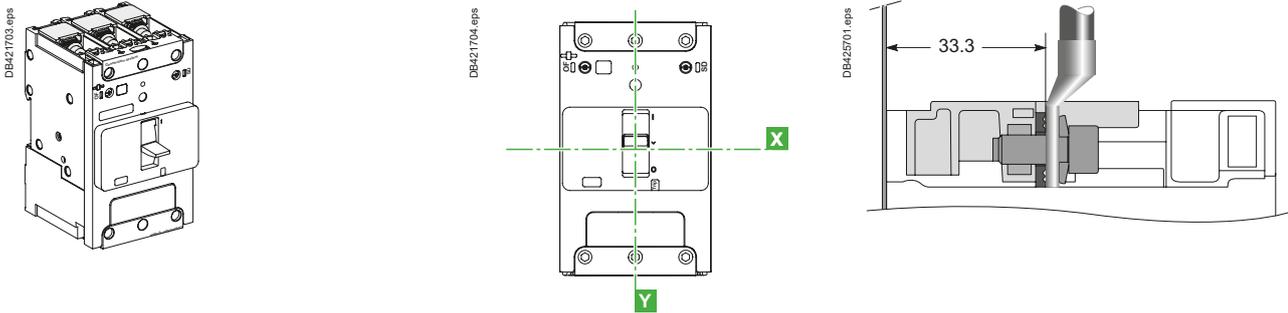
EverLink without control wire terminal connector



Mechanical lug connector



Compression lug / busbar connector



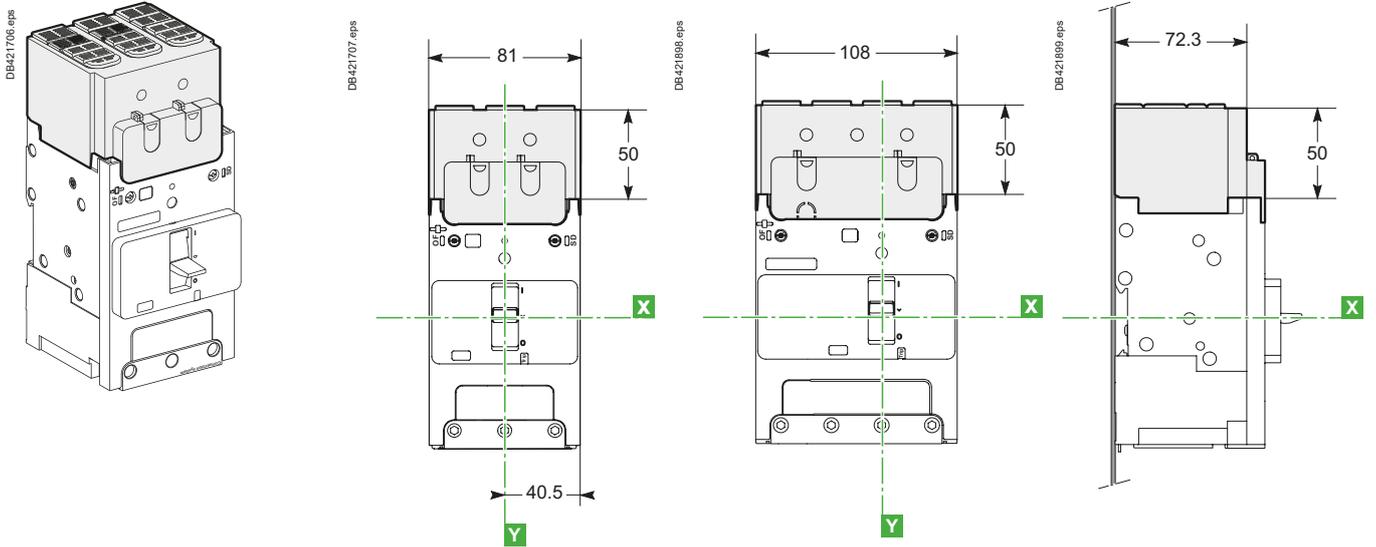
E

ComPact NSXm dimensions and mounting

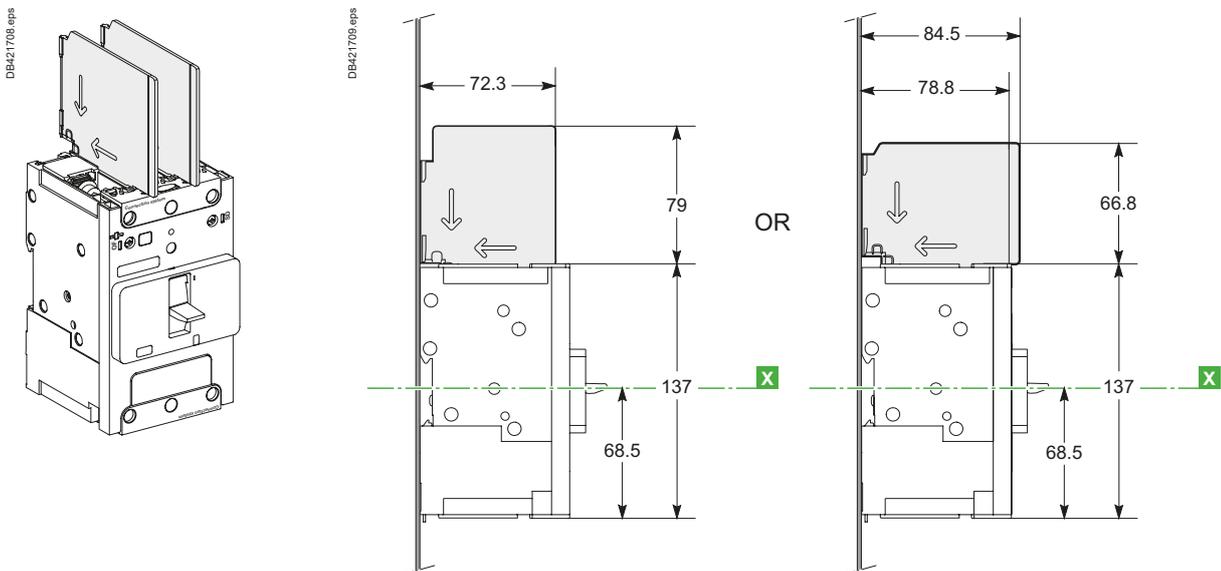
Circuit breaker and switch-disconnector

Insulation of live parts

Long terminal shields



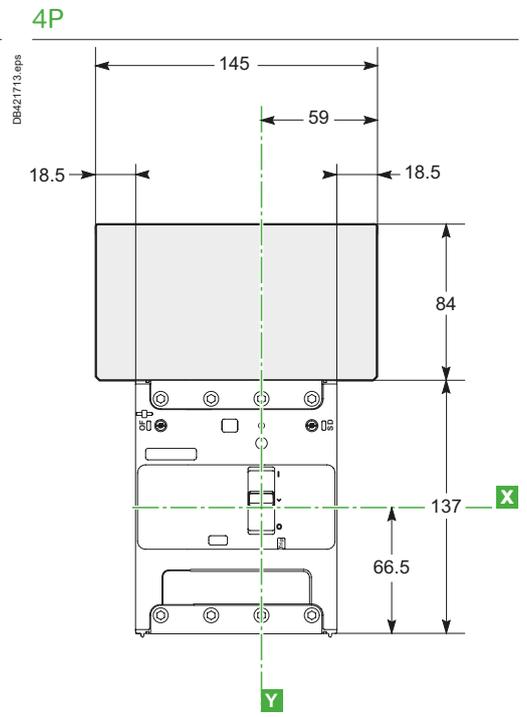
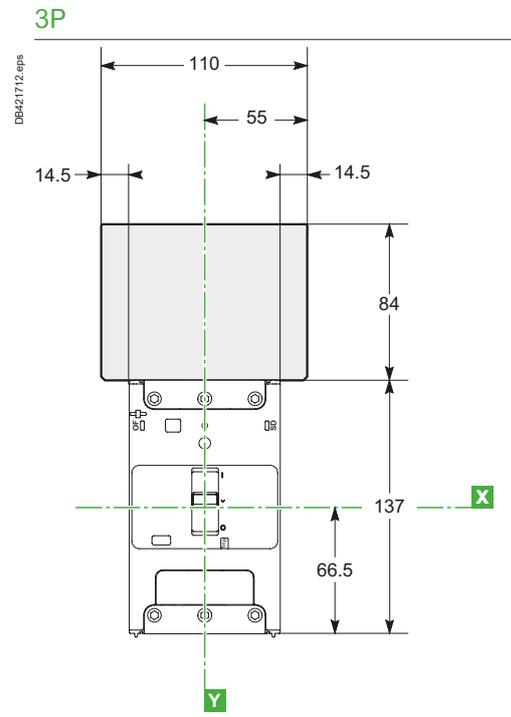
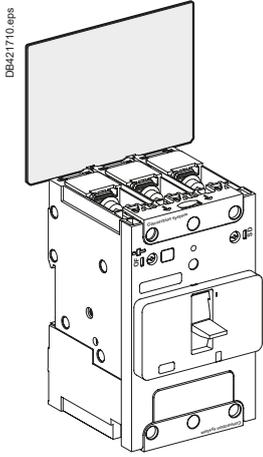
Interphase barriers



ComPact NSXm dimensions and mounting

Circuit breaker and switch-disconnector

Rear insulating screens

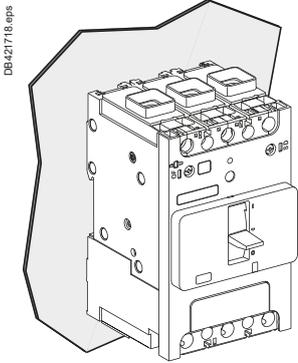


ComPact NSXm dimensions and mounting

Circuit breaker and switch-disconnector

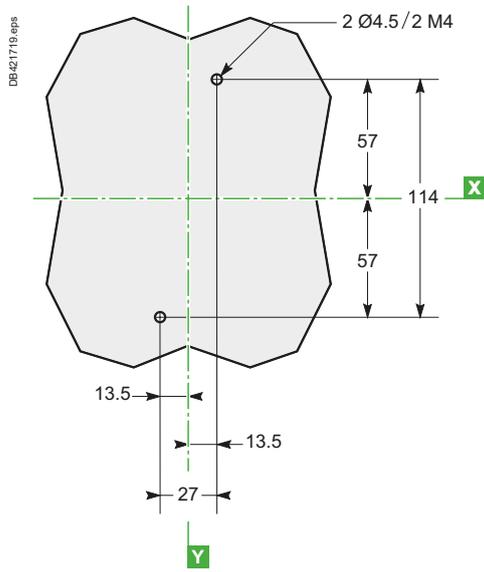
Mounting on backplate

3P/4P



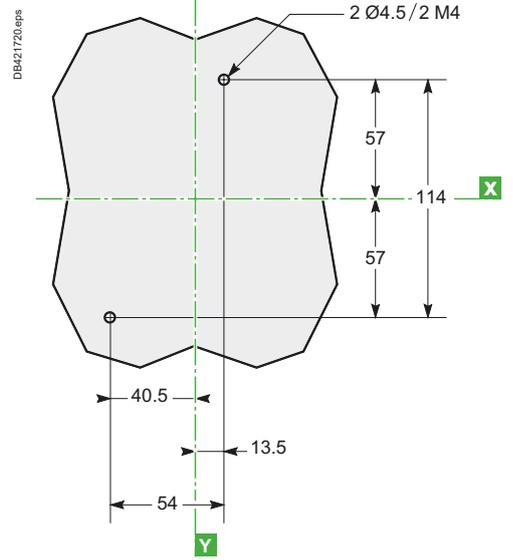
DB421719.eps

3P



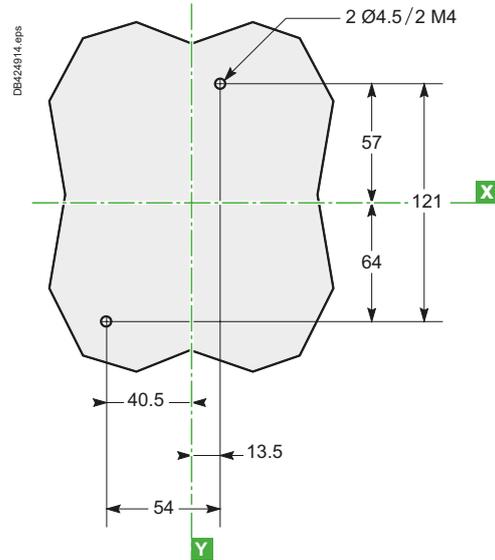
DB421719.eps

4P



DB421720.eps

3P/4P Circuit breaker with MicroLogic Vigi 4.1

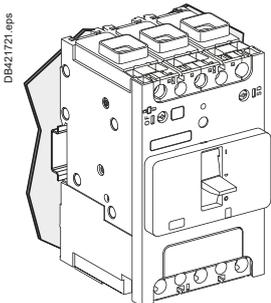


DB424814.eps

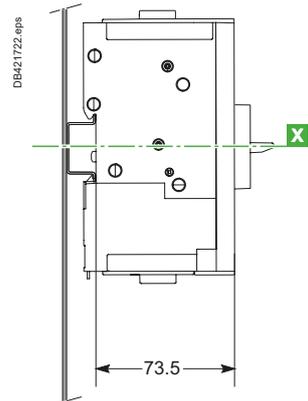


Mounting on DIN rail

3P



DB421721.eps



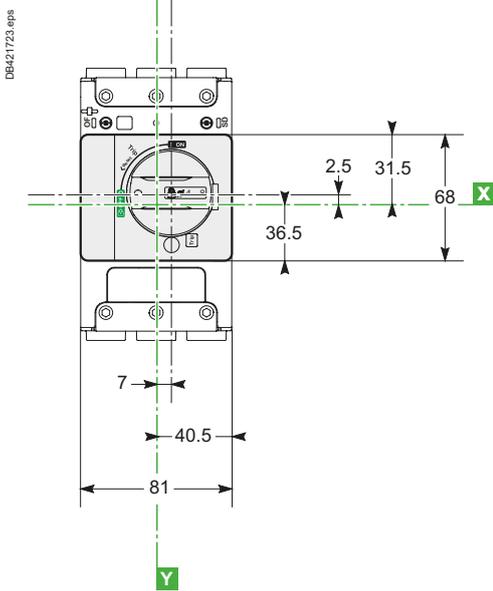
DB421722.eps

ComPact NSXm dimensions and mounting

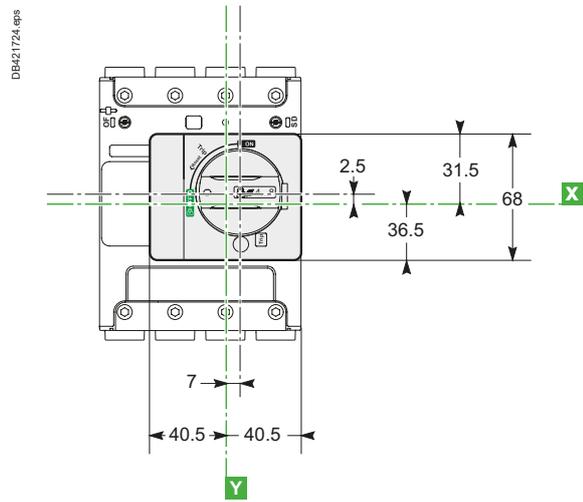
Circuit breaker and switch-disconnector

Direct rotary handle

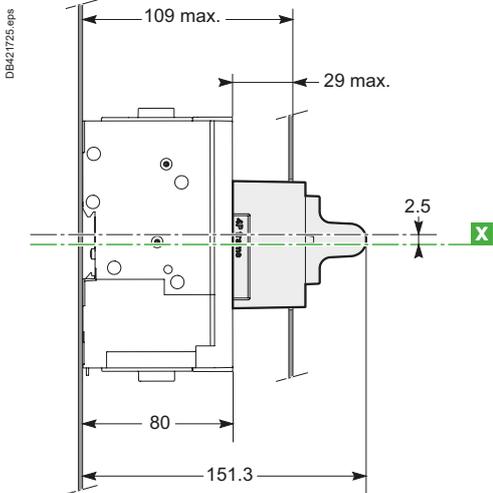
3P



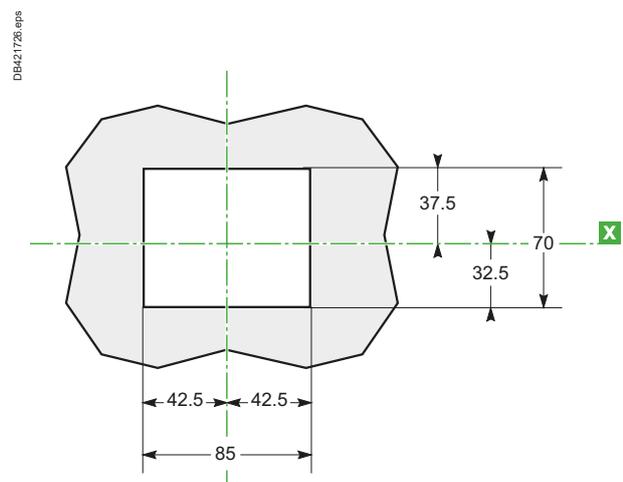
4P



Side view



Door cutout for 3P/4P



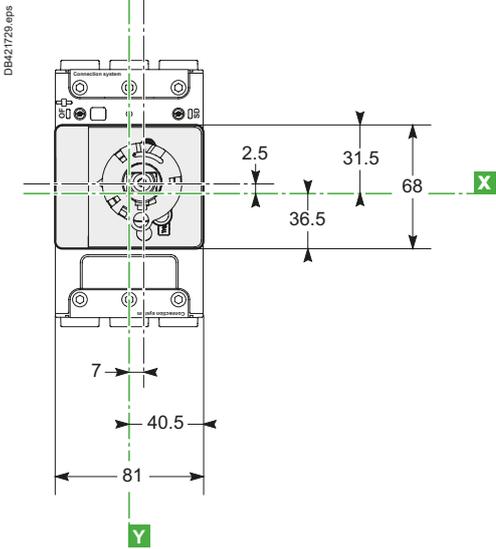
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ComPact NSXm dimensions and mounting

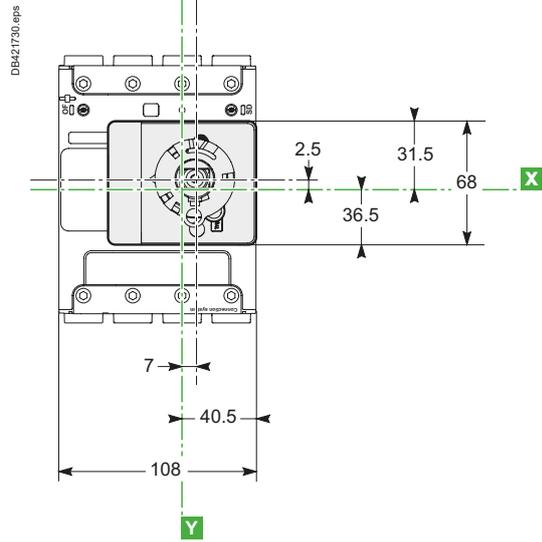
Circuit breaker and switch-disconnector

Extended rotary handle

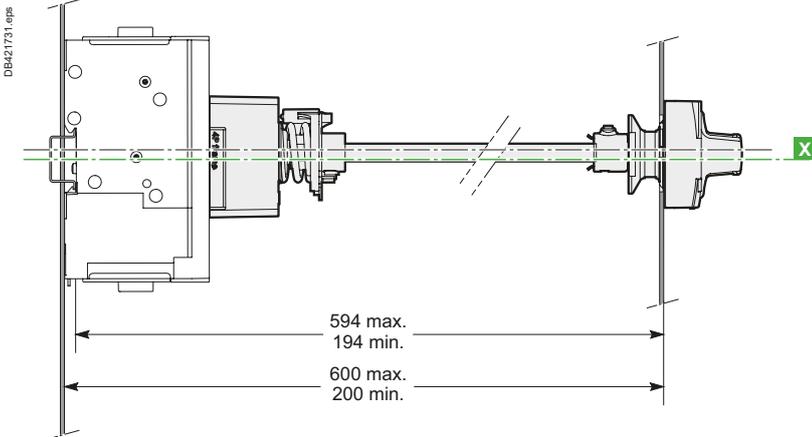
3P



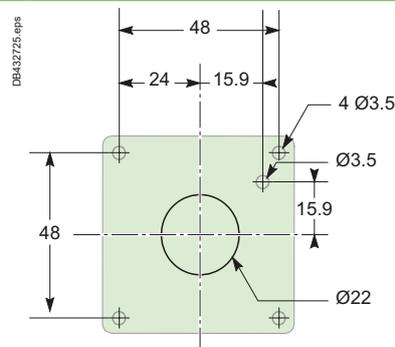
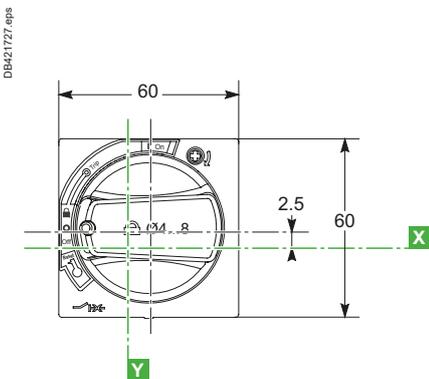
4P



3P/4P



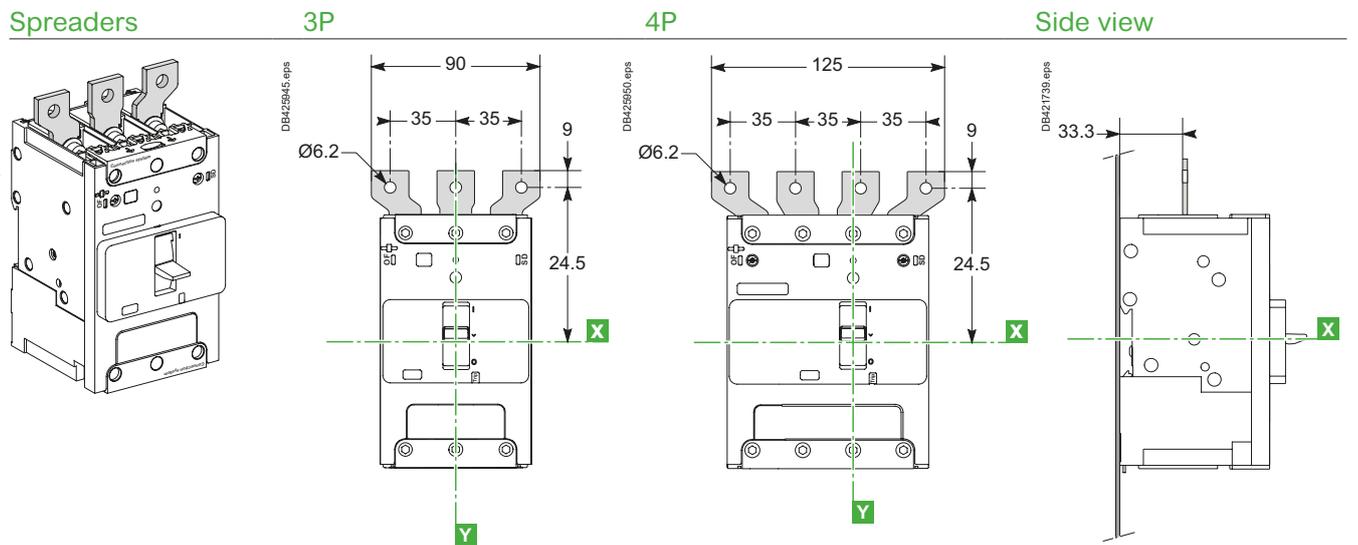
Dimensions and front-panel cutout



ComPact NSXm dimensions and mounting

Circuit breaker and switch-disconnector

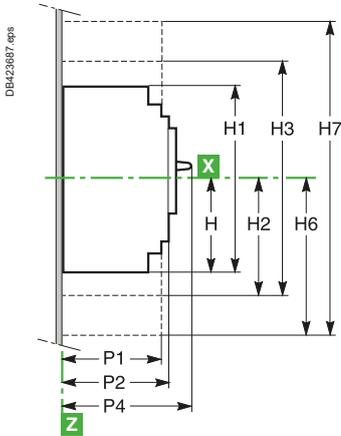
Connection with accessories



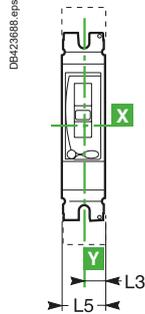
ComPact NSX dimensions and mounting

ComPact NSX100 to NSX250 fixed version, 1P-2P

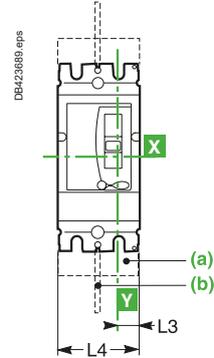
Dimensions



1 pole



2 poles

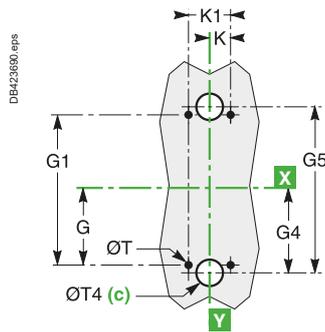


(a) Short terminal shields.
(b) Interphase barriers.

Mounting

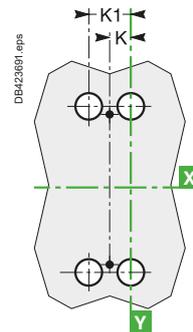
On backplate

1 pole



(c) For rear connection only.

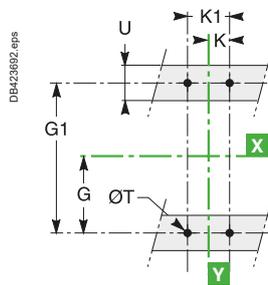
2 poles



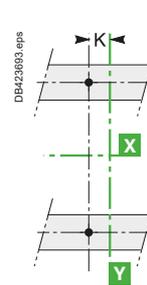
E

On rails

1 pole



2 poles

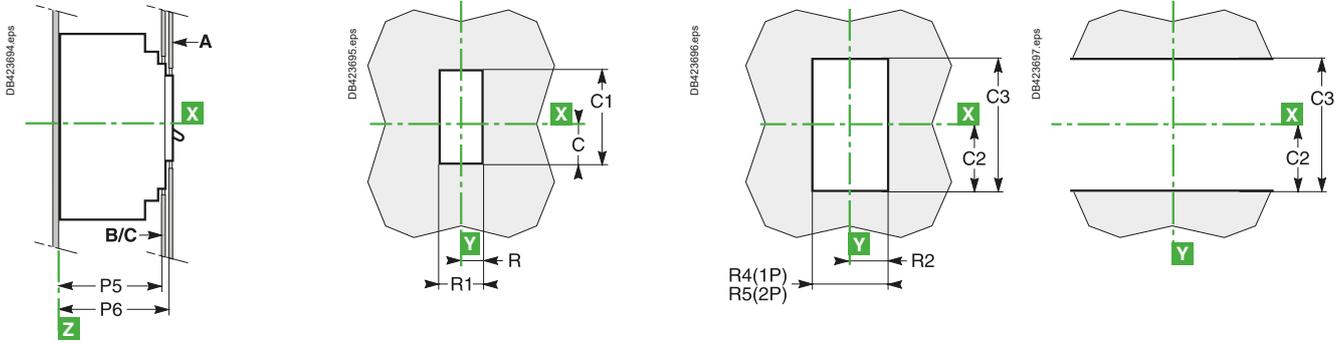


ComPact NSX dimensions and mounting

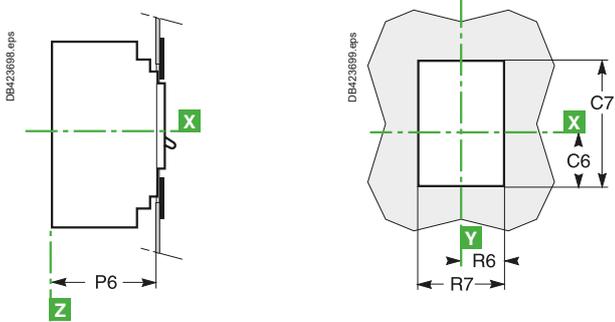
ComPact NSX100 to NSX250 fixed version, 1P-2P

Front-panel cutout

On backplate



With escutcheon



Dimensions (mm)

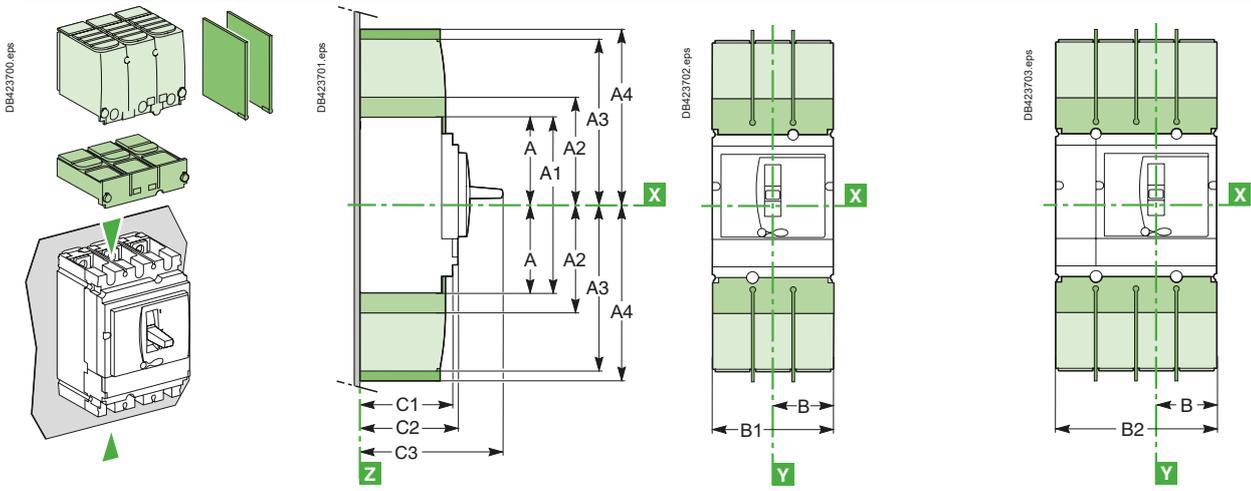
Type	C	C1	C2	C3	C6	C7	G	G1	G4	G5	H
NSX100/250	29	76	54	108	43	104	62.5	125	70	140	80.5
Type	H1	H2	H3	H4	H6	H7	K	K1	L3	L4	L5
NSX100/250	161	94	188	160.5	178.5	357	17.5	35	17.5	70	35
Type	P1	P2	P4	P5	P6	R	R1	R2	R4	R5	R6
NSX100/250	81	86	111	83	88	14.5	29	19	38	73	29
Type	R7	ØT	ØT4	U							
NSX100/250	58	6	22	≤ 32							



ComPact NSX dimensions and mounting

ComPact NSX100 to 630 fixed version

Dimensions



Interphase barriers.
 Long terminal shields (also available for NSX400/630 spreaders with 52.5 mm pitch:

 Short terminal shields. B1 = 157.5 mm, B2 = 210 mm).

Mounting

On backplate

NSX100 to 250

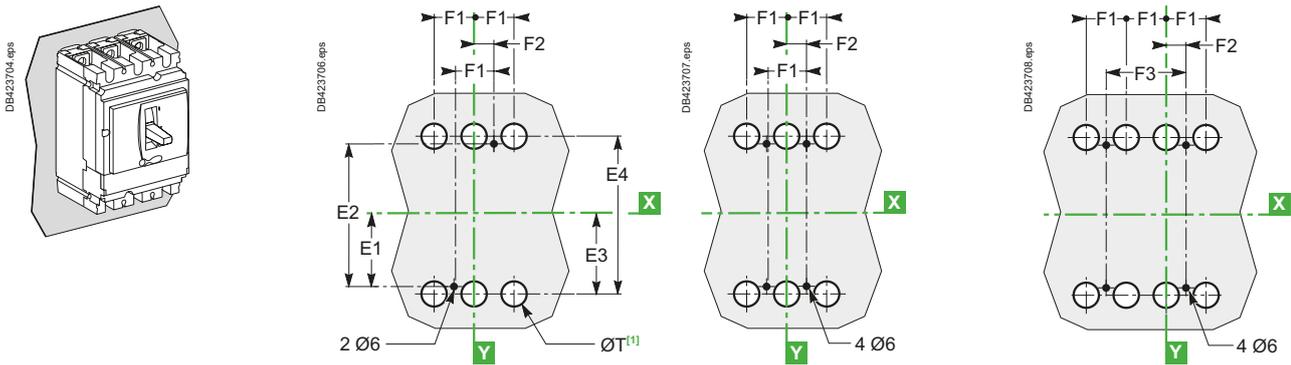
2/3P

NSX400/630 [2]

3P

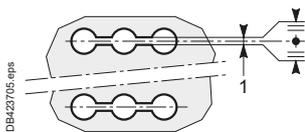
NSX100 to 630 [2]

4P



[2] For 630 A only:

[1] The ØT holes are required for rear connection only. For two-pole circuit breakers, the middle holes are not required.

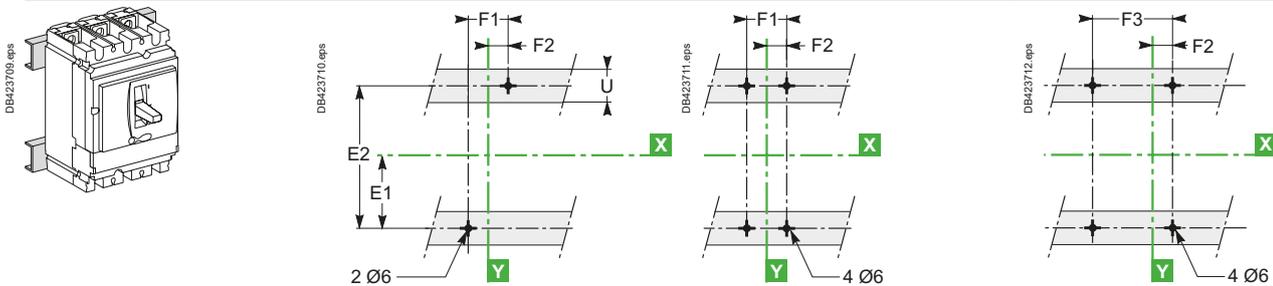


On rails

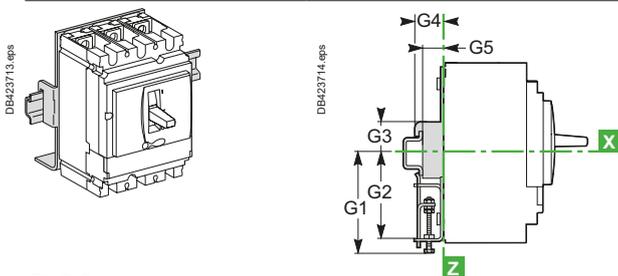
2/3P

3P

4P



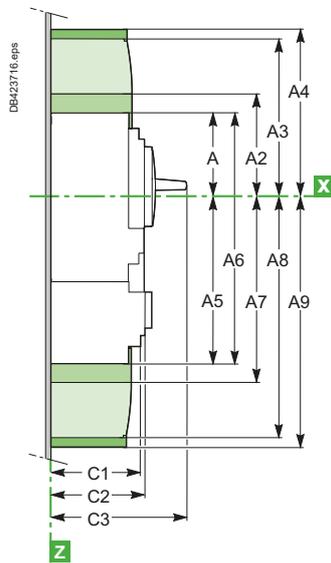
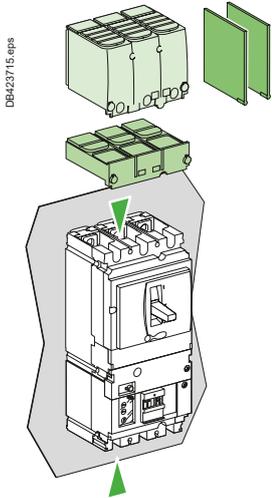
On DIN rail with adapter plate (NSX100 to 250)



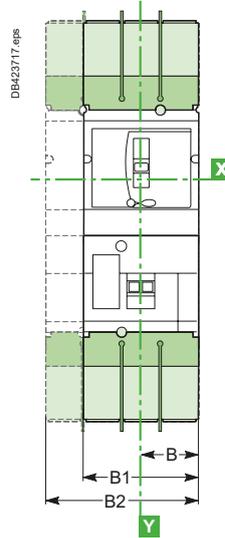
ComPact NSX dimensions and mounting

ComPact NSX100 to 630 Vigi add-on fixed version

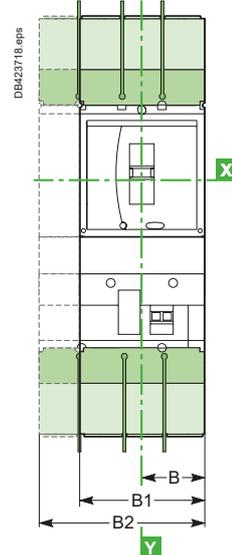
Dimensions



3/4P NSX100 to 250



3/4P NSX400/630



Mounting

On backplate

NSX100 to 250

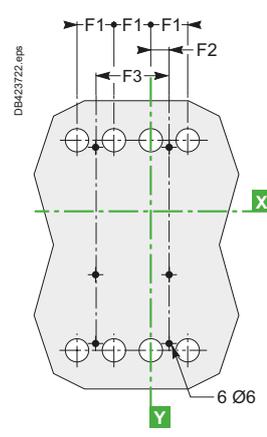
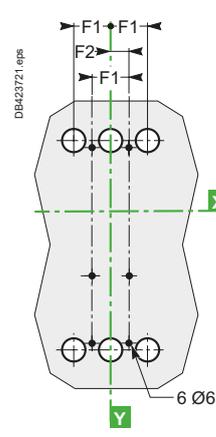
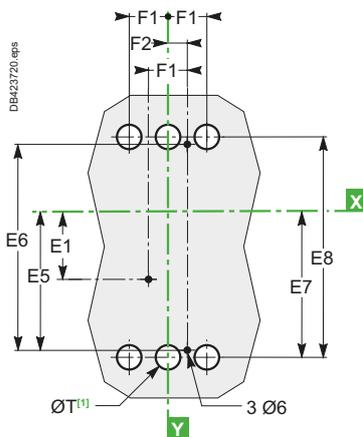
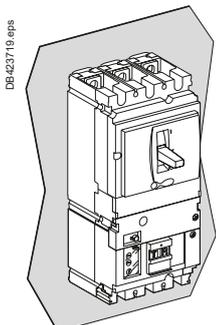
3P

NSX400/630 [2]

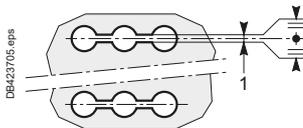
3P

NSX100 to 630 [2]

4P



[2] For 630 A only:



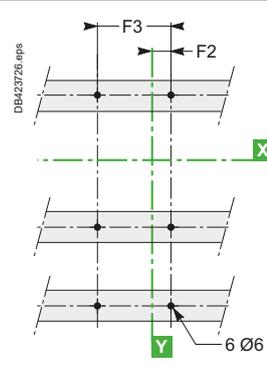
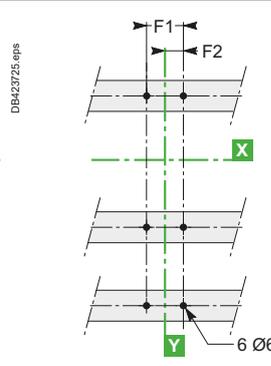
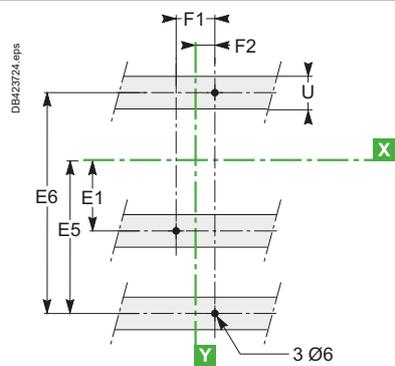
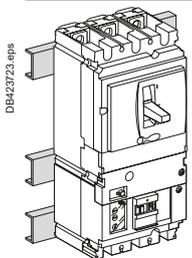
[1] The ØT holes are required for rear connection only.
For two-pole circuit breakers, the middle holes are not required.

On rails

3P

3P

4P



Type	A	A1	A2	A3	A4	A5	A6	A7	A8	A9	B	B1	B2	C1	C2	C3	E1
NSX100/160/250	80.5	161	94	145	178.5	155.5	236	169	220	253.5	52.5	105	140	81	86	126	62.5
NSX400/630	127.5	255	142.5	200	237	227.5	355	242.5	300	337	70	140	185	105	110	168	100
Type	E2	E3	E4	E5	E6	E7	E8	F1	F2	F3	G1	G2	G3	G4	G5	ØT	U
NSX100/160/250	125	70	140	137.5	200	145	215	35	17.5	70	95	75	13.5	23	17.5	24	≤ 32
NSX400/630	200	113.5	227	200	300	213.5	327	45	22.5	90	-	-	-	-	-	32	≤ 35

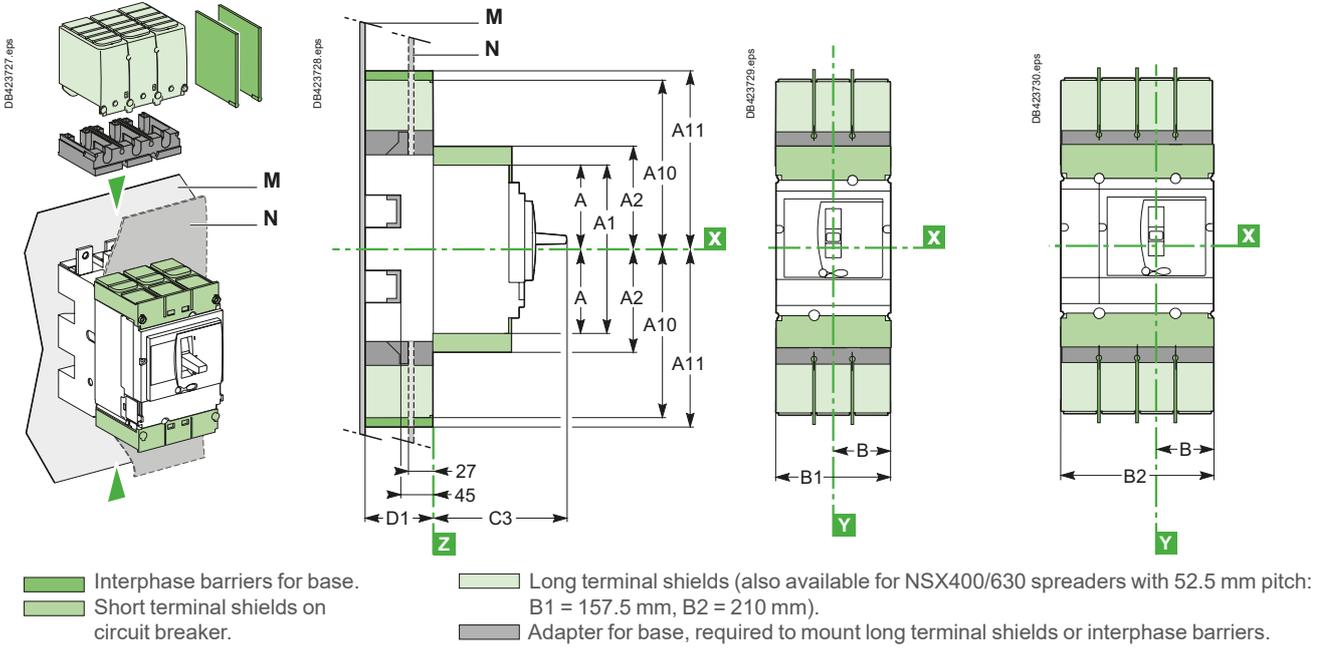
ComPact NSX dimensions and mounting

ComPact NSX100 to 630 plug-in version

Dimensions

2/3P

4P



Mounting

Through front panel (N)

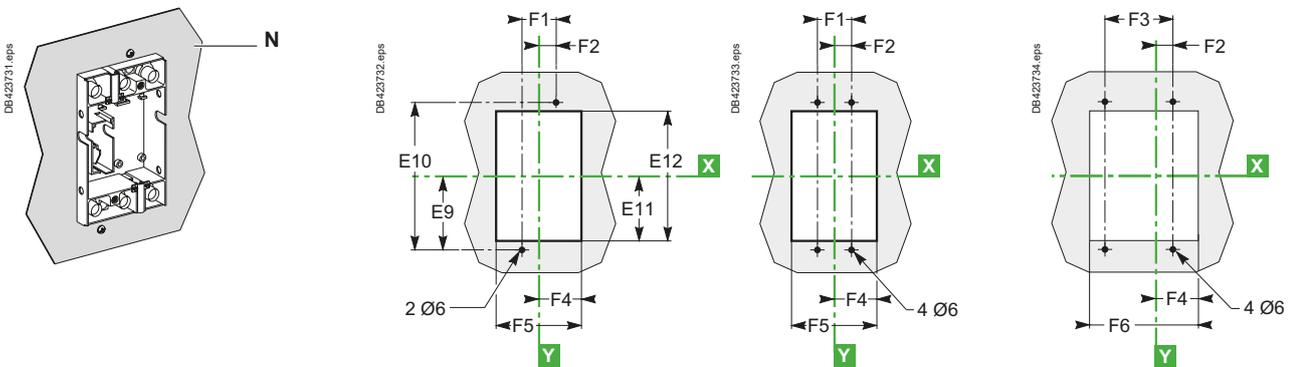
2/3P

3P

4P

NSX400/630

NSX100 to 630

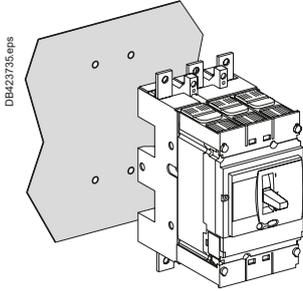


ComPact NSX dimensions and mounting

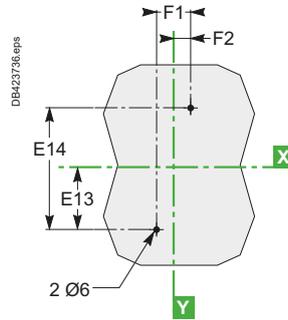
ComPact NSX100 to 630 plug-in version

On backplate (M)

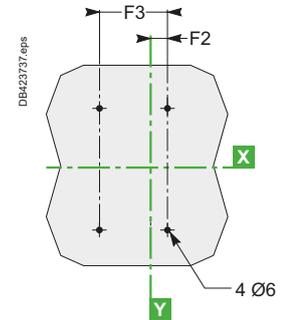
Front connection (an insulating screen is supplied with the base and must be fitted between the base and the backplate)



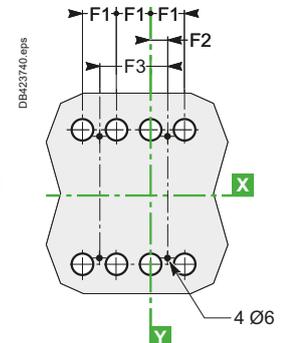
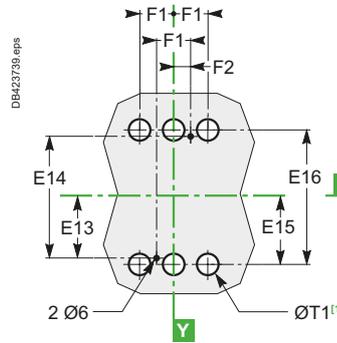
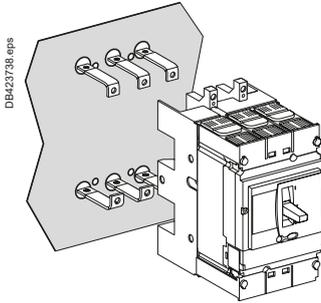
2/3P



4P

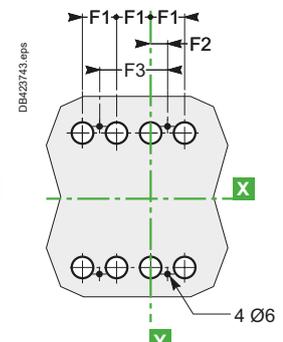
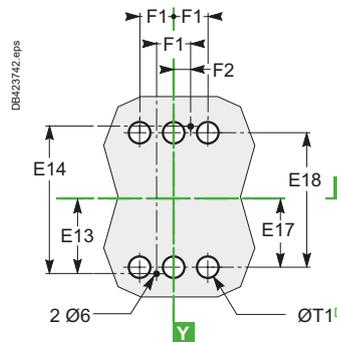
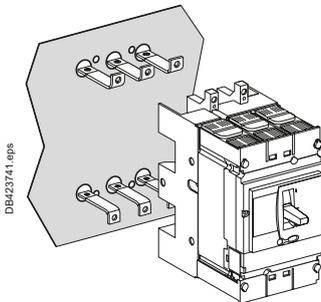


Connection by exterior-mounted rear connectors



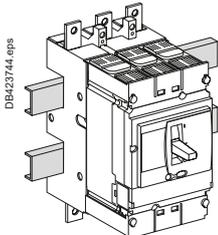
[1] The ØT1 holes are required for rear connection only (for two-pole circuit breakers, the middle holes are not required).

Connection by interior-mounted rear connectors

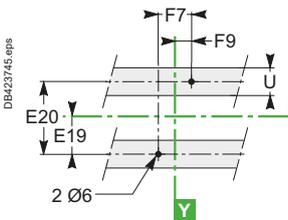


[1] The ØT1 holes are required for rear connection only (for two-pole circuit breakers, the middle holes are not required).

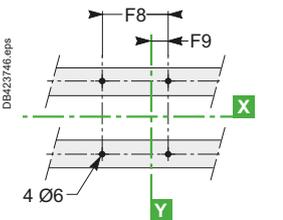
On rails



2/3P



4P



Type	A	A1	A2	A10	A11	B	B1	B2	C3	D1	E9	E10	E11	E12	E13	E14	E15
NSX100/160/250	80.5	161	94	175	210	52.5	105	140	126	75	95	190	87	174	77.5	155	79
NSX400/630	127.5	255	142.5	244	281	70	140	185	168	100	150	300	137	274	125	250	126
Type	E16	E17	E18	E19	E20	F1	F2	F3	F4	F5	F6	F7	F8	F9	ØT1	U	
NSX100/160/250	158	61	122	37.5	75	35	17.5	70	54.5	109	144	70	105	35	24	≤ 32	
NSX400/630	252	101	202	75	150	45	22.5	90	71.5	143	188	100	145	50	33	≤ 35	



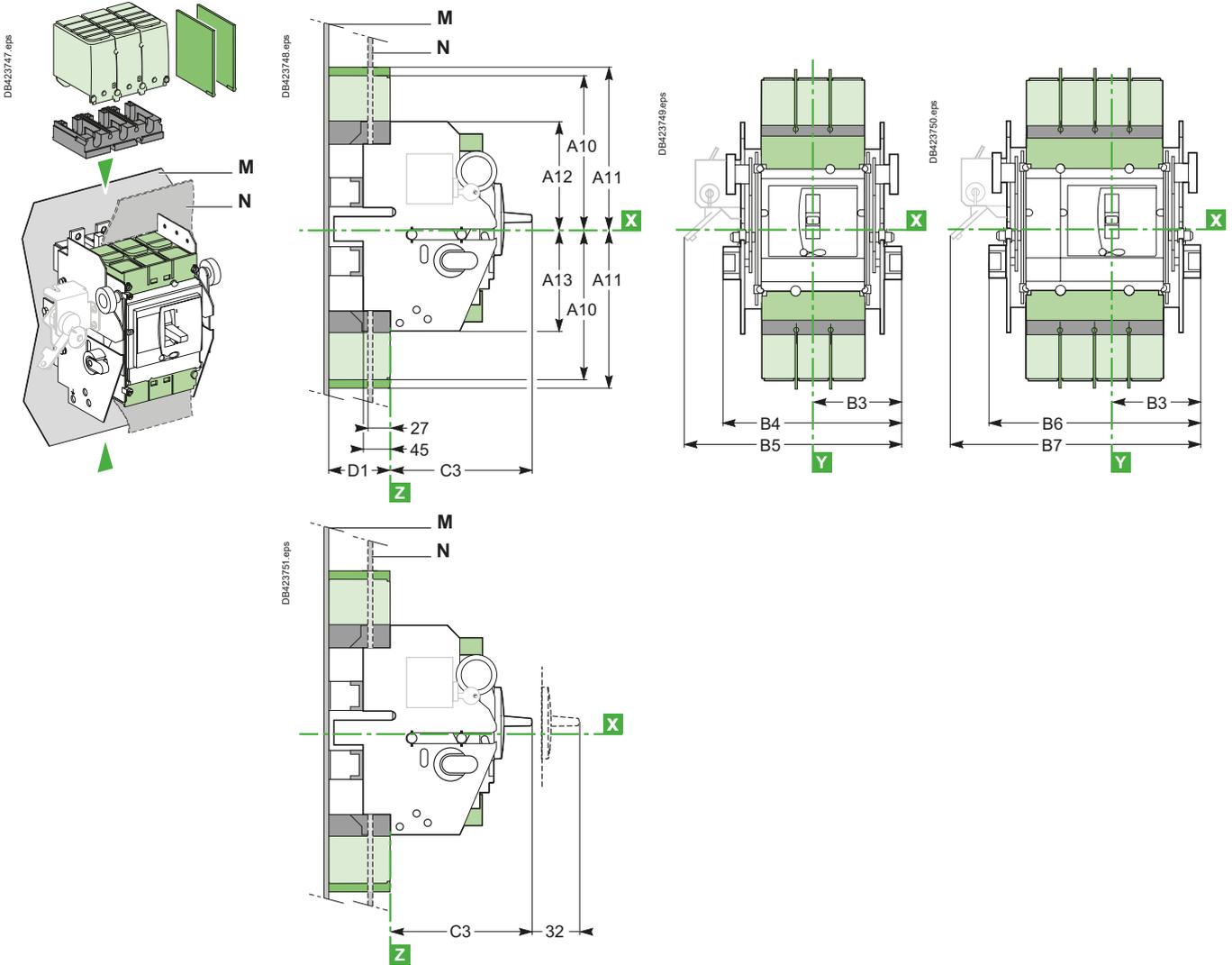
ComPact NSX dimensions and mounting

ComPact NSX100 to 630 withdrawable version

Dimensions

2/3P

4P



- Interphase barriers for base.
- Short terminal shields on circuit breaker.
- Long terminal shields.
- Adapter for base, required to mount long terminal shields or interphase barriers.

Mounting

Through front panel (N)

2/3P

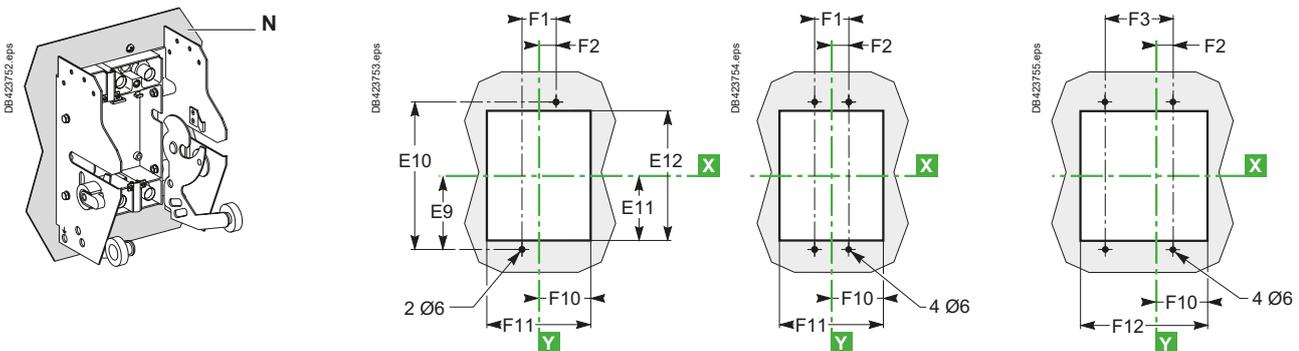
3P

4P

NSX100 to 250

NSX400/630

NSX100 to 630



ComPact NSX dimensions and mounting

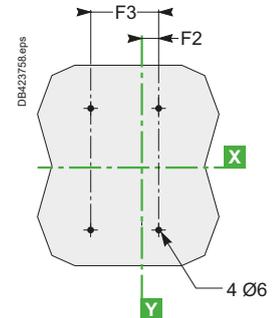
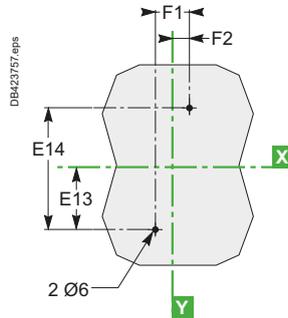
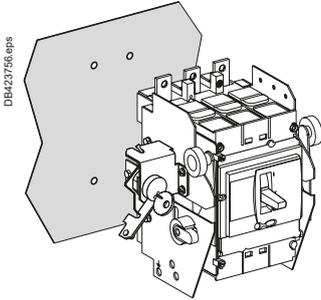
ComPact NSX100 to 630 withdrawable version

On backplate (M)

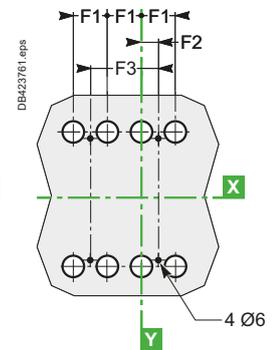
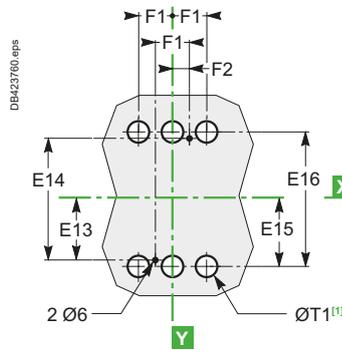
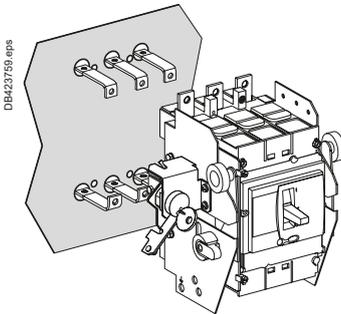
2/3P

4P

Front connection (an insulating screen is supplied with the base and must be fitted between the base and the backplate)

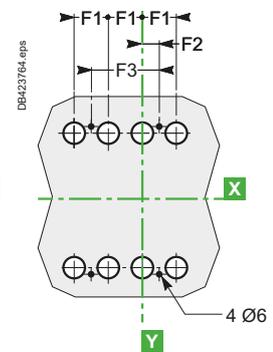
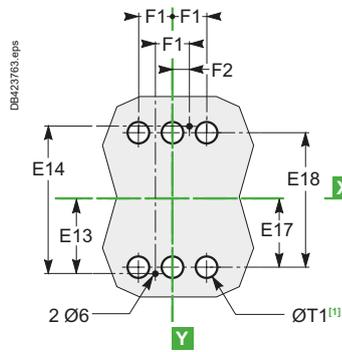
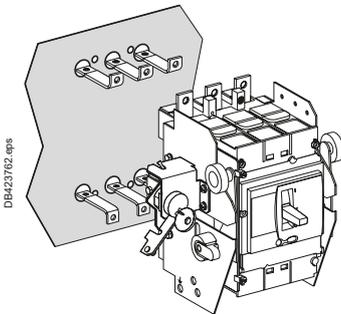


Connection by exterior-mounted rear connectors



[1] The ØT1 holes are required for rear connection only (for two-pole circuit breakers, the middle holes are not required).

Connection by interior-mounted rear connectors

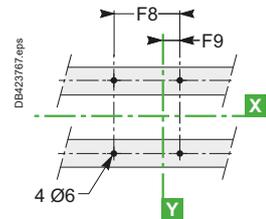
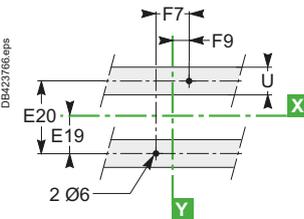
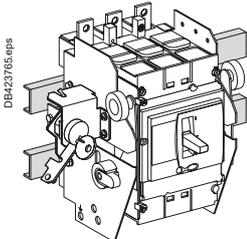


[1] The ØT1 holes are required for rear connection only (for two-pole circuit breakers, the middle holes are not required).

On rails

2/3P

4P



Type	A10	A11	A12	A13	B3	B4	B5	B6	B7	C3	D1	E9	E10	E11	E12	E13	E14
NSX100/160/250	175	210	106.5	103.5	92.5	185	216	220	251	126	75	95	190	87	174	77.5	155
NSX400/630	244	281	140	140	110	220	250	265	295	168	100	150	300	137	274	125	250
Type	E15	E16	E17	E18	E19	E20	F1	F2	F3	F7	F8	F9	F10	F11	F12	ØT1	U
NSX100/160/250	79	158	61	122	37.5	75	35	17.5	70	70	105	35	74	148	183	24	≤ 32
NSX400/630	126	252	101	202	75	150	45	22.5	90	100	145	50	91.5	183	228	33	≤ 35

Switchboard integration

ComPact NSX dimensions and mounting

ComPact NSX100 to 630 Vigi add-on plug-in and withdrawable versions

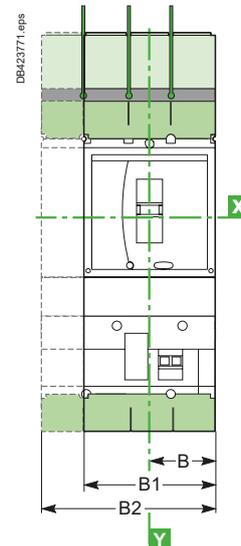
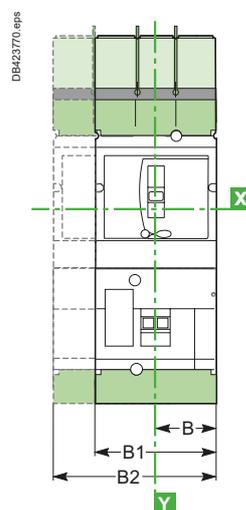
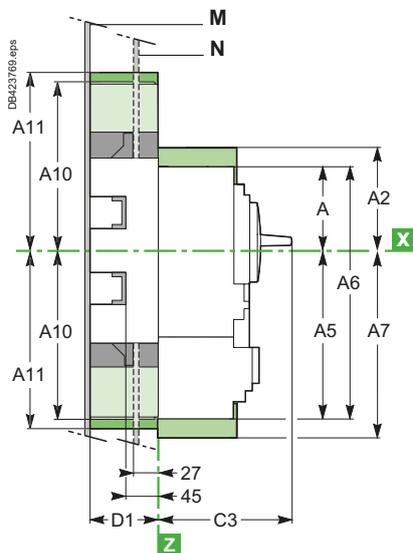
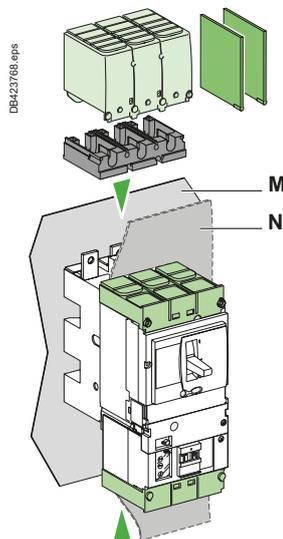
Dimensions - plug-in version

NSX100 to 250

3/4P

NSX400/630

3/4P



Interphase barriers for base.
Short terminal shields on circuit breaker.

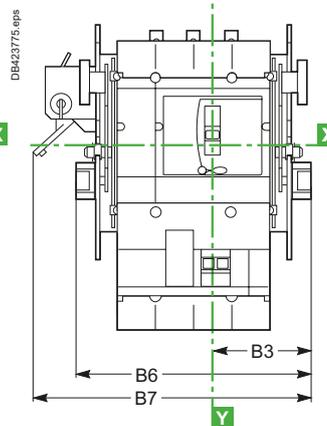
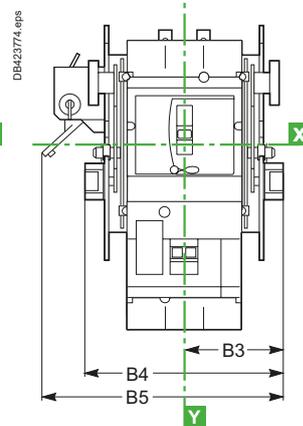
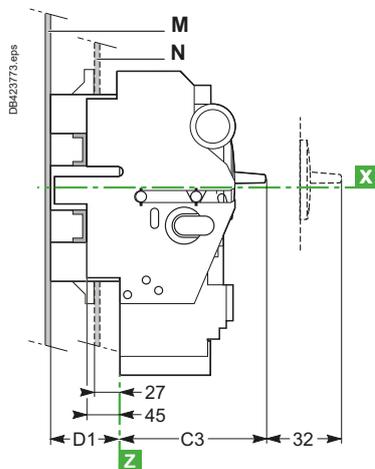
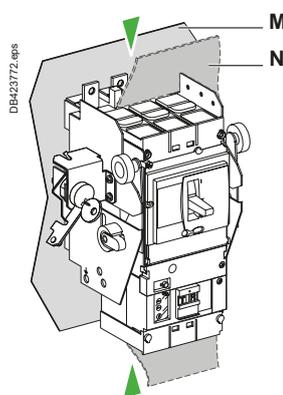
Long terminal shields (also available for NSX400/630 spreaders with 52.5 mm pitch: B1 = 157.5 mm, B2 = 210 mm).
Adapter for base, required to mount long terminal shields or interphase barriers.

Dimensions - withdrawable version

NSX100 to 630

3P

4P



Mounting

Through front panel (N)

See ComPact NSX100 to 630 plug-in version, [page E-38](#), or withdrawable version, [page E-40](#)

On backplate (M)

See ComPact NSX100 to 630 plug-in version, [page E-39](#), or withdrawable version, [page E-41](#)

On rails

See ComPact NSX100 to 630 plug-in version, [page E-39](#), or withdrawable version, [page E-41](#)

Type	A	A2	A5	A6	A7	A10	A11	B	B1	B2	B3	B4	B5	B6	B7	C3	D1
NSX100/160/250	80.5	94	155.5	236	169	175	210	52.5	105	140	92.5	185	216	220	251	126	75
NSX400/630	127.5	142.5	227.5	355	242.5	244	281	70	140	185	110	220	250	265	295	168	100

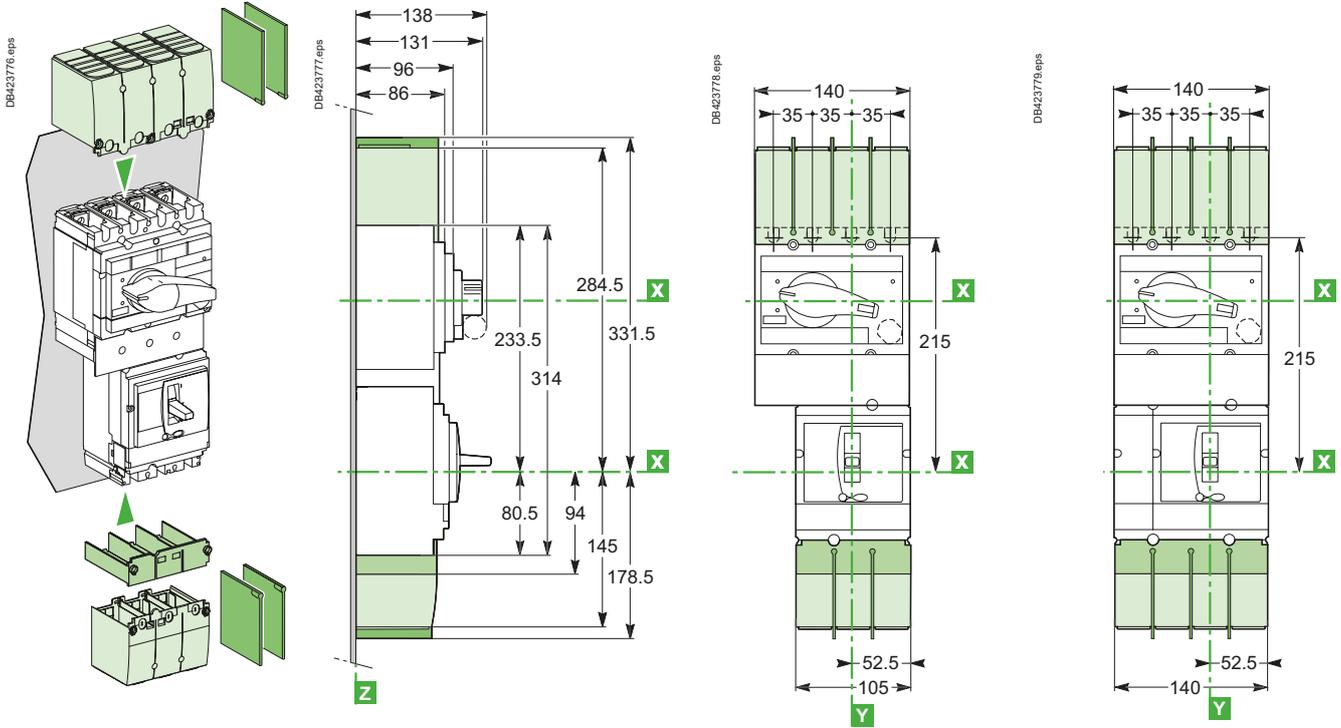
ComCompact NSX dimensions and mounting

Visu function for ComCompact NSX100 to 250 fixed version

Dimensions - combination with ComCompact INV100 to 250

3P

4P



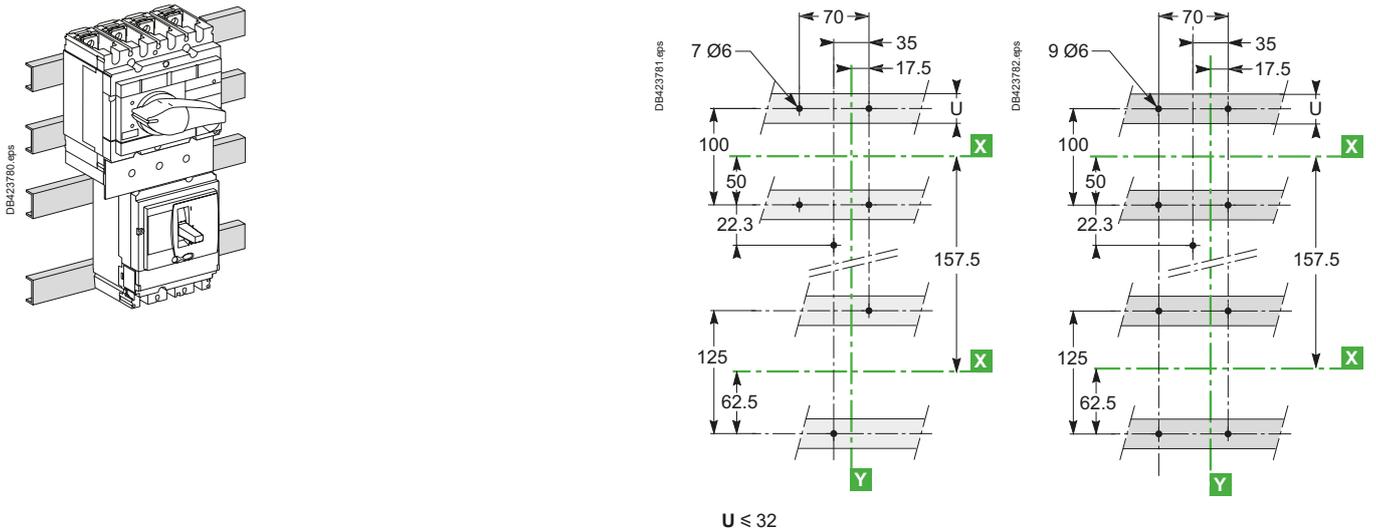
- Interphase barriers.
- Short terminal shields.
- Long terminal shields.

Mounting

On rails or backplate

3P

4P



U ≤ 32



ComPact NSX dimensions and mounting

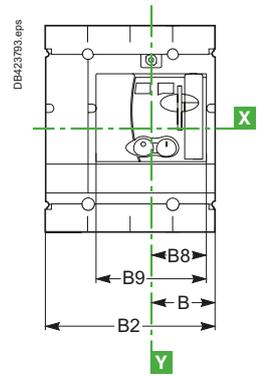
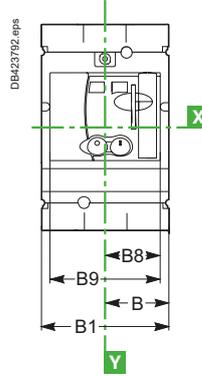
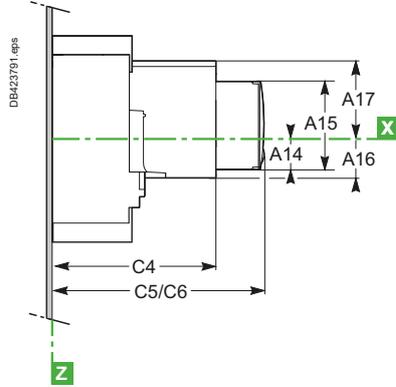
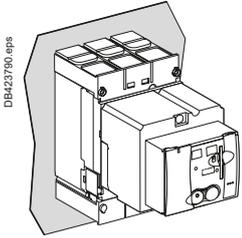
Motor mechanism module for ComPact NSX100 to 630

Dimensions

3P

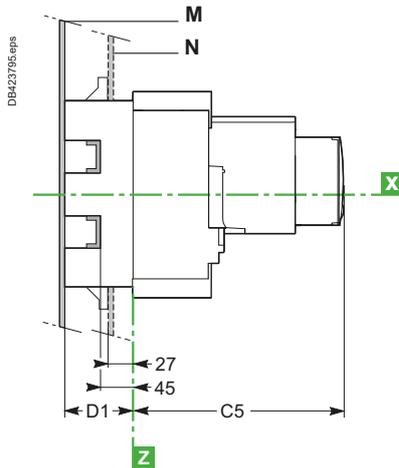
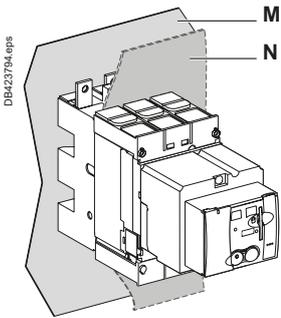
4P

Fixed circuit breaker

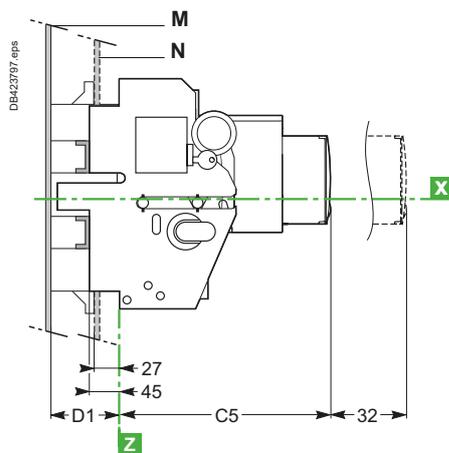
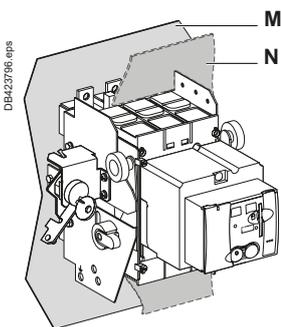


C5: without keylock
C6: with keylock

Plug-in circuit breaker



Withdrawable circuit breaker



Type	A14	A15	A16	A17	B	B1	B2	B8	B9	C4	C5	C6	D1
NSX100/160/250	27.5	73	34.5	62.5	52.5	105	140	45.5	91	143	182	209.5	75
NSX400/630	40	123	52	100	70	140	185	61.5	123	215	256	258	100



ComPact NSX dimensions and mounting

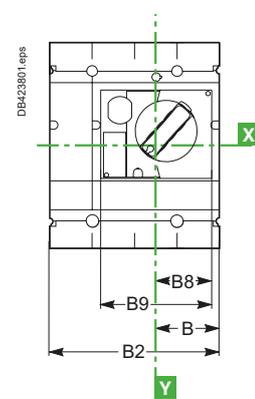
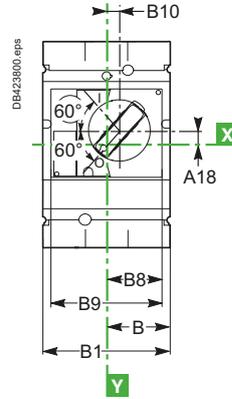
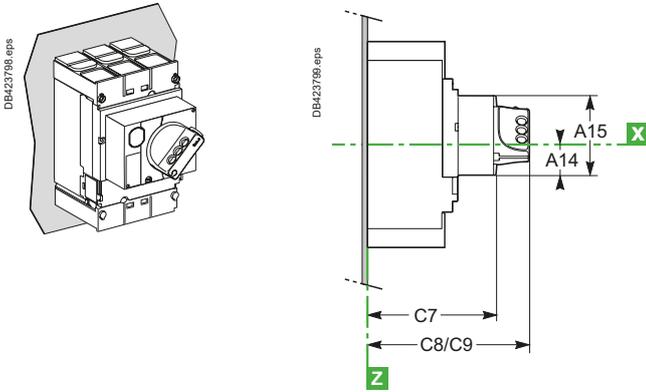
Direct rotary handle for ComPact NSX100 to 630

Dimensions

Fixed circuit breaker

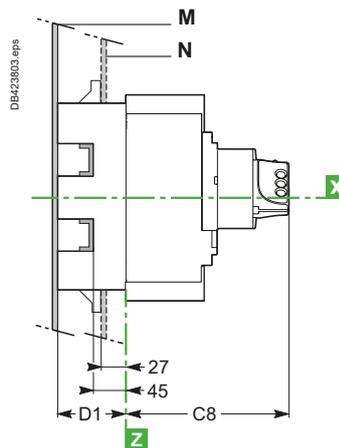
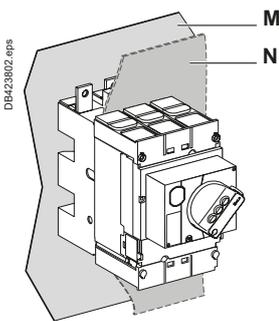
3P

4P

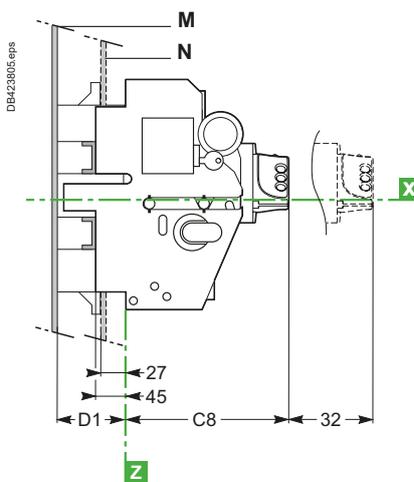
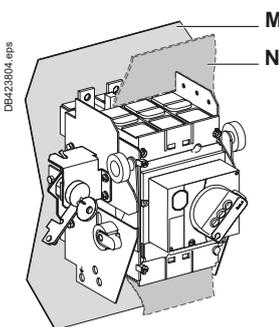


C8: without keylock
C9: with keylock

Plug-in circuit breaker



Withdrawable circuit breaker



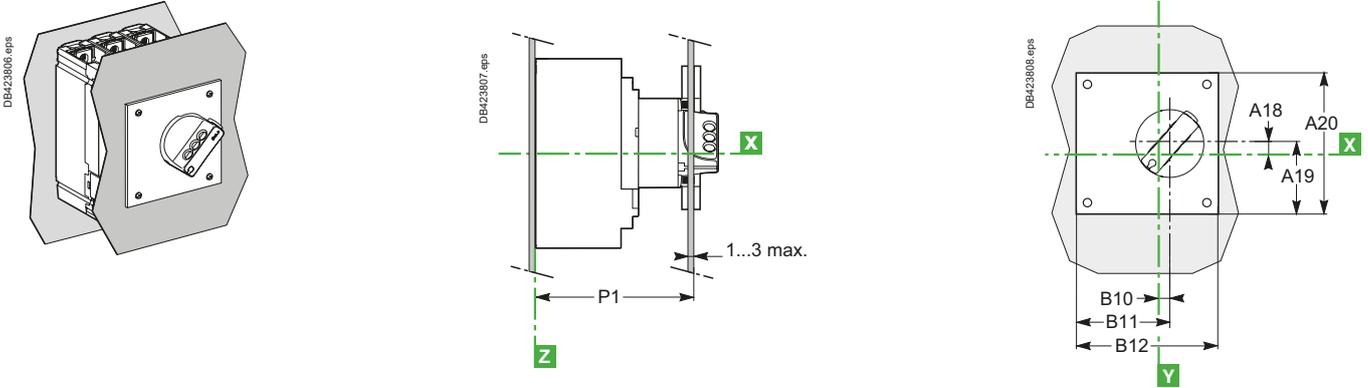
Type	A14	A15	A18	B	B1	B2	B8	B9	B10	C7	C8	C9	D1
NSX100/160/250	27.5	73	9	52.5	105	140	45.5	91	9.25	121	155	164	75
NSX400/630	40	123	24.6	70	140	185	61.5	123	5	145	179	188	100

ComPact NSX dimensions and mounting

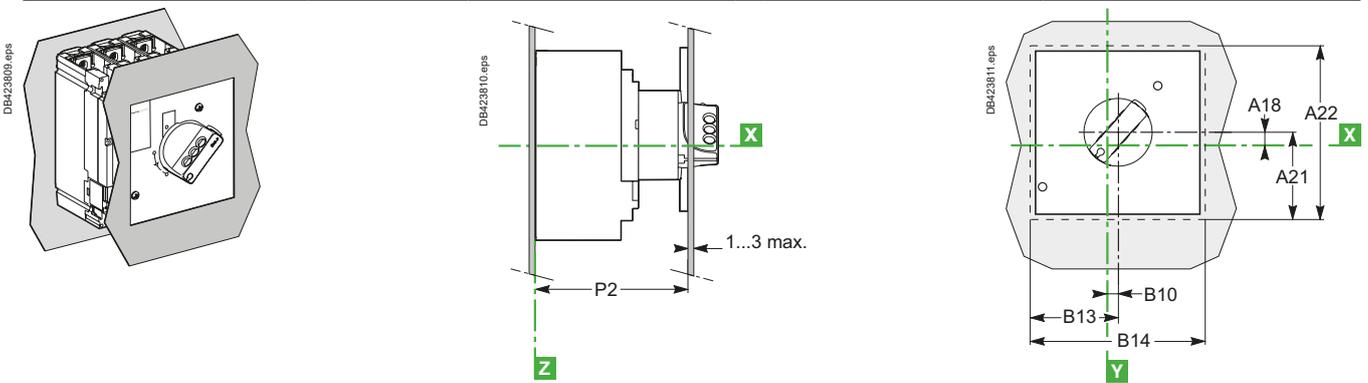
MCC and CNOMO type direct rotary handles for ComPact NSX100 to 630 fixed version

Dimensions

MCC type direct rotary handle

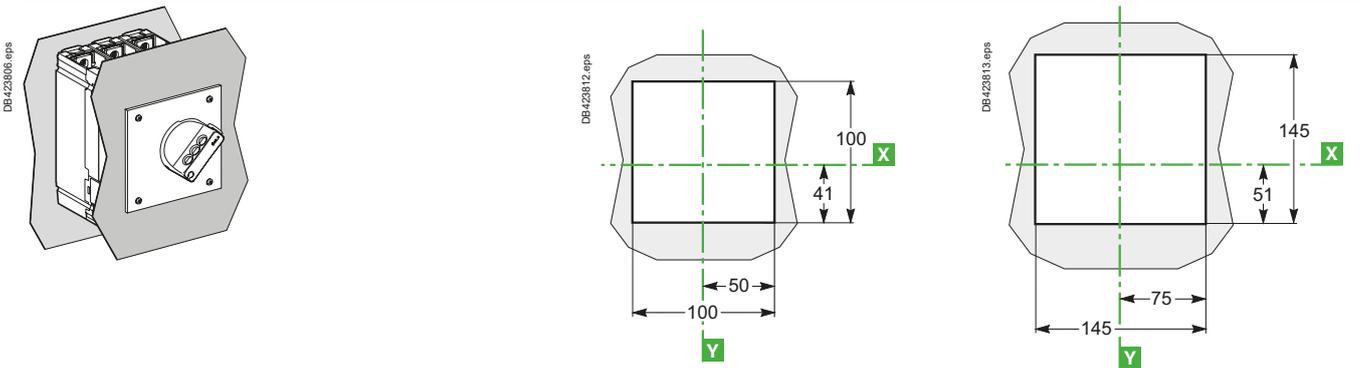


CNOMO type direct rotary handle



Front-panel cutout

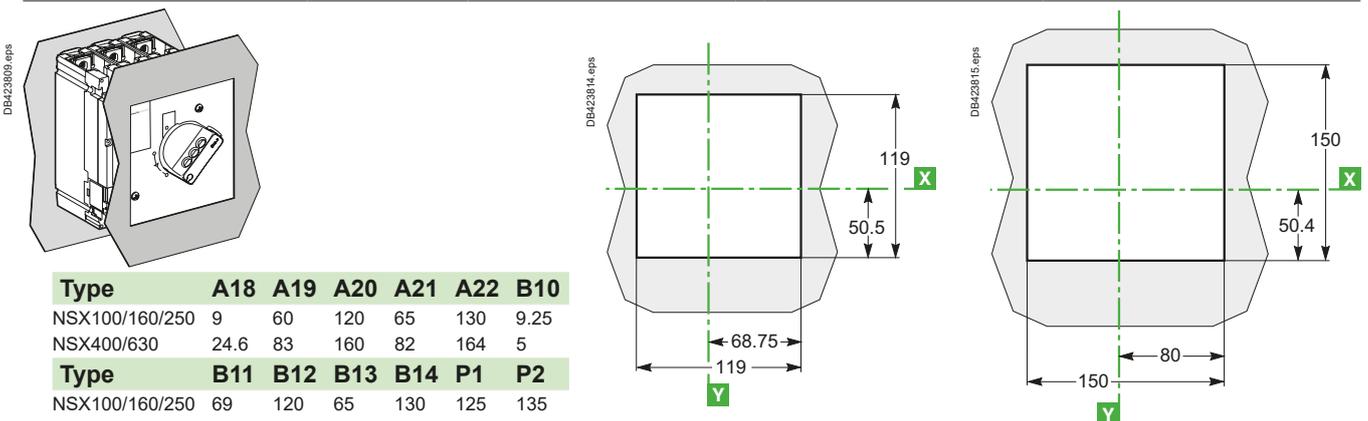
MCC type direct rotary handle



NSX100 to 250

NSX400/630

CNOMO type direct rotary handle



Type	A18	A19	A20	A21	A22	B10
NSX100/160/250	9	60	120	65	130	9.25
NSX400/630	24.6	83	160	82	164	5
Type	B11	B12	B13	B14	P1	P2
NSX100/160/250	69	120	65	130	125	135
NSX400/630	85	160	82	164	149	158

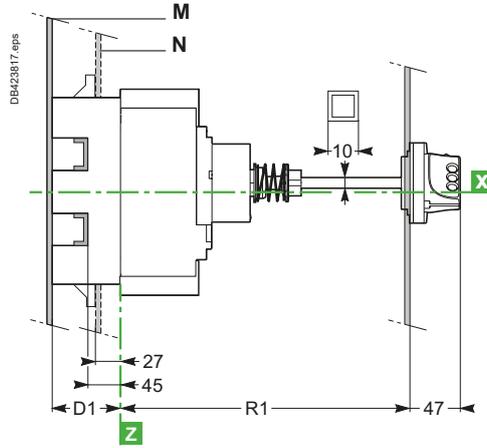
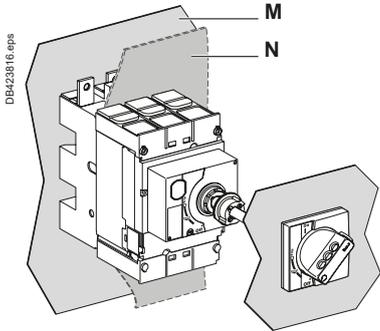


ComPact NSX dimensions and mounting

Extended rotary handle for ComPact NSX100 to 630

Dimensions

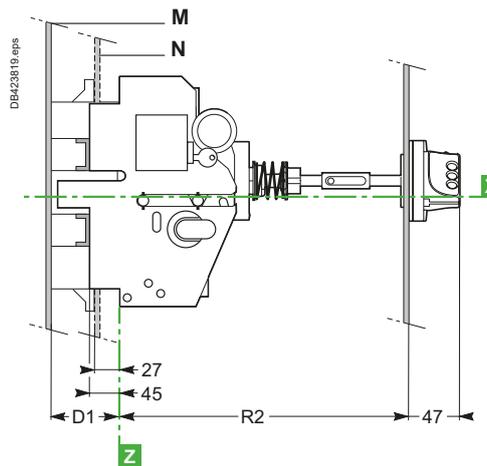
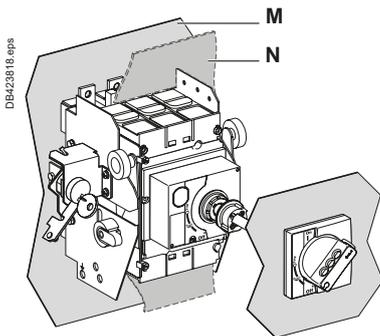
Fixed and plug-in circuit breakers



Cutout for shaft (mm)

Type	R1
NSX100/160/250	min. 171 max. 600
NSX400/630	min. 195 max. 600

Withdrawable circuit breaker

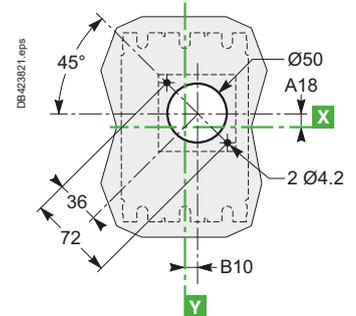
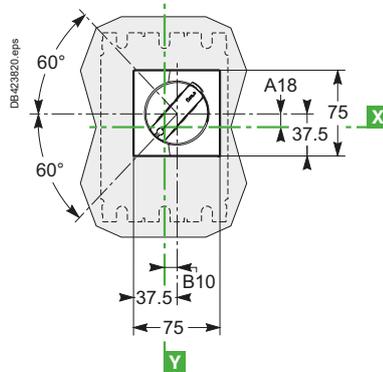


Cutout for shaft (mm)

Type	R2
NSX100/160/250	min. 248 max. 600
NSX400/630	min. 272 max. 600

E

Dimensions and front-panel cutout



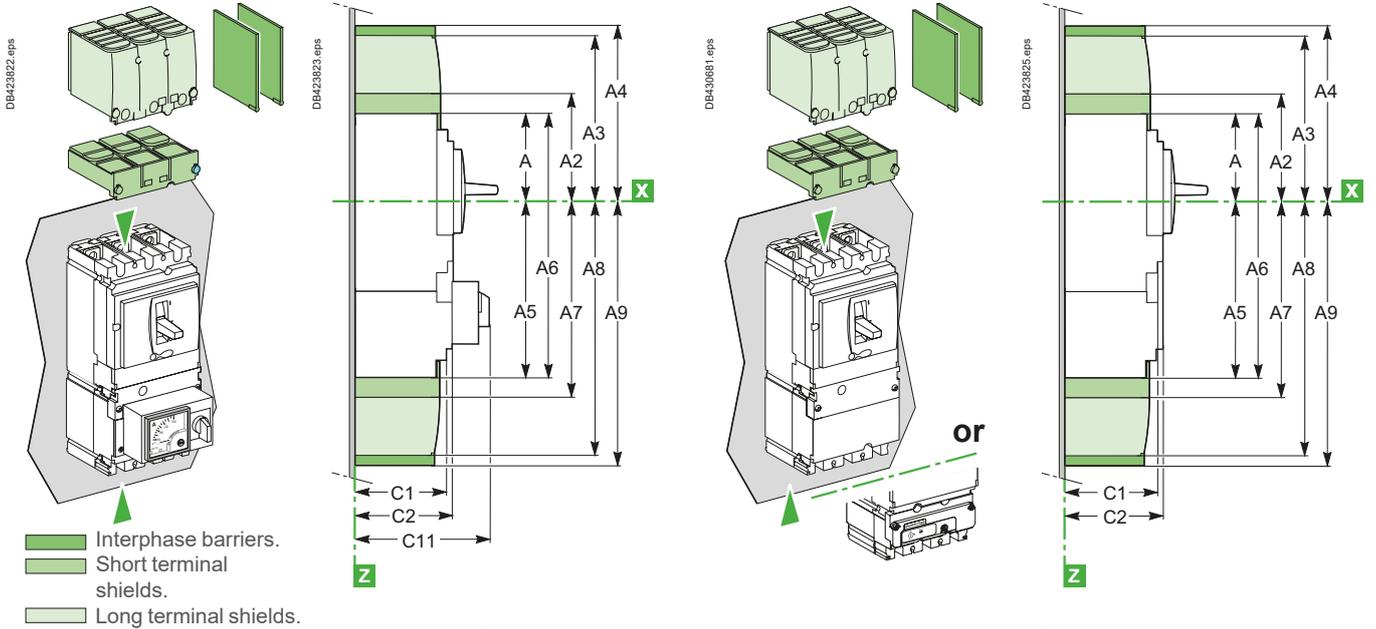
Type	A18	B10	D1
NSX100/160/250	9	9.25	75
NSX400/630	24.6	5	100

ComPact NSX dimensions and mounting

Indication and measurement modules for ComPact NSX100 to 630 fixed version

Dimensions of circuit breaker with Ammeter module

Current-transformer / PowerLogic PowerTag NSX module



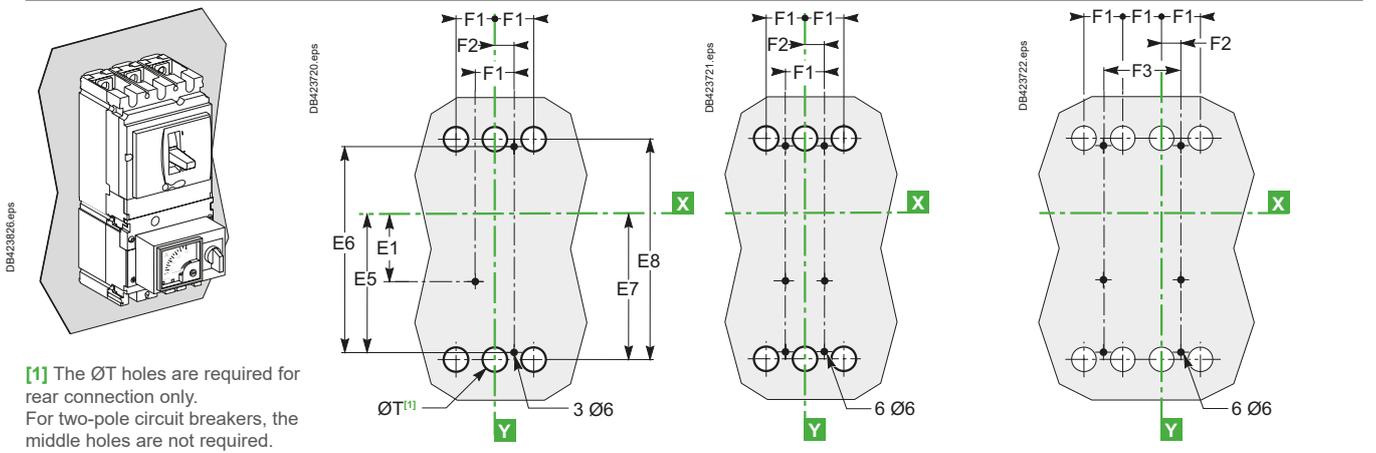
Mounting

On backplate

NSX100 to 250 2/3P

NSX400/630 3P

NSX100 to 630 4P

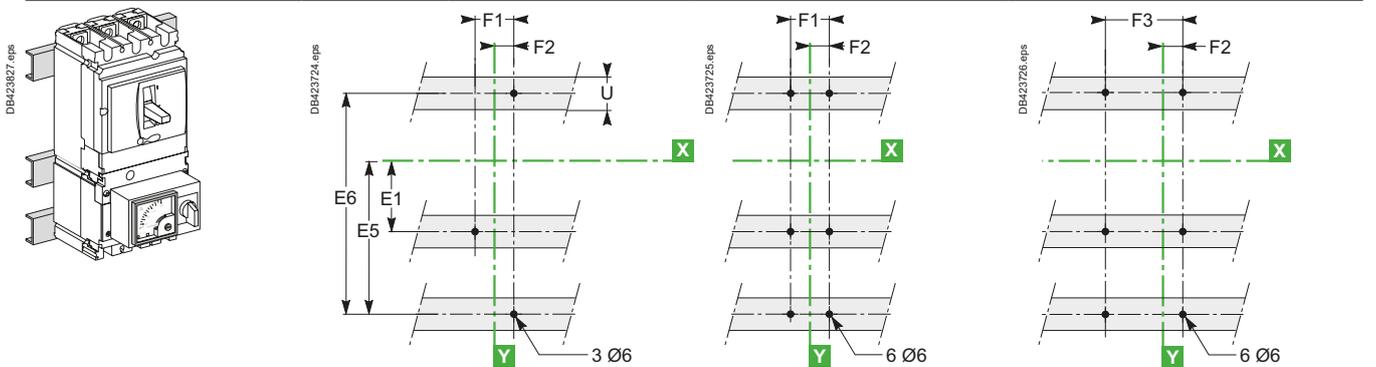


On rails

2/3P

3P

4P

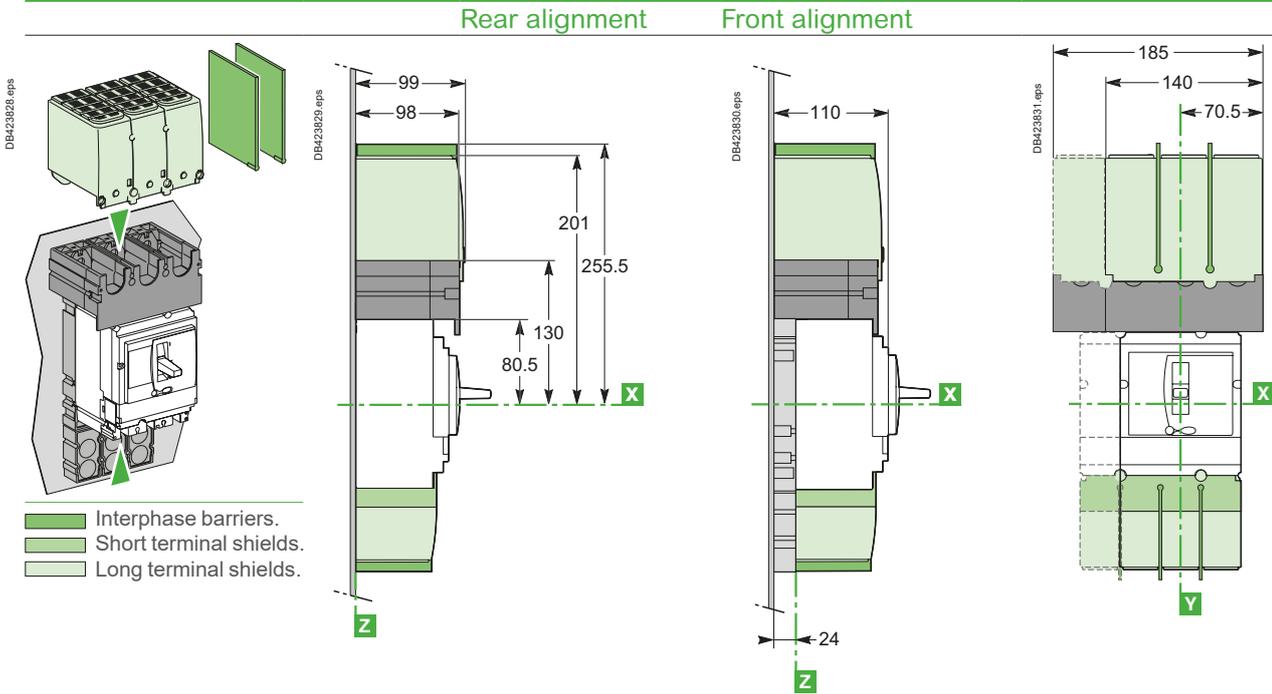


Type	A	A2	A3	A4	A5	A6	A7	A8	A9	C1	C2	C11	E1	E5	E6	E7	E8	F1
NSX100/160/250	80.5	94	145	178.5	155.5	236	169	220	253.5	81	86	137	62.5	137.5	200	145	215	35
NSX400/630	127.5	142.5	200	237	227.5	355	242.5	300	337	95.5	110	162	100	200	300	213.5	327	45
Type	F2	F3	ØT	U	Type	A5	A6	A7	A8	A9	E5	E6	E7	E8				
NSX100/160/250	17.5	70	24	≤ 32	NSX100/160/250 with PowerTag NSX	120.5	201	134	185	219.5	102.5	165	110	180				
NSX400/630	22.5	90	32	≤ 35	NSX400/630 with PowerTag NSX	192.5	320	207.5	265	302.5	165	265	178.5	192				

ComPact NSX dimensions and mounting

One-piece spreader for ComPact NSX100 to 250 fixed version

Dimensions

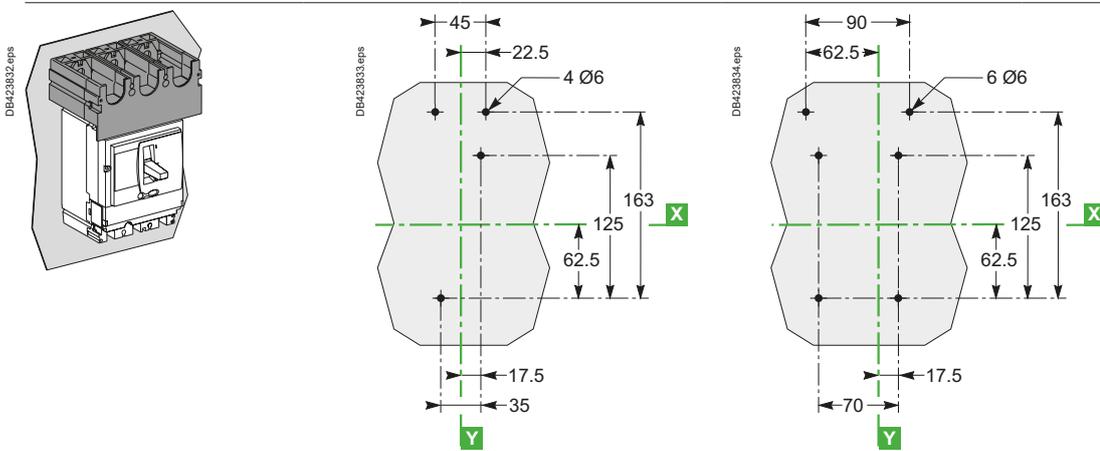


Mounting

Rear alignment

2/3P

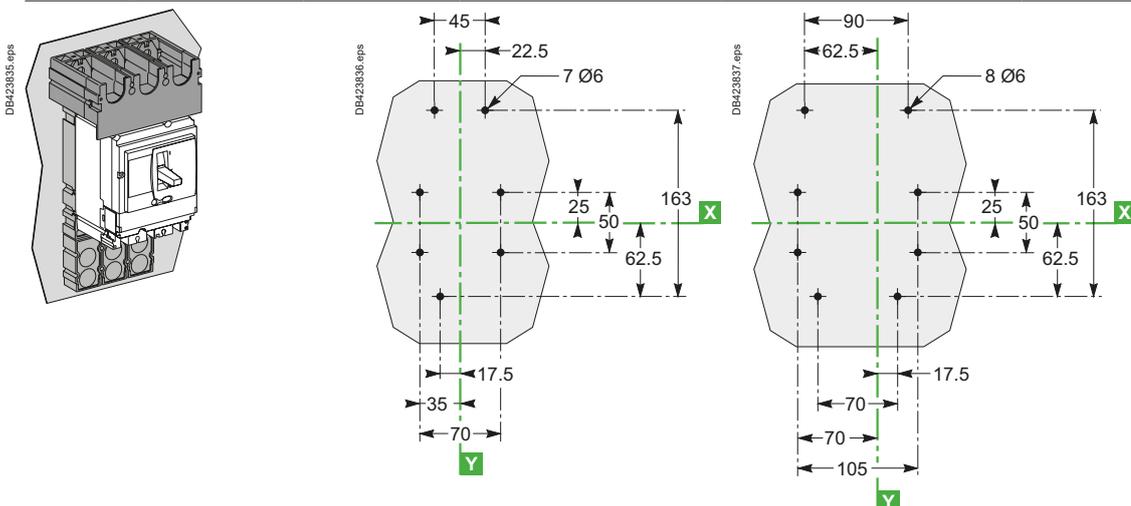
4P



Front alignment

2/3P

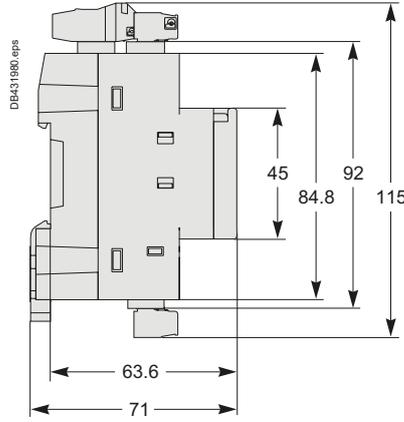
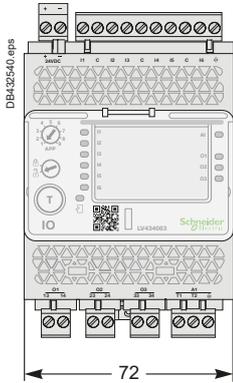
4P



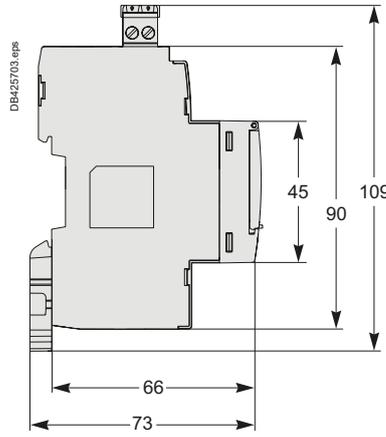
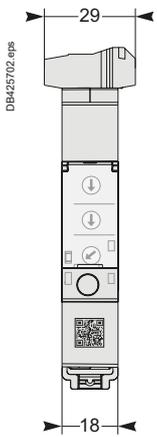
ComPact NSX dimensions and mounting

External modules

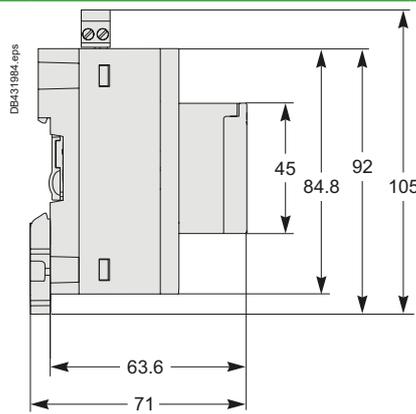
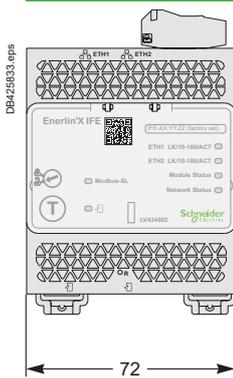
I/O (Input/Output) application module



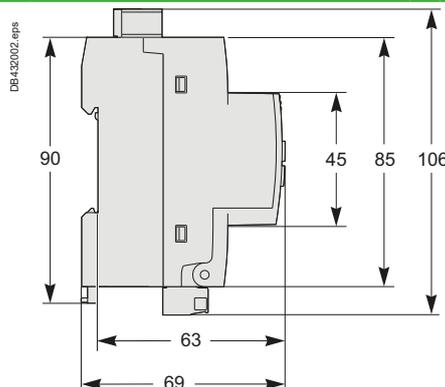
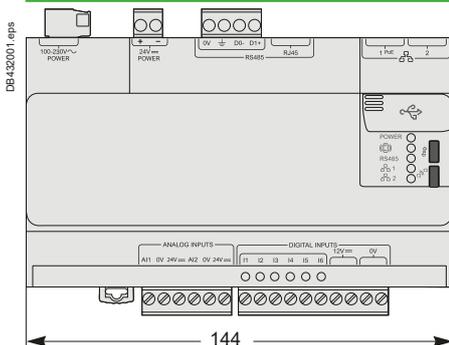
IFM - Modbus-SL interface



IFE - Ethernet interface



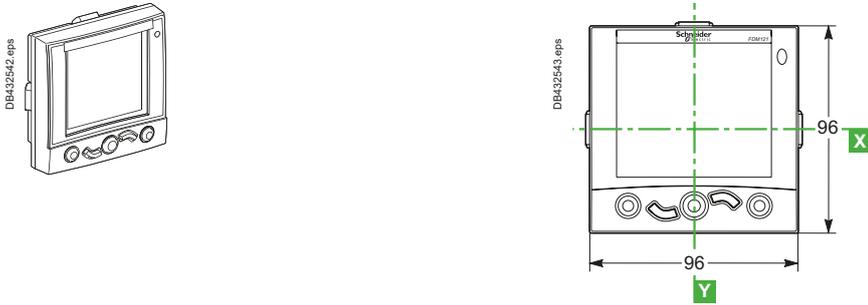
Com'X 500/510



ComPact NSX dimensions and mounting

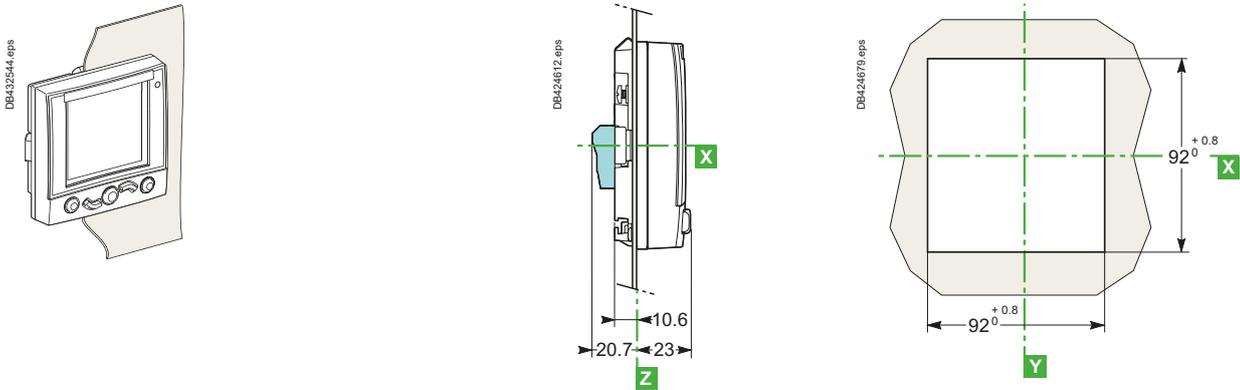
FDM121 switchboard display

Dimensions

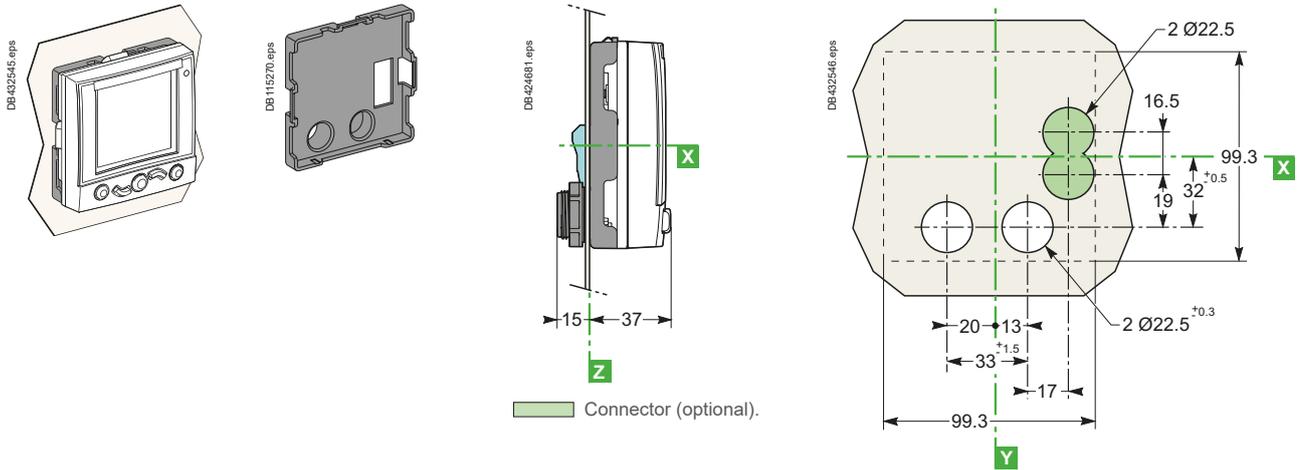


Mounting

Through panel



On panel



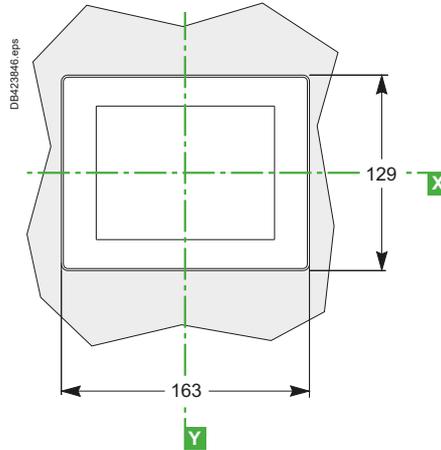
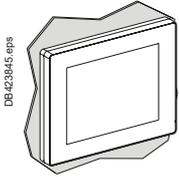
E

Switchboard integration

ComPact NSX dimensions and mounting

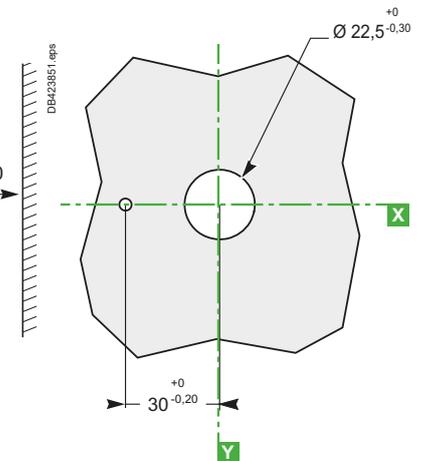
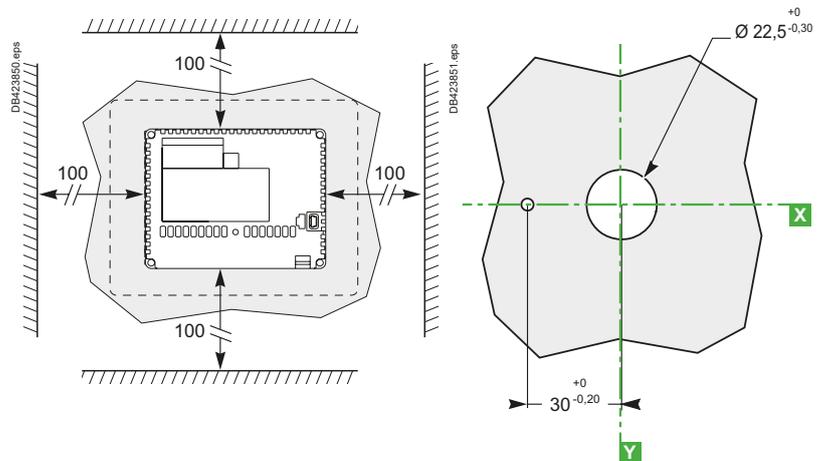
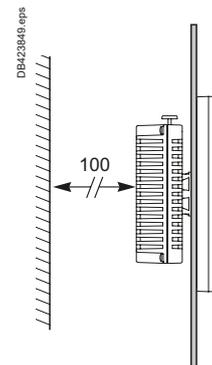
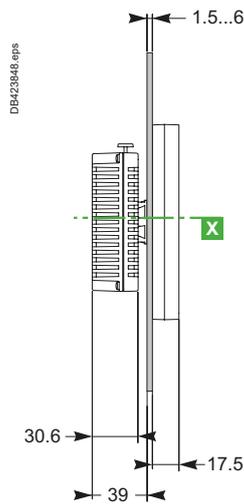
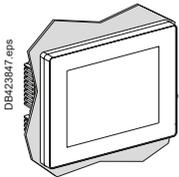
FDM128 switchboard display

Dimensions



Mounting

On panel



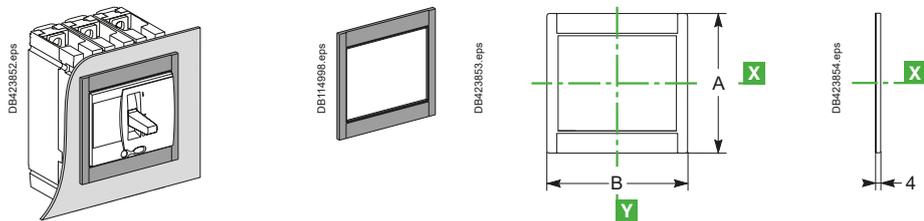
Switchboard integration

ComPact NSX front-panel accessories

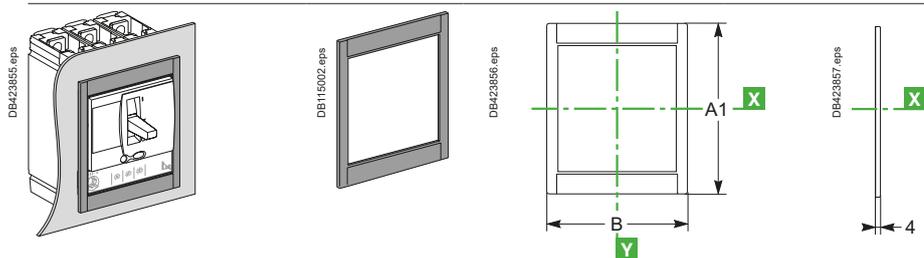
ComPact NSX100 to 630

IP30 front-panel escutcheons

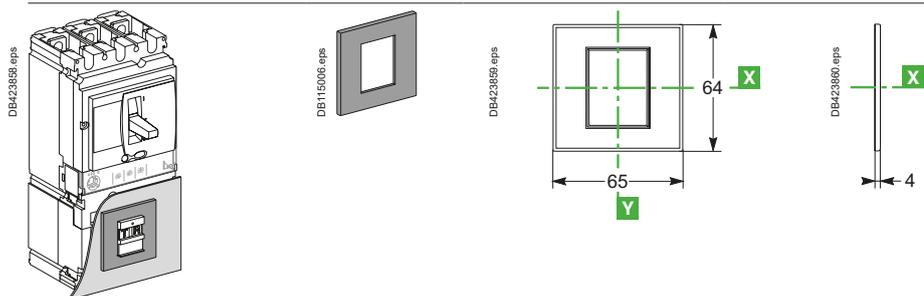
For toggle, rotary handle or motor mechanism module



For toggle or rotary handle with access to trip unit

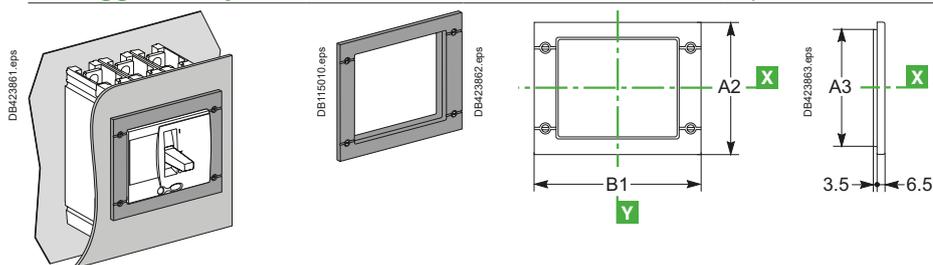


For Vigi add-on

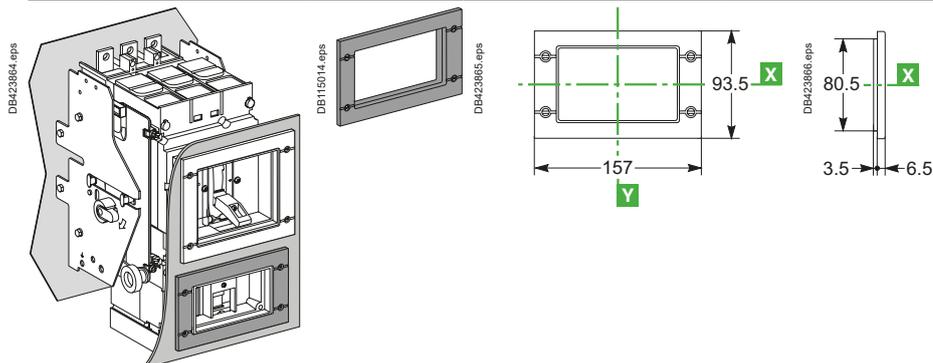


IP40 front-panel escutcheons

For toggle, rotary handle or motor mechanism module and protection collar



For Vigi add-on with protection collar or ammeter module



E

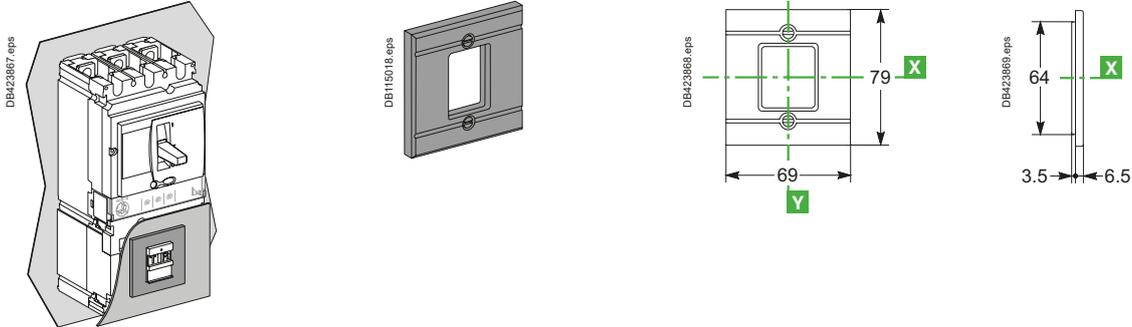
Switchboard integration

ComPact NSX front-panel accessories

ComPact NSX100 to 630

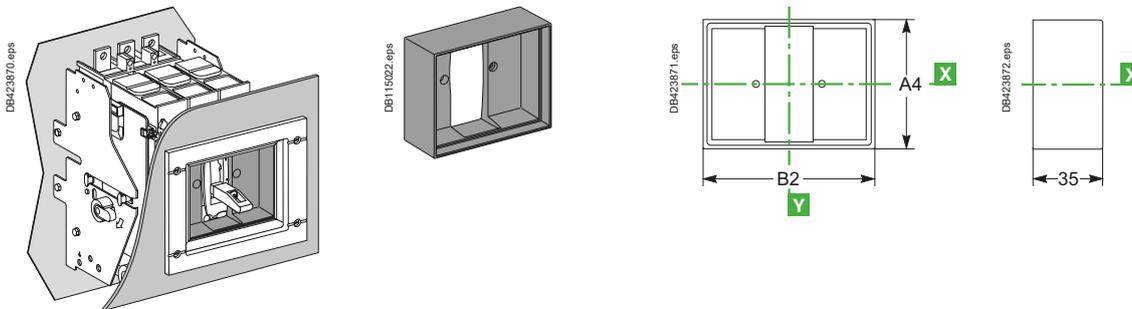
IP40 front-panel escutcheons (cont.)

For Vigi add-on

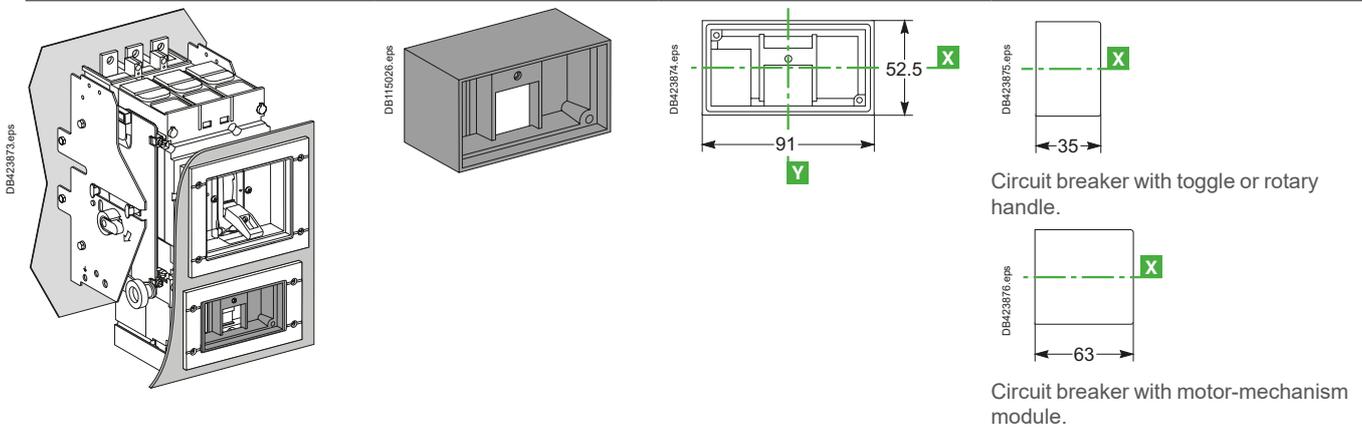


Protection collars for IP40 front-panel escutcheons

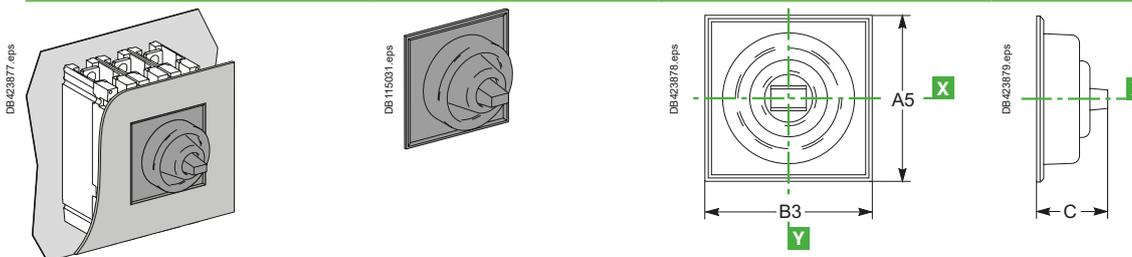
For toggle



For Vigi add-on



IP43 toggle cover



Type	A	A1	A2	A3	A4	A5	B	B1	B2	B3	C
NSX100/160/250	113	138	114	101	73	85	113	157	91	103	40
NSX400/630	163	211	164	151	122.5	138	163	189	122.5	138	60

ComPact NSX front-panel cutouts

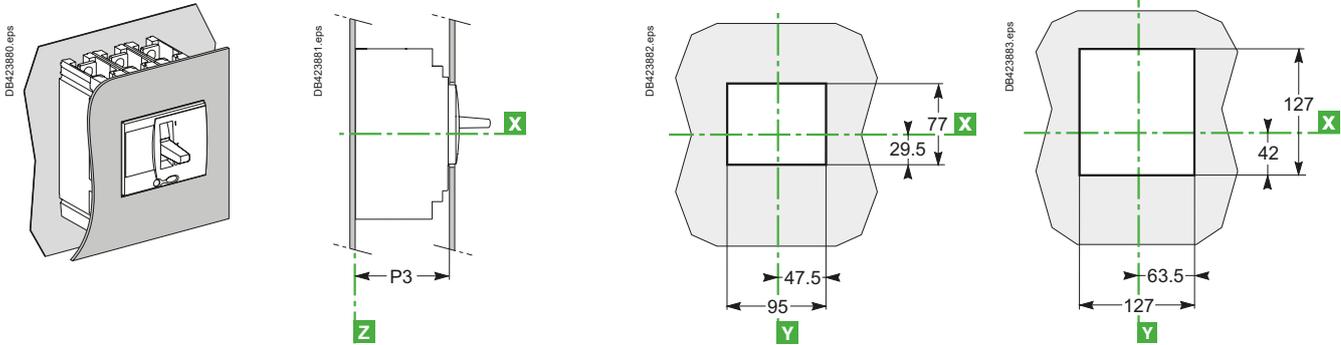
ComPact NSX100 to 630 fixed version

Bare sheet metal

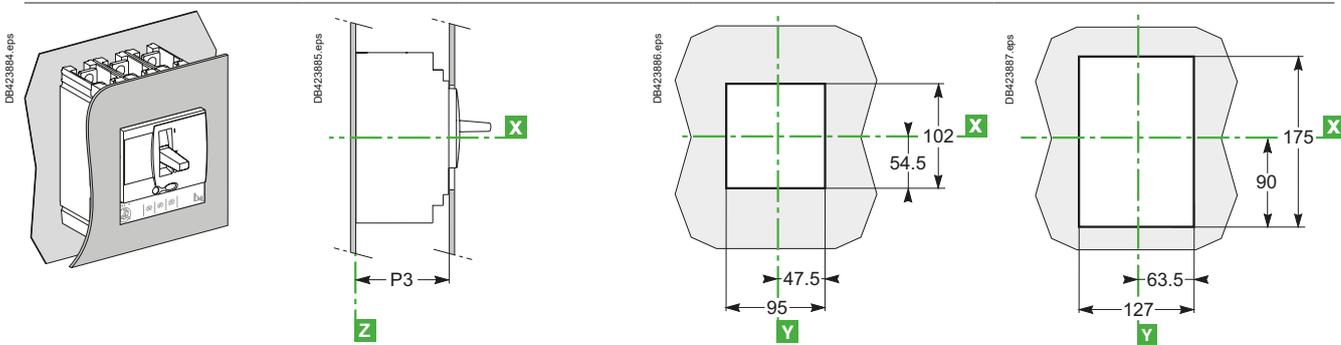
NSX100 to 250

NSX400/630

For toggle



For toggle with access to trip unit



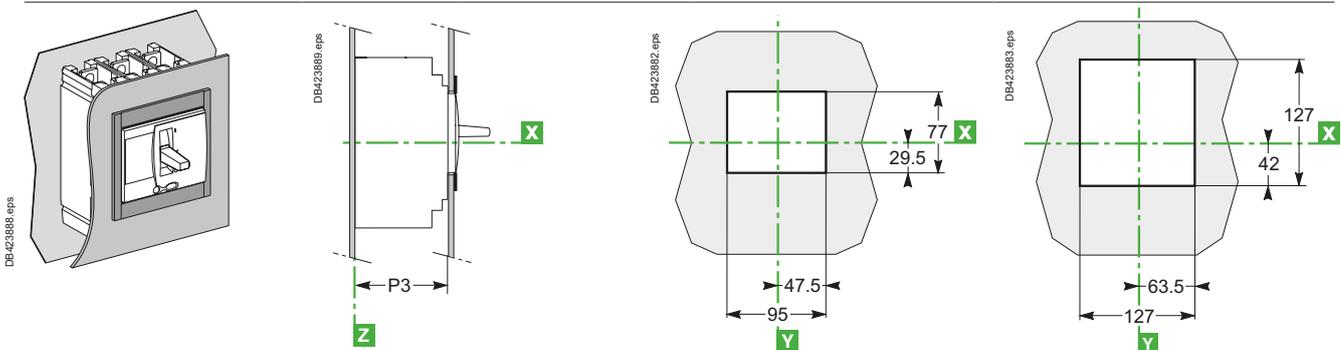
E

With IP30 front-panel escutcheon

NSX100 to 250

NSX400/630

For toggle



For toggle with access to trip unit

