

Shanghai Liangxin Electrical Co., Ltd.

(P03011-NDG3A-400 Disconnecting Switch)

Product Specification

(IPD-ENG-DEV-T03 A1 2018-07-10)

Prepared by		Date	
Reviewed by		Date	
Countersigned by		Date	
Approved by		Date	

Revision History					
Version	Revision Reason/Content	Implementation Date	Prepared by	Reviewed by	Approved by
1	Contact wiring hole change	20200527	Jiang Zhaoyong	Zheng Lei	Wang Jili
2	Add product specifications of NDG3A-500C	20200905	YangZikun	Zheng Lei	Wang Jili
3	Change the parameters	20210415	Chen Zhenzhen	Zhao Zhenxing	Wang Jili

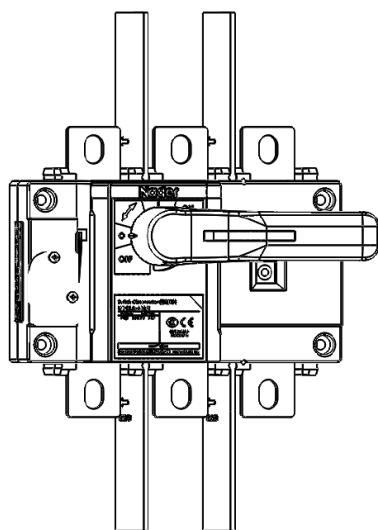
Contents

1. Application Scope and Purpose.....	4
2. Picture of the Product	4
3. Specifications and Models Description.....	4
4. Main Technical Parameters.....	5
5. Normal Working Environment	6
6. Outline and Installation Dimensions	7
6.1. Body+Partition+Inside-cabinet handle.....	7
6.2. Body+Housing+Handle outside a cabinet.....	7
7. Installation mode.....	8
7.1. Installation of the product body and spacer block.....	8
7.2. Product installation position description	8
8. Packaging and Storage.....	8
9. Environmental Compliance.....	8
10. List of Accessories and Installation.....	9
10.1. Model interpretation.....	9
10.1.1. Handle model interpretation:	9
10.1.2. Square shaft model interpretation:.....	9
10.1.3. Auxiliary contact model interpretation	9
Note: Rated parameters of the auxiliary contact	10
10.1.4. Short busbar model interpretation	10
10.1.5. Terminal cover model interpretation	10
10.2. Installation mode	10
10.2.1. Installation of the inside-cabinet handle.....	10
10.2.2. Installation of the handle outside a cabinet	11
10.2.3. Connection square shaft installation of the handle outside a cabinet	11
10.2.4. Cabinet door installation of the handle outside a cabinet	12
10.2.5. Cabinet door mounting hole dimensions of the handle outside a cabinet	12
10.2.6. Handle's padlock	12
10.2.7. Padlock of the inside-cabinet handle.....	12
10.2.8. Padlock of the handle outside a cabinet	13
10.2.9. 11.2.4 Auxiliary contact installation.....	13
10.2.10. Installation of the phase partition and short busbar	13
10.2.11. Terminal cover installation	14
11. Precautions.....	14

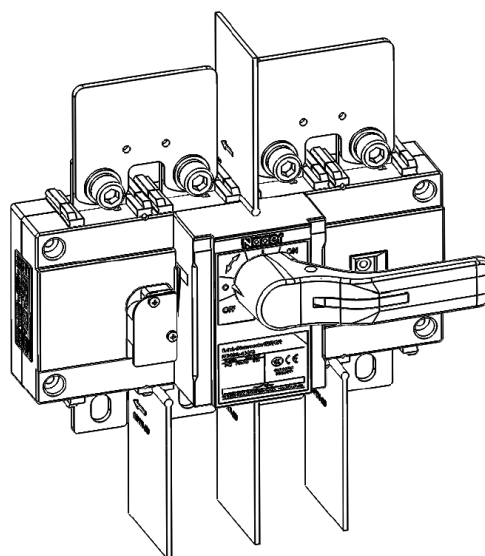
1. Application Scope and Purpose

NDG3A—400 disconnecting switches are applicable to the AC/DC power system and mainly installed in the low-voltage distribution circuit. The products can be used for infrequent making and breaking as well as to isolate and break the circuit in the energy storage, power, construction and other industries. With the frame current of 400A, the products are used in the power line with the rated voltage of AC690V (50/60Hz) and below, or DC500V and below.

2. Picture of the Product



NDG3A-400/3/K/C1



NDG3A-400/4Z/K/C1

3. Specifications and Models Description

ND G 3A - □/□ □/□ □/□/□

1 2 3 4 5 6 7 8 9 10

SN	Code name	Code description
1	Enterprise code	ND “Nader” low-voltage apparatus
2	Product code	G Disconnecting switch
3	Design code	3A
4	Rated current (A)	In: 500C,400, 315, 250H (high parameter)
5	Number of poles	3: T poles; 4: Four poles
6	Current Type	Uncoded: Normal product; Z: DC product
7	Handle type	K: Inside-cabinet handle; P: handle outside a cabinet
8	Connection square shaft Specification code	There is no square shaft code for the inside-cabinet handle. 150: Shaft length 150mm; 200: Shaft length 200mm; 250: Shaft length 250mm; 300: Shaft length 300mm; 400: Shaft length 400mm.
9	Auxiliary contact	C1: A group of conventional contacts; C2: Two groups of conventional contacts; W1: A group of micro-power contacts; W2: Two groups of micro-power contacts.
10	Terminal protection	No code: Phase partition; Z3: 3P terminal cover; Z4: 4P terminal cover

4. Main Technical Parameters

Disconnecting switch			NDG3A-400			
Agreed thermal current I _{th} (A)			500			
Number of poles			3, 4			
Rated insulation voltage U _i (V)			1000			
Rated impulse withstand voltage U _{imp} (kV)			8			
No protection device for the rated short time withstand current I _{cw} (1s.kA effective value)			AC: 9; DC: 4.8			
Rated short circuit making capacity I _{cm} (kA peak value)			AC: 23; DC: 12I _e			
Rated current I _n (A) (at +40°C)			250H(A/B)	315(A/B)	400(A/B)	500C(A/B)
Rated working current I _e (A)	380VAC 400VAC 415VAC	AC-20A/AC-20B	250/250	315/315	400/400	/
		AC-21A/AC-21B				500/500
		AC-22A/AC-22B				/
		AC-23A/AC-23B				/
	500VAC	AC-20A/AC-20B	250/250	315/315	400/400	/
		AC-21A/AC-21B	250/250			250/250
		AC-22A/AC-22B	250/250			/
		AC-23A/AC-23B	200/250			/
	660VAC 690VAC	AC-20A/AC-20B	250/250	315/315	400/400	/
		AC-21A/AC-21B	160/200			160/200
		AC-22A/AC-22B	160/200			/
		AC-23A/AC-23B	100/125			/
	220VDC	DC-20A/DC-20B	250/250	315/315	400/400	/
		DC-21A/DC-21B	250/250			250/250
		DC-22A/DC-22B	250/250			/
		DC-23A/DC-23B	200/200			/
	400VDC	DC-20A/DC-20B	250/250	315/315	400/400	/
		DC-21A/DC-21B	250/250			250/250
		DC-22A/DC-22B	200/200			/
		DC-23A/DC-23B	200/200			/
	500VDC	DC-20A/DC-20B	250/250	315/315	400/400	/
		DC-21A/DC-21B	200/200			200/200
		DC-22A/DC-22B	200/200			/
		DC-23A/DC-23B	200/200			/
Mechanical life (times)			5000			
Electrical life (times)			1000			
Operating torque (N.m)			≤14.5			
Installation Mode			Screw mounting			
External dimensions 4P (length×width×height)			230×160×75			
External dimensions 3P (length×width×height)			180×160×75			
Applicable standards			GB/T 14048.1, GB/T 14048.3, IEC 60947-1, IEC 60947-3			

Product certification	CCC, CE, TUV
Single-phase internal resistance (mΩ)	≤0.8
Minimum copper cable cross section (mm ²)	100A: 50; 125A: 50; 160A: 95; 200A: 120; 250A: 150; 315A: 185; 400A: 240; 500A: 250
Minimum tightening torque of copper cable connection (N.m)	20

Note: 1) Refer to GB 14048.3 for other unspecified parameter requirements.

2) Refer to wiring diagram for connection mode.

5. Normal Working Environment

- 1) Altitude: Below 2,000m

NDG3 (A) /NDG3V Derating Coefficient Table In High Altitude Place					
Altitude	2000m	2500m	3000m	3500m	4000m
Power-frequency withstand voltage	2200V	2200V	2200V	2000V	1800V
Correction factor of operational current	1	1	0.98	0.93	0.9
Correction factor of operational voltage	1	0.96	0.90	0.85	0.75

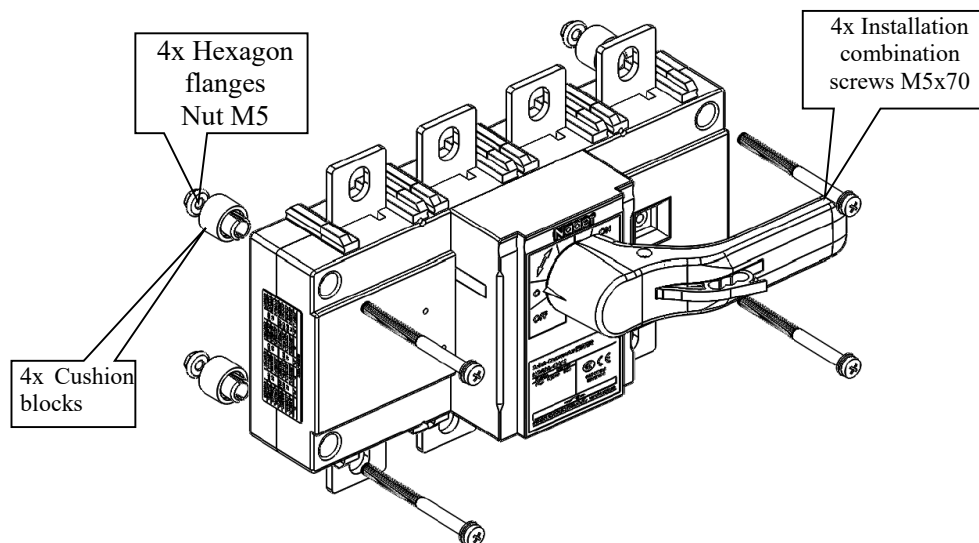
- 2) Operating ambient temperature: -25°C~55°C (the testing ambient temperature of UPS is 40°C)

NDG3 (A) /NDG3V Derating Coefficient Table In High Ambient Temperature					
Ambient temperature	70°C	75°C	80°C	85°C	90°C
Power-frequency withstand voltage	2200V	2200V	2200V	2200V	2200V
Correction factor of operational current	1	0.95	0.9	0.8	0.7
Correction factor of operational voltage	1	1	1	1	1

- 3) Operating/storage relative humidity: The relative humidity at an ambient temperature of +40 should not exceed 50%. A higher relative humidity is allowed at a lower humidity
- 4) The product can be disposed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust. The product should be avoided from snow and rain.
- 5) Protection class: IP20 for the complete appliance, handle outside a cabinet: IP65.
- 6) Storage environment: -50°C~+80°C
- 7) Pollution level: Level 3
- 8) Installation category: III and IV.

7. Installation mode

7. 1. Installation of the product body and spacer block

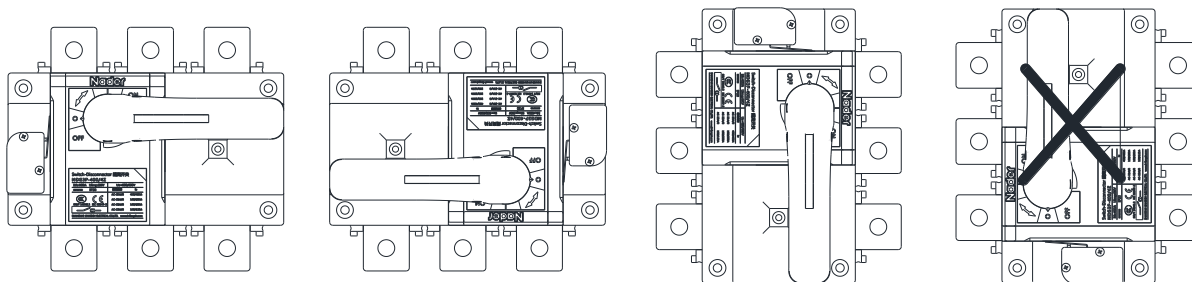


7. 2. Product installation position description

The product can be installed vertically and horizontally.

In case of vertical installation, the contact inspection window shall not position upward, as the 4th method shown in the figure below.

The inclination of the vertical installation plane shall not be more than 5°.



8. Packaging and Storage

The products are packaged with cartons and pearl wool. With the terminal protected with an anti-oxidation sleeve, the product is covered with a moisture-proof bag and a pearl wool liner in the box. Each box contains a single unit. Dropping test is in accordance with LXWI8.203-15 Product Drop Experiment Inspection Speculation A1.

9. Environmental Compliance

Products comply with RoHs2.0 environmental standards.

10. List of Accessories and Installation

10.1. Model interpretation

10.1.1. Handle model interpretation:

SB 1 - □ / □

1 2 3 4

SN	SN Description	Code description
1	Function code	SB handle
2	Design SN	1
3	Handle type	K: Inside-cabinet handle P: Handle outside a cabinet
4	Applicable switch model	Applicable switch model for the inside-cabinet handle: G3A-400: suitable for NDG3A-500C,400, 315, 250H; G3A-250: suitable for NDG3A-250, 200, 160, 125, 100. Applicable switch model for the handle outside a cabinet: G3A-400: Suitable for NDG3A-500C,400, 315, 250H

10.1.2. Square shaft model interpretation:

FZ 1 - □ / □

1 2 3 4

SN	SN Description	Code description
1	Function code	FZ square shaft
2	Design SN	1
3	Square shaft specification code	150: Shaft length 150mm; 200: Shaft length 200mm; 250: Shaft length 250mm; 300: Shaft length 300mm; 400: Shaft length 400mm.
4	Applicable switch model	G3A-400: suitable for NDG3A-500C,400, 315, 250H; G3A-250: suitable for NDG3A-250, 200, 160, 125, 100.

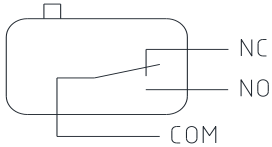
10.1.3. Auxiliary contact model interpretation

F 1 - 11 □ □ /G3A-400

1 2 3 4 5 6

SN	SN Description	Code description
1	Function code	Auxiliary contact
2	Design SN	1
3	Pairs of contacts	11: One NO, One NC
4	Specification	C: AC250V/10A, DC220V/0.2A W: AC125V/0.1A, DC30V/0.1A (micro load)
5	Installed quantity	1: 1 unit to be installed per set, 2: 2 units to be installed per set
6	Applicable switch model	G3A-400: Suitable for NDG3A-500C,400, 315, 250H

Note: Rated parameters of the auxiliary contact

Auxiliary contact specifications	F1-11C	F1-11W
Voltage specifications/rated current	AC250V/10A DC220V/0.2A	AC125V/0.1A DC30V/0.1A
Contact material	Silver alloy	Gold alloy
Minimum applicable load of contact	DC8V/160mA	DC5V/1mA
Internal resistance	<30 mΩ	<50 mΩ
Life	30,000 times	
Operation frequency	120 times/hour	
Terminal specifications	#4.8 (#187 inch)	
Contact type: Switching		

10. 1. 4. Short busbar model interpretation

MX 1 - □ / □

1 2 3 4

SN	SN Description	Code description
1	Function code	Short bus bar
2	Design SN	1
3	Number of poles	4
4	Applicable switch model	G3A-400: suitable for NDG3A-500C, 400, 315, 250H G3A-250: suitable for NDG3A-250, 200, 160, 125, 100

10. 1. 5. Terminal cover model interpretation

Z 1 - □ / □

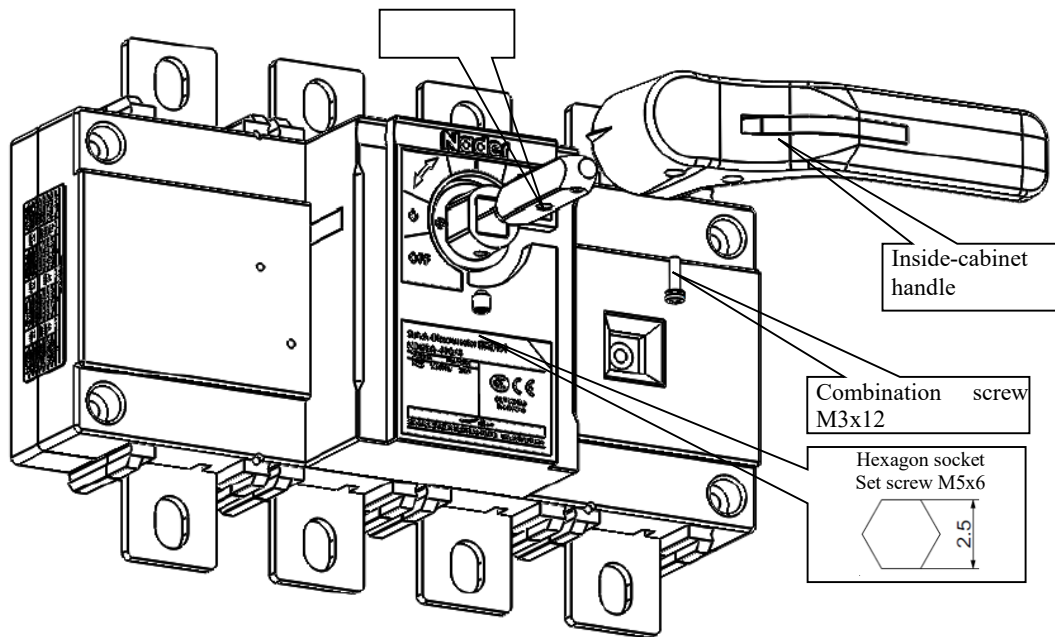
1 2 3 4

SN	SN Description	Code description
1	Function code	Terminal cover
2	Design SN	1
3	Number of poles	3, 4
4	Applicable switch model	G3A-400: suitable for NDG3A-500C, 400, 315, 250H G3A-250: suitable for NDG3A-250, 200, 160, 125, 100

10. 2. Installation mode

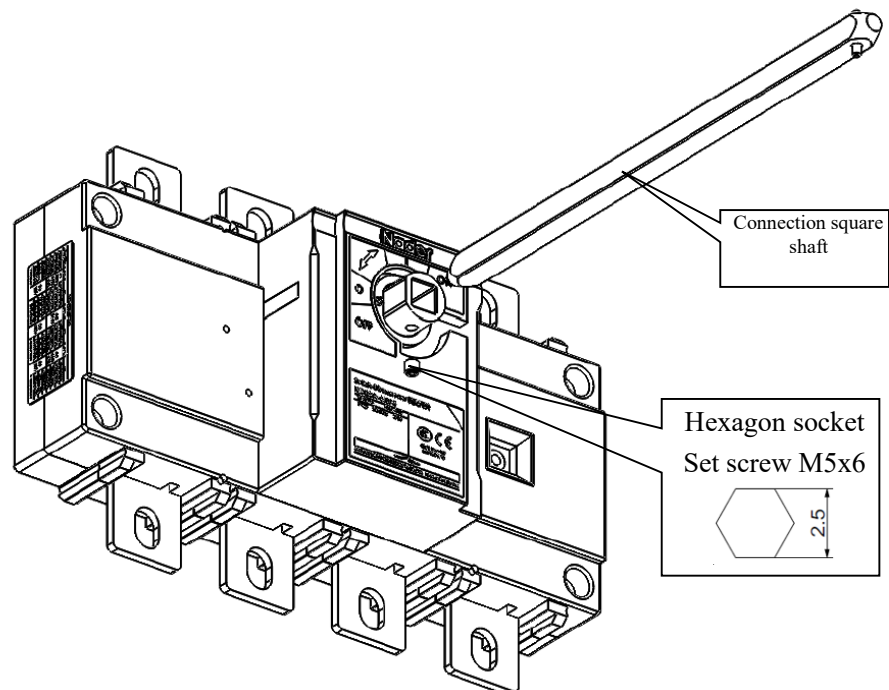
10. 2. 1. Installation of the inside-cabinet handle

First insert the connection square shaft into the body and fix it with hexagon socket set screws M5x6, then insert the inside-cabinet handle into the connection square shaft and fix it with combination screws M3x12.

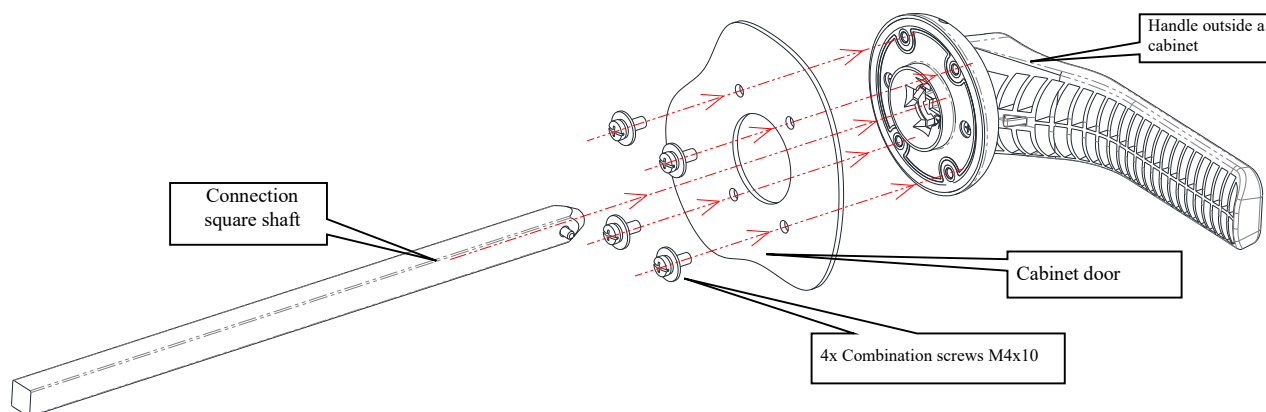


10. 2. 2. Installation of the handle outside a cabinet

10. 2. 3. Connection square shaft installation of the handle outside a cabinet

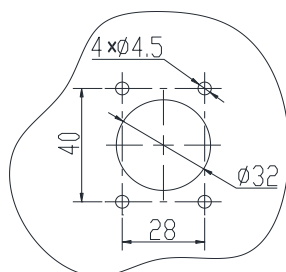


10.2.4. Cabinet door installation of the handle outside a cabinet



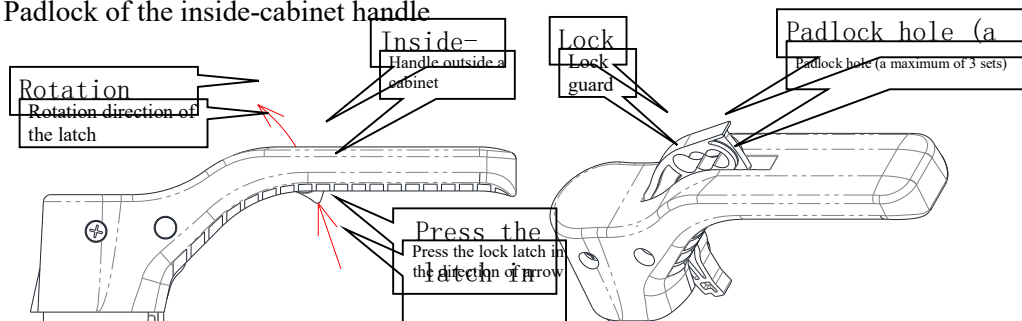
Note: Handle ON/OFF position corresponds to the product ON/OFF position.

10.2.5. Cabinet door mounting hole dimensions of the handle outside a cabinet



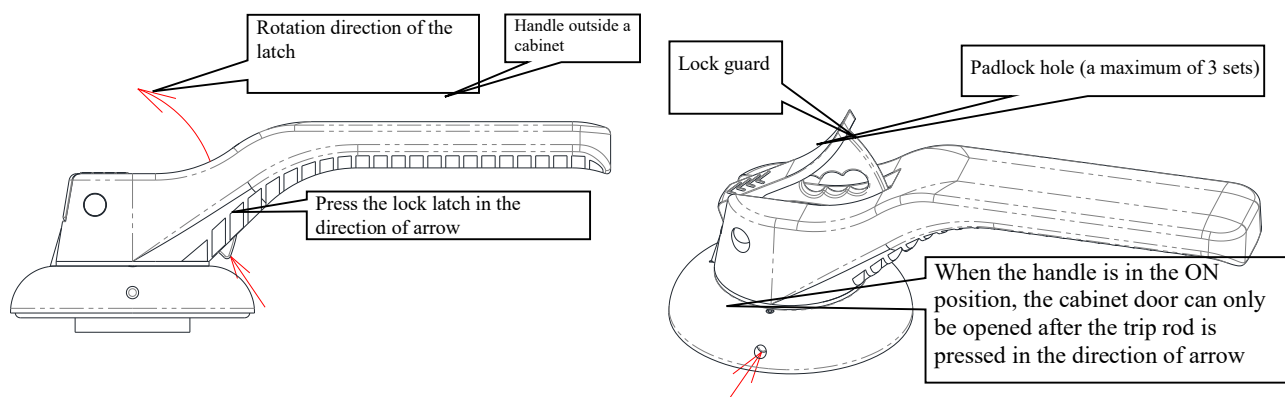
10.2.6. Handle's padlock

10.2.7. Padlock of the inside-cabinet handle



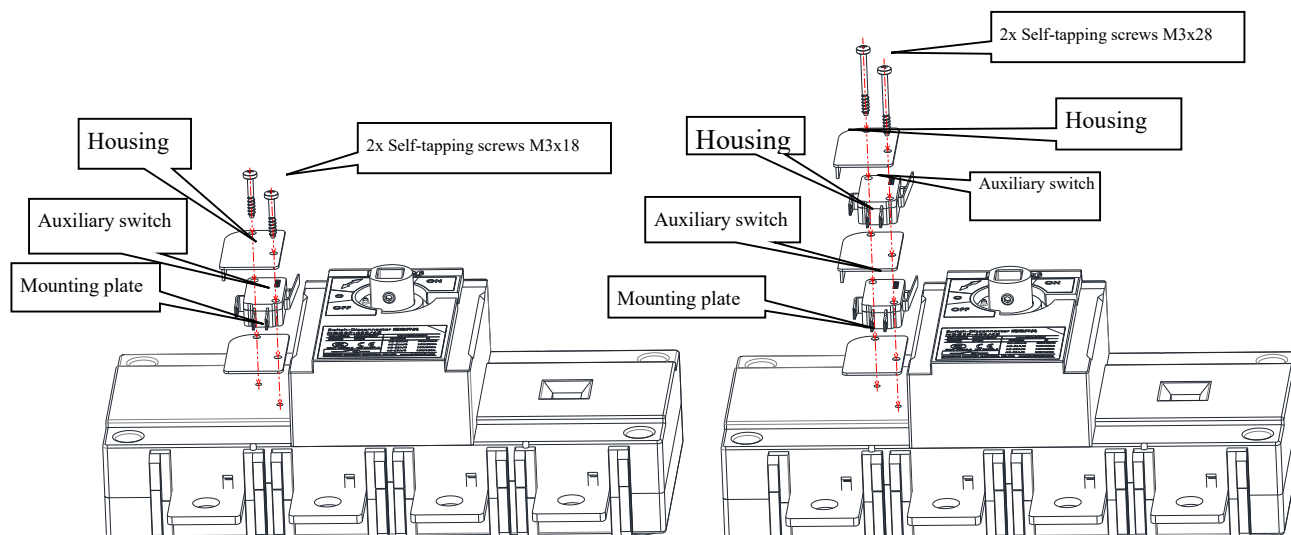
Note: Padlock is only available when the handle is in the OFF position

10. 2. 8. Padlock of the handle outside a cabinet



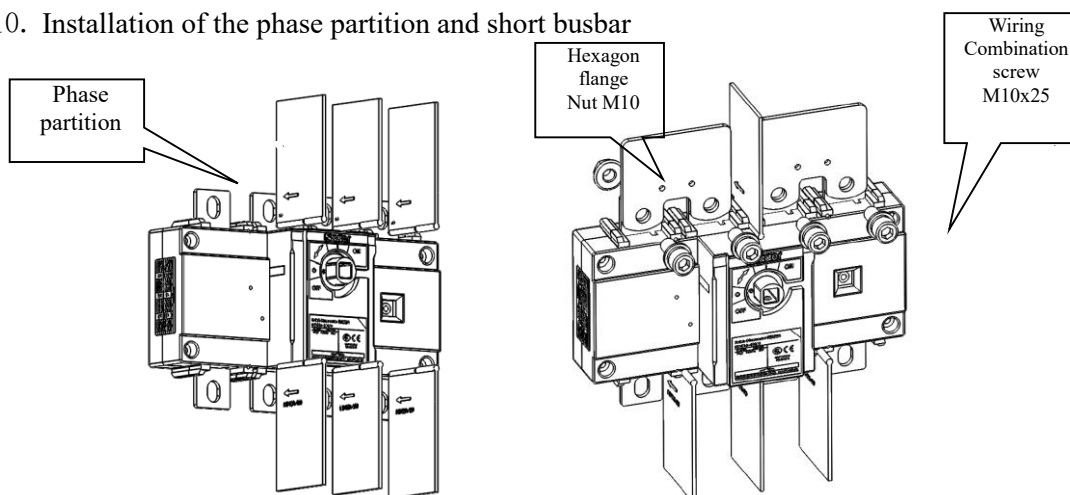
Note: Padlock is only available when the handle is in the OFF position

10. 2. 9. 11.2.4 Auxiliary contact installation



Single auxiliary contact installation Double-auxiliary contact installation

10. 2. 10. Installation of the phase partition and short busbar

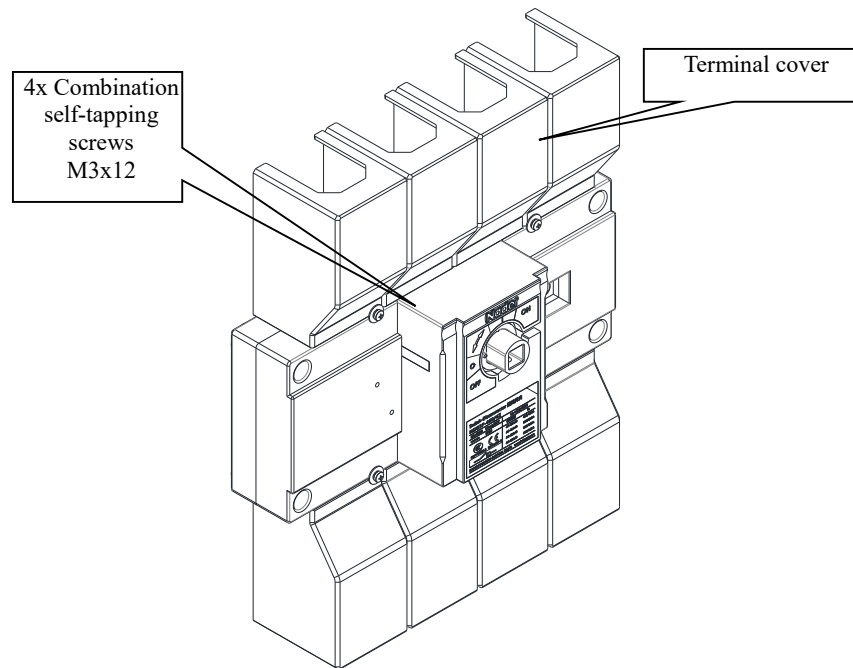


Installation of the phase spacing boards for the basic product

Installation of the phase spacing boards for the product with short-circuit block

Note: Insert the phase partition into the slot in the direction of arrow and press it evenly.

10.2.11. Terminal cover installation



Note: Insert the terminal cover into the installation slot of the phase partition and press it evenly, and then tighten with combination self-tapping screws.

11. Precautions

- 1) A user must be responsible for addressing a product issue that occurs because the user disassembles the product without approval;
- 2) Do not touch the non-insulated exposed parts of the disconnecting switch when it is connected to a power supply;
- 3) Connecting wires shall be fastened in the distribution cabinet rack. The switch shall not undertake the weight of the conductor. Before fastening the conductor, it is required to make the plane of the busbar or cable terminal in parallel to that of the wiring terminal of the switch. After the conductor is connected with the wiring terminal of the switch by using the bolts, the switch shall not undertake any mechanical stress;
- 4) Reliable cabling is required to prevent the terminals from being burnt out due to abnormal heat at the terminals.