Shanghai Liangxin Electrical Co., Ltd.

NDM2ZB-800 Product Specification

(IPD-ENG-DEV-T20 A1 2016-09-23)

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Revision History					
Version	Revision Reason/Content	Implementation Date	Prepared by	Reviewed by	Approved by
0	Newly added	5/8/2020	Wang Hu	Peng Haorang	Hu Qi
1	Update the product appearance picture and product dimension outline drawing	30/9/2021	Sun Lanping	Li Yang	Ding Fei

1. Applicable Scope and Purpose of Circuit Breaker

The NDM2ZB-800 DC three-segment molded case circuit breaker (hereinafter referred to as circuit breaker) applies to the DC system application environment and the electric circuit with the working voltage of DC250V and the working current of 800A. With the overload long time-delay, short-circuit short time-delay, short-circuit instantaneous protection functions, the circuit breaker can protect lines and power equipment from damage.

2. Product Picture of Circuit Breaker (The picture is for reference only; the specific kind prevail)

Picture of the Product

3. Specification and Model Description of Circuit Breaker

ND	M	2	ZB	-	800	□	/	□	□	□	□	□	□
1	2	3	4		5	6		7	8	9	10	11	12

SN	SN name	NDM2ZB
1	Enterprise code	ND: “Nader” low-voltage apparatus
2	Product code	M: Molded case circuit breaker (MCCB)
3	Design SN	2
4	Derived code of the series	ZB: DC
5	Shell frame level	800
6	Operation mode	No code: Direct handle-operated mode
		P: Motor-operated
		Z: Rotation handle
7	Number of poles	2
8	Release code	2: Only instantaneous release + short time delay release
		3: Complex release + short time delay release
9	Accessory code	See Table 1
10	Short delay time	30: 30ms
		60: 60ms
11	Rated current	See Table 2
12	Cabling type	No code: Normal product
		P: Connection busbar

Table 1: Comparison Table of Accessory Code:

Accessory code	Accessory name	NDM2ZB-800
	Installation Position / Model / Number of poles	2
00	N/A	—
10	Shunt release	
20	Dual-auxiliary contact	
21	Single auxiliary contact	
08	Alarm contact	
58	Auxiliary alarm contact	

4. Main Technical Parameters of Circuit Breaker

Table 2 Main Technical Parameters of Circuit Breaker

Model			NDM2ZB-800
Rated current of frame Inm (A)			800
Rated current In (A)			630, 700, 800
Rated insulation voltage Ui (AC V)			1000
Rated impulse withstand voltage Uimp (V)			8000
Power frequency withstand voltage U (1min) (V)			3500
Rated working voltage Ue (DC V)			250
Utilization category			B
Rated short-time withstand current Icw (kA/0.1s)			10
Number of poles			2
Rated limit short-circuit breaking capacity Icu (kA)			50
Rated operating short-circuit breaking capacity Ics (kA)			50
Operating performance (times)	Electrical life		2000
	Mechanical life	Maintainable free life	6000
		Maintainable life	12000

4.1 Selection of the circuit breaker connecting bus or cable cross-section area:

Table 3 Selection of the NDM2ZB-800 Connecting Bus or Cable Cross-section Area

Rated current (A)	Cable section		Copper bar size	
	Quantity	Cross-section area (mm^2)	Quantity	Cross-section area (mm^2)
630	2	185	2	40×5
700	2	240	2	50×5
800	2	240	2	50×5

4.2 Tightening Torque of the Circuit Breaker Terminal and Mounting Screw

Table 4 Tightening Torque of the Circuit Breaker Terminal and Mounting Screw

Model	Thread diameter (mm)	Torque (N·m)
NDM2ZB-800	M12	28
	M6	6

4.3 Derating factor of temperature change for the circuit breaker

Table 5 Derating Factor Table of Temperature Change for the Circuit Breaker

Model	Derating factor of product temperature change							
NDM2ZB-800	Temperature (℃)	40	45	50	55	60	65	70
	Derating factor	1	0.980	0.960	0.939	0.918	0.897	0.877

Note: 1) When the operating ambient temperature is below + 40℃, the product can be used normally without derating capacity.

2) The above derating factors are measured at the frame current.

4.4 High-altitude derating factor of the circuit breaker

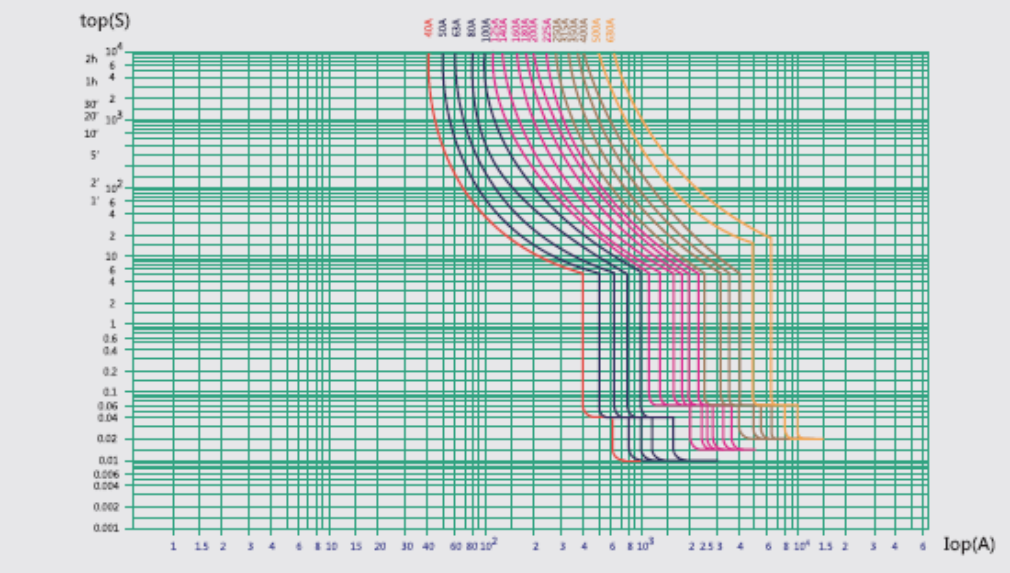
Table 6 High-altitude Derating Factor Table of Circuit Breaker

Elevation (m)	Working current correction coefficient	Power frequency withstand voltage correction coefficient	Isolation voltage correction coefficient
2000	1	3500	1000
2500	1	3500	1000
3000	0.98	3150	900
3500	0.97	3000	850
4000	0.95	2800	810
4500	0.94	2650	770
5000	0.93	2500	730

5. Normal Working Environment of Circuit Breaker

1) The altitude of the installation site doesn't exceed 2,500m. See the "High-altitude Derating Factor Table of Circuit Breaker" for the derating factor at the altitude;
2) The ambient temperature is -35℃ ~ + 70℃; the average within 24 h shall not be more than +35℃. If the ambient temperature is higher than +40℃, the user needs to reduce the capacity. See the "Derating Factor Table of Temperature Change for the Circuit Breaker" for the derating factor;
3) Its relative humidity at an ambient temperature of +40℃ should not exceed 50%. A higher relative humidity is allowed at a lower temperature. For example, the relative humidity at 20℃ can reach 90%; for frost due to temperature change, the corresponding measures should be taken;
4) The product can withstand the effects of wet air, salt mist, oil mist and mould;
5) The installation category of the circuit breaker connected to the main loop is: Category Ⅲ (power distribution and control level), The installation category of the circuit breaker not connected to the main loop is: Category Ⅱ (load level);
6) The pollution level is Level 3;
7) The product should be installed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust, which should be also avoided from snow and rain;
8) In case of stricter user conditions than the above description, negotiate with the manufacturer.

6. Short-circuit Overload Protection Characteristic Curve of Circuit Breaker



Time/Current Characteristic Curve

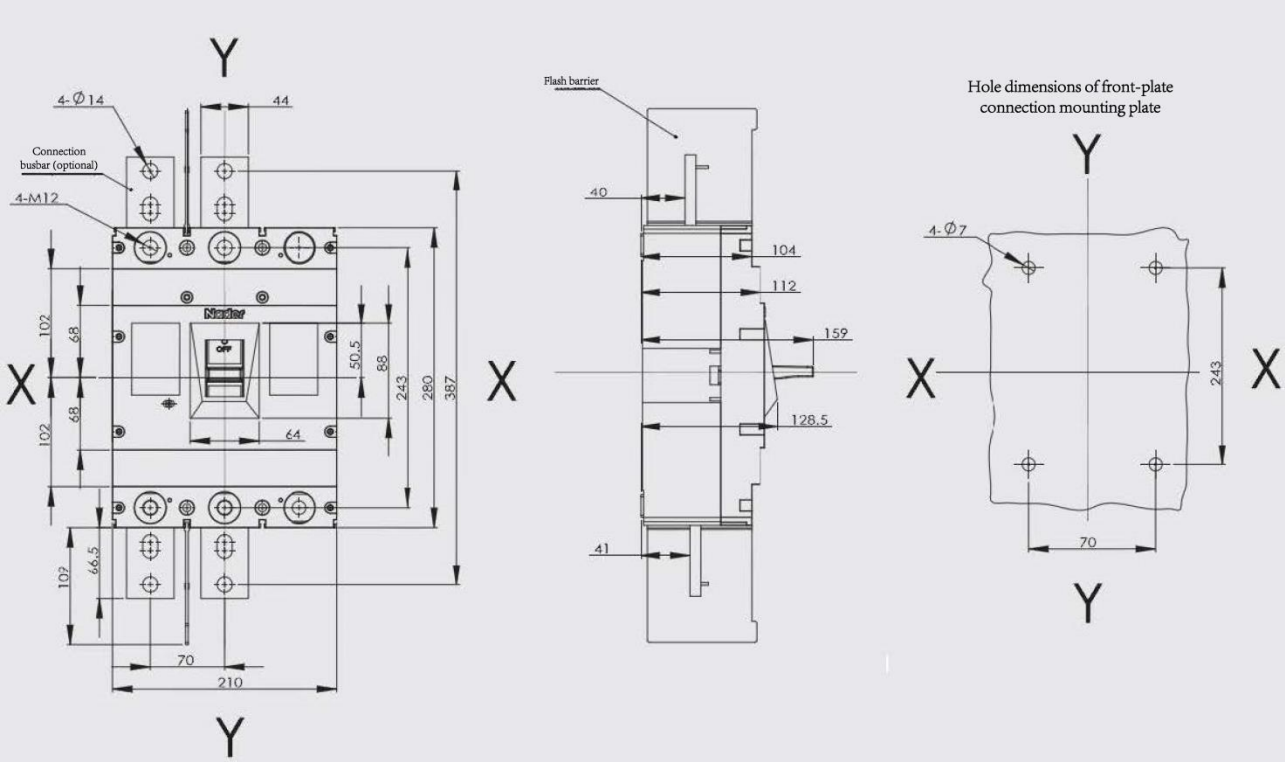
Table 7 Short-circuit Protection Characteristics Table

Setting value of the instantaneous action current	16In ±20%
Short circuit short time-delay current	10In ±20%
Setting value of the short-circuit short time-delay action time (ms)	30, 60
Short-circuit short time-delay action time allowable error	5%

Note: Short-circuit short time-delay action time does not refer to the full-breaking time of the circuit breaker. In order to reliably achieve selective protection, it only refers to the delay time added on the basis of instantaneous full-breaking.

7. Outline, Mounting Hole Dimensions and Safety Distance of Circuit Breaker

7.1 Outline and mounting hole dimensions of circuit breaker



Note: The limit deviation not indicated with the tolerance dimensions is as per GB/T 1804-m.

7.2 Safe mounting distance of circuit breaker

Table 8 Insulation Distance Mounted in the Metal Cabinet (Unit: mm)

Mounting distance	A (inlet wire end to the cabinet face)		B (distance from side to the cabinet face)	C (outlet wire end to the cabinet face)
Model	With a terminal cover	Without a terminal cover		
NDM2ZB-800	25	120	35	35

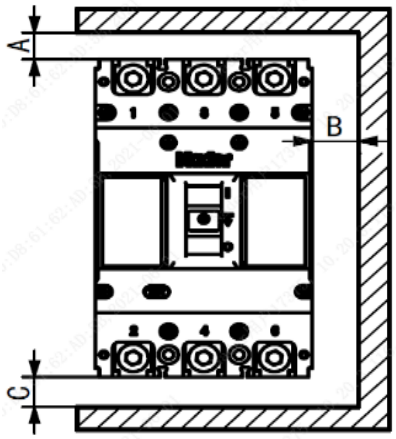


Table 9 Minimum Center Distance between Rowed Circuit Breakers (Unit: mm)

Model	Width of circuit breaker	I Center distance
	2 poles	2 poles
NDM2ZB-800	210	250

Note: Check the connected busbar or cable during rowing or stacking of the circuit breaker to ensure that the air insulation distance won't be reduced.

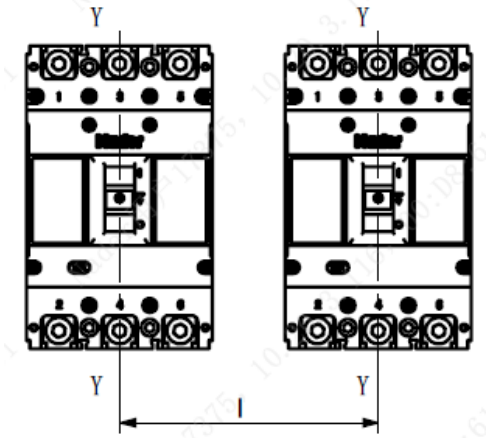


Table 10 Minimum Center Distance between Stacked Circuit Breakers (Unit: mm)

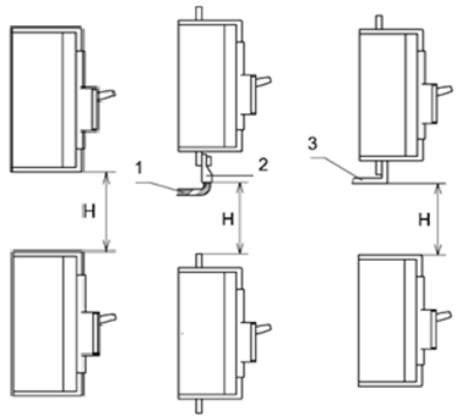
Model	H (distance of circuit breaker from bottom)	
	With a terminal cover	Without a terminal cover
NDM2ZB-800	155	155

Note: 1) Bare cable connection

2) Cable insulating connection

3) Connection without insulation

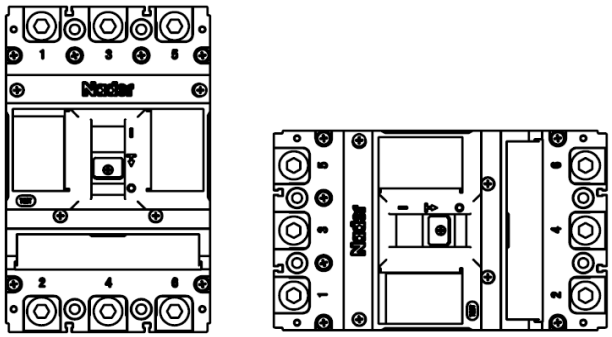
Requirements: Check whether the terminal cover or phase partition is assembled properly before products are energized.



8. Installation Direction of Circuit Breaker

For vertical installation of the product, the gradient between the installation surface and the vertical plane is no more than ±22.5°.

Horizontal installation of the product.



Vertical Installation Horizontal Installation

9. Packaging and Storage of Circuit Breaker

Minimum packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse with the air ventilation and the relative humidity no more than 80% when the ambient temperature is -40℃~+75 ℃. No acidic alkaline or other corrosive gas exists in the ambient air in the warehouse. Under the conditions above, the storage period shall be no more than three years since the manufacturing date.

10. Installation Direction of Circuit Breaker

SN	Name	Specification	2P Quantity/Set
1	Cross small pan-head screw	M6×95	4
2	Hexagon nut	M6	4
3	Spring washer	6	4
4	Plain washer	6	8
5	Phase partition	——	4
6	Plug	——	6

11. Circuit Breaker Notes

1) Various characteristics and accessories of the circuit breaker are set in the factory. The circuit breaker, tripping unit or other accessories can only be adjusted, installed and maintained by the trained or qualified professionals according to the parameter requirements of the line design;

2) Ensure that the power supply is off before installing or removing any device;

3) The circuit breaker handle can be located in three positions, indicating three states: on, off and free tripping. When the handle is in the free tripping position, pull the handle in the off direction when the circuit breaker is connected and on.