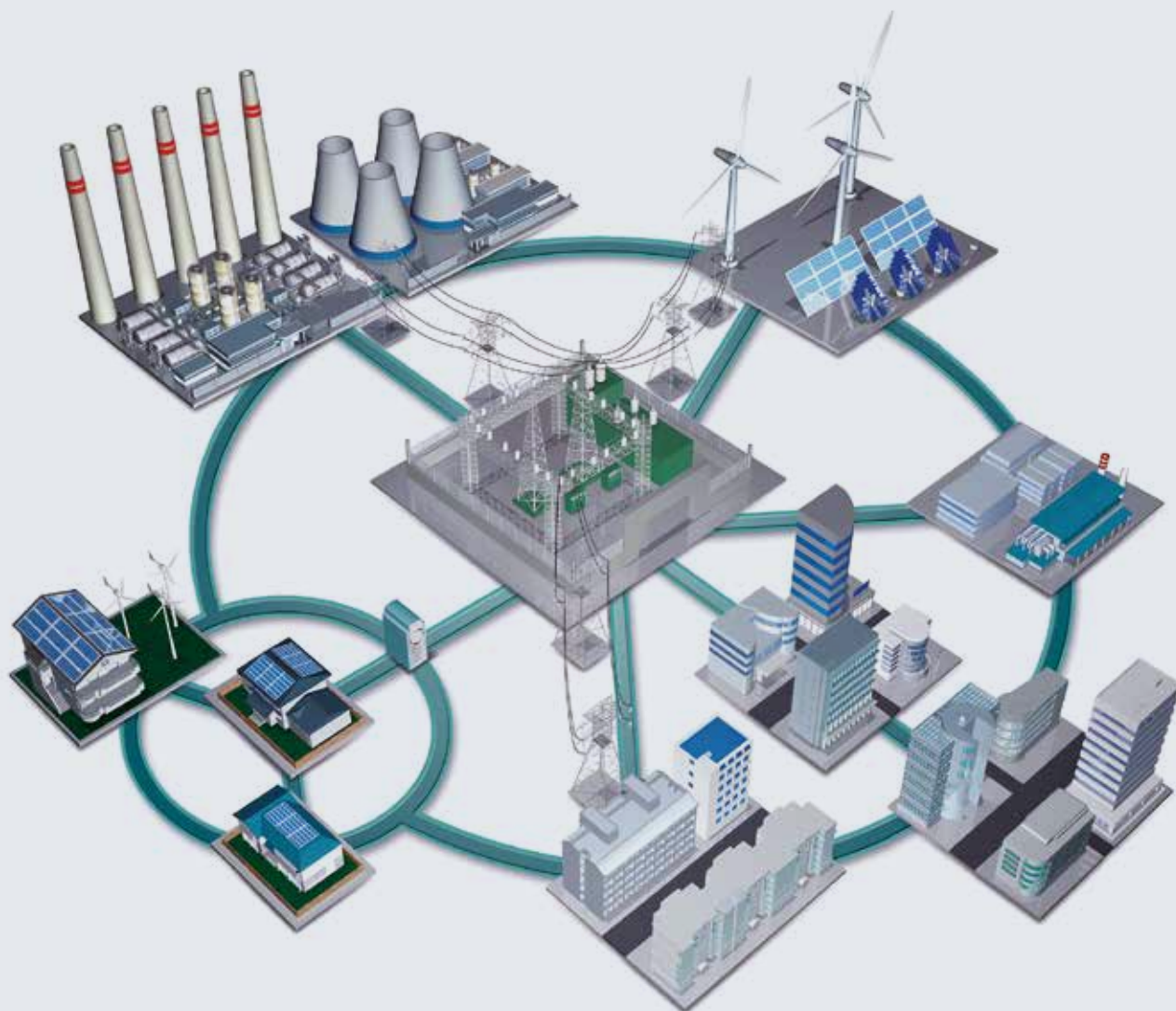


Electricity stays, Nader stands by
Where there's electricity, there's Nader



Selection Guide for Low-voltage Products

2021 V1

Expert at Intelligent High-end Low-voltage Electrical System Solutions

Company Profile

As one of the leading companies in the high-end low-voltage electrical apparatus industry in China and a listed company on the Shenzhen Stock Exchange (002706.SZ), Shanghai Liangxin Electrical Co., Ltd. (Nader) is committed to improving safety, convenience and efficiency in electricity utilization and achieving safe, reliable and environment-friendly digital electrification for our customers.

Driven by our brand positioning as an expert at smart high-end low-voltage electrical system solutions and by customer demands, we continuously invest in product research and development and devote at least 8% of our annual sales revenue thereto. Our R&D center is certified as a "National Enterprise Technology Center" and has established a "Postdoctoral Research Workstation"; our testing center has been accredited by the CNAS and the US UL; and moreover, Nader is honorably awarded the titles of "High- and New-Technology Enterprise of Shanghai", "Shanghai Patent Demonstration Enterprise" and "National Technological Innovation Demonstration Enterprise".

Nader focuses on the R&D, production, sales and service of products covering terminal apparatus, power distribution apparatus, control apparatus, smart home appliances, etc., with its leading products and solutions widely used from power generation through transmission and distribution to utilization in information and communication, new energy, smart building, electricity, industrial building, industrial control and other industries, and has formed a long-lasting and stable partnership with many enterprises including Huawei, Vertiv, ZTE, China Mobile, China Unicom, Sungrow, Goldwind, Vanke, Country Garden, State Grid and Mitsubishi Elevator. Till now, we have set up 54 offices in the Mainland, and 4 overseas offices distributed in Asia, Europe and North America, providing professional and efficient service for our customers all over the world.

Electricity stays, Nader stands by
Where there's electricity, there's Nader



Service Network

54 offices in the Mainland

4 overseas offices

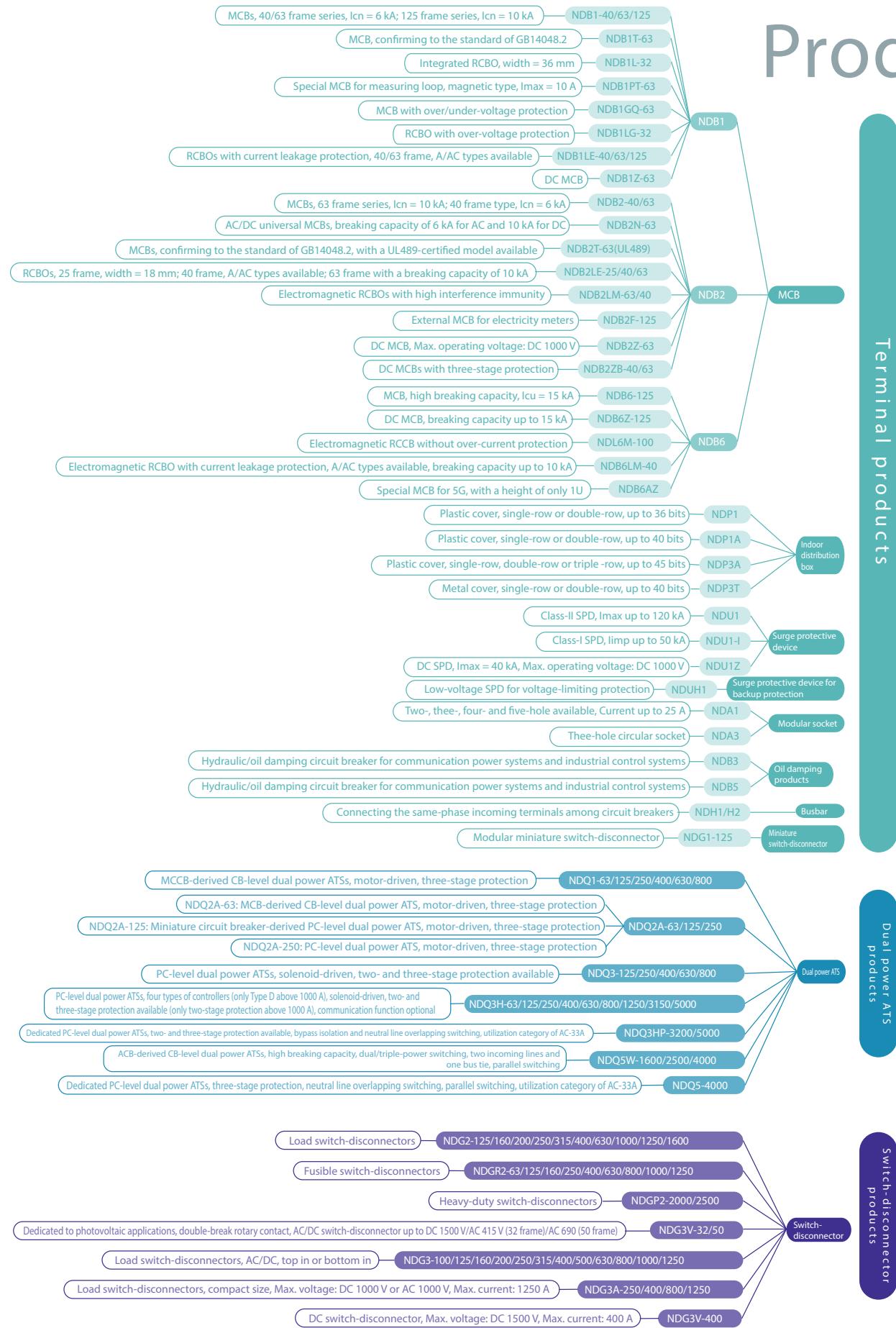
Service principle

Customer First

Customer service hotline

400-99-02706

Product Family Tree



Nader
良信电器

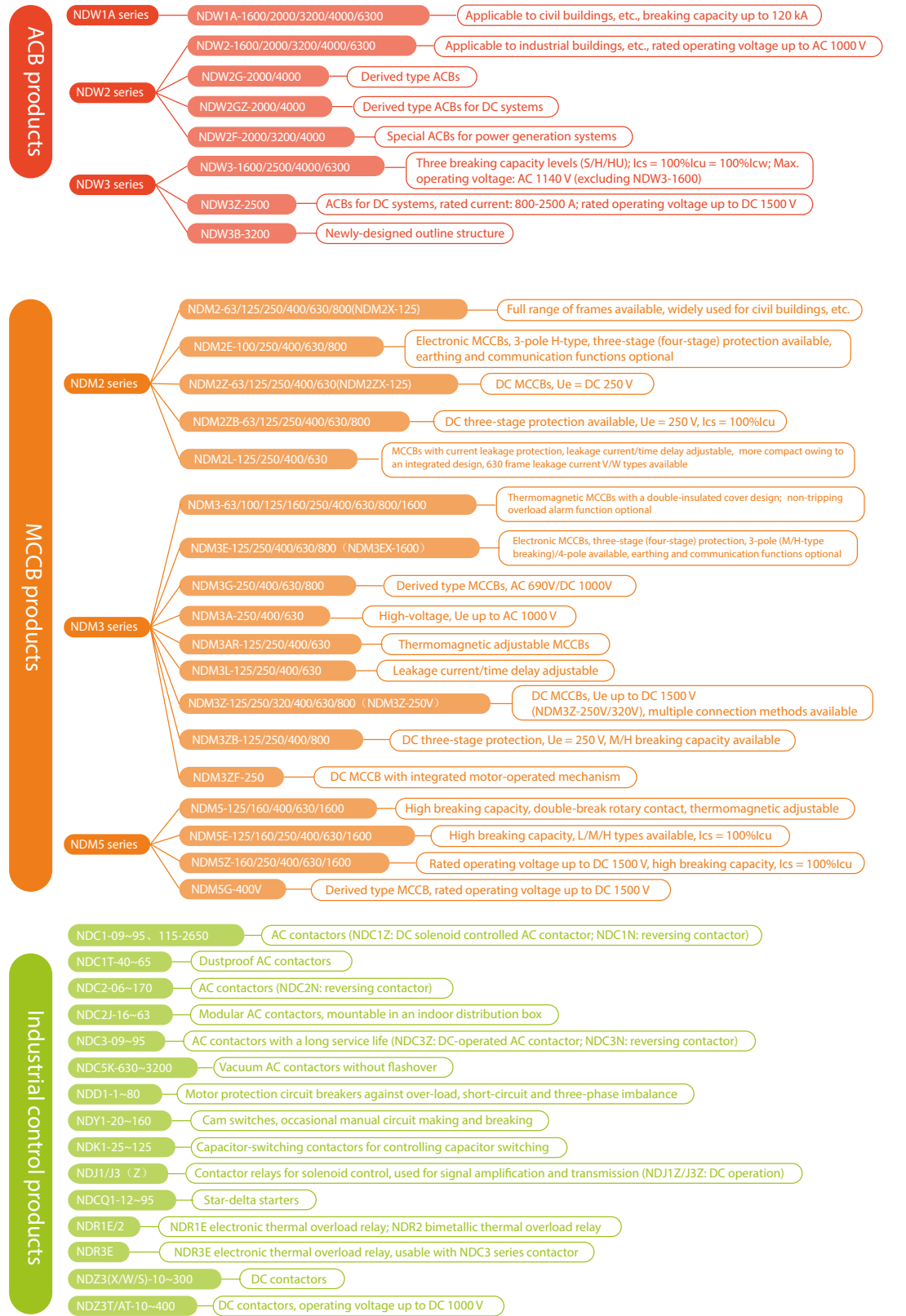


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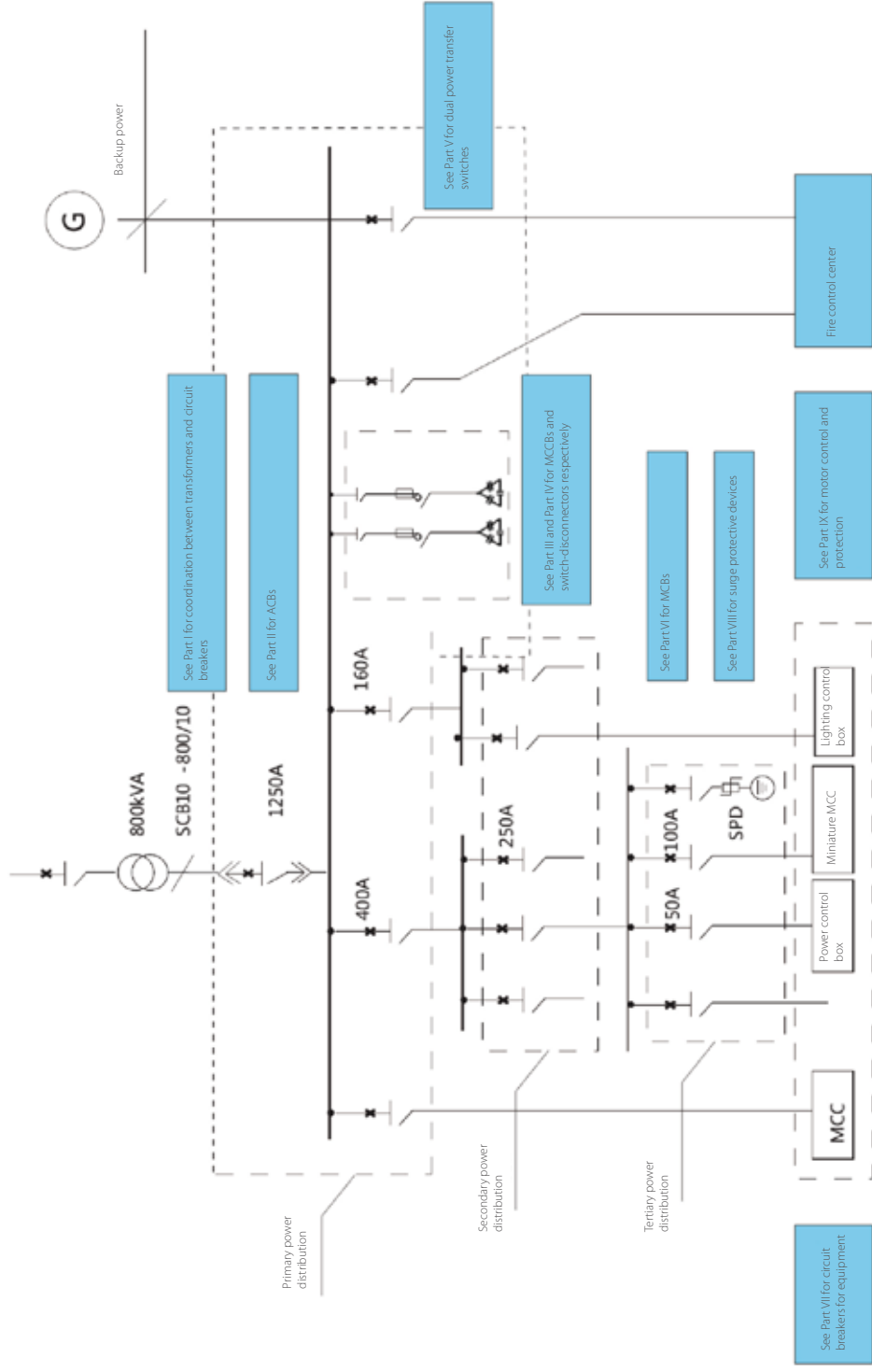
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■ Part X Overview of Certification Information about Low-voltage Products

Example of low-voltage power distribution system



Part I
**Coordination between Transformers
and Circuit Breakers**
Coordination with Motor Feeders

Reference table for coordination between transformers in parallel operation and low-voltage circuit breakers

Transformer capacity Number of parallel transformers Nk/kVA	Rated current of each transformer In (A)	Impedance voltage of each transformer Ucc (%)	Short-circuit current flowing through each transformer (kA)	Min. breaking capacity of main outgoing circuit breaker (kA)	Model of main outgoing circuit breaker	Short-circuit current at branch outgoing terminal (kA)	Model of branch outgoing circuit breaker				
							≤100A	160A	250A	400A	630A
1 x 50 2 x 50 3 x 50	70	4	2	2	NDM2-125L/NDM3-100C	2	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C			
	70	4	2	2	NDM2-125L/NDM3-100C	4	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C			
	70	4	2	4	NDM2-125L/NDM3-100C	6	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C		
1 x 100 2 x 100 3 x 100	141	4	4	4	NDM2-250L/NDM3-250C	4	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C			
	141	4	4	4	NDM2-250L/NDM3-250C	8	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C		
	141	4	4	8	NDM2-250L/NDM3-250C	12	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C	
1 x 160 2 x 160 3 x 160	255	4	6	6	NDM2-250L/NDM3-250C	6	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C			
	255	4	6	6	NDM2-250L/NDM3-250C	12	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C	
	255	4	6	12	NDM2-250L/NDM3-250C	18	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C NDM2-630L/NDM3-630C	
1 x 250 2 x 250 3 x 250	352	4	9	9	NDM2-400L/NDM3-400L	9	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C		
	352	4	9	9	NDM2-400L/NDM3-400L	18	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C NDM2-630L/NDM3-630C	
	352	4	9	18	NDM2-400L/NDM3-400L	27	NDM2-125L/NDM3-100C	NDM2-250M/NDM3-160C	NDM2-250M/NDM3-250L	NDM2-400L/NDM3-400L NDM2-630L/NDM3-630C	
1 x 400 2 x 400 3 x 400	563	4	14	14	NDW1A-1600(C) 630A/NDW2-1600(C) 630A/NDM2-630L/NDM3-630L	14	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C NDM2-630L/NDM3-630C	
	563	4	14	14	NDW1A-1600(C) 630A/NDW2-1600(C) 630A/NDM2-630L/NDM3-630L	28	NDM2-125M/NDM3-100C	NDM2-250M/NDM3-160L	NDM2-250M/NDM3-250L	NDM2-400L/NDM3-400L NDM2-630L/NDM3-630L	
	563	4	14	28	NDW1A-1600(C) 630A/NDW2-1600(C) 630A/NDM2-630L/NDM3-630L	42	NDM2-125H/NDM3-125M	NDM2-250H/NDM3-160M	NDM2-250M/NDM3-250M	NDM2-400M/NDM3-400L NDM2-630L/NDM3-630L	
1 x 630 2 x 630 3 x 630	887	4	22	22	NDW1A-2000(C) 1000A/NDW2-2000(C) 1000A/NDW3-2500S 1000A(C)/NDM3EX-1600 1000A	22	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C NDM2-630L/NDM3-630C	
	887	4	22	22	NDW1A-2000(C) 1000A/NDW2-2000(C) 1000A/NDW3-2500S 1000A(C)/NDM3EX-1600 1000A	44	NDM2-125H/NDM3-125M	NDM2-250M/NDM3-160M	NDM2-250H/NDM3-250M	NDM2-400M/NDM3-400M NDM2-630M/NDM3-630M	
	887	4	22	44	NDW1A-2000(C) 1000A/NDW2-2000(C) 1000A/NDW3-2500S 1000A(C)/NDM3EX-1600 1000A	66	NDM3-125H/NDM5-160L	NDM2-250H/NDM3-250H	NDM3-250H	NDM2-400H/NDM3-400H NDM2-630H/NDM3-630H	
1 x 800 2 x 800 3 x 800	1127	6	19	19	NDW1A-2000(C) 1250A/NDW2-2000(C) 1250A/NDW3-2500S 1250A(C)/NDM3EX-1600 1250A	19	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C NDM2-630L/NDM3-630C	
	1127	6	19	19	NDW1A-2000(C) 1250A/NDW2-2000(C) 1250A/NDW3-2500S 1250A(C)/NDM3EX-1600 1250A	38	NDM2-125M/NDM3-125M	NDM2-250M/NDM3-160M	NDM2-250M/NDM3-250M	NDM2-400L/NDM3-400L NDM2-630L/NDM3-630L	
	1127	6	19	38	NDW1A-2000(C) 1250A/NDW2-2000(C) 1250A/NDW3-2500S 1250A(C)/NDM3EX-1600 1250A	57	NDM2-125H/NDM3-125H	NDM2-250H/NDM3-250H	NDM2-250H/NDM3-250H	NDM2-400H/NDM3-400H NDM2-630H/NDM3-630H	

Reference table for coordination between transformers in parallel operation and low-voltage circuit breakers

Transformer capacity Number of parallel transformers NkVA	Rated current of each transformer In (A)	Impedance voltage of each transformer Ucc (%)	Short-circuit current flowing through each transformer (kA)	Min. breaking capacity of main outgoing circuit breaker (kA)	Model of main outgoing circuit breaker	Short- circuit current at branch outgoing terminal (kA)	Model of branch outgoing circuit breaker				
							≤100A	160A	250A	400A	630A
1 x 1000 2 x 1000 3 x 1000	1408	6	23	23	NDW1 A-2000(C) 1600A/NDW2-2000(C) 1600A/NDW3-2500S 1600A(C)	23	NDM2-125L/NDM3-100C	NDM2-250L/NDM3-160C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400C	NDM2-630L/NDM3-630C
	1408	6	23	23	NDW1 A-2000(C) 1600A/NDW2-2000(C) 1600A/NDW3-2500S 1600A(C)	46	NDM2-125H/NDM3-125M	NDM2-250M/NDM3-160M	NDM2-250H/NDM3-250M	NDM2-400M/NDM3-400L	NDM2-630M/NDM3-630L
	1408	6	23	46	NDW1 A-2000(C) 1600A/NDW2-2000(C) 1600A/NDW3-2500S 1600A(C)	69	NDM3-125H/NDM5-160L	NDM2-250H/NDM3-250H	NDM3-250H	NDM2-400H/NDM3-400M	NDM2-630H/NDM3-630H
1 x 1250 2 x 1250 3 x 1250	1760	6	29	29	NDW1 A-2000(C) 2000A/NDW2-2000(C) 2000A/NDW3-2500S 2000A(C)	29	NDM2-125M/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250M/NDM3-250L	NDM2-400M/NDM3-400L	NDM2-630M/NDM3-630L
	1760	6	29	29	NDW1 A-2000(C) 2000A/NDW2-2000(C) 2000A/NDW3-2500S 2000A(C)	58	NDM2-125H/NDM3-125H	NDM2-250H/NDM3-250H	NDM2-250H/NDM3-250H	NDM2-400H/NDM3-400M	NDM2-630H/NDM3-630H
	1760	6	29	58	NDW1 A-2000(C) 2000A/NDW2-2000(C) 2000A/NDW3-2500H 2000A(C)	87	NDM5-160M	NDM5-160M	NDM5-250M	NDM5-400M	NDM5-630M
1 x 1600 2 x 1600 3 x 1600	2253	6	38	38	NDW1 A-3200(C) 2500A/NDW2-3200(C) 2500A/NDW3-2500S 2500A(C)	38	NDM2-125M/NDM3-125M	NDM2-250M/NDM3-160L	NDM2-250M/NDM3-250M	NDM2-400M/NDM3-400L	NDM2-630M/NDM3-630L
	2253	6	38	38	NDW1 A-3200(C) 2500A/NDW2-3200(C) 2500A/NDW3-2500S 2500A(C)	76	NDM5-160M	NDM5-160M	NDM5-250M	NDM5-400M	NDM5-630M
	2253	6	38	76	NDW1 A-3200(C) 2500A/NDW2-3200(C) 2500A/NDW3-2500H 2500A(C)	114	NDM5-160H	NDM5-160H	NDM5-250H	NDM5-400H	NDM5-630H
1 x 2000 2 x 2000 3 x 2000	2816	6	47	47	NDW1 A-3200(C) 3200A/NDW2-3200(C) 3200A/NDW3-4000S 3200A(C)	47	NDM2-125H/NDM3-125M	NDM2-250M/NDM3-160M	NDM2-250H/NDM3-250M	NDM2-400M/NDM3-400L	NDM2-630M/NDM3-630L
	2816	6	47	47	NDW1 A-3200(C) 3200A/NDW2-3200(C) 3200A/NDW3-4000S 3200A(C)	94	NDM5-160M	NDM5-160M	NDM5-250M	NDM5-400M	NDM5-630M
	2816	6	47	94	NDW1 A-6300(C) 4000A/NDW2-6300(C) 4000A/NDW3-6300H 4000A(C)	141	NDM5-160H	NDM5-160H	NDM5-250H	NDM5-400H	NDM5-630H
1 x 2500 2 x 2500	3521	6	59	59	NDW1 A-6300(C) 4000A/NDW2-6300(C) 4000A/NDW3-4000S 4000A(C)	59	NDM2-125H/NDM3-125H	NDM2-250H/NDM3-250H	NDM2-250H/NDM3-250H	NDM2-400H/NDM3-400H	NDM2-630H/NDM3-630H
	3521	6	59	59	NDW1 A-6300(C) 4000A/NDW2-6300(C) 4000A/NDW3-4000S 4000A(C)	118	NDM5-160H	NDM5-160H	NDM5-250H	NDM5-400H	NDM5-630H
1 x 3150 2 x 3150	4436	6	74	74	NDW1 A-6300(C) 5000A/NDW2-6300(C) 5000A/NDW3-6300S 5000A(C)	74	NDM5-160M	NDM5-160M	NDM5-250M	NDM5-400M	NDM5-630M
	4436	6	74	74	NDW1 A-6300(C) 5000A/NDW2-6300(C) 5000A/NDW3-6300S 5000A(C)	148	NDM5-160H	NDM5-160H	NDM5-250H	NDM5-400H	NDM5-630H

Coordination between NDB1/NDB2 miniature circuit breakers and contactors and thermal relays

Motor (380V)		Protective circuit breaker		Contactor		Thermal overload relay	
Control power kW	Rated current A	Model	Breaking capacity kA	Model	Electronic	Bimetallic	Current setting range A
0.06	0.22	NDB1-63/NDB2-63 D 3P 1A	6.0/10	NDC1-09	NDR1E-3812	NDR2-38 02	0.16~0.25
0.09	0.35	NDB1-63/NDB2-63 D 3P 1A	6.0/10	NDC1-09	NDR1E-3813	NDR2-38 03	0.25~0.40
0.12	0.42	NDB1-63/NDB2-63 D 3P 1A	6.0/10	NDC1-09	NDR1E-3814	NDR2-38 04	0.40~0.63
0.18	0.7	NDB1-63/NDB2-63 D 3P 1A	6.0/10	NDC1-09	NDR1E-3815	NDR2-38 05	0.63~0.1
0.37	1.2	NDB1-63/NDB2-63 D 3P 2A	6.0/10	NDC1-09	NDR1E-3816	NDR2-38 06	1~1.6
0.55	1.6	NDB1-63/NDB2-63 D 3P 4A	6.0/10	NDC1-09	NDR1E-3816	NDR2-38 06	1~1.6
0.75	2	NDB1-63/NDB2-63 D 3P 4A	6.0/10	NDC1-09	NDR1E-3817	NDR2-38 07	1.6~2.5
1.1	2.8	NDB1-63/NDB2-63 D 3P 4A	6.0/10	NDC1-09	NDR1E-3818	NDR2-38 08	2.5~4
1.5	3.7	NDB1-63/NDB2-63 D 3P 6A	6.0/10	NDC1-09	NDR1E-3818	NDR2-38 08	2.5~4
2.2	5.3	NDB1-63/NDB2-63 D 3P 10A	6.0/10	NDC1-18	NDR1E-3821	NDR2-38 10	4~6
3	7	NDB1-63/NDB2-63 D 3P 12A	6.0/10	NDC1-18	NDR1E-3822	NDR2-38 12	5.5~8
4	9	NDB1-63/NDB2-63 D 3P 16A	6.0/10	NDC1-25	NDR1E-3823	NDR2-38 14	7~10
5.5	12	NDB1-63/NDB2-63 D 3P 20A	6.0/10	NDC1-25	NDR1E-3824	NDR2-38 16	9~13
7.5	16	NDB1-63/NDB2-63 D 3P 25A	6.0/10	NDC1-32	NDR1E-3825	NDR2-38 21	12~18
9	18.1	NDB1-63/NDB2-63 D 3P 25A	6.0/10	NDC1-32	NDR1E-3826	NDR2-38 22	17~25
11	23	NDB1-63/NDB2-63 D 3P 32A	6.0/10	NDC1-38	NDR1E-3826	NDR2-38 22	17~25
15	30	NDB1-63/NDB2-63 D 3P 40A	6.0/10	NDC1-50	NDR1E-9531 or NDR1E-3831	NDR2-38 53	23~32

Motor starting solution
Selection table for direct starting under normal load - 400/415V, 50/60Hz with motor starter protection

Motor (AC-3, 400V) Rated power kW	Rated current A	List of solution components Model of motor starter	Current setting range A	Qty.	Model of contactor	Qty.
0.06	0.22	NDD1-32A02	0.16~0.25	1	NDC1-09	1
0.09	0.34	NDD1-32A03	0.25~0.40	1	NDC1-09	1
0.12	0.44	NDD1-32A04	0.40~0.63	1	NDC1-09	1
0.18	0.72	NDD1-32A05	0.63~1	1	NDC1-09	1
0.25	0.83	NDD1-32A05	0.63~1	1	NDC1-09	1
0.37	1.1	NDD1-32A06	1~1.6	1	NDC1-09	1
0.55	1.5	NDD1-32A06	1~1.6	1	NDC1-09	1
0.75	1.9	NDD1-32A07	1.6~2.5	1	NDC1-09	1
1.1	2.7	NDD1-32A08	2.5~4	1	NDC1-12	1
1.5	3.6	NDD1-32A08	2.5~4	1	NDC1-18	1
2.2	4.9	NDD1-32A10	4~6.3	1	NDC1-25	1
3	6.5	NDD1-32A14	6~10	1	NDC1-32	1
4	9	NDD1-32A14	6~10	1	NDC1-32	1
5.5	12	NDD1-32A16	9~14	1	NDC1-38	1
7.5	18	NDD1-32A21	17~23	1	NDC1-38	1
9	18.3	NDD1-32A21	17~23	1	NDC1-40	1
11	25	NDD1-32A32	24~32	1	NDC1-40	1
15	32	NDD1-80A40	25~40	1	NDC1-40	1
18.5	38	NDD1-80A40	25~40	1	NDC1-50	1
22	50	NDD1-80A63	40~63	1	NDC1-65	1
30	65	NDD1-80A80	56~80	1	NDC1-80	1
37	80	NDD1-80A80	56~80	1	NDC1-95	1

Motor starting solution

Selection table for direct starting under heavy load - 400/415V, 50/60Hz with circuit breaker and electronic thermal overload relay protection

Motor (AC-3, 400V) Rated power kW	Rated current A	List of solution components Model of protective circuit breaker	Qty.	Model of contactor	Qty.	Model of electronic overload relay
0.12	0.3	NDM3-63M/3200 10A	1	NDC1-0910	1	NDR2-38 03
0.18	0.5	NDM3-63M/3200 10A	1	NDC1-0910	1	NDR2-38 04
0.25	0.7	NDM3-63M/3200 10A	1	NDC1-0910	1	NDR2-38 05
0.37	1.1	NDM3-63M/3200 10A	1	NDC1-0910	1	NDR2-38 06
0.55	1.5	NDM3-63M/3200 10A	1	NDC1-0910	1	NDR2-38 06
0.75	2	NDM3-63M/3200 10A	1	NDC1-0910	1	NDR2-38 07
1.1	2.7	NDM3-63M/3200 16A	1	NDC1-3210	1	NDR2-38 08
1.5	3.7	NDM3-63M/3200 16A	1	NDC1-3210	1	NDR2-38 08
2.2	5	NDM3-63M/3200 16A	1	NDC1-3210	1	NDR2-38 10
3	6.8	NDM3-63M/3200 16A	1	NDC1-4011	1	NDR2-38 12
4	8.8	NDM3-63M/3200 16A	1	NDC1-4011	1	NDR2-38 14
5.5	11.6	NDM3-63M/3200 20A	1	NDC1-4011	1	NDR2-38 16
7.5	15.4	NDM3-63M/3200 25A	1	NDC1-4011	1	NDR2-38 21
11	22.6	NDM3-63M/3200 32A	1	NDC1-4011	1	NDR2-38 22
15	30.3	NDM3-63M/3200 50A	1	NDC1-8011	1	NDR2-38 22
18.5	35.9	NDM3-63M/3200 50A	1	NDC1-8011	1	NDR2-38 35
22	42.5	NDM3-63M/3200 63A	1	NDC1-8011	1	NDR2-95 55
30	56.9	NDM3-125M/3200 80A	1	NDC1-8011	1	NDR2-95 57
37	69.8	NDM3-125M/3200 100A	1	NDC1-8011	1	NDR2-95 59
45	84.2	NDM3-125M/3200 125A	1	NDC1-115+NF1-22	1	
55	102.7	NDM3-250M/3200 160A	1	NDC1-150+NF1-22	1	
75	140.1	NDM3-250M/3200 180A	1	NDC1-185+NF1-22	1	
90	167	NDM3-250M/3200 225A	1	NDC1-185+NF1-22	1	
110	203	NDM3-400M/3200 250A	1	NDC1-225+NF1-22	1	
132	242.3	NDM3-400M/3200 350A	1	NDC1-265+NF1-22	1	
160	292.1	NDM3-400M/3200 350A	1	NDC1-330+NF1-22	1	
185	337.8	NDM3-630M/3200 500A	1	NDC1-500+NF1-22	1	
200	365.2	NDM3-630M/3200 500A	1	NDC1-500+NF1-22	1	

Notes: 1. Matching between transformer capacity and key technical indexes of molded case circuit breakers (standard cabinet):

500, 630≤St≤1000kVA, Ics≥36kA; 800≤St≤1600kVA, Ics≥50kA; St≥2000kVA, Ics≥70kA

2. For NDM2 series molded case circuit breakers, please refer to the protection types and currents of NDM3 series molded case circuit breakers;

3. For NDR1E series thermal overload relays, please refer to motor parameters and current ranges of NDR2 series thermal overload relays;

Motor starting solution
Selection table for direct starting under normal load - 380/415V, 50/60Hz with circuit breaker and thermal overload relay protection

Motor (AC-3, 400V) Rated power kW	Rated current A	List of solution components Model of protective circuit breaker	Qty.	Model of contactor breaker	Qty.	Model of thermal overload relay	Qty.
0.37	1.1	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 06	1
0.55	1.5	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 06	1
0.75	1.8	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 07	1
1.1	2.6	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 08	1
1.5	3.4	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 08	1
2.2	4.8	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 10	1
3	6.5	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 12	1
4	8.2	NDM2-63(L/M)32002	1	NDC1-09	1	NDR2-38 14	1
5.5	11	NDM2-63(L/M)32002	1	NDC1-12	1	NDR2-38 16	1
7.5	14	NDM2-63(L/M)32002	1	NDC1-18	1	NDR2-38 21	1
10	19	NDM2-63(L/M)32002	1	NDC1-25	1	NDR2-38 22	1
11	21	NDM2-63(L/M)32002	1	NDC1-25	1	NDR2-38 22	1
15	28	NDM2-63(L/M)32002	1	NDC1-32	1	NDR2-38 35	1
18.5	34	NDM2-63(L/M)32002	1	NDC1-40	1	NDR2-95 55	1
22	40	NDM2-63(L/M)32002	1	NDC1-40	1	NDR2-95 57	1
30	55	NDM2-63(L/M)32002	1	NDC1-65	1	NDR2-95 59	1
37	66	NDM2-125(C/L/M/H)32002	1	NDC1-80	1	NDR2-95 63	1
45	80	NDM2-125(C/L/M/H)32002	1	NDC1-80	1	NDR2-95 65	1
55	100	NDM2-125(C/L/M/H)32002	1	NDC2-115	1	NDR2-140 65	1
75	135	NDM2-250(C/L/M/H)32002	1	NDC2-150	1	NDR2-140 69	1
90	160	NDM2-250(C/L/M/H)32002	1	NDC1-175	1		
110	200	NDM2-250(C/L/M/H)32002	1	NDC1-225	1		
132	230	NDM2-400(C/L/M/H)32002	1	NDC1-265	1		
160	270	NDM2-400(C/L/M/H)32002	1	NDC1-330	1		
300	500	NDM2-800(M/H)32002	1	NDC1-630	1		
315	560	NDM2-800(M/H)32002	1	NDC1-630	1		

Motor starting solution

Selection table for direct starting - 380/415V, 50/60Hz with motor starter protection

Fire pump application: with molded case circuit breaker and thermal overload relay protection

Motor (AC-3, 400V) Rated power kW	Rated current A	List of solution components Model of protective circuit breaker	Qty.	Model of contactor	Qty.	Model of thermal overload relay	Qty.
5.5	11.8	NDM3-125W/32002 63A	1	NDC1-2510	1	NDR2-3816	1
7.5	15.9	NDM3-125W/32002 63A	1	NDC1-3210	1	NDR2-3821	1
11	22.7	NDM3-125W/32002 63A	1	NDC1-4011	1	NDR2-3822	1
15	29.9	NDM3-125W/32002 63A	1	NDC1-5011	1	NDR2-3832	1
18.5	37.1	NDM3-125W/32002 63A	1	NDC1-5011	1	NDR2-3835	1
22	44.5	NDM3-125M 32002 100A	1	NDC1-6511	1	NDR2-9557	1
30	58.8	NDM3-125M 32002 100A	1	NDC1-8011	1	NDR2-9559	1
37	71.3	NDM3-125M 32002 100A	1	NDC1-115+NF1+22	1	NDR2-9561	1
45	87.4	NDM3-250M 32002 160A	1	NDC1-115+NF1+22	1	NDR2-9565	1
55	105	NDM3-250M 32002 160A	1	NDC1-185+NF1+22	1	NDR2-9567	1
75	142	NDM3-250M 32002 250A	1	NDC1-185+NF1+22	1	NDR2-9569	1
90	167	NDM3-250M 32002 250A	1	NDC1-265+NF1+22	1		
110	203	NDM3-400L 32002 315A	1	NDC1-265+NF1+22	1		
132	232	NDM2-250(C/L/M/H)32002	1	NDC1-265	1		
160	282	NDM2-400(C/L/M/H)32002	1	NDC1-330	1		
200	349	NDM2-630(C/L/M/H)32002	1	NDC1-400	1		
250	430	NDM2-630(C/L/M/H)32002	1	NDC1-500	1		
290	520	NDM2-800(M/H)32002	1	NDC1-630	1		
315	545	NDM2-800(M/H)32002	1	NDC1-630	1		1
355	610	NDM2-800(M/H)32002	1	NDC1-630	1		

Notes: 1. Matching between transformer capacity and key technical indexes of molded case circuit breakers (standard cabinet):

500, 630≤S_T≤1000kVA, I_{cs}≥36kA; 800≤S_T≤1600kVA, I_{cs}≥50kA; S_T≥2000kVA, I_{cs}≥70kA;

2. For NDM2 series molded case circuit breakers, please refer to the protection types and currents of NDM3 series molded case circuit breakers

15; 3. For NDRIE series thermal overload relays, please refer to motor parameters and current ranges of NDR2 series thermal overload relays;

Motor starting solution

Selection table for direct starting - 380/415V, 50/60Hz with motor starter protection

Fire pump application: with molded case circuit breaker and electronic thermal overload relay protection

Motor (AC-3, 400V) Rated power kW	Rated current A	Model of protective circuit breaker List of solution components	Qty.	Model of contactor	Qty.	Model of thermal overload relay	Qty.
5.5	11.8	NDM3-125M/32002 63A	1	NDC1-2510	1	NDR1E-3824	1
7.5	15.9	NDM3-125M/32002 63A	1	NDC1-3210	1	NDR1E-3826	1
11	22.7	NDM3-125M/32002 63A	1	NDC1-4011	1	NDR1E-3827	1
15	29.9	NDM3-125M/32002 63A	1	NDC1-5011	1	NDR1E-3828	1
18.5	37.1	NDM3-125M/32002 63A	1	NDC1-5011	1	NDR1E-9532	1
22	44.5	NDM3-125M 32002 100A	1	NDC1-6511	1	NDR1E-9534	1
30	58.8	NDM3-125M 32002 100A	1	NDC1-8011	1	NDR1E-9535	1
37	71.3	NDM3-125M 32002 100A	1	NDC1-115+NF1+22	1	NDR1E-9536	1
45	87.4	NDM3-250M 32002 160A	1	NDC1-115+NF1+22	1		
55	105	NDM3-250M 32002 160A	1	NDC1-185+NF1+22	1		
75	142	NDM3-250M 32002 250A	1	NDC1-185+NF1+22	1		
90	167	NDM3-250M 32002 250A	1	NDC1-265+NF1+22	1		
110	203	NDM3-400L 32002 315A	1	NDC1-265+NF1+22	1		
160	282	NDM2-400(C/L/M/H)32002	1	NDC1-400	1		
200	349	NDM2-630(C/L/M/H)32002	1	NDC1-400	1		
250	430	NDM2-630(C/L/M/H)32002	1	NDC1-500	1		
290	520	NDM2-800H/32002	1	NDC1-630	1		
315	545	NDM2-800H/32002	1	NDC1-630	1		
355	610	NDM2-800H/32002	1	NDC1-780	1		

Notes: 1. Matching between transformer capacity and key technical indexes of molded case circuit breakers (standard cabinet):

500, 630≤S≤1000kVA, Ics≥36kA; 800≤S≤1600kVA, Ics≥50kA; S≥2000kVA, Ics≥70kA;

2. For NDM2 series molded case circuit breakers, please refer to the protection types and currents of NDM3 series molded case circuit breakers

15;

3. For NDR1E series thermal overload relays, please refer to motor parameters and current ranges of NDR2 series thermal overload relays;

Motor starting solution
Selection table for reversing starting - 400/415V, 50/60Hz
Reversing starting solution: with motor starter protection

Motor (AC-3, 400V) Rated power kW	Rated current A	Model of motor starter List of solution components	Current setting range	Qty.	Model of contactor	Qty.
0.06	0.22	ND01-32A02	0.16~0.25	1	NDC1N-09	1
0.09	0.34	ND01-32A03	0.25~0.4	1	NDC1N-09	1
0.12	0.44	ND01-32A04	0.4~0.63	1	NDC1N-09	1
0.18	0.72	ND01-32A05	0.63~1	1	NDC1N-09	1
0.25	0.83	ND01-32A05	0.63~1	1	NDC1N-09	1
0.37	1.1	ND01-32A06	1~1.6	1	NDC1N-09	1
0.55	1.5	ND01-32A06	1~1.6	1	NDC1N-09	1
0.75	1.9	ND01-32A07	1.6~2.5	1	NDC1N-09	1
1.1	2.7	ND01-32A08	2.5~4	1	NDC1N-12	1
1.5	3.6	ND01-32A08	2.5~4	1	NDC1N-18	1
2.2	4.9	ND01-32A10	4~6.3	1	NDC1N-25	1
3	6.5	ND01-32A14	6~10	1	NDC1N-32	1
4	9	ND01-32A14	6~10	1	NDC1N-32	1
5.5	12	ND01-32A16	9~14	1	NDC1N-38	1
7.5	18	ND01-32A21	17~23	1	NDC1N-38	1
9	18.3	ND01-32A21	17~23	1	NDC1N-40	1
11	25	ND01-32A32	24~40	1	NDC1N-40	1
15	32	ND01-80A40	25~40	1	NDC1N-40	1
18.5	38	ND01-80A40	25~40	1	NDC1N-50	1
22	50	ND01-80A63	40~63	1	NDC1N-65	1
30	65	ND01-80A80	46~80	1	NDC1N-80	1
37	80	ND01-80A80	56~80	1	NDC1N-95	1

Selection table for star-delta starters

Contactor (NDC1-09~95)									
Max. starting rate: 30 cycles/h, Max. starting time: 30 s									
Motor Type AC3, 50Hz connection	Three-phase motor			Direct	Delta contactor	Star contactor	Line Contactor	Overload relay	
P	In	IrD			KM2	KM3	KM1(3)		
kW	A	A			Model	Model	Model	Model	Setting range
1.5	3.5	2			NDC1-09	NDC1-09	NDC1-09	NDR1E-3817/NDR2-38 07	A
2.2	5	3			NDC1-09	NDC1-09	NDC1-09	NDR1E-3818/NDR2-38 08	1.6~2.5
3	6.6	4			NDC1-09	NDC1-09	NDC1-09	NDR1E-3821/NDR2-38 10	2.5~4
4	8.5	5			NDC1-09	NDC1-09	NDC1-09	NDR1E-3822/NDR2-38 12	4~6
5.5	11.5	6			NDC1-09	NDC1-09	NDC1-09	NDR1E-3822/NDR2-38 12	5.5~8
7.5	15.5	9			NDC1-12	NDC1-12	NDC1-09	NDR1E-3823/NDR2-38 14	5.5~8
9	18.5	11			NDC1-18	NDC1-18	NDC1-09	NDR1E-3824/NDR2-38 16	7~10
11	22	13			NDC1-18	NDC1-18	NDC1-09	NDR1E-3824/NDR2-38 16	9~13
15	30	16			NDC1+25	NDC1+25	NDC1-12	NDR1E-3825/NDR2-38 21	9~13
18.5	37	22			NDC1+25	NDC1+25	NDC1-18	NDR1E-3826/NDR2-38 22	12~18
22	44	26			NDC1+32	NDC1+32	NDC1-18	NDR1E-3827/NDR2-38 32	17~25
30	60	35			NDC1+38	NDC1+38	NDC1-25	NDR1E-3828/NDR2-38 35	23~32
37	72	40			NDC1+50	NDC1+50	NDC1-25	NDR1E-3828/NDR2-38 35	30~40
45	85	47			NDC1+65	NDC1+65	NDC1-40	NDR1E-9533/NDR2-95 57	37~50
55	105	58			NDC1+65	NDC1+65	NDC1-40	NDR1E-3833/NDR2-95 57	37~50
75	138	78			NDC1+95	NDC1+95	NDC1-50	NDR1E-3835/NDR2-95 61	55~70
90	170	99			NDC2-115	NDC2-115	NDC2-115	NDR1E-9536/NDR2-95 63	63~80
110	205	118			NDC2-150	NDC2-150	NDC2-115	NDR2-140 65	80~104
							NDC2-115	NDR2-140 67	95~120

Part II

Air Circuit Breakers

NDW1A series intelligent air circuit breakers

Structure overview

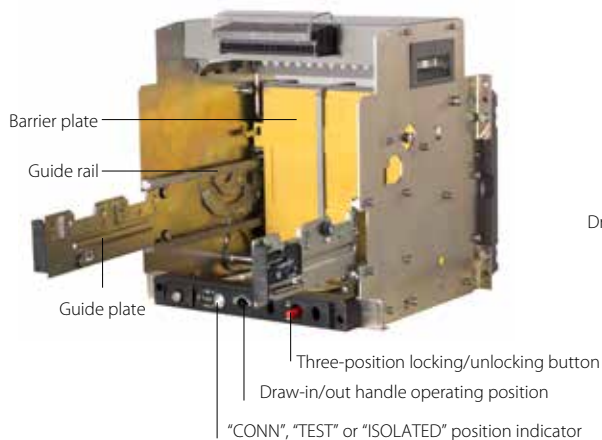


1. Reset button
2. Specification nameplate
3. OFF position key lock (optional)
4. Nader logo
5. OFF button
6. ON button
7. Counter (optional)
8. Charging/discharging indicator
9. ON/OFF indicator
10. Nameplate
11. "CONN", "TEST" or "ISOLATED" position locking/unlocking device
12. Draw-in/out handle operating position
13. "CONN", "TEST" or "ISOLATED" position indicator
14. Draw-in/out handle and its storage position

Notes: items 1~10 for the fixed type; and items 1~14 for the draw-out type.

Structure of draw-out type air circuit breaker

A draw-out type air circuit breaker consists of a circuit breaker body and a draw-out cradle. The circuit breaker body rests on movable guide plates respectively disposed on draw-out guide rails on both sides of the draw-out cradle. The draw-out type air circuit breaker is connected to the main circuit by inserting the busbar on the circuit breaker body into the bridge type contact on the draw-out cradle.



Quick selection table for NDW1A-1600~6300 series intelligent air circuit breakers



ND W 1A-1600 C 200/4 KM1 D1 F1 B1 Q10 A4 Optional accessories

See Note d

Contact combination: See Note b

Under-voltage trip unit:

Q1-AC380/400V Q2-AC220/230V

Q3-DC220V Q4-DC110V Q5-DC24V

No-voltage trip unit:

S1-AC380V/AC400V S2-AC220V/AC230V

Time delay:

Normal under-voltage: 0 - instantaneous; 1 - 1s delay;
3 - 3s delay; 5 - 5s delay

No-voltage: 1 - 1s delay; 3 - 3s delay; 5 - 5s delay
(corresponding to 2000/3200/4000 frames)

No-voltage: 1~10 s at a step of 1 s, corresponding to 1600/6300 frames

Closing electromagnet:

B1: AC380/400V B2: AC220/230V

B3: DC220V B4: DC110V B5: DC24V

Shunt trip unit:

F1: AC380/400V F2: AC220V/230V

F3: DC220V F4: DC110V F5: DC24V

Motor-operated charging mechanism:

D1: AC380/400V D2: AC220V/230V

D3: DC220V D4: DC110V D5: DC24V

Controller type: KM, KY, KE See Note a

Number of poles: 3 - 3 poles 4 - 4 poles 5 - 3P+N See Note c

Rated current: See the table of main performance parameters

Installation method:

Fixed type (blank)

C - draw-out type

Frame size: 1600, 2000, 3200, 4000, 6300

Design serial number: 1: design code; A: improved version

Product code: air circuit breaker

Brand code: Nader

Note a:

1. For the 1600 frame size, KM (digital tube) and KY (LCD screen) controllers are available
(KM voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - DC24V 5 - AC24V/DC24V)
(KY voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - DC24V 5 - AC24V/DC24V)

2. For the 2000, 3200, 4000 and 6300 frame sizes, KM (NWK21) and KY (NWK22) controllers are available
(KM voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - AC24V/DC24V)
(KY voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - AC24V/DC24V)

3. For the 2000 frame size, KE (LCD screen) controllers are optional (KE voltage: 2 - AC220/230V)

4. Optional functions of controllers:
Protection type: blank - general type, V - voltage measurement and protection type, P - harmonic measurement and protection type
Communication functions for the 1600-6300 frame sizes: H (communication protocol: Modbus, DL/T645), MP (Profibus- DP), MD (Devicenet)
Signaling unit: S1-4DO; S2-3DO, 1DI; S3-2DO, 2DI
Remote reset function: Z1 (AC380V/AC400V), Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V), Z5 (DC24V)

Note b:

Combination of auxiliary contacts for the 1600 and 4000 frame sizes: blank - four blocks for switching; A6 - six blocks for switching; A44 - four NO and four NC
For the 2000, 3200 and 6300 frame sizes: blank - four NO and four NC; A55 - five NO and five NC; A66 - six NO and six NC

Note c:

3P+N grounding mode (optional external N-pole current transformer):

T - differential (blank by default)	W - ground current
N1 - external N-phase current transformer (62*21)	available for the 1600 frame size
N2 - external N-phase current transformer (102*32.5)	available for the 1600 and 2000 frame sizes
N3 - external N-phase current transformer (122*52)	available for the 2000, 3200, 4000 and 6300 frame sizes
N4 - external N-phase current transformer (262*102)	available for the 3200, 4000 and 6300 frame sizes
NR1 - external N-phase current transformer (280mm)	available for 200A - 800A
NR2 - external N-phase current transformer (370mm)	available for 1000A - 2000A
NR3 - external N-phase current transformer (450mm)	available for 1000A - 6300A

Leakage protection type: Type E (including an external leakage current transformer)
Query about contact wear equivalent and operating cycles (optional for NWK21/NWK31): J
Omitted for controllers without optional functions
V and P are applicable only when the rated voltage of the main circuit is 500V or below, and only NWK22 and 32 available for P
For NWK21/31 controllers, only S1-4DO

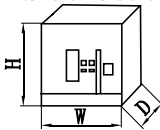
Note d:

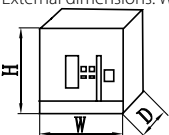
BX: ready-to-close signal output unit
JS: counter function unit
CM1: draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)
CX: draw-out cradle three-position signal output
M: door frame
G: inter-phase barrier (standard for the 4000 frame size)
F: dust cover
R: ST201 relay module
P: ST-IV power supply module (consistent with controller voltage by default) P1-DC24V, P3-AC380V/AC400V AC220V/230V, P5-DC220V DC110V
S: button lock
P2: voltage converter module
J: blank - horizontal connection; J1 - extended horizontal connection; J2 - L-shaped connection; J3 - vertical connection; J4 - extended vertical connection; J5 - mixed connection (horizontally up and vertically down); J6 - mixed connection (vertically up and horizontally down)
J7 - mixed extended connection (horizontally up and vertically down); J8 - mixed extended connection (vertically up and horizontally down)
Product utilization category: blank - general; GD - plateau, low temperature; TH: damp heat

Interlock model explanation and encoding rules

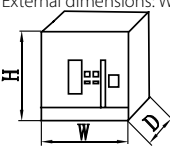
SF11-key lock device (one key to one lock); SF21-key lock device (one key to two locks); SF31-key lock device (one key to three locks); SF32-key lock device (two keys to three locks); SF53-key lock device (three keys to five locks)	1. You can select one from five key lock models available; 2. You can select one from five mechanical interlock models available;
SR11-mechanical interlock device (two sets of steel cables, one for closing and one for opening); SR12-mechanical interlock device (three sets of steel cables, one for closing and two for opening) SR21-mechanical interlock device (three sets of steel cables, two for closing and one for opening); SY11-mechanical interlock device (two sets of rigid links, one for closing and one for opening) SY12-mechanical interlock device (three sets of rigid links, one for closing and two for opening)	3. The 1600-frame products do not support for the interlock mode of closing two and opening one; 4. The 1600-frame products cannot be interlocked with other frame products; 5. This accessory is unavailable for the fixed 1600-frame products.
ATS-R/S/F automatic transfer switch (R: automatic charging and automatic recovery; S: automatic charging and manual recovery; F: mains supply - generator) with mechanical interlock as standard and various types available	Mechanical interlock as standard, with various types available, unavailable for the fixed 1600-frame products

Main performance parameters of NDW1A series intelligent air circuit breakers

Model of circuit breaker		NDW1A-1600			
Rated current In (A)		200, 400, 630	800, 1000	1250, 1600	
N-pole rated current		100%In			
Rated operating voltage Ue		AC220V/230V/240V, AC380V/400V/415V, AC440V, AC660V/690V			
Rated frequency f		50/60Hz			
Rated isolation voltage Ui		1000V			
Rated impulse withstand voltage Uimp		12kV			
Number of poles		3, 4			
Full breaking time		≤30ms			
Closing time		≤70ms			
Rated ultimate short-circuit breaking capacity Icu (r.m.s value)	AC415V	65kA			
	AC690V	42kA			
Rated service short-circuit breaking capacity Ics (r.m.s value)	AC415V	55kA			
	AC690V	35kA			
Rated short-circuit making capacity Icm (peak value)	AC415V	143kA			
	AC690V	88kA			
Rated short-time withstand current Icw (r.m.s value) 1s	AC415V	42kA			
	AC690V	35kA			
Endurance (operating cycles)	Electrical	AC415V	10000	9000	8000
		AC690V	10000	10000 (800A) 6000 (1000A)	4000
		Operating rate	20 cycles/h		
	Mechanical	Without maintenance	15000		
		With maintenance	30000		
		Operating rate	60 cycles/h		
Installation method		Fixed type or draw-out type			
Connection method of main circuit		Horizontal connection, vertical connection, extended horizontal connection, mixed connection (horizontally up and vertically down) mixed connection (vertically up and horizontally down)			
External dimensions: WxDxH		Fixed type 3P	260mm×205.5mm×319.5mm		
		Fixed type 4P	330mm×205.5mm×319.5mm		
		Draw-out type 3P	268mm×303.5mm×352mm		
		Draw-out type 4P	338.5mm×303.5mm×352mm		
		Weight		Fixed type 3P	20kg
		Fixed type 4P	24kg	26kg	
		Draw-out type 3P	40kg	42kg	
		Draw-out type 4P	50kg	52kg	

Model of circuit breaker			NDW1A-2000			NDW1A-3200	
Rated current In (A)			400, 630, 800	1000, 1250, 1600	2000	2000, 2500	2900, 3200
N-pole rated current			100%In				
Rated operating voltage Ue			AC220V/230V/240V, AC380V/400V/AC415V, AC660/690V			AC400V/415V, 690V	
Rated frequency f			50/60Hz (NWK22E controller only for 50Hz)				
Rated isolation voltage Ui			1250V			1000V	
Rated impulse withstand voltage Uimp			12kV				
Number of poles			3, 4				
Full breaking time			≤30ms				
Closing time			≤70ms				
Rated ultimate short-circuit breaking capacity Icu (r.m.s value)		AC415V	80kA			100kA	
		AC690V	65kA			75kA	
Rated service short-circuit breaking capacity Ics (r.m.s value)		AC415V	80kA			85kA	
		AC690V	65kA			65kA	
Rated short-circuit making capacity Icm (peak value)		AC415V	176 kA			220kA	
		AC690V	143 kA			176kA	
Rated short-time withstand current Icw (r.m.s value) 1s		AC415V	60kA			85kA	
		AC690V	40kA			55kA	
Endurance (operating cycles)	Electrical	AC415V	15000	14000	10000	15000	12500 (2900A) 10000 (3200A)
		AC690V	15000	15000 (1000-1250A) 7000 (1600A)	5000	15000 (2000A) 9000 (2500A)	5000
		Operating rate	20 cycles/h			20 cycles/h	
	Mechanical	Without maintenance	15000			15000	
		With maintenance	30000			20000	
		Operating rate	60 cycles/h			60 cycles/h	
Installation method			Fixed type or draw-out type				
Connection method of main circuit		Fixed type	Horizontal connection, extended horizontal connection, L-shaped connection			Horizontal connection, extended horizontal connection	
		Draw-out type	Horizontal connection, extended horizontal connection, vertical connection, L-shaped connection			Horizontal connection, extended horizontal connection, vertical connection	
External dimensions: WxDxH 		Fixed type 3P	362mm×331mm×397mm			422mm×302mm×397mm	
		Fixed type 4P	457mm×331mm×397mm			537mm×302mm×397mm	
		Draw-out type 3P	375mm×398mm×432mm			435mm×398mm×432mm	
		Draw-out type 4P	470mm×398mm×432mm			550mm×398mm×432mm	
Weight	Fixed type 3P	39kg	40kg	41kg	46kg	56kg	
	Fixed type 4P	48kg	49kg	50kg	58kg	68kg	
	Draw-out type 3P	68kg	70kg	71kg	92kg	96kg	
	Draw-out type 4P	86kg	88kg	91kg	108kg	118kg	

Notes: The Max. rated operating voltage of NDW1A-2000 IoT-connected product is AC 415 V.

Model of circuit breaker			NDW1A-4000		NDW1A-6300	
Rated current In (A)			2000, 2500		3000, 3600, 4000	
N-pole rated current			100%In		100%In	
Rated operating voltage Ue			AC220V/230V/240V, AC380V/400V, AC415V, AC400V/480V, AC660V/AC690V		AC220/230/240V, AC380/400/415V, AC440/480V, AC660/690V	
Rated frequency f			50/60Hz		50/60Hz	
Rated isolation voltage Ui			1000V		1000V	
Rated impulse withstand voltage Uimp			12kV		12kV	
Number of poles			3, 4		3, 4	
Full breaking time			≤30ms		≤30ms	
Closing time			≤70ms		≤70ms	
Rated ultimate short-circuit breaking capacity Icu (r.m.s value)		AC415V	100kA		120kA	
		AC690V	80kA		85kA	
Rated service short-circuit breaking capacity Ics (r.m.s value)		AC415V	85kA		100kA	
		AC690V	70kA		75kA	
Rated short-circuit making capacity Icm (Peak value)		AC415V	220kA		264kA	
		AC690V	176kA		187kA	
Rated short-time withstand current Icw (r.m.s value) 1s		AC415V	85kA		100kA	
		AC690V	70kA		75kA	
Endurance (operating cycles)	Electrical	AC415V	6000 (2000A-3600A)	6000 (4000A)	1000	
		AC690V	4500 (2000A-3600A)	3000 (4000A)	800	
		Operating rate	20 cycles/h		20 cycles/h	
	Mechanical	Without maintenance	12500 (3P), 6500 (4P)		5000	
		With maintenance	25000 (3P), 15000 (4P)		10000	
		Operating rate	60 cycles/h		60 cycles/h	
Installation method			Fixed type or draw-out type		Fixed type or draw-out type	
Connection method of main circuit			Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection, mixed connection (horizontally up and vertically down), mixed extended connection (horizontally up and vertically down), mixed extended connection (vertically up and horizontally down)	
External dimensions: WxDxH 		Fixed type 3P	428mm×300mm×393.5mm		803mm×302.5mm×392mm	
		Fixed type 4P	543mm×300mm×393.5mm		1033mm×302.5mm×392mm	
		Draw-out type 3P	435mm×403mm×432mm (2000A~2500A)	435mm×397.5mm×432mm (3200A~4000A)	809mm×401.5mm×475mm	
		Draw-out type 4P	550mm×403mm×432mm (2000A~2500A)	550mm×397.5mm×432mm (3200A~4000A)	1039mm×401.5mm×475mm	
Weight	Fixed type 3P	59kg	60kg	125kg	127kg	
	Fixed type 4P	70kg	71.5kg	167kg	170kg	
	Draw-out type 3P	97kg	103kg	193kg	195kg	
	Draw-out type 4P	114kg	120kg	257kg	260kg	

Controller functions of NDW1A series intelligent air circuit breakers

Controllers

As one of the main components of a circuit breaker, controllers can provide fail-safe protection against overload, short circuits, grounding, current unbalance, over-voltage, under-voltage, voltage unbalance, over-frequency, under-frequency, reverse power, etc., and enable proper operation of the power grid by the means of load monitoring, demand protection, zone selective interlocking and other functions. The controllers can also measure the current, voltage, power, frequency, energy, demand, harmonic and other parameters of a power grid node, and log the fault, alarm, operation, historical Max. value of current, contact wear and other operation and maintenance parameters. For power grid communication and networking, the controllers can achieve tele-metering, tele-signaling, tele-controlling and tele-adjusting and other functions at the remote terminal of the power automation network.

Types of controllers

Controller type	KM	KM/V	KY, KY/V, KY/P, KE
Model	NWK21/NWK31	NWK21 (V)/NWK31 (V)	NWK22/NWK32 NWK22 (V)/NWK32 (V) NWK22 (P)/NWK32 (P) NWK22E
NDW1A-1600/2000/3200/6300 Controller diagram			

Functions of controllers

Functional item	NWK21 NWK31	NWK21/V NWK31/V	NWK22 NWK32	NWK22/V NWK32/V	NWK22/P NWK32/P
Display interface					
Digital tube for displaying numbers and symbols	√	√	—	—	—
LCD screen for displaying Chinese characters, symbols and graphics	—	—	√	√	√
Protective functions					
Long-time delayed over-load protection	√	√	√	√	√
Over-load thermal memory	√	√	√	√	√
Over-load pre-alarm/alarm output	√/▲	√/▲	√/▲	√/▲	√/▲
Short-time delayed short-circuit protection	√	√	√	√	√
Short-time delayed thermal memory	√	√	√	√	√
Instantaneous short-circuit protection	√	√	√	√	√
Grounding protection (differential)	√	√	√	√	√
Grounding alarm/alarm output	√/▲	√/▲	√/▲	√/▲	√/▲
Leakage protection/alarm/alarm output	—	—	√/√/▲	√/√/▲	√/√/▲
Neutral protection	√	√	√	√	√
Current unbalance protection/alarm/alarm output	√/—/—	√/—/—	√/√/▲	√/√/▲	√/√/▲
MCR	√	√	√	√	√
Load monitoring/alarm/alarm output	▲	▲	√	√	√
Under-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Over-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Voltage unbalance protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Phase sequence protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Under-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Over-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Desired current protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Reverse power protection/alarm/alarm output	—	—	—	—	√/√/▲
Measuring functions					
Current measurement (phase pole, N-pole, ground)	√	√	√	√	√
Voltage (phase voltage, line voltage and voltage unbalance factor)	—	√	—	√	√
Phase sequence detection	—	—	—	√	√
Frequency measurement	—	√	—	√	√
Demand measurement (current)	—	—	—	√	√
Demand measurement (power)	—	—	—	—	√
Power measurement (active power, reactive power and apparent power)	—	√	—	—	√
Power factor measurement	—	√	—	—	√
Electric energy measurement (active energy, reactive energy and apparent energy)	—	—	—	—	√
Harmonic measurement	—	—	—	—	√
Maintenance functions					
LED fault indicator	√	√	√	√	√
Fault log (8 entries) and query	√	√	√	√	√
Position change log	—	—	√	√	√
Alarm history query	—	—	√	√	√
Fault tripping	√	√	√	√	√
Self-diagnosis	√	√	√	√	√
Analog trip test	√	√	√	√	√
Contact wear equivalent (alarm) query	▲	▲	√	√	√
Operating cycles query	▲	▲	√	√	√
Clock	—	—	√	√	√
Other functions					
Remote reset of controller	▲	▲	▲	▲	▲
Signaling unit	▲	▲	▲	▲	▲
Communication	—	—	▲	▲	▲

Notes: 1. "√": standard; "▲": optional; "—": not available
2. "V" and "P" functions are optional for general controllers

Functional item	NWK22E/V	NWK22E/P
Display interface		
Digital tube for displaying numbers and symbols	—	—
LCD screen for displaying Chinese characters, symbols and graphics	√	√
Protective functions		
Long-time delayed over-load protection	√	√
Over-load thermal memory	√	√
Over-load pre-alarm/alarm output	√/▲	√/▲
Short-time delayed short-circuit protection	√	√
Short-time delayed thermal memory	√	√
Instantaneous short-circuit protection	√	√
Grounding protection (differential)	√	√
Grounding alarm/alarm output	√/▲	√/▲
Leakage protection/alarm/alarm output	√/√/▲	√/√/▲
Neutral protection	√	√
Current unbalance protection/alarm/alarm output	√/√/▲	√/√/▲
NCR protection	√	√
Load monitoring/alarm/alarm output	√/√/▲	√/√/▲
Under-voltage protection/alarm/alarm output	√/√/▲	√/√/▲
Over-voltage protection/alarm/alarm output	√/√/▲	√/√/▲
Voltage unbalance protection/alarm/alarm output	√/√/▲	√/√/▲
Open-phase protection	√	√
Phase sequence protection/alarm/alarm output	√/√/▲	√/√/▲
Under-frequency protection/alarm/alarm output	√/√/▲	√/√/▲
Over-frequency protection/alarm/alarm output	√/√/▲	√/√/▲
Desired current protection/alarm/alarm output	√/√/▲	√/√/▲
Reverse power protection/alarm/alarm output	—	√/√/▲
Over-temperature protection/alarm/alarm output	▲/▲/▲	▲/▲/▲
Measuring functions		
Current measurement (phase pole, N-pole, ground)	√	√
Voltage measurement	√	√
Temperature measurement	▲	▲
Phase sequence detection	√	√
Frequency measurement	√	√
Demand measurement (current)	√	√
Demand measurement (power)	—	√
Power measurement	√	√
Power factor measurement	√	√
Electric energy measurement (forward active energy and reverse active energy)	√	√
Frozen energy	√	√
Harmonic measurement	—	√
Maintenance functions		
LED fault indicator	√	√
Fault log (30 entries) and query	√	√
Historical peak current log	√	√
Alarm history query	√	√
Fault tripping	√	√
Self-diagnosis	√	√
Analog trip test	√	√
Contact wear equivalent (alarm) query	√	√
Operating cycles query	√	√
Clock	√	√
Residual life prediction	▲	▲
Health status indication	▲	▲
Other functions		
Topology identification	√	√
Remote reset of controller	▲	▲
Signaling unit	▲	▲
Power carrier wave communication	√	√

Notes: 1. "√": standard; "▲": optional; "—": not available;

2. "V" and "P" functions are optional for general controllers.

Selection table for accessories of NDW1A series intelligent air circuit breakers



Power supply module
ST-IV



Secondary terminal



Auxiliary switch



Inter-phase barrier



Under-voltage trip unit



Closing/shunt
trip coil



Electronic trip unit



Relay module



OFF position key lock



Counter



Door frame



Mechanical interlock



Motor-operated
mechanism

Name of accessory	Applicable circuit breaker	Supply mode
Controller power supply module	Fixed type/draw-out type	Optionally ordered by customers (standard in the case of AC voltage for the 1600-frame controller)
Relay module	Fixed type/draw-out type	Optionally ordered by customers, used with ST-IV
OFF position key lock	Fixed type/draw-out type	Optionally ordered by customers
Door interlock	Draw-out type	Optionally ordered by customers
Three-position locking device	Draw-out type	Optionally ordered by customers
Auxiliary switch	Fixed type/draw-out type	Standard
Closing electromagnet	Fixed type/draw-out type	Standard
Shunt trip unit	Fixed type/draw-out type	Standard
Motor operating mechanism	Fixed type/draw-out type	Standard
Inter-phase barrier	Fixed type/draw-out type	Optionally ordered by customers (standard for the 4000 frame size)
Ready-to-close signal output device	Fixed type/draw-out type	Optionally ordered by customers
Under-voltage (no-voltage) trip unit	Fixed type/draw-out type	Optionally ordered by customers
Counter	Fixed type/draw-out type	Optionally ordered by customers
Door frame	Fixed type/draw-out type	Optionally ordered by customers
Dust cover	Fixed type/draw-out type	Optionally ordered by customers
Mechanical interlock	Fixed type/draw-out type	Optionally ordered by customers (unavailable for the 1600-frame fixed type)
Automatic transfer switch	Fixed type/draw-out type	Optionally ordered by customers (unavailable for the 1600-frame fixed type)

NDW2 series intelligent air circuit breakers

Structure overview

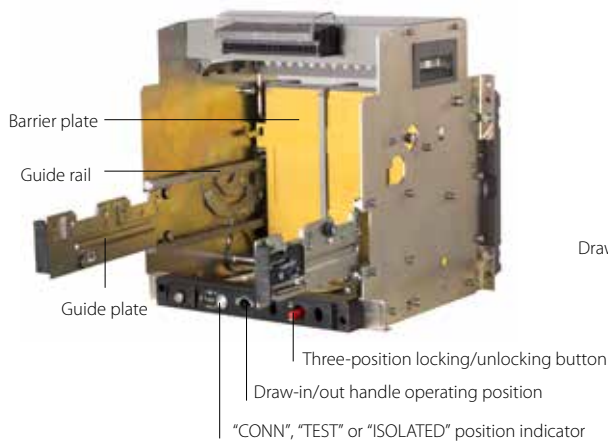


1. Reset button
2. Specification nameplate
3. OFF position key lock (optional)
4. Nader logo
5. OFF button
6. ON button
7. Counter (optional)
8. Charging/discharging indicator
9. ON/OFF indicator
10. Nameplate
11. "CONN", "TEST" or "ISOLATED" position locking/unlocking device
12. Draw-in/out handle operating position
13. "CONN", "TEST" or "ISOLATED" position indicator
14. Draw-in/out handle and its storage position

Notes: items 1~10 for the fixed type; and items 1~14 for the draw-out type.

Structure of draw-out type air circuit breaker

A draw-out type air circuit breaker consists of a circuit breaker body and a draw-out cradle. The circuit breaker body rests on movable guide plates respectively disposed on draw-out guide rails on both sides of the draw-out cradle. The draw-out type air circuit breaker is connected to the main circuit by inserting the busbar on the circuit breaker body into the bridge type contact on the draw-out cradle.



Quick selection table for NDW2-1600~6300 series intelligent air circuit breakers



II

Air Circuit Breakers

ND W 2-1600 □ C 200/4 KY D1 F1 B1 Q10 A4 Optional accessories

See Note d

Contact combination: See Note b

Under-voltage trip unit:

Q1-AC380/400V Q2-AC220/230V
Q3-DC220V Q4-DC110V Q5-DC24V

No-voltage trip unit:

S1-AC380V/AC400V S2-AC220V/AC230V

Time delay:

Normal under-voltage: 0 - instantaneous; 1 - 1s delay; 3 - 3s delay; 5 - 5s delay

No-voltage: 1 - 1s delay 3 - 3s delay 5 - 5s delay

No-voltage: 1~10 s at a step of 1 s, available for 1600/6300 frames

Voltage check closing device:

Y1-AC380V/AC400V Y2-AC220V/AC230V

Voltage check closing device supplied with or without wiring harness:

0 - N/A 1 - available

Closing electromagnet:

B1: AC380/400V B2: AC220/230V
B3: DC220V B4: DC110V B5: DC24V

Shunt trip unit:

F1: AC380/400V F2: AC220/230V
F3: DC220V F4: DC110V F5: DC24V

Motor-operated charging mechanism:

D1: AC380/400V D2: AC220/230V
D3: DC220V D4: DC110V

Controller type: KM, KY See Note a

Number of poles:

3 - 3 poles 4 - 4 poles 5 - 3P+N See Note c

Rated current:

See the table of main performance parameters

Installation method:

Fixed type (blank)

C - Draw-out type

Blank: non-high-voltage

HU: high voltage (1000V)

Frame size: 1600, 2000, 3200, 4000, 6300

Design serial number: 2

Product code: W - air circuit breaker

Brand code: Nader

Note a:

1. For the 1600 frame size, KM (NWK31) and KY (NWK32) controllers are available
(KM voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - DC24V 5 - AC24V/DC24V)
(KY voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - DC24V 5 - AC24V/DC24V)
1. For the 2000, 3200, 4000 and 6300 frame sizes, KM (NWK21) and KY (NWK22) controllers are available
(KM voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - AC24V/DC24V)
(KY voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - AC24V/DC24V)
3. Optional functions of controllers:
Protection type: blank - general type, V - voltage measurement and protection type, P - harmonic measurement and protection type
Communication functions for the 1600-6300 frame sizes: H (communication protocol: Modbus), MP (Profibus- DP), MD (Devicenet)
Signaling unit: S1-4DO; S2-3DO, 1DI; S3-2DO, 2DI
Remote reset function: Z1 (AC380V/AC400V), Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V), Z5 (DC24V)

Note b:

Combination of auxiliary contacts for the 1600 frame size: blank - four blocks for switching; A6 - six blocks for switching
For the 2000, 3200 and 6300 frame sizes: blank - four NO and four NC; A55 - five NO and five NC; A66 - six NO and six NC
For the 4000 frame size: blank - four blocks for switching; A6 - six blocks for switching; A44 - four NO and four NC

Note c:

3P+N grounding mode (optional external N-pole current transformer):
T - differential (blank by default) W - ground current
N1 - external N-phase current transformer (62*21) available for the 1600 frame size
N2 - external N-phase current transformer (102*32.5) available for the 1600 and 2000 frame sizes
N3 - external N-phase current transformer (122*52) available for the 2000, 3200, 4000 and 6300 frame sizes
N4 - external N-phase current transformer (262*102) available for the 3200, 4000 and 6300 frame sizes
NR1 - external flexible current transformer (280mm) available for 200A - 800A
NR2 - external flexible current transformer (370mm) available for 1000A - 2000A
NR3 - external flexible current transformer (450mm) available for 1000A - 6300A
Leakage protection type: Type E (including an external leakage current transformer)
Query about contact wear equivalent and operating cycles (optional for NWK21/NWK31): J
Omitted for controllers without optional functions
For NWK21/NWK31 controllers, only S1-4DO

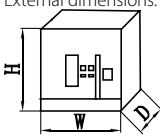
Note d:

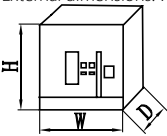
BX: ready-to-close signal output unit
JS: counter (unavailable for the 1600 frame size)
CM1: draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)
CX: draw-out cradle three-position signal output
M: door frame
G: inter-phase barrier (standard for the 4000 frame size)
F: dust cover
R: ST201 relay module
P: ST-IV power supply module (consistent with controller voltage by default)
S: button lock
P2: voltage converter module
J: connection method (blank - horizontal connection; J1 - extended horizontal connection; J2 - L-shaped connection;
J3 - vertical connection; J4 - extended vertical connection; J5 - mixed connection (horizontally up and vertically down)
J6 - mixed connection (vertically up and horizontally down)
Product utilization category: blank - general; TH - damp heat; GD - plateau, low temperature

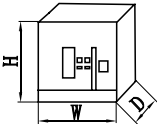
Interlock model explanation and encoding rules

SF11-key lock device (one key to one lock); SF21-key lock device (one key to two locks); SF31 - one key to three locks); SF32-key lock device (two keys to three locks); SF53-key lock device (three keys to five locks)	1. You can select one from five key lock models available; 2. You can select one from five mechanical interlock models available;
SR11-mechanical interlock device (two sets of steel cables, one for closing and one for opening); SR12-mechanical interlock device (three sets of steel cables, one for closing and two for opening) SR21-mechanical interlock device (three sets of steel cables, two for closing and one for opening); SY11-mechanical interlock device (two sets of rigid links, one for closing and one for opening) SY12-mechanical interlock device (three sets of rigid links, one for closing and two for opening)	3. The 1600-frame products do not support for the interlock mode of closing two and opening one; 4. The 1600-frame products cannot be interlocked with other frame products; 5. This accessory is unavailable for the fixed 1600-frame products.
ATS-R/S/F automatic transfer switch (R: automatic charging and automatic recovery; S: automatic charging and manual recovery; F: mains supply - generator)	With mechanical interlock as standard and various types available, unavailable for the fixed type 1600-frame products

Main performance parameters of NDW2 series intelligent air circuit breakers

Model of circuit breaker		NDW2-1600						
Rated current In (A)		200, 400, 630		800, 1000		1250, 1600		
N-pole rated current		100%In						
Rated operating voltage Ue		AC220V/230V/240V, AC380V/400V/415V, AC440V, AC660V/690V						
Rated frequency f		50/60Hz						
Rated isolation voltage Ui		1000V						
Rated impulse withstand voltage Uimp		12kV						
Number of poles		3, 4						
Full breaking time		≤30ms						
Closing time		≤70ms						
Rated ultimate short-circuit breaking capacity Icu (r.m.s value) kA		AC415V	65kA					
		AC690V	42kA					
Rated service short-circuit breaking capacity Ics (r.m.s value)		AC415V	55kA					
		AC690V	35kA					
Rated short-circuit making capacity Icm (peak value)		AC415V	143kA					
		AC690V	88kA					
Rated short-time withstand current Icw (r.m.s value) 1s		AC415V	42kA					
		AC690V	35kA					
Endurance (operating cycles)	Electrical	AC415V	10000		10000		10000	
		AC690V	10000		10000 (800A) 7000 (1000A)		6000	
		Operating rate	20 cycles/h					
	Mechanical	Without maintenance	15000					
		With maintenance	30000					
		Operating rate	60 cycles/h					
Installation method		Fixed type or draw-out type						
Connection method of main circuit		Horizontal connection, vertical connection, extended horizontal connection, mixed connection (horizontally up and vertically down), mixed connection (vertically up and horizontally down)						
		Fixed type 3P	260mm×205.5mm×319.5mm					
		Fixed type 4P	330mm×205.5mm×319.5mm					
		Draw-out type 3P	268.5mm×303.5mm×352mm					
		Draw-out type 4P	338.5mm×303.5mm×352mm					
Weight	Fixed type 3P	20kg				21kg		
	Fixed type 4P	24kg				26kg		
	Draw-out type 3P	40kg				42kg		
	Draw-out type 4P	50kg				52kg		

Model of circuit breaker		NDW2-2000			NDW2-3200		
Rated current In (A)		400, 630, 800	1000, 1250, 1600	2000	2000, 2500	2900, 3200	
N-pole rated current		100%In					
Rated operating voltage Ue		AC220V/230V/240V, AC380V/400V/AC415V, AC440V/AC480V, AC660V/690V					
Rated frequency f		50/60Hz					
Rated isolation voltage Ui		1000V					
Rated impulse withstand voltage Uimp		12kV					
Number of poles		3, 4					
Full breaking time		≤30ms					
Closing time		≤70ms					
Rated ultimate short-circuit breaking capacity Icu (r.m.s value)	AC415V	80kA			100kA		
	AC690V	65kA			80kA		
Rated service short-circuit breaking capacity Ics (r.m.s value)	AC415V	80kA			85kA		
	AC690V	65kA			65kA		
Rated short-circuit making capacity Icm (peak value)	AC415V	176 kA			220kA		
	AC690V	143 kA			176kA		
Rated short-time withstand current Icw (r.m.s value) 1s	AC415V	66kA 1s			85kA 1s		
	AC690V	50kA 1s			55kA 1s		
Endurance (operating cycles)	Electrical	AC415V	15000	15000	11000	15000	12500 (2900A) 11000 (3200A)
		AC690V	15000	15000 (1000-1250A) 8000 (1600A)	6000	15000 (2000A) 9000 (2500A)	6000
		Operating rate	20 cycles/h			20 cycles/h	
	Mechanical	Without maintenance	15000			15000	
		With maintenance	30000			20000	
		Operating rate	60 cycles/h			60 cycles/h	
Installation method		Fixed type or draw-out type					
Connection method of main circuit	Fixed type	Horizontal connection, extended horizontal connection, L-shaped connection			Horizontal connection, extended horizontal connection		
	Draw-out type	Horizontal connection, extended horizontal connection, vertical connection, L-shaped connection			Horizontal connection, extended horizontal connection, vertical connection		
External dimensions: WxDxH		Fixed type 3P	362mm×331mm×397mm			422mm×302mm×397mm	
	Fixed type 4P	457mm×331mm×397mm			537mm×302mm×397mm		
	Draw-out type 3P	375mm×398mm×432mm			435mm×398mm×432mm		
	Draw-out type 4P	470mm×398mm×432mm			550mm×398mm×432mm		
Weight	Fixed type 3P	39kg	40kg	41kg	46kg	56kg	
	Fixed type 4P	48kg	49kg	50kg	58kg	68kg	
	Draw-out type 3P	68kg	70kg	71kg	92kg	96kg	
	Draw-out type 4P	86kg	88kg	91kg	108kg	118kg	

Model of circuit breaker		NDW2-4000			NDW2-6300	
Rated current In (A)		800, 1000, 1250, 1600	2000, 2500	3200, 4000	4000, 5000	6300
N-pole rated current		100%In			100%In	
Rated operating voltage Ue		AC220V/230V, AC380V/400V, AC415V, AC660V/AC690V, AC1000V			AC220V/230V/240V, C380V/400V/415V, AC440V/480V, C660V/690VAC220V/230V/240V, AC380V/400V/415V, AC440V/480V, C660V/690V	
Rated frequency f		50/60Hz				
Rated isolation voltage Ui		1000V				
Rated impulse withstand voltage Uimp		12kV				
Number of poles		3, 4				
Full breaking time		≤30ms				
Closing time		≤70ms				
Rated ultimate short-circuit breaking capacity Icu (r.m.s value)	AC400V	100kA			120kA	
	AC690V	75kA			85kA	
	AC1000V	50kA			/	
Rated service short-circuit breaking capacity Ics (r.m.s value)	AC400V	100kA			120kA	
	AC690V	75kA			85kA	
	AC1000V	50kA			/	
Rated short-circuit making capacity Icm (peak value)	AC400V	220kA			264kA	
	AC690V	165kA			187kA	
	AC1000V	110kA			/	
Rated short-time withstand current Icw (r.m.s value) 1s	AC400V	85kA			100kA	
	AC690V	75kA			85kA	
	AC1000V	50kA			/	
Endurance (operating cycles)	Electrical	AC400V	10000	8000	6000	3000
		AC690V	10000	6000	3000	2000
		AC1000V	2000	1000	500	/
		Operating rate	20 cycles/h			20 cycles/h
	Mechanical	Without maintenance	10000			5000
		With maintenance	15000			10000
		Operating rate	60 cycles/h			60 cycles/h
Installation method		Fixed type or draw-out type			Fixed type or draw-out type	
Connection method of main circuit		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection			Horizontal connection, vertical connection, extended horizontal connection, mixed connection (horizontally up and vertically down), mixed connection (horizontally up and vertically down), extended mixed connection (horizontally up and vertically down), extended mixed connection (horizontally up and vertically down), extended mixed connection (vertically up and horizontally down)	
External dimensions: WxDxH 	Fixed type 3P	428mm×300mm×393.5mm			803mm×302.5mm×392mm	
	Fixed type 4P	543mm×300mm×393.5mm			1033mm×302.5mm×392mm	
	Draw-out type 3P	435mm×403mm×432mm		435mm×397.5mm×432mm	809mm×401.5mm×475mm	
	Draw-out type 4P	550mm×403mm×432mm		550mm×397.5mm×432mm	1039mm×401.5mm×475mm	
Weight	Fixed type 3P	59 (08~25) kg	60 (32~40) kg		124kg	127kg
	Fixed type 4P	70 (08~25) kg	71.5 (32~40) kg		167kg	170kg
	Draw-out type 3P	97 (08~25) kg	103 (32~40) kg		193kg	195kg
	Draw-out type 4P	114 (08~25) kg	120 (32~40) kg		257kg	260kg

Note 1: Full breaking time: the time interval from the moment when the circuit breaker opens to the moment when the arcing time ends.

Note 2: Closing time: the time interval from the moment when the circuit breaker starts closing to the moment when the contacts of all poles get contact.

Controller functions of NDW2 series intelligent air circuit breakers

Controllers

As one of the main components of a circuit breaker, controllers can provide fail-safe protection against overload, short circuits, grounding, current unbalance, over-voltage, under-voltage, voltage unbalance, over-frequency, under-frequency, reverse power, etc., and enable proper operation of the power grid by the means of load monitoring, demand protection, zone selective interlocking and other functions. The controllers can also measure the current, voltage, power, frequency, energy, demand, harmonic and other parameters of a power grid node, and log the fault, alarm, operation, historical Max. value of current, contact wear and other operation and maintenance parameters. For power grid communication and networking, the controllers can achieve tele-metering, tele-signaling, tele-controlling and tele-adjusting and other functions at the remote terminal of the power automation network.

Types of controllers

Controller type	KM	KM/V	KY, KY/V, KY/P
Model	NWK21/NWK31	NWK21 (V)/NWK31 (V)	NWK22/NWK32 NWK22 (V)/NWK32 (V) NWK22 (P)/NWK32 (P)
NDW2-1600/2000/3200/6300 Controller diagram			

Notes: NWK31 and NWK32 for NDW2-1600; NWK21 and NWK22 for NDW2-2000, NDW2-3200, NDW2-4000 and NDW2-6300.

Functions of controllers

Functional item	NWK21, NWK31	NWK21/V NWK31/V	NWK22, NWK32	NWK22/V NWK32/V	NWK22/P NWK32/P
Display interface					
Digital tube for displaying numbers and symbols	√	√	—	—	—
LCD screen for displaying Chinese characters, symbols and graphics	—	—	√	√	√
Protective function					
Long-time delayed over-load protection	√	√	√	√	√
Over-load thermal memory	√	√	√	√	√
Over-load pre-alarm/alarm output	√/▲	√/▲	√/▲	√/▲	√/▲
Short-time delayed short-circuit protection	√	√	√	√	√
Short-time delayed thermal memory	√	√	√	√	√
Instantaneous short-circuit protection	√	√	√	√	√
Grounding protection (differential)	√	√	√	√	√
Grounding alarm/alarm output	√/▲	√/▲	√/▲	√/▲	√/▲
Leakage protection/alarm/alarm output	—	—	√/√/▲	√/√/▲	√/√/▲
Neutral protection	√	√	√	√	√
Current unbalance protection/alarm/alarm output	√/—/—	√/—/—	√/√/▲	√/√/▲	√/√/▲
MCR	√	√	√	√	√
Load monitoring/alarm/alarm output	▲/▲/▲	▲/▲/▲	√/√/▲	√/√/▲	√/√/▲
Under-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Over-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Voltage unbalance protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Phase sequence protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Under-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Over-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Desired current protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
Reverse power protection/alarm/alarm output	—	—	—	—	√/√/▲
Measuring functions					
Current measurement (phase pole, N-pole, ground)	√	√	√	√	√
Voltage (phase voltage, line voltage and voltage unbalance factor)	—	√	—	√	√
Phase sequence detection	—	—	—	√	√
Frequency measurement	—	√	—	√	√
Demand measurement (current)	—	—	—	√	√
Demand measurement (power)	—	—	—	—	√
Power measurement (active power, reactive power and apparent power)	—	√	—	—	√
Power factor measurement	—	√	—	—	√
Electric energy measurement (active energy, reactive energy and apparent energy)	—	—	—	—	√
Harmonic measurement	—	—	—	—	√
Maintenance functions					
LED fault indicator	√	√	√	√	√
Fault log (8 entries) and query	√	√	√	√	√
Alarm history query	—	—	√	√	√
Fault tripping	√	√	√	√	√
Self-diagnosis	√	√	√	√	√
Analog trip test	√	√	√	√	√
Contact wear equivalent (alarm) query	▲	▲	√	√	√
Operating cycles query	▲	▲	√	√	√
Clock	—	—	√	√	√
Other functions					
Remote reset of controller	▲	▲	▲	▲	▲
Signaling unit	▲	▲	▲	▲	▲
Communication	—	—	▲	▲	▲

Notes: 1. "√": standard; "▲": optional; "—": not available
2. "V" and "P" functions are optional for general controllers

Selection table for accessories of NDW2 series intelligent air circuit breakers



Power supply module
ST-IV



Secondary terminal



Auxiliary switch



Inter-phase barrier



Under-voltage
trip unit



Closing/shunt
trip coil



Electronic trip unit



Relay module



OFF position
key lock



Counter



Door frame



Mechanical
interlock

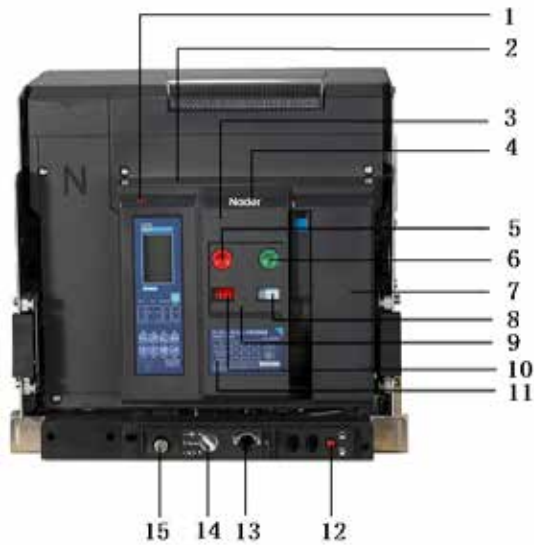


Motor-operated
mechanism

Name of accessory	Applicable circuit breaker	Supply mode
Controller power supply module	Fixed type/draw-out type	Optionally ordered by customers (standard in the case of AC voltage for the 1600-frame controller)
Relay module	Fixed type/draw-out type	Optionally ordered by customers, used with ST-IV
OFF position key lock	Fixed type/draw-out type	Optionally ordered by customers
Door interlock	Draw-out type	Optionally ordered by customers
Three-position locking device	Draw-out type	Standard
Auxiliary switch	Fixed type/draw-out type	Standard
Closing electromagnet	Fixed type/draw-out type	Standard
Shunt trip unit	Fixed type/draw-out type	Standard
Motor operating mechanism	Fixed type/draw-out type	Standard
Inter-phase barrier	Fixed type/draw-out type	Optionally ordered by customers (standard for the 4000 frame size)
Ready-to-close signal output device	Fixed type/draw-out type	Optionally ordered by customers
Under-voltage trip unit	Fixed type/draw-out type	Optionally ordered by customers
Counter	Fixed type/draw-out type	Optionally ordered by customers
Door frame	Fixed type/draw-out type	Optionally ordered by customers
Dust cover	Fixed type/draw-out type	Optionally ordered by customers
Mechanical interlock	Fixed type/draw-out type	Optionally ordered by customers (unavailable for the 1600-frame fixed type)
Automatic transfer switch	Fixed type/draw-out type	Optionally ordered by customers (unavailable for the 1600-frame fixed type)
PV voltage check closing device	Fixed type/draw-out type	Optionally ordered by customers (unavailable for the 6300 frame size)

NDW2F series intelligent air circuit breakers

Structure overview

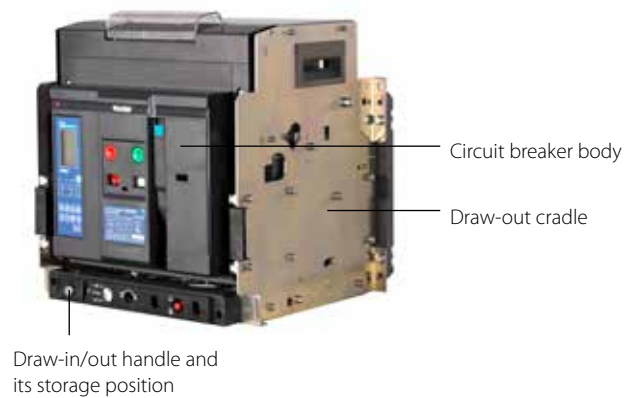
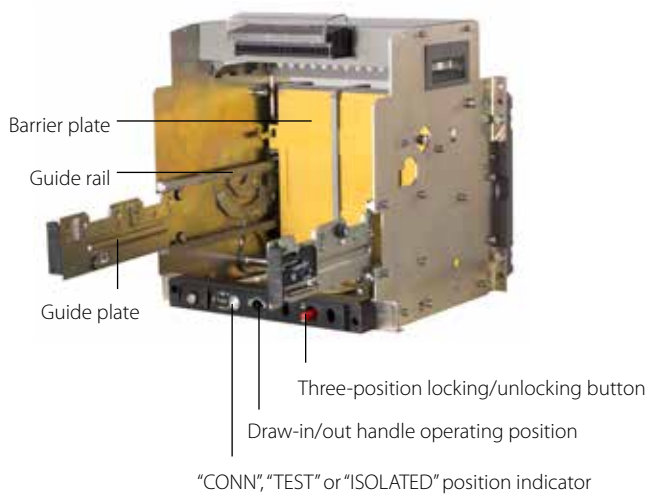


1. Reset button
2. Specification nameplate
3. OFF position key lock (optional)
4. Nader logo
5. OFF button
6. ON button
7. Counter (optional)
8. Charging/discharging indicator
9. Ready-to-close "OK" indicator (optional)
10. ON/OFF indicator
11. Nameplate
12. "CONN", "TEST" or "ISOLATED" position locking/unlocking device
13. Draw-in/out handle operating position
14. "CONN", "TEST" or "ISOLATED" position indicator
15. Draw-in/out handle and its storage position

Notes: items 1~11 for the fixed type; and items 1~15 for the draw-out type.

Structure of draw-out type air circuit breaker

A draw-out type air circuit breaker consists of a circuit breaker body and a draw-out cradle. The circuit breaker body rests on movable guide plates respectively disposed on draw-out guide rails on both sides of the draw-out cradle. The draw-out type air circuit breaker is connected to the main circuit by inserting the busbar on the circuit breaker body into the bridge type contact on the draw-out cradle.



Quick selection table for NDW2F-2000~4000 series intelligent air circuit breakers

II

Air Circuit Breakers



ND W 2 F - 20 □ C 10/4/KM1/D1 F1 B1 Q10 A55 Optional accessories

See Note d

Contact combination: See Note b

Under-voltage trip unit:

Q1-AC380V/AC400V Q2-AC220V/AC230V

Q3-DC220V Q4-DC110V Q5-DC24V

No-voltage trip unit:

S1-AC380V/AC400V S2-AC220V/AC230V

Time delay:

Normal under-voltage: 0 - instantaneous; 1 - 1s delay; 3 - 3s delay; 5 - 5s delay

No-voltage: 1 - 1s delay; 3 - 3s delay; 5 - 5s delay

Closing electromagnet:

B1-AC380V/AC400V B2-AC220V/AC230V

B3-DC220V B4-DC110V B5-DC24V

Shunt trip unit:

F1-AC380V/AC400V F2-AC220V/AC230V

F3-DC220V F4-DC110V F5-DC24V

Motor-operated charging mechanism:

D1-AC380V/AC400V D2-AC220V/AC230V

D3-DC220V D4-DC110V D5-DC24V

Controller type: KM See Note a

Number of poles: 3 - 3 poles; 4 - 4 poles; 5 - 3P+N

Rated current: See the table of main performance parameters

Installation method:

Blank: fixed type

C: draw-out type

HU: high voltage

Blank: non-high-voltage

Frame size: 20 - 2000 32 - 3200 40 - 4000

Product category: F: power generation product

Design serial number: 2

Product code: W - air circuit breaker

Brand code: Nader

Note a:

(KM voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - AC24V/DC24V)

1. Optional functions of controllers:

Protection type: blank - general type; V - voltage measurement and protection type

Signaling unit: S1-4DO

Remote reset function: Z1 (AC380V/AC400V), Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V), Z5 (DC24V)

Note b:

For the 2000 frame size: blank - four NO and four NC; A55- five NO and five NC; A66 - six NO and six NC

For the 3200 and 4000 frame sizes: blank - four blocks for switching; A6 - six blocks for switching; A44 - four NO and four NC

Note c:

3P+N grounding mode (optional external N-pole current transformer):

T - differential (blank by default)

W - ground current

N2 - external N-phase current transformer (102*32.5)

available for the 2000 frame size

N3 - external N-phase current transformer (122*52)

available for the 2000, 3200 and 4000 frame sizes

N4 - external N-phase current transformer (262*102)

available for the 3200 and 4000 frame sizes

NR1 - external flexible current transformer (280mm)

available for 200A - 800A

NR2 - external flexible current transformer (370mm)

available for 1000A - 2000A

NR3 - external flexible current transformer (450mm)

available for 1000A - 4000A

Leakage protection type: Type E (including an external leakage current transformer)

Query about contact wear equivalent and operating cycles (optional for NWK21): J

Note d:

BX: ready-to-close signal output unit

JS: Counter

CM1: draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)

CX: draw-out cradle three-position signal output

M: door frame

F: dust cover

S: button lock

J: connection method (blank - horizontal connection; J1 - extended horizontal connection; J2 - L-shaped connection; J3 - vertical connection, J4 - extended vertical connection)

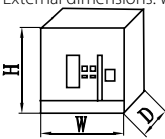
Interlock model explanation and encoding rules

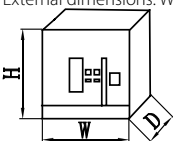
SF11-key lock device (one key to one lock); SF21-key lock device (one key to two locks); SF31 - one key to three locks); SF32-key lock device (two keys to three locks); SF53-key lock device (three keys to five locks)	You can select one from five key lock models available

Main performance parameters of NDW2F series intelligent air circuit breakers

II

Air Circuit Breakers

Model of circuit breaker		NDW2F-2000		NDW2F-3200		
Rated current In (A)		400, 630, 800, 1000, 1250, 1600, 2000		1600, 2000, 2500	2900, 3200	
N-pole rated current		100%In				
Rated operating voltage Ue		AC220V/230V/240V, AC380V/400V/AC415V, AC440V/AC480V, AC660V/690V				
Rated frequency f		50/60Hz				
Rated isolation voltage Ui		1000V				
Rated impulse withstand voltage Uimp		12kV				
Number of poles		3, 4				
Full breaking time		≤30ms				
Closing time		≤70ms				
Rated ultimate short-circuit breaking capacity Icu (r.m.s value)	AC415V	80kA		100kA		
	AC690V	65kA		80kA		
Rated service short-circuit breaking capacity Ics (r.m.s value)	AC415V	80kA		85kA		
	AC690V	65kA		65kA		
Rated short-circuit making capacity Icm (peak value)	AC415V	176kA		220kA		
	AC690V	143kA		176kA		
Rated short-time withstand current Icw (r.m.s value) 1s	AC415V	66kA		85kA		
	AC690V	50kA		55kA		
Endurance (operating cycles)	Electrical	AC415V	11000		11000 (1600A), 9000 (2000A), 8000 (2500A), 6000 (2900A, 3200A)	
		AC690V	6000		11000 (1600A), 8000 (2000A), 7000 (2500A), 5000 (2900A, 3200A)	
		Operating rate	20 cycles/h		20 cycles/h	
	Mechanical	Without maintenance	15000		15000	
		With maintenance	30000		20000	
		Operating rate	60 cycles/h		60 cycles/h	
Installation method		Fixed type or draw-out type				
Connection method of main circuit		Fixed type	Horizontal connection, extended horizontal connection, L-shaped connection		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection	
		Draw-out type	Horizontal connection, extended horizontal connection, L-shaped connection, vertical connection		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection	
External dimensions: WxDxH 		Fixed 3P	362mm×332mm×398mm		422mm×339mm×394mm	
		Fixed 4P	457mm×332mm×398mm		537mm×339mm×394mm	
		Draw-out 3P	375mm×450mm×432mm		435mm×450mm×432mm	
		Draw-out 4P	470mm×450mm×432mm		550mm×450mm×432mm	
Weight		Fixed type 3P	41kg	59kg		60kg
		Fixed type 4P	50kg	70kg		71.5kg
		Draw-out type 3P	71kg	97kg		103kg
		Draw-out type 4P	91kg	114kg		120kg

Model of circuit breaker		NDW2F-4000		
Rated current In (A)		1600, 2000, 2500	3200, 4000	
N-pole rated current		100%In		
Rated operating voltage Ue		AC220V/230V/240V, AC380V/400V, AC415V, AC660V/690V, AC1000V		
Rated frequency f		50/60Hz		
Rated isolation voltage Ui		1000V		
Rated impulse withstand voltage Uimp		12kV		
Number of poles		3, 4		
Full breaking time		≤30ms		
Closing time		≤70ms		
Rated ultimate short-circuit breaking capacity Icu (r.m.s value)	AC400V	100kA		
	AC690V	75kA		
	AC1000V	50kA		
Rated service short-circuit breaking capacity Ics (r.m.s value)	AC400V	100kA		
	AC690V	75kA		
	AC1000V	50kA		
Rated short-circuit making capacity Icm (peak value)	AC400V	220kA		
	AC690V	165kA		
	AC1000V	110kA		
Rated short-time withstand current Icw (r.m.s value) 1s	AC400V	85kA		
	AC690V	75kA		
	AC1000V	50kA		
Endurance (operating cycles)	Electrical	AC400V	10000 (1600A), 9000 (2000A), 8000 (2500A), 6000 (3200A), 5000 (4000A)	
		AC690V	10000 (1600A), 8000 (2000A), 7000 (2500A), 5000 (3200A), 4000 (4000A)	
		AC1000V	2000 (1600A), 1500 (2000A), 1000 (2500A), 600 (3200A), 500 (4000A)	
		Operating rate	20 cycles/h	
	Mechanical	Without maintenance	10000	
		With maintenance	20000	
		Operating rate	60 cycles/h	
Installation method		Fixed type or draw-out type		
Connection method of main circuit		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection		
External dimensions: WxDxH				
	Fixed type 3P	422mm×339mm×394mm		
	Fixed type 4P	537mm×339mm×394mm		
	Draw-out type 3P	435mm×450mm×432mm		
	Draw-out type 4P	550mm×450mm×432mm		
Weight	Fixed type 3P	59kg	60kg	
	Fixed type 4P	70kg	71.5kg	
	Draw-out type 3P	97kg	103kg	
	Draw-out type 4P	114kg	120kg	

Note 1: Full breaking time: the time interval from the moment when the circuit breaker opens to the moment when the arcing time ends.

Note 2: Closing time: the time interval from the moment when the circuit breaker starts closing to the moment when the contacts of all poles get contact.

Controller functions of NDW2F series intelligent air circuit breakers

As one of the main components of a circuit breaker, controllers can provide fail-safe protection against overload, short circuits, grounding, current unbalance, over-voltage, under-voltage, voltage unbalance, over-frequency, under-frequency, reverse power, etc., and enable proper operation of the power grid by the means of load monitoring, demand protection, zone selective interlocking and other functions. The controllers can also measure the current, voltage, power, frequency, energy, demand, harmonic and other parameters of a power grid node, and log the fault, alarm, operation, historical Max. value of current, contact wear and other operation and maintenance parameters. For power grid communication and networking, the controllers can achieve tele-metering, tele-signaling, tele-controlling and tele-adjusting and other functions at the remote terminal of the power automation network.

Controller type	KM	KM/V
Model	NWK21	NWK21(V)
NDW2F-2000/3200/4000 Controller diagram		

Functional item		NWK21	NWK21/V
Display interface	Digital tube for displaying numbers and symbols	√	√
	Long-time delayed over-load protection	√	√
Protective function	Over-load thermal memory (30 min)	√	√
	Over-load pre-alarm	▲	▲
	Short-time delayed short-circuit protection	√	√
	Short-time delayed thermal memory	√	√
	Instantaneous short-circuit protection	√	√
	Grounding protection (differential)	√ ¹⁾	√ ¹⁾
	Grounding protection (ground current)	▲	▲
	Grounding alarm	▲ ¹⁾	▲ ¹⁾
	Neutral protection (4P, 3P+N)	√	√
	Current unbalance protection	√	√
	MCR	√	√
	Load monitoring	▲	▲
Measuring functions	Current measurement (phase pole, N-pole, ground)	√	√
	Voltage (phase voltage, line voltage and voltage unbalance factor)	—	√
Maintenance functions	LED fault indicator	√	√
	Fault log (8 entries) and query	√	√
	Fault tripping	√	√
	Self-diagnosis	√	√
	Analog trip test	√	√
	Contact wear equivalent (alarm) query	▲	▲
	Operating cycles query	▲	▲
Other functions	DC controller (DC220V, DC110V)	▲	▲
	Remote reset of controller	▲	▲
	Signaling unit	▲	▲

"√": standard; "▲": optional; "—": not available; 1) either grounding protection or grounding alarm but not both, with grounding protection as default.

Selection table for accessories of NDW2F series intelligent air circuit breakers



Power supply module ST-IV



Secondary terminal



Auxiliary switch



Inter-phase barrier



Electronic trip unit



Relay module



Counter



Under-voltage trip unit



Motor-operated mechanism



OFF position key lock



Door frame



Closing/shunt trip coil



Mechanical interlock

Name of accessory	Applicable circuit breaker	Supply mode
OFF position key lock	Fixed type/draw-out type	Optionally ordered by customers
Door interlock	Draw-out type	Optionally ordered by customers
Three-position locking device	Draw-out type	Standard
Auxiliary switch	Fixed type/draw-out type	Standard
Closing electromagnet	Fixed type/draw-out type	Standard
Shunt trip unit	Fixed type/draw-out type	Standard
Motor operating mechanism	Fixed type/draw-out type	Standard
Inter-phase barrier	Fixed type/draw-out type	Optionally ordered by customers
Ready-to-close signal output device	Fixed type/draw-out type	Optionally ordered by customers
Under-voltage trip unit	Fixed type/draw-out type	Optionally ordered by customers
Counter	Fixed type/draw-out type	Optionally ordered by customers
Door frame	Fixed type/draw-out type	Optionally ordered by customers
Dust cover	Fixed type/draw-out type	Optionally ordered by customers

NDW2G series intelligent air circuit breakers

Structure overview

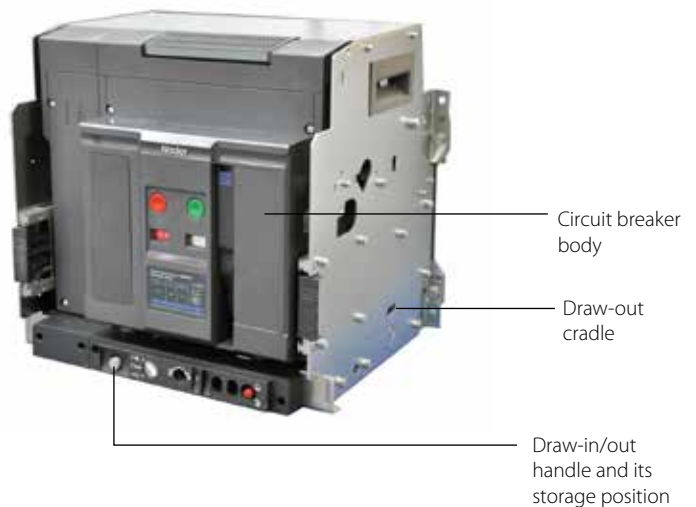
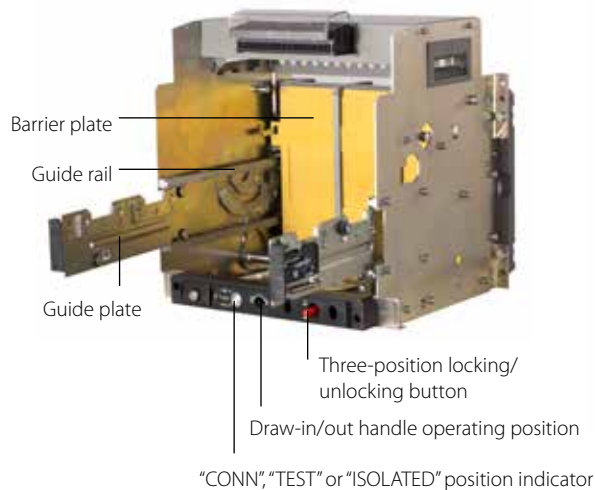


1. Reset button
2. Specification nameplate
3. OFF position key lock (optional)
4. Nader logo
5. OFF button
6. ON button
7. Counter (optional)
8. Charging/discharging indicator
9. Ready-to-close "OK" indicator (optional)
10. ON/OFF indicator
11. Nameplate
12. "CONN", "TEST" or "ISOLATED" position locking/unlocking device
13. Draw-in/out handle operating position
14. "CONN", "TEST" or "ISOLATED" position indicator
15. Draw-in/out handle and its storage position

Notes: items 1~11 for the fixed type; and items 1~15 for the draw-out type.

Structure of draw-out type air circuit breaker

A draw-out type air circuit breaker consists of a circuit breaker body and a draw-out cradle. The circuit breaker body rests on movable guide plates respectively disposed on draw-out guide rails on both sides of the draw-out cradle. The draw-out type air circuit breaker is connected to the main circuit by inserting the busbar on the circuit breaker body into the bridge type contact on the draw-out cradle.



Quick selection table for NDW2G-2000~4000 series derived type AC air circuit breakers

ND W 2 G F-2000 C 1600/3/D1 F1 B1 Q10 A55 Optional accessories

	See Note b
	Contact combination: See Note a
	Under-voltage trip unit: Q1-AC380V/AC400V Q2-AC220V/AC230V Q3-DC220V Q4-DC110V Q5-DC24V
	No-voltage trip unit: S1-AC380V/AC400V S2-AC220V/AC230V
	Time delay: Normal under-voltage: 0 - instantaneous 1 - 1s delay 3 - 3s delay 5 - 5s delay No-voltage: 1 - 1s delay 3 - 3s delay 5 - 5s delay
	Closing electromagnet: B1-AC380V/AC400V B2-AC220V/AC230V B3-DC220V B4-DC110V B5-DC24V
	Shunt trip unit: F1-AC380V/AC400V F2-AC220V/AC230V F3-DC220V F4-DC110V F5-DC24V
	Motor-operated charging mechanism: D1-AC380V/AC400V D2-AC220V/AC230V D3-DC220V D4-DC110V D5-DC24V
	Number of poles: 3 - 3 poles; 4 - 4 poles
	Rated current: See the table of main performance parameters
	Installation: Blank: fixed type C: draw-out type
	Frame size: 20 - 2000, 40 - 4000
	Derived code: blank: general type F - power generation product
	Derived code: G - derived type ACB
	Design code: 2
	Product code: W - air circuit breaker
	Brand code: Nader

Quick selection table for NDW2GZ-2000~4000 series derived type AC air circuit breakers

ND W 2 GZ F-2000 C 1600/3/D1 F1 B1 Q10 A55 Optional accessories

	See Note c
	Contact combination: See Note a
	Under-voltage trip unit: Q1-AC380V/AC400V Q2-AC220V/AC230V Q3-DC220V Q4-DC110V Q5-DC24V
	No-voltage trip unit: S1-AC380V/AC400V, S2-AC220V/AC230V
	Time delay: Normal under-voltage: 0 - instantaneous 1 - 1s delay 3 - 3s delay 5 - 5s delay No-voltage: 1 - 1s delay 3 - 3s delay 5 - 5s delay
	Closing electromagnet: B1-AC380V/AC400V B2-AC220V/AC230V B3-DC220V B4-DC110V B5-DC24V
	Shunt trip unit: F1-AC380V/AC400V F2-AC220V/AC230V F3-DC220V F4-DC110V
	Motor-operated charging mechanism: D1-AC380V/AC400V D2-AC220V/AC230V D3-DC220V D4-DC110V
	Number of poles: 3 - 3 poles 4 - 4 poles
	Rated current: See the table of main performance parameters
	Installation: Blank: fixed type C: draw-out type
	Frame size: 20 - 2000 40 - 4000
	Derived code: blank: general type F - power generation product
	Derived code: G - derived type ACB Z - DC
	Design code: 2
	Product code: W - air circuit breaker
	Brand code: Nader

Note a:

For the 2000 frame size: blank - four NO and four NC; A55- five NO and five NC; A66 - six NO and six NC
For the 4000 frame size: blank - four blocks for switching; A6 - six blocks for switching; A44 - four NO and four NC

Note b:

BX: ready-to-close signal output unit
JS: Counter
CM1: draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)
CX: draw-out cradle three-position signal output
M: door frame
F: dust cover
G: inter-phase barrier (standard for the 4000 frame size)
S: button lock
J: connection method (blank - horizontal connection; J1 - extended horizontal connection; J2 - L-shaped connection; J3 - vertical connection; J4 - extended vertical connection)

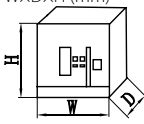
Note c:

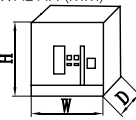
BX: ready-to-close signal output unit
JS: Counter
CM1: draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)
CX: draw-out cradle three-position signal output
M: door frame
G: inter-phase barrier (standard for the 4000 frame size)
F: dust cover
S: button lock
J: connection method: J1 - extended horizontal connection
Power supply/load connection method: B - Type B connection (3P); C - Type C connection (4P); blank - free connection (for 3P/4P)
Rated operating voltage: blank - DC750V, KV1-DC1000V, KV2-DC1200V, KV3-DC1500V (KV2 unavailable for the 2000 frame size)

Interlock model explanation and encoding rules

SF11-key lock device (one key to one lock); SF21-key lock device (one key to two locks); SF31 - one key to three locks); SF32-key lock device (two keys to three locks); SF53-key lock device (three keys to five locks)	1. You can select one from five key lock models available; 2. You can select one from five mechanical interlock models available;
SR11-mechanical interlock device (two sets of steel cables, one for closing and one for opening); SR12-mechanical interlock device (three sets of steel cables, one for closing and two for opening)	
SR21-mechanical interlock device (three sets of steel cables, two for closing and one for opening); SY11-mechanical interlock device (two sets of rigid links, one for closing and one for opening)	
SY12-mechanical interlock device (three sets of rigid links, one for closing and two for opening)	

Main performance parameters of NDW2G series intelligent air circuit breakers

Model of circuit breaker			NDW2G-2000/NDW2GF-2000			NDW2G-4000/NDW2GF-4000		
Rated current In (A) (+40℃)			400, 630, 800	1000, 1250, 1600	2000	800, 1000, 1250 1600, 2000, 2500	3200, 4000	
N-pole rated current			100%In					
Rated operating voltage Ue			AC415V, AC690V					
Rated frequency f			50/60Hz					
Rated isolation voltage Ui			1000V					
Rated impulse withstand voltage Uimp			12kV					
Number of poles			3, 4					
Full breaking time			≤30ms					
Closing time			≤70ms					
Rated short-circuit making capacity Icm (peak value) kA	AC415V	143			220			
	AC690V	110			187			
Rated short-time withstand current Icw (r.m.s value) 1s kA	AC415V	65			100			
	AC690V	50			85			
With external protection relay, Max. time delay: 0.4s Ultimate breaking capacity (kA)	AC415V	65			100			
	AC690V	50			85			
Utilization category			AC-22A, AC-23A					
Endurance (operating cycles)	Electrical	AC415V	8000			8000		
		AC690V	5000			3000		
	Mechanical	Without maintenance	15000			10000		
		With maintenance	25000			15000		
Installation method		Fixed type	▲			▲		
		Draw-out type	▲			▲		
Connection method of main circuit		Fixed type	Horizontal connection, extended horizontal connection, L-shaped connection			Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection		
		Draw-out type	Horizontal connection, vertical connection, L-shaped connection, extended horizontal connection,			Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection		
External dimensions: W×D×H (mm) 		Fixed type 3P	362×331×397			428×300×393.5		
		Fixed type 4P	457×331×397			543×300×393.5		
		Draw-out type 3P	375×398×432			435×403×432 (800~2500A)		435×397.5×432 (3200, 2500A)
		Draw-out type 4P	470×398×432			550×403×432 (800~2500A)		550×397.5×432 (3200, 2500A)
Weight (kg) Notes: "▲": standard		Fixed type 3P	39	40	41	59	60	
		Fixed type 4P	48	49	50	70	71.5	
		Draw-out type 3P	68	70	71	97	103	
		Draw-out type 4P	86	88	91	114	120	

Model of circuit breaker			NDW2GZ-2000/NDW2GZF-2000			NDW2GZ-4000/NDW2GZF-4000		
Rated current In (A) (+40℃)			800	1000, 1250, 1600	2000	1250, 1600, 2000, 2500		3200, 4000
Rated operating voltage Ue			DC750V (3P), DC1000V (4P), DC1500V (4P)					
Rated isolation voltage Ui			1500V					
Rated impulse withstand voltage Uimp			12kV					
Number of poles			3P in series, 4P in series					
Full breaking time			≤30ms					
Closing time			≤70ms					
Rated short-circuit making capacity Icm (peak value) kA	DC750V	80				100		
	DC1000V	52.5				52.5		
	DC1500V	35				50		
Rated short-time withstand current Icw (r.m.s value) 1s kA	DC750V	35				50		
	DC1000V	35				50		
	DC1500V	35				50		
Utilization category			DC-22A, DC-23A					
Endurance (operating cycles)	Electrical	DC750V	3000			1000		
		DC1000V	2000			800		
	Mechanical	Without maintenance	15000			10000		
		With maintenance	25000			15000		
Installation method		Fixed type	▲			▲		
		Draw-out type	▲			▲		
Connection method of main circuit		Fixed type	Extended horizontal connection			Extended horizontal connection		
		Draw-out type	Extended horizontal connection			Extended horizontal connection		
External dimensions: W×D×H (mm) 		Fixed type 3P	362×331×397			428×300×393.5		
		Fixed type 4P	457×331×397			543×300×393.5		
		Draw-out type 3P	375×398×432			435×403×432 (800~2500A)		435×397.5×432 (3200, 2500A)
		Draw-out type 4P	470×398×432			550×403×432 (800~2500A)		550×397.5×432 (3200, 2500A)
Weight (kg)		Fixed type 3P	39	40	41	59	60	
		Fixed type 4P	48	49	50	70	71.5	
		Draw-out type 3P	68	70	71	97	103	
		Draw-out type 4P	86	88	91	114	120	
Notes: "▲": standard								

Selection table for accessories of NDW2G/GZ series intelligent air circuit breakers



Name of accessory	Applicable circuit breaker	Supply mode
OFF position key lock	Fixed type/draw-out type	Optionally ordered by customers
Door interlock	Draw-out type	Optionally ordered by customers
Three-position locking device	Draw-out type	Standard
Auxiliary switch	Fixed type/draw-out type	Standard
Closing electromagnet	Fixed type/draw-out type	Standard
Shunt trip unit	Fixed type/draw-out type	Standard
Motor operating mechanism	Fixed type/draw-out type	Standard
Inter-phase barrier	Fixed type/draw-out type	Optionally ordered by customers
Ready-to-close signal output device	Fixed type/draw-out type	Optionally ordered by customers
Under-voltage trip unit	Fixed type/draw-out type	Optionally ordered by customers
Counter	Fixed type/draw-out type	Optionally ordered by customers
Door frame	Fixed type/draw-out type	Optionally ordered by customers
Dust cover	Fixed type/draw-out type	Optionally ordered by customers

NDW3 series intelligent air circuit breakers

Structure overview

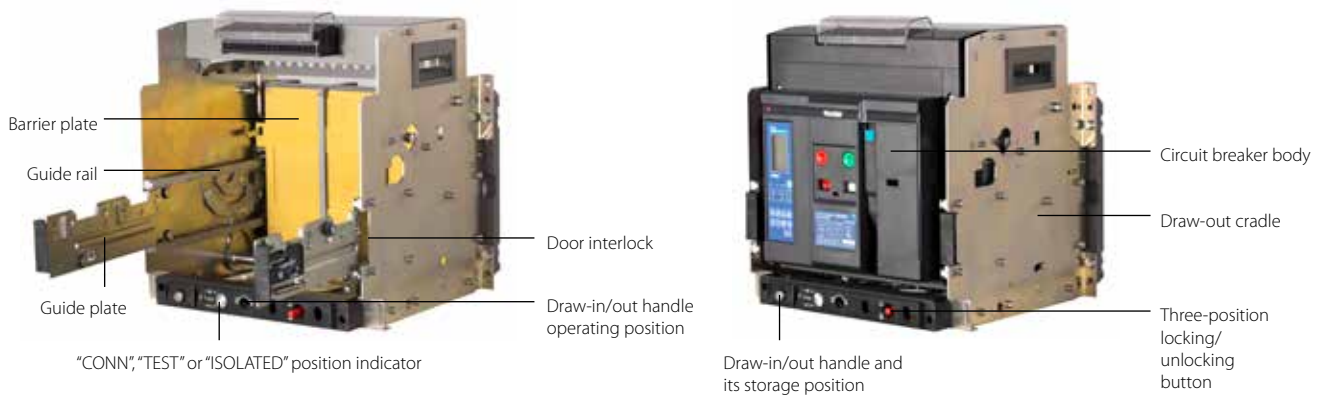


1. Reset button
2. Specification nameplate
3. OFF position key lock (optional)
4. Nader logo
5. OFF button
6. ON button
7. Counter (optional)
8. Charging/discharging indicator
9. Ready-to-close "OK" indicator (optional)
10. ON/OFF indicator
11. Nameplate
12. "CONN", "TEST" or "ISOLATED" position locking/unlocking button
13. Draw-in/out handle operating position
14. "CONN", "TEST" or "ISOLATED" position indicator
15. Draw-in/out handle and its storage position

Notes: items 1~11 for the fixed type; and items 1~15 for the draw-out type.

Structure of draw-out type air circuit breaker

A draw-out type air circuit breaker consists of a circuit breaker body and a draw-out cradle. The circuit breaker body rests on movable guide plates respectively disposed on draw-out guide rails on both sides of the draw-out cradle. The draw-out type air circuit breaker is connected to the main circuit by connecting the busbar on the circuit breaker body with the bridge type contact on the draw-out cradle.



Three operating positions of the draw-out type circuit breaker:

"CONN" position — Both the main circuit and the terminal are connected.

"TEST" position — The main circuit is disconnected while the terminal is connected for testing.

"ISOLATED" position — Both the main circuit and the terminal are disconnected. The circuit breaker body can be taken out in this position.

The draw out type circuit breaker has an interlock device, which controls the circuit breaker to close only in the "CONN" or "TEST" position, and to open in other positions or during motion.

Quick selection table for NDW3 series intelligent air circuit breakers



II

Air Circuit Breakers

ND W 3-4000 S 800/C 4 KM H D1 F1 B1 Q1 1 A6 Other accessories

See Note d

Contact combination: See Note c

Time delay:

Normal under-voltage:

0 - instantaneous 1 - 1s delay 3 - 3s delay 5 - 5s delay

No-voltage time delay for NDW3-1600/6300:

0.5~10s adjustable by users (3s by default), at a step of 1s;

No-voltage time delay for NDW3-2500/4000:

1 - 1s delay 3 - 3s delay 5 - 5s delay

Voltage check closing device supplied with or without wiring harness: 0 - N/A 1 - available

Under-voltage trip unit Q:

voltage: 1-AC380/400V 2-AC220/230V
3-DC220V 4-DC110V 5-DC24V

Under-voltage trip unit S:

voltage: 1-AC380/400V 2-AC220/230V

Voltage check closing device:

J1-AC380V/AC400V J2-220V/AC230V

Closing electromagnet:

B1: AC380/400V B2: AC220/230V

B3: DC220V B4: DC110V B5: DC24V

Shunt trip unit:

F1: AC380/400V F2: AC220/230V

F3: DC220V F4: DC110V F5: DC24V

Motor-operated charging mechanism:

D1: AC380/400V D2: AC220/230V

D3: DC220V D4: DC110V D5: DC24V

Optional functions of controllers (see Note b)

Controller type: KM, KY (see Note a)

Number of poles: 3 - 3 poles; 4 - 4 poles; 5 - 3P+N

Installation: blank - fixed type C - draw-out type

Rated current: See the table of main performance parameters

Breaking type:

S - normal breaking capacity H - high breaking capacity HU - high voltage

Frame size: 16 - 1600 25 - 2500 40 - 4000 63 - 6300

Design code: 3

Product code: air circuit breaker

Brand code: Nader

Note a:

1. For the 1600 frame size, KM-NWK31 and KY-NWK32 controllers are available
(KM voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - AC24V/DC24V)
(KY voltage: 1 - AC380/400V 2 - AC220/230V 3 - DC220V 4 - DC110V 5 - AC24V/DC24V)
2. For the 2500, 4000 and 6300 frame sizes, KM-NWK21 and KY-NWK22 are available
(KM voltage: 1 - AC380V/400V 2 - AC220V/230V 3 - DC220V 4 - DC110V 5 - DC24V)
(KY voltage: 1 - AC380V/400V 2 - AC220V/230V 3 - DC220V 4 - DC110V 5 - DC24V)

Note b:

Optional functions of controllers:

Protection type: blank - general type; V - voltage measurement and protection type; P - harmonic measurement and protection type

Communication function: H (Modbus protocol) MP (Probus-DP protocol) MD (Devicenet protocol)

Signaling unit: S1 - 4DO; S2 - 3DO, 1DI; S3 - 2DO, 2DI

Remote reset function: Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V), Z5DC (24V)

3P+N grounding mode: T - differential (blank by default) W - ground current

Optional external N-pole current transformer:

N1 - external N-phase current transformer (62*21)	available for NDW3-1600
N2 - external N-phase current transformer (102*32.5)	available for NDW3-1600/2500
N3 - external N-phase current transformer (122*52)	available for NDW3-2500/4000/6300
N4 - external N-phase current transformer (262*102)	available for NDW3-2500/4000/6300
NR1 - external flexible current transformer (280mm)	available for 200A - 800A
NR2 - external flexible current transformer (370mm)	available for 1000A - 2000A
NR3 - external flexible current transformer (450mm)	available for 1000A - 6300A

Leakage protection type: Type E (including an external leakage current transformer)

Query about contact wear equivalent and operating cycles (optional for NWK21/31): J

Omitted for controllers without optional functions, only S1-4DO for NWK21/NWK31 controllers;

For NDW3-1600, Z1 is unavailable for the remote reset function;

You can select one communication function from three options: "H", "MP" and "MD";

"V" and "P" protection types are available only when the rated voltage of the main circuit is below AC1140V, and an optional power supply module is necessary above AC415V

Note c:

Combination of auxiliary contacts for the 1600 frame size: blank - four blocks for switching; A6 - six blocks for switching

For the 2500 and 6300 frame sizes: blank - four NO and four NC; A55 - five NO and five NC; A66 - six NO and six NC

For the 4000 frame size: blank - four blocks for switching; A6 - six blocks for switching; A44 - four NO and four NC

Note d:

BX - ready-to-close signal output unit

JS - Counter

CM1 - draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)

CX - draw-out cradle three-position signal output

M - door frame

F - dust cover

R - relay module

P - power supply module (consistent with controller voltage by default)

S - button lock

BC - programmable output module (6-way)

IO1 - remote I/O module C8

IO2 - remote I/O module S12

IO3 - remote I/O module SC64

IO4 - remote I/O module SCM423

AM - accessory monitoring unit

P2 - voltage converter module

TC - charging signal communication module

Connection method (blank - horizontal connection; J1 - extended horizontal connection; J3 - vertical connection; J4 - extended vertical connection; J5 - mixed connection (horizontally up and vertically down); J6 - mixed connection (vertically up and horizontally down);

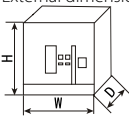
J7 - mixed extended connection (horizontally up and vertically down); J8 - mixed extended connection (vertically up and horizontally down)
Product utilization category: blank - general; TH: damp heat

- Remarks:**
- 1. The power supply module, relay module, external leakage current transformer, programmable output module, short message module, communication adapter, and external N-pole current transformer have to be used with the respective controllers;
 - 2. Follow the order separated by a "/" and listed in the table;
 - 3. The accessory monitoring unit cannot be available together with the communication function, signaling unit and controller with "V" and "P" functions;
 - 4. The charging signal communication unit cannot be available together with the controller with "V" and "P" functions;
 - 5. The NDW3-6300 model with a rated current of 6300 A is available with only two connection methods, i.e. vertical connection and extended vertical connection.

Interlock model explanation and encoding rules

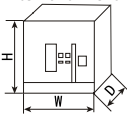
SF11-key lock device (one key to one lock); SF21-key lock device (one key to two locks); SF31 - one key to three locks); SF32-key lock device (two keys to three locks); SF53-key lock device (three keys to five locks)	1. You can select one from five key lock models available; 2. You can select one from five mechanical interlock models available; 3. SR21 and SR12 are only available for the NDW3-2500 or above frame sizes.
SR11-mechanical interlock device (two sets of steel cables, one for closing and one for opening); SR12-mechanical interlock device (three sets of steel cables, one for closing and two for opening)	
SR21-mechanical interlock device (three sets of steel cables, two for closing and one for opening); SY11-mechanical interlock device (two sets of rigid links, one for closing and one for opening)	
SY12-mechanical interlock device (three sets of rigid links, one for closing and two for opening)	
ATS-R/S/F automatic transfer switch (R: automatic charging and automatic recovery; S: automatic charging and manual recovery; F: mains supply - generator)	Mechanical interlock as standard, with various types available

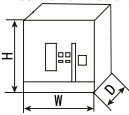
Main performance parameters of NDW3 series intelligent air circuit breakers

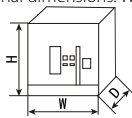
Model of circuit breaker			NDW3-1600	
Rated current In (+40°C) (A)			200, 400, 630, 800, 1000, 1250, 1600	
N-pole rated current			100%In	
Rated operating voltage Ue (V)			AC220/230/240, AC380/400/415, AC440/480, AC660/690	
Rated frequency f (Hz)			50/60	
Rated isolation voltage Ui (V)			1000	
Rated impulse withstand voltage Uimp (kV)			12	
Number of poles			3, 4	
Full breaking time ^{Note 1} (ms)			≤25	
Closing time ^{Note 2} (ms)			≤60	
Rated ultimate short-circuit breaking capacity Icu (r.m.s value) (kA)		AC220V/230V/240V AC380V/400V/415V	66	
		AC440V/480V AC660V/690V	50	
Rated service short-circuit breaking capacity Ics (r.m.s value) (kA)		AC220V/230V/240V AC380V/400V/415V	66	
		AC440V/480V AC660V/690V	50	
Rated short-circuit making capacity Icm (peak value) (kA)		AC220V/230V/240V AC380V/400V/415V	145	
		AC440V/480V AC660V/690V	105	
Rated short-time withstand current Icw (r.m.s value) 1s (kA)		AC220V/230V/240V AC380V/400V/415V	55	
		AC440V/480V AC660V/690V	42	
Endurance (operating cycles)	Electrical Operating rate (20 cycles/h)	AC220V/230V/240V AC380V/400V/415V	10000 (200A~630A), 8000 (800A~1250A), 6500 (1600A)	
		AC440V/480V AC660V/690V	8000 (200A~630A), 5000 (800A~1250A), 3000 (1600A)	
	Mechanical Operating rate (60 cycles/h)	Without maintenance	10000	
		With maintenance	20000	
Installation method		Fixed type or draw-out type		
Connection method of main circuit		Horizontal connection, vertical connection, mixed connection (horizontally up and vertically down), mixed connection (vertically up and horizontally down)		
		Fixed type 3P	259×200.5×318	
		Fixed type 4P	329×200.5×318	
		Draw-out type 3P	282×305×351.5	
		Draw-out type 4P	352×305×351.5	
Weight (kg)	Fixed type 3P	22 (200A~630A)	23 (800A~1600A)	
	Fixed type 4P	34 (200A~630A)	35 (800A~1600A)	
	Draw-out type 3P	43 (200A~630A)	44 (800A~1600A)	
	Draw-out type 4P	56 (200A~630A)	57 (800A~1600A)	

Notes: 1. Full breaking time: the time interval from the moment when the circuit breaker opens to the moment when the arcing time ends (the same below);

2. Closing time: the time interval from the moment when the circuit breaker starts closing to the moment when the contacts of all poles get contact (the same below).

Model of circuit breaker			NDW3-2500		
Rated current In (+40°C) (A)			630, 800, 1000, 1250, 1600, 2000, 2500		
N-pole rated current			100%In		
Rated operating voltage Ue (V)			AC220/230/240, AC380/400/415, AC440/480, AC660/690, AC800, AC1000, AC1140		
Rated frequency f (Hz)			50/60		
Rated isolation voltage Ui (V)			1250		
Rated impulse withstand voltage Uimp (kV)			12		
Number of poles			3, 4		
Full breaking time (ms)			≤30		
Closing time (ms)			≤70		
Breaking type			S	H	HU
Rated ultimate short-circuit breaking capacity Icu (r.m.s value) (kA)	AC220V~415V		66	85	—
	AC440V/480V/660V/690V		55	66	—
	AC800V		—	—	60
	AC1000V		—	—	55
	AC1140V		—	—	50
Rated service short-circuit breaking capacity Ics (r.m.s value) (kA)	AC220V~415V		66	85	—
	AC440V/480V/660V/690V		55	66	—
	AC800V		—	—	60
	AC1000V		—	—	55
	AC1140V		—	—	50
Rated short-circuit making capacity Icm (peak value) (kA)	AC220V~415V		145.2	187	—
	AC440V/480V/660V/690V		121	145.2	—
	AC800V		—	—	132
	AC1000V		—	—	121
	AC1140V		—	—	110
Rated short-time withstand current Icw (r.m.s value) 1s kA	AC220V~415V		66	85	—
	AC440V/480V/660V/690V		55	66	—
	AC800V		—	—	60
	AC1000V		—	—	55
	AC1140V		—	—	50
Endurance (operating cycles)	Electrical Operating rate (20 cycles/h)	AC220V~415V	15000 (630A~1250A), 11500 (1600A~2000A), 11000 (2500A)		
		AC440V/480V/660V/690V	12500 (630A~1250A), 10000 (1600A~2000A), 8000 (2500A)		
		AC800V	5000 (630A~2000A), 4500 (2500A)		
		1000V/1140V	3000 (630A~2000A), 2000 (2500A)		
	Mechanical Operating rate (60 cycles/h)	Without maintenance	15000		
		With maintenance	30000		
Installation method		Fixed type or draw-out type			
Connection method of main circuit		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection, mixed connection (horizontally up and vertically down), mixed connection (vertically up and horizontally down)			
External dimensions: W×D×H (mm)		Fixed type 3P	368×309.5×394		
		Fixed type 4P	463×309.5×394		
		Draw-out type 3P	375×400×432		
		Draw-out type 4P	470×400×432		
		Weight (kg)	Fixed type 3P	49.4 (630A~1250A)	
Fixed type 4P	61.5 (630A~1250A)		62.3 (1600A~2500A)		
Draw-out type 3P	87.1 (630A~1250A)		87.4 (1600A~2500A)		
Draw-out type 4P	106.2 (630A~1250A)		106.7 (1600A~2500A)		

Model of circuit breaker			NDW3-4000		
Rated current In (+40°C) (A)			800, 1000, 1250, 1600, 2000, 2500, 3200, 4000		
N-pole rated current			100%In		
Rated operating voltage Ue (V)			AC220/230/240, AC380/400, AC415, AC440/480, AC660/690, AC800, AC1000/1140		
Rated frequency f (Hz)			50/60		
Rated isolation voltage Ui (V)			1250		
Rated impulse withstand voltage Uimp (kV)			12		
Number of poles			3, 4		
Full breaking time (ms)			≤30		
Closing time (ms)			≤70		
Breaking type			S	H	HU
Rated ultimate short-circuit breaking capacity Icu (r.m.s value) (kA)	AC220V/230V/240V, AC380V/400V		85	100	—
	AC415V, AC440V/480V, AC660V/690V		75	85	—
	AC800V		—	—	75
	AC1000V/1140V		—	—	60
Rated service short-circuit breaking capacity Ics (r.m.s value) (kA)	AC220V/230V/240V, AC380V/400V		85	100	—
	AC415V, AC440V/480V, AC660V/690V		75	85	—
	AC800V		—	—	75
	AC1000V/1140V		—	—	60
Rated short-circuit making capacity Icm (peak value) (kA)	AC220V/230V/240V, AC380V/400V		187	220	—
	AC415V, AC440V/480V, AC660V/690V		165	187	—
	AC800V		—	—	165
	AC1000V/1140V		—	—	132
Rated short-time withstand current Icw (r.m.s value) 1s kA	AC220V/230V/240V, AC380V/400V		85	100	—
	AC415V, AC440V/480V, AC660V/690V		75	85	—
	AC800V		—	—	75
	AC1000V/1140V		—	—	60
Endurance (operating cycles)	Electrical Operating rate (20 cycles/h)	AC220V/230V/240V, AC380V/400V	10000 (800A~1600A), 8000 (2000A, 2500A), 6000 (3200A, 4000A)		
		AC415V, AC440V/480V, AC660V/690V	10000 (800A~1600A), 6000 (2000A, 2500A), 3000 (3200A, 4000A)		
		AC800V	2000 (800A~1600A), 1000 (2000A, 4000A)		
		AC1000V/1140V	2000 (800A~1600A), 1000 (2000A, 2500A), 600 (3200A, 4000A)		
	Mechanical Operating rate (60 cycles/h)	Without maintenance	10000		
		With maintenance	15000		
Installation method		Fixed type or draw-out type			
Connection method of main circuit		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection			
External dimensions: WxDxH (mm)		Fixed type 3P	428×300×393.5		
		Fixed type 4P	543×300×393.5		
		Draw-out type 3P	435×403×432 (800A~2500A)		435×397.5×432 (3200A~4000A)
		Draw-out type 4P	550×403×432 (800A~2500A)		550×397.5×432 (3200A~4000A)
		Weight (kg)		Fixed type 3P	59 (800A~2500A) 60 (3200, 4000A)
		Fixed type 4P	70 (800A~2500A) 71.5 (3200, 4000A)		
		Draw-out type 3P	97 (800A~2500A) 103 (3200, 4000A)		
		Draw-out type 4P	114 (800A~2500A) 120 (3200, 4000A)		

Model of circuit breaker			NDW3-6300		
Rated current In (+40°C) (A)			4000, 5000, 6300		
N-pole rated current			100%In		
Rated operating voltage Ue (V)			AC220/230/240, AC380/400/415, AC440/480, AC660/690, AC800/1000/1140		
Rated frequency f (Hz)			50/60		
Rated isolation voltage Ui (V)			1250		
Rated impulse withstand voltage Uimp (kV)			12		
Number of poles			3, 4		
Full breaking time (ms)			≤30		
Closing time (ms)			≤70		
Breaking type			S	H	HU
Rated ultimate short-circuit breaking capacity Icu (r.m.s value) (kA)	AC220V~415V		120	135	—
	AC440V/480V/660V/690V		85	100	—
	AC800V		—	—	85
	AC1000V/1140V		—	—	66
Rated service short-circuit breaking capacity Ics (r.m.s value) (kA)	AC220V~415V		120	135	—
	AC440V/480V/660V/690V		85	100	—
	AC800V		—	—	85
	AC1000V/1140V		—	—	66
Rated short-circuit making capacity Icm (peak value) (kA)	AC220V~415V		264	297	—
	AC440V/480V/660V/690V		187	220	—
	AC800V		—	—	187
	AC1000V/1140V		—	—	145.2
Rated short-time withstand current Icw (r.m.s value) 1s (kA)	AC220V~415V		120	135	—
	AC440V/480V/660V/690V		85	100	—
	AC800V		—	—	85
	AC1000V/1140V		—	—	66
Endurance (operating cycles)	Electrical Operating rate (20 cycles/h)	AC220V~415V	6000 (4000A), 4000 (5000A), 2000 (6300A)		
		AC440V/480V/660V/690V	3500 (4000A), 2500 (5000A), 1500 (6300A)		
		AC800V	3000 (4000A), 1500 (5000A), 1000 (6300A)		
		1000V/1140V	2000 (4000A), 1000 (5000A), 500 (6300A)		
	Mechanical Operating rate (60 cycles/h)	Without maintenance	7000 (3P)		6500 (4P)
		With maintenance	13000		
Installation method		Fixed type or draw-out type			
Connection method of main circuit		Horizontal connection, vertical connection, extended horizontal connection, extended vertical connection, mixed connection (horizontally up and vertically down), mixed connection (vertically up and horizontally down), mixed extended connection (horizontally up and vertically down), mixed extended connection (vertically up and horizontally down)			
External dimensions: W×D×H (mm)		Fixed type 3P	803×302.5×392		
		Fixed type 4P	1033×302.5×392		
		Draw-out type 3P	809×401.5×475		
		Draw-out type 4P	1039×401.5×475		
		Weight (kg)	Fixed type 3P	125 (4000A, 5000A)	
Fixed type 4P	167 (4000A, 5000A)		170 (6300A)		
Draw-out type 3P	193 (4000A, 5000A)		195 (6300A)		
Draw-out type 4P	257 (4000A, 5000A)		260 (6300A)		

Controller functions of NDW3 series intelligent air circuit breakers

As one of the main components of a circuit breaker, controllers can provide fail-safe protection against overload, short circuits, grounding, current unbalance, over-voltage, under-voltage, voltage unbalance, over-frequency, under-frequency, reverse power, etc., and enable proper operation of the power grid by the means of load monitoring, demand protection, zone selective interlocking and other functions. The controllers can also measure the current, voltage, power, frequency, energy, demand, harmonic and other parameters of a power grid node, and log the fault, alarm, operation, historical Max. value of current, contact wear and other operation and maintenance parameters. For power grid communication and networking, the controllers can achieve tele-metering, tele-signaling, tele-controlling and tele-adjusting and other functions at the remote terminal of the power automation network.

Types of controllers

Model	NWK21/NWK31	NWK21 (V)/NWK31 (V)	NWK22/NWK32 NWK22 (V)/NWK32 (V) NWK22 (P)/NWK32 (P)
Controller diagram			
NWK31 and NWK32 for NDW3-1600; NWK21 and NWK22 for NDW3-2500, NDW3-4000 and NDW3-6300.			

Functional item		NWK21 NWK31	NWK21/V NWK31/V	NWK22 NWK32	NWK22/V NWK32/V	NWK22/P NWK32/P
Display interface	Digital tube for displaying numbers and symbols	√	√	—	—	—
	LCD screen for displaying Chinese characters, symbols and graphics	—	—	√	√	√
Protective function	Long-time delayed over-load protection	√	√	√	√	√
	Over-load thermal memory	√	√	√	√	√
	Over-load pre-alarm/alarm output	√/▲	√/▲	√/▲	√/▲	√/▲
	Short-time delayed short-circuit protection	√	√	√	√	√
	Short-time delayed thermal memory	√	√	√	√	√
	Instantaneous short-circuit protection	√	√	√	√	√
	Grounding protection (differential)	√	√	√	√	√
	Grounding alarm/alarm output	√/▲	√/▲	√/▲	√/▲	√/▲
	Leakage protection/alarm/alarm output	—	—	√/√/▲	√/√/▲	√/√/▲
	Neutral protection	√	√	√	√	√
	Current unbalance protection/alarm/alarm output	√/—/—	√/—/—	√/√/▲	√/√/▲	√/√/▲
	MCR	√	√	√	√	√
	Load monitoring/alarm/alarm output	▲/▲/▲	▲/▲/▲	√/√/▲	√/√/▲	√/√/▲
	Under-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
	Over-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
	Voltage unbalance protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
	Phase sequence protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
	Under-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
	Over-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
	Desired current protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲
	Reverse power protection/alarm/alarm output	—	—	—	—	√/√/▲
Measuring functions	Current measurement (phase pole, N-pole, ground)	√	√	√	√	√
	Voltage (phase voltage, line voltage and voltage unbalance factor)	—	√	—	√	√
	Phase sequence detection	—	—	—	√	√
	Frequency measurement	—	√	—	√	√
	Demand measurement (current)	—	—	—	√	√
	Demand measurement (power)	—	—	—	—	√
	Power measurement (active power, reactive power and apparent power)	—	√	—	—	√
	Power factor measurement	—	√	—	—	√
	Electric energy measurement (active energy, reactive energy and apparent energy)	—	—	—	—	√
	Harmonic measurement	—	—	—	—	√
Maintenance functions	LED fault indicator	√	√	√	√	√
	Fault log (8 entries) and query	√	√	√	√	√
	Position change log	—	—	√	√	√
	Alarm history query	—	—	√	√	√
	Fault tripping	√	√	√	√	√
	Self-diagnosis	√	√	√	√	√
	Analog trip test	√	√	√	√	√
	Contact wear equivalent (alarm) query	▲	▲	√	√	√
	Operating cycles query	▲	▲	√	√	√
	Clock	—	—	√	√	√
	Remote reset of controller	▲	▲	▲	▲	▲
	Signaling unit	▲	▲	▲	▲	▲
	Communication	—	—	▲	▲	▲

Notes: 1. "√": standard; "▲": optional; "—": not available;

2. The controller with "V" and "P" functions is available only when the rated voltage of the main circuit is below AC1140V, and an optional power supply module P2 is necessary above AC500V;

3. The controller with "V" and "P" functions is optional for general type controllers.

Selection table for accessories of NDW3 series intelligent air circuit breakers



Power supply module ST-IV



Secondary terminal



Auxiliary switch



Inter-phase barrier



Electronic trip unit



Relay module



OFF position key lock



Under-voltage trip unit



Motor-operated mechanism



Counter



Door frame



Closing/shunt trip coil

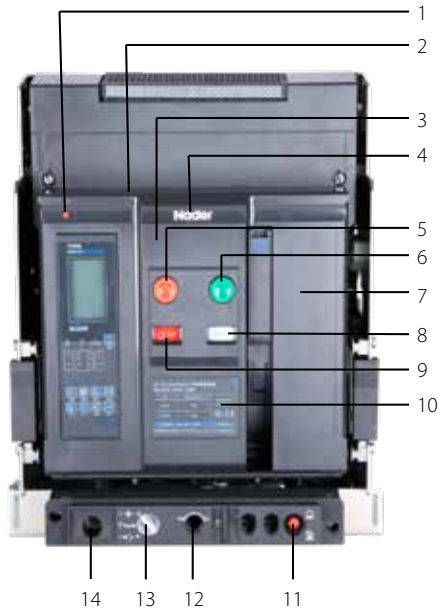


Mechanical interlock

Name of accessory	Applicable circuit breaker	Supply mode
Controller power supply module	Fixed type/draw-out type	Optionally ordered by customers
Relay module	Fixed type/draw-out type	Optionally ordered by customers, used with ST-IV
OFF position key lock	Fixed type/draw-out type	Optionally ordered by customers
Door interlock	Draw-out type	Optionally ordered by customers
Three-position locking device	Draw-out type	Standard
Auxiliary switch	Fixed type/draw-out type	Standard
Closing electromagnet	Fixed type/draw-out type	Standard
Shunt trip unit	Fixed type/draw-out type	Standard
Motor operating mechanism	Fixed type/draw-out type	Standard
Inter-phase barrier	Fixed type/draw-out type	Standard
Ready-to-close signal output device	Fixed type/draw-out type	Optionally ordered by customers
Under-voltage trip unit	Fixed type/draw-out type	Optionally ordered by customers
Counter	Fixed type/draw-out type	Optionally ordered by customers
Door frame	Fixed type/draw-out type	Optionally ordered by customers
Dust cover	Fixed type/draw-out type	Optionally ordered by customers
Mechanical interlock	Fixed type/draw-out type	Optionally ordered by customers
Automatic transfer switch	Fixed type/draw-out type	Optionally ordered by customers

NDW3Z series intelligent air circuit breakers

Structure overview

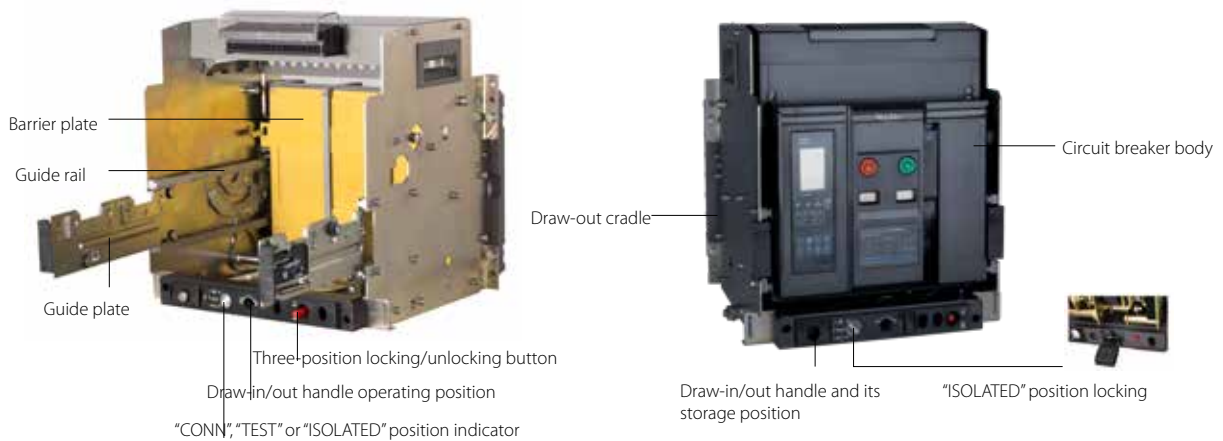


1. Reset button
2. Specification nameplate
3. OFF position key lock (optional)
4. Nader logo
5. OFF button
6. ON button
7. Counter (optional)
8. Charging/discharging indicator
9. ON/OFF indicator
10. Nameplate
11. "CONN", "TEST" or "ISOLATED" position locking/unlocking device
12. Draw-in/out handle operating position
13. "CONN", "TEST" or "ISOLATED" position indicator
14. Draw-in/out handle and its storage position

Notes: 1~10 for the fixed type; and items 1~14 for the draw-out type.

Structure of draw-out type air circuit breaker

A draw-out type air circuit breaker consists of a circuit breaker body and a draw-out cradle. The circuit breaker body rests on movable guide plates respectively disposed on draw-out guide rails on both sides of the draw-out cradle. The draw-out type air circuit breaker is connected to the main circuit by inserting the busbar on the circuit breaker body into the bridge type contact on the draw-out cradle.



Three operating positions of the draw-out type circuit breaker:

"CONN" position — Both the main circuit and the terminal are connected.

"TEST" position — The main circuit is disconnected while the terminal is connected for testing.

"ISOLATED" position — Both the main circuit and the terminal are disconnected. The circuit breaker body can be taken out in this position.

The draw out type circuit breaker has an interlock device, which controls the circuit breaker to close only in the "CONN" or "TEST" position, and to open in other positions or during motion.

Quick selection table for NDW3Z series intelligent air circuit breakers



ND W 3Z – 2500/ 16/C/7/3/KX2 H D1 F1 B1 Q1 1 A55 Other accessories

	See Note d
	Contact combination: See Note c
	Time delay of under-voltage trip unit/no-voltage trip unit: Normal under-voltage: 0 - instantaneous; 1 - 1s delay; 3 - 3s delay; 5 - 5s delay No-voltage: 1 - 1s delay; 3 - 3s delay; 5 - 5s delay
	Under-voltage trip unit/no-voltage trip unit: Q1/S1: AC380/400V Q2/S2: AC220/230V Q3: DC220V Q4: DC110V Q5: DC24V
	Closing electromagnet: B1: AC380/400V B2: AC220/230V B3: DC220V B4: DC110V B5: DC24V
	Shunt trip unit: F1: AC380/400V F2: AC220/230V F3: DC220V F4: DC110V F5: DC24V
	Motor-operated charging mechanism: D1: AC380/400V D2: AC220/230V D3: DC220V D4: DC110V
	Optional functions of controllers (see Note b)
	Controller type: KX, KY (see Note a)
	Number of poles in series: 2 - 2P in series 3 - 3P in series 4 - 4P in series
	Rated voltage: See the date sheet for details
	Installation: blank - fixed type C - draw-out type
	Rated current: See the table of main performance parameters for details
	Frame size: 25 - 2500
	Design code: 3Z
	Product code: air circuit breaker
	Brand code: Nader

Note a:

KX-NWK20Z and KY-NWK22Z controllers are available
(KX-NWK20Z voltage: 1 - AC380V/400V; 2 - AC220V/230V; 3 - DC220V; 4 - DC110V; 5 - DC24V)
(KY-NWK22Z voltage: 1 - AC380V/400V; 2 - AC220V/230V; 3 - DC220V; 4 - DC110V; 5 - DC24V)

Note b:

Optional functions of controllers:
Protection type: blank - general type; V - voltage measurement and protection type; P - power measurement and protection type
Communication function: H (Modbus protocol) MP (Probus-DP protocol) MD (Devicenet protocol)
Signaling unit (optional for NDWK22Z): S1 - 4DO; S2 - 3DO, 1DI; S3 - 2DO, 2DI
Remote reset function: Z1 (AC380V/AC400V), Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V), Z5DC (24V)
Query about contact wear equivalent and operating cycles (optional for NWK22Z): J

Note c:

Blank - four NO and four NC; A55 - five NO and five NC; A66- six NO and six NC

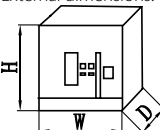
Note d:

BX - ready-to-close signal output unit
JS - counter function unit
CM1 - draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)
CX - draw-out cradle three-position signal output
OFF position key lock: SF11, SF21, SF31, SF32, SF53
Mechanical interlock: SR11, SR12, SR21, SY11, SY12
M - door frame
F - dust cover
R - relay module
P - power supply module (consistent with controller voltage by default)
S - button lock
BC - programmable output module (6-way)
IO1 - remote I/O module C8
IO2 - remote I/O module S12
IO3 - remote I/O module SC64
IO4 - remote I/O module SCM423
AM - accessory monitoring unit
P2 - voltage converter module
TC - charging signal communication module
Connection method: JCS - vertically up connection; JSS - horizontally up connection; JCX - vertically down connection; JSX - horizontally down connection)
Product utilization category: blank - general; TH: damp heat

Remarks

1. The power supply module, relay module, programmable output module and communication adapter have to be used with the respective controllers;
2. Follow the order separated by a "/" and listed in the table;
3. The accessory monitoring unit cannot be available together with the communication function, signaling unit and controller with "V" and "P" functions;
4. The charging signal communication unit cannot be available together with the controller with "V" and "P" functions;

Main performance parameters of NDW3Z series intelligent air circuit breakers

Model of circuit breaker		NDW3Z-2500		
Rated current I_n (+50℃) (A)		800, 1000, 1250, 1600, 2000, 2500		
Rated operating voltage U_e (V)		DC500/750 (2P, 3P), DC1000/1500 (4P)		
Rated isolation voltage U_i (V)		1500		
Rated impulse withstand voltage U_{imp} (kV)		12		
Number of poles in series		2, 3, 4		
Full breaking time (ms) ^{Note 1}		≤30		
Closing time (ms) ^{Note 2}		≤70		
Rated ultimate short-circuit breaking capacity I_{cs} ^{Note 3} (kA)		500V DC	3P	2P
			65	50
		750V DC	3P	2P
			55	40
		1000V DC (4P)	50	
		1500V DC (4P)	40	
Rated service short-circuit breaking capacity I_{cs} ^{Note 3} (kA)		100% I_{cu}		
Rated short-circuit making capacity I_{cm} ^{Note 3} (kA)		100% I_{cu}		
Rated short-time withstand current $I_{cw}/1s$ ^{Note 3} (kA)		100% I_{cu}		
Endurance (operating cycles)	Electrical (20 cycles/h)	1500V DC	1000V DC	
		2000	7000	
	Mechanical (60 cycles/h)	Without maintenance	With maintenance	
		10000	15000	
Installation method		Fixed type or draw-out type		
Connection method of main circuit		Horizontal connection, vertical connection		
External dimensions: WxDxH 	Fixed type 2P/3P	368×301.5×394		
	Fixed type 4P	463×301.5×394		
	Draw-out type 2P/3P	375×393×432		
	Draw-out type 4P	470×393×432		
Weight (kg)	Fixed type 2P	47.4 (800A~1250A)	48 (1600A~2500A)	
	Fixed type 3P	55 (800A~1250A)	55.6 (1600A~2500A)	
	Fixed type 4P	72.7 (800A~1250A)	73.5 (1600A~2500A)	
	Draw-out type 2P	85.1 (800A~1250A)	85.4 (1600A~2500A)	
	Draw-out type 3P	92.7 (800A~1250A)	93 (1600A~2500A)	
	Draw-out type 4P	117.4 (800A~1250A)	117.9 (1600A~2500A)	

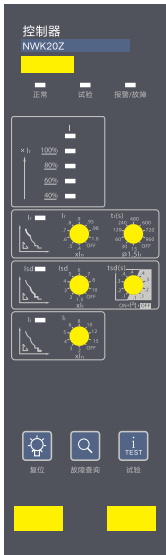
Notes: 1. Full breaking time: the time interval from the moment when the circuit breaker opens to the moment when the arcing time ends;
 2. Closing time: the time interval from the moment when the circuit breaker starts closing to the moment when the contacts of all poles get contact;
 3. Time constant: 15ms.

Controller functions of NDW3Z series intelligent air circuit breakers

Controllers

As one of the main components of a circuit breaker, controllers can provide fail-safe protection against overload, short circuits, over-voltage, under-voltage, etc., and enable proper operation of the power grid by the means of demand protection, zone selective interlocking and other functions. The controllers can also measure the current, voltage, power, energy, demand, and other parameters of a power grid node, and log the fault, alarm, operation, historical Max. value of current, contact wear and other operation and maintenance parameters. For power grid communication and networking, the controllers can achieve tele-metering, tele-signaling, tele-controlling and tele-adjusting and other functions at the remote terminal of the power automation network.

Types of controllers

Controller type	Knob type	LCD type
Model	NWK20Z	NWK22Z
NDW3Z-2500 Controller diagram		

Functions of controllers

Functional item		NWK20Z	NWK22Z	NWK22Z/V	NWK22Z/P
Display interface	LCD screen for displaying Chinese characters, symbols and graphics and graphics	—	√	√	√
	Dip switch	√	—	—	—
Protection functions	Long-time delayed over-load protection	Single-entry	Multi-entry	Multi-entry	Multi-entry
	Over-load thermal memory	√	√	√	√
	Over-load pre-alarm/alarm output	—	√/▲	√/▲	√/▲
	Short-time delayed short-circuit protection	√	√	√	√
	Short-time delayed thermal memory	√	√	√	√
	Instantaneous short-circuit protection	√	√	√	√
	MCR	√	√	√	√
	Under-voltage protection/alarm/alarm output	—	—	√/√/▲	√/√/▲
	Over-voltage protection/alarm/alarm output	—	—	√/√/▲	√/√/▲
	Zone selective interlocking	—	▲	▲	▲
Measuring functions	Current measurement	√	√	√	√
	Max. current measurement	—	√	√	√
	Voltage measurement	—	—	√	√
	Demand measurement (current)	—	—	√	√
	Demand measurement (power)	—	—	—	√
	Power measurement	—	—	—	√
	Electric energy measurement	—	—	—	√
	LED fault indicator	√	√	√	√
Maintenance functions	Fault log and query	Once ^{Note 2}	30 times	30 times	30 times
	Alarm history query	—	√	√	√
	Self-diagnosis	√	√	√	√
	Analog trip test	√	√	√	√
	Contact wear equivalent (alarm) query	—	√	√	√
	Operating cycles query	—	√	√	√
	Clock	—	√	√	√
	Remote reset of controller	▲	▲	▲	▲
Other functions	Signaling unit	—	▲	▲	▲
	RS485 communication	▲	▲	▲	▲

Notes:

①. "√": standard; "▲": optional; "—": not available;

②. The controller with "V" and "P" functions is available only when the rated voltage of the main circuit is DC500V or below;

③. The controller with "V" and "P" functions is optional for general type controllers.

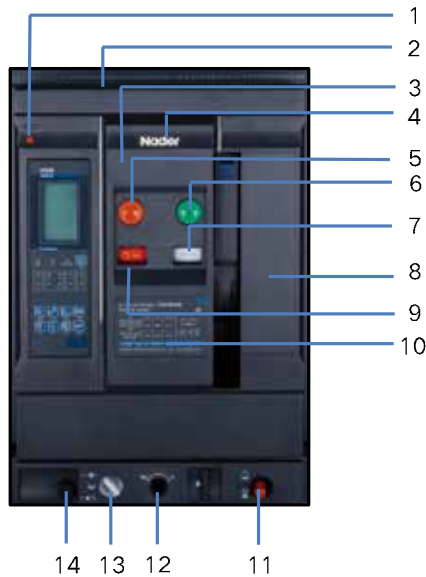
Note 2: query by communication, 30 times

Selection table for accessories of NDW3Z series intelligent air circuit breakers

Category of accessory	Name of accessory	Configuration	Installation	Remarks
Electrical control accessory	Closing electromagnet	Standard	Fixed type/draw-out type	Select one from the two
	Shunt trip unit	Standard	Fixed type/draw-out type	
	Motor operating mechanism	Standard	Fixed type/draw-out type	
	Under-voltage trip unit	Optionally ordered by customers	Fixed type/draw-out type	
	Under-voltage trip unit	Optionally ordered by customers	Fixed type/draw-out type	
	Electromagnet for remote reset	Optionally ordered by customers	Fixed type/draw-out type	
Signal output accessory	Auxiliary switch	Standard	Fixed type/draw-out type	
	Ready-to-close signal output device	Optionally ordered by customers	Fixed type/draw-out type	
	Draw-out cradle three-position signal output device	Optionally ordered by customers	Draw-out type	
	Secondary terminal	Standard	Fixed type/draw-out type	
Controller-related accessory	Power supply module NWDF1	Optionally ordered by customers	Fixed type/draw-out type	Used with the power supply module
	Relay module NWDF1-RM	Optionally ordered by customers	Fixed type/draw-out type	
	Communication adapter NWDF1-MD/MP	Optionally ordered by customers	Fixed type/draw-out type	
	Remote intelligent I/O module NWDF1-C8/S12/SC64/SCM423	Optionally ordered by customers	Fixed type/draw-out type	
	6-way programmable output module NWDF1-C6	Optionally ordered by customers	Fixed type/draw-out type	
	Accessory monitoring unit NWDF1-AM	Optionally ordered by customers	Fixed type/draw-out type	
	Charging signal communication module NWDF1-S1	Optionally ordered by customers	Fixed type/draw-out type	
Safety accessory	Inter-phase barrier	Standard	Fixed type/draw-out type	
	Counter	Optionally ordered by customers	Draw-out type	
	Door frame	Optionally ordered by customers	Fixed type/draw-out type	
	Dust cover	Optionally ordered by customers	Draw-out type	
Lock and interlock	OFF position key lock	Optionally ordered by customers	Fixed type/draw-out type	
	Button lock	Optionally ordered by customers	Fixed type/draw-out type	
	Door interlock	Optionally ordered by customers	Draw-out type	
Automatic transfer switch	Mechanical interlock	Optionally ordered by customers	Fixed type/draw-out type	

NDW3B series intelligent air circuit breakers

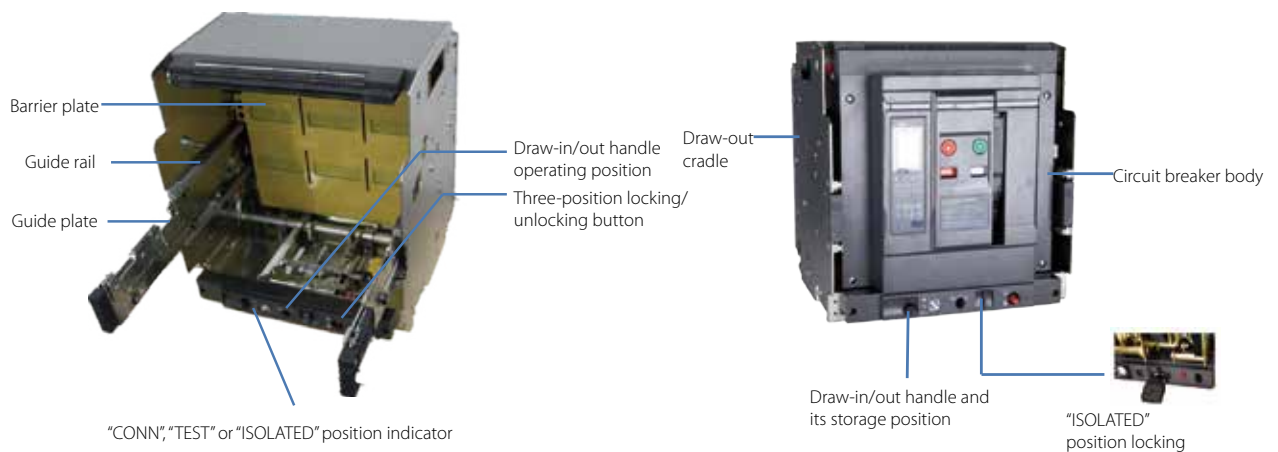
Structure overview



1. Reset button
 2. Specification nameplate
 3. OFF position key lock
 4. Nader logo
 5. OFF button
 6. ON button position indicator
 7. Charging/discharging indicator
 8. Counter
 9. ON/OFF indicator
 10. Nameplate
 11. "CONN", "TEST" or "ISOLATED" position locking /unlocking device
 12. Draw-in/out handle operating position
 13. "CONN", "TEST" or "ISOLATED" position indicator
 14. Draw-in/out handle and its storage position
- Notes: 1~10 for the fixed type; and items 1~14 for the draw-out type
Items 3 and 8 are optional

Structure of draw-out type air circuit breaker

A draw-out type air circuit breaker consists of a circuit breaker body and a draw-out cradle. The circuit breaker body rests on movable guide plates respectively disposed on draw-out guide rails on both sides of the draw-out cradle. The draw-out type air circuit breaker is connected to the main circuit by inserting the busbar on the circuit breaker body into the bridge type contact on the draw-out cradle.



Three operating positions of the draw-out type circuit breaker:

"CONN" position — Both the main circuit and the terminal are connected.

"TEST" position — The main circuit is disconnected while the terminal is connected for testing.

"ISOLATED" position — Both the main circuit and the terminal are disconnected. The circuit breaker body can be taken out in this position.

The draw out type circuit breaker has an interlock device, which controls the circuit breaker to close only in the "CONN" or "TEST" position, and to open in other positions or during motion.

Quick selection table for NDW3B series intelligent air circuit breakers



ND W 3B – 3200 S/08 C/3/KX2 H D1 F1 B1 Q1 1 A55 Other accessories

	See Note d
	Contact combination: See Note c
	Time delay of under-voltage trip unit/no-voltage trip unit: Normal under-voltage: 0 - instantaneous; 1 - 1s delay; 3 - 3s delay; 5 - 5s delay No-voltage: 1 - 1s delay; 3 - 3s delay; 5 - 5s delay
	Under-voltage trip unit/no-voltage trip unit: Q1/S1: AC380/400V Q2/S2: AC220/230V Q3: DC220V Q4: DC110V Q5: DC24V
	Closing electromagnet: B1: AC380/400V B2: AC220/230V B3: DC220V B4: DC110V B5: DC24V
	Shunt trip unit: F1: AC380/400V F2: AC220/230V F3: DC220V F4: DC110V F5: DC24V
	Motor-operated charging mechanism: D1: AC380/400V D2: AC220/230V D3: DC220V D4: DC110V
	Optional functions of controllers (see Note b)
	Controller type: KX, KM, KY (see Note a)
	Number of poles: 3 - 3 poles; 4 - 4 poles; 5 - 3P+N
	Installation: blank - fixed type C - draw-out type
	Rated current: See the table of main performance parameters for details
	Breaking type: S - normal breaking capacity H - high breaking capacity
	Frame size: 3200
	Design code: 3B
	Product code: air circuit breaker
	Brand code: Nader

Note a:

KX-NWK20Z, KM-NWK21 and KY-NWK22 controllers are available
(KX-NWK20 voltage: 1 - AC380V/400V; 2 - AC220V/230V; 3 - DC220V; 4 - DC110V; 5 - DC24V)
(KX-NWK21 voltage: 1 - AC380V/400V; 2 - AC220V/230V; 3 - DC220V; 4 - DC110V; 5 - DC24V)
(KY-NWK22 voltage: 1 - AC380V/400V; 2 - AC220V/230V; 3 - DC220V; 4 - DC110V; 5 - DC24V)

Note b:

Optional functions of controllers:
Protection type: blank - general type; V - voltage measurement and protection type; P - harmonic measurement and protection type
Communication function: H (Modbus protocol) MP (Probus-DP protocol) MD (Devicenet protocol)
Signaling unit: S1 - 4DO; S2 - 3DO, 1DI; S3 - 2DO, 2DI
Remote reset function: Z1 (AC380V/AC400V), Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V), Z5 (DC24V)
3P+N grounding mode: T - differential (blank by default) W - ground current
Optional external N-pole current transformer:
N3 - external N-phase current transformer (122*52)
NR1 - external flexible current transformer (280mm) available for 200A - 800A
NR2 - external flexible current transformer (370mm) available for 1000A - 1600A
NR3 - external flexible current transformer (450mm) available for 2000A - 3200A
Leakage protection type: Type E (including an external leakage current transformer)
Query about contact wear equivalent and operating cycles (optional for NWK21): J

Note c: A22- two NO and two NC; A44 - four NO and four NC; A55 - five NO and five NC

Note d:

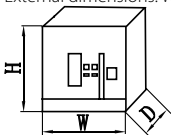
BX - ready-to-close signal output unit
JS - counter function unit
CM1 - draw-out type (with RH door interlock); CM2: draw-out type (with LH door interlock)
CX - draw-out cradle three-position signal output
M - door frame
R - relay module
P - power supply module (consistent with controller voltage by default)
S - button lock
BC - programmable output module (6-way)
IO1 - remote I/O module C8
IO2 - remote I/O module S12
IO3 - remote I/O module SC64
IO4 - remote I/O module SCM423
TC - charging signal communication module
Connection method: blank - horizontal connection; J3 - L-shaped connection;
Product utilization category: blank - general

Remarks

1. The power supply module, relay module, programmable output module, communication adapter, and external N-pole current transformer have to be used with the respective controllers;
2. Follow the order separated by a "/" and listed in the table;
3. The charging signal communication unit cannot be available together with the controller with "V" and "P" functions;

Key lock	SF11-key lock device (one key to one lock); SF21-key lock device (one key to two locks); SF31 - one key to three locks); SF32-key lock device (two keys to three locks); SF53-key lock device (three keys to five locks)	1. You can select one from five key lock models available;
Mechanical interlock	SR11-mechanical interlock device (two sets of steel cables, one for closing and one for opening) SR12-mechanical interlock device (three sets of steel cables, one for closing and two for opening) SR21-mechanical interlock device (three sets of steel cables, two for closing and one for opening) SY11-mechanical interlock device (two sets of rigid links, one for closing and one for opening) SY12-mechanical interlock device (three sets of rigid links, one for closing and two for opening)	2. You can select one from five mechanical interlock models available;
Automatic transfer switch	ATS-R/S/F automatic transfer switch (R: automatic charging and automatic recovery; S: automatic charging and manual recovery; F: mains supply - generator)	Mechanical interlock as standard Various types available

Main performance parameters of NDW3B series intelligent air circuit breakers

Model of circuit breaker			NDW3B-3200	
Rated current In (+40°C) (A)			800, 1000, 1250, 1600, 2000, 2500, 3200	
N-pole rated current			100%In	
Rated operating voltage Ue (V)			AC220/230/240, AC380/400/415, AC440, AC480, AC500/525, AC660/690	
Rated frequency f (Hz)			50/60	
Rated isolation voltage Ui (V)			1000	
Rated impulse withstand voltage Uimp (kV)			12	
Number of poles			3, 4	
Full breaking time ^{Note 1}			≤30	
Closing time ^{Note 2}			≤70	
Breaking type			S	H
Rated ultimate short-circuit breaking capacity Icu (r.m.s value) (kA)	AC220V/230V240V, AC380/400/415, AC440V		75	85
	AC480V, AC500V/525V, AC660/690V		65	75
Rated service short-circuit breaking capacity Icu (r.m.s value) (kA)	AC220V/230V240V, AC380/400/415, AC440V		75	85
	AC480V, AC500V/525V, AC660/690V		65	75
Rated short-circuit making capacity Icu (peak value) kA	AC220V/230V240V, AC380/400/415, AC440V		165	187
	AC480V, AC500V/525V, AC660/690V		143	165
Rated short-time withstand current Ics (r.m.s value) 1s (kA)	AC220V/230V240V, AC380/400/415, AC440V		75	85
	AC480V, AC500V/525V, AC660/690V		65	75
Rated short-time withstand current Ics (r.m.s value) 3s (kA)		AC480V, AC500V/525V, AC660/690V		65
Endurance (operating cycles)	Electrical Operating rate (20 cycles/h)	AC220V/230V240V, AC380/400/415, AC440V	12000;	
		AC480V, AC500V/525V, AC660/690V	12000 (In=800A~1250A): 100000 (In=1600A); 9000 (In=2000A): 7000 (In=2500A): 5000 (In=3200A);	
	Mechanical Operating rate (60 cycles/h)	Without maintenance	12000	
		With maintenance	20000	
Installation method			Fixed type or draw-out type	
Connection method of main circuit			Horizontal connection, vertical connection	
External dimensions: WxDxH 		Fixed type 3P	408mm×294mm×418mm	
		Fixed type 4P	534mm×294mm×418mm	
		Draw-out type 3P	436mm×405.5mm×459.5mm	
		Draw-out type 4P	562mm×405.5mm×459.5mm	
Weight (kg)	Rated current In (+40°C) (A)		800~2500	3200
	Fixed type 3P		59	60
	Fixed type 4P		70	71.5
	Draw-out type 3P		97	103
	Draw-out type 4P		114	120

Notes: 1. Full breaking time: the time interval from the moment when the circuit breaker opens to the moment when the arcing time ends;
2. Closing time: the time interval from the moment when the circuit breaker starts closing to the moment when the contacts of all poles get contact;

Controller functions of NDW3B series intelligent air circuit breakers

Controllers

As one of the main components of a circuit breaker, controllers can provide fail-safe protection against overload, short circuits, grounding, current unbalance, over-voltage, under-voltage, voltage unbalance, over-frequency, under-frequency, reverse power, etc., and enable proper operation of the power grid by the means of load monitoring, demand protection, zone selective interlocking and other functions. The controllers can also measure the current, voltage, power, frequency, energy, demand, harmonic and other parameters of a power grid node, and log the fault, alarm, operation, historical Max. value of current, contact wear and other operation and maintenance parameters. For power grid communication and networking, the controllers can achieve tele-metering, tele-signaling, tele-controlling and tele-adjusting and other functions at the remote terminal of the power automation network.

Types of controllers

Model	NWK20/4P	NWK20/3P	NWK21	NWK21 (V)	NWK22 NWK22 (V) NWK22 (P)
Controller diagram					

Functional item		NWK20	NWK21 NWK31	NWK21/V NWK31/V	NWK22 NWK32	NWK22/V NWK32/V	NWK22/P NWK32/P
Display interface	Digital tube for displaying numbers and symbols	—	√	√	—	—	—
	LCD screen for displaying Chinese characters, symbols and graphics	—	—	—	√	√	√
	Knob type	√	—	—	—	—	—
Protective function	Long-time delayed over-load protection	Single-entry	Single-entry	Single-entry	Multi-entry	Multi-entry	Multi-entry
	Over-load thermal memory	√	√	√	√	√	√
	Over-load pre-alarm/alarm output	—	√/▲	√/▲	√/▲	√/▲	√/▲
	Short-time delayed short-circuit protection	√	√	√	√	√	√
	Short-time delayed thermal memory	√	√	√	√	√	√
	Instantaneous short-circuit protection	√	√	√	√	√	√
	Grounding protection (differential)	Differential	Differential	Differential	√	√	√
	Grounding alarm/alarm output	—	√/▲	√/▲	√/▲	√/▲	√/▲
	Neutral protection	√	√	√	√	√	√
	Current unbalance protection/alarm/alarm output	—	√/—/—	√/—/—	√/√/▲	√/√/▲	√/√/▲
	MCR	√	√	√	√	√	√
	Load monitoring/alarm/alarm output	—	▲/▲/▲	▲/▲/▲	√/√/▲	√/√/▲	√/√/▲
	Under-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲	√/√/▲
	Over-voltage protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲	√/√/▲
	Voltage unbalance protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲	√/√/▲
	Phase sequence protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲	√/√/▲
	Under-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲	√/√/▲
	Over-frequency protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲	√/√/▲
	Desired current protection/alarm/alarm output	—	—	—	√/√/▲	√/√/▲	√/√/▲
	Reverse power protection/alarm/alarm output	—	—	—	—	—	√/√/▲
	Zone selective interlocking	—	—	—	▲	▲	▲
	HSISC	√	√	√	√	√	√
Measuring functions	Current measurement (phase pole, N-pole, ground)	√	√	√	√	√	√
	Peak current measurement	—	—	—	√	√	√
	Voltage (phase voltage, line voltage and voltage unbalance factor)	—	—	√	—	√	√
	Phase sequence detection	—	—	—	—	√	√
	Frequency measurement	—	—	√	—	√	√
	Demand measurement (current)	—	—	—	—	√	√
	Demand measurement (power)	—	—	—	—	—	√
	Power measurement (active power, reactive power and apparent power)	—	—	√	—	—	√
	Power factor measurement	—	—	√	—	—	√
	Electric energy measurement (active energy, reactive energy and apparent energy)	—	—	—	—	—	√
Maintenance functions	Harmonic measurement	—	—	—	—	—	√
	LED fault indicator	√	√	√	√	√	√
	Fault log and query	Once	30 times	30 times	30 times	30 times	30 times
	Alarm history query	—	—	—	√	√	√
	Self-diagnosis	√	√	√	√	√	√
	Analog trip test	√	√	√	√	√	√
	Contact wear equivalent (alarm) query	—	▲	▲	√	√	√
	Operating cycles query	—	▲	▲	√	√	√
Other functions	Clock	—	—	—	√	√	√
	Remote reset of controller	▲	▲	▲	▲	▲	▲
	Signaling unit	▲	▲	▲	▲	▲	▲
	RS485 communication	▲	▲	▲	▲	▲	▲

Note 1: ① “√”: standard; “▲”: optional; “—”: not available;

② The controller with “V” and “P” functions is optional for general type controllers;

③ The NWK21/V, NWK31/V, NWK22/V, NWK32/V, NWK22/P and NWK32/P controller are available only when the rated voltage is 500V or below.

Selection table for accessories of NDW3B series intelligent air circuit breakers

Category of accessory	Name of accessory	Configuration	Installation	Remarks
Electrical control accessory	Closing electromagnet	Standard	Fixed type/draw-out type	Select one from the two
	Shunt trip unit	Standard	Fixed type/draw-out type	
	Motor operating mechanism	Standard	Fixed type/draw-out type	
	Under-voltage trip unit	Optionally ordered by customers	Fixed type/draw-out type	
	No-voltage trip unit	Optionally ordered by customers	Fixed type/draw-out type	
	Electromagnet for remote reset	Optionally ordered by customers	Fixed type/draw-out type	
Signal output accessory	Auxiliary switch	Standard	Fixed type/draw-out type	Used with the charging signal output device
	Ready-to-close signal output device	Optionally ordered by customers	Fixed type/draw-out type	
	Draw-out cradle three-position signal output device	Optionally ordered by customers	Draw-out type	
	Charging signal communication module	Optionally ordered by customers	Fixed type/draw-out type	
	Remote intelligent I/O module NWDF1-C8/S12/SC64/SCM423	Optionally ordered by customers	Fixed type/draw-out type	
	6-way programmable output module NWDF1-C6	Optionally ordered by customers	Fixed type/draw-out type	
	Secondary terminal	Standard	Fixed type/draw-out type	
Controller-related accessory	External N-pole current transformer (rectangle, flexible)	Optionally ordered by customers	Fixed type/draw-out type	Used with the power supply module
	Voltage converter module NWDF1-P2	Optionally ordered by customers	Fixed type/draw-out type	
	Power supply module NWDF1	Optionally ordered by customers	Fixed type/draw-out type	
	Relay module NWDF1-RM	Optionally ordered by customers	Fixed type/draw-out type	
	Communication adapter NWDF1-MD/MP/ME/MC	Optionally ordered by customers	Fixed type/draw-out type	
Safety accessory	Inter-phase barrier	Standard	Fixed type/draw-out type	
	Counter	Optionally ordered by customers	Fixed type/draw-out type	
	Door frame	Optionally ordered by customers	Fixed type/draw-out type	
Lock and interlock	OFF position key lock	Optionally ordered by customers	Fixed type/draw-out type	
	Button lock	Optionally ordered by customers	Fixed type/draw-out type	
	Door interlock	Optionally ordered by customers	Draw-out type	
Automatic transfer switch	Mechanical interlock	Optionally ordered by customers	Fixed type/draw-out type	For two-way power supply
	Automatic transfer switch (ATS)	Optionally ordered by customers	Fixed type/draw-out type	

Part III

Molded Case Circuit Breakers

Quick selection table for NDM2 series molded case circuit breakers



Molded Case Circuit Breakers

ND M 2 X-125 L P/3 3 40 2 (A) P 125A

- Rated current:** See the table of main performance parameters
- Code of connection method:** See Note b
- Code of N pole for 4P products:** See Note a
- Code of intended use:** 2 - motor protection
Blank: power distribution
- Code of accessory:** See the selection table for accessories
- Trip unit:** 0 - N/A
2 - only instantaneous trip unit
3 - Complex trip unit
- Number of poles:** 2 - 2 poles 3 - 3 poles 4 - 4 poles
- Operating mode:** P: motor-operated
Z: rotary handle
Blank: direct operation handle
- Rated ultimate short-circuit breaking capacity: (only for 3P products)**
- C: basic type L: standard type
M: medium breaking capacity C: high breaking capacity
- Frame size:** 63, 125, 250, 400, 630, 800
- 2P miniature case (only for NDM2X-125 2P products)**
- Design code:** 2
- Product code:** molded case circuit breaker
- Brand code:** Nader

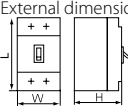
Note a: Three types of neutral lines (N-pole) are available for 4P products:

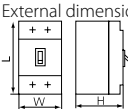
A: Without over-current trip unit mounted in the N pole which is always connected.
B: Without over-current trip unit mounted in the N pole which closes or opens together with the other three poles.
C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles.

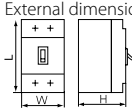
Note b: code of connection method: (see the table of main performance parameters for the applicability to each frame size)

Blank: normal front connection
P: Busbar
JK: incoming terminal: wiring frame; outgoing terminal: front connection
CK: incoming terminal: front connection; outgoing terminal: wiring frame
K: incoming/outgoing terminal: wiring frame

Main performance parameters of NDM2 series molded case circuit breakers

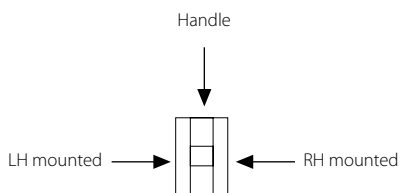
Model		NDM2-63			NDM2-125				
Frame size Inm (A)		63			125				
Rated current In (A)		10, 12.5, 16, 20, 25, 32, 40, 50, 63			16, 20, 25, 32, 40, 50, 63, 80, 100, 125				
Rated isolation voltage Ui (V)		1000			1000				
Rated impulse withstand voltage Uimp (V)		8000			8000				
Power-frequency withstand voltage U (1 min) (V)		3500			3500				
Utilization category		A			A				
Number of poles		3	3	4	3	3	3	3	4
Breaking capacity level		L	M		C	L	M	H	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 380/400/415V	36	52.5	52.5	25	36	52.5	85	52.5
	AC 500V					25			
	AC 550V					20	40		
	AC 690V						20		
Rated service short-circuit breaking capacity Ics (kA)	AC 380/400/415V	27	38	38	18.75	27	38	63.75	38
	AC 500V					25			
	AC 550V					20	40		
	AC 690V						15		
Endurance (operating cycles)	Electrical	8000			8000				
	Mechanical	20000			20000				
External dimensions 	L (mm)	135	135	135	150	150	150	150	150
	W (mm)	78	78	103	92	92	92	92	122
	H (mm)	73.5	81.5	81.5	69	69	87.5	87.5	87.5
Arcing distance (mm)		≤50			≤50				
Connection method		Front connection, Z1, Z2Q, Z2H, Z3Q, Z3H			Front connection, P, JK, CK, K, Z1, Z2Q, Z2H, Z3Q, Z3H				

Model		NDM2X-125	NDM2-250				
Frame size Inm (A)		125	250				
Rated current In (A)		16, 20, 25, 32, 40, 50, 63, 80, 100, 125	100, 125, 140, 160, 180, 200, 225, 250				
Rated isolation voltage Ui (V)		1000	1000				
Rated impulse withstand voltage Uimp (V)		8000	8000				
Power-frequency withstand voltage U (1 min) (V)		3500	3500				
Utilization category		A	A				
Number of poles		2	3	3	3	3	4
Breaking capacity level			C	L	M	H	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 380/400/415V	35	25	36	52.5	85	52.5
	AC 500V			25			
	AC 550V			20	40		
	AC 690V				20		
Rated service short-circuit breaking capacity Ics (kA)	AC 380/400/415V	26.25	18.75	27	38	63.75	38
	AC 500V			25			
	AC 550V			20	40		
	AC 690V				15		
Endurance (operating cycles)	Electrical	8000	8000				
	Mechanical	20000	20000				
External dimensions 	L (mm)	150	165	165	165	165	165
	W (mm)	64	107	107	107	107	142
	H (mm)	69	86	86	103	103	103
Arcing distance (mm)		≤50	≤50				
Connection method		Front connection, P, JK, CK, K	Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H				

Model		NDM2-400					NDM2-630					NDM2-800		
Frame size Inm (A)		400					630					800		
Rated current In (A)		225, 250, 315, 350, 400					400, 500, 630					630, 700, 800		
Rated isolation voltage Ui (V)		1000					1000					1000		
Rated impulse withstand voltage Uimp (V)		8000					8000					8000		
Power-frequency withstand voltage U (1 min) (V)		3500					3500					3500		
Utilization category		A					A					A		
Number of poles		3	3	3	3	4	3	3	3	3	4	3	3	4
Breaking capacity level		C	L	M	H		C	L	M	H		M	H	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 400/415V	35	50	65	100	65	35	50	65	100	65	75	100	75
	AC 500V			50					30					
	AC 690V			20					20			20		
Rated service short-circuit breaking capacity Ics (kA)	AC 400/415V	26.25	37.5	48.75	75	48.75	26.25	37.5	48.75	75	48.75	56.25	75	56.25
	AC 500V			50					30					
	AC 690V			15					15			15		
Endurance (operating cycles)	Electrical	7500					7500					7500		
	Mechanical	10000					10000					10000		
External dimensions 	L (mm)	257	257	257	257	257	270	270	270	270	270	280	280	280
	W (mm)	150	150	150	150	198	182	182	182	182	240	210	210	280
	H (mm)	106.5	106.5	106.5	106.5	106.5	110.5	110.5	110.5	110.5	110.5	116.5	116.5	116.5
Arcing distance (mm)		≤100					≤100					≤100		
Connection method		Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H					Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H					Front connection, P, Z1, Z2H, Z3Q, Z3H		

Selection table for accessories of NDM2 series molded case circuit breakers

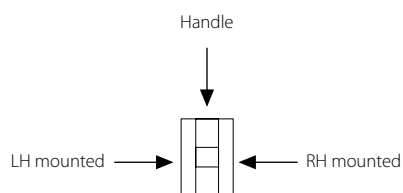
Code of accessory	Mounting position	Model	NDM2-63		NDM2-125		NDM2X-125
			3	4	3	4	2
00		N/A	---		---		---
10		Shunt trip unit					
20		Dual auxiliary contacts					
21		Single auxiliary contact					
30		Under-voltage trip unit					---
40		Dual auxiliary contacts for shunt trip unit					---
41		Single auxiliary contact for shunt trip unit					---
50		Under-voltage trip unit for shunt trip unit					---
60		Two dual auxiliary contact blocks	---				---
61		Two single auxiliary contact blocks					---
62		Dual auxiliary contacts Single auxiliary contact					---
70		Under-voltage trip unit Dual auxiliary contacts					---
71		Under-voltage trip unit Single auxiliary contact					---
08		Alarm contact					
18		Shunt trip unit Alarm contact					---
28		Dual auxiliary contacts Alarm contact					---
38		Under-voltage trip unit Alarm contact	---				---
48		Shunt trip unit, auxiliary and alarm contact					---
58		Auxiliary and alarm contacts					
68		Dual auxiliary contacts, auxiliary and alarm contact	---				---
78		Under-voltage trip unit, auxiliary and alarm contact	---				---



Legend:

- Single auxiliary contact
- Dual auxiliary contacts
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit
- Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Code of accessory	Mounting position	Model	NDM2-250		NDM2-400		NDM2-630		NDM2-800	
			3	4	3	4	3	4	3	4
00		N/A	—	—	—	—	—	—	—	—
10		Shunt trip unit								
20		Dual auxiliary contacts								
21		Single auxiliary contact								
30		Under-voltage trip unit								
40		Dual auxiliary contacts for shunt trip unit								
41		Single auxiliary contact for shunt trip unit								
50		Under-voltage trip unit for shunt trip unit								
60		Two dual auxiliary contact blocks								
61		Two single auxiliary contact blocks								
62		Dual auxiliary contacts Single auxiliary contact								
70		Under-voltage trip unit Dual auxiliary contacts								
71		Under-voltage trip unit Single auxiliary contact								
08		Alarm contact								
18		Shunt trip unit Alarm contact								
28		Dual auxiliary contacts Alarm contact								
38		Under-voltage trip unit Alarm contact								
48		Shunt trip unit, auxiliary and alarm contact								
58		Auxiliary and alarm contacts								
68		Dual auxiliary contacts, auxiliary and alarm contact								
78		Under-voltage trip unit, auxiliary and alarm contact								



Legend:

- Single auxiliary contact
- Dual auxiliary contacts
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit
- Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM2L series molded case circuit breakers



III

Molded Case Circuit Breakers

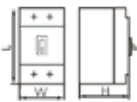
ND M 2 L-250 M P/A X V 3 3 00 A 225A P

- Connection method:**
Blank: front connection P: extended busbar
- Rated current**
- Type of N pole (neutral pole) for 4P products:** See note 1
- Code of accessory:**
See the selection table for accessories for details
- Code of trip unit:**
3: complex trip unit
- Number of poles:** 3, 4
- Type of residual current trip unit:**
V: Type V residual current trip unit
W: Type W residual current trip unit (only for the 630 frame size)
- Type of time delay:**
X: non-time delay protection
Y: time delay protection
- Code of derived function:**
Blank: Type AC residual current protection
A: Type A residual current protection (N/A for the 630 frame size)
- Operating mode:** Blank: direct operation handle
P: motor-operated
Z: rotary handle
- Rated ultimate short-circuit breaking capacity: (only for 3P products)**
M: medium breaking capacity
H: high breaking capacity
- Frame size:** 125, 250, 400, 630
- Derived code:** L: with current leakage protection
- Design serial number:** 2
- Product code:** molded case circuit breaker
- Brand code:** Nader

Note 1:

- A: Without over-current trip unit mounted in the N pole which is always connected but does not close or open together with the other three poles;
B: Without over-current trip unit mounted in the N pole which closes or opens together with the other three poles;
C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles.

Main performance parameters of NDM2L series molded case circuit breakers

Model			NDM2L-125			NDM2L-250			NDM2L-400			NDM2L-630		
Frame size Inm (A)			125			250			400			630		
Rated current In (A)			16, 20, 25, 32, 40, 50, 63, 80, 100, 125			100, 125, 140, 160, 180, 200, 225, 250			225, 250, 315, 350, 400			400, 500, 630		
Rated isolation voltage Ui (AC V)			1000			1000			1000			1000		
Rated impulse withstand voltage Uimp (V)			8000			8000			8000			8000		
Utilization category			A			A			A			A		
Number of poles			3	3	4	3	3	4	3	3	4	3	3	4
Breaking capacity level			M	H		M	H		M	H		M	H	
Rated ultimate short-circuit breaking capacity Icu (kA)			52.5	85	52.5	52.5	85	52.5	65	100	65	65	70	65
Rated service short-circuit breaking capacity Ics (kA)			35	50	35	35	50	35	42	70	42	42	70	42
Rated residual operating current IΔn (mA)	Non-time delay	AC	Type V 30/100/300/500			Type V 30/100/300/500			Type V 30/300/500/1000			Type V 30/300/500/1000 Type W 1A/3A/10A/30A		
		A	Type V 30/100/300/500			Type V 30/100/300/500			Type V 30/300/500/1000			/		
	Time delay	AC	Type V 100/300/500			Type V 100/300/500			Type V 300/500/1000			Type V 300/500/1000 Type W 1A/3A/10A/30A		
		A	Type V 100/300/500			Type V 100/300/500			Type V 300/500/1000			/		
Rated residual non-operating current IΔno (mA)			1/2 IΔn			1/2 IΔn			1/2 IΔn			1/2 IΔn		
Rated residual short-circuit making and breaking capacity IΔm (kA)			1/4 Icu			1/4 Icu			1/4 Icu			1/4 Icu		
Endurance (operating cycles)	Electrical		8000			8000			7500			7500		
	Mechanical		20000			20000			10000			10000		
External dimensions 	L (mm)		150	150	150	165	165	165	257	257	257	280	280	280
	W (mm)		92	92	122	107	107	142	150	150	198	210	210	280
	H (mm)		92.5	92.5	92.5	91	91	91	107	107	107	116.5	116.5	116.5
Arcing distance (mm)			≤50			≤50			≤100			≤100		
Connection method			Front connection, P			Front connection, P			Front connection, P			Front connection, P		
Operating characteristic of residual current with DC components (AC, A)			AC, A			AC, A			AC, A			AC		



Selection table for accessories of NDM2L series molded case circuit breakers

		NDM2L-125		NDM2L-250		NDM2L-400		NDM2L-630	
		3	4	3	4	3	4	3	4
00	N/A	—	—	—	—	—	—	—	—
10	Shunt trip unit								
20	Dual auxiliary contacts								
21	Single auxiliary contact								
30	Under-voltage trip unit								
40	Shunt trip unit, dual auxiliary contacts								
41	Shunt trip unit, single auxiliary contact								
60	Two dual auxiliary contact blocks								
61	Two single auxiliary contact blocks								
62	Dual auxiliary contacts, single auxiliary contact								
70	Under-voltage trip unit, dual auxiliary contacts								
71	Under-voltage trip unit, single auxiliary contact								
08	Alarm contact								
28	Dual auxiliary contacts, alarm contact								
58	Auxiliary and alarm contacts								
68	Dual auxiliary contacts, auxiliary and alarm contact								

Notes: Only LH-mounted single accessory is available for the NDM2L series 3P products, i.e. accessories coded as 10, 20, 21, 30, 08 and 58;



Quick selection table for NDM2E series molded case circuit breakers



ND M 2 E-250 H P/G 3 320 2 225A P

Connection method: (Note 1)

Blank: normal front connection
P: extended busbar
Z1: rear connection
Z2Q: plug-in type front connection
Z2H: plug-in type rear connection
Z3Q: plug-in type integrated front connection
Z3H: plug-in type integrated rear connection (please indicate the connection method)

Setting current I_r : See the table of main performance parameters for details

Code of intended use:

Blank: power distribution
2: motor protection

Code of accessory: See the selection table for accessories

Number of poles: 3 - 3 poles

Derived code of intelligent trip unit:

Blank: basic type
G: grounding protection
T: communication
GT: grounding protection and communication

Operating mode:

P: motor-operated
Z: rotary handle
Blank: direct operation handle

Rated ultimate short-circuit breaking capacity: (only for 3P products)

H: high breaking capacity
M: medium breaking capacity

Frame size: 100, 250, 400, 630, 800

Derived code of series: electronic type

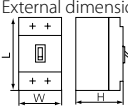
Design code: 2

Product code: molded case circuit breaker

Brand code: Nader

Note 1: See the table of main performance parameters for the applicability to each frame size.

Main performance parameters of NDM2E series molded case circuit breakers

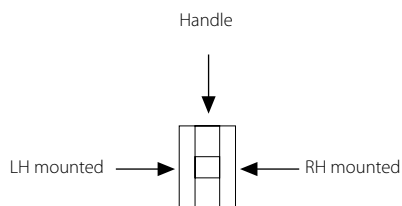
Model		NDM2E-100		NDM2E-250		NDM2E-400		NDM2E-630		NDM2E-800	
Frame size Inm (A)		100		250		400		630		800	
Setting current Ir (A)		40, 50, 63, 70, 80, 90, 100		100, 125, 160, 180, 200, 225, 250		200, 225, 250, 280, 315, 350, 400		280, 315, 350, 400, 450, 500, 550, 600, 630		400, 450, 500, 550, 600, 630, 700, 750, 800	
Rated isolation voltage Ui (AC V)		800		800		800		800		800	
Rated impulse withstand voltage Uimp (V)		8000		8000		8000		8000		8000	
Power-frequency withstand voltage U (1 min) (V)		3500		3500		3500		3500		3500	
Utilization category		A		A		B		B		B	
Rated short-time withstand current Icw (kA/1s)		1		2.5		5		8		10	
Number of poles		3		3		3		3		3	
Breaking capacity level		H	M	H	M	H	M	H	M	H	M
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 400V	85	50	85	50	100	65	100	65	100	65
	AC 400V	50	50	50	50	65	65	65	65	65	65
Rated service short-circuit breaking capacity Ics (kA)	AC 400V	50	50	50	50	65	65	65	65	65	65
	AC 400V	50	50	50	50	65	65	65	65	65	65
Endurance (operating cycles)	Electrical	8000		8000		7500		7500		7500	
	Mechanical	20000		20000		10000		10000		10000	
External dimensions 	L (mm)	150		165		257		280		280	
	W (mm)	92		107		150		210		210	
	H (mm)	92		90		106.5		116.5		116.5	
Arcing distance (mm)		≤50		≤50		≤100		≤100		≤100	
Connection method		Front connection, P, Z1, Z2Q, Z2H		Front connection, P, Z1, Z2Q, Z2H		Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H		Front connection, P, Z1, Z2H, Z3Q, Z3H		Front connection, P, Z1, Z2H, Z3Q, Z3H	

Selection table for accessories of NDM2E series molded case circuit breakers

Code of accessory	Mounting position Name of accessory	Model Number of poles	NDM2E-100	NDM2E-250	NDM2E-400	NDM2E-630	NDM2E-800
			3	3	3	3	3
300	N/A		---	---	---	---	---
310	Shunt trip unit						
320	Dual auxiliary contacts						
321	Single auxiliary contact						
330	Under-voltage trip unit						
340	Shunt trip unit Dual auxiliary contacts		---				
341	Shunt trip unit Single auxiliary contact						
350	Shunt trip unit Under-voltage trip unit		---	---	---		
360	Two dual auxiliary contact blocks		---				
361	Two single auxiliary contact blocks						
362	Dual auxiliary contacts Single auxiliary contact		---				
370	Dual auxiliary contacts Under-voltage trip unit						
371	Single auxiliary contact Under-voltage trip unit						
308	Alarm contact						
318	Shunt trip unit Alarm contact						
328	Dual auxiliary contacts Alarm contact						
338	Under-voltage trip unit Alarm contact						
348	Shunt trip unit, auxiliary and alarm contact						
358	Auxiliary and alarm contacts						
368	Dual auxiliary contacts, auxiliary and alarm contact		---				
378	Under-voltage trip unit, auxiliary and alarm contact						

Notes: 1. The first digit "3" in the code of trip unit accessory represents intelligent controllers with three-stage protection, while the two digits following it represent internal codes of accessories.

2. For the selection of "communication type and combined type of grounding protection and communication", please consult with us.



Legend:

- Single auxiliary contact
- Dual auxiliary contacts
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit
- Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM2Z series molded case circuit breakers



ND M 2 Z-250 P/2 3 18 225A P

Connection method: (Note 1)
Blank: normal front connection
P: Busbar
JK: incoming terminal: wiring frame; outgoing terminal: front connection
CK: incoming terminal: front connection; outgoing terminal: wiring frame
K: incoming/outgoing terminal: wiring frame
Z1: rear connection
Z2Q: plug-in type front connection
Z2H: plug-in type rear connection

of each transformer

Code of accessory: See the selection table for accessories

Code of trip unit: 0 - N/A
2 - only instantaneous trip unit
3 - Complex trip unit

Number of poles: 2, 3

Operating mode:
Blank: direct operation handle
P: motor-operated
Z: rotary handle

Frame size: 63, 125, 250, 400, 630

Z: DC molded case circuit breaker
ZX: miniature molded case circuit breaker (only for the 125 frame size)

Design code: 2

Product code: molded case circuit breaker

Brand code: Nader

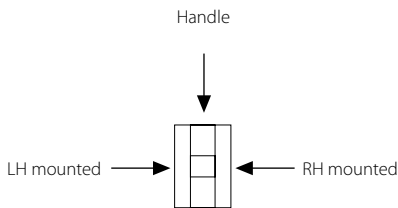
Note 1: See the table of main performance parameters for the applicability to each frame size.

Main performance parameters of NDM2Z series molded case circuit breakers

Model		NDM2Z-63	NDM2Z-125	NDM2ZX-125	NDM2Z-250	NDM2Z-400	NDM2Z-630
Frame size Inm (A)		63	125	125	250	400	630
Rated current In (A)		10, 12.5, 16, 20, 25, 32, 40, 50, 63	16, 20, 25, 32, 40, 50, 63, 80, 100, 125	16, 20, 25, 32, 40, 50, 63, 80, 100, 125	125, 140, 160, 180, 200, 225, 250	225, 250, 315, 350, 400	400, 500, 630
Rated isolation voltage Ui (V)		1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage Uimp (V)		8000	8000	8000	8000	8000	8000
Power-frequency withstand voltage U (1 min) (V)		3500	3500	3500	3500	3500	3500
Utilization category		A	A	A	A	A	A
Number of poles		2, 3	2, 3	2	2, 3	2, 3	2, 3
Rated operating voltage Ue DC (V)		250	250	250	250	250	250
Rated ultimate short-circuit breaking capacity Icu (kA)		25	35	35	35	50	50
Rated service short-circuit breaking capacity Ics (kA)		25	35	35	35	50	50
Endurance (operating cycles)	Electrical	2000	1500	1500	1500	1000	1000
	Mechanical	10000	8500	8500	8500	4000	4000
External dimensions 	L (mm)	135	150	150	165	257	270
	W (mm)	78	92	64	107	150	182
	H (mm)	73.5	69	69	86	106.5	110.5
Arcing distance (mm)		≤50	≤50	≤50	≤50	≤100	≤100
Connection method		Front connection, Z1, Z2Q, Z2H	Front connection, P, JK, CK, K, Z1, Z2Q, Z2H	Front connection, P, JK, CK, K	Front connection, P, Z1, Z2Q, Z2H	Front connection, P, Z1, Z2Q, Z2H	Front connection, P, Z1, Z2Q, Z2H

Selection table for accessories of NDM2Z series molded case circuit breakers

Code of accessory	Mounting position	Model	Model					
			NDM2Z-63	NDM2Z-125	NDM2ZX-125	NDM2Z-250	NDM2Z-400	NDM2Z-630
			2, 3	2, 3	2	2, 3	2, 3	2, 3
Name of accessory		Number of poles						
00	N/A	—	—	—	—	—	—	
10	Shunt trip unit							
20	Dual auxiliary contacts							
21	Single auxiliary contact							
30	Under-voltage trip unit			—				
40	Shunt trip unit Dual auxiliary contacts			—				
41	Shunt trip unit Single auxiliary contact			—				
50	Shunt trip unit Under-voltage trip unit			—				
60	Two dual auxiliary contact blocks	—		—				
61	Two single auxiliary contact blocks			—				
62	Dual auxiliary contacts Single auxiliary contact			—				
70	Under-voltage trip unit Dual auxiliary contacts			—				
71	Under-voltage trip unit Single auxiliary contact			—				
08	Alarm contact							
18	Shunt trip unit Alarm contact			—				
28	Dual auxiliary contacts Alarm contact			—				
38	Under-voltage trip unit Alarm contact	—		—				
48	Shunt trip unit, auxiliary and alarm contact			—				
58	Auxiliary and alarm contacts							
68	Dual auxiliary contacts, auxiliary and alarm contact	—		—				
78	Under-voltage trip unit, auxiliary and alarm contact	—		—				



- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM2ZB series molded case circuit breakers



ND M 2 ZB-250 P/3 3 18 10 225A P

Connection method: (Note 1)

Blank: normal front connection
P: extended busbar
JK: incoming terminal: wiring frame; outgoing terminal: front connection
CK: incoming terminal: front connection; outgoing terminal: wiring frame
K: incoming/outgoing terminal: wiring frame
Z1: rear connection
Z2Q: plug-in type front connection (except for NDM2ZB-800)
Z2H: plug-in type rear connection
J: mechanical interlock

Rated current: See the table of main performance parameters

Short time delay:

10: 10ms
30: 30ms
60: 60ms

Code of accessory: See the selection table for accessories

Code of trip unit:

2 - instantaneous trip unit + short-time delayed short-circuit trip unit
3 - complex trip unit + short-time delayed short-circuit trip unit

Number of poles: 2 - 2 poles 3 - 3 poles

Operating mode:

Blank: direct operation handle
P: motor-operated
Z: rotary handle

Frame size: 63, 125, 250, 400, 630, 800

ZB: DC molded case circuit breaker with short-time delayed short-circuit protection

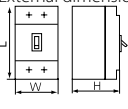
Design code: 2

Product code: molded case circuit breaker

Brand code: Nader

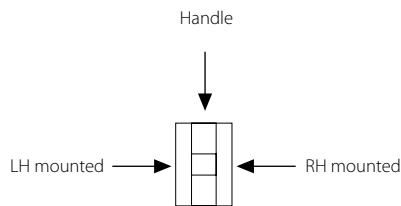
Note 1: See the table of main performance parameters for the applicability to each frame size.

Main performance parameters of NDM2ZB series molded case circuit breakers

Model		NDM2ZB-63		NDM2ZB-125		NDM2ZB-250		NDM2ZB-400		NDM2ZB-630		NDM2ZB-800	
Frame size Inm (A)		63		125		250		400		630		800	
Rated current In (A)		40, 50, 63		40, 50, 63, 80, 100, 125		125, 160, 180, 200, 225, 250		225, 250, 315, 350, 400		400, 500, 630		630, 700, 800	
Rated isolation voltage Ui (V)		1000		1000		1000		1000		1000		1000	
Rated impulse withstand voltage Uimp (V)		8000		8000		8000		8000		8000		8000	
Power-frequency withstand voltage U (1 min) (V)		3500		3500		3500		3500		3500		3500	
Utilization category		A		A		B		B		B		B	
Rated short-time withstand current Icw (kA/1s)		1.5		2.5		5		5		8		10	
Number of poles		2	3	2	3	2	3	2	3	2	3	2	
Rated operating voltage Ue (DC V)		250	250	250	250	250	250	250	250	250	250	250	
Rated ultimate short-circuit breaking capacity Icu (kA)		25	35	35	50	35	50	50	75	50	75	50	
Rated service short-circuit breaking capacity Ics (kA)		25	35	35	50	35	50	50	75	50	75	50	
Endurance (operating cycles)	Electrical	2000	2000	1500	1500	1500	1500	1000	1000	1000	1000	2000	
	Mechanical	10000	10000	8500	8500	8500	8500	4000	4000	4000	4000	6000	
External dimensions 	L (mm)	135	135	150	150	165	165	257	257	270	270	280	
	W (mm)	78	103	92	122	107	142	150	198	182	240	210	
	H (mm)	81.5	81.5	87	87	103	103	106.5	106.5	110.5	110.5	112	
Arcing distance (mm)		≤50		≤50		≤50		≤100		≤100		≤100	
Connection method		Front connection, Z1, Z2Q, Z2H		Front connection, P, JK, CK, K, Z1, Z2Q, Z2H		Front connection, P, Z1, Z2Q, Z2H		Front connection, P, Z1, Z2Q, Z2H		Front connection, P, Z1, Z2Q, Z2H		Front connection, P	

Selection table for accessories of NDM2ZB series molded case circuit breakers

Code of accessory	Mounting position	Model	NDM2ZB-63		NDM2ZB-125		NDM2ZB-250		NDM2ZB-400		NDM2ZB-630		NDM2ZB-800	
			Number of pole		Number of pole		Number of pole		Number of pole		Number of pole		Number of pole	
			2	3	2	3	2	3	2	3	2	3	2	3
00	N/A		---	---	---	---	---	---	---	---	---	---	---	---
10	Shunt trip unit													
20	Dual auxiliary contacts													
21	Single auxiliary contact													
08	Alarm contact													
58	Auxiliary and alarm contacts													



Legend:

- Single auxiliary contact
- Dual auxiliary contacts
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit
- Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM3 series molded case circuit breakers



ND M 3 -125 M P/3 3 08 2 (A) I P 100A

III

Molded Case Circuit Breakers

Rated current: See the table of main performance parameters

Code of connection method: See Note b

Special purpose:

I: overload alarm without tripping (only for the 125, 250 (except for Type C), 400 and 630 frame sizes; for the trip units of Type A or Type B 3-pole and 4-pole (with a neutral pole) product, Select 2 as the code)
Q: self-recovery upon voltage check (N/A for the 160 and 1600 frame sizes)

Type of N pole (neutral pole) for 4P products: See Note a

Code of intended use:

Blank: power distribution
2: motor protection

Code of accessory: See the selection table for accessories

Trip unit: 0 - N/A

2 - only instantaneous trip unit
3 - complex trip unit (N/A for overload alarm without tripping)

Number of poles: 3 - 3 poles 4 - 4 poles

Operating mode:

Blank: direct operation handle
P: motor-operated
Z: rotary handle

Breaking capacity: (only for 3P products)

C: basic type
L: standard type
M: medium breaking capacity
H: high breaking capacity

Frame size: 63, 100, 125, 160, 250, 400, 630, 800, 1600

Design code: 3

Product code: molded case circuit breaker

Brand code: Nader

Note a:

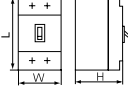
Three types of neutral lines (N-pole) are available for 4P products:
A: Without over-current trip unit mounted in the N pole which is always connected.
B: Without over-current trip unit mounted in the N pole which closes or opens together with the other three poles.
C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles.

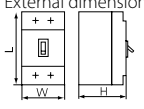
Note b: (see the table of main performance parameters for the applicability to each frame size)

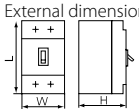
Blank: normal front connection
P: extended busbar
JK: incoming/outgoing terminal: wiring frame
outgoing terminal: front connection
CK: incoming terminal: front connection
outgoing terminal: wiring frame
K: incoming/outgoing terminal: wiring frame

Z1: rear connection
Z2Q: plug-in type front connection
Z2H: plug-in type rear connection
Z3Q: plug-in type integrated front connection
Z3H: plug-in type integrated rear connection

Main performance parameters of NDM3 series molded case circuit breakers

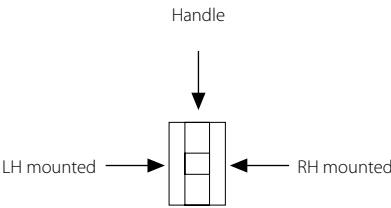
Model		NDM3-63			NDM3-100		NDM3-125				NDM3-160			
Frame size Inm (A)		63			100		125				160			
Rated current In (A)		10, 16, 20, 25, 32, 40, 50, 63			10, 16, 20, 25, 32, 40, 50, 63, 80, 100		16, 20, 25, 32, 40, 50, 63, 80, 100, 125				125, 140, 160			
Rated isolation voltage Ui (V)		1000			1000		1000				1000			
Rated impulse withstand voltage Uimp (V)		8000			8000		8000				8000			
Power-frequency withstand voltage U (1 min) (V)		3500			3500		3500				3500			
Utilization category		A			A		A				A			
Number of poles		3	3	4	3	4	3	3	3	4	3	3	3	4
Breaking capacity level		L	M		C		L	M	H		C	L	M	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC380/400/415V	36	55	55	40	40	50	70	100	70	40	50	70	70
	AC 500V		20	20	15	15		40		40				
	AC 660/690V		12	12	12	12		20		20			20	20
Rated service short-circuit breaking capacity Ics (kA)	AC380/400/415V	36	40	40	30	30	40	50	70	50	30	40	50	50
	AC 500V		15	15	12	12		40		40				
	AC 660/690V		10	10	10	10		10		10			10	10
Endurance (operating cycles)	Electrical	8000			8000		8000				8000			
	Mechanical	20000			20000		20000				20000			
External dimensions 	L (mm)	130	130	130	130	130	150	150	150	150	139	150	150	150
	W (mm)	75	75	100	75	100	92	92	92	122	92	92	92	122
	H (mm)	65	65	65	65	65	69	87.5	87.5	87.5	75.3	74.3	92.3	92.3
Arcing distance (mm)		≤50					≤50				≤50			
Connection method		Front connection, P, Z1, Z3Q, Z3H					Front connection, P, JK, CK, K, Z1, Z2Q, Z2H, Z3Q, Z3H				Front connection, P, Z1, Z3Q, Z3H			

Model		NDM3-250					NDM3-400				
Frame size Inm (A)		250					400				
Rated current In (A)		100, 125, 140, 160, 180, 200, 225, 250					225, 250, 315, 350, 400				
Rated isolation voltage Ui (V)		1000	1000	1000	1000	1000	1000				
Rated impulse withstand voltage Uimp (V)		8000	8000	8000	8000	8000	8000				
Power-frequency withstand voltage U (1 min) (V)		3500					3500				
Utilization category		A					A				
Number of poles		3	3	3	3	4	3	3	3	3	4
Breaking capacity level		C	L	M	H		C	L	M	H	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC380/400/415V	40	50	70	100	70	35	50	70	100	70
	AC 500V			40		40			50		50
	AC 660/690V			20		20			20		20
Rated service short-circuit breaking capacity Ics (kA)	AC380/400/415V	35	40	50	70	50	35	50	70	75	70
	AC 500V			40		40			50		50
	AC 660/690V			10		10			15		15
Endurance (operating cycles)	Electrical	8000					7500				
	Mechanical	20000					10000				
External dimensions 	L (mm)	165	165	165	165	165	257	257	257	257	257
	W (mm)	105	107	107	107	142	150	150	150	150	198
	H (mm)	63.4	88	105	105	105	104.5	104.5	104.5	104.5	104.5
Arcing distance (mm)		≤50					≤100				
Connection method		Front connection, P, Z3Q, Z3H		Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H			Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H				

Model		NDM3-630					NDM3-800			NDM3-1600	
Frame size Inm (A)		630					800			1600	
Rated current In (A)		400, 500, 630					630, 700, 800			800, 1000, 1250	
Rated isolation voltage Ui (V)		1000					1000			1000	
Rated impulse withstand voltage Uimp (V)		8000					8000			12000	
Power-frequency withstand voltage U (1 min) (V)		3500					3500			3500	
Utilization category		A					A			A	
Number of poles		3	3	3	3	4	3	3	4	3	4
Breaking capacity level		C	L	M	H		M	H		M	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC380/400/415V	35	50	70	100	70	70	100	70	70	
	AC 500V			30		30	30		30	50	
	AC 660/690V			20		20	20		20	20	
Rated service short-circuit breaking capacity Ics (kA)	AC380/400/415V	35	50	70	75	70	70	75	70	50	
	AC 500V			30		30	30		30	50	
	AC 660/690V			15		15	15		15	20	
Endurance	Electrical	7500					7500			1000 (AC415V), 800 (AC500V), 500 (AC690V)	
	Mechanical	10000					10000			10000 (3P) / 6000 (4P)	
External dimensions 	L (mm)	270	270	270	270	270	280	280	280	268	
	W (mm)	182	182	182	182	240	210	210	280	210	
	H (mm)	108.5	108.5	108.5	108.5	108.5	112	112	112	152	
Arcing distance (mm)		≤100					≤100			≤100	
Connection method		Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H					Front connection, P, Z1, Z3Q, Z2H, Z3H			Front connection, P	

Selection table for accessories of NDM3 series molded case circuit breakers

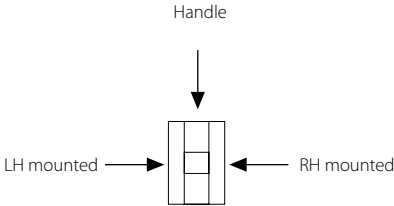
Code of accessory	Mounting position	Model	NDM3-63		NDM3-100		NDM3-125		NDM3-160		NDM3-250 C	NDM3-250L/M/H	NDM3-250	NDM3-400		NDM3-630		NDM3-800	
			3	4	3	4	3	4	3	3	4	3	4	3	4	3	4	3	4
00	N/A		—		—		—		—		—		—		—		—		—
10	Shunt trip unit																		
20	Dual auxiliary contacts										—								
21	Single auxiliary contact																		
30	Under-voltage trip unit																		
40	Shunt trip unit Dual auxiliary contacts										—								
41	Shunt trip unit Single auxiliary contact																		
50	Shunt trip unit Under-voltage trip unit								—										
60	Two dual auxiliary contact blocks								—		—								
61	Two single auxiliary contact blocks																		
62	Dual auxiliary contacts Single auxiliary contact								—		—								
70	Under-voltage trip unit Dual auxiliary contacts										—								
71	Under-voltage trip unit Single auxiliary contact																		
08	Alarm contact																		
18	Shunt trip unit Alarm contact								—										
28	Dual auxiliary contacts Alarm contact										—								
38	Under-voltage trip unit Alarm contact								—										—
48	Shunt trip unit, auxiliary and alarm contact																		
58	Auxiliary and alarm contacts																		
68	Dual auxiliary contacts, auxiliary and alarm contact								—		—								
78	Under-voltage trip unit, auxiliary and alarm contact								—										—



- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Code of accessory	Mounting position	Model	NDM3-1600
			3
00	N/A		—
08	One alarm contact block		
98	Two alarm contact blocks		
10	Shunt trip unit		
K01	Two shunt trip units		
30	Under-voltage trip unit		
A01	Two under-voltage trip units		
21	Single auxiliary contact		
61	Two single auxiliary contact blocks		
23	Three single auxiliary contact blocks		
24	Four single auxiliary contact blocks		
18	Shunt trip unit, alarm contact		
38	Under-voltage trip unit, alarm contact		
22	Single auxiliary contact, alarm contact		
88	Two single auxiliary contact blocks, alarm contact		
26	Three single auxiliary contact blocks, alarm contact		
25	Four single auxiliary contact blocks, alarm contact		
42	Shunt trip unit, single auxiliary contact, alarm contact		
44	Shunt trip unit, two single auxiliary contact blocks, alarm contact		
46	Shunt trip unit, three single auxiliary contact blocks, alarm contact		
14	Shunt trip unit, four single auxiliary contact blocks, alarm contact		
75	Under-voltage trip unit, single auxiliary contact, alarm contact		
77	Under-voltage trip unit, two single auxiliary contact blocks, alarm contact		

Code of accessory	Mounting position	Model	NDM3-1600
			3
81	Under-voltage trip unit, three single auxiliary contact blocks, alarm contact		
82	Under-voltage trip unit, four single auxiliary contact blocks, alarm contact		
41	Shunt trip unit, single auxiliary contact		
11	Shunt trip unit, two single auxiliary contact blocks		
12	Shunt trip unit, three single auxiliary contact blocks		
13	Shunt trip unit, four single auxiliary contact blocks		
71	Under-voltage trip unit, single auxiliary contact		
72	Under-voltage trip unit, two single auxiliary contact blocks		
73	Under-voltage trip unit, three single auxiliary contact blocks		
74	Under-voltage trip unit, four single auxiliary contact blocks		
31	Under-voltage trip unit, shunt trip unit, alarm contact		
37	Under-voltage trip unit, shunt trip unit, two single alarm contact blocks		
51	Under-voltage trip unit, shunt trip unit, single alarm contact		
52	Under-voltage trip unit, shunt trip unit, two single alarm contact blocks		
53	Under-voltage trip unit, shunt trip unit, three single alarm contact blocks		
54	Under-voltage trip unit, shunt trip unit, four single alarm contact blocks		
19	Shunt trip unit, two single alarm contact blocks		
79	Under-voltage trip unit, two single alarm contact blocks		
63	Single auxiliary contact, two single alarm contact blocks		
64	Two single auxiliary contact blocks, two single alarm contact blocks		
65	Three single auxiliary contact blocks, two single alarm contact blocks		
66	Four single auxiliary contact blocks, two single alarm contact blocks		
43	Shunt trip unit, single auxiliary contact, two single alarm contact blocks		

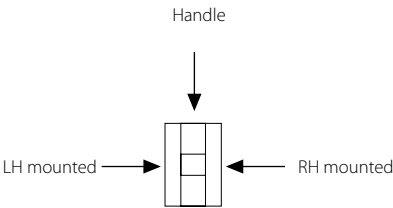


- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Mounting position Model Code of accessory Name of accessory		NDM3-63	NDM3-100	NDM3-125	NDM3-160	NDM3-250 C	NDM3-250 L/M/H	NDM3-400	NDM3-630	NDM3-800
		3/4	3/4	3/4	3/4	3	3/4	3/4	3/4	3/4
00Q	Time delay under-voltage trip unit				---					
10Q	Shunt trip unit Time delay under-voltage trip unit				---					
20Q	Time delay under-voltage trip unit Dual auxiliary contacts				---					
21Q	Time delay under-voltage trip unit Single auxiliary contact				---					
08Q	Time delay under-voltage trip unit Alarm contact				---					---
58Q	Time delay under-voltage trip unit Auxiliary and alarm contact				---					---

Note 1: In addition to the above-mentioned types of accessories, there are also “plug-in type accessories” available for 3P products, whose external dimensions are given below (except for NDM3-160);

Note 2: “Q” in the accessory code “10Q” represents “time delay under-voltage trip units”. The type of accessory can achieve the function of automatic re-closing upon voltage check, and if you select it, each circuit breaker will be supplied with a motor-operated mechanism as standard, and you needn’t select the motor-operated mechanism during model selection. Please note that this accessory can be neither ordered separately not supplied in the form of “plug-in accessory”.



- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM3L series molded case circuit breakers



III

Molded Case Circuit Breakers

ND M 3 L-250 P/A X 4 3 00 2 (A) I P 225A

Rated current

Connection method:

Blank: front connection

P: extended busbar

Blank: general type

I: leakage alarm without tripping

Type of N pole (neutral pole) for 4P products: See Note a

Code of intended use:

Blank: power distribution

2: motor protection

Code of accessory: See the selection table for accessories for details

Trip unit: 0: N/A

2: only instantaneous trip unit

3: complex trip unit

Number of poles: 3, 4

Type of time delay:

X: non-time delay protection

Y: time delay protection

Operating characteristic of residual current with DC components:

Blank: Type AC residual current protection

A: Type A residual current protection

Operating mode:

Blank: direct operation handle

P: motor-operated

Z: rotary handle

Frame size: 125, 250, 400, 630

L: with current leakage protection

Design code: 2

Product code: molded case circuit breaker

Brand code: Nader

Note a:

Three types of N-poles (neutral line) are available for 4P products:

A: Without over-current trip unit mounted in the N pole which is always connected.

B: Without over-current trip unit mounted in the N pole which closes or opens together with the other three poles.

C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles.

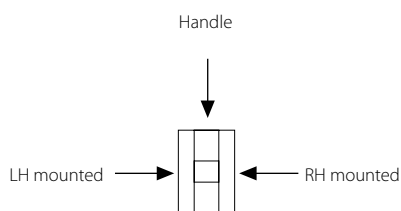
Main performance parameters of NDM3L series molded case circuit breakers

Model			NDM3L-125		NDM3L-250		NDM3L-400		NDM3L-630	
Frame size Inm (A)			125		250		400		630	
Rated current In (A)			16, 20, 25, 32, 40, 50 63, 80, 100, 125		100, 125, 140, 160, 180, 200, 225, 250		225, 250, 315, 350, 400		400, 500, 630	
Rated isolation voltage Ui (AC V)			1000		1000		1000		1000	
Rated impulse withstand voltage Uimp (V)			8000		8000		8000		8000	
Utilization category			A		A		A		A	
Number of poles			3	4	3	4	3	4	3	4
Rated ultimate short-circuit breaking capacity Icu (kA)	AC380/400V/415V		70	70	70	70	70	70	70	70
Rated service short-circuit breaking capacity Ics (kA)	AC380/400V/415V		50	50	50	50	70	70	70	70
Rated residual operating current IΔn (mA)	Non-Time delay	AC	30	30	30	30	300/500/1000		300/500/1000	
			100/300/500	100/300/500	100/300/500	100/300/500				
		A		30/100/300/500/1000		30/100/300/500/1000				
	Time delay	AC	100/300/500	100/300/500	100/300/500	100/300/500	300/500/1000	300/500/1000		
		A		100/300/500/1000		100/300/500/1000				
Rated residual non-operating current IΔno (mA)			1/2 IΔn		1/2 IΔn		1/2 IΔn		1/2 IΔn	
Rated residual short-circuit making and breaking capacity IΔm (kA)			1/4 Icu		1/4 Icu		1/4 Icu		1/4 Icu	
Endurance (operating cycles)	Electrical		8000		8000		7500		7500	
	Mechanical		20000		20000		10000		10000	
	L1 (mm)		225	225	252	252	257	257	280	280
	L2 (mm)		50	50	65	65	108	108	109	109
	W (mm)		92	122	107	142	150	198	210	280
	H2 (mm)		87.5	87.5	105	105	104.5	104.5	112	112
Arcing distance (mm)			≤50		≤50		≤50		≤100	
Connection method			Front connection, P		Front connection, P		Front connection, P		Front connection, P	
Operating characteristic of residual current with DC components (AC, A)			AC	AC, A	AC	AC, A	AC		AC	

Selection table for accessories of NDM3L series molded case circuit breakers

Code of accessory	Mounting position	Model	NDM3L-125		NDM3L-250		NDM3L-400		NDM3L-630	
			Number of poles		Number of poles		Number of poles		Number of poles	
			3	4	3	4	3	4	3	4
00	N/A		—	—	—	—	—	—	—	—
10	Shunt trip unit		●	■	●	■	●	■	●	■
20	Dual auxiliary contacts		□	□	□	□	□	□	□	□
21	Single auxiliary contact		□	□	□	□	□	□	□	□
30	Under-voltage trip unit		○	□	○	□	○	□	○	□
40	Shunt trip unit, dual auxiliary contacts		●	□	●	□	●	□	●	□
41	Shunt trip unit, single auxiliary contact		●	□	●	□	●	□	●	□
60	Two dual auxiliary contact blocks		□	□	□	□	□	□	□	□
61	Two single auxiliary contact blocks		□	□	□	□	□	□	□	□
62	Dual auxiliary contacts, single auxiliary contact		□	□	□	□	□	□	□	□
70	Under-voltage trip unit, dual auxiliary contacts		○	□	○	□	○	□	○	□
71	Under-voltage trip unit, single auxiliary contact		○	□	○	□	○	□	○	□
08	Alarm contact		□	□	□	□	□	□	□	□
28	Dual auxiliary contacts, alarm contact		□	□	□	□	□	□	□	□
58	Auxiliary and alarm contacts		□	□	□	□	□	□	□	□
68	Dual auxiliary contacts, auxiliary and alarm contact		□	□	□	□	□	□	□	□

Note: Only LH-mounted single accessory is available for the NDM3L series 3P products and the products with the function of leakage alarm without tripping, i.e. accessories coded as : 10, 20, 21, 30, 08, 58;



Legend:

- Single auxiliary contact
- Dual auxiliary contacts
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit
- Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM3E series molded case circuit breakers



ND M 3 E -125 M P/T/3 18 2 C P 20

III

Molded Case Circuit Breakers

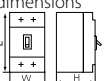
- Current selection:**
See the table of main performance parameters and Note b
- Connection method:** See Note a
- Type of N pole (neutral pole) for 4P products:**
C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles
D: With over-current trip unit mounted in the N pole which is always connected
- Code of intended use:**
Blank: for power distribution (NDM3EX-1600 only for power distribution)
2: motor protection
- Code of accessory:** See the selection table for accessories
- Number of poles:** 3 - 3 poles 4 - 4 poles
- Derived code of intelligent trip unit: (only basic type and the type for grounding protection available for the 1600 frame size)**
Basic type: blank
G: grounding protection
T: communication
GT: grounding protection and communication
- Operating mode:**
Blank: direct operation
P: motor-operated
Z: rotary handle
- Breaking capacity:**
M: medium breaking capacity
H: high breaking capacity
- Frame size:** 125, 250, 400, 630, 800, 1600
- Electronic type:**
E: electronic
EX: electronic miniature (only for the 1600 frame size)
- Design code:** 3
- Product code:** molded case circuit breaker
- Brand code:** Nader

Note a: connection method (see the table of main performance parameters for the applicability to each frame size)

Blank: general type	Z1: rear connection	Z2H: plug-in type rear connection	Z3H: plug-in type integrated rear connection
P: extended busbar	Z2Q: plug-in type front connection (except for NDM3E-630/800)	Z3Q: plug-in type integrated front connection	(Please indicate the connection method)

Note b: The current is represented by I_n for NDM3EX-1600, and by I_r (setting current) for the other models in the series.

Main performance parameters of NDM3E series molded case circuit breakers

Model		NDM3E-125						NDM3E-250			NDM3E-400		
Frame size Inm (A)		125						250			400		
Rated current In (A)		32			125			250			400		
Rated isolation voltage Ui (V)		1000			1000			1000			1000		
Rated impulse withstand voltage Uimp (V)		8000			8000			8000			8000		
Power-frequency withstand voltage U (1 min) (V)		3500			3500			3500			3500		
Utilization category		A			A			A			B		
Rated short-time withstand current Icw (kA/1s)		1			1			2.5			5		
Number of poles		3	3	4	3	3	4	3	3	4	3	3	4
Breaking capacity level		M	H		M	H		M	H		M	H	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 380/400/415V	70	85	70	70	85	70	70	85	70	70	100	70
	AC 500V												
	AC 660/690V	20		20	20		20	20		20	20		20
Rated service short-circuit breaking capacity Ics (kA)	AC380/400/415V	50	65	50	50	65	50	50	65	50	65	70	65
	AC 500V												
	AC 660/690V	15		15	15		15	15		15	15		15
Endurance (operating cycles)	Electrical AC 380/400/415V	8000			8000			8000			7500		
	Mechanical	20000			20000			20000			15000		
External dimensions 	L (mm)	150	150	150	150	150	150	165	165	165	257	257	257
	W (mm)	92	92	122	92	92	122	107	107	142	150	150	198
	H (mm)	92.5	92.5	92.5	93	93	93	90	90	90	104.5	104.5	104.5
Arcing distance (mm)		≤50			≤50			≤50			≤100		
Connection method		Front connection, P, Z1, Z2Q, Z2H						Front connection, P, Z1, Z2Q, Z2H			Front connection, P, Z1, Z2Q, Z2H, Z3Q, Z3H		

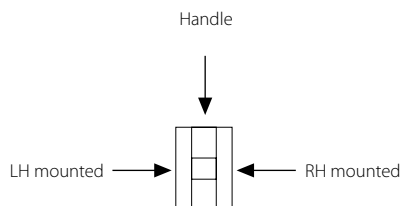
Model		NDM3E-630			NDM3E-800			NDM3EX-1600	
Frame size Inm (A)		630			800			1600	
Rated current In (A)		630			800			800, 1000, 1250, 1600	
Rated isolation voltage Ui (V)		1000			1000			1000	
Rated impulse withstand voltage Uimp (V)		8000			8000			12000	
Power-frequency withstand voltage U (1 min) (V)		3500			3500			3500	
Utilization category		B			B			B	
Rated short-time withstand current Icw (kA/1s)		8			10			20	
Number of poles		3	3	4	3	3	4	3	4
Breaking capacity level		M	H		M	H		M	
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 380/400/415V	70	100	70	70	100	70	70	
	AC 500V							50	
	AC 660/690V	20		20	20		20	20	
Rated service short-circuit breaking capacity Ics (kA)	AC 380/400/415V	65	70	65	65	70	65	50	
	AC 500V							50	
	AC 660/690V	15		15	15		15	20	
Endurance (operating cycles)	Electrical AC 380/400/415V	7500			7500			1000	
	Electrical AC500V							800	
	Electrical AC660/690V							500	
	Mechanical	10000			10000			10000 (3P)/6000 (4P)	
External dimensions	L (mm)	280	280	280	280	280	280	268	268
	W (mm)	210	210	280	210	210	280	210	280
	H (mm)	112	112	112	112	112	112	154	154
Arcing distance (mm)		≤100			≤100			≤100	
Connection method		Front connection, P, Z1, Z2H, Z3Q, Z3H			Front connection, P, Z1, Z2H, Z3Q, Z3H			Front connection, P	

Selection table for accessories of NDM3E series molded case circuit breakers

Code of accessory	Mounting position Name of accessory	Model		NDM3E-125		NDM3E-250		NDM3E-400		NDM3E-630		NDM3E-800	
		Number of poles		3	4	3	4	3	4	3	4	3	4
300	N/A			---	---	---	---	---	---	---	---	---	---
310	Shunt trip unit												
320	Dual auxiliary contacts												
321	Single auxiliary contact												
330	Under-voltage trip unit												
340	Shunt trip unit Dual auxiliary contacts												
341	Shunt trip unit Single auxiliary contact												
350	Shunt trip unit Under-voltage trip unit			---	---	---	---						
360	Two dual auxiliary contact blocks												
361	Two single auxiliary contact blocks												
362	Dual auxiliary contacts Single auxiliary contact												
370	Under-voltage trip unit Dual auxiliary contacts												
371	Under-voltage trip unit Single auxiliary contact												
308	Alarm contact												
318	Shunt trip unit Alarm contact			---	---	---	---						
328	Dual auxiliary contacts Alarm contact												
338	Under-voltage trip unit Alarm contact			---	---	---	---			---	---	---	---
348	Shunt trip unit, auxiliary and alarm contact												
358	Auxiliary and alarm contacts												
368	Dual auxiliary contacts, auxiliary and alarm contact												
378	Under-voltage trip unit, auxiliary and alarm contact									---	---	---	---

Notes: 1. The first digit "3" in the code of trip unit accessory represents intelligent controllers with three-stage protection, while the two digits following it represent internal codes of accessories.

2. For the selection of "communication type and combined type of grounding protection and communication", please consult with us.



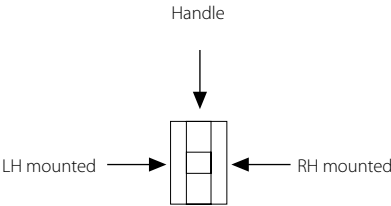
Legend:

- Single auxiliary contact
- Dual auxiliary contacts
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit
- Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Selection table for accessories of NDM3EX-1600 series molded case circuit breakers

Code of accessory	Mounting position	Model	Number of poles	Name of accessory	NDM3EX-1600
					3
300				N/A	—
308				One alarm contact block	
398				Two alarm contact blocks	
310				Shunt trip unit	
3K01				Two shunt trip units	
330				Under-voltage trip unit	
3A01				Two under-voltage trip units	
321				Single auxiliary contact	
361				Two single auxiliary contact blocks	
323				Three single auxiliary contact blocks	
324				Four single auxiliary contact blocks	
318				Shunt trip unit, alarm contact	
338				Under-voltage trip unit, alarm contact	
322				Single auxiliary contact, alarm contact	
388				Two single auxiliary contact blocks, alarm contact	
326				Three single auxiliary contact blocks, alarm contact	
325				Four single auxiliary contact blocks, alarm contact	
342				Shunt trip unit, single auxiliary contact, alarm contact	
344				Shunt trip unit, two single auxiliary contact blocks, alarm contact	
346				Shunt trip unit, three single auxiliary contact blocks, alarm contact	
314				Shunt trip unit, four single auxiliary contact blocks, alarm contact	
375				Under-voltage trip unit, single auxiliary contact, alarm contact	
377				Under-voltage trip unit, two single auxiliary contact blocks, alarm contact	

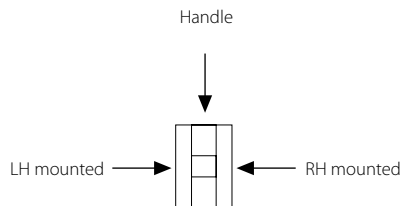
Code of accessory	Mounting position	Model	Number of poles	Name of accessory	NDM3EX-1600
					3
381				Under-voltage trip unit, three single auxiliary contact blocks, alarm contact	
382				Under-voltage trip unit, four single auxiliary contact blocks, alarm contact	
341				Shunt trip unit, single auxiliary contact	
311				Shunt trip unit, two single auxiliary contact blocks	
312				Shunt trip unit, three single auxiliary contact blocks	
313				Shunt trip unit, four single auxiliary contact blocks	
371				Under-voltage trip unit, single auxiliary contact	
372				Under-voltage trip unit, two single auxiliary contact blocks	
373				Under-voltage trip unit, three single auxiliary contact blocks	
374				Under-voltage trip unit, four single auxiliary contact blocks	
331				Under-voltage trip unit, shunt trip unit, alarm contact	
337				Under-voltage trip unit, shunt trip unit, two single alarm contact blocks	
351				Under-voltage trip unit, shunt trip unit, single alarm contact	
352				Under-voltage trip unit, shunt trip unit, two single alarm contact blocks	
353				Under-voltage trip unit, shunt trip unit, three single alarm contact blocks	
354				Under-voltage trip unit, shunt trip unit, four single alarm contact blocks	
319				Shunt trip unit, two single alarm contact blocks	
379				Under-voltage trip unit, two single alarm contact blocks	
363				Single auxiliary contact, two single alarm contact blocks	
364				Two single auxiliary contact blocks, two single alarm contact blocks	
365				Three single auxiliary contact blocks, two single alarm contact blocks	
366				Four single auxiliary contact blocks, two single alarm contact blocks	
343				Shunt trip unit, single auxiliary contact, two single alarm contact blocks	



- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Code of accessory	Mounting position	Model	Number of poles	Name of accessory	NDM3EX-1600
					3
345				Shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks	
347				Shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks	
315				Shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks	
375				Shunt trip unit, single auxiliary contact, two single alarm contact blocks	
377				Shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks	
381				Shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks	
382				Shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks	
332				Under-voltage trip unit, shunt trip unit, single alarm contact, alarm contact	
333				Under-voltage trip unit, shunt trip unit, two single alarm contact blocks, alarm contact	
334				Under-voltage trip unit, shunt trip unit, three single alarm contact blocks, alarm contact	
335				Under-voltage trip unit, shunt trip unit, four single alarm contact blocks, alarm contact	
339				Under-voltage trip unit, shunt trip unit, single alarm contact, two single alarm contact blocks	
355				Under-voltage trip unit, shunt trip unit, two single alarm contact blocks, two single alarm contact blocks	
356				Under-voltage trip unit, shunt trip unit, three single alarm contact blocks, two single alarm contact blocks	
336				Under-voltage trip unit, shunt trip unit, four single alarm contact blocks, two single alarm contact blocks	
3A02				Two under-voltage trip units, single auxiliary contact	
3A07				Two under-voltage trip units, two single auxiliary contact blocks	
3A08				Two under-voltage trip units, three single auxiliary contact blocks	
3A09				Two under-voltage trip units, four single auxiliary contact blocks	
3A10				Two under-voltage trip units, single auxiliary contact, alarm contact	
3A12				Two under-voltage trip units, two single auxiliary contact blocks, alarm contact	
3A14				Under-voltage trip unit	
3A16				Under-voltage trip unit	

Code of accessory	Mounting position	Model	Number of poles	Name of accessory	NDM3EX-1600
					3
3A11				Two under-voltage trip units, single auxiliary contact, two single alarm contact blocks	
3A13				Two under-voltage trip units, two single auxiliary contact blocks, two single alarm contact blocks	
3A15				Two under-voltage trip units, three single auxiliary contact blocks, two single alarm contact blocks	
3A17				Two under-voltage trip units, four single auxiliary contact blocks, two single alarm contact blocks	
3A05				Two under-voltage trip units, alarm contact	
3A06				Two under-voltage trip units, two single alarm contact blocks	
3K04				Two shunt trip units, single auxiliary contact	
3K06				Two shunt trip units, two single auxiliary contact blocks	
3K07				Two shunt trip units, three single auxiliary contact blocks	
3K08				Two shunt trip units, four single auxiliary contact blocks	
3K12				Two shunt trip units, single auxiliary contact, alarm contact	
3K09				Two shunt trip units, two single auxiliary contact blocks, alarm contact	
3K10				Two shunt trip units, three single auxiliary contact blocks, alarm contact	
3K11				Two shunt trip units, four single auxiliary contact blocks, alarm contact	
3K13				Two shunt trip units, single auxiliary contact, two single alarm contact blocks	
3K14				Two shunt trip units, two single auxiliary contact blocks, two single alarm contact blocks	
3K15				Two shunt trip units, three single auxiliary contact blocks, two single alarm contact blocks	
3K16				Two shunt trip units, four single auxiliary contact blocks, two single alarm contact blocks	
3K02				Two shunt trip units, alarm contact	
3K05				Two shunt trip units, two single alarm contact blocks	



Legend:

- Single auxiliary contact
- Dual auxiliary contacts
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit
- Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM3A series molded case circuit breakers



ND M 3A - 400 M P/3 3 21 P 250A

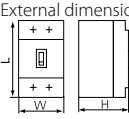
III

Molded Case Circuit Breakers

- Rated current:** See the table of main performance parameters
- Connection method:** P: extended busbar See Note a for details
- Code of accessory:** See the selection table for accessories for details
- Code of trip unit:**
 - 0: N/A
 - 2: only instantaneous trip unit
 - 3: complex trip unit
- Number of poles:** 3
- Operating mode:**
 - Blank: direct operation handle
 - P: motor-operated
 - Z: rotary handle
- Code of breaking capacity level:**
 - M: medium breaking capacity
 - H: high breaking capacity
- Frame size:** 250, 400, 630
- Design serial number:** 3A
- Product code:** M - molded case circuit breaker
- Brand code:** Nader

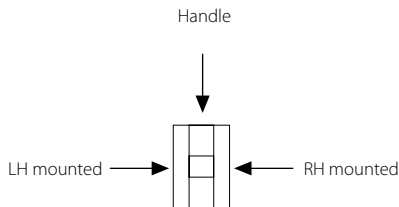
Note a:
Blank: front connection
P: extended busbar
Z1: rear connection
Z2H: plug-in type rear connection

Main performance parameters of NDM3A series molded case circuit breakers

Model		NDM3A-250			NDM3A-400	NDM3A-630
Frame size Inm (A)		250			400	630
Protection characteristic		Electromagnetic	Thermomagnetic		Thermomagnetic	Thermomagnetic
Rated current In (A)		32, 40, 50	63, 80, 100, 125, 140, 160 180, 200, 225, 250		225, 250, 315, 350, 400	400, 500, 630
Rated isolation voltage Ui (AC V)		1140			1140	1140
Rated impulse withstand voltage Uimp (V)		8000			8000	8000
Power-frequency withstand voltage U (1 min) (V)		3500			3500	3500
Utilization category		A			A	A
Number of poles		3			3	3
Breaking capacity level		M	M	H	M	M
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 550V	/	50	/	50	50
	AC 600V	/	42	/	42	42
	AC 690V	35	35	/	35	35
	AC 800V	/	30	36.5	30	30
	AC 1000V	/	12	/	12	12
Rated service short-circuit breaking capacity Ics (kA)	AC 550V	/	50	/	50	50
	AC 600V	/	42	/	42	42
	AC 690V	35	35	/	35	35
	AC 800V	/	23	30	23	23
	AC 1000V	/	12	/	12	12
Electrical	AC 550V	5000			4000	4000
	AC 600V	3000			2500	2500
	AC 690V	2000			2000	2000
	AC 800V	1500			1500	1500
	AC 1000V	1000			1000	1000
Mechanical	Mechanical	20000			10000	10000
External dimensions 	L (mm)	229.5			328.6	285
	W (mm)	113			150	182
	H (mm)	103			106.5	116.5
Arcing distance (mm)		≤50			≤100	≤100
Terminal cover:		Standard/1 pc			Standard/1 pc	Standard/1 pc
Connection method		N/A, P, Z1, Z2H			N/A, P, Z1, Z2H	N/A, P, Z1, Z2H

Selection table for accessories of NDM3A series molded case circuit breakers

Code of accessory	Mounting position Name of accessory	Model Number of poles	NDM3A-250	NDM3A-400	NDM3A-630
			3	3	3
00	N/A		---	---	---
10	Shunt trip unit				
20	Dual auxiliary contacts				
21	Single auxiliary contact				
30	Under-voltage trip unit				
40	Shunt trip unit Dual auxiliary contacts				
41	Shunt trip unit Single auxiliary contact				
50	Shunt trip unit Under-voltage trip unit				
60	Two dual auxiliary contact blocks				
61	Two single auxiliary contact blocks				
62	Dual auxiliary contacts Single auxiliary contact				
70	Under-voltage trip unit Dual auxiliary contacts				
71	Under-voltage trip unit Single auxiliary contact				
08	Alarm contact				
18	Shunt trip unit Alarm contact				
28	Dual auxiliary contacts Alarm contact				
38	Under-voltage trip unit Alarm contact				
48	Shunt trip unit, auxiliary and alarm contact				
58	Auxiliary and alarm contacts				
68	Dual auxiliary contacts, auxiliary and alarm contact				
78	Under-voltage trip unit, auxiliary and alarm contact				



- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM3AR series molded case circuit breakers



ND M 3A R – 400 L P/4 3 00 2 A 400 Z2H

	Connection method: See Note b
	Rated current: See the table of main performance parameters
	Type of N pole for 4P products: See Note a
	Code of intended use: Blank: power distribution 2: motor protection
	Code of accessory: See the selection table for accessories
	Code of trip unit: 3: complex trip unit
	Number of poles: 3: 3 poles; 4: 4 poles
	Operating mode: Blank: direct operation handle P: motor-operated Z: rotary handle
	Breaking capacity level: C: basic type L: standard type M: medium breaking capacity H: high breaking capacity
	Frame size: 400
	Derived code: R: adjustable thermal and magnetic
	Design code: 3A
	Product code: molded case circuit breaker
	Brand code: Nader

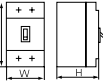
Note a:

A: Without over-current trip unit mounted in the N pole which is always connected
B: Without over-current trip unit mounted in the N pole which closes or opens together with the other three poles
C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles
D: With over-current trip unit mounted in the N pole which is always connected

Note b:

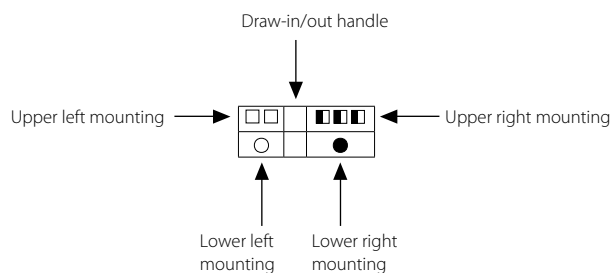
Blank: general type
P: Busbar
Z1: rear connection
Z2Q: plug-in type front connection
Z2H: plug-in type rear connection
W0FH: draw-out type without secondary terminal + front horizontal connection (only for NDM3AR-400/630)
W0RH: draw-out type without secondary terminal + rear horizontal connection (only for NDM3AR-400/630)
W1FH: draw-out type with secondary terminal + front horizontal connection (only for NDM3AR-400/630)
W1RH: draw-out type with secondary terminal + rear horizontal connection (only for NDM3AR-400/630)

Main performance parameters of NDM3AR series molded case circuit breakers

Model		NDM3AR-125				NDM3AR-250				NDM3AR-400				NDM3AR-630			
Frame size Inm (A)		125				250				400				630			
Rated current In (A)		63, 80, 100, 125				125, 160, 200, 250				250, 320, 400				400, 500, 630			
Rated operating voltage Ue (V)		AC380/400/415															
Utilization category		A															
Number of poles		3	4		3		4		3		4		3		4		
Rated impulse withstand voltage Uimp (kV)		8															
Rated isolation voltage Ui (V)		1000															
Power-frequency withstand voltage (1 min) (V)		3500								4000							
Rated ultimate short-circuit breaking capacity Icu (kA)	Breaking capacity level	C	L	M	H	C	L	M	H	C	L	M	H	C	L	M	H
	AC380/400/415	36	50	70	85	36	50	70	85	36	50	70	85	36	50	70	85
Rated service short-circuit breaking capacity Ics (kA)		Ics=100%Icu															
Endurance (operating cycles)	Mechanical	20000								10000							
	Electrical	8000								7500							
External dimensions 	L (mm)	165		165		165		165		250		250		250		250	
	W (mm)	105		140		105		140		140		185		140		185	
	H (mm)	86		86		86		86		110		110		110		110	
Arcing distance (mm)		≤50								≤100							
Trip unit:		63~80A: For power distribution: adjustable thermal (0.8-0.9-1.0) In, fixed magnetic 10In, accurate to ±20%. For motor protection: adjustable thermal (0.8-0.9-1.0) In, fixed magnetic 14In, accurate to ±20%. 100A: For power distribution: adjustable thermal (0.8-0.9-1.0) In, adjustable magnetic (6-7-8-9-10) In, accurate to ±20%. For motor protection: adjustable thermal (0.8-0.9-1.0) In, adjustable magnetic (9-10-11-12-13-14) In, accurate to ±20%. 125~630A: For power distribution: adjustable thermal (0.8-0.9-1.0) In, adjustable magnetic (5-6-7-8-9-10) In, accurate to ±20%. For motor protection: adjustable thermal (0.8-0.9-1.0) In, adjustable magnetic (9-10-11-12-13-14) In, accurate to ±20%.															

Main performance parameters of NDM3AR series molded case circuit breakers

Code of accessory	Name of accessory	Mounting position	
		NDM3AR-125/250	NDM3AR-400/630
00	N/A	---	---
08	Alarm contact		
10	Shunt trip unit		
30	Under-voltage trip unit		
21	Single auxiliary contact		
61	Two single auxiliary contact blocks		
23	Three single auxiliary contact blocks		
18	Shunt trip unit + alarm contact		
38	Under-voltage trip unit + alarm contact		
22	Single auxiliary contact + alarm contact		
88	Two single auxiliary contact blocks + alarm contact		
26	Three single auxiliary contact blocks + alarm contact		
42	Shunt trip unit + single auxiliary contact + alarm contact		
44	Shunt trip unit + two single auxiliary contact blocks + alarm contact		
46	Shunt trip unit + three single auxiliary contact blocks + alarm contact		
75	Under-voltage trip unit + single auxiliary contact + alarm contact		
77	Under-voltage trip unit + two single auxiliary contact blocks + alarm contact		
81	Under-voltage trip unit + three single auxiliary contact blocks + alarm contact		



Legend:

- Single auxiliary contact
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit

Code of accessory	Name of accessory	Mounting position	
		NDM3AR-125/250	NDM3AR-400/630
41	Shunt trip unit + single auxiliary contact		
11	Shunt trip unit + two single auxiliary contact blocks		
12	Shunt trip unit + three single auxiliary contact blocks		
71	Under-voltage trip unit + single auxiliary contact		
72	Under-voltage trip unit + two single auxiliary contact blocks		
73	Under-voltage trip unit + three single auxiliary contact blocks		
50	Shunt trip unit + under-voltage trip unit	---	
31	Under-voltage trip unit + shunt trip unit + alarm contact	---	
51	Shunt trip unit + under-voltage trip unit + single auxiliary contact	---	
52	Shunt trip unit + under-voltage trip unit + two single auxiliary contact blocks	---	
53	Shunt trip unit + under-voltage trip unit + three single auxiliary contact blocks	---	
98	Two alarm contact blocks	---	
63	Two single alarm contact blocks + single auxiliary contact	---	
64	Two single alarm contact blocks + two single auxiliary contact blocks	---	
65	Two single alarm contact blocks + three single auxiliary contact blocks	---	
37	Shunt trip unit + under-voltage trip unit + two alarm contact blocks	---	
39	Shunt trip unit + under-voltage trip unit + single auxiliary contact + two alarm contact blocks	---	
55	Shunt trip unit + under-voltage trip unit + two single auxiliary contact blocks + two alarm contact blocks	---	
56	Shunt trip unit + under-voltage trip unit + three single auxiliary contact blocks + two alarm contact blocks	---	
32	Alarm contact + shunt trip unit + under-voltage trip unit + single auxiliary contact	---	
33	Alarm contact + shunt trip unit + under-voltage trip unit + two single auxiliary contact blocks	---	
34	Alarm contact + shunt trip unit + under-voltage trip unit + three single auxiliary contact blocks	---	

Quick selection table for NDM3Z series molded case circuit breakers



ND M 3 Z-250 V (P)/2 3 18 LC 250A J1

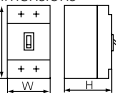
- Connection method:**
2P without code: general type
3P without code: general type, J0 (free connection)
4P: J0, J1, J2, J3, parallel
- Rated current:** See the table of main performance parameters
- Special purpose:** LC: DC leakage detection module (only for 2P products)
- Code of accessory:** See the selection table for accessories
- Code of trip unit:**
0 - without trip unit (able to be used as a bus tie circuit breaker in replace of a switch-disconnector)
2 - only instantaneous trip unit
3 - complex trip unit (only complex trip unit available for V and VM products)
- Number of poles:** 2 - 2 poles 3 - 3 poles 4 - 4 poles
- Operating mode:**
Blank: direct operation
P: motor-operated
Z: rotary handle
- Code of derived variety:**
Blank: general type
V: high voltage breaking (only for the 250 and 320 frame sizes)
VM: high voltage medium breaking (only for the 250 frame size)
- Frame size:** 125, 250, 320, 400, 630, 800
- DC molded case circuit breaker:**
Z: DC molded case circuit breaker
- Design code:** 3
- Product code:** molded case circuit breaker
- Brand code:** Nader



Molded Case Circuit Breakers

Main performance parameters of NDM3Z series molded case circuit breakers

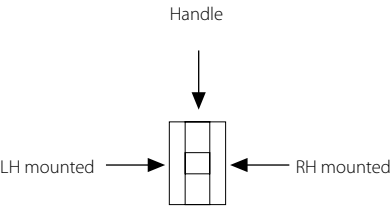
Model		NDM3Z-125			NDM3Z-250							NDM3Z-250VM		NDM3Z-250V		NDM3Z-320V		
Frame size Inm (A)		125			250							250		250		320		
Rated current In (A)		16, 20, 25, 32, 40, 50, 63, 80, 100, 125			125, 140, 160, 180, 200, 225, 250							125, 140, 160, 180, 200, 225, 250		125, 140, 160, 180, 200, 225, 250		250, 300, 320		
Rated isolation voltage Ui (V)		1000			1200							1500		1500		1500		
Rated impulse withstand voltage Uimp (V)		8000			8000							8000		12000		12000		
Power-frequency withstand voltage U (1 min) (V)		3500			3500							3820		3820		3820		
Utilization category		A			A							A		A		A		
Number of poles		2	3	4	2	3	4	4	4	2	2	2	2	3	3			
Rated operating voltage Ue DC (V)		500	750	1000	500	600	690	750	1000	1000Bottom in	1200	1250	1000	1100	1000	1500	1500	
Rated ultimate short-circuit breaking capacity Icu (kA)		20	20	20	35	8	5	40	40	20	10	15	20	10	20	20	10	20 (τ=5ms)
Rated service short-circuit breaking capacity Ics (kA)		20	20	20	35	8	5	25	25	15	10	15	20	10	16	16	10	20 (τ=5ms)
Endurance (operating cycles)	Electrical	5000			5000							2000		2000		1000		
	Mechanical	20000			10000							12000		10000		10000		
External dimensions	L (mm)	150	150	150	165		165	165		165		180		200	200	200		
	W (mm)	92	92	122	107		107	142		142		75		90	135	135		
	H (mm)	87	87	87	105		105	105		105		105		104.5	104.5	105		
Arcing distance (mm)		≤50			≤50							≤50		≤50		≤50		
Connection method		General type	General type J0	J0, J1, J2	General type		General type J0	J0, J3		J0, J1, J3		General type	General type		General type			

Model		NDM3Z-400				NDM3Z-630						NDM3Z-800					
Frame size Inm (A)		400				630						800					
Rated current In (A)		225, 250, 315, 350, 400				400, 500, 630				1000, 1250 (parallel)		630, 700, 800				1250, 1440 (parallel)	
Rated isolation voltage Ui (V)		1000				1000				1000		1000				1000	
Rated impulse withstand voltage Uimp (V)		8000				8000				8000		8000				8000	
Power-frequency withstand voltage U (1 min) (V)		3500				3500				3500		3500				3500	
Utilization category		A				A				A		A				A	
Poles in series		2		3	4	2		3	4	4		2		3	4	4	
Rated operating voltage Ue DC (V)		500	690	750	1000	500	690	750	1000	500	700	500	690	750	1000	500	630
Rated ultimate short-circuit breaking capacity Icu (kA)		35	8	40	40	35	8	40	40	30	20	35	8	40	40	30	20
Rated service short-circuit breaking capacity Ics (kA)		35	8	40	40	35	8	40	40	30	20	35	8	40	40	30	20
Endurance	Electrical	1000				1000				1000		1000				500	
	Mechanical	5000				5000				5000		5000				5000	
External dimensions 	L	257		257	257	270		270	270	270		280		280	280	280	
	W	150		150	198	182		182	240	240		210		210	280	280	
	H	104.5		104.5	104.5	108.5		108.5	108.5	108.5		112		112	112	112	
Arcing distance (mm)		≤100				≤100						≤100					
Connection method		General type	J0	J0		General type	J0	J0		Parallel		General type	J0	J0		Parallel	

Selection table for accessories of NDM3Z series molded case circuit breakers

Code of accessory	Name of accessory	NDM3Z-125			NDM3Z-250			NDM3Z-250V		NDM3Z-320V	NDM3Z-400			NDM3Z-630			NDM3Z-800		
		2	3	4	2	3	4	2	3	3	2	3	4	2	3	4	2	3	4
		Number of poles			Number of poles			Number of poles		Number of poles	Number of poles			Number of poles			Number of poles		
00	N/A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10	Shunt trip unit																		
20	Dual auxiliary contacts																		
21	Single auxiliary contact																		
30	Under-voltage trip unit																		
40	Shunt trip unit Dual auxiliary contacts																		
41	Shunt trip unit Single auxiliary contact																		
50	Shunt trip unit Under-voltage trip unit																		
60	Two dual auxiliary contact blocks																		
61	Two single auxiliary contact blocks																		
62	Dual auxiliary contacts Single auxiliary contact																		
70	Under-voltage trip unit Dual auxiliary contacts																		
71	Under-voltage trip unit Single auxiliary contact																		
08	Alarm contact																		
18	Shunt trip unit Alarm contact																		
28	Dual auxiliary contacts Alarm contact																		
38	Under-voltage trip unit Alarm contact																		
48	Shunt trip unit Auxiliary and alarm contact																		
58	Auxiliary and alarm contacts																		
68	Dual auxiliary contacts Auxiliary and alarm contact																		
78	Under-voltage trip unit Auxiliary and alarm contact																		

Notes:
Only accessories coded as 10, 20, 21 and 41 are available for NDM3Z-250VM, with all to be mounted on the left.



- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

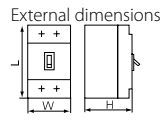
Quick selection table for NDM3ZB series molded case circuit breakers



ND M 3 ZB-400 M P/2 3 21 LC 250A P

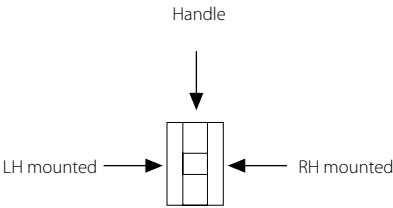
- Code of connection method:**
Blank: front connection P: extended busbar
- Rated current**
- Special purpose:** LC: DC leakage detection module
- Code of accessory:** See the selection table for accessories for details
- Code of trip unit:**
2: instantaneous trip unit + short-time delayed trip unit
3: complex trip unit + short-time delayed trip unit
- Number of poles:** 2
- Operating mode:**
Blank: direct operation handle
P: motor-operated
Z: rotary handle
- Code of breaking capacity level:**
M: medium breaking capacity
H: high breaking capacity
- Frame size:** 125, 250, 400, 800
- Code of utilization category:**
ZB: DC molded case circuit breaker with short-time delayed short-circuit protection
- Design serial number:** 3
- Product code:** M - molded case circuit breaker
- Brand code:** Nader

Main performance parameters of NDM3ZB series molded case circuit breakers

Model		NDM3ZB-125		NDM3ZB-250		NDM3ZB-400		NDM3ZB-800	
Frame size Inm (A)		125		250		400		800	
Rated current In (A)		40, 50, 63, 80, 100, 125		125, 140, 160, 180, 200, 225, 250		225, 250, 315, 350, 400		400, 500, 630, 700, 800	
Rated isolation voltage Ui (V)		1000		1000		1000		1000	
Rated impulse withstand voltage Uimp (V)		8000		8000		8000		8000	
Power-frequency withstand voltage U (1 min) (V)		3500		3500		3500		3500	
Utilization category		A		B		B		B	
Rated short-time withstand current Icw (kA/0.1s)		2.5		5		5		10	
Number of poles		2		2		2		2	
Breaking capacity level		M	H	M	H	M	H	M	H
Rated operating voltage Ue (DC V)		250		250		250		250	
Rated ultimate short-circuit breaking capacity Icu (kA)		20	70	20	70	40	70	40	70
Rated service short-circuit breaking capacity Ics (kA)		20	52.5	20	52.5	40	52.5	40	52.5
Endurance (operating cycles)	Electrical	5000		5000		4000		3000	
	Mechanical	15000		15000		10000		10000	
External dimensions 	L (mm)	150		165		257		280	
	W (mm)	92		107		150		210	
	H (mm)	86		104.5		104.5		112	
Arcing distance (mm)		≤50		≤50		≤100		≤100	
Connection method		Front connection, P		Front connection, P		Front connection, P		Front connection, P	

Selection table for accessories of NDM3ZB series
molded case circuit breakers

Code of accessory	Mounting position	Model	Number of poles	NDM3ZB-125	NDM3ZB-250	NDM3ZB-400	NDM3ZB-800
				2	2	2	2
00		N/A		—	—	—	—
10		Shunt trip unit					
20		Dual auxiliary contacts					
21		Single auxiliary contact					
08		Alarm contact					
58		Auxiliary and alarm contacts					



- Legend:
- Single auxiliary contact
 - Dual auxiliary contacts
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit
 - Auxiliary and alarm contact (single accessory combining auxiliary and alarm functions)

Quick selection table for NDM3G series derived type molded case circuit breakers

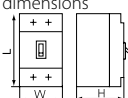


ND M 3 G-400 P/20 21 P 250A AC/DC-(21A)

- Utilization category: See Note a
- Rated current: See the table of main performance parameters
- Connection method:
Blank: general type
P: extended busbar
- Code of accessory: See the selection table for accessories
- Number of poles: 20 - 2 poles 30 - 3 poles 40 - 4 poles
- Operating mode:
Blank: direct operation handle
P: motor-operated
Z: rotary handle
- Frame size: 250, 400, 630, 800
- Derived type molded case circuit breaker
- Design code: 3
- Product code: molded case circuit breaker
- Brand code: Nader

Note a: utilization category:
AC/DC21A, 21B: break/make resistive loads, including proper over loads.
AC/DC22A, 22B: break/make loads and mixed inductive loads, including proper over loads.
AC/DC23A: break/make electric vehicle loads or other high inductive loads.

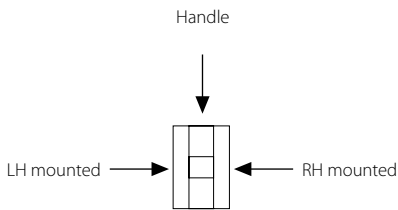
Main performance parameters of NDM3G series derived type molded case circuit breakers

Model		NDM3G-250			NDM3G-400		
Frame size Inm (A)		250			400		
Rated current In (A)		250			400		
Rated isolation voltage Ui (V)		1000			1000		
Rated impulse withstand voltage Uimp (V)		8000			8000		
Power-frequency withstand voltage U (1 min) (V)		3000			3000		
Utilization category		AC-21A/22A/23A DC-21B/22B	AC-21A/22A/23A DC-21B/22B	AC-21A/22A/23A DC-21B/22B	AC-21A/22A/23A DC-21A/22A/23A	AC-21A/22A/23A DC-21A/22A/23A	AC-21A/22A/23A DC-21A/22A/23A
Number of poles		2	3	4	2	3	4
Rated operating voltage Ue (V)		AC380/400/415 AC500 AC660/690 DC500	AC380/400/415 AC500 AC660/690 DC750	AC380/400/415 AC500 AC660/690 DC1000	AC380/400/415 AC500 AC660/690 DC500	AC380/400/415 AC500 AC660/690 DC750	AC380/400/415 AC500 AC660/690 DC1000
Rated short-circuit making capacity Icm (kA)		3	3	3	5	5	5
Rated short-time withstand current/ Icw (kA/1s)		3	3	3	5	5	5
Endurance	Electrical	5000			7500		
	Mechanical	10000			10000		
External dimensions 	L (mm)	165	165	165	257	257	257
	W (mm)	107	107	142	150	150	198
	H (mm)	105	105	105	104.5	104.5	104.5
Arcing distance (mm)		≤50			≤50		
Connection method		Front connection, P			Front connection, P		

Model		NDM3G-630			NDM3G-800		
Frame size Inm (A)		630			800		
Rated current In (A)		630			800		
Rated isolation voltage Ui (V)		1000			1000		
Rated impulse withstand voltage Uimp (V)		8000			8000		
Power-frequency withstand voltage U (1 min) (V)		3000			3000		
Utilization category		AC-21A/22A/23A DC-21A/22A/23A	AC-21A/22A/23A DC-21A/22A/23A	AC-21A/22A/23A DC-21A/22A/23A	AC-21A/22A/23A DC-21A/22A/23A	AC-21A/22A/23A DC-21A/22A/23A	AC-21A/22A/23A DC-21A/22A/23A
Number of poles		2	3	4	2	3	4
Rated operating voltage Ue (V)		AC380/400/415 AC500 AC660/690 DC500	AC380/400/415 AC500 AC660/690 DC750	AC380/400/415 AC500 AC660/690 DC1000	AC380/400/415 AC500 AC660/690 DC500	AC380/400/415 AC500 AC660/690 DC750	AC380/400/415 AC500 AC660/690 DC1000
Rated short-circuit making capacity Icm (kA)		8	8	8	10	10	10
Rated short-time withstand current/ Icw (kA/1s)		8	8	8	10	10	10
Endurance	Electrical	7500			7500		
	Mechanical	10000			10000		
External dimensions	L (mm)	270	270	270	280	280	280
	W (mm)	182	182	240	210	210	280
	H (mm)	108.5	108.5	108.5	112	112	112
Arcing distance (mm)		≤50			≤50		
Connection method		Front connection, P			Front connection, P		

Selection table for accessories of NDM3G series derived type
molded case circuit breakers

Code of accessory	Mounting position	Model	NDM3G-250			NDM3G-400			NDM3G-630			NDM3G-800		
			Number of poles			Number of poles			Number of poles			Number of poles		
			2	3	4	2	3	4	2	3	4	2	3	4
00		N/A	---			---			---			---		
20		Dual auxiliary contacts												
21		Single auxiliary contact												



- Legend:
-  Single auxiliary contact
 -  Dual auxiliary contacts

Quick selection table for NDM5 series molded case circuit breakers

ND M 5 - 250 V MT/125/3 TMD RO M22 10 Z

	Other code: See Note e
	Code of accessory: See the selection table for accessories
	Operating mode: See Note d
	Installation method + connection method: See Note c
	Code of trip unit: See Note b
	Number of poles: See Note a
	Rated current: See the table of main performance parameters
	Reference temperature: T: high temperature Blank: normal temperature
	Code of breaking capacity level: L: standard breaking capacity M: medium breaking capacity H: high breaking capacity U: very high breaking capacity R: ultra-high breaking capacity
	Code of derived variety: V: high voltage Blank: normal voltage
	Frame size: 125, 160, 250, 400, 630, 1600
	Design code: 5
	Product code: molded case circuit breaker
	Brand code: Nader



Note 1: Only 3P products are available for high voltage and U & R breaking capacity levels, and only fixed front connection products are available for the 250 frame size high voltage and U & R breaking capacity levels. If you need plug-in type/draw-out type or manually-operated/motor-operated accessories, please consult with our sales personnel;

Note 2: The high-temperature Type T is only for high voltage application;

Note 3: For the U & R breaking capacity levels, no motor-operated type is available;

Note 4: For the U & R breaking capacity levels, only TMD and TMF trip units are available;

Note 5: The setting current range of TMD trip units for all 250-frame products is divided as follows:

63A-125A: [adjustable thermal (0.8-0.9-1.0) In, fixed magnetic]; 160A-250A: [adjustable thermal (0.8-0.9-1.0) In, adjustable magnetic (5-6-7-8-9-10) In];

Note 6: For the 125 and 160 frame sizes, 16A-80A TMD trip units with fixed magnetic threshold of 10In and 16A-80A TMM trip units with fixed magnetic threshold of 14In are available. For the above-mentioned specifications, please contact us if you need adjustable magnetic products;

Note 7: For the 125 frame size, 1.5A-12.5A magnetic-only trip units, 1.5A-2.5A thermomagnetic trip units with fixed magnetic threshold of 12In and 6A-12.5A thermomagnetic trip units with adjustable magnetic threshold of (7-8-9-10-11-12-13-14) In are available.

Note a:

2: 2 poles

3: 3 poles

4A: Without over-current trip unit mounted in the N pole which is always connected

4B: Without over-current trip unit mounted in the N pole which closes or opens together with the other three poles

4C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles

4D: With over-current trip unit mounted in the N pole which is always connected

Note b:

MF: fixed magnetic-only trip unit

MA: adjustable magnetic-only trip unit

TMD: thermomagnetic trip unit with adjustable thermal threshold and fixed magnetic threshold (for power distribution)

TMM: = Thermomagnetic trip unit with adjustable thermal and fixed magnetic threshold (for motor protection)

TMF: thermomagnetic trip unit with fixed thermal and magnetic threshold

Note c:

Blank: fixed + front connection

ES: fixed + front extended spread connection

RO: fixed + rear screw connection

R1: fixed + rear horizontal connection

R2: fixed + rear vertical connection

Fcu: fixed + front bare copper cable connection

G: rail-mounted + front connection

GES: rail-mounted + front extended spread connection

GFCu: rail-mounted + front bare copper cable connection

POFH: plug-in type without secondary terminal + front horizontal connection

PORH: plug-in type without secondary terminal + rear horizontal connection

PORV: plug-in type without secondary terminal + rear vertical connection

P1FH: plug-in type with secondary terminal + front horizontal connection

P1RH: plug-in type with secondary terminal + rear horizontal connection

P1RV: plug-in type with secondary terminal + rear vertical connection

WOFH: draw-out type without secondary terminal + front horizontal connection

W0RH: draw-out type without secondary terminal + rear horizontal connection

W0RV: draw-out type without secondary terminal + rear vertical connection

W1FH: draw-out type with secondary terminal + front horizontal connection

W1RH: draw-out type with secondary terminal + rear horizontal connection

W1RV: draw-out type with secondary terminal + rear vertical connection

Note d:
Blank: direct operation handle
Z1A150: rotary handle with circular center hole + shaft length 150mm
Z1A200: rotary handle with circular center hole + shaft length 200mm
Z1A300: rotary handle with circular center hole + shaft length 300mm

Z1A350: rotary handle with circular center hole + shaft length 350mm

Z1A650: rotary handle with circular center hole + shaft length 650mm

Z1F150: rotary handle with square center hole + shaft length 150mm

Z1F200: rotary handle with square center hole + shaft length 200mm

Z1F300: rotary handle with square center hole + shaft length 300mm

Z1F350: rotary handle with square center hole + shaft length 350mm

Z1F650: rotary handle with square center hole + shaft length 650mm

Z2A150: rotary handle with circular eccentric hole + shaft length 150mm

Z2A200: rotary handle with circular eccentric hole + shaft length 200mm

Z2A300: rotary handle with circular eccentric hole + shaft length 300mm

Z2A350: rotary handle with circular eccentric hole + shaft length 350mm

Z2A650: rotary handle with circular eccentric hole + shaft length 650mm

Z2F150: rotary handle with square eccentric hole + shaft length 150mm

Z2F200: rotary handle with square eccentric hole + shaft length 200mm

Z2F300: rotary handle with square eccentric hole + shaft length 300mm

Z2F350: rotary handle with square eccentric hole + shaft length 350mm

Z2F650: rotary handle with square eccentric hole + shaft length 650mm

M02: motor-operated DC24V

M11: motor-operated AC110V/DC110V

M22: motor-operated AC230V/DC220V

M40: motor-operated AC400V

Note e:

J: mechanical interlock

M52: M52 lock

Z: terminal cover

CZ: long terminal cover

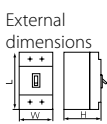
Main performance parameters of NDM5 series molded case circuit breakers

Model			NDM5-125									NDM5-160									NDM5-250									
Frame size Inm (A)			125									160									250									
Rated current In (A)			1.5, 2.5, 6, 10, 12.5, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125									16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160									63, 80, 100, 125, 160, 200, 250									
Rated isolation voltage Ui (V)			800									800									1000									
Rated impulse withstand voltage Uimp (V)			8000									8000									8000									
Power-frequency withstand voltage U (1 min) (V)			3000									3000									3500									
Utilization category			A									A									A									
Number of poles			2			3			4			2			3			4			2			3			4			
Breaking capacity level			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	U	R	L	M	H		
Rated ultimate short-circuit breaking capacity Icu (kA) 50/60Hz	AC 230/240V		100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	70	100	150			70	100	150		
	AC 380/400/415V					70	100	150	70	100	150				70	100	150	70	100	150				70	100	150		70	100	150
	AC 500V																													
	AC 660/690V													8	12	15	8	12	15				10	15	25	55	80	10	15	25
	AC 800V																													
	AC 1000V																													
Rated service short-circuit breaking capacity Ics (kA) 50/60Hz	AC 230/240V		100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	70	100	150			70	100	150		
	AC 380/400/415V					70	100	150	70	100	150				70	100	150	70	100	150				70	100	150		70	100	150
	AC 500V																													
	AC 660/690V													8	12	15	8	12	15				10	15	25	55	80	10	15	25
	AC 800V																													
	AC 1000V																													
Endurance (operating cycles)	Electrical	AC 230/240V	10000									18000									10000									
		AC 380/400/415V	10000									18000									10000									
		AC 500V																												
		AC 660/690V										8000									4000									
		AC 800V																												
		AC 1000V																												
	Mechanical	20000									25000									25000						15000		25000		
External dimensions	L (mm)		135			135			135			135			135			165			165			200			165			
	W (mm)		61			90			120			61			90			120			70			105			105			
	H (mm)		80			80			80			80			80			80			86			86			106.5			
Arcing distance (mm)			≤50									≤50									≤50									

Note 1: If you need AC690V NDM5-160products, please contact us;
Note 2: For NDM5-250 with In (63, 80, 100, 125), only 3P products are available

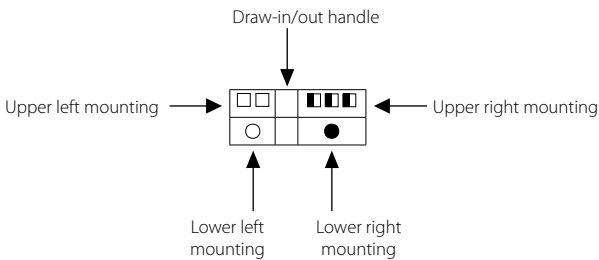
Model			NDM5-250V	NDM5-400								NDM5-400V	NDM5-630								NDM5-630V
Frame size Inm (A)			250	400								400	630								630
Rated current In (A)			63, 80, 100, 125, 160, 200, 250	250, 320, 400								250, 320, 400	400, 500, 630								400, 500, 630
Rated isolation voltage Ui (V)			1000	1000								1000	1000								1000
Rated impulse withstand voltage Uimp (V)			8000	8000								8000	8000								8000
Power-frequency withstand voltage U (1 min) (V)			3500	4000								4000	4000								4000
Utilization category			A	A								A	A								A
Number of poles			3	3				4				3	3				4				3
Breaking capacity level			M	L	M	H	U	R	L	M	H	M	L	M	H	U	R	L	M	H	M
Rated ultimate short-circuit breaking capacity Icu (kA) 50/60Hz	AC 230/240V																				
	AC 380/400/415V			70	100	150			70	100	150		70	100	150			70	100	150	
	AC 500V			50	70	85			50	70	85		50	70	85			50	70	85	
	AC 660/690V			20	30	40	55	80	20	30	40		20	30	40	55	80	20	30	40	
	AC 800V		50									50									50
	AC 1000V		30									35									35
Rated service short-circuit breaking capacity Ics (kA) 50/60Hz	AC 230/240V																				
	AC 380/400/415V			70	100	150			70	100	150		70	100	150			70	100	150	
	AC 500V			50	70	85			50	70	85		50	70	85			50	70	85	
	AC 660/690V			20	30	40	55	80	20	30	40		20	30	40	55	80	20	30	40	
	AC 800V		35									50									50
	AC 1000V		15									18									18
Endurance (operating cycles)	Electrical	AC 230/240V																			
		AC 380/400/415V		7000									5000								
		AC 500V		5000									3000								
		AC 660/690V		3000									2000								
		AC 800V	1500									1500									1500
		AC 1000V	1500	1000								1000	1000								1000
	Mechanical		15000	20000			15000			20000			15000	20000			15000			15000	
External dimensions	L (mm)		200	250			250			250			250			250			250		
	W (mm)		105	140			140			185			140			140			185	140	
	H (mm)		106.5	110			130.5			110			130.5			110			130.5	130.5	
Arcing distance (mm)			≤50	≤100								≤100	≤100								≤100

Model		NDM5-1600L	NDM5-1600M	NDM5-1600H
Frame size Inm (A)		1600		
Rated current In (A)		800, 1000, 1250		
Rated isolation voltage Ui (V)		1000		
Rated impulse withstand voltage Uimp (kV)		12		
Power-frequency withstand voltage U (1 min) (V)		3500		
Utilization category		A		
Number of poles		3	3, 4	3
Breaking capacity level		L	M	H
Rated ultimate short-circuit breaking capacity Icu (kA)	AC380/400/415V	70	100	100
	AC500V	50	70	85
	AC660/690V	20	35	50
	AC800V	/	/	30
Rated service short-circuit breaking capacity Ics (kA)	AC380/400/415V	70	100	100
	AC500V	50	70	70
	AC660/690V	20	35	42
	AC800V	/	/	20
Endurance (operating cycles)	Electrical	AC415V	3000	
		AC500V	1500	
		AC690V	1000	
		AC800V	500	
	Mechanical		10000 (3P)/ 6000 (4P)	
External dimensions	L (mm)		268	268
	W (mm)		210 (3P)/ 280 (4P)	210
	H (mm)		152	152
Arcing distance (mm)		≤100		



Selection table for accessories of NDM5 series molded case circuit breakers

Code of accessory	Mounting position	Model	NDM5-125			NDM5-160			NDM5-250			NDM5-250V	NDM5-400		NDM5-630		NDM5-400V NDM5-630V
			2	3	4	2	3	4	2	3	4	3	3	4	3	4	3
00	N/A		---	---	---	---	---	---	---	---	---	---	---	---	---	---	
08	Alarm contact																
10	Shunt trip unit																
30	Under-voltage trip unit																
21	Single auxiliary contact		---		---		---		---								
61	Two single auxiliary contact blocks		---		---		---		---								
23	Three single auxiliary contact blocks		---		---		---		---								
18	Shunt trip unit, alarm contact																
38	Under-voltage trip unit, alarm contact																
22	Single auxiliary contact, alarm contact		---		---		---		---								
88	Two single auxiliary contact blocks, alarm contact		---		---		---		---								
26	Three single auxiliary contact blocks, alarm contact		---		---		---		---								
42	Shunt trip unit, single auxiliary contact, alarm contact		---		---		---		---								
44	Shunt trip unit, two single auxiliary contact blocks, alarm contact		---		---		---		---								
46	Shunt trip unit, Three single auxiliary contact blocks, alarm contact		---		---		---		---								
75	Under-voltage trip unit, single auxiliary contact, alarm contact		---		---		---		---								
77	Under-voltage trip unit, two single auxiliary contact blocks, alarm contact		---		---		---		---								
81	Under-voltage trip unit, three single auxiliary contact blocks, alarm contact		---		---		---		---								



- Legend:
- Single auxiliary contact
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit

Code of accessory	Mounting position	Model	NDM5-125			NDM5-160			NDM5-250			NDM5-250V	NDM5-400		NDM5-630		NDM5-400V NDM5-630V
			2	3	4	2	3	4	2	3	4	3	3	4	3	4	3
41	Shunt trip unit + single auxiliary contact		---			---			---								
11	Shunt trip unit + two single auxiliary contact blocks		---			---			---								
12	Shunt trip unit + three single auxiliary contact blocks		---			---			---								
71	Under-voltage trip unit, single auxiliary contact		---			---			---								
72	Under-voltage trip unit, two single auxiliary contact blocks		---			---			---								
73	Under-voltage trip unit, three single auxiliary contact blocks		---			---			---								
50	Shunt trip unit, under-voltage trip unit		---	---		---	---		---	---							
31	Under-voltage trip unit, shunt trip unit, alarm contact		---	---		---	---		---	---							
51	Shunt trip unit, under-voltage trip unit, single auxiliary contact		---	---		---	---		---	---							
52	Shunt trip unit, under-voltage trip unit, two single auxiliary contact blocks		---	---		---	---		---	---							
53	Shunt trip unit, under-voltage trip unit, three single auxiliary contact blocks		---	---		---	---		---	---							
98	Two alarm contact blocks		---	---		---	---		---	---							
63	Two single alarm contact blocks, single auxiliary contact		---	---		---	---		---	---							
64	Two single alarm contact blocks, two single auxiliary contact blocks		---	---		---	---		---	---							
65	Two single alarm contact blocks, three single auxiliary contact blocks		---	---		---	---		---	---							
37	Shunt trip unit, under-voltage trip unit, two alarm contact blocks		---	---		---	---		---	---							
39	Shunt trip unit, under-voltage trip unit, single auxiliary contact, two alarm contact blocks		---	---		---	---		---	---							
55	Shunt trip unit, under-voltage trip unit, two single auxiliary contact blocks, two alarm contact blocks		---	---		---	---		---	---							
56	Shunt trip unit, under-voltage trip unit, three single auxiliary contact blocks, two alarm contact blocks		---	---		---	---		---	---							
32	Alarm contact + shunt trip unit + under-voltage trip unit + single auxiliary contact		---	---		---	---		---	---							
33	Alarm contact + shunt trip unit + under-voltage trip unit + two single auxiliary contact blocks		---	---		---	---		---	---							
34	Alarm contact + shunt trip unit + under-voltage trip unit + three single auxiliary contact blocks		---	---		---	---		---	---							

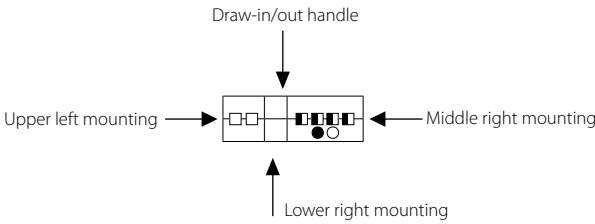
Note: Shunt trip units and under-voltage trip units for NDM5-400/630 products can be mounted on the left or right side, and if only one type is selected, it will be mounted on the left by default.



Molded Case Circuit Breakers

Code of accessory	Mounting position	Model	Number of poles	NDM5-1600	
				3P, 4P	
—	N/A			—	
08	One alarm contact block				
98	Two single alarm contact blocks				
10	Shunt trip unit				
K01	Two shunt trip units				
30	Under-voltage trip unit				
A01	Two under-voltage trip units				
21	Single auxiliary contact				
61	Two single auxiliary contact blocks				
23	Three single auxiliary contact blocks				
24	Four single auxiliary contact blocks				
18	Shunt trip unit, alarm contact				
38	Under-voltage trip unit, alarm contact				
22	Single auxiliary contact, alarm contact				
88	Two single auxiliary contact blocks, alarm contact				
26	Three single auxiliary contact blocks, alarm contact				
25	Four single auxiliary contact blocks, alarm contact				
42	Shunt trip unit, single auxiliary contact, alarm contact				
44	Shunt trip unit, two single auxiliary contact blocks, alarm contact				
46	Shunt trip unit, three single auxiliary contact blocks, alarm contact				

Code of accessory	Mounting position	Model	Number of poles	NDM5-1600	
				3P, 4P	
14	Shunt trip unit, four single auxiliary contact blocks, alarm contact				
75	Under-voltage trip unit, single auxiliary contact, alarm contact				
77	Under-voltage trip unit, two single auxiliary contact blocks, alarm contact				
81	Under-voltage trip unit, three single auxiliary contact blocks, alarm contact				
82	Under-voltage trip unit, four single auxiliary contact blocks, alarm contact				
41	Shunt trip unit, single auxiliary contact				
11	Shunt trip unit, two single auxiliary contact blocks				
12	Shunt trip unit, three single auxiliary contact blocks				
13	Shunt trip unit, four single auxiliary contact blocks				
71	Under-voltage trip unit, single auxiliary contact				
72	Under-voltage trip unit, two single auxiliary contact blocks				
73	Under-voltage trip unit, three single auxiliary contact blocks				
74	Under-voltage trip unit, four single auxiliary contact blocks				
31	Under-voltage trip unit, shunt trip unit, alarm contact				
37	Under-voltage trip unit, shunt trip unit, two single alarm contact blocks				
50	Under-voltage trip unit, shunt trip unit				
51	Under-voltage trip unit, shunt trip unit, single alarm contact				
52	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks				
53	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks				
54	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks				



Legend:

- Single auxiliary contact
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit

Code of accessory	Mounting position	Model	NMD5-1600
Code of accessory	Name of accessory	Number of poles	3P, 4P
19	Shunt trip unit, two single alarm contact blocks		
79	Under-voltage trip unit, two single alarm contact blocks		
63	Single auxiliary contact, two single alarm contact blocks		
64	Two single auxiliary contact blocks, two single alarm contact blocks		
65	Three single auxiliary contact blocks, two single alarm contact blocks		
66	Four single auxiliary contact blocks, two single alarm contact blocks		
43	Shunt trip unit, single auxiliary contact, two single alarm contact blocks		
45	Shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
47	Shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
15	Shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
76	Under-voltage trip unit, single auxiliary contact, two single alarm contact blocks		
80	Under-voltage trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
83	Under-voltage trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
84	Under-voltage trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
32	Under-voltage trip unit, shunt trip unit, single auxiliary contact, alarm contact		
33	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks, alarm contact		
34	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks, alarm contact		
35	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks, alarm contact		
39	Under-voltage trip unit, shunt trip unit, single auxiliary contact, two single alarm contact blocks		
55	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
56	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
36	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
A02	Two under-voltage trip units, single auxiliary contact		
A07	Two under-voltage trip units, two single auxiliary contact blocks		
A08	Two under-voltage trip units, three single auxiliary contact blocks		

Code of accessory	Mounting position	Model	NMD5-1600
Code of accessory	Name of accessory	Number of poles	3P, 4P
A09	Two under-voltage trip units, four single auxiliary contact blocks		
A10	Two under-voltage trip units, single auxiliary contact, alarm contact		
A12	Two under-voltage trip units, two single auxiliary contact blocks, alarm contact		
A14	Two under-voltage trip units, three single auxiliary contact blocks, alarm contact		
A16	Two under-voltage trip units, four single auxiliary contact blocks, alarm contact		
A11	Two under-voltage trip units, single auxiliary contact, two single alarm contact blocks		
A13	Two under-voltage trip units, two single auxiliary contact blocks, two single alarm contact blocks		
A15	Two under-voltage trip units, three single auxiliary contact blocks, two single alarm contact blocks		
A17	Two under-voltage trip units, four single auxiliary contact blocks, two single alarm contact blocks		
A05	Two under-voltage trip units, alarm contact		
A06	Two under-voltage trip units, two single alarm contact blocks		
K04	Two shunt trip units, single auxiliary contact		
K06	Two shunt trip units, two single auxiliary contact blocks		
K07	Two shunt trip units, three single auxiliary contact blocks		
K08	Two shunt trip units, four single auxiliary contact blocks		
K12	Two shunt trip units, single auxiliary contact, alarm contact		
K09	Two shunt trip units, two single auxiliary contact blocks, alarm contact		
K10	Two shunt trip units, three single auxiliary contact blocks, alarm contact		
K11	Two shunt trip units, four single auxiliary contact blocks, alarm contact		
K13	Two shunt trip units, single auxiliary contact, two single alarm contact blocks		
K14	Two shunt trip units, two single auxiliary contact blocks, two single alarm contact blocks		
K15	Two shunt trip units, three single auxiliary contact blocks, two single alarm contact blocks		
K16	Two shunt trip units, four single auxiliary contact blocks, two single alarm contact blocks		
K02	Two shunt trip units, alarm contact		
K05	Two shunt trip units, two single alarm contact blocks		

Quick selection table for NDM5E series molded case circuit breakers



ND M 5 E-250 M 250 / 3/ ETB / R0 M22 10 Z

III

Molded Case Circuit Breakers

- Other code: See Note d
- Code of accessory: See the selection table for accessories
- Operating mode: See Note c
- Installation method + connection method: See Note b
- Code of trip unit:
 - ETB: electronic trip unit;
 - ETB-T: electronic trip unit with communication function;
 - ETB-PT: energy-efficient electronic trip unit with communication function;
 - ETC: LCD intelligent trip unit;
 - ETC-P: energy-efficient intelligent trip unit;
 - ETC-T: intelligent trip unit with communication function;
 - ETC-PT: energy-efficient intelligent trip unit with communication function;
- Number of poles: See Note a
- Rated current: See the table of main performance parameters
- Breaking capacity level:
 - L: standard breaking capacity
 - M: medium breaking capacity
 - H: high breaking capacity
- Frame size: 125, 160, 250, 400, 630, 1600
- Dedicated code for the electronic type
- Design code: 5
- Product code: molded case circuit breaker
- Brand code: Nader

Note a:

3: 3 poles
4A: Without over-current trip unit mounted in the N pole which is always connected
4B: Without over-current trip unit mounted in the N pole which closes or opens together with the other three poles
4C: With over-current trip unit mounted in the N pole which closes or opens together with the other three poles
4D: With over-current trip unit mounted in the N pole which is always connected

Note b:

Blank: fixed + front connection
ES: fixed + front extended spread connection
R0: fixed + rear screw connection
R1: fixed + rear horizontal connection
R2: fixed + rear vertical connection
Fcu: fixed + front bare copper cable connection
G: rail-mounted + front connection
GES: rail-mounted + front extended spread connection
GFcu: rail-mounted + front bare copper cable connection
P0FH: plug-in type without secondary terminal + front horizontal connection
P0RH: plug-in type without secondary terminal + rear horizontal connection
P0RV: plug-in type without secondary terminal + rear vertical connection
P1FH: plug-in type with secondary terminal + front horizontal connection
P1RH: plug-in type with secondary terminal + rear horizontal connection
P1RV: plug-in type with secondary terminal + rear vertical connection
W0FH: draw-out type without secondary terminal + front horizontal connection
W0RH: draw-out type without secondary terminal + rear horizontal connection
W0RV: draw-out type without secondary terminal + rear vertical connection
W1FH: draw-out type with secondary terminal + front horizontal connection
W1RH: draw-out type with secondary terminal + rear horizontal connection
W1RV: draw-out type with secondary terminal + rear vertical connection

Note c:

Blank: direct operation handle
Z1A150: rotary handle with circular center hole + shaft length 150mm
Z1A200: rotary handle with circular center hole + shaft length 200mm
Z1A300: rotary handle with circular center hole + shaft length 300mm
Z1A350: rotary handle with circular center hole + shaft length 350mm
Z1A650: rotary handle with circular center hole + shaft length 650mm
Z1F150: rotary handle with square center hole + shaft length 150mm
Z1F200: rotary handle with square center hole + shaft length 200mm
Z1F300: rotary handle with square center hole + shaft length 300mm
Z1F350: rotary handle with square center hole + shaft length 350mm
Z1F650: rotary handle with square center hole + shaft length 650mm
Z2A150: rotary handle with circular eccentric hole + shaft length 150mm
Z2A200: rotary handle with circular eccentric hole + shaft length 200mm
Z2A300: rotary handle with circular eccentric hole + shaft length 300mm
Z2A350: rotary handle with circular eccentric hole + shaft length 350mm
Z2A650: rotary handle with circular eccentric hole + shaft length 650mm
Z2F150: rotary handle with square eccentric hole + shaft length 150mm
Z2F200: rotary handle with square eccentric hole + shaft length 200mm
Z2F300: rotary handle with square eccentric hole + shaft length 300mm
Z2F350: rotary handle with square eccentric hole + shaft length 350mm
Z2F650: rotary handle with square eccentric hole + shaft length 650mm
M02: motor-operated DC24V
M11: motor-operated AC110V/DC110V
M22: motor-operated AC230V/DC220V
M40: motor-operated AC400V

Note d:

J: mechanical interlock
MS2: MS2 lock
Z: terminal cover
CZ: long terminal cover

No.	Installation method + connection method	Applicable frame size
1	Blank: fixed + front connection	125, 160, 250, 400, 630, 1600
2	ES: fixed + front extended spread connection	125, 160, 250, 400, 630, 1600
3	R0: fixed + rear screw connection	125, 160, 250
4	R1: fixed + rear horizontal connection	400, 630, 1600
5	R2: fixed + rear vertical connection	1600
6	Fcu: fixed + front bare copper cable connection	125, 160, 250
7	G: rail-mounted + front connection	125, 160, 250
8	GES: rail-mounted + front extended spread connection	125, 160, 250
9	GFcu: rail-mounted + front bare copper cable connection	125, 160, 250
10	P0FH: plug-in type without secondary terminal + front horizontal connection	125, 160, 250, 400, 630
11	P0RH: plug-in type without secondary terminal + rear horizontal connection	125, 160, 250, 400, 630
12	P0RV: plug-in type without secondary terminal + rear vertical connection	125, 160, 250
13	P1FH: plug-in type with secondary terminal + front horizontal connection	125, 160, 250, 400, 630
14	P1RH: plug-in type with secondary terminal + rear horizontal connection	125, 160, 250, 400, 630
15	P1RV: plug-in type with secondary terminal + rear vertical connection	125, 160, 250
16	W0FH: draw-out type without secondary terminal + front horizontal connection	400, 630
17	W0RH: draw-out type without secondary terminal + rear horizontal connection	400, 630
18	W0RV: draw-out type without secondary terminal + rear vertical connection	/
19	W1FH: draw-out type with secondary terminal + front horizontal connection	400, 630
20	W1RH: draw-out type with secondary terminal + rear horizontal connection	400, 630
21	W1RV: draw-out type with secondary terminal + rear vertical connection	/

Main performance parameters of NDM5E series molded case circuit breakers

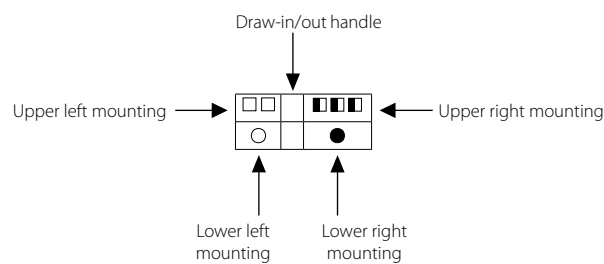
Model			NDM5E-125						NDM5E-160						NDM5E-250						NDM5E-400						NDM5E-630					
Frame size Inm (A)			125						160						250						400						630					
Rated current In (A)			32, 63, 125						160						40, 100, 250						400						630					
Rated isolation voltage Ui (V)			800						800						1000						1000						1000					
Rated impulse withstand voltage Uimp (V)			8000						8000						8000						8000						8000					
Power-frequency withstand voltage U (1 min) (V)			3000						3000						3500						4000						4000					
Utilization category			A						A						A						B						B					
Rated short-time withstand current Icw (kA/1s)			/						/						/						5						8					
Number of poles			3		4				3		4				3		4				3		4				3		4			
Breaking capacity level			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 380/400/415V		70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150
	AC 500V		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	50	70	85	50	70	85	50	70	85	50	70	85
	AC 660/690V		/	/	/	/	/	/	8	12	15	8	12	15	8	12	15	8	12	15	20	30	40	20	30	40	20	30	40	20	30	40
Rated service short-circuit breaking capacity Ics (kA)	AC 380/400/415V		70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150	70	100	150
	AC 500V		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	50	70	85	50	70	85	50	70	85	50	70	85
	AC 660/690V		/	/	/	/	/	/	8	12	15	8	12	15	8	12	15	8	12	15	20	30	40	20	30	40	20	30	40	20	30	40
Endurance (operating cycles)	Electrical	AC 380/400/415V	10000						18000						10000						7000						5000					
		AC500V	/						/						/						5000						3500					
		AC 660/690V	/						8000						4000						3000						2000					
	Mechanical		20000						25000						25000						20000						20000					
External dimensions	L (mm)		135			135			135			135			165			165			250			250			250			250		
	W (mm)		90			120			90			120			105			140			140			185			140			185		
	H (mm)		80			80			80			80			86			86			110			110			110			110		
Arcing distance (mm)			≤50						≤50						≤50						≤100						≤100					

Note: If you need AC690V NDM5E-160products, please contact us.

Model		NDM5E-1600L	NDM5E-1600M	NDM5E-1600H
Frame size Inm (A)		1600		
Rated current In (A)		800, 1000, 1250, 1600		
Rated isolation voltage Ui (V)		1000		
Rated impulse withstand voltage Uimp (kV)		12		
Power-frequency withstand voltage U (1 min) (V)		3500		
Utilization category		B		
Rated short-time withstand current Icw (kA)		20/1s		
Number of poles		3	3, 4	3
Breaking capacity level		L	M	H
Rated ultimate short-circuit breaking capacity Icu (kA)	AC380/400/415V	70	100	100
	AC500V	50	70	85
	AC660/690V	20	35	50
	AC800V	/	/	30
Rated service short-circuit breaking capacity Ics (kA)	AC380/400/415V	70	100	100
	AC500V	50	70	70
	AC660/690V	20	35	42
	AC800V	/	/	20
Endurance (operating cycles)	Electrical	AC415V	2000 (1600A), 3000 (1250A)	
		AC500V	1500	
		AC690V	1000	
		AC800V	500	
	Mechanical		10000 (3P)/6000 (4P)	
External dimensions	L (mm)		268	268
	W (mm)		210	210
	H (mm)		154	154
Arcing distance (mm)		≤100		

Selection table for accessories of NDM5E series molded case circuit breakers

Code of accessory	Mounting position Name of accessory	Model		NDM5E-125		NDM5E-160		NDM5E-250		NDM5E-400		NDM5E-630	
		Number of poles		3	4	3	4	3	4	3	4	3	4
—	N/A	---		---		---		---		---		---	
08	Alarm contact												
10	Shunt trip unit												
30	Under-voltage trip unit												
21	Single auxiliary contact												
61	Two single auxiliary contact blocks												
23	Three single auxiliary contact blocks												
18	Shunt trip unit, alarm contact												
38	Under-voltage trip unit, alarm contact												
22	Single auxiliary contact, alarm contact												
88	Two single auxiliary contact blocks, alarm contact												
26	Three single auxiliary contact blocks, alarm contact												
42	Shunt trip unit, single auxiliary contact, alarm contact												
44	Shunt trip unit, two single auxiliary contact blocks, Alarm contact												
46	Shunt trip unit, three single auxiliary contact blocks, alarm contact												
75	Under-voltage trip unit, single auxiliary contact, alarm contact												
77	Under-voltage trip unit, two single auxiliary contact blocks Alarm contact												
81	Under-voltage trip unit, three single auxiliary contact blocks Alarm contact												



- Legend:
- Single auxiliary contact
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit

Code of accessory	Mounting position Name of accessory	Model		NDM5E-125		NDM5E-160		NDM5E-250		NDM5E-400		NDM5E-630	
		Number of poles		3	4	3	4	3	4	3	4	3	4
41	Shunt trip unit, single auxiliary contact												
11	Shunt trip unit, two single auxiliary contact blocks												
12	Shunt trip unit, three single auxiliary contact blocks												
71	Under-voltage trip unit, single auxiliary contact												
72	Under-voltage trip unit, two single auxiliary contact blocks												
73	Under-voltage trip unit, three single auxiliary contact blocks												
50	Shunt trip unit, under-voltage trip unit												
31	Under-voltage trip unit, shunt trip unit, alarm contact												
51	Shunt trip unit, under-voltage trip unit, single auxiliary contact												
52	Shunt trip unit, under-voltage trip unit, two single auxiliary contact blocks												
53	Shunt trip unit, under-voltage trip unit, three single auxiliary contact blocks												
98	Two alarm contact blocks												
63	Two single alarm contact blocks, single auxiliary contact												
64	Two single alarm contact blocks, two single auxiliary contact blocks												
65	Two single alarm contact blocks, three single auxiliary contact blocks												
37	Shunt trip unit, under-voltage trip unit, two alarm contact blocks												
39	Shunt trip unit, under-voltage trip unit, single auxiliary contact, two alarm contact blocks												
55	Shunt trip unit, under-voltage trip unit, two single auxiliary contact blocks, two alarm contact blocks												
56	Shunt trip unit, under-voltage trip unit, three single auxiliary contact blocks, two alarm contact blocks												
32	Alarm contact + shunt trip unit + under-voltage trip unit + single auxiliary contact												
33	Alarm contact + shunt trip unit + under-voltage trip unit + two single auxiliary contact blocks												
34	Alarm contact + shunt trip unit + under-voltage trip unit + three single auxiliary contact blocks												

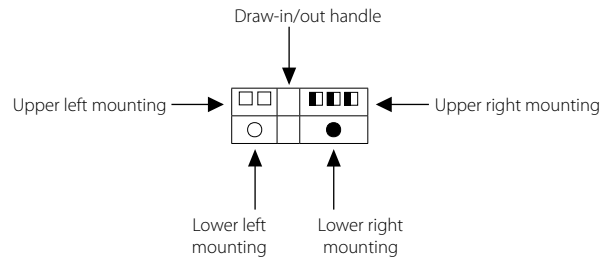
Note 1: Shunt trip units and under-voltage trip units for NDM5-400/630 products can be mounted on the left or right side;

Note 2: No code is assigned to three single auxiliary contact blocks for ETB-T/ETB-PT/ETC-T/ETC-P/ETC-PT of NDM5E-250, NDM5E-400 and NDM5E-630 products;

Note 3: No code is assigned to three auxiliary contact blocks for ETB-T/ETB-PT of NDM5E-125 and NDM5E-160 products.

Code of accessory	Mounting position	Model	Number of poles	NDM5E-1600	
				3P, 4P	
—	N/A	—	—		
08	One alarm contact block				
98	Two single alarm contact blocks				
10	Shunt trip unit				
K01	Two shunt trip units				
30	Under-voltage trip unit				
A01	Two under-voltage trip units				
21	Single auxiliary contact				
61	Two single auxiliary contact blocks				
23	Three single auxiliary contact blocks				
24	Four single auxiliary contact blocks				
18	Shunt trip unit, alarm contact				
38	Under-voltage trip unit, alarm contact				
22	Single auxiliary contact, alarm contact				
88	Two single auxiliary contact blocks, alarm contact				
26	Three single auxiliary contact blocks, alarm contact				
25	Four single auxiliary contact blocks, alarm contact				
42	Shunt trip unit, single auxiliary contact, alarm contact				
44	Shunt trip unit, two single auxiliary contact blocks, alarm contact				
46	Shunt trip unit, three single auxiliary contact blocks, alarm contact				

Code of accessory	Mounting position	Model	Number of poles	NDM5E-1600	
				3P, 4P	
14	Shunt trip unit, four single auxiliary contact blocks, alarm contact				
75	Under-voltage trip unit, single auxiliary contact, alarm contact				
77	Under-voltage trip unit, two single auxiliary contact blocks, alarm contact				
81	Under-voltage trip unit, three single auxiliary contact blocks, alarm contact				
82	Under-voltage trip unit, four single auxiliary contact blocks, alarm contact				
41	Shunt trip unit, single auxiliary contact				
11	Shunt trip unit, two single auxiliary contact blocks				
12	Shunt trip unit, three single auxiliary contact blocks				
13	Shunt trip unit, four single auxiliary contact blocks				
71	Under-voltage trip unit, single auxiliary contact				
72	Under-voltage trip unit, two single auxiliary contact blocks				
73	Under-voltage trip unit, three single auxiliary contact blocks				
74	Under-voltage trip unit, four single auxiliary contact blocks				
31	Under-voltage trip unit, shunt trip unit, alarm contact				
37	Under-voltage trip unit, shunt trip unit, two single alarm contact blocks				
50	Under-voltage trip unit, shunt trip unit				
51	Under-voltage trip unit, shunt trip unit, single alarm contact				
52	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks				
53	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks				
54	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks				



Legend:

- Single auxiliary contact
- Alarm contact
- Shunt trip unit
- Under-voltage trip unit

Code of accessory	Mounting position	Model	NDM5E-1600
			3P, 4P
19	Shunt trip unit, two single alarm contact blocks		
79	Under-voltage trip unit, two single alarm contact blocks		
63	Single auxiliary contact, two single alarm contact blocks		
64	Two single auxiliary contact blocks, two single alarm contact blocks		
65	Three single auxiliary contact blocks, two single alarm contact blocks		
66	Four single auxiliary contact blocks, two single alarm contact blocks		
43	Shunt trip unit, single auxiliary contact, two single alarm contact blocks		
45	Shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
47	Shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
15	Shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
76	Under-voltage trip unit, single auxiliary contact, two single alarm contact blocks		
80	Under-voltage trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
83	Under-voltage trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
84	Under-voltage trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
32	Under-voltage trip unit, shunt trip unit, single auxiliary contact, alarm contact		
33	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks, alarm contact		
34	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks, alarm contact		
35	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks, alarm contact		
39	Under-voltage trip unit, shunt trip unit, single auxiliary contact, two single alarm contact blocks		
55	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
56	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
36	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
A02	Two under-voltage trip units, single auxiliary contact		
A07	Two under-voltage trip units, two single auxiliary contact blocks		
A08	Two under-voltage trip units, three single auxiliary contact blocks		

Code of accessory	Mounting position	Model	NDM5E-1600
			3P, 4P
A09	Two under-voltage trip units, four single auxiliary contact blocks		
A10	Two under-voltage trip units, single auxiliary contact, alarm contact		
A12	Two under-voltage trip units, two single auxiliary contact blocks, alarm contact		
A14	Two under-voltage trip units, three single auxiliary contact blocks, alarm contact		
A16	Two under-voltage trip units, four single auxiliary contact blocks, alarm contact		
A11	Two under-voltage trip units, single auxiliary contact, two single alarm contact blocks		
A13	Two under-voltage trip units, two single auxiliary contact blocks, two single alarm contact blocks		
A15	Two under-voltage trip units, three single auxiliary contact blocks, two single alarm contact blocks		
A17	Two under-voltage trip units, four single auxiliary contact blocks, two single alarm contact blocks		
A05	Two under-voltage trip units, alarm contact		
A06	Two under-voltage trip units, two single alarm contact blocks		
K04	Two shunt trip units, single auxiliary contact		
K06	Two shunt trip units, two single auxiliary contact blocks		
K07	Two shunt trip units, three single auxiliary contact blocks		
K08	Two shunt trip units, four single auxiliary contact blocks		
K12	Two shunt trip units, single auxiliary contact, alarm contact		
K09	Two shunt trip units, two single auxiliary contact blocks, alarm contact		
K10	Two shunt trip units, three single auxiliary contact blocks, alarm contact		
K11	Two shunt trip units, four single auxiliary contact blocks, alarm contact		
K13	Two shunt trip units, single auxiliary contact, two single alarm contact blocks		
K14	Two shunt trip units, two single auxiliary contact blocks, two single alarm contact blocks		
K15	Two shunt trip units, three single auxiliary contact blocks, two single alarm contact blocks		
K16	Two shunt trip units, four single auxiliary contact blocks, two single alarm contact blocks		
K02	Two shunt trip units, alarm contact		
K05	Two shunt trip units, two single alarm contact blocks		

Note: No code is assigned to four single auxiliary contact blocks for ETB-T/ETB-PT/ETC-T/ETC-P/ETC-PT of NDM5E-1600 products.

Table of trip unit functions for NDM5E series molded case circuit breakers

Code of trip unit			ETB	ETC	ETB-T	ETC-T	ETB-PT	ETC-P	ETC-PT
Protection & alarm	Long-time delayed protection		√	√	√	√	√	√	√
	Short-time delayed protection		√	√	√	√	√	√	√
	Instantaneous short-circuit protection		√	√	√	√	√	√	√
	Neutral pole protection		√	√	√	√	√	√	√
	Grounding protection		√	√	√	√	√	√	√
	Over/under-voltage protection		—	—	—	—	√	√ ^{Note 1}	√
	Over-load pre-alarm		√	√	√	√	√	√	√
	Thermal simulation (thermal memory)		√	√	√	√	√	√	√
Measuring	Current measurement		—	√	√	√	√	√	√
	Voltage measurement	Line/phase voltage	—	—	—	—	√	√	√
	Power measurement	active power, reactive power, apparent power, power factor	—	—	—	—	√	√	√
	Electric energy measurement	active energy, reactive energy and apparent energy	—	—	—	—	√	√	√
	Frequency measurement		—	—	—	—	√	√	√
Maintenance	Setting	Knob setting	√	√	√	√	√	√	√
		Menu setting	—	—	—	—	—	—	—
	Fault memory (entry)	Over load, short-time delayed short-circuit, instantaneous short-circuit, operating time, fault phase	1 ^{Note 2}	1	20	20	20	1	20
		Over-voltage protection, under-voltage protection, operating time, fault phase	—	—	—	—			
	Live operating cycles		—	—	√	√	√	—	√
	Contact wear		—	—	√	√	√	—	√
	Historical log (entry)		—	1	20	20	20	1	20
	Display	Real-time current value		—	√	√	√	√	√
Real-time voltage value		—	—	—	—	√	√	√	
Power, electric energy and frequency values		—	—	—	—	√	√	√	
Setting value		—	—	—	—	√	√	√	
Type of last fault, fault current or voltage, operating time, fault time		—	√	√ ^{Note 3}	√	√ ^{Note 3}	√	√	
Extended module	Display module ^{Note 4}		○	○	○	○	○	○	○
	Temperature detection module ^{Note 4}		○	○	○	○	○	○	○

Note 1: The over-voltage and under-voltage parameters of ETC-P are defined by default and cannot be changed. Note 2: DF-MB/C3 communication adapter or DF-XS1 display unit for reading is required. Note 3: displayed by the upper computer. Note 4: "○" represents optional.

All protective functions must meet the power supply requirements for the circuit breaker: i.e. three-phase power 0.2In, single-phase power 0.4In.

Quick selection table for NDM5Z series molded case circuit breakers

ND	M	5	Z-250	M	125/3	TMDC	R1	M22	10	Z	
											Other code: See Note e
											Code of accessory: See the se
											Operating mode: See Note d
											Installation method + connection method: See Note c
											Code of trip unit: See Note b
											Number of poles: See Note a
											Rated current: See the table of main performance parameters
											Code of breaking capacity level: L: standard breaking capacity M: medium breaking capacity H: high breaking capacity
											Frame size: 160, 250, 400, 630, 1600
											DC molded case circuit breaker
											Design code: 5
											Product code: molded case circuit breaker
											Brand code: Nader

Note a:
2: 2 poles; 3: 3 poles; 4: 4 poles.

Note b:
Code of trip unit: TMDC: adjustable thermal (0.8-0.9-1.0) In,
Adjustable thermal (5-6-7-8-9-10) In for power distribution.

Note c:
Blank: fixed + front connection
ES: fixed + front extended spread connection
R0: fixed + rear screw connection
R1: fixed + rear horizontal connection
R2: fixed + rear vertical connection
FCu: fixed + front bare copper cable connection
G: rail-mounted + front connection
GES: rail-mounted + front extended spread connection
GFCu: rail-mounted + front bare copper cable connection
P0FH: plug-in type without secondary terminal + front horizontal connection
P0RH: plug-in type without secondary terminal + rear horizontal connection
P0RV: plug-in type without secondary terminal + rear vertical connection
P1FH: plug-in type with secondary terminal + front horizontal connection
P1RH: plug-in type with secondary terminal + rear horizontal connection
P1RV: plug-in type with secondary terminal + rear vertical connection
W0FH: draw-out type without secondary terminal + front horizontal connection
W0RH: draw-out type without secondary terminal + rear horizontal connection
W0RV: draw-out type without secondary terminal + rear vertical connection
W1FH: draw-out type with secondary terminal + front horizontal connection
W1RH: draw-out type with secondary terminal + rear horizontal connection
W1RV: draw-out type with secondary terminal + rear vertical connection

Note d:
Blank: direct operation handle
Z1A150: rotary handle with circular center hole + shaft length 150mm
Z1A200: rotary handle with circular center hole + shaft length 200mm
Z1A300: rotary handle with circular center hole + shaft length 300mm
Z1A350: rotary handle with circular center hole + shaft length 350mm
Z1A650: rotary handle with circular center hole + shaft length 650mm
Z1F150: rotary handle with square center hole + shaft length 150mm

Z1F200: rotary handle with square center hole + shaft length 200mm
Z1F300: rotary handle with square center hole + shaft length 300mm
Z1F350: rotary handle with square center hole + shaft length 350mm
Z1F650: rotary handle with square center hole + shaft length 650mm
Z2A150: rotary handle with circular eccentric hole + shaft length 150mm
Z2A200: rotary handle with circular eccentric hole + shaft length 200mm
Z2A300: rotary handle with circular eccentric hole + shaft length 300mm
Z2A350: rotary handle with circular eccentric hole + shaft length 350mm
Z2A650: rotary handle with circular eccentric hole + shaft length 650mm
Z2F150: rotary handle with square eccentric hole + shaft length 150mm
Z2F200: rotary handle with square eccentric hole + shaft length 200mm
Z2F300: rotary handle with square eccentric hole + shaft length 300mm
Z2F350: rotary handle with square eccentric hole + shaft length 350mm
Z2F650: rotary handle with square eccentric hole + shaft length 650mm
M02: motor-operated DC24V
M11: motor-operated AC110V/DC110V
M22: motor-operated AC230V/DC220V
M40: motor-operated AC400V

Note d:
J: mechanical interlock
BL: 4P in parallel
MS2: MS2 lock



Main performance parameters of NDM5Z series molded case circuit breakers

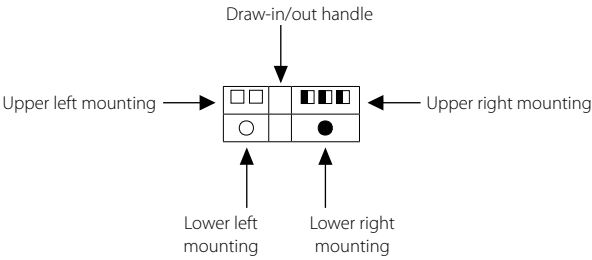
Model			NDMSZ-160									NDMSZ-250								
Frame size Inm (A)			160									250								
Rated current In (A)			16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160									160, 200, 250								
Rated isolation voltage Ui (V)			1200									1200								
Rated impulse withstand voltage Uimp (V)			8000									8000								
Power-frequency withstand voltage U (1 min) (V)			3000									3500								
Utilization category			A									A								
Number of poles			2			3			4			2			3			4		
Breaking capacity level			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Rated ultimate short-circuit breaking capacity Icu (kA)	DC 500V (2P)		50	85	100							50	85	100						
	DC 750V (2P)													25						
	DC 750V (3P)					50	85	100							50	85	100			
	DC 1000V (3P)																25			
	DC 1000V (4P)								25	35	50							50	70	85
	DC 1200V (4P)										25									40
	DC 1500V (4P)																			
	DC 600V (4P in parallel)																			
	DC 750V (4P in parallel)																			
Rated service short-circuit breaking capacity Ics (kA)	DC 500V (2P)		50	85	100							50	85	100						
	DC 750V (2P)													25						
	DC 750V (3P)					50	85	100							50	85	100			
	DC 1000V (3P)																25			
	DC 1000V (4P)								25	35	50							50	70	85
	DC 1200V (4P)										25									40
	DC 1500V (4P)																			
	DC 600V (4P in parallel)																			
	DC 750V (4P in parallel)																			
Endurance (operating cycles)	Electrical	DC 500V (2P)	5000									5000								
		DC 750V (2P)										5000								
		DC 750V (3P)				5000									5000					
		DC 1000V (3P)													4000					
		DC 1000V (4P)							4000									4000		
		DC 1200V (4P)							3000									3000		
		DC 1500V (4P)																		
		DC 600V (4P in parallel)																		
		DC 750V (4P in parallel)																		
	Mechanical		25000			25000			25000			25000			25000			25000		
External dimensions	L (mm)	135			135			135			165			165			165			
	W (mm)	61			90			120			70			105			140			
	H (mm)	80			80			80			86			86			86			
Arcing distance (mm)			≤50									≤50								

Model		NDM5Z-400						NDM5Z-630								NDM5Z-1600							
Frame size Inm (A)		400						630								1600							
Rated current In (A)		250, 320, 400						400, 500, 550 (3P), 630 (2P)								1250 (parallel)	800, 1000, 1250, 1500	800, 1000, 1250, 1500*	800, 1000, 1250, 1500*				
Rated isolation voltage Ui (V)		1500						1200								1200							
Rated impulse withstand voltage Uimp (V)		8000						8000								12000							
Power-frequency withstand voltage U (1 min) (V)		4000						4000								3500							
Utilization category		A						A								A							
Number of poles		3			4			2	3			4			4 in parallel	2	3	4					
Breaking capacity level		L	M	H	L	M	H	H	L	M	H	L	M	H	H	M	M	M					
Rated operating voltage Ue (V)																DC500V, DC600V	DC750V	DC1000V, DC1200V					
Rated ultimate short-circuit breaking capacity Icu (kA)	DC 500V (2P)															70	/	/					
	DC600V (2P)															35	/	/					
	DC 750V (2P)							30								/	/	/					
	DC 750V (3P)	50	85	100					50	85	100					/	70	/					
	DC 1000V (3P)															/	/	/					
	DC 1000V (4P)				50	85	100					50	85	100		/	/	70					
	DC 1200V (4P)						50							50		/	/	35					
	DC 1500V (4P)						20									/	/	/					
	DC 600V (4P in parallel)														50	/	/	/					
	DC 750V (4P in parallel)														25	/	/	/					
Rated service short-circuit breaking capacity Ics (kA)	DC 500V (2P)															70	/	/					
	DC600V (2P)															35	/	/					
	DC 750V (2P)							30								/	/	/					
	DC 750V (3P)	50	85	100					50	85	100					/	70	/					
	DC 1000V (3P)															/	/	/					
	DC 1000V (4P)				50	85	100					50	85	100		/	/	70					
	DC 1200V (4P)						50							50		/	/	35					
	DC 1500V (4P)						20									/	/	/					
	DC 600V (4P in parallel)														50	/	/	/					
	DC 750V (4P in parallel)														25	/	/	/					
Endurance (operating cycles)	Electrical	DC 500V (2P)														1000	/	/					
		DC600V (2P)														1000	/	/					
		DC 750V (2P)							3000								/	/	/				
		DC 750V (3P)	5000							3000								/	1000	/			
		DC 1000V (3P)														/	/	/					
		DC 1000V (4P)										3000				/	/	1000					
		DC 1200V (4P)										2000				/	/	500					
		DC 1500V (4P)														/	/	/					
		DC 600V (4P in parallel)												2000	/	/	/						
		DC 750V (4P in parallel)												1000	/	/	/						
	Mechanical	20000					20000					20000					20000					10000	10000
External dimensions	L (mm)	250			250			250	250			250			250	268	268	268					
	W (mm)	140			185			140	140			185			185	210	210	280					
	H (mm)	110			110			110	110			110			110	152	152	152					
Arcing distance (mm)		≤100						≤100								≤100							

Note: 1500*: Max. operating current of NDM5Z-1600 3P/4P products: 1440A.

Selection table for accessories of NDM5Z series molded case circuit breakers

Code of accessory	Mounting position	Model	NDM5Z-160			NDM5Z-250			NDM5Z-400		NDM5Z-630	
			2	3	4	2	3	4	3	4	3	4
—	N/A		—	—	—	—	—	—	—	—	—	—
08	Alarm contact											
10	Shunt trip unit											
30	Under-voltage trip unit											
21	Single auxiliary contact		—		—							
61	Two single auxiliary contact blocks		—		—							
23	Three single auxiliary contact blocks		—		—							
18	Shunt trip unit, alarm contact											
38	Under-voltage trip unit, alarm contact											
22	Single auxiliary contact, alarm contact		—		—							
88	Two single auxiliary contact blocks, alarm contact		—		—							
26	Three single auxiliary contact blocks, alarm contact		—		—							
42	Shunt trip unit, single auxiliary contact, alarm contact		—		—							
44	Shunt trip unit, two single auxiliary contact blocks, alarm contact		—		—							
46	Shunt trip unit, three single auxiliary contact blocks, alarm contact		—		—							
75	Under-voltage trip unit, single auxiliary contact, alarm contact		—		—							
77	Under-voltage trip unit, two single auxiliary contact blocks, alarm contact		—		—							
81	Under-voltage trip unit, three single auxiliary contact blocks, alarm contact		—		—							



- Legend:
- Single auxiliary contact
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit

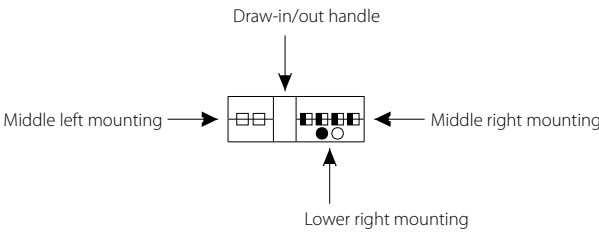
Code of accessory	Mounting position	Model	NDM5Z-160			NDM5Z-250			NDM5Z-400		NDM5Z-630	
			2	3	4	2	3	4	3	4	3	4
41	Shunt trip unit, single auxiliary contact		---			---						
11	Shunt trip unit, two single auxiliary contact blocks		---			---						
12	Shunt trip unit, three single auxiliary contact blocks		---			---						
71	Under-voltage trip unit, single auxiliary contact		---			---						
72	Under-voltage trip unit, two single auxiliary contact blocks		---			---						
73	Under-voltage trip unit, three single auxiliary contact blocks		---			---						
50	Shunt trip unit, under-voltage trip unit		---	---		---	---					
31	Under-voltage trip unit, shunt trip unit, alarm contact		---	---		---	---					
51	Shunt trip unit, under-voltage trip unit, single auxiliary contact		---	---		---	---					
52	Shunt trip unit, under-voltage trip unit, two single auxiliary contact blocks		---	---		---	---					
53	Shunt trip unit, under-voltage trip unit, three single auxiliary contact blocks		---	---		---	---					
98	Two alarm contact blocks		---	---		---	---					
63	Two single alarm contact blocks, single auxiliary contact		---	---		---	---					
64	Two single alarm contact blocks, two single auxiliary contact blocks		---	---		---	---					
65	Two single alarm contact blocks, three single auxiliary contact blocks		---	---		---	---					
37	Shunt trip unit, under-voltage trip unit, two alarm contact blocks		---	---		---	---					
39	Shunt trip unit, under-voltage trip unit, single auxiliary contact, two alarm contact blocks		---	---		---	---					
55	Shunt trip unit, under-voltage trip unit, two single auxiliary contact blocks, two alarm contact blocks		---	---		---	---					
56	Shunt trip unit, under-voltage trip unit, three single auxiliary contact blocks, two alarm contact blocks		---	---		---	---					
32	Alarm contact + shunt trip unit + under-voltage trip unit + single auxiliary contact		---	---		---	---					
33	Alarm contact + shunt trip unit + under-voltage trip unit + two single auxiliary contact blocks		---	---		---	---					
34	Alarm contact + shunt trip unit + under-voltage trip unit + three single auxiliary contact blocks		---	---		---	---					

Note: Shunt trip units and under-voltage trip units for NDM5Z-400/630 products can be mounted on the left or right side.



Code of accessory	Mounting position	Model	Number of poles	NDM5Z-1600	
				Name of accessory	2P, 3P, 4P
—				N/A	—
08				One alarm contact block	
98				Two single alarm contact blocks	
10				Shunt trip unit	
K01				Two shunt trip units	
30				Under-voltage trip unit	
A01				Two under-voltage trip units	
21				Single auxiliary contact	
61				Two single auxiliary contact blocks	
23				Three single auxiliary contact blocks	
24				Four single auxiliary contact blocks	
18				Shunt trip unit, alarm contact	
38				Under-voltage trip unit, alarm contact	
22				Single auxiliary contact, alarm contact	
88				Two single auxiliary contact blocks, alarm contact	
26				Three single auxiliary contact blocks, alarm contact	
25				Four single auxiliary contact blocks, alarm contact	
42				Shunt trip unit, single auxiliary contact, alarm contact	
44				Shunt trip unit, two single auxiliary contact blocks, alarm contact	

Code of accessory	Mounting position	Model	Number of poles	NDM5Z-1600	
				Name of accessory	2P, 3P, 4P
46				Shunt trip unit, three single auxiliary contact blocks, alarm contact	
14				Shunt trip unit, four single auxiliary contact blocks, alarm contact	
75				Under-voltage trip unit, single auxiliary contact, alarm contact	
77				Under-voltage trip unit, two single auxiliary contact blocks, alarm contact	
81				Under-voltage trip unit, three single auxiliary contact blocks, alarm contact	
82				Under-voltage trip unit, four single auxiliary contact blocks, alarm contact	
41				Shunt trip unit, single auxiliary contact	
11				Shunt trip unit, two single auxiliary contact blocks	
12				Shunt trip unit, three single auxiliary contact blocks	
13				Shunt trip unit, four single auxiliary contact blocks	
71				Under-voltage trip unit, single auxiliary contact	
72				Under-voltage trip unit, two single auxiliary contact blocks	
73				Under-voltage trip unit, three single auxiliary contact blocks	
74				Under-voltage trip unit, four single auxiliary contact blocks	
31				Under-voltage trip unit, shunt trip unit, alarm contact	
37				Under-voltage trip unit, shunt trip unit, two single alarm contact blocks	
50				Under-voltage trip unit, shunt trip unit	
51				Under-voltage trip unit, shunt trip unit, single alarm contact	
52				Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks	



- Legend:
- Single auxiliary contact
 - Alarm contact
 - Shunt trip unit
 - Under-voltage trip unit

Code of accessory	Name of accessory	Mounting position Model Number of poles	NDM5Z-1600
			2P, 3P, 4P
53	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks		
54	Under-voltage trip unit, shunt trip unit, Four single auxiliary contact blocks		
19	Shunt trip unit, two single alarm contact blocks		
79	Under-voltage trip unit, two single alarm contact blocks		
63	Single auxiliary contact, two single alarm contact blocks		
64	Two single auxiliary contact blocks, two single alarm contact blocks		
65	Three single auxiliary contact blocks, two single alarm contact blocks		
66	Four single auxiliary contact blocks, two single alarm contact blocks		
43	Shunt trip unit, single auxiliary contact, two single alarm contact blocks		
45	Shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
47	Shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
15	Shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
76	Under-voltage trip unit, single auxiliary contact, two single alarm contact blocks		
80	Under-voltage trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
83	Under-voltage trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
84	Under-voltage trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
32	Under-voltage trip unit, shunt trip unit, Single auxiliary contact, alarm contact		
33	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks, alarm contact		
34	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks, alarm contact		
35	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks, alarm contact		
39	Under-voltage trip unit, shunt trip unit, single auxiliary contact, two single alarm contact blocks		
55	Under-voltage trip unit, shunt trip unit, two single auxiliary contact blocks, two single alarm contact blocks		
56	Under-voltage trip unit, shunt trip unit, three single auxiliary contact blocks, two single alarm contact blocks		
36	Under-voltage trip unit, shunt trip unit, four single auxiliary contact blocks, two single alarm contact blocks		
A02	Two under-voltage trip units, single auxiliary contact		
A07	Two under-voltage trip units, two single auxiliary contact blocks		

Code of accessory	Name of accessory	Mounting position Model Number of poles	NDM5Z-1600
			2P, 3P, 4P
A08	Two under-voltage trip units, three single auxiliary contact blocks		
A09	Two under-voltage trip units, four single auxiliary contact blocks		
A10	Two under-voltage trip units, single auxiliary contact, alarm contact		
A12	Two under-voltage trip units, two single auxiliary contact blocks, alarm contact		
A14	Two under-voltage trip units, three single auxiliary contact blocks, alarm contact		
A16	Two under-voltage trip units, four single auxiliary contact blocks, alarm contact		
A11	Two under-voltage trip units, single auxiliary contact, two single alarm contact blocks		
A13	Two under-voltage trip units, two single auxiliary contact blocks, two single alarm contact blocks		
A15	Two under-voltage trip units, three single auxiliary contact blocks, two single alarm contact blocks		
A17	Two under-voltage trip units, four single auxiliary contact blocks, two single alarm contact blocks		
A05	Two under-voltage trip units, alarm contact		
A06	Two under-voltage trip units, two single alarm contact blocks		
K04	Two shunt trip units, single auxiliary contact		
K06	Two shunt trip units, two single auxiliary contact blocks		
K07	Two shunt trip units, three single auxiliary contact blocks		
K08	Two shunt trip units, four single auxiliary contact blocks		
K12	Two shunt trip units, single auxiliary contact, alarm contact		
K09	Two shunt trip units, two single auxiliary contact blocks, Alarm contact		
K10	Two shunt trip units, three single auxiliary contact blocks, Alarm contact		
K11	Two shunt trip units, four single auxiliary contact blocks, Alarm contact		
K13	Two shunt trip units, single auxiliary contact, two single alarm contact blocks		
K14	Two shunt trip units, two single auxiliary contact blocks, two single alarm contact blocks		
K15	Two shunt trip units, three single auxiliary contact blocks, two single alarm contact blocks		
K16	Two shunt trip units, four single auxiliary contact blocks, two single alarm contact blocks		
K02	Two shunt trip units, alarm contact		
K05	Two shunt trip units, two single alarm contact blocks		

Quick selection table for NDM5G-400V series molded case circuit breakers



ND M 5 G – 400 V 400 / 2 / M02 10

ND	M	5	G	–	400	V	400	/	2	/	M02	10	
													Code of accessory: See the selection table for accessories
													Operating mode: See the notes
													Number of poles: 2
													Conventional thermal current (A): 400
													Code of derived variety: V
													Frame size: 400
													Derived code: G: derived type molded case circuit breaker
													Design code: 5
													Product code: molded case circuit breaker
													Brand code: Nader

Notes:

Operating mode

Blank: direct operation handle;

Z1A150: rotary handle with circular center hole + shaft length 150mm

Z1A200: rotary handle with circular center hole + shaft length 200mm

Z1A300: rotary handle with circular center hole + shaft length 300mm

Z1A350: rotary handle with circular center hole + shaft length 350mm

Z1A650: rotary handle with circular center hole + shaft length 650mm

Z1F150: rotary handle with square center hole + shaft length 150mm

Z1F200: rotary handle with square center hole + shaft length 200mm

Z1F300: rotary handle with square center hole + shaft length 300mm

Z1F350: rotary handle with square center hole + shaft length 350mm

Z1F650: rotary handle with square center hole + shaft length 650mm

M02: motor-operated DC24V;

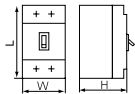
M11: motor-operated AC110V/DC110V;

M22: motor-operated AC230V/DC220V;

M40: motor-operated AC400V.

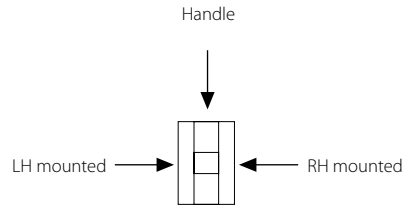
Main performance parameters of NDM5G-400V series molded case circuit breakers

Model		NDM5G-400V
Conventional thermal current Ith (A)		400
Rated voltage Ue (V)		DC1500
Number of poles		2 (3P-shaped)
Utilization category		DC-22A, DC-PV2
Rated impulse withstand voltage Uimp (V)		8000
Rated isolation voltage Ui (V)		1500
Rated short-time withstand current Icw (kA)		5/1s
Rated short-circuit making capacity Icm (kA)		5
Endurance (operating cycles)	Mechanical (maintenance-free)	10000
	Electrical	1000
External dimensions	L (mm)	250
	W (mm)	140
	H (mm)	131
Arcing distance (mm)		≤50



Selection table for accessories of NDM5G-400V series molded case circuit breakers

Code of accessory	Mounting position	Model	Number of poles	NDM5G-400V	
				2	
00	Without accessories			---	
10	Shunt trip unit				
21	Single auxiliary contact				
41	Shunt trip unit + single auxiliary contact				



- Legend:
- Single auxiliary contact
 - Shunt trip unit

Part IV

Switch-disconnectors

Quick selection table for NDG(R)2 series switch-disconnectors



ND GR2 - 125 / 3 / F1 H L 00/125

Rated current with fuse, applicable to fusible switch-disconnectors.

Type of shaft length: L, L1, L2

Type of handle

Internal: internal operation handle (Note: no internal operation for 1250 and 1600 switch-disconnectors and 1000 and 1250 fusible switch-disconnectors)

H: Type H handle

H + interlock: Type H handle with door interlock

B: Type B handle with door interlock

Auxiliary switch: F1 - with one auxiliary switch (One NO and one NC)

F2 - with two auxiliary switches (two NO and two NC)

Blank - without auxiliary switches

Number of poles: 3 - 3 poles 4 - 4 poles

Specification:

Specification of switch-disconnector: 125, 160, 200, 400, 630, 1000, 1250, 1600

Specification of fusible switch-disconnector: 63, 125, 160, 250, 400, 630, 800, 1000, 1250

Model: G2 - switch-disconnector

GR2 - fusible switch-disconnector

Brand code: Nader

Note: Neither 4P products nor internal operation available for 1250 and 1600 switch-disconnectors and 1000 and 1250 fusible switch-disconnectors.

Main performance parameters of NDG2 series switch-disconnectors

Specification	NDG2 -125	NDG2 -160	NDG2 -200	NDG2 -250	NDG2 -315	NDG2 -400	NDG2 -630	NDG2 -1000	NDG2 -1250	NDG2 -1600
Number of poles	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3	3
Rated isolation voltage U_i (V)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)	12	12	12	12	12	12	12	12	12	12
Rated operating voltage U_e (V)										
AC 50Hz	400/690	400/690	400/690	400/415	400/415	400/690	400/690	380	400/690	400/690
DC	500	500	500			500	500	1000		
Rated operating current I_e/ AC										
400V AC-23B (A)	125	160	200	250 (AC-22B)	315 (AC-21B)	400	630	1000 (AC380V)	1250	1600
690V AC-23B (A)									1250	1600
690V AC-23B (A)	125	160	160			250	400		1000	1250
Rated short-circuit making capacity AC 690V (kA)	20	20	20	40 (AC400V)	80 (AV400V)	50	50	85 (AC380V)	85	85
Rated short-time withstand current AC 690V (kA/1s)	4	4	4	4 (AC400V)	8 (AC400V)	15	15	50 (AC380V)	50	50
Rated operating current I_e/ DC										
500V L/R=15ms DC-23B(A) (two poles in series)	125	160	200			400	630			
1000V L/R=2.5ms DC-22B(A)								500		
Rated short-circuit making capacity DC 500V (kA)	20	20	20			50	50			
Rated short-time withstand current DC 500V (kA/1s)	4	4	4			15	15			
Rated short-circuit making capacity DC 1000V (kA)								50		
Rated short-time withstand current DC 1000V (kA/1s)								15		

Specification	NDG2 -125	NDG2 -160	NDG2 -200	NDG2 -250	NDG2 -315	NDG2 -400	NDG2 -630	NDG2 -1000	NDG2 -1250	NDG2 -1600
Endurance (operating cycles)										
Mechanical	15000	15000	12000	1400	1400	3000	3000	3000	1000	1000
Electrical	1000	1000	1000	200	200	300	300	150	100	100
Operating torque (N.m)	7.5	7.5	7.5	7.5	7.5	16	16	30	38	38
Permissible load										
At an ambient temperature of 40°C (A)	125	160	200	250	315	400	630	1000	1250	1600
At an ambient temperature of 45°C (A)	125	150	180	250	310	395	600	960	1220	1550
At an ambient temperature of 50°C (A)	125	145	160	250	305	390	570	920	1180	1500
At an ambient temperature of 55°C (A)	125	140	140	250	300	380	540	880	1140	1445
Connection										
Min. cross-sectional area of copper cable (mm²)	70	120	150	150	185	240	2x150	2x150	—	—
Max. cross-sectional area of copper cable (mm²)	20x5	40x16	40x16	150	150	40x16	40x16	40x16	70x14	70x14
Max. density of copper cable (mm)	20	20	20	30	30	25	25	40	70	70
Terminal tightening torque (N.m)	7-10	15-22	15-22	35-45	35-45	35-45	35-45	35-45	50-65	50-65
Other specifications										
Neutral pole current (A)/ Neutral line current (A)	125/125	160/160	200/200	250/250	315/315	400/400	400/400	630/630	1000/1000	1000/1000
operating current of auxiliary switch 380V AC-15 (A)	4	4	4	4	4	4	4	6	6	6
operating current of auxiliary switch 220V DC-13 (A)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.6

Main performance parameters of NDGR2 series switch-disconnectors

Specification	NDGR2 -63	NDGR2 -125	NDGR2 -160	NDGR2 -250	NDGR2 -400	NDGR2 -630	NDGR2 -800	NDGR2 -1000	NDGR2 -1250
Number of poles	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3	3
Fuse size	000	00	00	1-2	1-2	3	3	4	4
Max. fuse (A)	63	125	160	250	400	630	800	1000	1250
Rated isolation voltage Ui (V)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage Uimp (kV)	12	12	12	12	12	12	12	12	12
Rated operating voltage Ue (V)									
AC 50/60 Hz	400/690	400/690	400/690	400/690	400/690	400/690	400/690	400/690	400/690
Rated operating current Ie/ AC power									
400V AC-23B (A/kW)	63/30*	125/75	160/90	250/132	400/200	630/333	800/425	1000/515	1250/660
690V AC-23B (A/kW)	63/55*	125/110	160/150	250/220	400/375	630/560	800/710	1000/910	1250/1110
Rated conditional short-circuit current (kA)									
AV 400V	100	100	100	100	100	100	100	100	100
AV 690V	50	50	50	50	50	50	50	50	50
Rated making/breaking capacity									
Rated making capacity 690V AC-23B (A)	630*	1250	1600	2500	4000	6300	8000	10000	12500
Rated breaking capacity 690V AC-23B (A)	504*	1000	1280	2000	3200	5040	6040	8000	10000
Rated capacitive load making/breaking capacity 400V (kVAr)	131	131	251	251	251	540	540	830	830

*Note: $\cos\varphi=0.45$

Specification	NDGR2 -63	NDGR2 -125	NDGR2 -160	NDGR2 -250	NDGR2 -400	NDGR2 -630	NDGR2 -800	NDGR2 -1000	NDGR2 -1250
Endurance (operating cycles)									
Mechanical	15000	15000	12000	12000	12000	3000	3000	1000	1000
Electrical	1000	1000	300	300	300	200	150	100	100
Operating torque (N.m)	7.5	7.5	16	16	16	30	30	38	38
Permissible load									
At an ambient temperature of 40°C (A)	63	125	160	250	400	630	800	1000	1250
At an ambient temperature of 45 °C (A)	63	125	150	250	380	610	770	970	1200
At an ambient temperature of 50°C (A)	63	125	145	250	360	590	740	940	1150
At an ambient temperature of 55 °C (A)	63	125	140	240	340	570	710	910	1100
Connection									
Min. cross-sectional area of copper cable (mm ²)	35	70	120	150	240	2x150	2x240	2x240	—
Max. cross-sectional area of copper cable (mm ²)	20x5	20x5	40x16	40x16	40x16	40x16	70x16	70x14	70x14
Max. width of copper cable (mm)	20	20	20	25	25	40	40	70	70
Terminal tightening torque (N.m)	7-10	7-10	15-22	15-22	35-45	35-45	35-45	35-45	35-45
Other specifications									
Neutral pole current (A)/ Neutral line current (A)	63/63	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1000
operating current of auxiliary switch 380V AC-15A	4	4	4	4	4	6	6	6	6
operating current of auxiliary switch 220V DC-13A	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.6

Selection table for accessories of NDG(R)2 series switch-disconnectors

- ◆ Type H handle (external operation handle, IP65 protection rating, used with Type H rotary shaft and coupling) without door interlock
- ◆ Type H rotary shaft (shaft length L, L1 and L2, used with Type H handle and coupling)
- ◆ Coupling (used with Type H handle and Type H rotary shaft)
- ◆ Type B handle (external operation handle, used with Type B rotary shaft) with door interlock
- ◆ Type B rotary shaft (shaft length L, L1 and L2, used with Type B handle)
- ◆ Internal operation handle (with handle and shaft already mounted in place, shaft length L, L1 and L2)
- ◆ Protective cover (available for NDG2-125~1600 products, 3 pcs per product)
- ◆ Auxiliary switch (1 or 2 pcs per product, F1 represents 1 pc while F2 represents 2 pcs)
- ◆ Fuse (available for NDGR2, 3 pcs per product)
- ◆ Arc barrier (available for NDGR2 and NDGR2-63~400, 5 pcs per product, and 4 pcs per product required for NDGR2-630~1250)
- ◆ Shaft sleeve

Note: For internal operation of NDG2-125~630 products, if the mounting depth is too low, auxiliary switches cannot be fitted.



Auxiliary switch



Protective cover

Quick selection table for NDG3-100, 125 and 160 series switch-disconnectors



ND G 3- 125 / 3 A Z K S

- Derived code:**
S: interlock (manual dual power)
L: interlock (all phase poles open or close simultaneously)
- Type of handle:**
K: internal direction operation handle
Blank: without a handle (external operation handle available, to be ordered separately, see "Standard accessories: handle + shaft" for details)
- Installation method:**
Z: rail-mounted with screws
M: door-mounted (to be ordered with NGSB1-B external operation handle)
- Type of pole:**
A: with neutral pole (N-pole) closing or opening simultaneously with the main switch
B: with in-line neutral pole (N-pole)
Blank: without a neutral pole
- Number of poles:**
100: 3, 4, 6, 8,
125: 3, 4, 6, 8,
160: 3, 4
- Specification:**
100, 125, 160
- Design serial number:** 3
- Product code:** switch-disconnector
- Brand code:** Nader

Note: The derived code is only available for NDG3-100/125 6-pole and 8-pole products

Quick selection table for NDG3-100, 125, 160, 200, 250, 315 and 400 series switch-disconnectors



ND G 3- 250 / 04 A Z K

ND	G	3-	250 / 04	A	Z	K	
							Type of handle: P: without handle (external operation handle available, to be ordered separately, see "Standard accessories: handle + shaft" for details) K: internal direction operation handle
							Operating mode: Z: front operation C: lateral operation
							Type of pole: Blank: without neutral pole products A: with neutral pole (N-pole) closing or opening simultaneously with the main switch B: with in-line neutral pole (N-pole) W: products with wide phase-to-phase spacing
							Number of poles: 03, 12, 04, 22 (The first digit represents the number of poles on the left phase of the operating mechanism, while the second digit represents the number of poles on the right phase of the operating mechanism)
							Specification: 100H, 125H, 160H, 200, 250, 315, 400
							Design serial number: 3
							Product code: switch-disconnector
							Brand code: Nader

- Notes:**
1. For NDG3-□/□□CK products, only 3 poles (03) and 4 poles (04)
 2. For Type A or Type B pole products with neutral pole, only 04
 3. For products with wide phase-to-phase spacing, only 3 poles and 4 poles

Quick selection table for NDG3-500, 630, 800, 100 and 1250 series switch-disconnectors



ND G 3- 1250 / 4 / Z K

- Type of handle:**
P: without handle (external operation handle available, to be ordered separately)
K: internal direction operation handle
- Type of current:**
Blank: general type
Z: DC photovoltaic type
- Number of poles:** 3, 4
- Specification of switch-disconnector:** 500, 630, 800, 1000, 1250
- Design serial number:** 3
- Product code:** switch-disconnector
- Brand code:** Nader

Note: For DC photovoltaic products, it is required to order a short-circuit terminal block MX1/G3-□. Please contact the local distributor.

Main performance parameters of NDG3-125~400 series switch-disconnectors

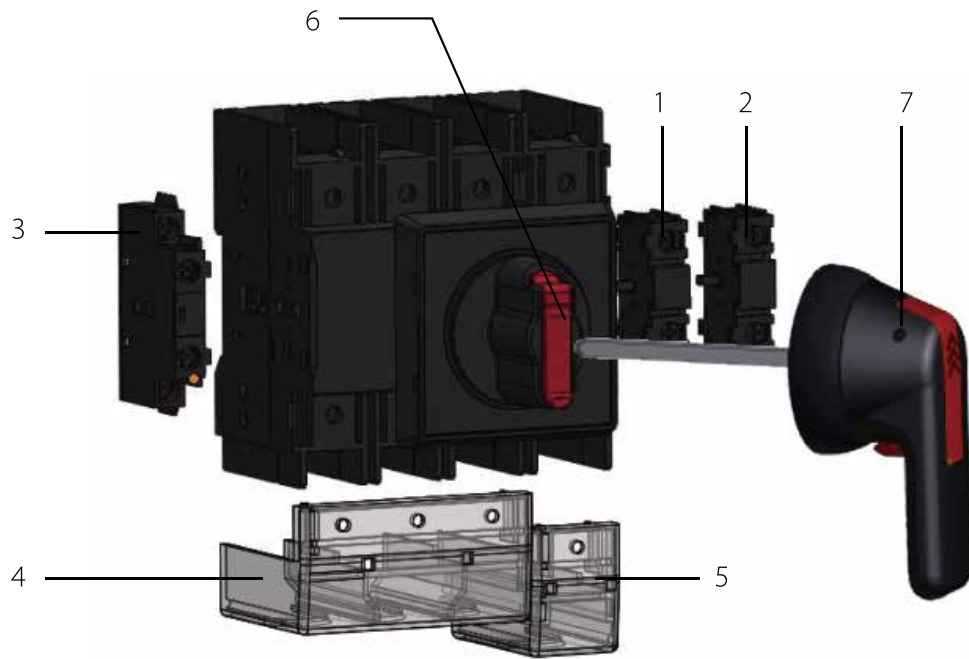
Specification	NDG3-100			NDG3-125			NDG3-160			
Number of poles	3, 4, 6, 8						3, 4			
Rated isolation voltage (V)	750						1000			
Rated impulse withstand voltage (kV)	8						12			
Rated operating current (A)	Utilization category	Rated voltage	Rated current	Utilization category	Rated voltage	Rated current	Utilization category	Rated voltage	Rated current	
	AC-21A AC-22A	380/400/415	100	AC-21A AC-22A	380/400/415	125	AC-21A AC-22A	380/400/415	160	
		500			500			500		
		660/690			600/690		AC-21B	1000		
	AC-23A	380/400/415	80	AC-23A	380/400/415	90	AC-23A	380/400/415	135	
		500	60		500	70		500	125	
		660/690	40		660/690	50		660/690	80	
	DC-22A	110	100/2	DC-22A	110	125/2	DC-21A DC-22A	500	160/3	
		250	63/4		250	80/4	DC-21A	750	160/4	
	Rated short-time withstand current (kA)	2.5/1s						4/1s		
	Rated short-circuit making capacity (kA)	3.6						12		
	Mechanical endurance (operating cycles)	20000								
Electrical endurance (operating cycles)	1500			1000						
Connection capacity (mm ²) (bare copper cable)	Main product: 10-70 Auxiliary: 0.75-2.5									
Terminal tightening torque (locking torque N·m)	Main product: 6 Auxiliary: 0.8									
Operating torque (N.m)	2.5						5			
Installation method	Rail-mounted with screws; door-mounted									

Specification			NDG3-100H	NDG3-125H	NDG3-160H	NDG3-200	NDG3-250
Number of poles			3, 4				
Rated isolation voltage (V)			1000				
Rated impulse withstand voltage (kV)			12				
Rated operating current (A)	Utilization category	Rated voltage (V)	NDG3-100H	NDG3-125H	NDG3-160H	NDG3-200	NDG3-250
	AC-22A	800/1000	100	125	160	200	250
	AC-23A	380/400/415	100	125	160	200	250
		500	100	125	160	200	250
		660/690	100	125	160	200	250
	DC-21B poles in series	500	100/3	125/3	160/3	200/3	250/3
		1000	100/4	125/4	160/4	200/4	250/4
	Rated short-time withstand current I _{cw} (kA)			8/1s			
Rated short-circuit making capacity I _{cm} (kA peak value)			30				
Electrical endurance (operating cycles)			1500	1000			
Mechanical endurance (operating cycles)			20000				
Min. cross-sectional area of copper cable (mm ²)			100A: 50 125A: 50 160A: 95 200A: 120 250A: 150				
Terminal screw specification (metric: diameter x length in mm)			Main product: M8X25 Auxiliary: M3.5X9.5				
Terminal tightening torque (locking torque N·m)			Main product: 15-22 Auxiliary: 0.8				
Operating torque (N·m)			7				
Installation method			Floor-mounted with screws				

Specification	NDG3-315			NDG3-400		
Number of poles	3, 4					
Rated isolation voltage (V)	1000					
Rated impulse withstand voltage (kV)	12					
Rated operating current (A)	Utilization category	Rated voltage (V)	Rated current (A)	Utilization category	Rated voltage (V)	Rated current (A)
	AC-23A	380/400/415	315	AC-23A	380/400/415	400
		500			500	
		660/690			660/690	
		1000			1000	
	DC-21B	500	315/3	DC-21B	500	400/3
		1000	315/4		1000	400/4
Rated short-time withstand current (kA)	31/0.15s, 20/0.5s, 15/1s					
Rated short-circuit making capacity (kA)	50					
Mechanical endurance (operating cycles)	10000					
Electrical endurance (operating cycles)	1000					
Connection capacity (mm²) (bare copper cable)	Main product: 240 (1 pc) - 150 (2 pcs) Auxiliary: 0.75-2.5					
Terminal tightening torque (locking torque N·m)	Main product: 30-44 Auxiliary: 0.8					
Operating torque (N.m)	15					
Installation method	Floor-mounted with screws					

Specification	Unit / category		Parameter description				
Rated current In	A		500	630	800	1000	1250
Conventional thermal current	A		800			1250	
Number of poles	pc		3, 4				
Rated isolation voltage	V		1000				
Rated impulse withstand voltage	kV		12				
Rated operating current (A)	AC21B	800V	500	630	630	/	/
		1000V	/	/	/	1000	1250
	AC22B	415V	500	630	800	1000	1250
		690V	400	500	500	800	800
	AC23B	415V	400	500	/	800	1000
		690V	315	315	/	500	500
	DC21B	750V	500/3	630/3	800/3	/	/
		1000V	500/4	630/4	800/4	/	/
	DC22B	750V	/	/	/	1000/3	1250/3
		1000V	/	/	/	1000/4	1250/4
Rated short-time withstand current Icw	kA 1s		AC: 16kA DC: 10kA			AC: 35kA DC: 10kA	
Rated short-circuit making capacity Icw	kA		AC: 32kA DC: 17kA			AC: 50kA DC: 17kA	
Mechanical endurance	operating cycles		5000				
Electrical endurance	operating cycles		200		100		
Operating torque (N.m)	N.m		18			40	
Terminal screw tightening torque	N.m		10			14	
Cross-sectional area of linked copper busbar	mm²		2 pcs 30X5	2 pcs 40X5	2 pcs 50X5	2 pcs 60X5	2 pcs 80X5
Installation method			Mounted with M6 screws			Mounted with M8 screws	

Selection table for accessories of NDG3-100~400 series switch-disconnectors



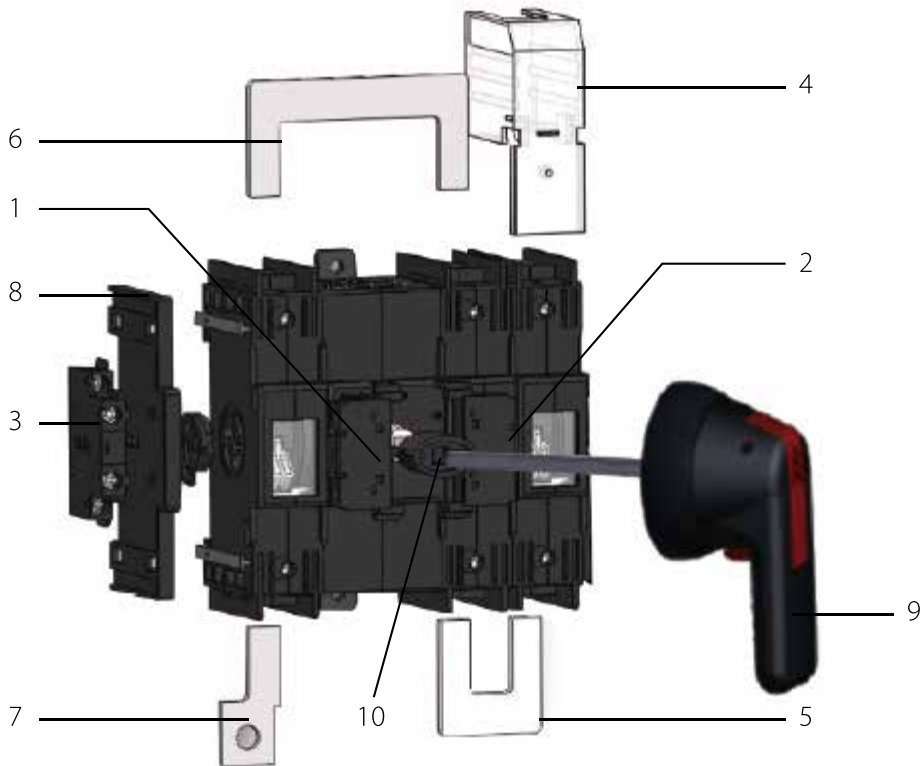
IV

Switch-disconnectors

Accessories of NDG3-100 and 125

No.	Name	Remarks
1	Auxiliary switch NGF1-01	Mounted on both sides of the product, with 2 pcs at most on each side; for door-mounted products or products mounted on the same side as the N-pole, required to connect the auxiliary switch before mounting it on the product, with the Max. connection not above 1mm ²
2	Auxiliary switch NGF1-10	Mounted on both sides of the product, with 2 pcs at most on each side; for door-mounted products or products mounted on the same side as the N-pole, required to connect the auxiliary switch before mounting it on the product, with the Max. connection not above 1mm ²
3	Auxiliary switch NGF1-11	Mounted on both sides of the product, with 1 pc on each side, not intended to be mounted on the same side as the N-pole; for door-mounted products, required to connect the auxiliary switch before mounting it on the product, with the Max. connection not above 1mm ²
4	Terminal cover NGZ1-125/3	Mounted at both ends of the incoming and outgoing lines of the main switch
5	Terminal cover NGZ1-125/1	Mounted at both ends of the incoming and outgoing lines of the product with N pole
6	External operation handle NGSB1-B	Available for door-mounted products, 1 pc per product; before installation, determine the mounting hole and drill through the knock-off hole
7	External operation handle SB1-'A'/G3-125	Shaft length 130, 150, 161, 170, 185, 210, 290 (unit: mm)

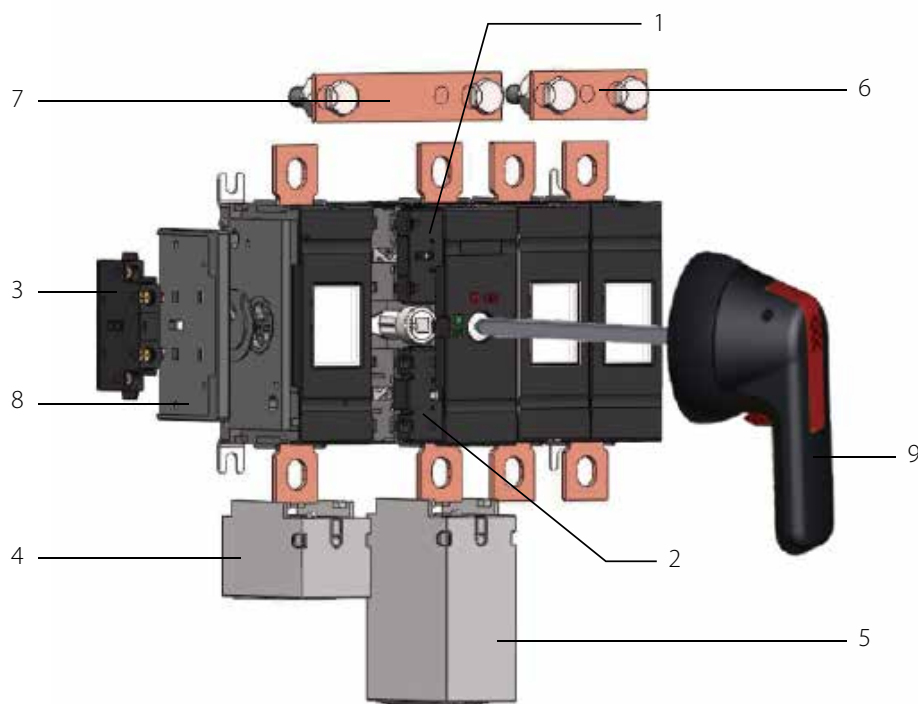
Note 1: A represents shaft length



Accessories of NDG3-160

No.	Name	Remarks
1	Auxiliary switch NGF2-01	Necessarily used with NGA1-2/160, mounted on the product surface, with 2 pcs at most on each side, unavailable for internal operation handles
2	Auxiliary switch NGF2-10	Necessarily used with NGA1-2/160, mounted on the product surface, with 2 pcs at most on each side, unavailable for internal operation handles
3	Auxiliary switch NGF1-11	Necessarily used with NGA1-1/160, mounted on both sides of the product, with 2 pcs at most on each side, unavailable for mounting with screws
4	Terminal cover NGZ1-160/1	Mounted at both ends of the incoming and outgoing lines of the product, not intended to be used with a secondary terminal
5	NDG3-160 (short) short-circuit terminal block	Mounted between two adjacent poles
6	NDG3-160 (long) short-circuit terminal block	Mounted between two poles separated by the operating mechanism
7	Secondary terminal NGXTG1-160	Mounted at both ends of each pole of the product, not intended to be used with a terminal cover
8	Mounting base NGA1-1/160	Mounted on both sides of the product, used with NGF1-11, unavailable for mounting with screws
9	External operation handle SB1-A'/G3-125	Shaft length 130, 150, 161, 170, 185, 210, 290 (unit: mm), only 130 available for door-mounted products
10	Mounting base NGA1-2/160	Mounted on the product top, used with NGF2-01 or NGF2-10, only for external operation (required to order an external operation handle)

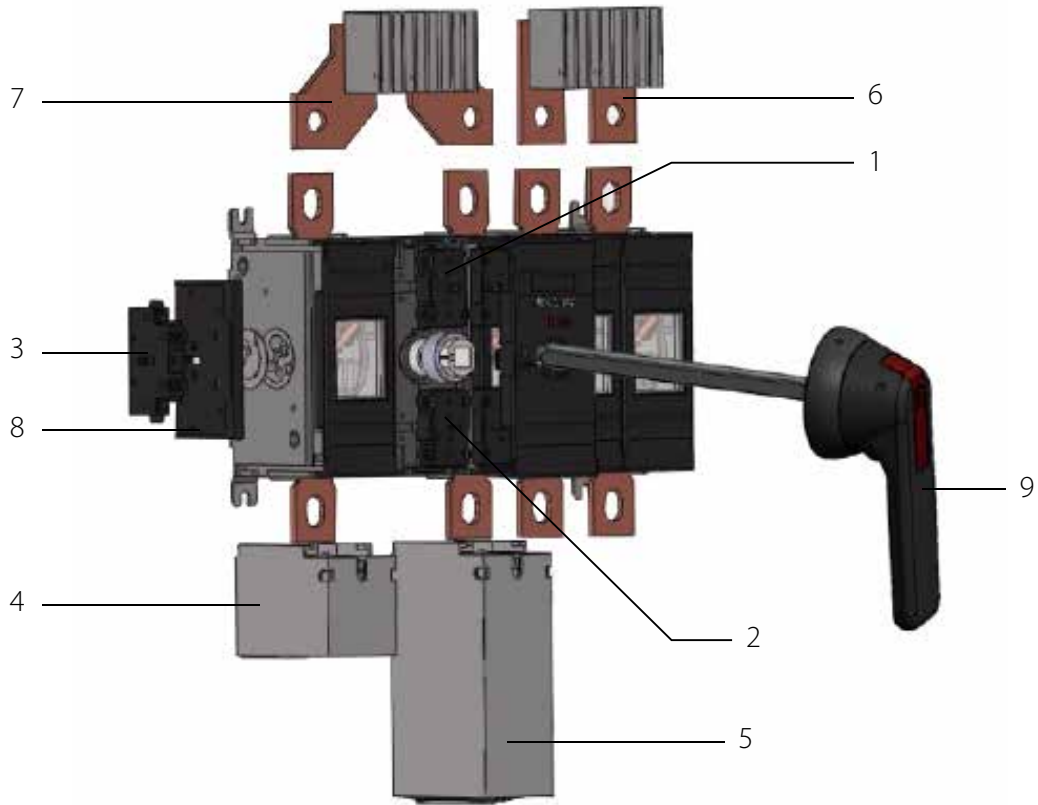
Note 1: A represents shaft length



Accessories of NDG3-100H, 125H, 160H, 200 and 250

No.	Name	Remarks
1	Auxiliary switch NGF1-01	Mounted beneath the mechanism top cover, with 1 pc at most both up and down; required to connect the auxiliary switch before mounting it on the product
2	Auxiliary switch NGF1-10	Mounted beneath the mechanism top cover, with 1 pc at most both up and down; required to connect the auxiliary switch before mounting it on the product
3	Auxiliary switch NGF1-11	Necessarily used with NGA1-1/250, mounted on both sides of the product, with 2 pcs at most on each side
4	Terminal cover NGZ1-250/1S	Short terminal cover, mounted at both ends of the incoming and outgoing lines of the product
5	Terminal cover NGZ1-250/1L	Long terminal cover, mounted at both ends of the incoming and outgoing lines of the product
6	NDG3-250 short terminal block	Mounted between two adjacent poles
7	NDG3-250 long terminal block	Mounted between two poles separated by the operating mechanism
8	Mounting base NGA1-1/250	Mounted on both sides of the product, used with NGF1-11
9	External operation handle SB1-'A'/G3-125	Shaft length 130, 150, 161, 170, 185, 210, 290 (unit: mm)

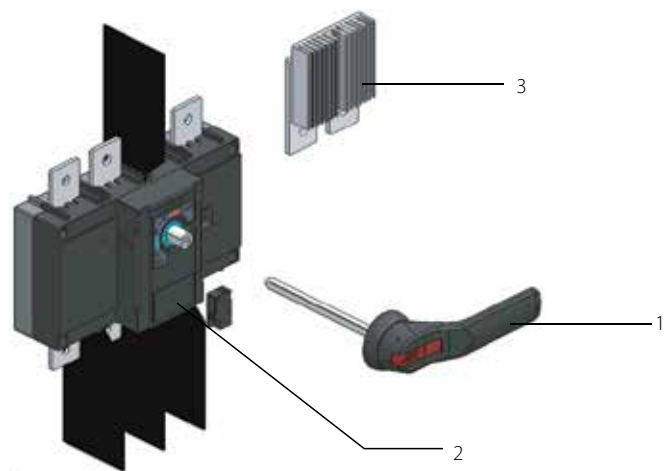
Note 1: A represents shaft length



Accessories of NDG3-315 and 400

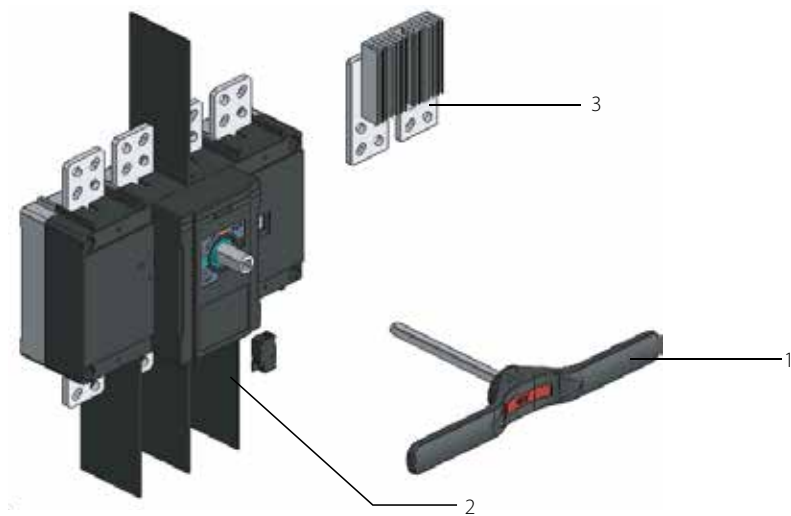
No.	Name	Remarks
1	Auxiliary switch NGF1-01	Mounted beneath the mechanism top cover, with 2 pc at most both up and down; required to connect the auxiliary switch before mounting it on the product
2	Auxiliary switch NGF1-10	Mounted beneath the mechanism top cover, with 2 pc at most both up and down; required to connect the auxiliary switch before mounting it on the product
3	Auxiliary switch NGF1-11	Necessarily used with NGA1-1/250, mounted on both sides of the product, with 2 pcs at most on each side
4	Terminal cover NGZ1-400/1S	Short terminal cover, mounted at both ends of the incoming and outgoing lines of the product
5	Terminal cover NGZ1-400/1L	Long terminal cover, mounted at both ends of the incoming and outgoing lines of the product
6	NDG3-400 short terminal block	Mounted between two adjacent poles
7	NDG3-400 long terminal block	Mounted between two poles separated by the operating mechanism
8	Mounting base NGA1-1/250	Mounted on both sides of the product, used with NGF1-11
9	Handle SB1-A/G3-400	Shaft length 135, 166, 185, 250, 280, 325, 395, 465, 535 (unit: mm)

Note 1: A represents shaft length



Accessories of NDG3-500, 630 and 800

No.	Name	Remarks
1	Handle	Door-mounted, 1 pc per product, shaft length 200mm or 400mm (required to be ordered for new product ordering)
2	Auxiliary switch	Mounted on the front left side of the main switch, 2 pcs at most
3	Short-circuit terminal block	Mounted on the terminal block of the main switch (optionally ordered for DC products)



Accessories of NDG3-1000 and 1250

No.	Name	Remarks
1	Handle	Door-mounted, 1 pc per product, shaft length 200mm or 400mm (required to be ordered for new product ordering)
2	Auxiliary switch	Mounted on the front left side of the main switch, 2 pcs at most
3	Short-circuit terminal block	Mounted on the terminal block of the main switch (optionally ordered for DC products)

Description of accessory functions

Accessory	Function
Auxiliary switch	Synchronously monitor the closing/opening status of the product
External operation handle	External operation outside the switchgear
Terminal cover	Insulation protection for safety
DC short-circuit terminal block	Enable DC application of products connected in series
Secondary terminal	Assist in wiring connection
Mounting base	Match with an auxiliary switch

IV

Standard accessories

 NGZ1-125/1 NGZ1-125/3 NGZ1-160 NGZ1-250/1S NGZ1-250/1L NGZ1-400/1S NGZ1-400/1L	Terminal cover		
	Model	Applicable switch	Number of poles
	NGZ1-125/1	NDG3-100/125	1-8 poles
	NGZ1-125/3	NDG3-100/125	3, 4, 6, 8 poles
	NGZ1-160/1	NDG3-160	1-4 poles
	NGZ1-250/1S	NDG3-200/250	1-4 poles
	NGZ1-250/1L	NDG3-200/250	1-4 poles
	NGZ1-400/1S	NDG3-315/400	1-4 poles
	NGZ1-400/1L	NDG3-315/400	1-4 poles

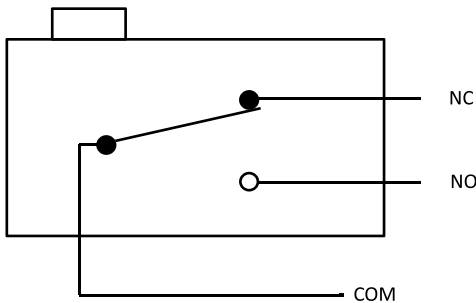
Auxiliary switch		
Model	Applicable switch	Function
NGF1-01	NDG3-100/125/200/250/315/400	1NC
NGF1-10	NDG3-100/125/200/250/315/400	1NO
NGF1-11	NDG3-100/125/200/250/315/400	1NO+1NC
NGF2-01	NDG3-160	1NC (unavailable with internal operation handle)
NGF2-10	NDG3-160	1NO (unavailable with internal operation handle)
F1-11A/G3-800	NDG3-500/630/800/1000/1250	1NO+1NC (1 contact block)
F1-11B/G3-800	NDG3-500/630/800/1000/1250	1NO+1NC (two contact blocks)

Characteristics: in accordance with GB 14048.5, ICE 60947-5-1

Operating parameters of auxiliary switch

Model of auxiliary switch	Ui	Type of contact	Conventional thermal current Ith (A)	Operating current (A)				Terminal
NGF1-01	690V	1NC	16	230Vac AC-15	400Vac AC-15	690Vac AC-15	220Vac AC-15	Screw connection
				16	4	2	0.6	
NGF1-10		1NO	16	230Vac AC-15	400Vac AC-15	690Vac AC-15	220Vac AC-15	Screw connection
				16	4	2	0.6	
NGF1-11		1NO+1NC	16	230Vac AC-15	400Vac AC-15	690Vac AC-15	220Vac AC-15	Screw connection
				16	4	2	0.6	
NGF2-01		1NC	16	230Vac AC-15	400Vac AC-15	690Vac AC-15	220Vac AC-15	Screw connection
				16	4	2	0.6	
NGF2-10		1NO	16	230Vac AC-15	400Vac AC-15	690Vac AC-15	220Vac AC-15	Screw connection
				16	4	2	—	
F1-11A(B)/G3-800		1NO+1NC	16	230Vac AC-15	400Vac AC-15	690Vac AC-15	220Vac AC-15	Type #250 Pin terminal
				16	0.6	0.3	—	

Wiring diagram of F1-11A(B)/G3-800 auxiliary switch





SB1/G3-125



SB1/G3-400



SB1/G3-800



SB1/G3-1250

External operation handle + square shaft

Model	Applicable switch	Protection rating	Length of square shaft (mm)
NGSB1-B	NDG3-100, 125	IP40	—
SB1-130/G3-125	NDG3-100, 125, 160, 200, 250	IP65	130
SB1-150/G3-125	NDG3-100, 125, 160, 200, 250	IP65	150
SB1-161/G3-125	NDG3-100, 125, 160, 200, 250	IP65	161
SB1-185/G3-125	NDG3-100, 125, 160, 200, 250	IP65	185
SB1-210/G3-125	NDG3-100, 125, 160, 200, 250	IP65	210
SB1-290/G3-125	NDG3-100, 125, 160, 200, 250	IP65	290
SB1-135/G3-400	NDG3-315, 400	IP65	135
SB1-166/G3-400	NDG3-315, 400	IP65	166
SB1-185/G3-400	NDG3-315, 400	IP65	185
SB1-250/G3-400	NDG3-315, 400	IP65	250
SB1-280/G3-400	NDG3-315, 400	IP65	280
SB1-325/G3-400	NDG3-315, 400	IP65	325
SB1-395/G3-400	NDG3-315, 400	IP65	395
SB1-465/G3-400	NDG3-315, 400	IP65	465
SB1-535/G3-400	NDG3-315, 400	IP65	535
SB1-200/G3-800	NDG3-500, 630, 800	IP65	200
SB1-400/G3-800	NDG3-500, 630, 800	IP65	400
SB1-200/G3-1250	NDG3-1000, 1250	IP65	200
SB1-400/G3-1250	NDG3-1000, 1250	IP65	400



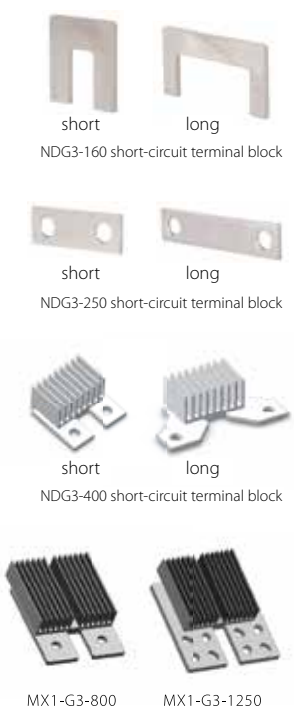
SB1/G3-800



SB1/G3-1250

500~1250 internal operation handle

Model	Applicable switch	Size of square shaft
SB1/G3-800	NDG3-500/630/800	Without square shaft
SB1/G3-1250	NDG3-1000/1250	Without square shaft

 NGA1-1/160 NGA1-2/160 NGA1-1/250	Mounting base		
	Model	Applicable switch	Function
	NGA1-1/160	NDG3-160	To assist in mounting NGF1-11
	NGA1-2/160	NDG3-160	To assist in mounting NGF2-01/10
 NGXTG1-160	Secondary terminal		
	Model	Applicable switch	Function
	NGXTG1-160	NDG3-160	To facilitate connection
 short long NDG3-160 short-circuit terminal block short long NDG3-250 short-circuit terminal block short long NDG3-400 short-circuit terminal block MX1-G3-800 MX1-G3-1250	DC short-circuit terminal block		
	Model	Applicable switch	Function
	NDG3-160 (short) short-circuit terminal block	NDG3-160	DC series
	NDG3-160 (long) short-circuit terminal block	NDG3-160	DC series
	NDG3-250 (short) short-circuit terminal block	NDG3-200/250	DC series
	NDG3-250 (long) short-circuit terminal block	NDG3-200/250	DC series
	NDG3-400 (short) short-circuit terminal block	NDG3-315/400	DC series
	NDG3-400 (long) short-circuit terminal block	NDG3-315/400	DC series
	MX1-G3-800 short-circuit terminal block	NDG3-500/630/800	DC series
	MX1-G3-1250 short-circuit terminal block	NDG3-1000/1250	DC series

Quick selection table for NDG3A-250/400 series
switch-disconnectors



ND G 3A - 250 / 3 Z / P 150 / C1 / Z3

Terminal protection:

Blank: inter-phase barrier
Z3: 3-pole terminal cover
Z4: 4-pole terminal cover

Auxiliary contact:

C1: one general contact block
C2: two general contact blocks
W1: one micro-power contact block
W2: two micro-power contact blocks

Code of square shaft specification:

Without code of square shaft for internal operation handles
150: shaft length 150mm
200: shaft length 200mm
250: shaft length 250mm
300: shaft length 300mm
400: shaft length 400mm

Type of handle:

K: internal operation handle
P: external operation handle

Type of current:

Blank: general type;
Z: DC products

Number of poles: 3, 4

Rated current:

100, 125, 160,
200, 250 (only for NDG3A-250)
250H, 315, 400 (only for NDG3A-400)

Design code: 3A

Product code: switch-disconnector

Brand code: Nader

Main performance parameters of NDG3A-250/400 series switch-disconnectors

Switch-disconnector			NDG3A-100	NDG3A-125	NDG3A-160	NDG3A-200	NDG3A-250
Conventional thermal current Ith (A)			250				
Number of poles			3, 4				
Rated isolation voltage Ui (V)			800				
Rated impulse withstand voltage Uimp (kV)			8				
Rated short-time withstand current Icw (1s.kA r.m.s value) without protective device			AC: 7; DC: 3				
Rated short-circuit making capacity Icm (kA peak value)			AC: 18; DC: 12le				
Rated current In (A) (at +40°C)			100 (A/B)	125 (A/B)	160 (A/B)	200 (A/B)	250 (A/B)
Rated operating current Ie (A)	380VAC 400VAC 415VAC	AC-20A/AC-20B	100/100	125/125	160/160	200/200	250/250
		AC-21A/AC-21B					200/200
		AC-22A/AC-22B				160/160	
		AC-23A/AC-23B				160/160	
	500VAC	AC-20A/AC-20B	100/100	125/125	160/160	200/200	250/250
		AC-21A/AC-21B				160/160	160/160
		AC-22A/AC-22B		125/125	125/125	125/125	
		AC-23A/AC-23B		100/100	100/100	100/100	
	660VAC 690VAC	AC-20A/AC-20B	100/100	125/125	160/160	200/200	250/250
		AC-21A/AC-21B				160/160	160/160
		AC-22A/AC-22B			125/125	125/125	125/125
		AC-23A/AC-23B	63/63				
	220VDC	DC-20A/DC-20B	100/100	125/125	160/160	200/200	250/250
		DC-21A/DC-21B				160/160	160/160
		DC-22A/DC-22B			125/125	125/125	125/125
		DC-23A/DC-23B				125/125	125/125
	400VDC	DC-20A/DC-20B	100/100	125/125	160/160	200/200	250/250
		DC-21A/DC-21B				160/160	160/160
		DC-22A/DC-22B			125/125	125/125	125/125
		DC-23A/DC-23B				125/125	125/125
	500VDC	DC-20A/DC-20B	100/100	125/125	160/160	200/200	250/250
		DC-21A/DC-21B			125/125	125/125	125/125
		DC-22A/DC-22B					
		DC-23A/DC-23B					
Mechanical (operating cycles)			10000				
Electrical (operating cycles)			1000				
Operating torque (N.m)			6.5				
Installation method			Mounted with screws				
External dimensions 4P (L x W x H)			135×170×65				
External dimensions 3P (L x W x H)			135×140×65				
Reference standard			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				
Min. cross-sectional area of copper cable (mm²)			63A: 35; 100A: 50; 125A: 50; 160A: 95; 200A: 120; 250A: 150; 315A: 185; 400A: 240				
Min. tightening torque of cooper cable connection (N.m)			12				

Notes: 1) For other unlisted parameters, please refer to GB/T 14048.3.

2) 4 poles for DC products, with every 2 poles connected in series according to the positive and negative polarity.

Switch-disconnector			NDG3A-250 H	NDG3A-315	NDG3A-400
Conventional thermal current Ith (A)			400		
Number of poles			3, 4		
Rated isolation voltage Ui (V)			1000		
Rated impulse withstand voltage Uimp (kV)			8		
Rated short-time withstand current Icw (1s.kA r.m.s value) without protective device			AC: 9; DC: 4.8		
Rated short-circuit making capacity Icm (kA peak value)			AC: 23; DC: 12le		
Rated current In (A) (at +40°C)			250H (A/B)	315 (A/B)	400 (A/B)
Rated operating current Ie (A)	380VAC 400VAC 415VAC	AC-20A/AC-20B	250/250	315/315	400/400
		AC-21A/AC-21B			
		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		
		AC-22A/AC-22B			
		AC-23A/AC-23B	200/250		
	660VAC 690VAC	AC-20A/AC-20B	250/250	315/315	400/400
		AC-21A/AC-21B	160/200		
		AC-22A/AC-22B			
		AC-23A/AC-23B	100/125		
	220VDC	DC-20A/DC-20B	250/250	315/315	400/400
		DC-21A/DC-21B	250/250		
		DC-22A/DC-22B			
		DC-23A/DC-23B	200/200		
	400VDC	DC-20A/DC-20B	250/250	315/315	400/400
		DC-21A/DC-21B	250/250		
		DC-22A/DC-22B			
		DC-23A/DC-23B	200/200		
	500VDC	DC-20A/DC-20B	250/250	315/315	400/400
		DC-21A/DC-21B	200/200		
		DC-22A/DC-22B			
		DC-23A/DC-23B			
Mechanical (operating cycles)			5000		
Electrical (operating cycles)			1000		
Operating torque (N.m)			14.5		
Installation method			Mounted with screws		
External dimensions 4P (L x W x H)			160×230×75		
External dimensions 3P (L x W x H)			160×180×75		
Reference standard			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		
Min. cross-sectional area of copper cable (mm²)			63A: 35; 100A: 50; 125A: 50; 160A: 95; 200A: 120; 250A: 150; 315A: 185; 400A: 240		
Min. tightening torque of cooper cable connection (N.m)			20		

Notes: 1) For other unlisted parameters, please refer to GB/T 14048.3.
2) 4 poles for DC products, with every 2 poles connected in series according to the positive and negative polarity.

Selection table for accessories of NDG3A-250/400 series switch-disconnectors

Model selection of handle

SB 1 - K / G3A-400

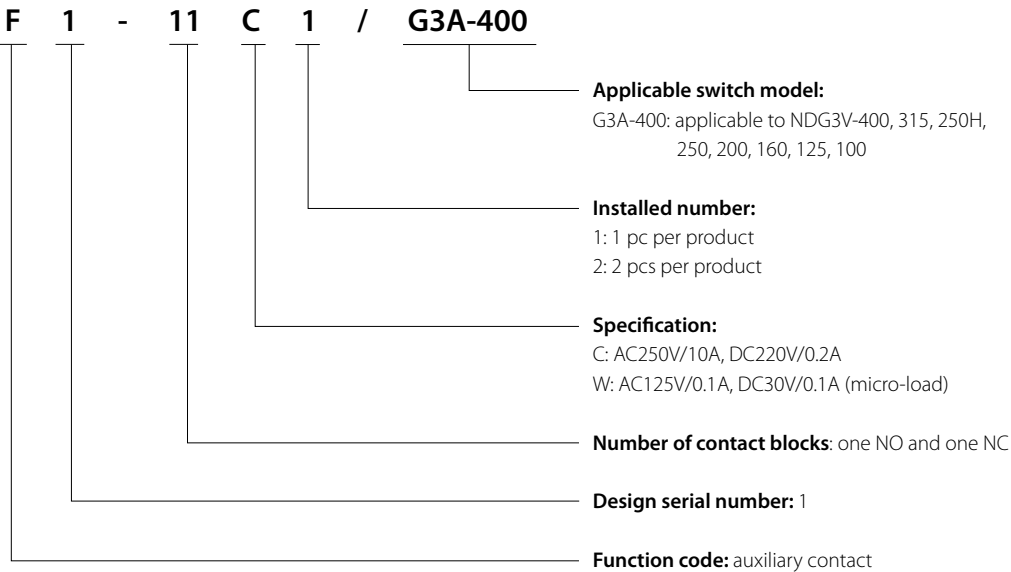
- Applicable switch model:**
Applicable switch model (for internal operation handles):
G3A-400: applicable to NDG3V-400, 315, 250H
G3A-250: applicable to NDG3V-250, 200, 160, 125, 100
- Applicable switch model (for external operation handles):**
G3A-400: applicable to NDG3V-400, 315, 250H,
250, 200, 160, 125, 100
- Type of handle:**
K: internal operation handle
P: external operation handle
- Design serial number:** 1
- Function code:** SB handle

Model selection of square shaft

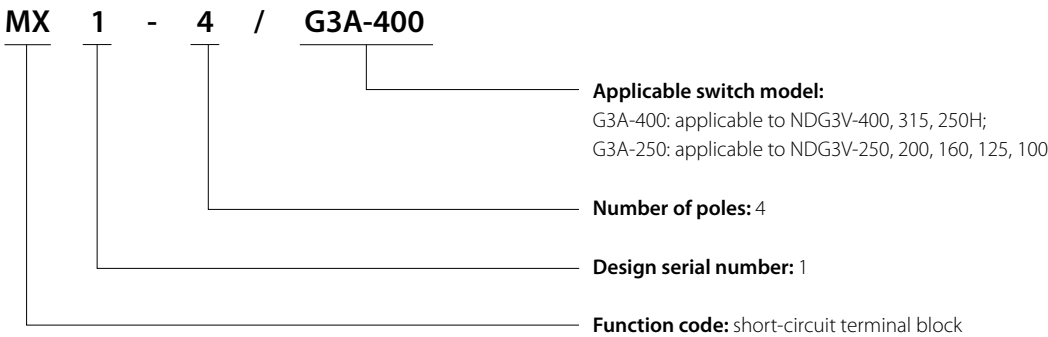
FZ 1 - 150 / G3A-400

- Applicable switch model:**
G3A-400: applicable to NDG3V-400, 315, 250H
G3A-250: applicable to NDG3V-250, 200, 160, 125, 100
- Code of square shaft specification:**
Without code of square shaft for internal operation handles
150: shaft length 150mm
200: shaft length 200mm
250: shaft length 250mm
300: shaft length 300mm
400: shaft length 400mm
- Design serial number:** 1
- Function code:** FZ square shaft

Model selection of auxiliary contact

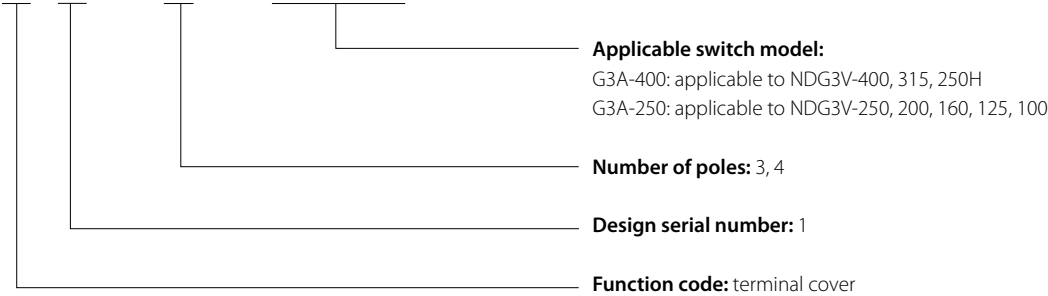


Model selection of short-circuit terminal block



Model selection of terminal cover

Z 1 - 4 / G3A-400



Quick selection table for NDG3A-500~1250 series switch-disconnectors



ND G 3A - 800 / 3 Z K

Type of handle:
K: internal operation handle
P: external operation handle, to be ordered separately,
For the detailed specification, see "model selection of handle"

Type of current:
Z: DC photovoltaic type
Blank: general type

Number of poles:
3: three poles
4: four poles

Rated current: 1250, 1000, 800, 630, 500

Design code: 3A

Product code: switch-disconnector

Brand code: Nader

Main performance parameters of NDG3A-500~1250 series switch-disconnectors

Name of parameter			NDG3A-500	NDG3A-630	NDG3A-800	NDG3A-1000	NDG3A-1250
Conventional thermal current Ith (A)			800			1250	
Number of poles			3, 4				
Rated isolation voltage Ui (V)			1000				
Rated impulse withstand voltage Uimp (kV)			12				
Rated short-time withstand current Icw (1s kA r.m.s value) without protective device			AC: 16 DC: 10			AC: 35 DC: 10	
Rated short-circuit making capacity Icw (kA peak value)			AC: 32 DC: 17k			AC: 50 DC: 17	
Rated operating current Ie (A)	AC-22A/AC-22B	380VAC/400VAC/415VAC	500	630	630	1000	1250
	AC-23A/AC-23B		400	500	/	800	1000
	AC-22A/AC-22B	660VAC/690VAC	400	500	500	800	800
	AC-23A/AC-23B		315	315	/	500	500
	AC-21B	800VAC	500	630	630	/	/
	AC-21B	1000VAC	/	/	/	1000	1250
	DC-21B	750VDC	500/3	630/3	800/3	/	/
	DC-22B		/	/	/	1000/3	1250/3
	DC-21B	1000VDC	500/4	630/4	800/4	/	/
	DC-22B		/	/	/	1000/4	1250/4
Mechanical endurance (operating cycles)			5000				
Electrical endurance (operating cycles)			200		100	100	
Operating torque (N.m)			18			40	
Installation method			Mounted with screws				
External dimensions 4P (L x W x H) (mm)			260x290x132			331x360x190	
External dimensions 3P (L x W x H) (mm)			260x230x132			331x280x190	
Reference standard			GB/T 14048.1, GB/T 14048.3, IEC 60947-1, IEC 60947-3				
Product certification			CCC, CE, TUV				
Single-phase internal resistance (mΩ)			≤0.1			≤0.05	
Min. tightening torque of cooper cable connection (N.m)			10			14	
Min. cross-sectional area of copper cable (mm²)			2 pcs 30X5	2 pcs 40X5	2 pcs 50X5	2 pcs 60X5	2 pcs 80X5

Notes: 1) For other unlisted parameters, please refer to GB/T 14048.3.

2) 4 poles for DC products, with every 2 poles connected in series according to the positive and negative polarity.

Selection table for accessories of NDG3A-500~1250 series switch-disconnectors

Model selection of handle

SB 1 - 200 / G3A-800

Applicable switch model:
G3A-800: applicable to NDG3(A)-315, 400, 500, 630, 800, NDC3A-250A

Code of square shaft:
88: shaft length 88mm;
200: shaft length 200mm;
275: shaft length 275mm;
400: shaft length 400mm;
650: shaft length 650mm.

Design serial number: 1

Function code: handle

SB 1 - 200 / G3A-1250

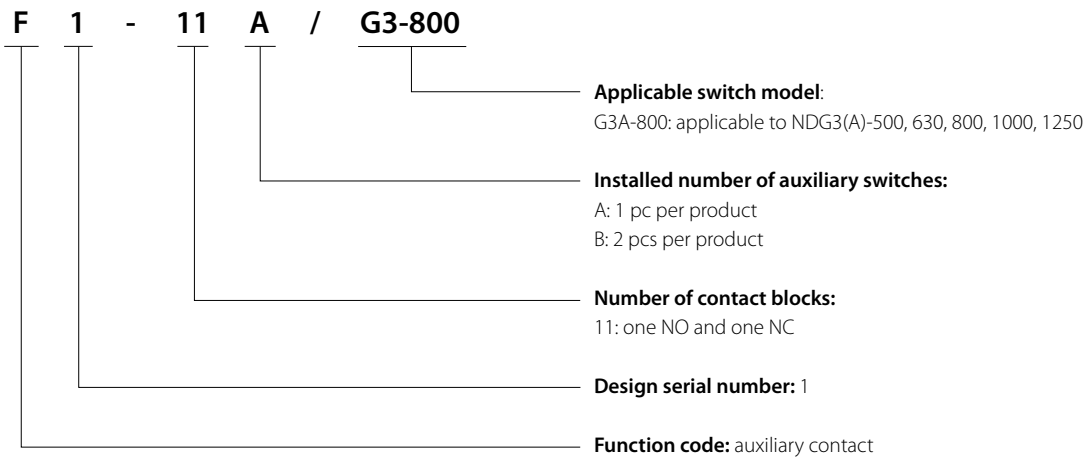
Applicable switch model:
G3A-1250: applicable to NDG3(A)-1000, 1250

Code of square shaft:
200: shaft length 200mm;
400: shaft length 400mm.

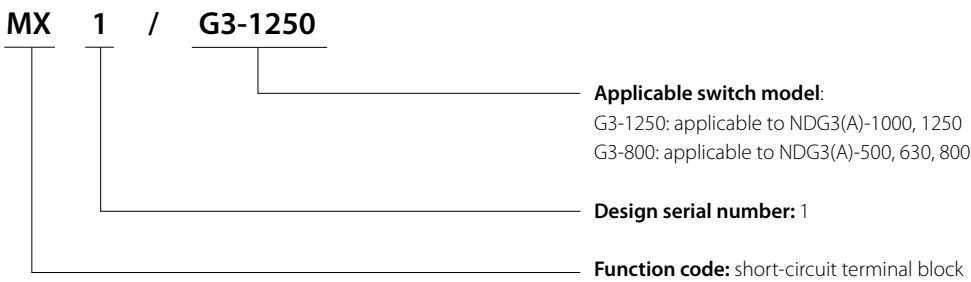
Design serial number: 1

Function code: handle

Explanation of auxiliary contact model



Model selection of short-circuit terminal block



Quick selection table for NDG3V-32 series switch-disconnectors



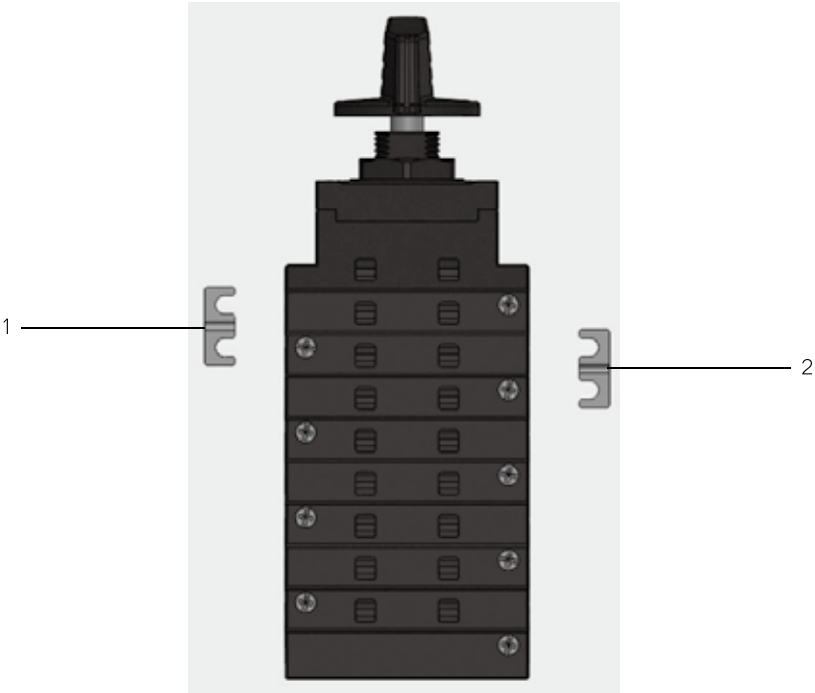
ND G 3 V - 32 C / 16 4 3 02 M 600

- Rated voltage:**
240-220/230/240Vac
415-380/400/415Vac
600-600Vdc
800-800Vdc
1000-1000Vdc
1100-1100Vdc
1200-DC1200V
1500-DC1500V
- Installation method:** M - door-mounted
- Short-circuit method:** 02 - without a short-circuit terminal block
- Connection method:**
1 - two layers in series
2 - three layers in series
3 - four layers in series
4 - AC connection
5 - two anodes share one cathode
- Mechanical layer:** 2, 3, 4, 6, 8, 9, 10
- Rated current:**
7.5~7.5A:
10-10A
12.5-12.5A
13-13A, anode current (for products with two anodes sharing one cathode)
16-16A
20-20A
25-25A
30-30A, anode current (for products with two anodes sharing one cathode)
32-32A
- Customer code:** C - customer code Blank - general type
- Frame size:** 32: 32A
- Industry code:**
V: wide voltage
- Design serial number:** 3
- Product code:** switch-disconnector
- Brand code:** Nader

Main performance parameters of NDG3V-32 series switch-disconnectors

Name of parameter	Category/unit			Parameter description				
Frame size	A			32				
Isolation voltage	V			DC 1500/AC 1000				
Rated impulse withstand voltage	kV			8				
Rated operating current (A)	AC voltage (V)			220/230/240		380/400/415		
	AC-22B	AC connection	2 layers	32		/		
			2/3/4 layers	/		32		
	DC voltage (V)			600	800	1000	1100	1500
	DC-21B DC-PV1	2 layers in series	2/4/6/8/10 layers	30	16/32	20	20	/
		3 layers in series	3/6/9 layers	/	/	25/32	/	20
		4 layers in series	4/8 layers	/	/	/	/	16/25
		2 anodes share 1 cathode	3/6/9 layers	30	/	13	13	/
	DC voltage (V)			600	800	1000	1100	1200
	DC-21B DC-PV2	2 layers in series	2/4/6/8/10 layers	30	20	12.5	10	7.5
		2 anodes share 1 cathode	3/6/9 layers	30	20	12.5	/	7.5
Rated short-time withstand current I _{cw}	kA/1s			0.7				
Rated short-circuit making capacity I _{cm}	kA			1.4				
Mechanical endurance	operating cycles			9700				
Electrical endurance	operating cycles			300				
Product certification	CCC, TUV, CE							
Operating torque	N.m			1.5~2.2				
Tightening torque of complete apparatus	N.m			2.0~2.5				
Connection torque	N.m			1.5~1.7				
Handle tightening torque	N.m			0.6~0.75				
Connection area (recommended)	mm ²			In accordance with Table 9 in GB/T 1408.1				
Installation method	Door-mounted							
Protection rating	Complete apparatus IP20 External operation handle IP66							

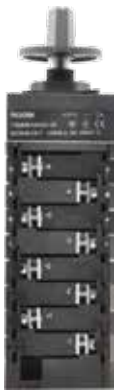
Selection table for accessories of NDG3V-32 series switch-disconnectors



Accessories of NDG3V-32

No.	Name	Remarks
1	Short-circuit terminal block	Connecting busbar mounted in the main switch, standard for NDG3V-32□/□□□01□□ products
2	Short-circuit terminal block	Connecting busbar mounted in the main switch, standard for DG3V-32□/□□□02□□ products

Quick selection table for NDG3V-50(H) series switch-disconnectors



ND G 3 V - 50 (H) / 3 4 02 M 1

- Product code:** the code corresponds to product parameters, see the table of main performance parameters for details
- Installation method:** M - door-mounted
- Short-circuit method:** 02 - without a short-circuit terminal block
- Connection method:** 1 - two layers in series 4 - AC connection 5 - two anodes share one cathode
- Mechanical layer:** 2, 3, 4, 6, 8, 9
- Classification code:**
H: high voltage
Blank: general type
- Frame size:** 50: 50A
- Derived code:**
V: wide voltage
- Design serial number:** 3
- Product code:** switch-disconnector
- Brand code:** Nader

Main performance parameters of NDG3V-50(H) series switch-disconnectors

Name of parameter	Category/unit			Parameter description								
Frame size	A			50								
Isolation voltage	V			DC 1500/AC 1000								
Rated impulse withstand voltage	kV			8								
	DC voltage (V)		Product code	Voltage (V)	500	600	700	800	1000	1100	1250	
NDG3V-50 Rated current (A)	DC-21B DC-PV1	2 layers in series	2/4/6/8 layers	1	Current (A)	30	25	22	19	—	—	—
				2		—	—	—	19	15	14	12
				3		36	30	25	23	—	—	—
				4		—	—	—	23	18	16	14
				5		40	33	28	25	—	—	—
				6		—	—	—	25	20	18	16
				7		50	42	36	32	—	—	—
				8		—	—	—	32	25	22	20
				9		—	46	40	35	28	—	—
				10		—	—	—	35	28	25	22
				11		—	50	43	38	30	—	—
				12		—	—	—	38	30	27	24
				13		—	—	50	44	35	32	—
				14		—	—	—	44	35	32	28
				15		—	—	—	50	40	36	32
				16		—	—	—	—	45	40	36
				17		—	—	—	—	50	45	—
				18		—	—	—	—	—	50	—
	AC voltage (V)		Product code	Voltage (V)	220/230/240			380/400/415			690	
	AC-22B	AC series	2 layers	1	Current (A)	32			—			—
				2		40			—			—
				3		50			—			—
			3/4 layers	4		—			32			—
				5		—			40			—
				6		—			50			—
				7		—			—			32
				8		—			—			40
				9		—			—			50

Name of parameter	Category/unit				Parameter description					
NDG3V-50 Rated current (A)	AC voltage (V)			Product code	Voltage (V)	800	1000	1200	1250	1500
	DC-21B DC-PV1	2 layers in series	2/4/6/8 layers	1	Current (A)	18	15	—	12	10
				2		25	20	—	16	13
				3		32	25	—	20	16
				4		38	30	—	24	20
				5		45	35	—	28	23
				6		50	40	—	32	26
				7		—	45	—	36	—
				8		—	50	—	—	—
				DC-PV2		Two anodes and two cathodes	3/6/9 layers	9	—	50
	30	25	15						—	10
	30	25	15		—				10	
	Rated short-time withstand current I _{cw} (kA/1s)					0.7				
	Rated short-circuit making capacity I _{cm} (kA)					1.4				
Mechanical endurance (operating cycles)					9700					
Electrical endurance (operating cycles)					300					
Product certification					CCC, CE, TUV					
Operating torque (N.m)					1.5~2.2					
Tightening torque of complete apparatus (N.m)					2.0~2.5					
Connection torque (N.m)					1.5~1.7					
Handle tightening torque (N.m)					0.6~0.75					
Connection area (recommended) (mm)					In accordance with Table 9 in GB/T 14048.1					
Installation method					Door-mounted					
Protection rating					Complete apparatus IP20 External operation handle IP66					

Quick selection table for NDG3V-250/350/400 series switch-disconnectors



ND	G	3V	-	400	/	3	Z	K	
									Type of handle: K: internal operation handle P: external operation handle
									Type of current: Z: DC products
									Number of poles: 2: 2 poles 3: 3 poles
									Rated current: 400, 350, 250
									Design code: 3V
									Product code: switch-disconnector
									Brand code: Nader

Main performance parameters of NDG3V-250/350/400 series switch-disconnectors

Switch-disconnector			NDG3V-400		
Conventional thermal current Ith (A)			400		
Number of poles			2, 3		
Rated isolation voltage Ui (V)			DC1500V		
Rated impulse withstand voltage Uimp (kV)			12		
Rated short-time withstand current Icw (1s.kA r.m.s value) without protective device			DC: 10		
Rated short-circuit making capacity Icm (kA peak value)			DC: 17		
Rated current In (A) (at +40°C)			250	350	400
Rated operating current Ie (A)	DC1000V	DC-21B DC-PV2	250(2 poles)	350(2 poles)	400(2 poles)
	DC1500V		250(3 poles)	350(3 poles)	400(3 poles)
Mechanical (operating cycles)			5000		
Electrical (operating cycles)			200		
Product certification			CCC, CE, TUV		
Operating torque (N.m)			18		
Installation method			Mounted with M6 screws		
External dimensions (L x W x H)			240x230x131.5 (2 poles)		
			240x230x131.5 (3 poles)		
Min. cross-sectional area of copper cable (mm²)			250A: 120		
			350A: 240 (1 pc)/150 (2 pcs)		
			400A: 240 (1 pc)/150 (2 pcs)		
Specification of terminal screw			M10x35		
Tightening torque of cooper cable connection (N.m)			10-20		

Model selection of external operation handle

SB 1 - 200 / G3-800

Applicable switch model:

G3-800: applicable to NDG3V-250, 350, 400,
NDG3-500, 630, 800

Code of square shaft:

200: shaft length 200mm
400: shaft length 400mm

Design serial number: 1

Function code: SB handle

IV

Switch-disconnectors

Model selection of auxiliary contact

F 1 - 11 A / G3-800

Applicable switch model:

G3-800: applicable to NDG3V-250, 350, 400,
NDG3-500, 630, 800, 1000, 1250

Installed number of auxiliary switches:

A: 1 pc per product
B: 2 pcs per product

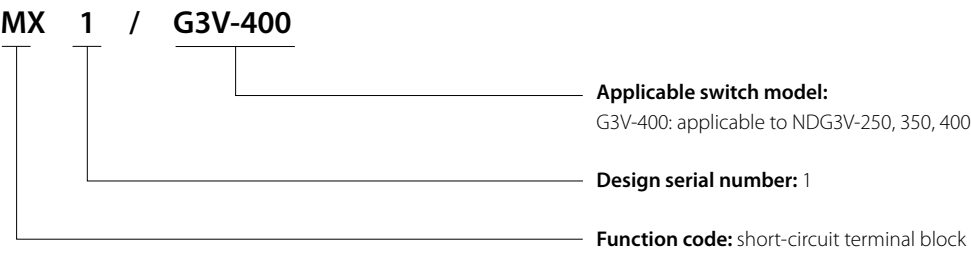
Number of contact blocks:

11: one NO and one NC

Design serial number: 1

Function code: auxiliary contact

Model selection of short-circuit terminal block



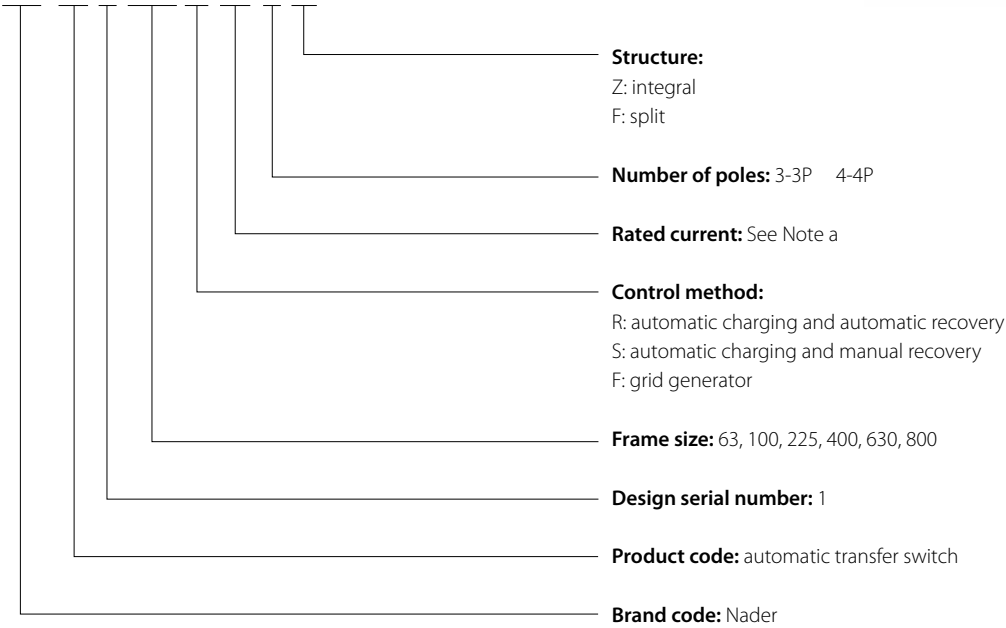
Part V

Dual Power Automatic Transfer Switches

Quick selection table for NDQ1 series intelligent dual power automatic transfer switches



ND Q 1-100 R 80/3 Z



Notes: The lead of split controller is 1.8 m in length by default. If you have special requirements, please tell us in advance.

Note a:

Rated current:

63A frame size: 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
100A frame size: 16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A, 100A
225A frame size: 100A, 125A, 160A, 180A, 200A, 225A
400A frame size: 225A, 250A, 315A, 350A, 400A
630A frame size: 400A, 500A, 630A
800A frame size: 630A, 700A, 800A

Instructions for model selection

You can select different types of protection characteristics or accessories depending on your actual demand.

Frame size	Standard circuit breaker		Optional protection	Optional accessory
	3P	4P		
63	NDM2-63L/3300	NDM2-63/4300B	Complex trip unit by default Without a trip unit Only instantaneous trip unit Motor protection	Shunt trip unit Single auxiliary contact Dual auxiliary contacts
100	NDM2-125L/3300	NDM2-125/4300B		
225	NDM2-250L/3300	NDM2-250/4300B		
400	NDM2-400H/3300	NDM2-400/4300B		
630	NDM2-630H/3300	NDM2-630/4300B		
800	NDM2-800H/3300	NDM2-800/4300B		

Note: Dual auxiliary contacts are only applicable to the 100A frame size or above. If you want to order any optional function listed in the table, please tell us in advance.

The diagram illustrates how a product code is structured by breaking it down into individual components. Each component is represented by a horizontal line, and vertical lines connect these segments to their corresponding descriptions on the right.

- Controller type:**
Standard type: blank
Intelligent type: B
- Apparatus class:**
CB: 63
PC: 125, 250
- Number of poles:** 2 - 2 poles 3 - 3 poles 4 - 4 poles
- Rated current:** See Note a
- Frame size:** 63, 125, 250
- Design serial number:** 2A
- Product code:** automatic transfer switch
- Brand code:** Nader

2. Type B intelligent controllers are only available for the NDQ2A-250 frame size ; for the other frame sizes, the standard type controller is available.

Quick selection table for NDQ3 series intelligent dual power automatic transfer switches



ND Q 3 - 125 Z 125A / 3 R II N

- Controller type:**
N: only III-stage and integral type
Blank: II-stage, III-stage and both integral and split types
- Switch position:**
II: II-stage
III: III-stage
- Control method:**
R: automatic charging and automatic recovery
S: automatic charging and manual recovery
F: grid generator
- Number of poles:** 2 - 2P 3 - 3P 4 - 4P
- Rated current:**
125A frame size: 16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A, 100A, 125A
250A frame size: 160A, 180A, 200A, 225A, 250A
400A frame size: 315A, 350A, 400A
630A frame size: 500A, 630A
800A frame size: 630A, 700A, 800A
- Structure:**
Z: integral
F: split
- Frame size:** 125A, 250A, 400A, 630A, 800A
- Design serial number:** 3
- Product code:** automatic transfer switch
- Brand code:** Nader

Notes: 1. If you need a manual transfer switch, please leave both the structure and the controller type blank, for example: NDQ3-125 100/4 III
2. For Type N controllers, only integral III-stage products are available
3. For the 125 frame size, 2 poles, 3 poles and 4 poles are available; and for other frame sizes, only 3 poles and 4 poles are available

Main performance parameters of NDQ1, NDQ2(A) and NDQ3 series intelligent dual power automatic transfer switches

Technical parameters of CB-level products

Model and specification	NDQ1						NDQ2A
Conventional thermal current Ith (A)	63	100	225	400	630	800	63
Number of poles	3P, 4P						2P, 3P, 4P
Structure	Integral/split						Integral
Actuating switch	NDM2 series molded case circuit breaker						NDMIT series miniature circuit breaker
Rated isolation voltage Ui (V)	690						500
Rated impulse withstand voltage Uimp (V)	8						6
Rated operating voltage Ue (V)	400						2P: 230 3P/4P: 400
Rated short-circuit breaking capacity Icn (kA)	50			65		75	6
Rated short-circuit making capacity Icm (kA) peak value	105			143		165	9.18
Utilization category	AC-33B						AC-33iB
Isolation function	■						■
Max. contact switching time (s)	≤2						≤1.6
Max. switching operation time (s)	≤3						≤3
Mechanical (operating cycles)	12000			400/630/800Frame size: 10000			10000
Electrical (operating cycles)	8000	6000					6000
Operating voltage of controller (V)	220						220
Rated frequency of controller (Hz)	50						50
Operating mode	Automatic charging and automatic recovery, automatic charging and manual recovery, grid-generator						Automatic charging and automatic recovery

Technical parameters of PC-level products

Model and specification	NDQ2A			NDQ3			
Conventional thermal current Ith (A)	125	250	125	250	400	630	
Number of poles	2P, 3P, 4P	2P, 3P, 4P	2P, 3P, 4P	3P, 4P			
Structure	Integral	Integral	Integral/split				
Actuating switch	NDG1 series switch-disconnector	—	—				
Rated isolation voltage Ui (V)	500	800	800				
Rated impulse withstand voltage Uimp (V)	6	8	8				
Rated operating voltage Ue (V)	2P: 230 3P/4P: 400	2P: 230 3P/4P: 400/415	2P: 230 3P/4P: 400				
Rated conditional short-circuit current Ip (kA)	10	120	—	—	—	—	
Rated short-time withstand current Icw (kA)	—	—	10/30ms	10/60ms	10/1s	13/1s	
Rated short-circuit making capacity Icm (kA) peak value	—	—	17	17	17	26	
Utilization category	AC-33iB	AC-33iB	AC-33iA AC-33B				
Max. contact switching time	≤810ms	≤2.0s	II≤50ms; III≤150ms				
Max. switching operation time	≤1.76s	≤3.3s	II≤130ms; III≤400ms				
Isolation function	■	■	■				
Mechanical (operating cycles)	10000	12000	20000	15000			
Electrical (operating cycles)	6000	6000	6000	2500			
Operating voltage of controller (V)	220	230	220				
Rated frequency of controller (Hz)	50	50	50				
Operating mode	Automatic charging and automatic recovery	Automatic charging and automatic recovery, automatic charging and manual recovery	Automatic charging and automatic recovery, automatic charging and manual recovery, grid-generator				

Technical parameters of PC-level products

Model and specification	NDQ3III Type N				
Conventional thermal current Ith (A)	125	250	400	630	800
Number of poles	2P, 3P, 4P	3P, 4P			
Switch contact position	III				
Rated isolation voltage Ui (V)	800				
Rated impulse withstand voltage Uimp (V)	8				
Rated operating voltage Ue (V)	2P: 230, 3P/4P: 400				380/400/415
Rated short-circuit breaking capacity Icn (kA)	10/30ms	10/60ms	10/1s	13/1s	16/1s
Rated short-circuit making capacity Icm (kA) peak value	17	17	17	26	32
Utilization category	AC-33iA AC-33B				AC-33iB
Max. contact switching time (ms)	≤150				
Max. switching operation time (ms)	≤400				
Mechanical (operating cycles)	20000	15000	15000	15000	2500
Electrical (operating cycles)	6000	2500	2500	2500	500
Apparatus class	PC-level				
Controller	Built-in Type N controller				
Operating voltage of controller (V)	220				
Under-voltage switching value (V)	165				
Under-voltage return value (V)	187				
Over-voltage switching value (V)	270				
Over-voltage return value (V)	250				
Adjustable time delay	■ (0~30s)				
Generator start signal	■				
Fire control OFF position	■				
Button operation	■				
Connection method	Front connection				

Controller functions of NDQ1, NDQ2(A) and NDQ3 series intelligent dual power automatic transfer switches

Controller overview

Diagram	 					
Model	NDQ1		NDQ2A		NDQ3	NDQ3N controller
Structure	Integral	Split	Integral		Integral/split	Integral
Control method	R: automatic charging and automatic recovery S: automatic charging and manual recovery F: grid generator		R: automatic charging and automatic recovery S: automatic charging and manual recovery (only for the 250 frame size) Grid-generator (only provide generator start signals)		R: automatic charging and automatic recovery S: automatic charging and manual recovery F: grid generator	R: automatic charging and automatic recovery S: automatic charging and manual recovery With a generator interface by default

Functional features of controllers

Model and specification	NDQ1	NDQ2A	NDQ3
Normal power detection	3-phase	3-phase	3-phase
Backup power detection	3-phase	Single-phase/3-phase ⁴	3-phase
Power detection type	Over-voltage/under-voltage/open-phase	Over-voltage/under-voltage (only for the 250 frame size)	Over-voltage/under-voltage/open-phase
Generator frequency detection	■	—	■
Automatic/manual switching	■	■ ⁵	■
Manual button operation	■	■	■
Automatic charging and automatic recovery	■	■	■
Automatic charging and manual recovery	■	■ ⁶	■
Grid generator	■	—	■
Power/closing status indication	■	■	■
fault status indication	■	■	■
Fire control status indication	■	■ ⁷	■
Adjustable under-voltage value	■	—	—
Adjustable time delay	■	—	■
Power status output	—	—	■ ¹
Closing status output	■	■	■
Cut-off of non-fire-control power	■	■	■
Generator start signal	■	■	■
Automatic fault alarm and shutdown	■	■	■
RS485 communication	■ ²	■ ⁸	■ ³

Notes: 1. Only integral II-stage products of NDQ3 are available with a power status output terminal

2. Only split controllers of NDQ1 are available with the RS485 communication function. Please tell us before ordering

3. Split II-stage or integral III-stage Type N controllers of NDQ3 are available with the optional communication function

4. Only the intelligent type NDQ2A-250 product is available with three-phase sampling

5. The NDQ2A-250 frame size product is available with manual button operation

6. Only the NDQ2A-250 frame size product is available with the function of automatic charging and manual recovery

7. Only the NDQ2A-250 frame size product is available with the function of fire control feedback

8. Only the intelligent type NDQ2A-250 product is available with the function of RS485 communication

■ standard — N/A

Quick selection table for NDQ3H series automatic transfer switches



ND Q 3H - 125 A 125 / 4 Z III

Switch position:

II - II-stage
III - III-stage

Structure:

Z - integral
F - split

Number of poles: 2 - 2P, 3 - 3P, 4 - 4P

Rated operating current: See Note a

Controller type: A - basic, B - advanced, C - communication, D - intelligent LDC

Frame size: 63A, 125A, 250A, 400A, 630A, 800A,
1250A, 3150A, 5000A

Design serial number: 3H

Product code: automatic transfer switch

Brand code: Nader

Notes:

1. If you need a pure mechanical manual transfer switch, please leave the controller type blank and indicate the structure as split
2. 2P products are available for the 400A frame size or below
3. Only III-stage switch positions are available for the 800A frame size, only II-stage switch positions are available for the 1250A frame size or above, and both II-stage and III-stage switch positions are available for the 630A frame size or below
4. For the 800A frame size or below products, Type A, B, C and D controllers are applicable with both integral and split structures available; and for the 1250A frame size or above products, Type D controllers are applicable with only the split structure available. The wiring harness connecting the controller with the switch body is not included in the scope of supply and has to be provided and connected by the customer according to the instructions

Note a:

Rated operating current:

63A frame size: 16A, 20A, 25A, 32A, 40A, 50A, 63A
125A frame size: 80A, 100A, 125A
250A frame size: 160A, 180A, 200A, 225A, 250A
400A frame size: 315A, 350A, 400A
630A frame size: 500A, 630A
800A frame size: 700A, 800A
1250A frame size: 800A, 1000A, 1250A
3150A frame size: 1600A, 2000A, 2500A, 3150A
5000A frame size: 4000A, 5000A

Main performance parameters of NDQ3H series automatic transfer switches

Model and specification	NDQ3H								
Frame size (A)	63	125	250	400	630	800	1250	3150	5000
Rated isolation voltage Ui (V)	AC800V						AC1000V		
Rated impulse withstand voltage Uimp (kV)	8						12		
Rated operating voltage Ue (V)	AC230V (2P) AC400V (3P, 4P)								
Max. contact switching time (ms)	II: ≤100 III: ≤140						≤200		
Max. switching operation time (s)	II: ≤360 III: ≤400						≤500		
Rated conditional short-circuit current Iq (kA)	100	120					—		
Rated short-time withstand current Icw (kA)	5	10			13	16	32	50	
Rated short-circuit making capacity Icm (kA)	8	17			26	32	67.2	105	
Mechanical (operating cycles)	25000		20000		15000		10000		
Electrical (operating cycles)	8000		6000		3500		2500		2000
Apparatus class	Dedicated PC-level								
Utilization category	AC-33A		AC-33B	AC-33B/AC-33iA			AC-33iB		
Number of poles	2P, 3P, 4P				3P, 4P				
Control voltage (V)	AC230								
Connection method	Front connection						Rear connection		
Switch position	II-stage III-stage				III-stage		II-stage		
Structure	Integral, split						Split		

Controllers of NDQ3H series automatic transfer switches

Controller overview

- ◆ The controller of ATSE is designed for uninterrupted service (24h on-duty)
- ◆ The controller should have a rated operating voltage consistent with that of the main circuit, with its normal operating range of 85%Ue (lower limit value)~110%Ue (upper limit value)
- ◆ Effective isolation measures should be taken between the strong and the weak current of the controller
- ◆ The controller shall has electromagnetic immunity as required in GB 14048.1 and also meet the following conditions:
 - ① Its electrical fast transient/burst immunity shall reach
 - the ATSE in the power supply position or in the power distribution position:
 - a power: test level 4kV/5kHz
 - b signal, I/O, data and control ports: test level 2kV/5kHz
 - ATSE in the load position:
 - a power: test level 2kV/5kHz
 - b signal, I/O, data and control ports: test level 1kV/5kHz
 - ② Its harmonic immunity shall conform to the requirements of test level 3 in GB/T 17626.13-2006
- ◆ The controller connected with the main circuit shall be able to withstand instantaneous and temporary over-voltage impact from the main circuit
- ◆ The controller shall be able to avoid transient Interference from the power supply
- ◆ When used at high altitude ≥ 2000 m, the controller shall have its terminals insulated to prevent over-voltage breakdown
- ◆ The controller shall have proper moisture resistance and meet the requirements for cyclic (6 cycles) damp heat test (Db) at +25°C~+55°C

Controller overview and performance parameters

Diagram					
Controller type	NDQ3H-A	NDQ3H-B	NDQ3H-C	NDQ3H-D	NDQ3H-E
Applicable frame size	63~800A				1250~5000A
Max. power consumption Pmax (W)	3~3.5W				≤15W
Operating voltage range/ frequency (V/Hz)	AC (85%~110%) 230V/50Hz	AC (85%~110%) 230V/50Hz/60Hz			
Rated isolation voltage Ui (V)	AC250V				
Circuit implementation method	MCU (microprocessor) + relay				
Structure	Integral, split				Split
Connection method	Plug-in terminal				Wire connection

Functional parameters of controllers

- ◆ Functional features of controllers
- Function comparison table of controllers

Function description		Type A Controller	Type B Controller	Type C Controller	Type D Controller	Type D Controller
		63~800A				1250~5000A
Protective functions	Over-voltage protection	√	√	√	√	√
	Under-voltage protection	√	√	√	√	√
	Open-phase protection	√	√	√	√	√
	Over-frequency protection	—	√	√	√	—
	Under-frequency protection	—	√	√	√	—
	Phase sequence/phase position protection	—	√	√	√	—
	Wiring error alarm	√	√	√	√	√
Measuring functions	Voltage value	—	√	√	√	√
	Frequency value	—	√	√	√	√
	Unbalance factor	—	√	√	√	√
Communication function	MODBUS-RTU protocol	—	—	√	√	√
Node inputs/outputs	Fire control signal input	√	√	√	√	√
	Normal closing output	√	√	√	√	√
	Backup closing output	√	√	√	√	√
	Generator start output	√	√	√	√	√
	Fault alarm output	√	√	√	√	√
	Communication port	—	—	√	√	√
	Remote switching control input	—	√	√	√	—
	Programmable port output	Generator/load shedding	√	√	√	—
Display	Normal power (LED light)	√	√	√	√	√
	Backup power (LED light)	√	√	√	√	√
	Normal closing (LED light)	√	√	√	√	√
	Backup closing (LED light)	√	√	√	√	√
	Automatic (LED light)	√	√	√	√	√
	Setting (LED light)	—	√	√	—	—
	Fault/alarm (LED light)	—	—	—	√	—
	Operation (LED light)	—	√	√	√	—
	Coil (LED light)	√	√	√	√	—
	Fire control (III) (LED light)	√	√	√	√	—

Function description		Type A Controller	Type B Controller	Type C Controller	Type D Controller	Type D Controller	
		63~800A				1250~5000A	
Display	Communication (LED light)	—	—	√	√	√	
	Frequency (LED light)	—	√	√	—	—	
	Remote/local (LED light)	—	√	√	√	—	
	Phase sequence/phase position (LED light)	—	√	√	—	—	
	Under-voltage (LED light)	—	√	√	—	√	
	Over-voltage (LED light)	—	√	√	—	√	
	Automatic charging and automatic recovery (LED light)	√	—	—	—	√	
	Automatic charging and manual recovery (LED light)	√	—	—	—	√	
	grid-grid (LED light)	√	—	—	—	√	
	grid-generator (LED light)	√	—	—	—	√	
	7-segment digital tube	—	√	√	—	—	
	LCD screen	—	—	—	√	√	
Power supply modes	Grid-grid	√	√	√	√	√	
	Grid-generator	√	√	√	√	√	
Operating mode options	Automatic charging and automatic recovery	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√	
	Automatic charging and manual recovery	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√	
Power priority	Normal power priority	▽	▽	▽	√	√	
	Backup power priority	▽	▽	▽	√	√	
Time delay adjustment	Opening/switching time delay (t1)	√	√	√	√	√	
	Closing/return time delay (t2)	√	√	√	√	√	
	Generator cooling time delay	—	√	√	√	√	
	Generator start time delay	▽	√	√	√	√	
Voltage protection thresholds	Under-voltage value	187V	(0.7~0.85)×230V adjustable				165V~180V adjustable
	Over-voltage value	264V	(1.05~1.3)×230V adjustable				260V~275V adjustable
Buttons	AUTO/MANUAL	√	√	√	√	—	
	INORMAL/△	—	√	√	√	√	
	SET	—	√	√	√	√	
	IIBACKUP/▽	—	√	√	√	√	
	RESET	√	√	√	√	√	
	○OFF/ Esc	—	√	√	√	Only return	
	CONFIRM	—	√	√	√	√	
	POWER SUPPLY MODE	√	—	—	—	—	
	OPERATING MODE	√	—	—	—	—	

Function description		Type A Controller	Type B Controller	Type C Controller	Type D Controller	Type D Controller
		63~800A				1250~5000A
Other functions	Remote switching	—	√	√	√	—
	Rated frequency option	—	√	√	√	—
	Buzzer	√	√	√	√	√
	III/II optional function	▽	▽	▽	▽	—
	Anode-cathode separation	—	▽	▽	▽	—
	OFF enable (2)	—	—	—	▽	—
	Over/under-voltage hysteresis	—	—	—	▽	—
	Fault log	—	—	—	√	√
	Operation log	—	—	—	√	√
	Clear fault logs	—	—	—	▽	—
	Clear operation logs	—	—	—	▽	—
	Normal A-phase voltage coefficient	—	—	—	▽	—
	Normal B-phase voltage coefficient	—	—	—	▽	—
	Normal C-phase voltage coefficient	—	—	—	▽	—
	Backup A-phase voltage coefficient	—	—	—	▽	—
	Backup B-phase voltage coefficient	—	—	—	▽	—
	Backup C-phase voltage coefficient	—	—	—	▽	—
	Calibrating voltage value	—	—	—	▽	—
	Password protection	—	—	—	—	√

“√” represents available; “▽” represents internally adjustable; and “—” represents unavailable

Notes:

[1]: If “grid-grid” is selected as the power supply mode, two operating mode options are available: automatic charging and automatic recovery, and automatic charging and manual recovery; if “grid-generator” is selected as the power supply mode, no option can be made, and the operating mode of automatic charging and automatic recovery will be automatically set. For the Type A controller, If “grid-generator” is selected as the power supply mode, the controller will automatically detect whether the backup power (generator) frequency reaches the normal operating range of 45Hz~55Hz.

[2]: Once the OFF ENABLE function is activated, when both the normal and the backup power fail, the automatic transfer switch will switch to the OFF position; once the OFF ENABLE function is deactivated, when both the normal and the back up power fail, the controller will maintain the current status.

◆ Controller structure

The controller achieves automatic switching by detecting the voltage, frequency, phase sequence, voltage unbalance and other signals of both the normal and the backup power.

Type A, B, C and D (NDQ3H-63~800A) controllers are available with both integral and split structures, with the integral type disposed on the right of the ATS body to form an in-line plug-in structure and the split type connected with the ATS body through cables; Type D (1250~5000A) controllers are available with only the split structure, with the connection terminals disposed on the upper part of the ATS body. The functions and panel operation of Type A, B, C and D controllers are similar except for slightly different outline structures: Type B and C controllers employ LED digital tube display while Type D controllers employ LCD display to enable visual human-machine interaction, and Type C and D controllers use the RS485 communication protocol and the MODBUS-RTU protocol to enable “four tele-services” (namely, tele-metering, tele-signaling, tele-controlling and tele-adjusting)

Quick selection table for NDQ3HP series bypass transfer switches



ND Q 3H P - 3200 / S / 06 / 400 / 3P / E / O

- Special function:
O-OSS series dual bypass
- Controller: E
- Number of poles:
3 - 3 poles; 4 - 4 poles; N3 - 4 poles with neutral line overlapping switching
- Rated operating voltage:
400-AC400V; 415-AC415V
- Rated operating current: See Note a
- Switching type: S - in-phase switching
D - time delayed switching
- Frame size: 3200A, 5000A
- P: Bypass isolation automatic transfer switch
- Design code: 3H
- Product code: automatic transfer switch
- Brand code: Nader

Notes:
a II-stage in-phase switching and III-stage time-delayed switching;
b N3 is available for three-phase four-wire products with neutral line overlapping switching, and only in-phase switching is available

Note a:
3200 frame size: 01-100A, 02-250A, 04-400A, 05-500A, 06-630A, 08-800A, 10-1000A, 12-1250A, 16-1600A, 20-2000A, 25-2500A, 32-3200A
5000 frame size: 16-1600A, 20-2000A, 25-2500A, 32-3200A, 40-4000A, 50-5000A

Main performance parameters of NDQ3HP series bypass automatic transfer switches

Model and specification		NDQ3HP	
Frame size (A)		3200	5000
Rated operating current Ie (A)		100, 250, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3200	1600, 2000, 2500, 3200, 4000, 5000
Frequency (Hz)		50/60	
Rated isolation voltage Ui (V)		1000	
Rated impulse withstand voltage Uimp (kV)		12	
Rated operating voltage Ue (V)		400/415	
Operating current (A) AC220V	Closing current	30	50
	Opening current	12	12
Power-off time (ms)		≤800	≤800
Switching operation time (s)		≤2000	≤2000
Rated short-time withstand current Icw (kA)		66	85
Rated short-circuit making capacity Icm (kA)		145	187
Mechanical endurance ^a (operating cycles)		10000	10000
Electrical endurance ^a (operating cycles)		5000	5000
Apparatus class		Dedicated PC-level	
Utilization category		AC-33A	
Connection method		Rear connection	
Operating position ^b		II-stage, III-stage	
Number of poles ^c		3, 4, N3	

Notes: a maintainable times;

b II-stage in-phase switching and III-stage time-delayed switching;

c N3 is available for three-phase four-wire products with neutral line overlapping switching, and only in-phase switching is available.

Controllers of NDQ3HP series bypass automatic transfer switches

Overview of technical specifications

Specification	Parameter
Power supply	24VDC/7.2W
External dimensions: WxDxH (mm)	200x140x70
Weight (kg)	1.0
Operating temperature range (°C)	-25~70
LCD screen	192x64 pixels
LED screen	high-brightness LED chop
Input voltage (V)	110~300
Frequency (Hz)	50/60
Control relay	250VAC 5A 2Ea; selectable from the menu
Generator activation relay	125VAC 1A,
30VDC 2A 1c	66
Generator speed adjustment; variable resistance	Variable resistance input
Contact input	CCTS status contact 2a parameter setting; 6a Ea,,24[VDC]
Communication port	RS485

Function description

Controller model		E
Applicable switch structure	Drive mode	Coil-driven
	Switching mode option	In-phase switching, time delayed switching
Applicable system	Applicable system voltage (V)	400/415
	Applicable system frequency (Hz)	50/60
	Rated control voltage (V)	110/220
Composition	Microprocessor	Chip microprocessor
	Display	192x64 Graphic
Display mode	Input voltage status (V)	LCD display and LED status indication
	ATS position status	LED indication
	Measuring status	LCD display
	Contact operation status	LCD display
	Input operation status	LCD display
	Communication operation status	LED indication

Controller model		E
Switching condition setting range	Over-voltage	105%~130%
	Under-voltage	85%~95%
	Open-phase	30%~70% Phase angle < 90°
	No-voltage	0%~30%
	Over-frequency (Hz)	+1.0~+5.0
	Under-frequency (Hz)	-1.0~-5.0
Functional features	Normal power priority	Without priority
	Operating mode options	Automatic charging and automatic recovery/automatic charging and manual recovery
	Button operation	Yes
	Cascade control	Configurable software
	Electrical parameter display	Voltage
	Function communication	RS485 wired communication/wireless communication
	Event log	1024 entries
	Locking device	Password
	Language	English
	Generator start/stop control	Yes
	Sampling line break detection	Yes
	Long-term single power operation	Yes (live A-phase on either side)
	Top-down linkage control	Yes
	Fault alarm	Visual alarm
	Auxiliary power supply	Yes
	Phase sequence error detection	Yes
	Programmable input	6 ports
	Programmable output	2 ports
Parameter setting input terminals	Switching time delay (min)	0-90
	Return time delay (min)	0-90
	Generator cooling time delay (min)	0-90
	Voltage sampling line	Line voltage/phase voltage
	Cascade control input	Yes
	Auxiliary power supply input	Yes
	Other programmable inputs	Yes
Output terminals	Fault alarm output	Yes
	Generator control output	Yes
	Communication output	Yes
	Other programmable outputs	Yes

Quick selection table for NDQ5 series automatic transfer switches



ND Q 5 – 4000 / S / 04 / 230 / 3 / WF / A3 / SF22 / J3 Special requirement

Connection method:
Blank - horizontal connection
J3 - vertical connection

Internal accessories:
SF22 - OFF position key lock
HZ - switch body closing indicator

Auxiliary switch:
Blank - one block for switching
A3 - three blocks for switching

Optional functions of controllers:
WF - Wi-Fi (wireless communication)
WD - temperature alarm and protection device
BS - fault blocking input

Number of poles: 3 - 3 poles, 4 - 4 poles,
N3 - 4 poles with neutral line overlapping switching

Rated operating voltage:
230-AC220/230/240V,
380-AC380V, 400-AC400V,
415-AC415V

Rated operating current: 04-400A, 05-500A,
06-630A, 08-800A, 10-1000A,
12-1250A, 16-1600A, 20-2000A,
25-2500A, 32-3200A, 40-4000A

Switching type:
S - in-phase switching
D - time delayed switching
C - parallel switching

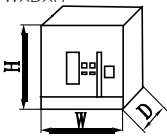
Frame size: 4000 - 4000A

Design code: 5

Product code: automatic transfer switch

Brand code: Nader

Main performance parameters of NDQ5 series automatic transfer switches

ATSE model		NDQ5-4000			
Rated operating current Ie (A)		400, 500, 630	800, 1000, 1250, 1600	2000, 2500	3200, 4000
Rated operating voltage Ue (V)		AC220/230/240, AC380/400/415			
Rated frequency f (Hz)		50/60			
Rated isolation voltage Ui (V)		1000			
Rated impulse withstand voltage Uimp (kV)		12			
Number of poles		3, 4, N3 ¹ (products with neutral line overlapping switching)			
Utilization category		AC-33A			
Rated short-time withstand current Icw (kA)	AC380/400/415V	66/3s 85/1s 100/60ms			
Rated short-circuit making capacity Icm (peak value) (kA)	AC380/400/415V	220			
Switching operation time (s)		≤500			
Contact switching time (ms)		≤300			
Endurance (operating cycles)	Electrical ²	10000	10000	8000	8000
	Mechanical ²	20000			
Apparatus class		Dedicated PC-level			
Switching type		In-phase switching/time delayed switching/parallel switching			
Position of main contact		Three-position			
Connection method	Rear horizontal connection	■	■	■	
	Rear vertical connection	□	□	□	■
External dimensions: WxDxH 	Number of poles-3P	590×840×330			
	Number of poles-4P	590×840×330			
	Number of poles-N3	590×840×330			
Weight (kg)	Number of poles-3P	128			133
	Number of poles-4P	142			149
	Number of poles-N3	142			149

■ - standard; □ - optional

Notes: 1. For N3-pole type products with neutral line overlapping switching, only in-phase switching is available

2. Maintainable endurance

The neutral line N-pole switching includes two types: normal switching (4P) and overlapping switching (N3):

1) the normal switching means simultaneous switching of neutral line N-pole and A/B/C phase lines.

2) the overlapping switching means that the N-pole of at least one power supply remains load-connected during ATSE switching of N-poles of two power supplies.

Controllers of NDQ5 series automatic transfer switches

Functions of controllers
Controller overview and switching type

Rated voltage of control power Ue	AC220/230/240V, AC380/400/415V
Rated operating frequency	50/60Hz
Applicable grounding system	TN/TT/IT
Auxiliary power supply	DC24V
Applicable switching type	In-phase/time delayed/parallel switching

Function description

Function description		Controller ¹
Protective functions	Over-voltage protection	√
	Under-voltage protection	√
	Voltage unbalance protection	√
	Open-phase protection	√
	Over-frequency protection	√
	Under-frequency protection	√
	Phase sequence protection	√
	Wiring error alarm	√
	Fault blocking	▽
	Over/under-voltage hysteresis adjustment	√
	Load shedding	√
Measuring functions	Voltage value	√
	Frequency value	√
	Phase angle difference	√
	Voltage unbalance factor	√
	Phase sequence	√
Communication function	MODBUS-RTU protocol	√
Node inputs/outputs	Fire control signal input	√
	Controller e-stop locking input	√
	Remote switching control input	√

Function description		Controller ¹
Node inputs/outputs	Fault blocking input	▽
	Auxiliary power supply input	√
	Programmable port input	√
	Normal closing output	√
	Backup closing output	√
	Generator start output	√
	Fault alarm output	√
	Communication port output	√
	Programmable port output	√
	Closing status indication output	√ ²
Display (LED)	Normal power status	√
	Backup power status	√
	Normal closing status	√
	Backup closing status	√
	Automatic/manual mode	√
	Parallel/non-parallel mode	√
	Fire control	√
	RS485 communication	√
	Remote/local	√
	Fault/alarm	√
	Controller e-stop locking	√
Display (LCD screen)	160*160 lattice	√
	Normal power information	√
	Backup power information	√
	Fault/alarm information	√
	Parameter setting	√
Power supply mode option	Grid-grid	√
	Grid-generator	√
Operating mode options	Automatic charging and automatic recovery	√ ³
	Automatic charging and manual recovery	√ ³

Function description		Controller ¹
Time delay adjustment	Normal opening time delay	√
	Normal closing time delay	√
	Backup opening time delay	√
	Backup closing time delay	√
	Automatic charging and automatic recovery time delay	√
	Voltage unbalance time delay	√
	Under-voltage time delay	√
	Over-voltage time delay	√
	Under-frequency time delay	√
	Over-frequency time delay	√
	Generator start time delay	√
	Generator stop time delay	√
	Generator stabilization time delay	√
	Parallel waiting time delay	√
Voltage protection thresholds	Adjustable under-voltage value	√
	Adjustable over-voltage value	√
Frequency protection thresholds	Adjustable under-frequency value	√
	Adjustable over-frequency value	√
Phase unbalance threshold	Adjustable in a certain range	√
Buttons	Button locking, required to be unlocked before login	√
	SET button	√
	OPTION button	√
	EXIT button	√
	RESET button	√
	Parameter adjustment UP button	√
	Parameter adjustment DOWN button	√
	Controller e-stop locking button	√
	AUTO/MANUAL button	√
	PARALLEL/NON-PARALLEL button	√
	NORMAL CLOSING/BACKUP OPENING button	√

Function description		Controller ¹
Buttons	NORMAL OPENING/BACKUP CLOSING button	√
	NORMAL OPENING/BACKUP OPENING button	√
Other functions	Regular generator start test	√
	Normal and backup power priority	√
	Rated frequency option	√
	Fault alarm	√
	Immunity to third-order or above harmonics	√
	III-stage function	√
	Switching time countdown	√
	Real-time clock (RTC)	√
	Chinese/English switching	√
	Event log	√
	One-touch calibration	√ ⁴
	NFC communication module	√
	Wi-Fi communication module	▽
	Temperature detection module	▽
	If the dual power supplies malfunction, the product remains in the original position or in the OFF position, optional by the customer	√

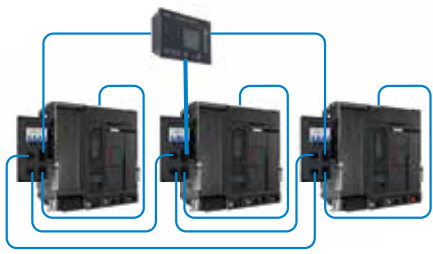
Notes: 1. "√": standard; "▽": optional;

2. The micro-switch output signal of the switch body rather than relay output is used;

3: If "grid-grid" is selected as the power supply mode, two operating mode options are available: automatic charging and automatic recovery, and automatic charging and manual recovery; if "grid-generator" is selected as the power supply mode, no option can be made, and the operating mode of automatic charging and automatic recovery will be automatically set, and when the power grid gets normal, both returns to the grid side;

4. Under high-precision power voltage, the controller directly write the calibration coefficient by comparing the calculated value and the input value.

Quick selection table for NDQ5W series automatic switches



ND Q 5 W - 1600 C / 16 / 4 / K1 / 2L

- Controller type (associated with the rated operating current):**
2L: dual power switching
2LB: dual power switching, with the manual parallel operation function
3L: triple power switching
3LB: triple power switching, with the manual parallel operation function
QL: two incoming lines and one bus tie switching
QLB: two incoming lines and one bus tie switching, with the manual parallel operation function
- Rated operating voltage:** K1-AC380/400/415V (TT/TN)
K2-AC380/400/415V (IT)
- Number of poles:** 3 - 3P, 4 - 4P
- Rated operating current:** See Note a
- Installation method of actuating circuit breaker:** C - draw-out type
- Frame size:** 1600A, 2500A, 4000A, 6300A
- Actuating circuit breaker:** W-NDW3 series air circuit breaker
- Design serial number:** 5
- Product code:** automatic transfer switch
- Brand code:** Nader

Examples and instructions: Identical or different rated currents may be selected for the same frame size. Please consult with the after-sales engineer. Special contract review shall be conducted for combination of different frame sizes.

- ◆ NDQ5W-1600 C/16/4/K1/2L (one to be indicated for the identical rated current)
- ◆ NDQ5W-2500 C/25 20 20/4/K1/3L (to be separately indicated for different rated currents)
- ◆ NDQ5W-4000 C/40 32 40/4/K1/QL (to be separately indicated for different rated currents)
- ◆ NDQ5W-4000 C/40/4/K1/QL (one to be indicated for the identical rated current)

Note a:

Rated operating current:

1600 frame size: 02-200A, 04-400A, 06-630A, 08-800A, 10-1000A, 12-1250A, 16-1600A
2500 frame size: 06-630A, 08-800A, 10-1000A, 12-1250A, 16-1600A, 20-2000A, 25-2500A
4000 frame size: 08-800A, 10-1000A, 12-1250A, 16-1600A, 20-2000A, 25-2500A, 32-3200A, 40-4000A
6300 frame size: 40-4000A, 50-5000A, 63-6300A

Controllers of NDQ5W series automatic transfer switches

Controller model			2L	2LB	3L	3LB	QL	QLB	
Rated voltage of control power Us			AC230V [Ue= AC380/400/415V (TT/TN)], AC380V [Ue= AC380/400/415V (IT)]						
Auxiliary power supply			DC24V						
Applicable power supply mode		Grid-grid	■	■			■	■	
		Grid-generator	■	■			■	■	
		Grid-grid-generator			■	■			
		Grid-generator-generator			■	■			
Applicable type		Dual power switching	■	■					
		Triple power switching			■	■			
		Two incoming lines and one bus tie switching					■	■	
Automatic switching	Under-voltage protection	Detection power supply	S1/S2 three-phase		S1/S2/S3 three-phase		S1/S2 three-phase		
		Under-voltage value	OFF + (75%~95%)*Us						
		Return value	AC380V (6~45V), AC230V (4~30V)						
	Over-voltage protection	Detection power supply	S1/S2 three-phase		S1/S2/S3 three-phase		S1/S2 three-phase		
		Over-voltage value	OFF + (105%~125%)*Us						
		Return value	AC380V (6~45V), AC230V (4~30V)						
	Open-phase protection	Detection power supply	S1/S2 three-phase		S1/S2/S3 three-phase		S1/S2 three-phase		
		Open-phase value	25%*Us						
	Under-frequency protection	Under-frequency start value	OFF + rated frequency * (90%~98%)						
		Under-frequency return value	Rated frequency * (95%~99%)						
	Over-frequency protection	Over-frequency start value	OFF + rated frequency * (102%~110%)						
		Over-frequency return value	Rated frequency * (101%~105%)						
	Voltage unbalance protection	Voltage unbalance start value	OFF + (3~30%)						
		Voltage unbalance return value	(2%~10%)						
	Phase sequence protection	Phase sequence mode	OFF, A-B-C, A-C-B						
	Power priority		Mode option		Qs1, Qs2		QS1, QS2, QS3		QS1+QS2, QS1+Qq1, QS2+Qq1
	Charging setting			Pre-closing charging, post-closing charging					
Operating mode			Automatic charging and automatic recovery, automatic charging and manual recovery						
Manual button switching		Manual switching	■	■	■	■	■	■	
		Manual parallel switching		■		■		■	
Display		Power supply voltage/frequency/unbalance parameter display	■	■	■	■	■	■	
		Power supply open-phase/abnormal/normal status indication	■	■	■	■	■	■	
		Circuit breaker opening/closing/tripping status indication	■	■	■	■	■	■	
		Communication status indication	■	■	■	■	■	■	
		Power supply fault indication	■	■	■	■	■	■	
		Parameter setting display	■	■	■	■	■	■	
Switching time delay			T1-T4	T1-T4	T1-T6	T1-T6	T1-T6	T1-T6	
Communication function		Communication function	■	■	■	■	■	■	
		Modbus protocol	■	■	■	■	■	■	
Auxiliary functions		Real-time clock (RTC)	■	■	■	■	■	■	
		Button locking	■	■	■	■	■	■	
		Generator start/stop control	■	■	■	■	■	■	
		Load shedding (optional)	■	■	■	■	■	■	
		Fault blocking	■	■	■	■	■	■	
		Event log	■	■	■	■	■	■	
		Alarm	■	■	■	■	■	■	

Notes: ■ standard

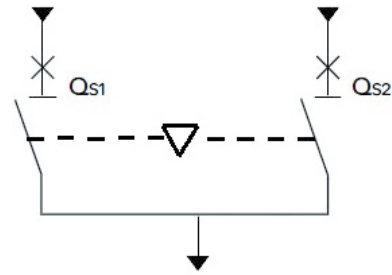
Functions of controllers

◆ Type 2L Controller

Type 2L controllers are mainly used in automatic/manual switching solutions of dual power system, which have the functions of automatic power status judgment, automatic actuation of circuit breaker operations, and electrical and mechanical interlocking, thereby preventing simultaneous closing of dual power supplies.



Interface of Type 2L controller

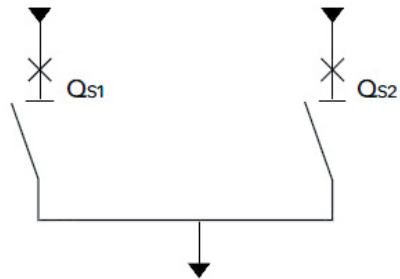


◆ Type 2LB Controller

Type 2LB controllers are mainly used in automatic/manual switching solutions of dual power system, which have the functions of automatic power status judgment, automatic actuation of circuit breaker operations, and parallel power switching during manual operation.



Interface of Type 2LB controller

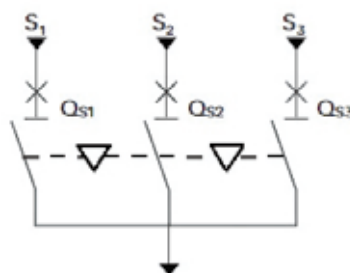


◆ Type 3L Controller

Type 3L controllers are mainly used in automatic/manual switching solutions of triple power system, which have the functions of automatic power status judgment, automatic actuation of circuit breaker opening, charging and charging operations, and electrical or mechanical interlocking, thereby ensuring reliable closing of only one power supply.



Interface of Type 3L controller

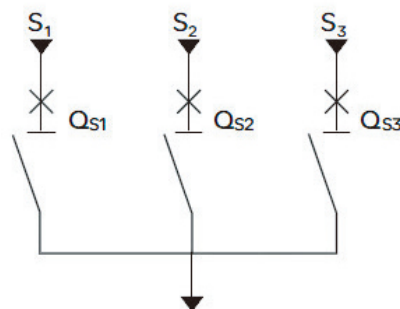


◆ Type 3LB Controller

Type 3L controllers are mainly used in automatic/manual switching solutions of triple power system, which have the functions of automatic power status judgment, automatic actuation of circuit breaker opening, charging and charging operations, and parallel power switching during manual operation.



Interface of Type 3LB controller

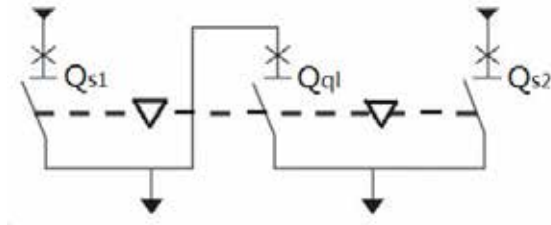


◆ Type QL Controller

Type QL controllers are mainly used in automatic/manual switching solutions of two-incoming-line and one-bus-tie system, which have the functions of automatic power status judgment, automatic actuation of circuit breaker opening, charging and charging operations, and electrical or mechanical interlocking, thereby preventing simultaneous closing of dual power supplies.



Interface of Type QL controller

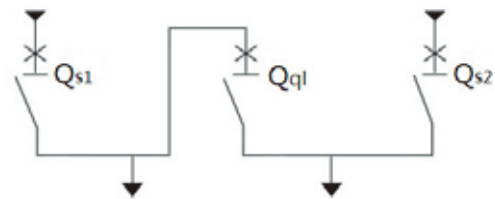


◆ Type QLB Controller

Type QLB controllers are mainly used in automatic/manual switching solutions of two-incoming-line and one-bus-tie system, which have the functions of automatic power status judgment, automatic actuation of circuit breaker opening, charging and charging operations, and parallel power switching during manual operation.



Interface of Type QLB controller



Part VI

Low-voltage Terminal Power Distribution Products

Quick selection table for NDB1 series products

Product type	Product name	Rated voltage (V)	Breaking capacity Icu/Icn (kA)	Tripping curve	Rated current (A)	Number of poles	Accessory	Operation type of residual current	Rated residual operating current (mA)	Reference standard	Modulus (Multiple of 9mm)
Quick selection table for NDB1 series products	NDB1-63	AC230/240/400/415 (1P) AC230/240 (1P+N) AC400/415 (2P, 3P, 3P+N, 4P) DC60/80 (1P, 2P)	6kA: 1. AC230/240/400/415V (Types B, C and D) 2. DC80V (Types B and C)10kA: DC60V (Types B and C)	B, C, D (Without Type D for DC60 and DC80V)	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63	1P, 1P+N, 2P, 3P, 3P+N, 4P	OF1, SD1, MX+OF1, GQ1A, FF1, FS1			GB10963.1 IEC60898-1 GB10963.2 IEC60898-2	2, 4, 4, 6, 8, 8
	NDB1T-63	AC230/240/400/415 (1P) AC230/240 (1P+N) AC400/415 (2P, 3P, 3P+N, 4P) DC60/80 (1P, 2P)	6	B, C, D	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63	1P, 1P+N, 2P, 3P, 3P+N, 4P	OF1, SD1, MX+OF1, GQ1A, FF1, FS1			GB14048.2 IEC60947-2	2, 4, 4, 6, 8, 8
	NDB1GQ-63	AC230V/240 (2P) AC400V/415V (4P)	6	B, C, D	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63	2P, 4P	OF1, SD1, MX+OF1, GQ1A, FF1, FS1			GB10963.1 IEC60898-1	8, 15
	NDB1PT-63	AC230/240 (1P) AC400/415 (2P, 3P, 4P)	6	A	3, 6, 10	1P, 2P, 3P, 4P	OF, SD, MX+OF			GB14048.2 IEC60947-2	2, 4, 6, 8
	NDB1-40	AC230/240	6	B, C, D	2, 4, 6, 10, 16, 20, 25, 32, 40	1P+N	OF1, SD1, MX+OF1, GQ1A, FF1, FS1			GB10963.1 IEC60898-1	2
	NDB1-32	AC230	4.5	C	6, 10, 16, 20, 25, 32	1P+N	N/A			GB10963.1 IEC60898-1	2
	NDB1-125	AC230/240 (1P) AC400/415 (2P, 3P, 4P) DC60/80V (1P) DC80/125V (2P)	10	C, D	50, 63, 80, 100, 125	1P, 2P, 3P, 4P	OF, SD, MX+OF			GB10963.1 IEC60898-1 GB14048.2 IEC60947-2	3, 6, 9, 12
	NDB1LE-63(GQ)	AC230/240 (1PN, 2P) AC400/415 (3P, 3PN, 4P)	6	B, C, D	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63	1PN, 2P, 3P, 3PN, 4P (only 2P and 4P for GQ)	OF1, SD1, MX+OF1, GQ1A, FF1, FS1	AC, A, electronic	30, 50, 100, 300mA (only 30mA for GQ)	GB 16917.1 IEC 61009-1	5, 7, 10, 11, 13 (1~32A) 6, 8, 12, 13, 15 (40~63A) GQ: 8, 15
	NDB1LE-40	AC230/240	6	B, C, D	2, 4, 6, 10, 16, 20, 25, 32, 40	1P+N	OF1, SD1, MX+OF1, GQ1A, FF1, FS1	AC, A, electronic	30, 100, 300mA	GB 16917.1 IEC 61009-1	4
	NDB1L(G)-32	AC230/240	4.56 (UL1053)	C	6, 10, 16, 20, 25, 32	1P+N	N/A	AC, electronic	10, 30mA (only 30mA for G)	GB 16917.1 IEC 61009-1 UL1053	4
NDG1 series switch-disconnector	NDB1LE-100	AC230 (1PN, 2P) AC400 (3P, 3PN, 4P)	10	C, D	50, 63, 80, 100	1PN, 2P, 3P, 3PN, 4P	OF, SD	AC, electronic	100mA	GB14048.2 IEC60947-2	9, 12, 17, 19, 22
	NDG1-125	AC230/240 (1P) AC400/415 (2P, 3P, 4P)			16, 20, 25, 32, 40, 50, 63, 80, 100, 125	1P, 2P, 3P, 4P	OF1			GB 14048.3 IEC 60947-3	2, 4, 6, 8
	NDG1-100+NCJ1	AC400/415V			16, 20, 25, 32, 40, 50, 63, 80, 100	3P, 4P	OF3			GB 14048.3 IEC 60947-3	13, 17

Quick selection table for NDB6 series products

Product type	Product name	Rated voltage (V)	Breaking capacity Icu/Icn (kA)	Tripping curve	Rated current (A)	Number of poles	Accessory	Operation type of residual current	Rated residual operating current (mA)	Reference standard	Modulus (Multiple of 9mm)
Circuit breaker	NDB6-125	AC230/240V, DC60/80/15 (1P) AC400/415 (2P, 3P, 4P)	15	C, D	Type C: 63, 80, 100, 125 Type D: 63, 80, 100	1P, 2P, 3P, 4P	N/A			IEC60947-2 GB14048.2	3, 6, 9, 12
	NDB6Z-125	DC60/80/125/250/300V (1P) DC500/600V (2P) DC750/1000V (3P) DC1000/1200V (4P)	6kA (2P-4P) 15kA (1P DC60/80/125V) 6kA (1P DC250/300V)	C	63, 80, 100, 125	1P, 2P, 3P, 4P	N/A			IEC60947-2 GB14048.2	3, 6, 9, 12
Residual current circuit breaker with over-current protection	NDB6LM-40	AC230V	10	B, C	6, 10, 1620, 25, 32, 40	1P+N	N/A	A, AC Electromagnetic	30, 100, 300	IEC61009-1 GB16917.1	4
Residual current circuit breaker	NDL6M-100	AC230/400V			16, 25, 40, 63, 80, 100	2P, 4P	N/A	A, AC Electromagnetic	30, 100, 300	IEC61008-1 GB16916.1	4, 8

Quick selection table for NDB2 series products

Product type	Product name	Rated voltage (V)	Breaking capacity Ics (kA)	Tripping curve	Rated current (A)	Number of poles	Accessory	Operation type of residual current	Rated residual operating current (mA)	Reference standard	Modulus (Multiple of 9mm)
Quick selection table for NDB2 series products	NDB2-63	AC230, 240, 400, 415 (1P) AC400, 415 (2P, 3P, 4P) DC80 (1P,2P)	10	B, C, D	1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 20, 25, 32, 40, 50, 63	1P 2P 3P 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A), JS1-11Y, B2-63 mechanical interlock			IEC60898-1 GB/T10963.1 GB/T10963.2	2, 4, 6, 8
	NDB2-63 (UL1077)	AC240, 277 (1P) AC480 (2P, 3P, 4P) DC60 (1P) DC125 (2P)	7.5 (AC240, 480 DC60, 125) 5 (AC277)	B, C, D	1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 20, 25, 32, 40, 50, 63	1P 2P 3P 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A), JS1-11Y, B2-63 mechanical interlock			UL1077	2, 4, 6, 8
	NDB2T-63	AC230, 240 (1P) AC400, 415 (2P, 3P, 4P) DC60, 80 (1P) DC80, 125 (2P)	10	B, C, D	1, 1.2, 1.5, 1.6, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 35 (special review required), 40, 50, 60, 63	1P 2P 3P 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A), JS1-11Y, B2-63 mechanical interlock			IEC60947-2 GB/T14048.2	2, 4, 6, 8
	NDB2T-63 (UL1077)	AC240, 277 (1P) AC480 (2P, 3P, 4P) DC60 (1P) DC125(2P)	7.5 (AC240, 480 DC60, 125) 5 (AC277)	B, C, D	1, 1.2, 1.5, 1.6, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 40, 50, 60, 63	1P 2P 3P 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A), JS1-11Y, B2-63 mechanical interlock			UL1077	2, 4, 6, 8
	NDB2T-63 (UL489)	AC120 (1P) AC240 (2P, 3P) AC277 (1P 1~32A) AC480Y, 277V (2P, 3P 1~32A) DC60 (1P, 2P) DC125 (2P)	10	B, C, D	1, 1.2, 1.5, 1.6, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 35, 40, 50, 60, 63	1P 2P 3P	N/A			UL489	2, 4, 6
	NDB2-63K	AC230V	6	C	1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63	1P+N	OF2, SD2, MX+OF2, Tm2			IEC60898-1 GB/T10963.1	4
	NDB2-40	AC230, 240	6	B, C, D	2, 4, 6, 10, 16, 20, 25, 32, 40	1P+N	OF2, SD2, MX+OF2			IEC60898-1 GB/T10963.1	2
	NDB2-40 (UL1077)	AC120V	6	B, C, D	2, 4, 6, 10, 16, 20, 25, 32, 40	1P+N	OF2, SD2, MX+OF2			UL1077	2
	NDB2Z-63	DC125, 220, 250 (1P) DC250, 440, 500 (2P) DC750 (3P) DC1000 (4P)	10 (DC125, 220, 250, 440, 500) 5 (DC750, DC1000)	B, C	1, 1.2, 1.5, 1.6, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 40, 50, 60, 63	1P 2P 3P 4P	OF2, SD2, MX+OF2, Tm2, JS1-11Y, B2-63 mechanical interlock			IEC60947-2 GB/T14048.2	2, 4, 6, 8
	NDB2Z-63H	DC250	20	B, C	1, 2, 3, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63	2P	OF2, SD2, MX+OF2, Tm2, JS1-11Y, B2-63 mechanical interlock			IEC60947-2 GB/T14048.2	4
Quick selection table for NDB2 series products	NDB2Z-63 (UL1077)	DC125, 250 (1P, 2P) DC220 (1P) DC440 (2P)	10 (DC125, 250) 4.5 (DC220, 440)	B, C	1, 1.2, 1.5, 1.6, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 35, 40, 50, 60, 63	1P 2P	OF2, SD2, MX+OF2, Tm2, JS1-11Y, B2-63 mechanical interlock			UL1077	2, 4
	NDB2ZB-40	DC250 (2P)	10	Three-stage protection	10, 16, 20, 25, 32, 40	2P	OF2, SD2, FS2, NGQ2(A), MX+OF2			GB/T14048.2	5
	NDB2N	AC230/240/DC80V (1P, 1P+N) AC400/415V/DC80V (2P) AC400/415V (3P, 3P+N, 4P)	AC: 6 DC10	AC: B, C, D DC: B, C	1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 20, 25, 32, 40, 50, 63	1P, 1P+N, 2P 3P, 3P+N, 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, JS1-11Y, B2-63 mechanical interlock			GB/T10963.1 GB/T10963.2 IEC60898-1 IEC60898-2	2, 4, 4, 6, 8, 8
	NDB2LE-63	AC230, 240 (1PN, 2P) AC380, 400, 415 (3P, 3P+N, 4P)	10	B, C, D	1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63	1PN, 2P 3P, 3P+N, 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A), FS2, FF2	AC, electronic	30, 50, 100, 300	IEC61009-1 GB/T16917.1	6, 8, 13, 15, 15
	NDB2LM-63	AC230, 240 (1PN, 2P) AC400, 415 (3P, 3P+N, 4P)	10	B, C, D	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63	1PN, 2P 3P, 3P+N, 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A)	AC, A, electronic S - time delay type	General type 30, 100, 300 Time delay type 100, 300	IEC61009-1 GB/T16917.1	6, 8, 13, 15, 15
	NDB2TLE-63	AC230/240 (1PN, 2P) AC380/400/415 (3P, 3P+N, 4P)	10	B, C, D	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 35, 40, 50, 60, 63	1PN, 2P 3P, 3P+N, 4P	OF2, SD2, MX+OF2, Tm2, Tm2GQ, FS2, FF2	AC, electronic	30, 50, 100, 300	IEC60947-2 GB/T14048.2	6, 8, 13, 15, 15
	NDB2LE-40	AC230/240	6	B, C	2, 4, 6, 10, 16, 20, 25, 32, 40	1P+N	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A)	AC, A, electronic	30, 100, 300	IEC61009-1 GB/T16917.1	4
	NDB2F-125 (M)	AC230/240 (2P) AC400/415 (4P)	6	C	40, 50, 63, 80, 100, 125	2P, 4P	N/A			GB/T10963.1 Q/GDW 11421	6, 10
	NDB2LE-25	AC230/240	6	C	6, 10, 16, 20, 25	1P+N	N/A	AC, electronic	30	IEC61009-1 IEC61009-2-2 GB/T16917.1 GB/T16917.22	2
	NDB2LM-40	AC230	10	B, C	General type: 2, 4, 6, 10, 13, 16, 20, 25, 32, 40 Time delay type: 25, 32, 40	1P+N	OF2, SD2, MX+OF2, Tm2, Tm2GQ, NGQ2(A), FS2, FF2	AC, A, electronic S - time delay type	General type 30, 100, 300 Time delay type 100, 300	GB/T16917.1 IEC61009-1	4

Quick selection table for NDB1-63 series miniature circuit breakers



ND B 1 - 63 C 32 / 1P + OF1

Optional electrical and protection accessories:

OF1: auxiliary contact
SD1: alarm contact
FF1: dual auxiliary contacts
FS1: auxiliary and alarm contact
MX+OF1: shunt trip unit
GQ1A: over/under-voltage trip unit
G1A: over-voltage trip unit
Q1A: under-voltage trip unit

Number of poles:

1P, 1P+N, 2P
3P, 3P+N, 4P

Rated current: 1A, 2A, 3A, 4A, 5A, 6A, 10A, 16A, 20A
25A, 32A, 40A, 50A, 63A

Tripping characteristic:

Type B: 3In-5In
Type C: 5In-10In
Type D: 10In-14In

Frame size: 63

Design serial number: 1

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The breaking capacity of the whole NDB1-63 series products is 6kA.
2. Except for current leakage protection accessories assembled on the right side, the other accessories are assembled on the left side.
3. Each product can have at most 3 accessories assembled on the left side, but it is recommended not to exceed 2 pcs.
4. The NDB1-63 series products have passed 3C, TUV, CB and CE certification.

For example:

Product model: NDB1-63 C32/1P+GQ1A+OF1+SD1

Representing: NDB1-63 series miniature circuit breaker, 6kA breaking capacity, Type C tripping curve, 32A rated current, 1P product, with over/under-voltage protection accessories assembled, and with auxiliary and alarm contacts optionally mounted.

Quick selection table for NDB1T-63 series miniature circuit breakers



ND	B	1	T	- 63	C	32 / 4P	+	NDB1TLE	
									Residual current operated protective module
									Number of poles: 1P, 1P+N, 2P 3P, 3P+N, 4P
									Rated current: 1A, 2A, 3A, 4A, 5A, 6A, 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
									Tripping characteristic: Type B: $4(1\pm20\%)I_n$ Type C: $8(1\pm20\%)I_n$ Type D: $12(1\pm20\%)I_n$
									Frame size: 63
									Reference standard: GB14048.2
									Design serial number: 1
									Product code: miniature circuit breaker
									Brand code: Nader

Notes:

1. The breaking capacity of the whole NDB1T-63 series products is 6kA.
2. The NDB1T-63 series products have passed 3C, CE and TUV certification.

For example:

Product model: NDB1T-63 C63/2P+NDB1TLE-63/2P/30mA/AC

Representing: NDB1T-63 series miniature circuit breaker, 6kA breaking capacity, Type C tripping curve, 63A rated current, 2P product with electronic residual current operated protective accessory, 30mA rated residual operating current, and Type AC residual current operation.

Quick selection table for NDB1GQ-63 series miniature circuit breakers (with over/under-voltage protection)

ND	B	1	GQ	- 63	/ C	16	/ 2P	
								Number of poles: 2P, 4P
								Rated current: 1A, 2A, 3A, 4A, 5A, 6A, 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
								Tripping characteristic: Type B: 3In-5In Type C: 5In-10In Type D: 10In-14In
								Frame size: 63
								G: over-voltage protection Q: under-voltage protection GQ: over/under-voltage protection
								Design serial number: 1
								Product code: miniature circuit breaker
								Brand code: Nader

Notes:

1. Over-voltage operating value: AC280V±12V, Max. breaking time: 0.2s
2. Under-voltage operating value: AC170V±7V, Max. breaking time: 1s
3. Over-voltage and under-voltage functions may be selected separately.
4. The breaking capacity of the whole NDB1GQ-63 series products is 6kA.

For example:

Product model: NDB1GQ-63 C16/4P

Representing: NDB1GQ-63 series over/under-voltage protection circuit breaker, 6kA breaking capacity, Type C tripping curve, 16A rated current, 4P product, with over/under-voltage protection functions.

Quick selection table for NDB1PT-63 series miniature circuit breakers



ND	B	1	PT	- 63	6 /	2P	+	OF	
									Optional electrical and protective accessories: OF: auxiliary contact SD: alarm contact MX+OF: shunt trip unit NGQ1A: over/under-voltage protection accessory NG1A: over-voltage protection accessory NQ1A: under-voltage protection accessory
									Number of poles: 1P, 2P, 3P, 4P
									Rated current (A): 3, 6, 10
									Frame size: 63
									Dedicated for measuring purposes
									Design code: 1
									Product code: miniature circuit breaker
									Brand code: Nader

Notes:
1. The rated short-circuit breaking capacity of the whole series is 6kA.
2. Type A tripping characteristic: $3I_n(1 \pm 20\%)$.

For example:
Product model: NDB1PT-63 10/3P+OF
Representing: NDB1PT-63 miniature circuit breaker dedicated for measuring purposes, 63 frame size, 6kA rated short-circuit breaking capacity, Type A tripping characteristic, 10A rated current, 3P product with auxiliary contacts.

Quick selection table for NDB1Z-63 series miniature circuit breakers



ND	B	1	Z	-	63	C	32	/	2P	+	OF1	
												Optional electrical accessories: OF1: auxiliary contact SD1: alarm contact FS1: dual auxiliary contacts FF1: auxiliary and alarm contact MX+OF1: shunt trip unit
												Number of poles: 1P, 2P, 3P, 4P
												Rated current: 1A, 2A, 3A, 4A, 5A, 6A, 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
												Tripping characteristic: B, C
												Frame size: 63
												DC
												Design serial number: 1
												Product code: miniature circuit breaker
												Brand code: Nader

- Notes:**
1. The rated operating voltage of NDB1Z-63 series is DC110/125V (1P), DC220/250V (2P) or DC440V (3P, 4P).
 2. The breaking capacity of NDB1Z-63 series is 6kA.
 3. Each product can have at most 3 accessories assembled.

For example:
Product model: NDB1Z-63 C32/2P+MX+OF1+SD1
Representing: NDB1Z-63 series miniature circuit breaker, Type C tripping curve, 32A rated current, 2P product, with shunt trip unit, and with alarm contacts optionally mounted.

Quick selection table for NDB1-40 series miniature circuit breakers



ND	B	1	-	40	C	20	/	1P+N	+	OF1	
											Optional electrical and protective accessories: OF1: auxiliary contact SD1: alarm contact FF1: dual auxiliary contacts FS1: auxiliary and alarm contact MX+OF1: shunt trip unit GQ1A: over/under-voltage trip unit G1A: over-voltage trip unit Q1A: under-voltage trip unit
											Number of poles: 1P+N
											Rated current (A): 2, 4, 6, 10, 16, 20, 25, 32, 40
											Tripping characteristic: Type B: 3In~5In Type C: 5In~10In Type D: 10In~14In
											Frame size: 40
											Design code: 1
											Product code: miniature circuit breaker
											Brand code: Nader

Notes:

1. The breaking capacity of the whole NDB1-40 series products is 6kA.
2. Except for current leakage protection accessories assembled on the right side, the other accessories are assembled on the left side.
3. Each product can have at most 3 accessories assembled on the left side, but it is recommended not to exceed 2 pcs.
4. The NDB1-40 products have passed 3C, TUV, CB and CE certification.

For example:

Product model: NDB1-40 C32/1P+N +GQ1A+OF1+SD1
Representing: NDB1-40 series miniature circuit breaker, 6kA breaking capacity, Type C tripping curve, 32A rated current, 1P+N product, with over/under-voltage protection accessories assembled, and with auxiliary and alarm contact optionally mounted.

Quick selection table for NDB1-32 series miniature circuit breakers



ND	B	1	-	32	C	16	/	1P+N	
									Number of poles: 1P+N
									Rated current (A): 6, 10, 16, 20, 25, 32
									Tipping characteristic: Type C: 5I _n ~10I _n
									Frame size: 32
									Design serial number: 1
									Product code: miniature circuit breaker
									Brand code: Nader

Notes:

1. The NDB1-32 series products have the number of poles as 1P+N, Type C tripping curve and breaking capacity of 4.5A.
2. The NDB1-32 series products cannot have accessories assembled.
3. The NDB1-32 series products have a width of 18mm.

For example:

Product model: NDB1-32 C16/1P+N
Representing: NDB1-32C series miniature circuit breaker, 4.5kA breaking capacity, Type C tripping curve, 16A rated current, and 1P+N product.

Quick selection table for NDB1-125 series miniature circuit breakers



ND B 1 - 125 C 63 / 3P + OF

Optional electrical and protective accessories:

- OF: auxiliary contact
- SD: alarm contact
- MX+OF: shunt trip unit
- NGQ1A: over/under-voltage protection accessory
- NG1A: over-voltage protection accessory
- NQ1A: under-voltage protection accessory

Number of poles: 1P, 2P, 3P, 4P

Rated operating current (A):

- 50, 63, 80, 100, 125

Tripping characteristic:

- Type C: 5In~10In
- Type D: 10In~14In

Frame size: 125

Design serial number: 1

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The NDB1-125 series products have Types C and D tripping curves available.
2. The NDB1-125 series products have passed GB10963.1 and GB14048.2 certification, with a rated short-circuit breaking capacity Icn of 10kA and a rated service short-circuit breaking capacity Ics of 7.5kA.
3. Each product can have at most 3 OF or SD accessories assembled on the left side, but it is recommended not to exceed 2 pcs. At most one among MX+OF, NGQ1A, NG1A and NQ1A can be assembled on the right side.

For example:

Product model: NDB1-125 C80/3P+SD
Representing: NDB1-125 series miniature circuit breaker, 10kA breaking capacity, Type C tripping curve, 80A rated current, 3P product, with auxiliary contacts.

Quick selection table for NDB1LE-63(GQ) series residual current circuit breakers with over-current protection (with over/under-voltage protection)



ND B 1 L E - 63 (GQ) C 16 / 4P / 30mA / A +OF1

Optional electrical accessories:

OF1: single auxiliary contact
SD1: alarm contact
FF1: dual auxiliary contacts
FS1: auxiliary and alarm contact
MX+OF1: shunt trip unit
GQ1A: over/under-voltage trip unit
G1A: over-voltage trip unit
Q1A: under-voltage trip unit

Operating characteristic of residual current: AC, A

Rated residual operating current:

30mA, 50mA, 100mA,
300mA (see the notes for details)

Number of poles: 1PN, 2P, 3P, 3PN, 4P (see the notes for details)

Rated current: 1A, 2A, 3A, 4A, 5A, 6A, 10A, 16A,
20A, 25A, 32A, 40A, 50A, 63A

Tripping characteristic:

Type B: 3In-5In
Type C: 5In-10In
Type D: 10In-14In

Blank: over/under-voltage protection
G: over-voltage protection
Q: under-voltage protection
GQ: over/under-voltage protection

Frame size: 63

Electronic trip unit

Current leakage protection

Design serial number: 1

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The NDB1LE-63 series products have over/under-voltage protection functions optional. If you require such functions, only 2P and 4P products are available, with a rated residual current of only 30mA.
2. Each product can have at most 3 accessories assembled on the left side, but it is recommended not to exceed 2 pcs.

For example:

Product model: NDB1LE-63GQ C40/4P/30mA/AC

Representing: NDB1LE-63 series residual current circuit breaker with over-current protection, 6kA breaking capacity, Type C tripping curve, 40A rated current, 4P product with current leakage protection and over/under-voltage protection functions, 30mA rated residual operating current, and Type AC residual current trip unit.

Quick selection table for NDB1L(G)-32 series residual current circuit breakers with over-current protection



ND B 1 L(G) - 32 C 32 / 1P+N / 30mA

Rated residual operating current: 10mA, 30mA (see Note 4 for details)

Number of poles: 1P+N

Rated current (A): 6, 10, 16, 20, 25, 32

Tipping characteristic: Type C: 5In~10In

Frame size: 32

L: with current leakage protection
G: optional over-voltage protection

Design serial number: 1

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The NDB1L(G)-32 series products have the number of poles as 1P+N, Type C tripping curve, breaking capacity of 4.5A, and Type AC residual current operating characteristic.
2. The NDB1L(G)-32 series products cannot have accessories assembled.
3. The NDB1L(G)-32 series products have a width of 36mm.
4. The residual operating current is 10mA or 30mA (only 30mA for Type G).
5. Over-voltage operating value: 280V±12V, breaking time: 0.1s

For example:

Product model: NDB1LG-32 C16/1P+N/30mA

Representing: NDB1LG-32 series residual current circuit breaker with over-current protection, 4.5kA breaking capacity, Type C tripping curve, 16A rated current, 1P+N product, 30mA rated residual operating current, Type AC residual current trip unit, with current leakage protection and over/under-voltage protection.

Quick selection table for NDB1LE-100 series residual current circuit breakers with over-current protection



ND	B	1	L	E-100	C	80	/	3PN	+	OF	
											Optional electrical and protective accessories: OF: auxiliary contact SD: alarm contact
											Number of poles: 1PN, 2P, 3P, 3PN, 4P
											Rated current (A): 50, 63, 80, 100,
											Tripping characteristic: Type C: $8I_n(1\pm20\%)$ Type D: $12I_n(1\pm20\%)$
											Frame size: 100
											Electronic trip unit
											Current leakage protection
											Design code: 1
											Product code: miniature circuit breaker
											Brand code: Nader

Notes:

1. The breaking capacity of the whole NDB1LE-100 series products is 10kA.
2. Except for current leakage protection accessories assembled on the right side, the other accessories are assembled on the left side.
3. Each product can have at most 3 accessories assembled on the left side, but it is recommended not to exceed 2 pcs.
4. Type AC residual current trip unit, and rated residual operating current of 30mA, 100mA or 300mA.

For example:

Product model: NDB1LE-100 C63/2P/100mA +SD

Representing: NDB1LE-100 series residual current circuit breaker with over-current protection, 10kA breaking capacity, Type C tripping curve, 63A rated current, 2P product, 100mA rated residual operating current, and Type AC residual current trip unit, with alarm contacts assembled.

Quick selection table for NDG1-125 series switch-disconnectors



ND	G	1	-	125	/	32	/	2P	+	OF1	
											Optional electrical accessories OF1: auxiliary contact
											Number of poles: 1P, 2P, 3P, 4P
											Rated current (A): 16, 20, 25, 32, 40, 50, 63, 80, 100, 125
											Frame size: 125
											Design serial number: 1
											Product code: switch-disconnector
											Brand code: Nader

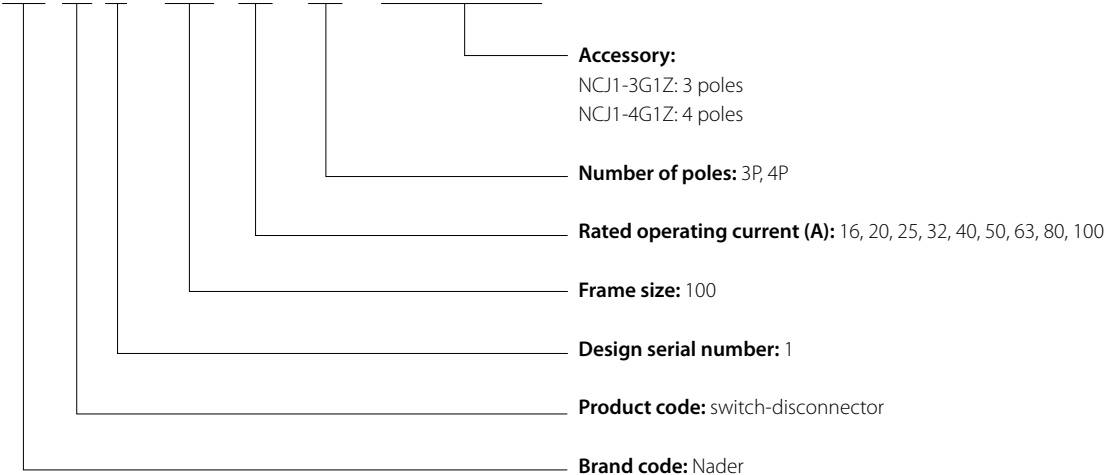
Notes:
At most 3 auxiliary contacts can be mounted on the left side.

For example:
Product model: NDG1-125/63/3P
Representing: NDG1-125 series switch-disconnector, 63A rated current, 3P product.

Quick selection table for NDG1-100+NCJ1 series switch-disconnectors + switching accessories



ND G 1 - 100 / 32 / 3P + NCJ1-3G1Z



Notes:

The handle may be set in three positions, respectively NORMAL POWER ON, BACKUP POWER ON and OFF.

For example:

Product model: NDG1-100 100/4P+NCJ1-4G1Z

Representing: two sets of 4P NDG1-100 100A switch-disconnectors plus one set of NCJ1-4G1Z to constitute a manual transfer switch.

Quick selection table for electrical and protection accessories of NDB1 series miniature circuit breakers

OF auxiliary contact

Intended purpose: optionally mounted on the left side of NDB1-125 or NDB1PT-63 miniature circuit breaker to indicate the making/breaking status of the circuit breaker.

Technical parameters: rated operating parameters

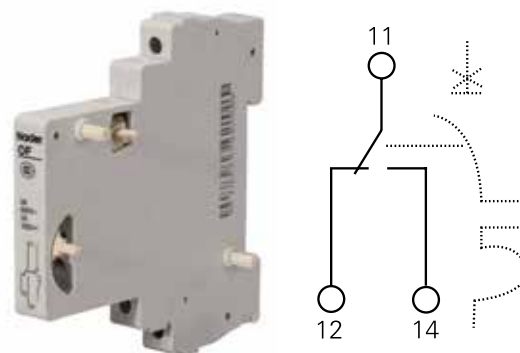
	Voltage	Current		Voltage	Current
AC	230V	6A	AC	400V	3A
DC	24V	6A	DC	48V	2A
DC	125V	1A	DC	250V	0.4A

Width (mm): 9

Note: After assembled with the circuit breaker, contacts 11 and 14 are connected when the circuit breaker closes, and contacts 11 and 12 are connected when the circuit breaker opens.

At most 3 OFs can be assembled simultaneously.

This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.



SD alarm contact

Intended purpose: optionally mounted on the left side of NDB1-125 or NDB1PT-63 miniature circuit breaker to indicate the fault tripping status of the circuit breaker.

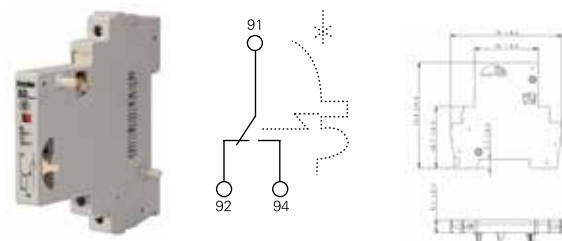
Technical parameters: rated operating parameters

	Voltage	Current		Voltage	Current
AC	230V	6A	AC	400V	3A
DC	24V	6A	DC	48V	2A
DC	125V	1A	DC	250V	0.4A

Width (mm): 9

Note: After assembled with the circuit breaker, contacts 91 and 92 are connected when the circuit breaker closes, and contacts 91 and 94 are connected when the circuit breaker opens due to a fault. Contacts 91 and 92 are connected when the circuit breaker is opened manually, but contacts 91 and 94 are disconnected. At most 3 SDs can be assembled simultaneously.

This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.

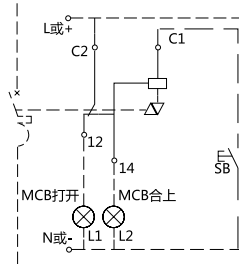


MX+OF shunt trip unit

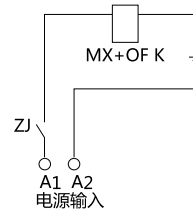
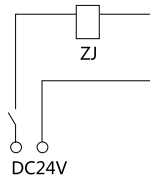
Intended purpose: optionally mounted on the right side of NDB1-125 or NDB1PT-63 miniature circuit breaker to indicate the making/breaking status of the circuit breaker and achieve remote breaking control.

Technical parameters: control voltage AC 230V/400V DC 24V/48V
Width (mm): 18

Note: The switching contacts are active, and should not be used as passive contacts to connect other weak current modules.



This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.
Note: When the control circuit power supply is DC24V, it is recommended to use the shunt control circuit design as shown in the right diagram. ZJ: DC24V intermediate relay, with the current-carrying capacity of the contact as 1A. Each product can have at most 1 MX+OF assembled.



VI

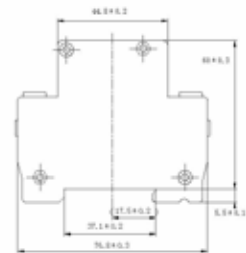
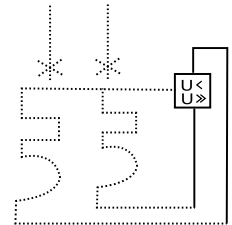
Low-voltage Terminal Power
Distribution Products

NGQ1A over/under-voltage trip unit

Intended purpose: optionally mounted on the right side of NDB1-125 or NDB1PT-63 circuit breaker to achieve single-phase over-voltage, under-voltage and over/under-voltage protection functions.

Technical parameters:
Rated over-voltage operating value U_{over} : AC280V $\pm$ 12V, Max. breaking time: 0.2s.
Rated under-voltage operating value U_{under} : AC170V $\pm$ 7V, Max. breaking time: 1s.
Width (mm): 18

Note: The user can optionally mount only over-voltage trip unit (NG1A) or under-voltage trip unit (NQ1A) as needed.
Each product can have only one over/under-voltage trip unit assembled to achieve single-circuit protection.



OF1 auxiliary contact

Intended purpose: optionally mounted on the left side of NDB1-40 or NDB1-63 circuit breaker or NDG1-125 miniature switch-disconnector to indicate the making/breaking status of the circuit breaker.

Technical parameters: rated operating parameters

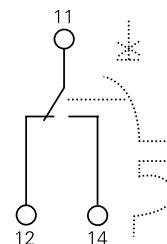
	Voltage	Current		Voltage	Current
AC	415V	3A	AC	240V	6A
DC	250V	0.4A	DC	220V	1A
DC	130V	1A	DC	110V	1A
DC	48V	2A	DC	24V	6A

Width (mm): 9.

Note: After assembled with a NDB1-40 or NDB1-63 circuit breaker or NDG1-125 switch-disconnector, contacts 11 and 14 are connected when the circuit breaker or switch-disconnector closes, and contacts 11 and 12 are connected when the circuit breaker or switch-disconnector opens.

At most 3 OF1s can be assembled simultaneously.

This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.



SD1 alarm contact

Intended purpose: optionally mounted on the left side of NDB1-40 or NDB1-63 miniature circuit breaker to indicate the fault status of the circuit breaker.

Technical parameters: rated operating parameters

	Voltage	Current		Voltage	Current
AC	415V	3A	AC	240V	6A
DC	250V	0.4A	DC	220V	1A
DC	130V	1A	DC	110V	1A
DC	48V	2A	DC	24V	6A

Width (mm): 9.

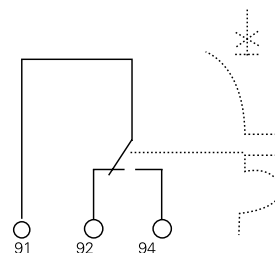
Note: After assembled with a NDB1-40 or NDB1-63 circuit breaker, contacts 91 and 92 are connected when the circuit breaker closes, and

contacts 91 and 94 are connected when the circuit breaker opens due to a fault.

Contacts 91 and 92 are connected when the circuit breaker is opened manually, but contacts 91 and 94 are disconnected.

At most 3 SD1s can be assembled simultaneously.

This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.



FF1 dual auxiliary contacts

Intended purpose: optionally mounted on the left side of NDB1-40 or NDB1-63 miniature circuit breaker to remotely indicate the making/breaking status of the circuit breaker.

Technical parameters: rated operating parameters

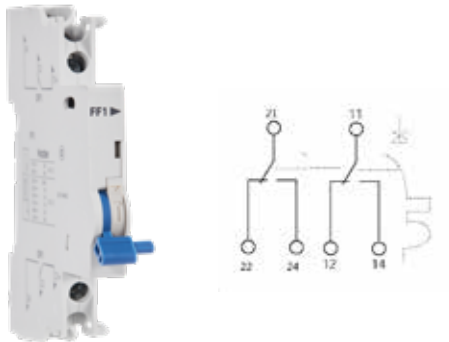
	Voltage	Current		Voltage	Current
AC	415V	3A	AC	240V	6A
DC	250V	0.4A	DC	220V	1A
DC	130V	1A	DC	110V	1A
DC	48V	2A	DC	24V	6A

Width (mm): 9.

Note: After assembled with NDB1-40 or NDB1-63, contacts 11 and 14, and 21 and 24 are connected when the circuit breaker closes, and contacts 11 and 12, and 21 and 22 are connected when the circuit breaker opens.

At most 3 FF1s can be assembled simultaneously.

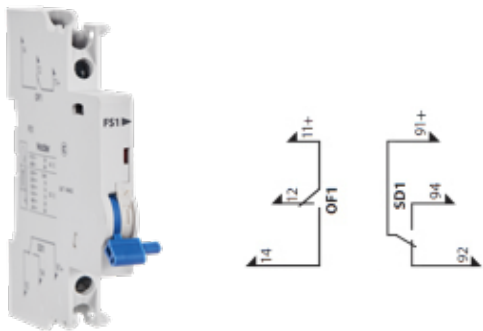
This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.



FS1 auxiliary and alarm contact block

Rated current of auxiliary contact

Rated operating voltage	Rated operating current	Utilization category
AC 240V	6A	AC-12
AC 415V	3A	AC-12
DC 24V	6A	DC-12
DC 48V	2A	DC-12
DC 110V	1A	DC-12
DC 130V	1A	DC-12
DC 220V	1A	DC-12
DC 250V	0.4A	DC-12



Intended purpose: assembled on the left side of NDB1-40 or NDB1-63 series product to indicate the fault status and opening/closing status of the circuit breaker.

Highlights: Combine the functions of both OF1 and SD1 at a width of only 1 modulus (9mm).

Note: After assembled with the circuit breaker, contacts 11 and 14 are connected when the circuit breaker closes, contacts 11 and 12 are connected when the circuit breaker opens, and contacts 91 and 94 are connected while contacts 91 and 92 are disconnected when the circuit breaker opens due to a fault.

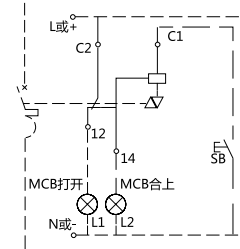
MX+OF1 shunt trip unit

Intended purpose: optionally mounted on the left side of NDB1-40 or NDB1-63 miniature circuit breaker to achieve remote tripping control of the circuit breaker.

Technical parameters

Control power: AC240/415V AC24/48V DC12/24/48V;
Width (mm): 18

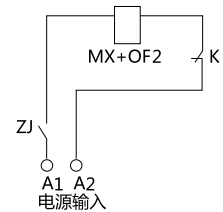
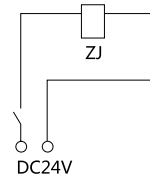
Note: The switching contacts are active, and should not be used as passive contacts to connect other weak current modules.



This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.

Note: When the control circuit power supply is DC24V, it is recommended to use the shunt control circuit design as shown in the right diagram.

ZJ: DC24V intermediate relay, with the current-carrying capacity of the contact as 1A.



GQ1A over/under-voltage protection accessory

GQ 1 A

A: without no-voltage protection

Design code: for NDB1 series circuit breakers

GQ: over/under-voltage protection

G: over-voltage protection

Q: under-voltage protection



Notes:

1. Over-voltage operating value: AC280V±12V, Max. breaking time: 0.2s
2. Under-voltage operating value: AC170V±7V, Max. breaking time: 1s
3. Over/under-voltage trip units are only for use with our miniature circuit breakers.
4. optionally mounted on the left side of NDB1-40 or NDB1-63 miniature circuit breaker to achieve single-phase over-voltage, under-voltage and over/under-voltage protection functions, with at most 3 pcs assembled simultaneously.
5. The G1A or Q1A trip unit can separately provide over-voltage or under-voltage protection respectively.

For example:

Product model: NDB1-63 C40/4P+GQ1A

Representing: NDB1-63 series miniature circuit breaker, 6kA breaking capacity, Type C tripping curve, 40A rated current, 4P product, with electronic over/under-voltage protection accessories assembled in one phase.

Quick selection table for NDB2-63 series miniature circuit breakers



ND B 2 - 63 C 63 / 4P + OF2

Optional electrical and protective accessories:

- OF2: auxiliary contact
- SD2: alarm contact
- FF2: dual auxiliary contact block
- FS2: auxiliary and alarm contact block
- MX+OF2: shunt trip unit
- NGQ2(A): over/under-voltage protection accessory
- NG2(A): over-voltage protection accessory
- NQ2(A): under-voltage protection accessory
- Tm2: remote control accessory
- Tm2GQ: automatic reclosing accessory with over/under-voltage protection
- ATm: reclosing control accessory

Number of poles: 1P, 2P, 3P, 4P

Rated operating current (A):

- 1, 2, 3, 4, 5, 6, 8, 10, 12, 13,
- 16, 20, 25, 32, 40, 50, 63

Tripping characteristic:

- B: $3I_n \sim 5I_n$
- C: $5I_n \sim 10I_n$
- D: $10I_n \sim 14I_n$

Frame size: 63

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

The NDB2-63 series products have passed IEC60898-1 (GB10963.1) and UL1077 certification, and are equipped with the function of real-time contact position indication. The whole NDB2-63 series products have a breaking capacity of 10kA. Each product can have at most 3 accessories assembled on the left. If it is required to use the accessory ATM with TM2 and SD2, TM2 can be used separately.

For example:

Product model: NDB2-63 C16/2P+NGQ2A+OF2+SD2
Representing: NDB2-63 series miniature circuit breaker, 10kA breaking capacity, Type C tripping curve, 16A rated current, 2P product, with over/under-voltage protection accessories (non-tripping in the case of no-voltage), and with auxiliary and alarm contacts optionally mounted.

Quick selection table for NDB2N-63 series miniature circuit breakers



ND B 2 N – 63 C 25 / 1P+N + OF2

Accessories: see notes

Number of poles: 1P, 1P+N, 2P, 3P, 3P+N, 4P

Rated operating current (A):
1A, 2A, 3A, 4A, 5A, 6A, 8A, 10A,
12A, 13A, 16A, 20A, 25A, 32A, 40A,
50A, 63A

Tripping characteristic:
DC: Types B and C
AC: Types B, C and D

Frame size: 63

Derived code: N

Design code: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

Optional electrical and protective accessories

OF2: auxiliary contact; SD2: alarm contact; FF2: dual auxiliary contact block; FS2: auxiliary and alarm contact block; MX+OF2: shunt trip unit; NGQ2(A): over/under-voltage protection accessory; NG2(A): over-voltage protection accessory; NQ2(A): under-voltage protection accessory; Tm 2: remote control accessory; Tm2GQ: automatic reclosing accessory with over/under-voltage protection; ATm: reclosing control accessory.

Each product can have at most 3 accessories assembled on the left.

If it is required to use the accessory ATM with TM2 and SD2, TM2 can be used separately.

The breaking capacity of NDB2N-63 series is 6kA for AC, and 10kA for DC.

For example:

Product model: NDB2N-63 C16/2P+NGQ2A+OF2+SD2

Representing: NDB2N-63 series miniature circuit breaker, 6kA breaking capacity, Type C tripping curve, 16A rated current, 2P product, with over/under-voltage protection accessories (non-tripping in the case of no-voltage), and with auxiliary and alarm contacts optionally mounted.

Quick selection table for NDB2T-63 series miniature circuit breakers



ND B 2 T - 63 C 63 / 4P + OF2

Optional electrical and protective accessories:

OF2: auxiliary contact
SD2: alarm contact
FF2: dual auxiliary contact block
FS2: auxiliary and alarm contact block
MX+OF2: shunt trip unit
NGQ2(A): over/under-voltage protection accessory
NG2(A): over-voltage protection accessory
NQ2(A): under-voltage protection accessory
Tm2: remote control accessory
Tm2GQ: automatic reclosing accessory with over/under-voltage protection
ATm: reclosing control accessory
See the notes for details

Number of poles: 1P, 2P, 3P, 4P (see the notes for details)

Rated operating current (A):

1, 1.2, 1.5, 1.6, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 40, 50, 60, 63 (35A available for UL489-certified products but to be specially reviewed for UL077-certified products)

Tripping characteristic:

B: $4I_n$ ($1\pm20\%$)
C: $8I_n$ ($1\pm20\%$)
D: $12I_n$ ($1\pm20\%$)

Frame size: 63

Conform to GB14048.2, IEC60947-2

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The NDB2T-63 series products have passed IEC60947-2 (GB14048.2) certification, and you can optionally require UL489 certification. The breaking capacity of the whole series is 10kA. UL1077-certified products are also available for option.
2. Only 1P, 2P and 3P UL489-certified products are available without accessories.
3. Each product can have at most 3 accessories assembled on the left.
4. If it is required to use the accessory ATM with TM2 and SD2, TM2 can be used separately.

For example:

Product model: NDB2T-63 C16/2P+NGQ2A+OF2+SD2

Representing: NDB2T-63 series miniature circuit breaker, 10kA breaking capacity, Type C tripping curve, 16A rated current, 2P product, with over/under-voltage protection accessories (non-tripping in the case of no-voltage), and with auxiliary and alarm contacts optionally mounted.

Quick selection table for NDB2-63K series miniature circuit breakers



ND B 2 - 63 K C / 6 + OF2

Optional electrical and protective accessories:

OF2: auxiliary contact
SD2: alarm contact
FF2: dual auxiliary contact block
FS2: auxiliary and alarm contact block
MX+OF2: shunt trip unit
NGQ2(A): over/under-voltage protection accessory
NG2(A): over-voltage protection accessory
NQ2(A): under-voltage protection accessory
Tm2: remote control accessory
Tm2GQ: automatic reclosing accessory with over/under-voltage protection
ATm: reclosing control accessory

Rated operating current (A):

1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63

Instantaneous tripping characteristic: Type C (5I_n~10I_n)

Phase line + neutral line

Frame size: 63

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The NDB2-63K series products have the number of poles as 1P+N, and a breaking capacity of 6kA.
2. Each product can have at most 3 accessories assembled.

For example:

Product model: NDB2-63K C16+MX+OF2+SD2

Representing: NDB2-63K series miniature circuit breaker, 6kA breaking capacity, Type C tripping curve, 16A rated current, 1P+N product, with shunt trip unit, and with alarm contacts optionally mounted.

Quick selection table for NDB2-40 series miniature circuit breakers



ND B 2 - 40 C 32 / 1P+N + OF2

Optional electrical and protective accessories:

OF2: auxiliary contact
SD2: alarm contact
FF2: dual auxiliary contact block
FS2: auxiliary and alarm contact block
MX+OF2: shunt trip unit
NGQ2(A): over/under-voltage protection accessory
NG2(A): over-voltage protection accessory
NQ2(A): under-voltage protection accessory
Tm2: remote control accessory
ATm: reclosing control accessory

Number of poles: 1P+N

Rated current (A): 2, 4, 6, 10, 16, 20, 25, 32, 40

Tripping characteristic:

B: $3I_n \sim 5I_n$
C: $5I_n \sim 10I_n$
D: $10I_n \sim 14I_n$

Frame size: 40

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The NDB2-40 series products can have their phase lines and neutral lines cut off simultaneously, but their neutral lines do not provide protective functions. UL1077-certified products are also available for option. The breaking capacity of the whole series is 6kA.
2. The green mark shown on the sight glass indicates contacts in the open position.
3. Each product can have at most 3 accessories assembled.

For example:

Product model: NDB2-40 C32/1P+N + MX+OF2 + SD2

Representing: NDB2-40 series miniature circuit breaker, 6kA breaking capacity, Type C tripping curve, 32A rated current, 1P+N product, with shunt trip unit, and with alarm contacts optionally mounted.

Quick selection table for NDB2Z-63 series miniature circuit breakers



ND B 2 Z - 63 C 63 / 2P H + OF2

Optional electrical accessories:

OF2: auxiliary contact
SD2: alarm contact
FF2: dual auxiliary contact block
FS2: auxiliary and alarm contact block
MX+OF2: shunt trip unit
ZLC: DC leakage detection module

Blank - general type
H - high breaking capacity

Number of poles: 1P, 2P, 3P, 4P (see the notes for details)

Rated operating current (A):

1, 1.2, 1.5, 1.6, 2, 3, 4, 5, 6, 7,
8, 10, 12, 13, 15, 16, 20, 25
30, 32, 40, 50, 60, 63 (see the notes for details)

Tripping characteristic:

B: 6In (1±20%)
C: 12In (1±20%)

Frame size: 63

DC

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

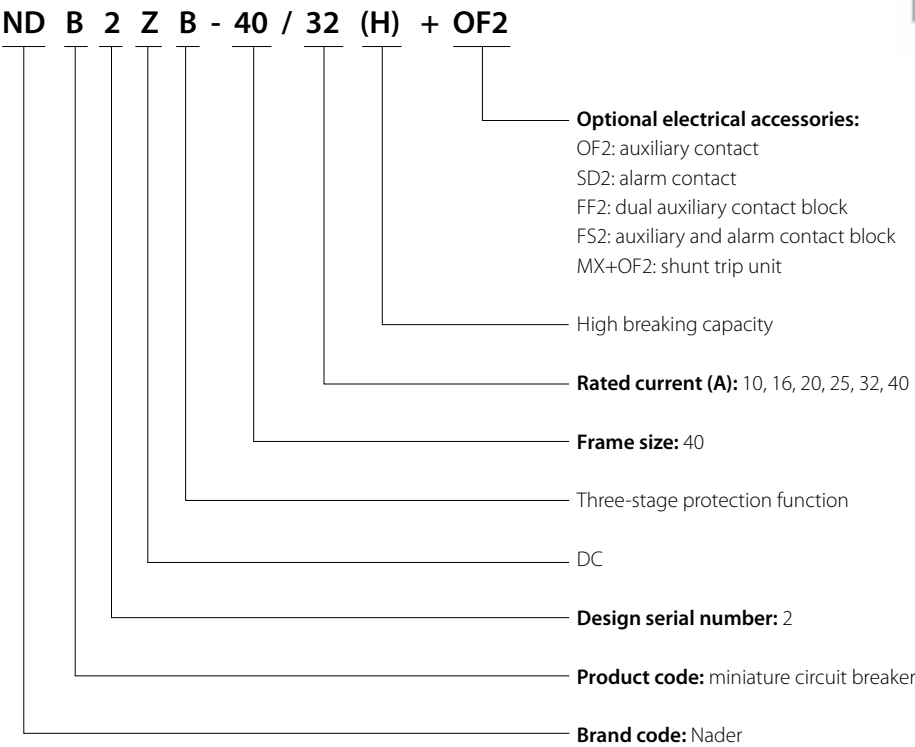
1. The rated operating voltage of NDB2Z-63 series is DC125 /220 /250V (1P), DC250/440/500V (2P), DC750V (3P) or DC1000V (4P).
2. The rated breaking capacity of NDB2Z-63 is 10kA (DC125/220/250/440/500 V) or 5kA (DC750V/DC1000V).
H - high breaking capacity of 20kA (DC250V); only 1, 2, 3, 4, 6, 10, 16, 20, 25, 32, 40, 50, and 63A are available for the rated current of the high breaking capacity type, and only 2P products are available.
3. Each product can have at most 3 accessories assembled.
4. UL1077-certified products are also available for option, but only with 1P and 2P types.

For example:

Product model: NDB2Z-63C16/2P+MX+OF2+SD2

Representing: NDB2Z-63 series miniature circuit breaker, Type C tripping curve, 16A rated current, 2P product, with shunt trip unit, and with alarm contacts optionally mounted.

Quick selection table for NDB2ZB-40 series DC miniature circuit breakers with three-stage protection



- Notes:**
1. The NDB2ZB-40 series products have long-time delayed over-load protection, short-time delayed over-load protection, and three-stage instantaneous short-circuit protection functions. The breaking capacity of the whole series is 10kA, and only 2P products are available.
 2. Each product can have at most 3 accessories assembled.
 3. The breaking capacity of NDB2ZB-40 series is 10kA for general types and 20kA for high breaking capacity types.

For example:
Product model: NDB2ZB-40/16 +MX+OF2+SD2
Representing: NDB2ZB-40 series miniature circuit breaker, 10kA breaking capacity, 16A rated current, 2P product, with shunt trip unit, and with alarm contacts optionally mounted.

Quick selection table for NDB2ZB-63 series DC miniature circuit breakers with three-stage protection



ND	B	2	ZB	-	63	25	(H)	+	OF2	
										Accessories: see notes
										High breaking capacity
										Rated operating current (A): 16A, 20A, 25A, 32A, 40A, 50A, 63A
										Frame size: 63
										Derived code: DC three-stage protection
										Design code: 2
										Product code: miniature circuit breaker
										Brand code: Nader

Notes:

Optional electrical and protective accessories
OF2: auxiliary contact; SD2: alarm contact; MX+OF2: shunt trip unit; Tm 2: remote control accessory.
Each product can have at most 3 accessories assembled on the left.
The breaking capacity of NDB2ZB-63 series is 10kA for general types and 20kA for high breaking capacity types.
Only 2P products are available.

For example:

Product model: NDB2ZB-63 16H+OF2+SD2
Representing: NDB2ZB-63 series miniature circuit breaker, 20kA breaking capacity, 16A rated current, with auxiliary and alarm contacts optionally mounted.

Quick selection table for NDB2LE-63 series residual current circuit breakers with over-current protection



ND	B	2	L	E	-	63	C	25	/	2P	/	30mA	+	OF2	
															Optional electrical and protective accessories: OF2: auxiliary contact SD2: alarm contact FF2: dual auxiliary contact block FS2: auxiliary and alarm contact block MX+OF2: shunt trip unit NGQ2(A): over/under-voltage protection accessory NG2(A): over-voltage protection accessory NQ2(A): under-voltage protection accessory Tm2: remote control accessory Tm2GQ: automatic reclosing accessory with over/under-voltage protection ATm: reclosing control accessory
															Rated residual operating current: 30mA, 50mA, 100mA, 300mA
															Number of poles: 1PN, 2P, 3P, 3P+N, 4P
															Rated operating current (A): 1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63
															Tripping characteristic: B: $3I_n \sim 5I_n$ C: $5I_n \sim 10I_n$ D: $10I_n \sim 14I_n$
															Frame size: 63
															Electronic trip unit
															Function code of current leakage protection
															Design serial number: 2
															Product code: miniature circuit breaker
															Brand code: Nader

Notes:

1. The residual operating current of NDB2LE series is 30mA by default, with 50mA, 100mA, 300mA customizable.
2. Each product can have at most 3 accessories assembled.
3. If it is required to use the accessory ATM with TM2 and SD2, TM2 can be used separately.
4. The 3P+N product body is a 4P circuit breaker.

For example:

Product model: NDB2LE-63 C40/4P/30mA
Representing: NDB2LE-63 series residual current circuit breaker with over-current protection, 10kA breaking capacity, Type C tripping curve, 40A rated current, 4P product, 30mA residual operating current, Type AC residual current trip unit.

Quick selection table for NDB2LM-63 series residual current circuit breakers with over-current protection



ND B 2 L M - 63 C 25 / 2P / 30mA / AC / S + OF2

Optional electrical and protective accessories:

OF2: auxiliary contact
SD2: alarm contact
FF2: dual auxiliary contact block
FS2: auxiliary and alarm contact block
MX+OF2: shunt trip unit
NGQ2(A): over/under-voltage protection accessory
NG2(A): over-voltage protection accessory
NQ2(A): under-voltage protection accessory
Tm2: remote control accessory
Tm2GQ: automatic reclosing accessory with over/under-voltage protection
ATm: reclosing control accessory

Blank - general type
S - time delay type

Type of residual current trip unit: A, AC

Rated residual operating current:
30mA, 100mA, 300mA (see the notes for details)

Number of poles: 1PN, 2P, 3P, 3P+N, 4P

Rated operating current (A):
1, 2, 3, 4, 5, 6, 10, 16, 20, 25,
32, 40, 50, 63

Tripping characteristic:
B: $3I_n \sim 5I_n$
C: $5I_n \sim 10I_n$
D: $10I_n \sim 14I_n$

Frame size: 63

Electromagnetic trip unit

Function code of current leakage protection

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. 30mA, 100mA and 300mA are available for the general type residual operating current of NDB2LM-63 series, and 100mA and 300mA are available for the S time delay type.
2. Each product can have at most 3 accessories assembled.
3. If it is required to use the accessory ATM with TM2 and SD2, TM2 can be used separately.
4. The 3P+N product body is a 4P circuit breaker.

For example:

Product model: NDB2LM-63 C40/4P/30mA/A

Representing: NDB2LM-63 series residual current circuit breaker with over-current protection, 10kA breaking capacity, Type C tripping curve, 40A rated current, 4P product, 30mA residual operating current, Type A residual current trip unit.

Quick selection table for NDB2LM-40 series residual current circuit breakers with over-current protection



ND B 2 L M – 40 C 25 / 1P+N / 100mA / AC / S

N	D	B	2	L	M	–	40	C	25	/	1P+N	/	100mA	/	AC	/	S	
																		Operating characteristic: instantaneous (blank), time delay (S) (see Note 1)
																		Operating characteristic of residual current: AC, A
																		Rated residual operating current: 30mA, 100mA, 300mA
																		Number of poles: 1P+N
																		Rated operating current (A): 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A
																		Tripping characteristic: B: 3In~5In C: 5In~10In
																		Frame size: 40
																		Electromagnetic trip unit
																		Function code of current leakage protection
																		Design code: 2
																		Product code: miniature circuit breaker
																		Brand code: Nader

For example:

Product model: NDB2LM-40 C25/1P+N/100mA/AC/S

Representing: NDB2LM-40 series residual current circuit breaker with over-current protection, 6kA breaking capacity, Type C tripping curve, 25A rated current, 1P+N product, 100mA residual operating current, Type AC residual current trip unit, and time delay type residual current operating characteristic.

Note 1

Operating characteristic of residual current:

Instantaneous: rated current: 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A
residual current: 30mA, 100mA, 300mA
operating time: ≤100ms

Time delay: rated current: 25A, 32A, 40A
residual current: 100mA, 300mA
operating time: 130ms≤t≤500ms

Quick selection table for NDB2TLE-63 series residual current circuit breakers with over-current protection



ND B 2 T L E - 63 C 25 / 2P / 30mA + OF2

Optional electrical and protective accessories:

OF2: auxiliary contact
SD2: alarm contact
FF2: dual auxiliary contact block
FS2: auxiliary and alarm contact block
MX+OF2: shunt trip unit
NGQ2(A): over/under-voltage protection accessory
NG2(A): over-voltage protection accessory
NQ2(A): under-voltage protection accessory
Tm2: remote control accessory
Tm2GQ: automatic reclosing accessory with over/under-voltage protection
ATm: reclosing control accessory

Rated residual operating current:
30mA, 50mA, 100mA, 300mA

Number of poles: 1PN, 2P, 3P, 3P+N, 4P

Rated operating current (A):
1, 2, 3, 4, 5, 6, 7, 8, 10,
12, 13, 15, 16, 20, 25, 30,
32, 35, 40, 50, 60, 63

Tripping characteristic:
B: $4I_n (1 \pm 20\%)$
C: $8I_n (1 \pm 20\%)$
D: $12I_n (1 \pm 20\%)$

Frame size: 63

Electronic trip unit

Function code of current leakage protection

Confirming to the standard of GB14048.2

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The residual operating current of NDB2TLE-63 series is 30mA by default, with 50mA, 100mA, 300mA customizable.
2. Each product can have at most 3 accessories assembled.
3. If it is required to use the accessory ATM with TM2 and SD2, TM2 can be used separately.
4. The 3P+N product body is a 4P circuit breaker.

For example:

Product model: NDB2TLE-63 C40/4P/30mA

Representing: NDB2TLE-63 series residual current circuit breaker with over-current protection, 10kA breaking capacity, Type C tripping curve, 40A rated current, 4P product, 30mA residual operating current, and Type AC residual current trip unit.

Quick selection table for NDB2LE-40 series residual current circuit breakers with over-current protection



ND B 2 L E - 40 C 25 / 1P+N / 30mA / AC + OF2

Optional electrical and protective accessories:

OF2: auxiliary contact
SD2: alarm contact
FF2: dual auxiliary contact block
FS2: auxiliary and alarm contact block
MX+OF2: shunt trip unit
NGQ2(A): over/under-voltage protection accessory
NG2(A): over-voltage protection accessory
NQ2(A): under-voltage protection accessory
Tm2: remote control accessory
ATm: reclosing control accessory

Operating characteristic of residual current:
A, AC

Rated residual operating current:
30mA, 100mA, 300mA

Number of poles: 1P+N

Rated operating current (A):
2, 4, 6, 10, 16, 20
25, 32, 40

Tripping characteristic:
B: $3I_n \sim 5I_n$
C: $5I_n \sim 10I_n$
D: $10I_n \sim 14I_n$

Frame size: 40

Electronic trip unit

Function code of current leakage protection

Design serial number: 2

Product code: miniature circuit breaker

Brand code: Nader

Notes:

1. The residual operating current of NDB2LE-40 series is 30mA, with 100mA and 300mA customizable.
2. Each product can have at most 3 accessories assembled.
3. If it is required to use the accessory ATM with TM2 and SD2, TM2 can be used separately.

For example:

Product model: NDB2LE-40 C40/1P+N/30mA/AC

Representing: NDB2LE-40 series residual current circuit breaker with over-current protection, 6kA breaking capacity, Type C tripping curve, 40A rated current, 1P+N product, 30mA residual operating current, and Type AC residual current trip unit.

Quick selection table for NDB2LE-25 series residual current circuit breakers with over-current protection



ND B 2 L E - 25 C 25 / 1PN / 30mA / AC

Operating characteristic of residual current:
Type AC

Rated residual operating current: 30mA

Number of poles: 1P+N

Rated operating current (A):
6A, 10A, 16A, 20A, 25A

Tripping characteristic: Type C

Frame size: 25

Electronic trip unit

Function code of current leakage protection

Design code: 2

Product code: miniature circuit breaker

Brand code: Nader

For example:

Product model: NDB2LE-25 C25/1P+N/30mA/AC

Representing: NDB2LE-25 series residual current circuit breaker with over-current protection, 6kA breaking capacity, Type C tripping curve, 25A rated current, 1P+N product, 30mA residual operating current, Type AC residual current trip unit.

Quick selection table for NDB2F - 125(M) series external miniature circuit breakers for electricity meters



ND	B	2	F	-	125	/	C	80	/	M	/	2P	
													Number of poles: 2P, 4P
													M: motor-operated concealed handle Blank: motor-operated exposed handle
													Rated current (A): 40, 50, 63, 80, 100, 125
													Tripping characteristic: Type C: 5In~10In
													Frame size: 125
													Prepaid automatic closing
													Design serial number: design code
													Product code: miniature circuit breaker
													Brand code: Nader

Notes:

1. The breaking capacity of the whole series is 6kA.
2. Power-on time delay of 7~8s, remote automatic closing time ≤ 3s, and remote automatic opening time ≤ 2s.
3. Operating process:
Manual control mode: for remote automatic opening and manual closing;
Automatic control mode: for remote automatic opening and automatic closing;
From closing to opening: after receiving the opening command, the circuit breaker automatically opens and actuates the contacts to be in the open position, then the circuit breaker cannot be manually closed;
From opening to closing: in the manual control mode, after receiving the closing command, the circuit breaker cannot automatically close, and can only be manually closed; in the automatic control mode, after receiving the closing command, the circuit breaker can automatically close.

For example:

Product model: NDB2F - 125 C63/M/2P
Representing: NDB2F-125 external MCB for electricity meters, Type C tripping curve, 63A rated current, concealed operation handle, 2P product, and 6kA breaking capacity.

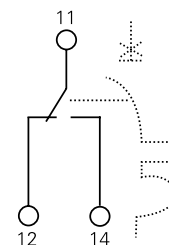
Quick selection table for electrical and protection accessories of NDB2 series miniature circuit breakers

OF2 auxiliary contact

Intended purpose: optionally mounted on the left side of NDB2 miniature circuit breaker to indicate the making/breaking status of the circuit breaker.

Technical parameters: rated operating parameters

	Voltage	Current		Voltage	Current
AC	415V	3A	AC	240V	6A
DC	250V	0.4A	DC	220V	1A
DC	130V	1A	DC	110V	1A
DC	48V	2A	DC	24V	6A



Width (mm): 9.

Note: After assembled with the NDB2 circuit breaker, contacts 11 and 14 are connected when the circuit breaker closes, and contacts 11 and 12 are connected when the circuit breaker opens.

At most 3 OF2s can be assembled simultaneously.

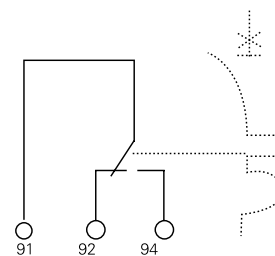
This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.

SD2 alarm contact

Intended purpose: optionally mounted on the left side of NDB2 miniature circuit breaker to indicate the making/breaking status of the circuit breaker.

Technical parameters: rated operating parameters

	Voltage	Current		Voltage	Current
AC	415V	3A	AC	240V	6A
DC	250V	0.4A	DC	220V	1A
DC	130V	1A	DC	110V	1A
DC	48V	2A	DC	24V	6A



Width (mm): 9.

Note: After assembled with the NDB2 circuit breaker, contacts 91 and 92 are connected when the circuit breaker closes, and contacts 91 and 94 are connected when the circuit breaker opens due to a fault.

Contacts 91 and 92 are connected when the circuit breaker is opened manually, but contacts 91 and 94 are disconnected.

At most 3 SD2s can be assembled simultaneously.

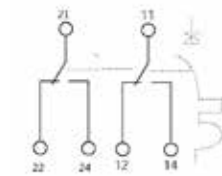
This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.

FF2 dual auxiliary contacts

Intended purpose: optionally mounted on the left side of NDB2 miniature circuit breaker to remotely indicate the making/breaking status of the circuit breaker.

Technical parameters: rated operating parameters

Rated operating voltage	Rated operating current	Utilization category
AC 240V	6A	AC-12
AC 415V	3A	AC-12
DC 24V	6A	DC-12
DC 48V	2A	DC-12
DC110V	1A	DC-12
DC130V	1A	DC-12
DC220V	1A	DC-12
DC250V	0.4A	DC-12



Width (mm): 9.

Note: After assembled with NDB2, contacts 11 and 14, and 21 and 24 are connected when the circuit breaker closes, and contacts 11 and 12, and 21 and 22 are connected when the circuit breaker opens.

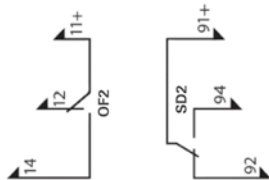
At most 3 FF2s can be assembled simultaneously.

This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.

FS2 auxiliary and alarm contact block

Rated current of auxiliary contact

Rated operating voltage	Rated operating current	Utilization category
AC 240V	6A	AC-12
AC 415V	3A	AC-12
DC 24V	6A	DC-12
DC 48V	2A	DC-12
DC110V	1A	DC-12
DC130V	1A	DC-12
DC220V	1A	DC-12
DC250V	0.4A	DC-12



Intended purpose: assembled on the left side of NDB2-63 series product to indicate the fault status and opening/closing status of the circuit breaker.

Highlights: Combine the functions of both OF2 and SD2 at a width of only one modulus (9mm).

Note: After assembled with NDB2, contacts 91 and 92, and 11 and 14 are connected when the circuit breaker closes; contacts 91 and 94, and 11 and 12 are connected when the circuit breaker opens due to a fault; and contacts 91 and 92, and 11 and 12 are connected when the circuit breaker is opened manually.

MX+OF2 shunt trip unit

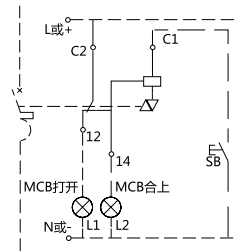
Intended purpose: optionally mounted on the left side of NDB2 miniature circuit breaker to achieve remote tripping control of the circuit breaker.

Technical parameters:

control power AC/DC24, AC/DC48V, AC240/415V

Width (mm): 18

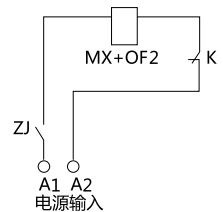
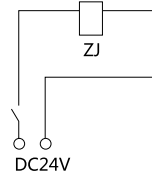
Note: The switching contacts are active, and should not be used as passive contacts to connect other weak current modules.



Note: When the control circuit power supply is DC24V, it is recommended to use the shunt control circuit design as shown in the right diagram.

ZJ: DC24V intermediate relay, with the current-carrying capacity of the contact as 1A.

This accessory can be supplied separately, but is not recommended to be used with circuit breakers from other companies.



Quick selection table for TM2 series remote reclosers

TM	2	/	230	/	4P	
						Number of poles: 1P, 2P, 3P, 4P
						Voltage (V): 12, 24, 48, 110, 230
						Design serial number: 2
						Product code: remote control



Notes:

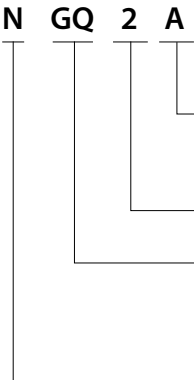
The Tm2 remote control accessory (called Tm2 for short) is directly for the NDB2 series circuit breaker used in the circuit with the control voltage of AC230V, AC110V, DC12V, DC24V, DC48V, DC110V and DC220V, and AC frequency of 50~60Hz to achieve remote control, local control by the handle, and locking of the circuit breaker in the open status.

For example:

Product model: NDB2-63 C20/4P+TM2/230/4P

Representing: NDB2-63 series miniature circuit breaker, 10kA breaking capacity, Type C tripping curve, 20A rated current, 4P product, for remote control.

NGQ2A over/under-voltage protection accessory



A: without no-voltage protection
Blank: with no-voltage protection, unable to be closed in the case of power-off.

Design code: for NDB2 series circuit breakers

GQ: over/under-voltage protection
G: over-voltage protection
Q: under-voltage protection

Brand code: Nader



Notes:

1. Over-voltage operating value: AC280V±12V, Max. breaking time: 0.2s.
2. Under-voltage operating value: AC170V±7V, Max. breaking time: 1s.
3. Over/under-voltage trip units are only for use with our miniature circuit breakers.
4. Optionally mounted on the left side of NDB2 miniature circuit breaker to achieve single-phase over-voltage, under-voltage and over/under-voltage protection functions.
5. The NG2(A) or NQ2(A) trip unit can separately provide over-voltage or under-voltage protection respectively.

For example:

Product model: NDB2-63 C40/4P+NGQ2A

Representing: NDB2-63 series miniature circuit breaker, 10kA breaking capacity, Type C tripping curve, 40A rated current, 4P product, with over/under-voltage protection accessories assembled in one phase.

Notes:
The Tm2GQ automatic reclosing accessory with over/under-voltage protection (called Tm2GQ for short) is directly for the NDB2 series circuit breaker used in the circuit with the control voltage of AC230V and AC400V (relative to the neutral line voltage of 230V), and frequency of 50/60Hz to achieve automatic line voltage detection, automatic cut-off of the faulty line when the line is subjected to over-voltage or under-voltage, automatic opening after the line voltage restores to the normal range, manual operation of the circuit breaker by the means of the handle, and opening status locking of the circuit breaker by the means of the padlock accessory, thereby ensuring on-site safe operation.

Representing: NDB2-63 series miniature circuit breaker, 10kA breaking capacity, Type C tripping curve, 20A rated current, 4P product, for automatic reclosing with over/under-voltage protection.

The image shows three N3000 network interface modules stacked vertically. The top module has two RJ45 ports. The middle module has two RJ45 ports and a BNC port. The bottom module has two RJ45 ports. The modules are white with black and blue text.

Nader

L

N

ATm

SD2

Tm2

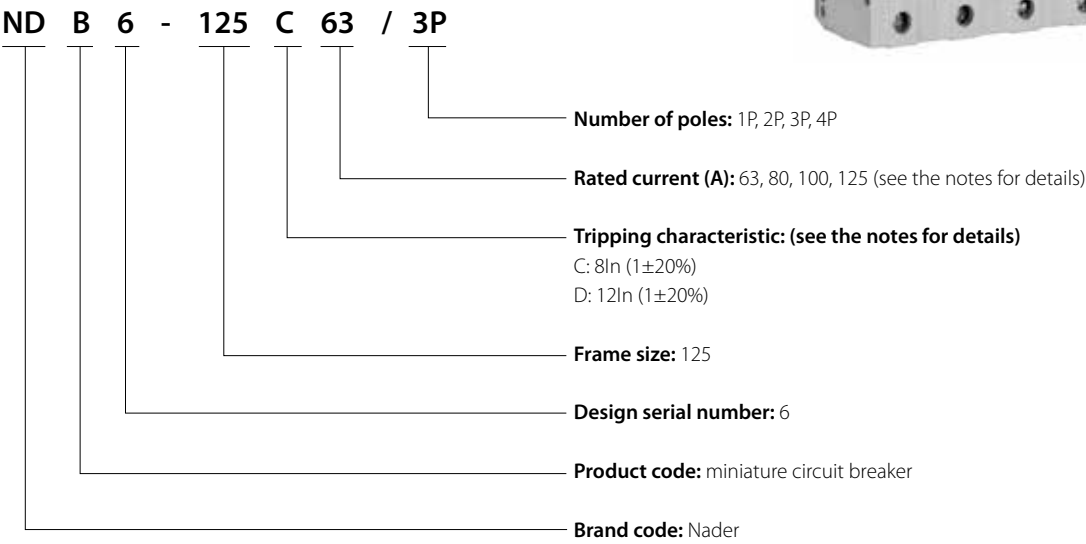
Legend:

- ATm: 230V/25-40 Hz
- Tm2: 230V/40 Hz

The ATm reclosing control accessory (called ATm for short) is optionally mounted on the left side of Tm2 remote control accessory, and assembled with SD2 for combined use in the circuit with the voltage of AC230V (-15%+10%) and frequency of 50~60Hz to achieve reclosing after the circuit breaker opens due to a fault, which is especially suitable for equipment and systems uneasy to be monitored, inaccessible and with high power supply continuity requirements.
If it is required to use the accessory ATm, it should be used with TM2 and SD2 simultaneously.

Representing: NDB2-63 series miniature circuit breaker, 10kA breaking capacity, Type C tripping curve, 20A rated current, 4P product, for reclosing after the circuit breaker opens due to a fault.

Quick selection table for NDB6-125 series miniature circuit breakers



- Notes:**
1. The Type D tripping characteristic is unavailable at 125A for NDB6-125 series circuit breakers.
 2. The Type C tripping curve mainly protects general loads and power distribution cables, while the Type D tripping curve mainly protects large impact loads with a heavy starting current (such as motors and transformers).
 3. The rated ultimate short-circuit breaking capacity I_{cu} of the whole NDB6-125 series is 15kA.

For example:
Product model: NDB6-125 C63/3P
Representing: NDB6-125 series miniature circuit breaker, 15kA breaking capacity, Type C tripping curve, 63A rated current, 3P product.

Quick selection table for NDB6Z-125 series DC miniature circuit breakers



ND	B	6	Z	-	125	C	63	/	3P	
										Number of poles: 1P, 2P, 3P, 4P
										Rated current (A): 63, 80, 100, 125
										Tripping characteristic: C: $8I_n(1\pm 20\%)$
										Frame size: 125
										DC
										Design serial number: 6
										Product code: miniature circuit breaker
										Brand code: Nader

Notes:

1. Rated operating voltage: DC60/80/125/250/300V (1P), DC500/600 (2P), DC750/1000V (3P), DC1000/1200V (4P)
2. Breaking capacity: 6kA (2P-4P), 15kA (1P DC60/80/125V), 6kA (1P DC250/300V)

For example:

Product model: NDB6Z-125 C63/3P

Representing: NDB6Z-125 series miniature circuit breaker, 6kA breaking capacity under DC1000V, Type C tripping curve, 63A rated current, 3P product.

Quick selection table for NDB6LM-40 series residual current circuit breakers with over-current protection



ND	B	6	L	M	- 40	C	16	/ 1P+N	/ 30mA	/ A	
											Operating characteristic of residual current: AC, A
											Rated residual operating current: 30mA, 100mA, 300mA
											Number of poles: 1P+N
											Rated current: 6A, 10A, 16A, 20A, 25A, 32A, 40A
											Tripping characteristic: Type B: 3In-5In Type C: 5In-10In
											Frame size: 40
											Electromagnetic
											Current leakage protection
											Design serial number: 6
											Product code: miniature circuit breaker
											Brand code: Nader

Notes:

1. The Type B tripping curve of the NDB6LM-40 series products mainly protects loads with small short-circuit current (such as non-inductive or micro-inductive circuits), while the Type C tripping curve mainly protects general loads and power distribution cables.

2. Rated operating voltage (Ue): AC230V; rated short-circuit breaking capacity: 10kA.

For example:

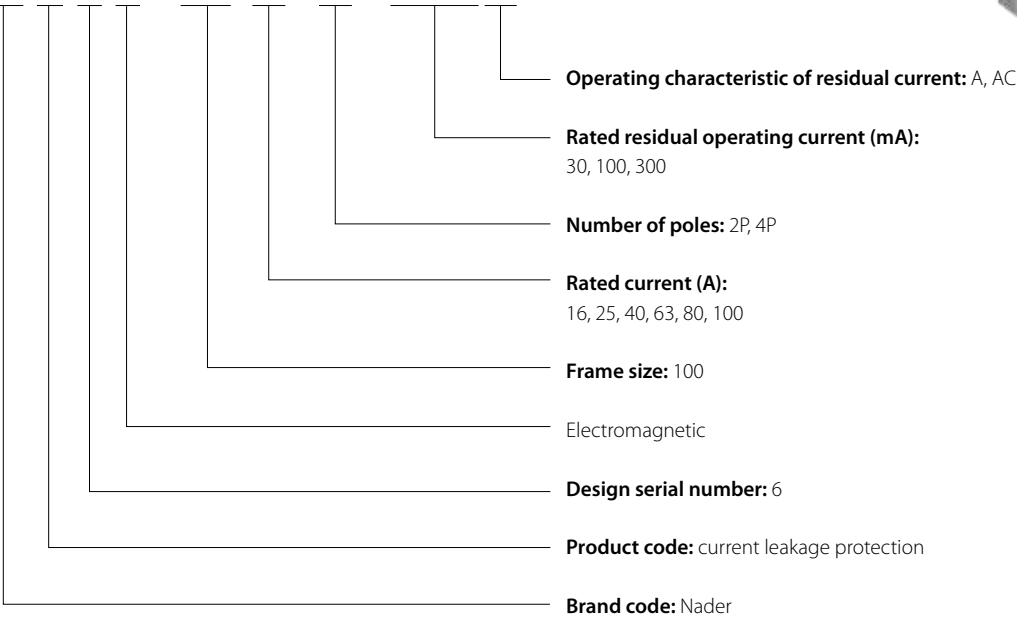
Product model: NDB6LM-40 C16/1P+N/30mA/A

Representing: NDB6LM-40 series residual current circuit breaker with over-current protection, Type C tripping curve, 16A rated current, 1P+N product, 30mA residual current, and Type A residual current operating characteristic.

Quick selection table for NDL6M-100 series residual current circuit breakers



ND L 6 M - 100 63 / 2P / 30mA A



Note: The NDL6M-100 series products are electromagnetic residual current circuit breakers without overload and short-circuit protection, which can be used in series with other circuit breakers.

For example:

Product model: NDL6M-100 63/2P/30mA/A

Representing: NDL6M-100 series residual current circuit breaker, 63A rated current, 2P product, 30mA rated residual current, and Type A residual current operating characteristic.

Quick selection table for NDB6AZ series DC miniature circuit breakers

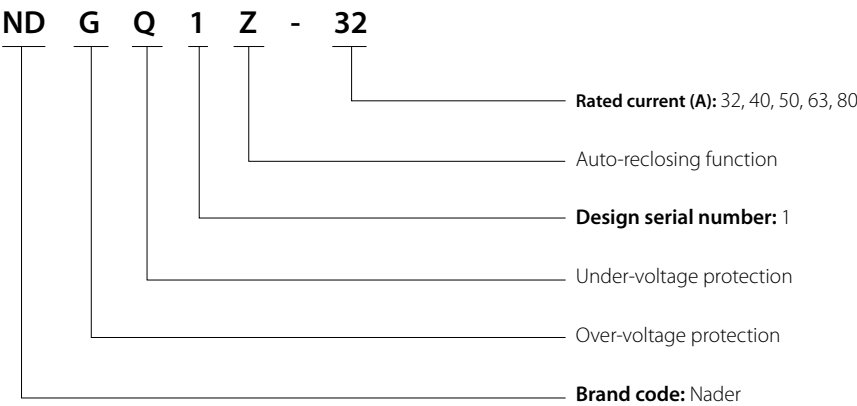


ND	B	6A	Z	-	63	H	/	50	B	/	1PN	
												Number of poles: 1PN (N-pole normally ON)
												Type of auxiliary signal: B: battery Blank: load
												Rated operating current (A): see Note a
												Color: H: black
												Frame size: 63, 125
												Derived code:DC
												Design code: 6A
												Product code: miniature circuit breaker
												Brand code: Nader

Note a:
Rated current of 63 frame size product: 6A, 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A, 100A, 125A
Rated current of 125 frame size product: 80A, 100A, 125A

For example:
Product model: NDB6AZ-63H/50B/1PN
Representing: NDB6AZ-63H series miniature circuit breaker, 50A rated current, 1PN product, and battery type auxiliary contact.

Quick selection table for NDGQ1Z series over/under-voltage protective devices with auto-reclosing function



Notes:

1. The NDGQ1Z series products are vertically mounted in series in a load circuit.
 2. Please indicate the rated operating voltage as 220V or 230V and the connection method as top in or bottom in when ordering.
- Operating parameters:

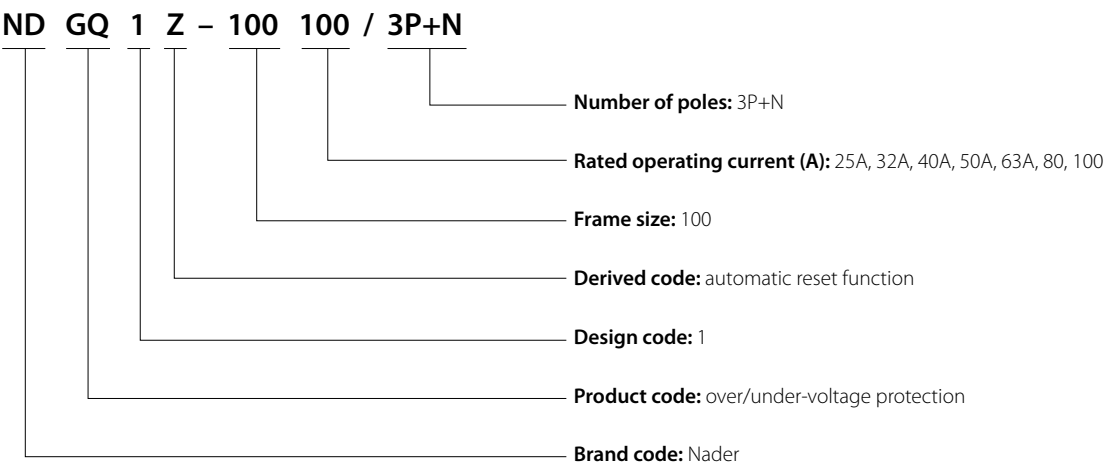
Model	Rated voltage (V)	Over-voltage		Under-voltage		Over-voltage operating time	Under-voltage operating time	Time delay Reset time
		Operating value	Recovery value	Operating value	Recovery value			
NDGQ1Z	220	270V±5V	250V±5V	170V±5V	190V±5V	0.05s≤t≤0.1s	0.5s≤t≤1s	60s±10S
NDGQ1Z	230	280V±5V	250V±5V	170V±5V	190V±5V	0.05s≤t≤0.1s	0.5s≤t≤1s	60s±10S

For example:

Product model: NDGQ1Z-63 220V

Representing: over/under-voltage protective device with auto-reclosing function at a rated current of 63A and a rated voltage of 220V.

Quick selection table for NDGQ1Z-100 series contactors

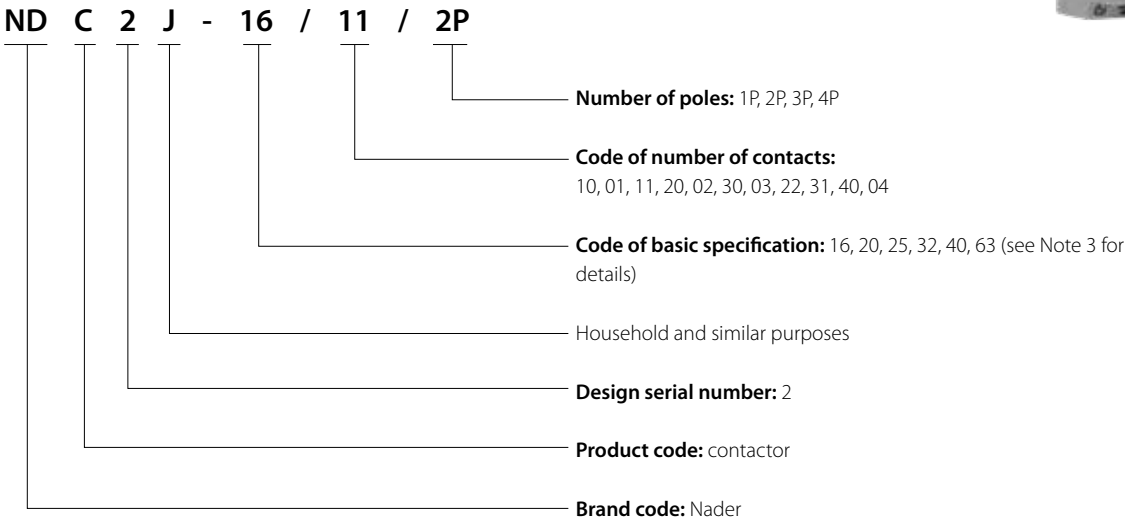


Notes:
1. The NDGQ1Z series products are vertically mounted in series in a load circuit.

Operating parameters:

Model	Number of poles	Under-voltage protection value	Over-voltage protection value	Automatic recovery value	Under-voltage operating time	Over-voltage operating time
NDGQ1Z	3P+N	50V~160V	≥275V	195V~253V	0.6~5s	0.1~15s

Quick selection table for NDC2J series contactors



Notes:

1. The NDC2J series products are TH35-7.5mm rail-mounted.
2. The NDC2J series products can be used with one NF8-11 auxiliary contact. Applicable contactor models: NDC2J-32, NDC2J-40, NDC2J-63.
3. No Type 02 is available for the main contacts of NDC2J-16, NDC2J-20 and NDC2J-25.
4. The NDC2J series products are mainly used at AC 50Hz/60Hz, and rated voltage of 250V (1P, 2P) and 400V (3P, 4P).

For example:

Product model: NDC2J-63/11/2P+NF8-11
Representing: NDC2J series AC contactor, 63A rated operating current, one open and one closed main contacts, 2P product, used with one open and one closed NF8-11 auxiliary contacts.

Main performance parameters of NDC2J series contactors

Operating temperature/storage temperature

Product model	Number of poles	Number of contacts	Utilization category	Rated isolation voltage (V)	Rated operating voltage (V)	Control voltage (V)	Rated operating current (A)	Control power (kW)
NDC2J-16	1P 2P	10, 01 11, 20	AC - 7a / AC - 7b	500	250	220/240 50/60Hz	16/6	2.8/1
NDC2J-20							20/7	4/1.2
NDC2J-25							25/8.5	5.4/1.5
NDC2J-16	3P 4P	30, 03 22, 31 40, 04			400		16/6	10/2.5
NDC2J-20							20/7	12.5/3.3
NDC2J-25							25/8.5	16/4
NDC2J-32	1P 2P	10, 01 11, 20 02			250		32/12	6.5/1.9
NDC2J-40							40/15	8.4/2.4
NDC2J-63							63/25	13/3.8
NDC2J-32	3P 4P	30, 03 22, 31 40, 04			400		32/12	20.5/5.6
NDC2J-40							40/15	26/7
NDC2J-63							63/25	41/11.7

Operating conditions:

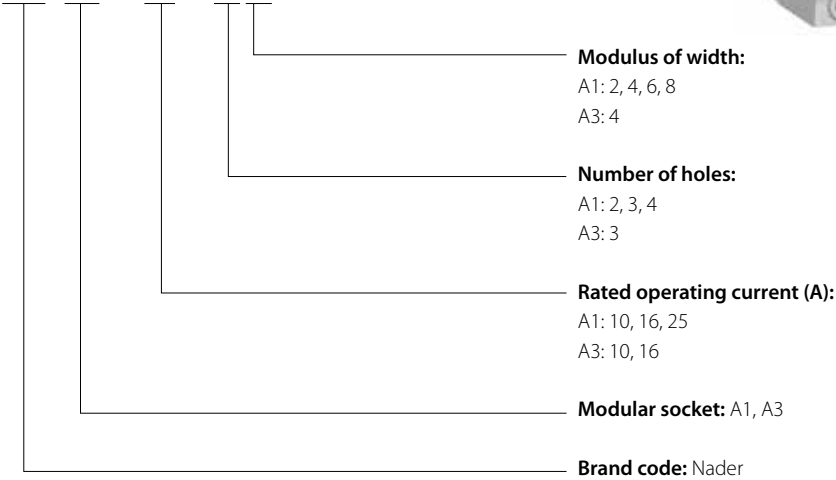
At the ambient air temperature of -5°C~+40°C, apply the rated control power supply voltage U_s to the contactor coil to heat it until it is stable. The contactor closes at 85% U_s ~110% U_s , and releases and opens at 75% U_s ~20% U_s .
Mechanical endurance: not less than 1 million operating cycles.
Electrical endurance: not less than 0.1 million operating cycles.

Connection capacity

Model	Specification of terminal screw	Tightening torque N.m	Connecting wire
NDC2J-16~63	M3.5	0.8~1.2	1.5 mm ² / 1-3 pcs
			6 mm ² / 1 pc
	M5	3.5~3.8	10 mm ² / 1-2 pcs
			25 mm ² / 1 pc

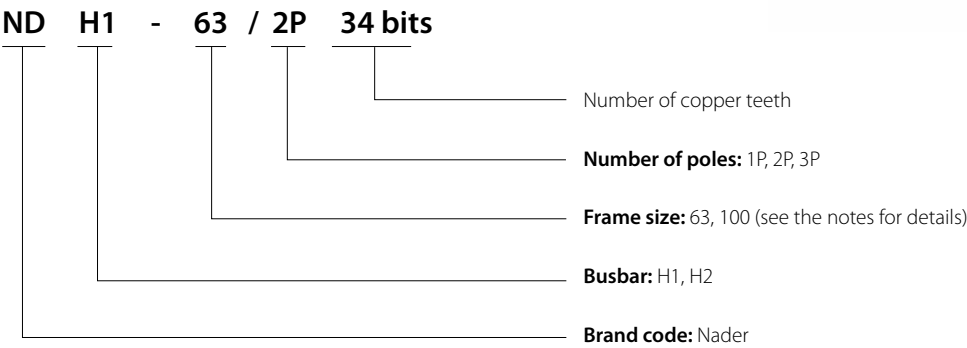
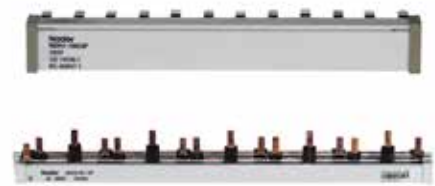
Quick selection table for NDA series modular sockets

ND A1 - 10 / 2 2



For example:
Product model: NDA1-16/46
Representing: NDA1 series modular socket, 16A rated current, three-phase and four-hole, and modulus of width as 6 (54mm).

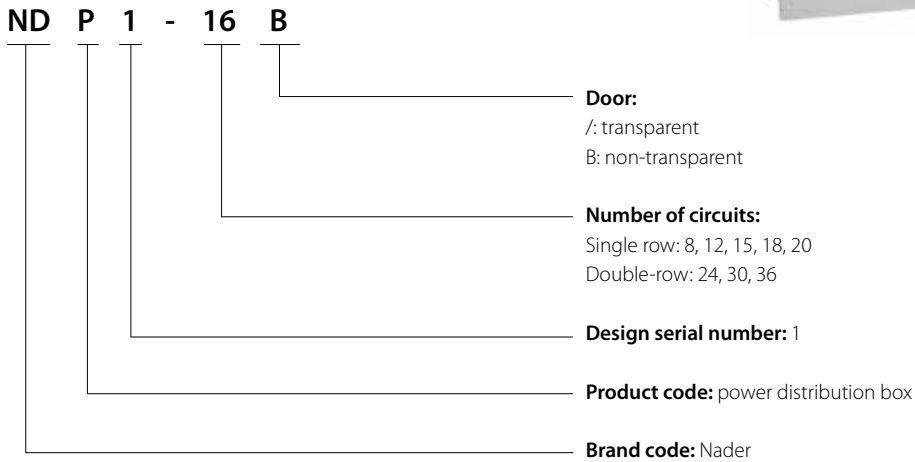
Quick selection table for NDH series busbars



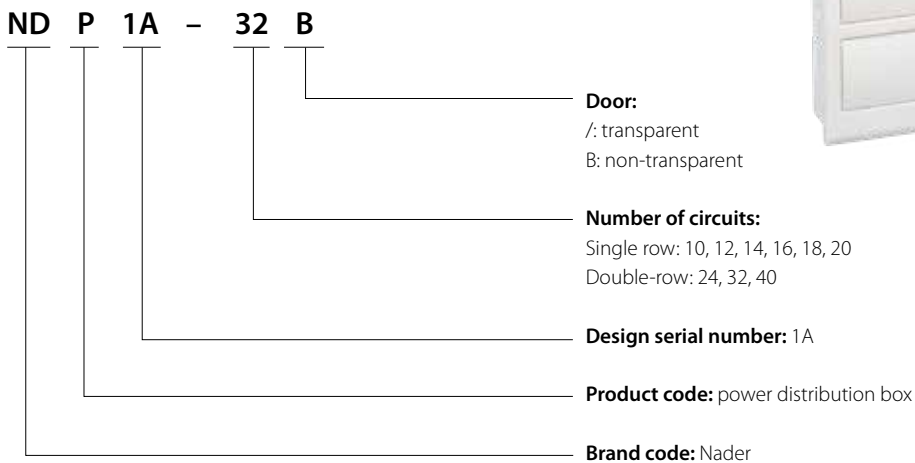
- Notes:**
- 1. At most 60 bits can be available for the busbar.
 - 2. The number of copper teeth of each busbar is just the number of poles of circuit breakers to which it is connected.
 - 3. No 100 frame size is available for NDH2.

For example:
Ordering instructions: 10 NDH1-63/3P 60-bit busbars, 20 end covers and 30 connectors.

Quick selection table for NDP series power distribution boxes



For example:
Product model: NDP1-8B
Representing: NDP1 series power distribution box, 8-bits (18mm/bit), with a non-transparent door.



For example:
Product model: NDP1A-20B
Representing: NDP1A series concealed power distribution box, 20-bits (18mm/bit), with a non-transparent door.

ND P 1A - 18 B M

Installation method:
M: surface-mounted

Door:
/: transparent
B: non-transparent

Number of circuits:
Single row: 7, 10, 12, 14, 16, 18, 20
Double-row: 28, 40

Design serial number: 1A

Product code: power distribution box

Brand code: Nader



For example:
Product model: NDP1A-20BM
Representing: NDP1A series surface-mounted power distribution box, 20-bits (18mm/bit), with a non-transparent door.

ND P 3A - 24 B

Door:
/: transparent
B: non-transparent

Number of circuits:
Single row: 7, 10, 12, 15, 18, 21
Double-row: 24, 30
Triple-row: 45

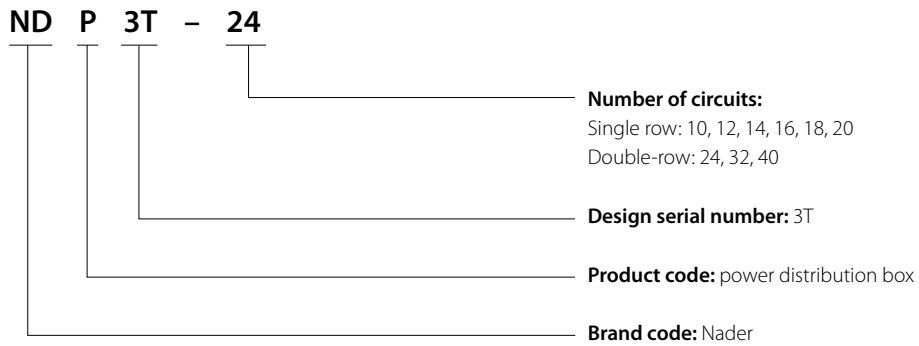
Design serial number: 3A

Product code: power distribution box

Brand code: Nader



For example:
Product model: NDP3A-24B
Representing: NDP3A series power distribution box, 24-bits (18mm/bit), with a non-transparent door.



For example:
Product model: NDP3T-24
Representing: NDP3T series power distribution box, 24-bit (18mm/bit), with a metal surface cover.

Part VII

Circuit Breakers for Equipment

Quick selection table for NDB3-30 series circuit breakers for equipment



ND B 3 - 30 Z4 4 / 1 Q H Y1 - 1 0 R XXXX

Customer code (additional option)

Certification code:

Blank: 3C, TUV and CE
R: 3C, TUV, CE and UL1077
L: 3C, TUV, CE and UL489A

0: without accessories

Code of case color:

1: black 2: gray
3: black without operation guard 4: gray without operation guard

Code of operating mode:

Y1: black rocker key, white vertical text
Y2: black rocker key, white horizontal text
Y3: white rocker key, black vertical text
Y4: white rocker key, horizontal black text
Y5: orange rocker key, black vertical text
Y6: orange rocker key, horizontal black text
Y7: red rocker key, black vertical text
Y8: red rocker key, horizontal black text

Code of connection method: see "Note 2"

Code of installation method: Q: built-in

Number of poles: 1: 1 poles; 2: 2 poles

Rated current (A) See "Note 1"

Code of tripping curve:

Z2: DC short time delay Z4: DC medium time delay
J2: AC short time delay J4: AC medium time delay

Frame size: 30

Design serial number: 3

Product code: circuit breaker for equipment

Brand code: Nader

Notes:

1. Rated current (A) of conventional products: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30;
Rated current (A) of lightning-proof products: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30.
2. Code of connection method: H: welded/lug terminal; C: plug-in terminal; E: 8-32UNC screw terminal; J: 8-32UNC screw terminal with upturned lugs;
P: M4 screw terminal; R: M4 screw terminal with upturned lugs;

For example:

Product model: NDB3-30 Z4 20/2 QHY1-2-0-R

Representing: NDB3-30 circuit breaker for equipment, DC medium time delay, 20A, 2P, built-in installation, welded/lug terminal, red rocker key, white vertical text, gray case, and 3C, TUV, CE and UL1077-certified product.

Main performance parameters of NDB3-30 series circuit breakers for equipment

Rated operating voltage: AC250V(50/60Hz), DC80V, DC65V

Mechanical/electrical endurance: 10000/6000 operating cycles at an operating rate of 6 cycles/1 min

Power-frequency withstand voltage: 2500V

Free tripping characteristic: completely free tripping

Certification: CCC, CE, TUV, UL1077 and UL489A

Rated breaking capacity Icn: see the table below:

Rated voltage (V)	Frequency	Rated current (A)	Number of poles	Rated short-circuit breaking capacity (A)					
				3C (GB17701)		UL1077	UL489A	TUV/CE (EN60934)	
				I _{nc}	I _{cn}			I _{nc}	I _{cn}
AC250V	50/60Hz	0.1-30	1, 2	1500	1000	1000, U1	/	1500	1000
DC80V	/	0.1-30	1, 2	1000	600	1000, U1	/	1000	600
DC80V	/	0.1-30	1	/	/	/	600	/	/
DC65V	/	0.1-30	1	/	/	/	1000	/	/

Quick selection table for NDB3-50 series circuit breakers for equipment

ND B 3 - 50 Z4 10 / 1 Q H A1 - A 0 R XXXX



Customer code (additional option)

Certification code: see "Note 4"

Code of accessory:

0: Without accessories

1: with auxiliary contacts (depending on the mounting direction, mounted on the leftmost side)

Number of actuators:

A: 1 pc per pole

B: 1 pc per multi-pole (two or more poles)

Code of operating mode: see "Note 3"

Code of connection method: see "Note 2"

Code of installation method:

L: M3 screw mounting

Q: built-in

M: 6-32UNC screw mounting

Number of poles:

1: 1 poles

2: 2 poles

3: 3 poles (only for AC products)

Rated current (A): see "Note 1"

Code of tripping curve:

Z2/Z4/Z6 (DC short/medium/long time delay)

J2/J4/J6 (AC short/medium/long time delay)

Frame size: 50

Design serial number: 3

Product code: circuit breaker for equipment

Brand code: Nader

Notes:

1. Rated current (A): 0.5, 1, 2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 40, 45, 50.

2. Code of connection method:

- C Plug-in terminal (general type $\leq$ 50A, UL489 $\leq$ 30A)
- E 8-32UNC screw terminal (general type $\leq$ 30A, UL489 $\leq$ 20A)
- F M5 screw terminal with upturned lugs (general type $\leq$ 50A, UL489 $\leq$ 30A)
- G 10-32UNF screw terminal (general type $\leq$ 50A, UL489 $\leq$ 30A)
- H Quick-connect lug terminal (general type $\leq$ 30A, UL489 $\leq$ 20A)
- J 8-32UNC screw terminal with upturned lugs (general type $\leq$ 30A, UL489 $\leq$ 20A)
- K 10-32UNF screw terminal with upturned lugs (general type $\leq$ 50A, UL489 $\leq$ 30A)
- L M5 screw terminal (general type $\leq$ 50A)
- P M4 screw terminal (general type $\leq$ 30A, UL489 $\leq$ 20A)
- R M4 screw terminal with upturned lugs (general type $\leq$ 30A, UL489 $\leq$ 20A)

3. Code of operating mode:

- S1 black long handle, white text: ON/OFF, with rated current marked
- S2 black long handle, white text: ON/OFF, I/O, with rated current marked
- S3 white long handle, black text: ON/OFF, with rated current marked
- S4 white long handle, black text: ON/OFF, I/O, with rated current marked
- S5 yellow long handle, black text: ON/OFF, with rated current marked
- S6 yellow long handle, black text: ON/OFF, I/O, with rated current marked
- D1 black short handle, white text: ON/OFF, with rated current marked
- D2 black short handle, white text: ON/OFF, I/O, with rated current marked
- D3 white short handle, black text: ON/OFF, with rated current marked
- D4 white short handle, black text: ON/OFF, I/O, with rated current marked
- D5 yellow short handle, black text: ON/OFF, with rated current marked
- D6 yellow short handle, black text: ON/OFF, I/O, with rated current marked
- Y1 single-color rocker key, white vertical text: ON/OFF, I/O, with rated current marked
- Y2 single-color rocker key, white horizontal text: ON/OFF, I/O, with rated current marked
- Y3 single-color rocker key, white vertical text: ON/OFF, I/O
- Y4 single-color rocker key, white horizontal text: ON/OFF, I/O
- Y5 dual-color rocker key, white vertical text: ON/OFF, I/O, ON indication, with rated current marked
- Y6 dual-color rocker key, white horizontal text: ON/OFF, I/O, ON indication, with rated current marked
- Y7 dual-color rocker key, white vertical text: ON/OFF, I/O, OFF indication, with rated current marked
- Y8 dual-color rocker key, white horizontal text: ON/OFF, I/O, OFF indication, with rated current marked
- A1 black button, white vertical text: ON/OFF, I/O, OFF indication, with rated current marked, white OFF indication, OFF position with guard
- A2 black button, white vertical text: ON/OFF, I/O, OFF indication, with rated current marked, white OFF indication
- A4 black button, white horizontal text: ON/OFF, I/O, OFF indication, with rated current marked, white OFF indication

4. Certification code:

- Blank: CCC, TUV, CE
- R: CCC, TUV, CE, UL1077
- L: CCC, TUV, CE, UL489A (only for DC products)
- I: UL1500
- K: CCC, TUV, CE, UL489 (only for AC products)

Product certification	3C/TUV/CE			UL1077			UL489A			UL489		
Rated current (A)	1-30		31-50	1-30		31-50	1-30		31-50	1-20		21-30
Connection method	H, C, L, F, E, J, G, K, P, R		L, C, F, G, K	H, C, L, F, E, J, G, K, P, R		L, C, F, G, K	H, E, J, L, C, F		L, C, F	H, C, F, E, J, G, K, P, R		C, F, G, K
Operating mode	S	Y A	D	S	Y A		S	Y A	D	S	Y A	D
Number of actuators	A B	A B	A	A B	A B	A	A B	A B	A	A B	A B	A
Installation method	L M Q	L M	L M Q	L M Q	L M	L M Q	L M Q	L M	L M Q	L M Q	L M	L M Q
Number of poles	1 2 3	1 2 3	1	1 2 3	1 2 3	1	1 2 3	1 2 3	1	1 2 3	1 2 3	1

1. The auxiliary contacts are all mounted on the leftmost pole (directly facing the operating surface).

Main performance parameters of NDB3-50 series circuit breakers for equipment

Reference standards: GB/T 17701, IEC 60934, EN60934, UL1077, UL489A, UL489
Rated operating voltage: DC80V, AC240, AC415V, AC125/250V, AC120/240V
Mechanical/electrical endurance: 10000/6000 operating cycles
Power-frequency withstand voltage: main circuit: 3000V; auxiliary circuit: 1000V
Certification: CCC, CE, TUV, UL1077, UL489A, UL489
Parameters of auxiliary contact: AC250V 5A

Rated breaking capacity:

Model	Voltage (V)	Rated current (A)	Number of poles	Rated short-circuit breaking capacity (A)				
				3C (GB17701)	UL1077	UL489A	UL489	TUV/CE (EN60934)
NDB3-50	DC80	1≤In≤30	1, 2	3000	3000, U1a	3000	/	3000
		30<In≤50		1500	1500, U1a			1500
	DC65	1≤In≤50	1, 2	/	3000, U1a	/	/	/
	DC32	1≤In≤50	1, 2	/	5000, U3	/	/	/
	AC240	1≤In≤30	1	4000 (L, K) 3000 (R, I)	/	/	/	/
		30<In≤50		3000 (L, K) 1500 (R, I)	/	/	/	/
	AC415	1≤In≤30	2, 3	4000 (L, K) 3000 (R, I)	/	/	/	/
		30<In≤50		3000 (L, K) 1500 (R, I)	/	/	/	/
	AC250	1≤In≤30	1	/	5000, C1a 3000, U1a	/	/	/
		30<In≤50			1000, U1a			
	AC 125/250	1≤In≤30	2	/	3000, U1a	/	/	/
		30<In≤50			2000, U3			
	AC250 3Φ	1≤In≤30	3	/	5000, U1a	/	/	/
		30<In≤50			1000, U3			
	AC120	1≤In≤30	1	/	/	/	5000	/
	AC120/240	1≤In≤30	2, 3	/	/	/	5000	/

Note: "L, K, R and I" represent certification codes. Please see the description of specifications and models for details.

Quick selection table for NDB3-100 series circuit breakers
for equipment



ND B 3 - 100 Z4 10 / 1 L H A1 - A 0 R XXXX

Customer code (additional option)

Certification code: see "Notes"

0: without accessories

1: with auxiliary contacts (depending on the mounting direction, with all the auxiliary contacts mounted on the leftmost side)

Code of operating mode:

A: 1 pc per pole

B: 1 pc per multi-pole

Code of operating mode: see "Notes"

Code of connection method: see "Notes"

Code of installation method:

L: M3 screw mounting

M: 6-32UNC screw mounting

Number of poles:

1: 1 poles

2: 2 poles

3: 3 poles (see the "Table of rated breaking capacities" for applicable rated current)

4: 4 poles (current $\geq 275A$; for DC products, only S/L operating mode)

Rated current (A): see "Notes"

Code of tripping curve:

Z2/Z4/Z6 (DC short/medium/long time delay)

J2/J4/J6 (AC short/medium/long time delay)

Frame size: 100

Design serial number: 3

Product code: circuit breaker for equipment

Brand code: Nader

Notes:

Rated current (A)	Rated current for general operation	1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 36, 40, 45, 50, 60, 70, 80, 90, 100
	Current specification for multi-pole parallel operation (only for DC products)	B + rated current: parallel connection with parallel terminals (3P, 4P) F + rated current: parallel connection with tap terminals (2P, 3P, 4P) P + rated current: multi-pole parallel operation without parallel lugs (2P, 3P, 4P) Rated current: 2P: 100A, 125A, 150A, 160A, 175A, 200A 3P: 175A, 200A, 225A, 250A, 275A, 300A 4P: 275A, 300A, 325A, 350A, 375A, 400A
Code of connection method	S: M6 bolt terminal (dual-nut) T: M5 bolt terminal (dual-nut) (general≤50A, UL489≤30A) V: M5 bolt terminal (single-nut) (general≤50A, UL489≤30A) L: M5 screw terminal (general≤50A, UL489≤30A) U: M6 bolt terminal (single-nut) C: plug-in terminal (general≤100A, UL489≤50A) B: plug-in terminal (general≤100A, UL489≤50A) H: 1/4-20 UNC bolt terminal (dual-nut) N: 1/4-20 UNC bolt terminal (single-nut) P: 10-32 UNF bolt terminal (dual-nut) (general≤50A, UL489≤30A) W: 10-32 UNF bolt terminal (single-nut) (general≤50A, UL489≤30A) K: 10-32 UNF screw terminal (general≤50A, UL489≤30A)	
Code of operating mode	S1 black long handle, white text: ON/OFF, with rated current marked S2 black long handle, white text: ON/OFF, I/O, with rated current marked S3 white long handle, black text: ON/OFF, with rated current marked S4 white long handle, black text: ON/OFF, I/O, with rated current marked S5 yellow long handle, black text: ON/OFF, with rated current marked S6 yellow long handle, black text: ON/OFF, I/O, with rated current marked Y1 single-color rocker key, white vertical text: ON/OFF, I/O, with rated current marked Y2 single-color rocker key, white horizontal text: ON/OFF, I/O, with rated current marked Y3 single-color rocker key, white vertical text: ON/OFF, I/O Y4 single-color rocker key, white horizontal text: ON/OFF, I/O Y5 dual-color rocker key, white vertical text: ON/OFF, I/O, ON indication, with rated current marked Y6 dual-color rocker key, white horizontal text: ON/OFF, I/O, ON indication, with rated current marked Y7 dual-color rocker key, white vertical text: ON/OFF, I/O, OFF indication, with rated current marked Y8 dual-color rocker key, white horizontal text: ON/OFF, I/O, OFF indication, with rated current marked A1 black button, white vertical text: ON/OFF, I/O, OFF indication, with rated current marked, white OFF indication, OFF position with guard A2 black button, white vertical text: ON/OFF, I/O, OFF indication, with rated current marked, white OFF indication A4 black button, white horizontal text: ON/OFF, I/O, OFF indication, with rated current marked, white OFF indication L1 black long handle, white text: ON/OFF L2 black long handle, white text: ON/OFF, I/O L3 white long handle, black text: ON/OFF L4 white long handle, black text: ON/OFF, I/O L5 yellow long handle, black text: ON/OFF L6 yellow long handle, black text: ON/OFF, I/O	
Certification code	Blank: CCC, TUV, CE R: CCC, TUV, CE, UL1077 (only for AC products) L: CCC, TUV and CE-certified, and UL489A-listed (only for DC products) K: CCC, TUV and CE-certified, and UL489-listed Note: AC rated current: 1~70A; DC rated current: 1~100A C: South Korean KC certified, and CCC, TUV, CE and UL1077 certified (with the connection method limited to S/T terminal)	

Rated current (A)	1~100		>100	
Operating mode	S	S/Y/A	L	L/Y/A
Connection method	S/T/C/U/V/B/L/H/P/N/W/K	U/V/B/L/N/W/K	S/U/H//N	U/N
Number of poles	, 2, 3	1, 2	2, 3, 4	2, 3
Number of actuators	A	B	A	B

Main performance parameters of NDB3-100 series circuit breakers for equipment

Reference standards: GB/T17701, IEC60934, EN60934, IEC60947-2, EN60947-2, UL1077, UL489A, UL489, GB/T14048.2
Rated operating voltage: DC80V, DC125V, AC230/400V, AC250V, AC400/415V (see the "Table of rated breaking capacities" for details)
Mechanical/electrical endurance: 10000/6000 operating cycles
Power-frequency withstand voltage: main circuit: 3000V; auxiliary circuit: 1000V
Certification: CCC, CE, TUV, UL1077, UL489A, UL489, KC
Parameters of auxiliary contact/middle-triggered alarm contact: AC250V 5A

Table of rated breaking capacities

Model	Voltage (V)	Rated current (A)	Number of poles	Breaking capacity (A)							
				CCC		UL489A	UL1077	UL489	TUV/CE		South Korean KC
				GB17701	GB14048.2				EN60934	EN60947-2	
NDB3-100	DC80	1≤In≤100	1, 2, 3	7500	/	4000	3000, U1 6000, C1	10000	7500	/	/
		100<In≤400	2, 3, 4	/	/	7500	4000, U1 6000, C1	/	/	/	/
		100≤In≤350	2, 3, 4	/	7500	/	/	/	/	7500	/
	DC125	1≤In≤100	1, 2	5000	/	/	3000, U1 6000, C1	/	/	/	/
	DC125	100≤In≤400	2, 3, 4				4000, U1 6000, C1				
	AC120	1≤In≤70	1	/	/	/	/	5000	/	/	/
	AC240	1≤In≤20	1, 2, 3	/	/	/	/	5000	/	/	/
	AC120/240	1≤In≤70	2, 3	/	/	/	/	5000	/	/	/
	AC125/250	1~100	2	/	/	/	5000, C1	/	/	/	/
	AC230/240	1~100	1	5000	/	/	/	/	5000	/	/
	AC250	1~100	1	/	/	/	5000, C1	/	/	/	/
							4000, U1				
	AC400/415	1~100	2, 3	5000	/	/	/	/	5000	/	/
	AC480Y/277	1~100	3	/	/	/	5000, C1	/	/	/	/
	AC220	32, 35, 40, 45, 50	1, 2	/	/	/	/	/	/	/	3000
		60, 70, 80, 90, 100	2	/	/	/	/	/	/	/	3000
	AC380	32, 35, 40, 45, 50 60, 70, 80, 90, 100	3	/	/	/	/	/	/	/	3000

Quick selection table for NDB3Z series circuit breakers for equipment



ND B 3 Z - 125 Z2 10 / 1 - XXXX XXXX

Customer code:
added according to special requirements,
with a 5-digit Arabic numeral to represent a
particular customized product

Certification code:
Blank: CCC, TUV, CE
R: N/A
L: N/A

Number of poles:
1: 1 poles
2: 2 poles

Rated current (A), See "Note 1"

Code of tripping curve:
Z2: DC short time delay
Z4: DC medium time delay
Z6: DC long time delay

Frame size: 125A

Type of current: Z: DC

Design serial number: 3

Product code: circuit breaker for equipment

Brand code: Nader

Note 1: rated current: 10A, 15A, 16A, 20A, 25A, 30A, 32A, 40A, 50A, 60A, 63A, 70A, 80A, 90A, 100A, 110A, 125A

Main performance parameters of NDB3Z-125 series circuit breakers for equipment

Rated operating voltage: DC80V

Mechanical/electrical endurance: 10000/6000 operating cycles;

Certification: CCC, TUV and CE;

Product type	1P	2P
Rated voltage	DC80V	DC80V
Rated current (A)	10A, 15A, 16A, 20A, 25A, 30A, 32A, 40A, 50A, 60A, 63A, 70A, 80A, 90A, 100A, 110A, 125A	10A, 15A, 16A, 20A, 25A, 30A, 32A, 40A, 50A, 60A, 63A, 70A, 80A, 90A, 100A, 110A, 125A
Installation method	Standard 35mm mounting rail	
Tripping curve	Z2, Z4, Z6	Z2, Z4, Z6

Quick selection table for NDB5 series circuit breakers for equipment



ND	B	5	Z4	4	1	-	P	U	0	W	R	XXXX	
													Customer code (additional option)
													Certification code: R: CCC, UL1077, TUV and CE certified L: CCC, UL489A, TUV and CE certified
													Size of operating surface: Blank: 45mm W: 57mm
													Code of accessory: 0: without accessories 1: auxiliary and alarm contact 2: single auxiliary contact
													Connection method: U: parallel product (two poles or three poles in parallel) Blank: non-parallel product
													Type of pole: P: without a neutral pole N: with a neutral pole (only 1N or 3 N)
													Number of poles: 1: 1 poles 2: 2 poles 3: 3 poles
													Rated current (A): see "Note 1"
													Code of tripping curve: Z2/Z4/Z6 (DC short/medium/long time delay) J2/J4/J6 (AC short/medium/long time delay)
													Design serial number: 5
													Product code: circuit breaker for equipment
													Brand code: Nader

Notes:

- Rated current (A): 0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 40, 45, 50, 55, 60, 63, 70, 80, 90, 100, 105, 110, 120, 125, 150.
- The Max. rated current of 1P product is 63A;
- Only AC types are available for 1P+N, 3P and 3P+N products.
- Only DC products are available with parallel busbars, with the Min./Max. rated current of 20A/100A for 2P parallel products, and 105A/150A for 3P parallel products;
- The NDB5 series circuit breakers for equipment can all have auxiliary and alarm contacts assembled;
and auxiliary and alarm contacts and single auxiliary contacts are available for accessory products:
 - the auxiliary and alarm contact is composed of one auxiliary contact block (1NO+1NC) and one alarm contact block (1NO+1NC)
 - the single auxiliary contact is composed of one auxiliary contact block (1NO+1NC)
 For the analog circuit breaker, the accessories are assembled on the rightmost pole;
 The auxiliary/alarm contacts respectively indicate the opening or closing/ fault tripping status of the circuit breaker;
 The auxiliary and alarm contacts are not supplied separately;
 The accessories of NDB5 series products only provide CCC certification;
- The models listed in the table are general types, of which the tripping curve, rated current and other parameters can be changed according to the customer' requirements.
The models after change are customized and unlisted in the table.

Main performance parameters of NDB5 series circuit breakers for equipment

Product type	1P		1N	2P		3P	3N	2PU	3PU
Rated voltage	AC230V/240 /250V	DC80/125V	AC230V/240 /250V	AC400/415V AC480/277V	DC80V/125V	AC400/415V AC480/277V	DC80V		
Rated current (A)	0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 40, 45, 50, 55, 60, 63		0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 40, 45, 50				20, 30, 40, 50, 60, 63, 70, 80, 90, 100		105, 110 120, 125 135, 150
Installation method	Standard 35mm mounting rail, miniature mounting rail								
Tripping curve	J2, J4, J6	Z2, Z4, Z6	J2, J4, J6	J2, J4, J6	Z2, Z4, Z6	J2, J4, J6	Z2, Z4, Z6		

Reference standards: IEC 60934, EN 60934, IEC 60947-2, EN 60947-2, GB/T 17701, GB/T 14048.2, UL1077, UL489A;

Rated operating voltage: DC80V, AC230/240/250V, AC400/415V, AC480/277V;

Frequency: 50/60Hz;

Mechanical/electrical endurance: 10000/6000 operating cycles;

Certification: CCC, UL 1077, UL 489A, TUV, CE;

Connection capacity: 0.5~25mm²; two poles in parallel: 35mm² or below; three poles in parallel: 70 mm² or below;

Rated breaking capacity

Rated current (A)	Voltage (V)	Breaking capacity (kA)					
		CCC		UL		TUV/CE	
		GB/T17701	GB/T14048-2	UL 1077	UL 489A	EN60934	EN60947-2
0.5~63	DC80	10	/	10, U1	10	10	10
	AC230/400	6	/	/	/	6	6
	AC277/480	/	/	6, U1	/	/	/
	AC250	/	/	6, U1	/	/	/
20~150 (for parallel products)	DC80	/	10	10, U1	10	/	/

Tripping timetable (unit: s)

Curve	Current	1.05I _n	1.3I _n	2I _n	6I _n	10I _n
Z2/J2	Non-tripping		9-240	2-12	0.004-0.03	0.0035-0.018
Z4	Non-tripping		15-240	4-20	0.01-1	0.0035-0.1
J4	Non-tripping		20-360	6-40	0.01-1.8	0.0035-0.1
Z6/J6	Non-tripping		60-1200	20-100	1.2-7	0.0055-2.2

- Notes: 1) The tripping time is expressed in s;
2) The tripping time listed above is obtained from tests conducted on the product in a cold state;
3) The non-tripping time mentioned above is 1h.

Part VIII

Surge protective device

Quick selection table for NDU1 (10kA-65kA) series surge protective devices

ND

U

1

- 65

/ 275

/ 1

/ S

Tele-signaling:
Blank: without tele-signaling
S: with tele-signaling

Number of poles: 1P, 1PN, 2P, 3P, 3PN, 4P

Max. continuous operating voltage:
Uc: 255V, 275V, 320V, 385V, 440V, 550V

Max. discharge current: 10kA, 20kA, 40kA, 65kA

Design serial number: 1

Product code: surge protective device

Brand code: Nader



Quick selection table for NDU1 (80kA-120kA) series surge protective devices

ND

U

1

- 80

/ 275

/ 1

/ S

S: with tele-signaling
Blank: without tele-signaling

Number of poles: 1P, 1PN, 2P, 3P, 3PN, 4P

Max. continuous operating voltage: Uc: 275V, 440V

Max. discharge current: 80kA, 100kA, 120kA

Design serial number: 1

Product code: surge protective device

Brand code: Nader



Quick selection table for NDU1Z series DC surge protective devices

ND	U	1	Z	- 40	/	600V	/	3	/	S	
											S: with tele-signaling Blank: without tele-signaling
											Number of poles: 3P
											Max. continuous operating current: 600V, 1000V
											Max. discharge current: I _{max} : 40kA
											DC code
											Design serial number: 1
											Product code: surge protective device
											Brand code: Nader



Main performance parameters of NDU1 (10kA-65kA) series surge protective devices

Model	NDU1-10			
Specification	NDU1-10/275	NDU1-10/320	NDU1-10/385	NDU1-10/NPE
Max. continuous operating voltage Uc (V)	275	320	385	255
Frequency (Hz)	50/60			
Max. discharge current I _{max} (8/20us) (kA)	10			
Nominal discharge current I _n (8/20us) (kA)	5			
Voltage protection level Up (kV)	≤1.0	≤1.2	≤1.35	≤1.2
Ambient temperature (°C)	-40 ~ +70			
Response time (ns)	≤25			
Protection rating	IP20			
Operating parameters of tele-signaling contact (Max.)	1.5A 250VAC			
Cross-sectional area of connecting conductor (mm ²)	SPD connecting conductor: BVR-16; connecting conductor: BVR-25			
Product certification	Type Test Report issued by the Beijing Testing Center for Surge Protective Devices			

Model	NDU1-20				
Specification	NDU1-20/275	NDU1-20/320	NDU1-20/385	NDU1-20/440	NDU1-20/NPE
Max. continuous operating voltage Uc (V)	275	320	385	440	255
Frequency (Hz)	50/60				
Max. discharge current I _{max} (8/20us) (kA)	20				
Nominal discharge current I _n (8/20us) (kA)	10				
Voltage protection level Up (kV)	≤1.1	≤1.2	≤1.5	≤1.8	≤1.5
Ambient temperature (°C)	-40 ~ +70				
Response time (ns)	≤25ns				
Protection rating	IP20				
Operating parameters of tele-signaling contact (Max.)	1.5A 250VAC				
Cross-sectional area of connecting conductor (mm ²)	SPD connecting conductor: BVR-16; connecting conductor: BVR-25				
Product certification	Type Test Report issued by the Beijing Testing Center for Surge Protective Devices				

Model	NDU1-40					
Specification	NDU1-40/275	NDU1-40/320	NDU1-40/385	NDU1-40/440	NDU1-40/550	NDU1-40/NPE
Max. continuous operating voltage Uc (V)	275	320	385	440	550	255
Frequency (Hz)	50/60					
Max. discharge current I _{max} (8/20us) (kA)	40					
Nominal discharge current I _n (8/20us) (kA)	20					
Voltage protection level Up (kV)	≤1.3	≤1.5	≤1.8	≤2.2	≤2.8	≤1.5
Ambient temperature (°C)	-40 ~ +70					
Response time (ns)	≤25					
Protection rating	IP20					
Operating parameters of tele-signaling contact (Max.)	1.5A 250VAC					
Cross-sectional area of connecting conductor (mm ²)	SPD connecting conductor: BVR-16; connecting conductor: BVR-25					
Product certification	Type Test Report issued by the Beijing Testing Center for Surge Protective Devices					

Model	NDU1-65					
Specification	NDU1-65/275	NDU1-65/320	NDU1-65/385	NDU1-65/440	NDU1-65/550	NDU1-65/NPE
Max. continuous operating voltage Uc (V)	275	320	385	440	550	255
Frequency (Hz)	50/60					
Max. discharge current I _{max} (8/20us) (kA)	65					
Nominal discharge current I _n (8/20us) (kA)	30					
Voltage protection level Up (kA)	≤1.5	≤1.8	≤2	≤2.5	≤3	≤1.5
Ambient temperature (°C)	-40 ~ +70					
Response time (ns)	≤25					
Protection rating	IP20					
Operating parameters of tele-signaling contact (Max.)	1.5A 250VAC					
Cross-sectional area of connecting conductor (mm ²)	SPD connecting conductor: BVR-16; connecting conductor: BVR-25					
Product certification	Type Test Report issued by the Beijing Testing Center for Surge Protective Devices					

Main performance parameters of NDU1(Z) series surge protective devices

Model	NDU1Z-40 600	NDU1Z-40 1000	NDU1-80 275	NDU1-100 275	NDU1-120 275	NDU1-80 440	NDU1-100 440	NDU1-120 440
Number of poles	3P	3P	1P, 1PN, 2P, 3P, 3PN, 4P					
Nominal discharge current (8/20Us) (kA)	20	20	40	50	60	40	50	60
Max. discharge current I _{max} (8/20Us) (kA)	40	40	80	100	120	80	100	120
Voltage protection level (kV)	≤2.8 (adjustable to 2.85)	≤4.3	≤2.5	≤2.5	≤2.5	≤2.5	≤2.5	≤2.7
Max. continuous operating voltage (V)	DC600	DC1000	AC275			AC440		
Operating voltage (V)	≥750	≥1800	≥430			≥680		
Response time (ns)	≤20	≤20	≤20			≤20		
Leakage current (uA)	≤30	≤30	≤30			≤30		
Protection mode	L-PE/N-PE	L-PE/N-PE	L-PE/N-PE			L-PE/N-PE		
Cross-sectional area of connecting conductor (mm²)	SPD connecting conductor: BVR-16 Connecting conductor: BVR-25	SPD connecting conductor: BVR-16 Connecting conductor: BVR-25	SPD connecting conductor: BVR-16 Connecting conductor: BVR-25			SPD connecting conductor: BVR-16 Connecting conductor: BVR-25		
Shell material	Flame-retardant material	Flame-retardant material	Flame-retardant material			Flame-retardant material		
Operating environment (°C)	Temperature: -40°C~+70°C Relative humidity: <95%	Temperature: -40°C~+70°C Relative humidity: <95%	Temperature: -40°C~+70°C Relative humidity <95%			Temperature: -40°C~+70°C Relative humidity <95%		
Mounting position	DC combiner box	DC combiner box	Power incoming terminal of main or branch distribution box			Power incoming terminal of main or branch distribution box		
Number of ports	One port	One port	One port			One port		
Type of structure	Plug-in type	Plug-in type	Modular type			Modular type		
Protection rating	IP20	IP20	IP20			IP20		
Protection type	Voltage limiting type							
Product certification	Type Test Report issued by the Beijing Testing Center for Surge Protective Devices							

Quick selection table for NDU1-I series surge protective devices



ND U 1 - I / 15 / 320 / 1 / S

S: with tele-signaling

Blank: without tele-signaling

Number of poles: 1P, 2P, 3P, 4P

Max. continuous operating voltage:

Uc: 275V (only 50kA), 320V (only 15kA), 385V

Impulse current: 15kA, 50kA

Class I test

Design serial number: 1

Product code: surge protective device

Brand code: Nader

Main performance parameters of NDU1-I series surge protective devices

	NDU1-I15/320	NDU1-I15/385	NDU1-I50/275	NDU1-I50/385
Max. continuous operating voltage U _c (VAC)	320	385	275	385
Frequency (Hz)	50/60		50/60	
Impulse current I _{imp} (kA) 10/350μs	15		50	
Quantity of electric charge Q (As)	7.5		25	
Nominal discharge current (kA) 8/20μs	50		50	
Voltage protection level U _p (kV)	2.2	2.5	2.5	
Response time (ns)	≤25		≤100	
Follow current interrupting rating (kA)	N/A		3	
Protection rating	IP20			
Protection mode	L/N-PE			
Shell material	Flame-retardant material PA6			
Operating environment	Temperature: -40°C~+70°C; relative humidity: <95%			
Number of ports	One port			
Over-current protection	N/A			
Tele-signaling	Yes		Yes	
Connection capacity (mm²)	4-25		4-35	
Number of poles	1, 2, 3, 4			
Backup protection	Fuse: 125AgL Circuit breaker: NDM3-125 125			
Product certification	Type Test Report issued by the Beijing Testing Center for Surge Protective Devices			

Quick selection table for NDUH1 series surge protective devices for backup protection



ND UH 1 I – 25 100 / 2

Number of poles: 1, 2, 3, 4

Rated short-circuit breaking capacity: 100/65/50/35/25/15

Ratings (specifications):

Impulse current (Class I): 25/15

Max. discharge current (Class II): 120/100/80/65/40/20

Derived code of the series:

I: Class I SPD;

Blank: Class II SPD

Design code: 1

Product code: surge protective device for backup protection

Brand code: Nader

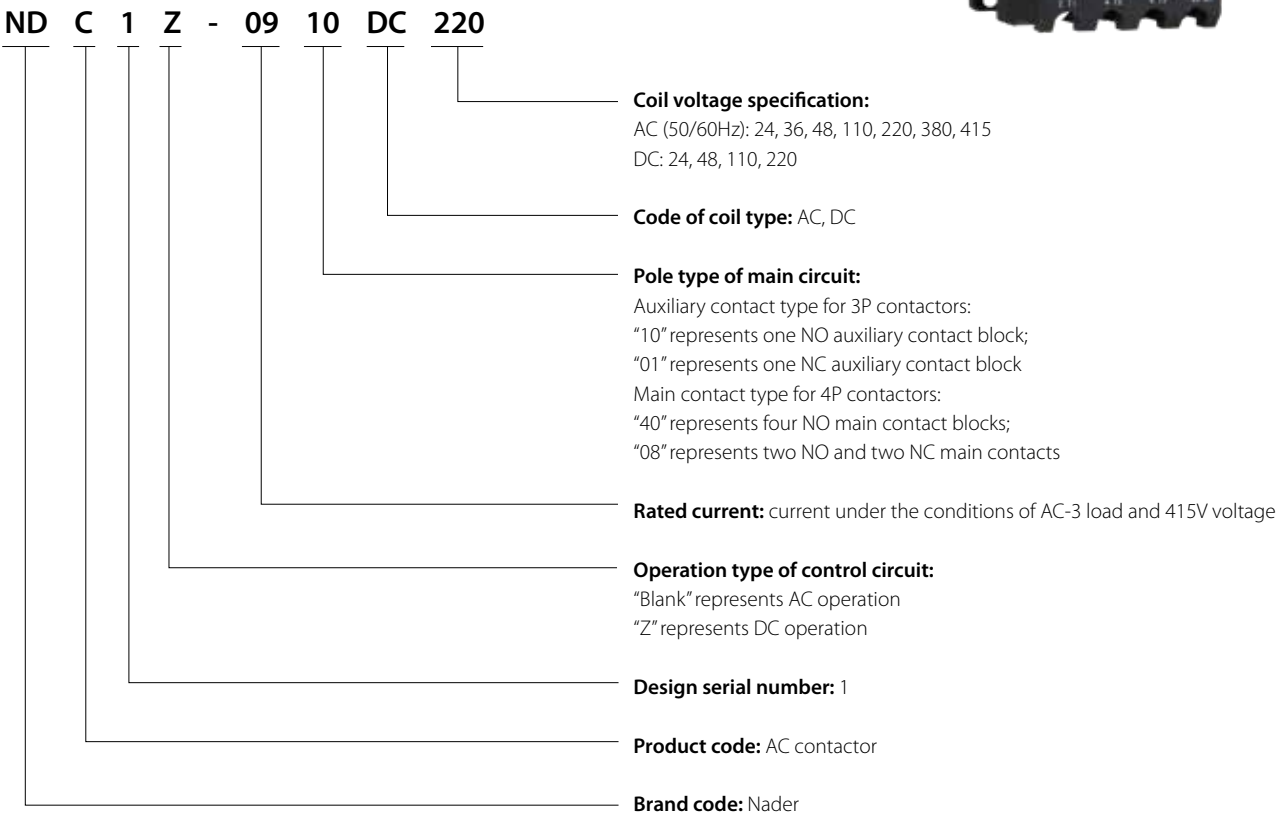
Main performance parameters of NDUH1 series surge protective devices

	NDUH1-10															
Lightning protection level	T1				T2											
Rated operating voltage Ue /V	AC230/240V (1P, 2P), AC230/400V (3P, 4P)															
Rated isolation voltage Ui /V	500V															
Rated operating frequency f/Hz	50/60Hz															
Rated impulse withstand voltage Uimp /kV	T1: 6 T2: 4															
Min. time-delayed operating current Id/A	3 ±1A, tripping times≤5s															
Min. instantaneous operating current Ii/A	10 ±1A, times≤0.1s															
Nominal discharge current In/kA (8/20us)	50				60		50		40		35		20		10	
Max. discharge current Imax/kA (8/20us)	100				120		100		80		65		40		20	
Max. impulse current Iimp/kA (10/350us)	25		15		—		—		—		—		—		—	
Rated short-circuit breaking capacity Icn/kA	100	65	100	65	100	65	100	65	50	35	50	35	25		15	
Voltage protection level (+NDU1) Up kV	3.4				3.6		3.4		3.3		2.2		1.8		1.3	
Modulus	Dual-modulus								Single-modulus							
Width of modulus	Single-modulus 1P: 18mm, dual-modulus 1P: 36mm															
Number of poles	1P, 2P, 3P, 4P															
Protection rating of shell	IP20															
Mechanical (operating cycles)	1000															
Operating temperature °C	-25~+60															
Relative humidity	20%~90%															
Storage temperature °C	-40~+70															
Resistance to neutral salt spray	48															
Protection rating	IP20															
Class of pollution	3															
Rated torque (Tn) N.m	3.5															
Ultimate torque (Tn) N.m	6.5															
Resistance to mechanical impact	30g, 3 impact cycles, duration 11ms															
Optional accessory	OF2															
Connection capacity mm²	2.5~25 (flexible conductor), 2~35 (rigid conductor)															
Installation method	TH35×7.5 (EN60715) standard mounting rail															

Part IX

Motor Control and Protection Products

Quick selection table for NDC1(Z)-09~95 series AC contactors



a. NDC1Z-0910 DC 220V represents a 3P AC contactor with the main circuit of 9A DC operation type, control coil voltage of DC 220V, and one NO auxiliary contact block.
B. NF1 auxiliary contact blocks, NS1 air time-delay contacts, NF2 auxiliary contact blocks, and NG1 surge suppression modules are optional.

Main performance parameters of NDC1(Z)-09~95 series AC contactors

Parameter			Model	NDC1(Z) -09	NDC1(Z) -12	NDC1(Z) -18	NDC1(Z) -25	NDC1(Z) -32	NDC1(Z) -38	NDC1(Z) -40	NDC1(Z) -50	NDC1(Z) -65	NDC1(Z) -80	NDC1(Z) -95
Rated operating current I _e /A	AC-3	415V	9	12	18	25	32	38	40	50	65	80	95	
		690V	6.6	8.9	12	18	21	21.5	34	39	42	49	49	
	AC-4	415V	3.5	5	7.7	8.5	12	13.9	18.5	24	28	37	44	
		690V	1.5	2	3.8	4.4	7.5	8	9	12	14	17.3	21.3	
Control power kW AC-3	220/230V		2.2	3	4	5.5	7.5	9	11	15	18.5	22	25	
	380/400V		4	5.5	7.5	11	15	18.5	18.5	22	30	37	45	
	415 V		4	5.5	9	11	15	18.5	22	25	37	45	45	
	440 V		4	5.5	9	11	15	18.5	22	30	37	45	45	
	500 V		5.5	7.5	10	15	18.5	18.5	22	30	37	55	55	
	600/690V		5.5	7.5	10	15	18.5	18.5	30	33	37	45	45	
Conventional free air thermal current I _{th} (A) (θ≤60°C)			25	25	32	40	50	50	60	80	80	125	125	
Rated isolation voltage U _i /V			1000											
Impulse withstand voltage / kV			8											
Rated operating voltage U _e /V			380/415 660/690											
AC-3 (6I _e , I _e)	Electrical endurance (operating cycles)		100×10 ⁴	100×10 ⁴	100×10 ⁴	100×10 ⁴	80×10 ⁴	80×10 ⁴	80×10 ⁴	60×10 ⁴	60×10 ⁴	60×10 ⁴	60×10 ⁴	
	Operating rate h ⁻¹		1200	1200	1200	1200	600	600	600	600	600	600	600	
AC-4 (6I _e , 6I _e)	Electrical endurance (operating cycles)		20×10 ⁴	20×10 ⁴	20×10 ⁴	20×10 ⁴	20×10 ⁴	15×10 ⁴	15×10 ⁴	15×10 ⁴	15×10 ⁴	10×10 ⁴	10×10 ⁴	
	Operating rate h ⁻¹		300											
Permissible short-time withstand current, starting from a cold state, ambient temperature ≤40°C, no-current duration 30min/A	1s		210	210	240	380	430	430	720	810	900	990	1100	
	10s		105	105	145	240	260	310	320	400	520	640	800	
	60s		61	61	84	120	138	150	165	208	260	320	400	
	10min		30	30	40	50	60	60	72	84	110	135	135	
Impedance per pole (Max, mΩ) I _{th} 50Hz			2.5	2.5	2.5	2.5	2	2	1.5	1.5	1	0.8	0.8	
Auxiliary contact	Conventional free air thermal current I _{th} /A		10											
	Electrical endurance /operating cycles	AC-15 (360VA)	100×10 ⁴					80×10 ⁴			60×10 ⁴			
		DC-13 (33W)												
	Min. connectable load		17 V 5mA											
Coil	Rated control voltage U _s V		AC (50/60Hz): 24, 36, 48, 110, 220, 380, 415 DC: 24, 48, 110, 220											
	Pull-in voltage V		65%U _c ~120%U _c (AC), 85%U _c ~110%U _c (DC)							75%U _c ~110%U _c (AC), 85%U _c ~110%U _c (DC)				
	Drop-out voltage V		20%U _c ~60%U _c (AC), 10%U _c ~75%U _c (DC)											
	50Hz AC coil power VA	Start	65	65	65	100	100	100	200	200	200	200	200	
		Hold-in	8	8	8	11	11	11	20	20	20	20	20	
	DC coil Power W	Start	11	11	11	13	13	13	13	22	22	22	22	
Hold-in														

Parameter				Model		NDC1(Z) -09	NDC1(Z) -12	NDC1(Z) -18	NDC1(Z) -25	NDC1(Z) -32	NDC1(Z) -38	NDC1(Z) -40	NDC1(Z) -50	NDC1(Z) -65	NDC1(Z) -80	NDC1(Z) -95	
Mechanical endurance (operating cycles)				1000×10 ⁴						800×10 ⁴						600×10 ⁴	
Contact switching time ms (1)	AC control	Closing “C”		12~22						12~22		20~26				20~35	
		Opening “O”		4~19						4~19		8~12				6~20	
	DC control	Closing “C”		55						55							
		Opening “O”		20						20							
Terminal Connection capacity mm ² (min/max)		Flexible conductor of non-fabricated terminal	1 pc	1/4		1.5/6		1.5/10		2.5/10		2.5/25				4/50	
			2 pcs	1/4		1.5/6		1.5/6		2.5/10		2.5/16				4/25	
		Flexible conductor of fabricated terminal	1 pc	1/4		1/6		1/6		1/10		2.5/25				4/50	
			2 pcs	1/2.5		1/4		1/4		1.5/6		2.5/10				4/16	
		Rigid conductor of non-fabricated terminal	1 pc	1/4		1.5/6		1.5/6		1.5/10		2.5/25				4/50	
			2 pcs	1/4		1.5/6		1.5/6		2.5/10		2.5/16				4/25	

Note 1: The pull-in voltage is 65%Uc~120%Uc (AC) at 20°C, and 85%Uc~110%Uc (AC) at 40°C.

Quick selection table for NDC1-115~2650 series AC contactors



ND	C	1	-	115	3	AC	220	
								Coil voltage specification: For example, 220V represents a rated voltage of 220V
								Coil type: AC: AC operating coil DC: DC operating coil AC/DC: universal (both AC and DC) wide voltage range coil
								Number of poles: 3: three poles (default, no need to indicate it) 4: four poles (unavailable above 1250A)
								Rated current: NDC1-115~800: Ie under the AC-3 condition at a rated voltage of 415V, expressed in A NDC1-1250~2650: Ie under the AC-1 condition at a rated voltage of 690V, expressed in A
								Design serial number: 1
								Product code: AC contactor
								Brand code: Nader

Notes:
a. For NDC1-115~800 series products, it represents Ie under the AC-3 condition at a rated voltage of 415V;
for NDC1-1250~2650 series products, it represents Ie under the AC-1 condition at a rated voltage of 690V
b. No 4P products are available above 1250A.
c. NF1 auxiliary contact blocks and NS1 air time-delay auxiliary contact blocks are optional as accessories.

Main performance parameters of NDC1-115~2650 series AC contactors

Model			Parameter	NDC1-115	NDC1-150	NDC1-185	NDC1-225	NDC1-265	NDC1-330	NDC1-400	NDC1-500	NDC1-630	NDC1-800
Rated operating current Ie /A	AC-3	415V	115	150	185	225	265	330	400	500	630	800	
		690V	86	107	118	135	170	225	305	335	460	470	
	AC-4	415V	52	60	79	85	105	117	138	147	188	195	
		690V	49	57	69	82	98	107	135	145	170	175	
	AC-1	690V	200	250	275	315	350	500	600	750	900	1050	
Conventional free air thermal current Ith /A			200	250	275	315	350	500	600	750	900	1050	
Rated impulse withstand voltage Uimp /kV			12										
Rated isolation voltage Ui /V			1000										
Rated operating voltage Ue /V			380/415 660/690										
Rated power /kW AC-3	220/240V		30	40	55	63	75	100	110	147	200	250	
	380/400V		55	75	90	110	132	160	200	250	335	450	
	415V		59	80	100	110	140	180	220	280	375	450	
	440V		59	80	100	110	140	200	250	295	400	450	
	500V		75	90	110	129	160	200	257	355	400	450	
	660/690V		80	100	110	129	160	220	280	355	450	475	
Rated making capacity		AC-3, AC-4 Ue≤415V	10×Ie (AC-3), 12×Ie (AC-4), 1.5×Ie (AC-1)										
Rated breaking capacity		AC-1 Ue≤690V	8×Ie (AC-3), 10×Ie (AC-4), 1.5×Ie (AC-1)										
Short-time withstand current /A Starting from a cold state, no current within the last 60 min, θ≤40°C	1s		1100	1200	1500	1800	2200	2650	3600	4200	5050	5500	
	10s		640	700	920	1000	1230	1800	2400	3200	4400	4600	
	30s		520	600	740	850	950	1300	1700	2400	3400	3600	
	1min		400	450	500	560	620	900	1200	1500	2200	2600	
	10min		320	350	400	440	480	750	1000	1200	1600	1700	
Mechanical endurance		/operating cycles	1000×10 ⁴							500×10 ⁴			
		Operating rate h ⁻¹	≤1200										≤600
Electrical endurance	AC-1 /operating cycles		55×10 ⁴	55×10 ⁴	55×10 ⁴	45×10 ⁴	45×10 ⁴	50×10 ⁴	50×10 ⁴	40×10 ⁴	35×10 ⁴	40×10 ⁴	
	Operating rate h ⁻¹		200	200	200	200	150	150	150	100	100	100	
	AC-3 / operating cycles		110×10 ⁴	110×10 ⁴	110×10 ⁴	100×10 ⁴	100×10 ⁴	100×10 ⁴	95×10 ⁴	100×10 ⁴	60×10 ⁴	60×10 ⁴	
	Operating rate h ⁻¹		300					150					
	AC-4 / operating cycles		15×10 ⁴							8×10 ⁴		5×10 ⁴	3×10 ⁴
	Operating rate h ⁻¹		100										
Average impedance per pole, at Ith and 50Hz (mΩ)			0.37	0.35	0.33	0.32	0.3	0.28	0.26	0.18	0.12	0.12	
Connection capacity of main circuit	Conductor	Qty.	1	1	1	1	1	1	2	2	\	\	
		Size (mm²)	95	120	150	185	240	250	150	240	\	\	
	Copper busbar	Qty.	2	2	2	2	2	2	2	2	2	2	
		Size (mm)	20×3	25×3	25×3	32×4	32×4	30×5	30×5	40×5	60×5	60×5	
Shock resistance 1/2 sine wave = 11ms		Contactor open (gn)	9		7		6		6	9	6		
		Contactor closed (gn)	15		15		15		15	15	15		
Vibration resistance 8...300Hz		Contactor open (gn)	2		2		2		1.5	2	2		
		Contactor closed (gn)	6		6		5		5	4	4		

Parameter		Model	NDC1-1250	NDC1-1350	NDC1-1450(L)	NDC1-1700(L)	NDC1-2100(L)	NDC1-2300	NDC1-2650	
Rated operating current Ie /A			1260	1350	1450	1700	2100	2300	2650	
Load type			AC-1							
Conventional free air thermal current Ith /A			1260	1350	1450	1700	2100	2300	2650	
Rated isolation voltage Ui /V			1000		1250				1000	
Rated operating voltage Ue /V			660/690		660/690 1140				660/690	
Rated impulse withstand voltage Uimp /kV			12							
Rated making capacity /A (Ue≤690V)			5000							
Rated breaking capacity /A (Ue≤690V)			4000							
Short-time withstand current A (starting from a cold state, no current within the last 60 min, θ≤40°C)		1s	8000	8000	8000	13000	13000	13000	13500	
		10s	8000	8000	8000	10000	10000	10000	12000	
		30s	5200	5200	6000	10000	10000	10000	12000	
		1min	3000	3000	4000	5600	5600	5600	9000	
		10min	2000	2000	2600	3000	3000	3000	4000	
Mechanical endurance		/10 ⁴ operating cycles	80							40
		Operating rate / operating cycles h ⁻¹	≤600							
Electrical endurance	Ue≤440V	/10 ⁴ operating cycles	20	20	15	15	10	10	10	
		Operating rate / operating cycles h ⁻¹	≤150							50
	Ue≤690V	/10 ⁴ operating cycles	15	9	8	7	5	5	3	
		Operating rate / operating cycles h ⁻¹	≤150							50
Average impedance per pole, at Ith and 50Hz (mΩ)			0.12	0.1						
SCPD	Model		RT-17			RS-17			RSK-2800A	
	Rated current /A		1250	1350	2300				2800	
Recommended main circuit connection	Number of terminal blocks		2	2	2	3	4	4	6	
	Conductor size	Area /mm ²	500×2	500×2	500×2	500×3	500×4	500×4	500×6	
		Circumference /mm	210×2	210×2	210×2	210×3	210×4	210×4	210×6	
	Tightening torque /N.m		58							
Shock resistance 1/2 sine wave = 11ms	Contactor open (gn)		6							
	Contactor closed (gn)		15							
Vibration resistance 8...300Hz	Contactor open (gn)		2							
	Contactor closed (gn)		4							

Control circuit characteristics of NDC1-115~2650 series AC contactors

Model				NDC1-115	NDC1-150	NDC1-185	NDC1-225	NDC1-265	NDC1-330
General coil	Rated control voltage (Uc)			AC: 24, 36, 48, 110, 220, 240, 380, 415, 480 (50Hz, 50/60Hz) DC: 24, 110, 220		AC: 24, 36, 48, 110, 200, 220, 230, 240, 380, 400, 415 (50Hz, 50/60Hz) DC: 24, 48, 110, 220		AC: 24, 36, 48, 110, 220, 230, 380, 400 (50/60Hz) DC: 24, 48, 110, 220	
	Pull-in voltage range			85%~110%Uc					
	Drop-out voltage range			20%Uc~75%Uc (AC), 10%Uc~70%Uc (DC)					
	AC coil	Pull-in time /ms		≤50		≤40		≤70	
		Drop-out time /ms		≤25 (50Hz) ≤130 (50/60Hz)		≤20 (50Hz) ≤150 (50/60Hz)		≤170	
		Pull-in power consumption /VA		≤800 (50Hz) ≤855 (50/60Hz)		≤1000 (50Hz) ≤1180 (50/60Hz)		≤650	
		Hold-in power consumption /VA		≤55 (50Hz) ≤9 (50/60Hz)		≤64 (50Hz) ≤14 (50/60Hz)		≤15	
	DC coil	Pull-in time /ms		≤40		≤50		≤50	
		Drop-out time /ms		≤50		≤70		≤65	
		Pull-in power consumption /W		≤760		≤900		≤810	
Hold-in power consumption /W		≤4.9		≤5.1		≤5.0			
Wide voltage range coil	Rated control voltage Uc /V			AC/DC: 48~132V, 100~250V					
	Pull-in voltage range			85%Ucmin~110%Ucmax					
	Drop-out voltage range			0.48Ucmin-0.52Ucmin					
	48~132V AC/DC	Pull-in time /ms	PLC control	≤40		≤40		≤70	
			Power supply control	≤40		≤40		≤70	
		Drop-out time /ms	PLC control	≤22		≤22		≤25	
			Power supply control	≤140		≤140		≤120	
		Pull-in power consumption VA/W		≤250		≤250		≤450	
		Hold-in power consumption VA/W		≤13		≤13		≤13	
	100~250V AC/DC	Pull-in time /ms	PLC control	≤90		≤80		≤70	
			Power supply control	≤90		≤80		≤70	
		Drop-out time /ms	PLC control	≤22		≤30		≤25	
			Power supply control	≤150		≤140		≤120	
		Pull-in power consumption VA/W		≤250		≤250		≤450	
		Hold-in power consumption VA/W		≤16		≤16		≤16	
Connection capacity of control circuit				Flexible conductor mm²	1 pc/2 pcs	2.5		2.5	
				Rigid conductor mm²	1 pc	4		4	
				Tightening torque /N.m		0.8~1.2			

Model				NDC1-400	NDC1-500	NDC1-630	NDC1-800
General coil	Rated control voltage U_c /V			AC: 36, 110, 220, 380 (50/60Hz) DC: 110, 220	AC: 36, 110, 220, 380 (50/60Hz) DC: 48, 110, 220	AC: 110, 220, 230, 380 (50/60Hz) DC: 110, 220	AC: 48 (only for quick response coils), 110~120, 220~230, 380~400 (50/60Hz) DC: 48 (only for quick response coils), 110, 220
	Pull-in voltage range			85% U_c ~110% U_c			
	Drop-out voltage range			20% U_c ~75% U_c (AC), 10% U_c ~70% U_c (DC)			
	AC coil	Pull-in time /ms		40~75	40~75	40~80	≤80 (general) ≤60 (quick)
		Drop-out time /ms		100~170	100~170	100~200	≤180 (general) ≤80 (quick)
		Pull-in power consumption /VA		≤1075	≤1100	≤1650	≤1700 (general) ≤1000 (quick)
		Hold-in power consumption /VA		≤22	≤24	≤27	≤27 (general) ≤47 (quick)
	DC coil	Pull-in time /ms		50~65	50~65	60~70	≤80 (general) ≤20 (quick)
		Drop-out time /ms		45~65	45~65	40~50	≤80 (general) ≤50 (quick)
		Pull-in power consumption /W		≤1140	≤1220	≤1920	≤1700 (general) ≤733 (quick)
		Hold-in power consumption /W		≤7.5	≤8.0	≤12.5	≤27 (general) ≤48 (quick)
Wide voltage range coil	Rated control voltage U_c /V			AC/DC: 48~132V, 100~250V			
	Pull-in voltage range			85% U_{cmin} ~110% U_{cmax}			
	Drop-out voltage range			0.48 U_{cmin} -0.52 U_{cmin}			
	48~132V AC/DC	Pull-in time /ms	PLC control	60~75	70~85	70~85	
			Power supply control	60~75	70~85	70~85	
		Drop-out time /ms	PLC control	21~25	21~25	21~25	
			Power supply control	60~120	80~140	80~140	
		Pull-in power consumption VA/W		≤450	≤550	≤600	
		Hold-in power consumption VA/W		≤13	≤13	≤13	
	100~250V AC/DC	Pull-in time /ms	PLC control	60~75	70~85	70~85	
			Power supply control	60~75	70~85	70~85	
		Drop-out time /ms	PLC control	21~25	21~25	21~25	
			Power supply control	60~120	100~160	100~160	
		Pull-in power consumption VA/W		≤450	≤550	≤600	
Hold-in power consumption VA/W		≤16	≤16	≤16			
Connection capacity of control circuit	Flexible conductor mm ²	1 pc/2 pcs	2.5				
	Rigid conductor mm ²	1 pc	4				
	Tightening torque /N.m		0.8~1.2				

Model				NDC1-1250	NDC1-1350	NDC1-1450(L)	NDC1-1700(L)	NDC1-2100(L)	NDC1-2650
General coil	Rated control voltage Uc /V			AC: 48 (only for quick response coils), 110~12, 220~230, 380~400 (50/60Hz) DC: 48 (only for quick response coils), 110, 220	AC: 110, 220, 380 (50/60Hz) DC: 220~250	AC: 110, 110~120, 220, 220~230, 240, 277, 380, 380~400, 415~400 (50/60Hz) DC: 110, 125, 220~250, 250			AC: 220~230 240~250 380~400 415~440 (50/60Hz) DC: 220~250
	Pull-in voltage range			85%Uc~110%Uc					
	Drop-out voltage range			20%Uc~75%Uc (AC), 10%Uc~70%Uc (DC)					
	AC coil	Pull-in time /ms		≤80 (general) ≤60 (quick)	40~80	40~75			40~80
		Drop-out time /ms		≤180 (general) ≤80 (quick)	100~200	100~170			100~200
		Pull-in power consumption /VA		≤1700 (general) ≤1000 (quick)	≤2200	≤2200			≤3000
		Hold-in power consumption /VA		≤27 (general) ≤47 (quick)	≤60	≤44			≤50
	DC coil	Pull-in time /ms		≤80 (general) ≤20 (quick)	60~70	50~60			60~70
		Drop-out time /ms		≤80 (general) ≤50 (quick)	40~60	45~60			45~60
Pull-in power consumption /VA		≤1700 (general) ≤733 (quick)	≤2400	≤2500			≤3000		
Hold-in power consumption /VA		≤27 (general) ≤48 (quick)	≤15	≤16			≤25		
Wide voltage range coil	Rated control voltage Uc /V			AC/DC: 100~250V; AC/DC: 48~132V (only for NDC1-1250 products)		/			
	Pull-in voltage range			85%Ucmin~110%Ucmax		/			
	Drop-out voltage range			0.48Ucmin-0.52Ucmin		/			
	100~250V AC/DC	Pull-in time /ms	PLC control	70~85	60~75	/			
			Power supply control	70~85	60~75	/			
		Drop-out time /ms	PLC control	21~25	21~25	/			
			Power supply control	100~160	60~120	/			
		Pull-in power consumption VA/W		≤600	≤900	/			
		Hold-in power consumption VA/W		≤16	≤18	/			
	48~132V AC/DC	Pull-in time /ms	PLC control	70~85	/	/			
			Power supply control	70~85	/	/			
		Drop-out time /ms	PLC control	21~25	/	/			
			Power supply control	80~140	/	/			
		Pull-in power consumption VA/W		≤600	/	/			
		Hold-in power consumption VA/W		≤13	/	/			
Connection capacity of control circuit		Flexible conductor mm²	1 pc/2 pcs	2.5					
		Rigid conductor mm²	1 pc	4					
		Tightening torque /N.m		0.8~1.2					

Quick selection table for NDC1N-09~95 series AC contactors



ND	C	1	N	-	18	10	TH	
								Blank: general TH: damp heat
								Number of contacts: see Note a
								Basic specification (Ie under the AC-3 condition at a rated voltage of 415V, expressed in A) 9, 12, 18, 25, 32, 38, 40, 50, 65, 80, 95
								Reversing contactor
								Design serial number: 1
								Product code: AC contactor
								Brand code: Nader

Notes:

- a: The code for the number of auxiliary contacts of a 3P contactor is expressed in a 2-digit numeral, with the first digit representing the number of NO contact blocks, and the second digit representing the number of NC contact blocks;
The code "40" for the number of main contacts of a 4P contactor represents four NO main contact blocks.
- b: NF1 auxiliary contact blocks, NS1 air time-delay contacts, NF2 auxiliary contact blocks, and NG1 surge suppression modules are optional.

Main performance parameters of NDC1N-09~95 series AC contactors

Parameter			Model	NDC1(N) -09	NDC1(N) -12	NDC1(N) -18	NDC1(N) -25	NDC1(N) -32	NDC1(N) -38	NDC1(N) -40	NDC1(N) -50	NDC1(N) -65	NDC1(N) -80	NDC1(N) -95	
Rated operating Current (Ie /A)	AC-3	415V	9	12	18	25	32	38	40	50	65	80	95		
		690V	6.6	8.9	12	18	21	21.5	34	39	42	49	49		
	AC-4	415V	3.5	5	7.7	8.5	12	13.9	18.5	24	28	37	44		
		690V	1.5	2	3.8	4.4	7.5	8	9	12	14	17.3	21.3		
Conventional free air thermal current (Ith /A) (θ≤60°C)			25	25	32	40	50	50	60	80	80	125	125		
Rated isolation voltage (Ui /V)			1000												
Impulse withstand voltage (kV)			6							8					
Rated operating voltage (Ue /V)			380/415 680/690												
AC-3 (6Ie, Ie)	Electrical endurance (operating cycles)		100×10 ⁴	100×10 ⁴	100×10 ⁴	100×10 ⁴	80×10 ⁴	80×10 ⁴	80×10 ⁴	60×10 ⁴	60×10 ⁴	60×10 ⁴	60×10 ⁴		
	Operating rate (h ⁻¹)		1200	1200	1200	1200	600	600	600	600	600	600	600		
AC-4 (6Ie, 6Ie)	Electrical endurance (operating cycles)		20×10 ⁴	20×10 ⁴	20×10 ⁴	20×10 ⁴	20×10 ⁴	15×10 ⁴	15×10 ⁴	15×10 ⁴	15×10 ⁴	10×10 ⁴	10×10 ⁴		
	Operating rate (h ⁻¹)		300												
Permissible short-time withstand current, starting from a cold state, ambient temperature ≤40°C, no-current duration 30min /A	1s		210	210	240	380	430	430	720	810	900	990	1100		
	10s		105	105	145	240	260	310	320	400	520	640	800		
	60s		61	61	84	120	138	150	165	208	260	320	400		
	10min		30	30	40	50	60	60	72	84	110	135	135		
Impedance per pole (Max, mΩ)			2.5	2.5	2.5	2.5	2	2	2	2.5	2.5	2.5	0.8		
Auxiliary contact	Conventional free air thermal current (Ith /A)		10												
	Electrical endurance / operating cycles	AC-15 (360VA)	100×10 ⁴					80×10 ⁴			60×10 ⁴				
		DC-13 (33W)													
	Min. connectable load		17V 5mA												
Coil	Rated control voltage (Us /V)		AC (50/60Hz); 24, 36, 48, 110, 220/230, 240, 380/400, 415, 440												
	Pull-in voltage range		65%Us~120%Us							75%Us~110%Us					
	Drop-out voltage range		20%Us~60%Us												
	Power of 50HzAC coil /VA	Start	65	65	65	100	100	100	200	200	200	200	200		
Hold-in		8	8	8	11	11	11	20	20	20	20	20			
Mechanical endurance (operating cycles)			1000×10 ⁴					800×10 ⁴					600×10 ⁴		
Contact switching time (ms)	Closing "C"		12~22					15~24			20~25			20~35	
	Opening "O"		4~19					4~19			8~12			6~20	
Connection capacity of terminal (mm ²) (Min/ Max)	Flexible conductor of non- fabricated terminal	1 pc	1/4		1.5/6		1.5/10		2.5/10		2.5/25			4/50	
		2 pcs	—		—		—		—		2.5/16			4/25	
	Flexible conductor of fabricated terminal	1 pc	1/4		1/6		1/6		1/10		2.5/25			4/16	
		2 pcs	—		—		—		—		2.5/10			4/16	
	Rigid conductor of non- fabricated terminal	1 pc	1/4		1.5/6		1.5/6		1.5/10		2.5/16			4/50	
		2 pcs	—		—		—		—		2.5/16			4/25	

Quick selection table for NDC1N-115~800 series AC reversing contactors



ND	C	1	N	-	115	3	AC	200V	+	NF1-11	
											Auxiliary contact blockNF1
											Coil voltage specification: 220V represents an operating voltage of 220V
											Coil type: AC: AC operating coil (general type) DC: DC operating coil (general type) AC/DC: universal (both AC and DC) wide voltage range coil
											Number of contacts 3: three poles (default, no need to indicate it) 4: four poles
											Basic specification (Ie under the AC-3 condition at a rated voltage of 415V, expressed in A) 115, 150, 185, 225, 265, 330, 400, 500, 630, 800
											Reversing contactor
											Design serial number: 1
											Product code: AC contactor
											Brand code: Nader

Notes:
a. For the coil voltage, AC, DC and universal (both AC and DC) types are available. Please see the sample ordering specification. AC/DC means universal (both AC and DC) wide voltage range coil

Main performance parameters of NDC1N-115~800 series AC reversing contactors

Model			NDC1 -115	NDC1 -150	NDC1 -185	NDC1 -225	NDC1 -265	NDC1 -330	NDC1 -400	NDC1 -500	NDC1 -630	NDC1 -800
Parameter												
Rated operating current Ie /A	AC-1	690V	200	250	275	315	350	500	600	750	900	1050
	AC-3	415V	115	150	185	225	265	330	400	500	630	800
		690V	86	107	118	135	170	225	305	335	460	470
	AC-4	415V	52	60	79	85	105	117	138	147	188	195
		690V	49	57	69	82	98	107	135	145	170	175
Conventional free air thermal current Ith /A			200	250	275	315	350	500	600	750	900	1050
Rated impulse withstand voltage Uimp /kV			12									
Rated isolation voltage Ui /V			1000									
Rated operating voltage Ue /V			380/415 660/690									
Rated power /kW AC-3	220/240V		30	40	55	63	75	100	110	147	200	250
	380/400V		55	75	90	110	132	160	200	250	335	450
	415V		59	80	100	110	140	180	220	280	375	450
	440V		59	80	100	110	140	200	250	295	400	450
	500V		75	90	110	129	160	200	257	355	400	450
	660/690V		80	100	110	129	160	220	280	355	450	475
Mechanical endurance	/operating cycles		300×10 ⁴						100×10 ⁴			
	Operating rate h ⁻¹		≤1200								≤600	
Electrical endurance	AC-3 /operating cycles		80×10 ⁴	80×10 ⁴	50×10 ⁴	50×10 ⁴	50×10 ⁴	50×10 ⁴	30×10 ⁴	20×10 ⁴	20×10 ⁴	10×10 ⁴
	Operating rate h ⁻¹		300				150					
	AC-4 /operating cycles		15×10 ⁴						8×10 ⁴		5×10 ⁴	3×10 ⁴
	Operating rate h ⁻¹		100									
Average impedance per pole, at Ith and 50Hz (mΩ)			0.37	0.35	0.33	0.32	0.3	0.28	0.26	0.18	0.12	0.12
Connection capacity of main circuit	Conductor	Qty.	1	1	1	1	1	1	2	2	\	\
		Size (mm²)	95	120	150	185	240	250	150	240	\	\
	Copper busbar	Qty.	2	2	2	2	2	2	2	2	2	2
		Size (mm²)	20×3	25×3	25×3	32×4	32×4	30×5	30×5	40×5	60×5	60×5
Shock resistance 1/2 sine wave = 11ms	Contactor open (gn)		9		7		6		6	9		6
	Contactor closed (gn)		15		15		15		15	15		15
Vibration resistance 8...300Hz	Contactor open (gn)		2		2		2		1.5	2		2
	Contactor closed (gn)		6		6		5		5	4		4

Quick selection table for NDC1T series dustproof AC contactors



ND	C	1	T	-	40	11	
							Number of contacts "11" represents that the contactor contains one NO auxiliary contact block and one NC auxiliary contact block.
							Code of basic specification: Ie under the AC-3 condition at a rated voltage of 415V, expressed in A: 40A, 50A, 65A
							Special-purpose AC contactor
							Design serial number: 1
							Product code: AC contactor
							Brand code: Nader

Main performance parameters of NDC1T series dustproof AC contactors

Model			NDC1T-4011	NDC1T-5011	NDC1T-6511
Rated operating current I _e /A	AC-3	415V	40	50	65
		690V	34	39	42
	AC-4	415V	18.5	24	28
		690V	9	12	14
Conventional thermal current (I _{th} /A)			60	80	80
Rated isolation voltage (U _i /V)			690		
Rated operating voltage (U _e /V)			380/415 660/690		
Power-frequency withstand voltage (V)			1890 1 min		
Electrical endurance	AC -3	Electrical endurance (10 ⁴ operating cycles)	80	60	60
		Ultimate operating rate (operating cycles/h)	600		
	AC -4	Electrical endurance (10 ⁴ operating cycles)	15	15	15
		Ultimate operating rate (operating cycles/h)	300		
Mechanical endurance			800×10 ⁴		
AC-4 (6Ie, 6Ie)	Electrical endurance (10 ⁴ operating cycles)		15	15	15
	Operating rate (operating cycles/h)		300		
	Rated operating current (Ie A)	380/400V	18.5	24	28
		660/690V	9	12	14
Auxiliary contact	Conventional thermal current (A)		10		
	Electrical endurance (operating cycles)	AC-15 (360VA)	80×10 ⁴	60×10 ⁴	60×10 ⁴
		DC-13 (33VA)			
	Min. connectable load		17V 5mA		
Coil	Rated control voltage (U _s /V)		AC (50Hz, 50Hz/60Hz, 60Hz): 24, 48, 110, 220, 380		
	Pull-in voltage range		85%U _s ~110U _s		
	Drop-out voltage range		20%U _s ~75%U _s		
	Coil power 50/60Hz	Start	230	230	230
		Hold-in	32	32	32
Contact operating time (ms)		Closing “C”	20~25		
		Opening “O”	8~12		
Max. terminal tightening torque (N.m)		Terminal of main circuit	2.5~5		
Max. connection capacity (mm ²)		O-shaped terminal head	16 (connected with the O-shaped terminal head, direct bare conductor unacceptable)		

Quick selection table for NDC2 series AC contactors



ND	C	2	-	16	10	
						Number of contacts: see Note a
						Basic specification (Ie under the AC-3 condition at a rated voltage of 415V, expressed in A) 06, 09, 12, 16, 115, 150, 170
						Design serial number: 2
						Product code: AC contactor
						Brand code: Nader

Note a.

The code for the number of auxiliary contacts of a 3P AC contactor is expressed in a 2-digit numeral, with the first digit representing the number of NO contact blocks, and the second digit representing the number of NC contact blocks; "10" represents one NO auxiliary contact block, while "01" represents one NC auxiliary contact block; the code "40" for the number of main contacts of a 4P contactor represents four NO main contact blocks; and the code "08" represents two NO and two NC main contact blocks.

Main performance parameters of NDC2 series AC contactors

Parameter			Model	NDC2-06	NDC2-09	NDC2-12	NDC2-16	NDC2-115	NDC2-150	NDC2-170
Rated operating current I _e (AC-3) A	380/415V			6	9	12	16	115	150	170
	660/690V			3.8	4.9	4.9	4.9	86	107	118
Rated operating current I _e (AC-4) A	380/415V			2.3	3.3	4.3	5.6	54	63	75
	660/690V			1.4	1.4	1.9	1.8	27	35	42
Conventional thermal current I _{th} /A				20				200		
Rated operating voltage U _e /V				AC220/230/240, AC380/400/415, AC660/690						
Rated isolation voltage U _i /V				690				1000		
AC-3 (6I _e , I _e)	Electrical endurance (operating cycles)			100×10 ⁴				40×10 ⁴	30×10 ⁴	
	Operating rate h ⁻¹			1200				600	300	
AC-4 (6I _e , 6I _e)	Electrical endurance (operating cycles)			20×10 ⁴				2×10 ⁴		
	Operating rate h ⁻¹			600				300		
Auxiliary contact	Conventional free air thermal current I _{th} /A			10				/		
	Electrical endurance /operating cycles	AC-15 (360VA)		100×10 ⁴				/		
		DC-13 (33W)								
	Min. connectable load			24V 10mA				/		
Coil parameters	Rated control voltage U _s /V			AC (50HZ, 50/60HZ): 24, 36, 48, 110, 220, 380, 415				AC (50/60Hz): 24, 36, 48, 110, 200, 220, 230, 380, 400, 415, 480		
	Pull-in voltage range			85%U _s ~110%U _s						
	Drop-out voltage range			20%U _s ~75%U _s						
	50Hz AC coil Power VA	Start	50Hz	30				/		
			50/60Hz	30				350		
		Hold-in	50Hz	5				/		
			50/60Hz	5				22		
Mechanical endurance (operating cycles)				1000×10 ⁴				800×10 ⁴		
Connection capacity of main circuit mm ² (min/max)	Flexible conductor of Non-fabricated terminal	1 pc	0.75~4				10~120			
		2 pcs	0.75~4				10~120+10~50			
	Flexible conductor of fabricated terminal	1 pc	0.34~2.5				10~120			
		2 pcs	0.34~1×1.5+1×2.5				10~120+10~50			
	Rigid conductor of Non-fabricated terminal	1 pc	1.5~4				10~120			
		2 pcs	1.5~4				10~120+10~50			
Connection capacity of control circuit mm ² (min/max)	Flexible conductor	1 pc	0.34~2.5				1~2.5			
		2 pcs	0.34~1×1.5+1×2.5				1~2.5+1~2.5			
	Rigid conductor	1 pc	1.5~4				1~2.5			
		2 pcs	1.5~4				1~2.5+1~2.5			

Quick selection table for NDC2N series AC contactors



ND C 2 N - 16 10

Code for the number of auxiliary contacts of a 3P contactor:

10: one NO auxiliary contact block
01: one NC auxiliary contact block
Without auxiliary contacts above 115

Code for the number of auxiliary contacts of a 4P contactor:

40: four NO main contact blocks
Without 4P products above 115.

Frame size (Ie under the AC-3 condition at a rated voltage of 415V, expressed in A):

06: 06A
09: 09A
12: 12A
16: 16A
115: 115A
150: 150A
170: 170A

Contactor code:

N: reversing contactor

Design serial number: 2

Product code: AC contactor

Brand code: Nader

Main performance parameters of NDC2N series AC contactors

Parameter			Model	NDC2N-06	NDC2N-09	NDC2N-12	NDC2N-16	NDC2N-115	NDC2N-150	NDC2N-170
Rated operating current I _e /A	AC-3		380/415V	6	9	12	16	115	150	170
			660/690V	3.8	4.9	4.9	4.9	86	107	118
	AC-4		220/230V	2.4	3.5	4.4	5.7	54	63	75
			380/415V	2.3	3.3	4.3	5.6	27	35	42
Conventional thermal current I _{th} /A			20					200		
Rated operating voltage U _e /V			AC220/230/240, AC380/400/415, AC660/690							
Rated isolation voltage U _i /V			690					1000		
AC-3 (6I _e , I _e)	Electrical endurance (operating cycles)		100×10 ⁴					40×10 ⁴		30×10 ⁴
	Operating rate h ⁻¹		1200					600	300	
AC-4 (6I _e , I _e)	Electrical endurance (operating cycles)		20×10 ⁴					2×10 ⁴		
	Operating rate h ⁻¹		600					300		
Auxiliary contact	Conventional free air thermal current I _{th} /A		10					/		
	Electrical endurance (operating cycles)	AC-15 (360VA)	100×10 ⁴					/		
		DC-13 (33W)						/		
	Min. connectable load		24V 10mA					/		
Coil parameters	Rated control voltage U _s /V		AC (50Hz, 50/60Hz): 24, 36, 48, 110, 220/230, 380/415					AC (50/60Hz): 24, 36, 48, 110, 200, 220, 230, 380, 400, 415, 480		
	Pull-in voltage range		0.85U _s ~1.1U _s							
	Drop-out voltage range		0.20U _s ~0.75U _s							
	Power VA	Start	50Hz	30				/		
			50/60Hz	30				350		
		Hold-in	50Hz	5				/		
			50/60Hz	5				22		
Mechanical endurance (operating cycles)			1000×10 ⁴					400×10 ⁴		300×10 ⁴
Connection capacity of main circuit mm ²	Flexible conductor of non-fabricated terminal	1 pc	0.75~4					10~120		
		2 pcs	0.75~4					10~120+10~50		
		1 pc	0.5~2.5					10~120		
		2 pcs	0.5~1×1.5+1×2.5					10~120+10~50		
	Rigid conductor	1 pc	1.5~4					1~2.5		
		2 pcs	1.5~4					1~2.5		
Connection capacity of main circuit mm ²	Flexible conductor of fabricated terminal	1 pc	0.34~2.5					1~2.5		
		2 pcs	0.34~1×1.5+1×2.5					1~2.5+1~2.5		
	Rigid conductor	1 pc	1.5~2.5					1~2.5		
		2 pcs	1.5~2.5					1~2.5+1~2.5		
Terminal tightening torque N.m	Main circuit		0.5~0.8					10~12		
	Auxiliary / control circuit		0.5~0.8					0.8~1.2		

Quick selection table for NDC3 series AC contactors



ND	C	3	Z	-	18	11	S	□	
									Customer code: Expressed in letters or numbers
									Making capacity of auxiliary contact: Blank: general type S: low signal making
									Number of auxiliary contacts: The first digit represents the number of NO auxiliary contact blocks The second digit represents the number of NC auxiliary contact blocks Blank: without auxiliary contacts
									Basic specification: Ie under the AC-3 condition at a rated voltage of 400V, expressed in A
									Derived code: Z: DC contactor N: AC reversing contactor Blank: single AC product
									Design serial number: 3
									Product code: AC contactor
									Brand code: Nader

Notes: 1. Only 1NO+1NC low-signal auxiliary contacts are available at present;
2. All reversing contactors are supplied with auxiliary contacts.

Main performance parameters of NDC3 series AC contactors

Specification			09	12	18
Rated operating current Ie	AC-3 Ue 380/400V		09A	12A	18A
Conventional free air thermal current Ith (AC-1)	Ø≤60 °C		25A	25A	32A
Rated isolation voltage Ui			690V		
Number of poles			3		
Max. power of controllable three-phase motor AC-3 kW	220/240V		2.2	3	4
	380/400V		4	5.5	7.5
	415V		4	5.5	7.5
	440V		4	5.5	9
	500V		5.5	7.5	10
	600/690V		5.5	7.5	10
AC-3 (6Ie, Ie)	Electrical endurance (operating cycles)		200x10 ⁴	200x10 ⁴	160x10 ⁴
	Operating rate (operating cycles/h)		1200	1200	1200
AC-4 (6Ie, Ie)	Rated operating current (380/415V)		9A	12A	18A
	Max. power of controllable three-phase motor (380/415V)		4	5.5	7.5
	Electrical endurance (operating cycles)		5x10 ⁴	5x10 ⁴	4x10 ⁴
	Operating rate (operating cycles/h)		300		
Mechanical endurance (operating cycles)			1500x10 ⁴ (400x10 ⁴ for interlocking products)		
Connection capacity of main circuit mm ² (min...max)	Flexible conductor without terminals	1 pc	1...4		1.5...6
		2 pcs	1...4		1.5...6
	Flexible conductor with terminals	1 pc	1...4		1...6
		2 pcs	1...2.5		1...4
	Rigid conductor without terminals	1 pc	1...4		1.5...6
		2 pcs	1...4		1.5...6
Tightening torque			1.7N.m		

AC control circuit characteristics		
Rated control voltage U_c V	50/60Hz	24, 26, 48, 110, 200, 220, 230, 240, 380, 400, 415, 440
Pull-in voltage	60°C	85%~110% U_c
Drop-out voltage		20%~60% U_c
Coil power consumption U_c	Pull-in	70VA
	Hold-in	8VA
Operating time	Close	12~22ms
	Open	4~19 ms
Mechanical endurance (operating cycles)		1500x10 ⁴
Operating rate (operating cycles/h)		3600
DC control circuit characteristics		
Rated control voltage U_c V		DC24 36 48 110 220
Pull-in voltage	60°C	85%~110% U_c
Drop-out voltage		10%~60% U_c
Coil power consumption U_c	Pull-in	66W
	Hold-in	3.5W
Operating time ms	Close	15~75
	Open	30~100
Mechanical endurance (operating cycles)		1500x10 ⁴
Operating rate (operating cycles/h)		3600

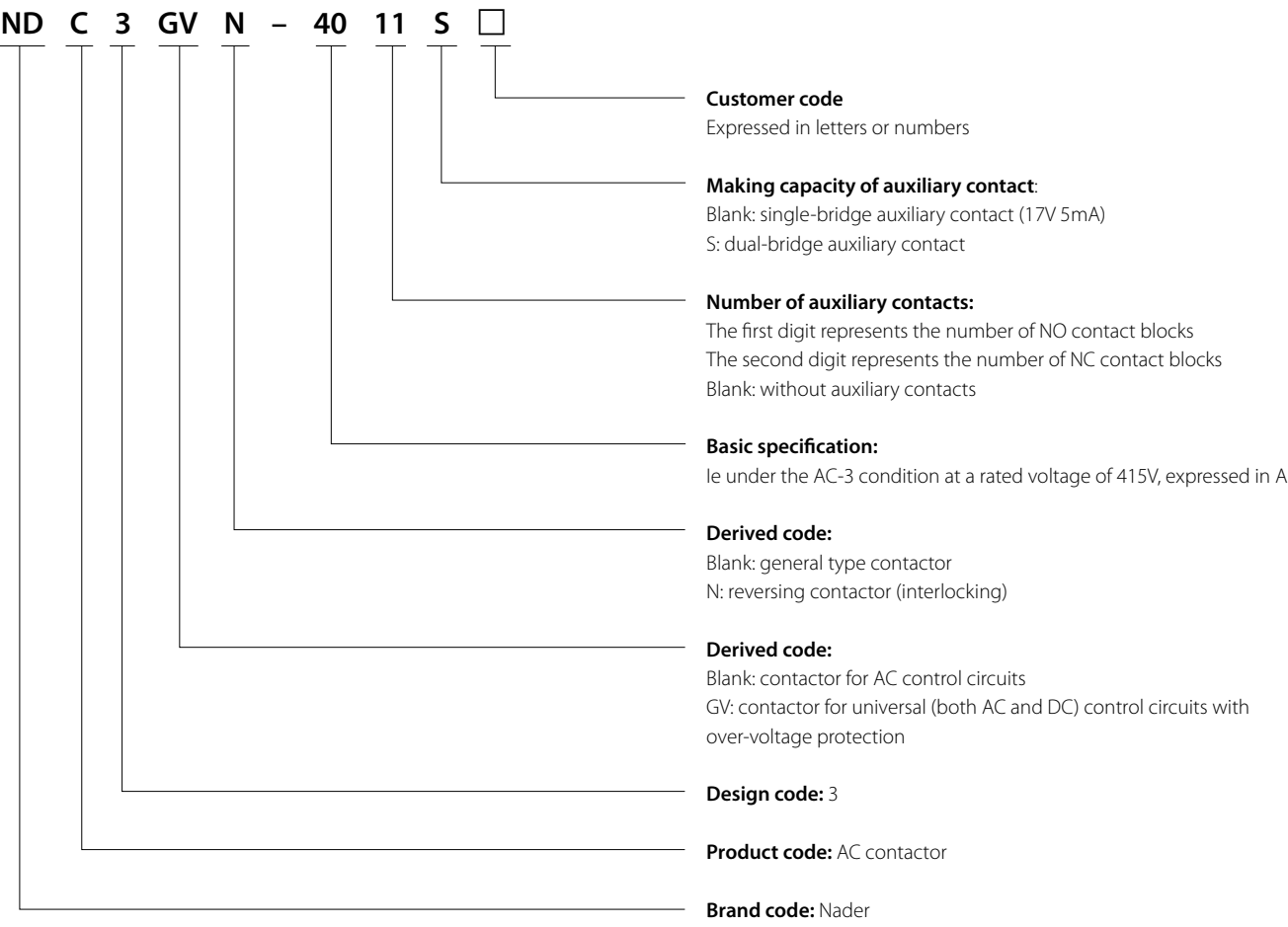
Number of contacts (main body)			1NO +1 NC or 2NO 2NO	
Rated isolation voltage Ui V			690V	
Conventional thermal current Ith A		Ambient temperature ≤60°C		10
Min. switching capacity		Umin/Imin		17V/5mA
Max. short-time withstand current A		1s		100
		500ms		120
		100ms		140
Non-overlapping time ms			1.5	
Rated current A		AC-15 AC400V		2.4
		DC-13 DC250V		0.3
Electrical endurance (operating cycles)			100x10 ⁴	
Connection capacity of auxiliary circuit (mm²) (min...max)		Flexible conductor without terminals	1 pc	1...4
			2 pcs	1...4
		Flexible conductor with terminals	1 pc	1...4
			2 pcs	1...2.5
		Rigid conductor without terminals	1 pc	1...4
			2 pcs	1...4
Tightening torque			1.7 N.m	

Notes: 1. Only 1NO+1NC low-signal auxiliary contacts are available at present;
2. All reversing contactors are supplied with auxiliary contacts.

Specification			25	32	38
Rated operating current Ie	AC-3 Ue 380/400V		25A	32A	38A
Conventional free air thermal current Ith (AC-1)	0≤60 °C		40A	50A	50A
Rated isolation voltage Ui			690V		
Number of poles			3		
Max. power of controllable three-phase motor AC-3 kW	220/240V		5.5	7.5	9
	380/400V		11	15	18.5
	415V		11	15	18.5
	440V		11	15	18.5
	500V		15	18.5	18.5
	600/690V		15	18.5	18.5
AC-3 (6Ie, Ie)	Electrical endurance (operating cycles)		150x10 ⁴	120x10 ⁴	120x10 ⁴
	Operating rate (operating cycles/h)		1200	600	600
AC-4 (6Ie, 6Ie)	Rated operating current (380/415V)		20.9A	26.7A	26.7A
	Max. power of controllable three-phase motor kW (380/415V)		7.5	11	11
	Electrical endurance (operating cycles)		5x10 ⁴	4.5x10 ⁴	4.5x10 ⁴
	Operating rate (operating cycles/h)		300		
Mechanical endurance AC-4 (operating cycles)			1500x10 ⁴ (400x10 ⁴ for interlocking products)		
Connection capacity of main circuit mm² (min...max)	Flexible conductor without terminals	1 pc	1.5...10	2.5...10	
		2 pcs	1.5...6	2.5...10	
	Flexible conductor with terminals	1 pc	1...6	1...10	
		2 pcs	1...4	1.5...6	
	Rigid conductor without terminals	1 pc	1.5...6	1.5...10	
		2 pcs	1.5...6	2.5...10	
Tightening torque			2.5 N.m		

AC control circuit characteristics			
Rated control voltage U_c V		50/60Hz	24, 36, 48, 110, 200, 220, 230, 240, 380, 400, 415, 440
Pull-in voltage		60°C	85%~110% U_c
Drop-out voltage			20%~60% U_c
Coil power consumption U_c		Pull-in	70VA
		Hold-in	8VA
Operating time		Close	12~22ms
		Open	4~19 ms
Mechanical endurance (operating cycles)			1500x10 ⁴
Operating rate (operating cycles/h)			3600
DC control circuit characteristics			
Rated control voltage U_c V			DC 24 36 48 110 220
Pull-in voltage		60°C	85%~110% U_c
Drop-out voltage			10%~60% U_c
Coil power consumption U_c		Pull-in	66W
		Hold-in	3.5W
Operating time ms		Close	15~75
		Open	30~100
Mechanical endurance (operating cycles)			1500x10 ⁴
Operating rate (operating cycles/h)			3600
Number of contacts (main body)			1NO+1NC or 2NO or 2NC
Rated isolation voltage U_i V			690V
Conventional thermal current I_{th} A	Ambient temperature ≤60°C		10
Min. switching capacity	U_{min}/I_{min}		17V/5mA
Max. short-time withstand current A	1s		100
	500ms		120
	100ms		140
Non-overlapping time ms			1.5
Rated current A	AC-15 AC400V		2.4
	DC-13 DC250V		0.3
Electrical endurance (operating cycles)			100x10 ⁴
Connection capacity of auxiliary circuit (mm ²) (min...max)	Flexible conductor without terminals	1 pc	1...4
		2 pcs	1...4
	Flexible conductor with terminals	1 pc	1...4
		2 pcs	1...2.5
	Rigid conductor without terminals	1 pc	1...4
		2 pcs	1...4
Tightening torque			1.7 N.m

Quick selection table for NDC3-40~95 series AC contactors



Main performance parameters of NDC3-40~95 series AC contactors

Specification			NDC3-40	NDC3-50	NDC3-65	NDC3-80	NDC3-95
Number of poles			3	3	3	3	3
Conventional free air thermal current Ith /A			60	80	80	125	125
Rated current (A)	AC-1	415V	60	80	80	125	125
		690V	60	80	80	125	125
	AC-3	415V	40	50	65	80	95
		690V	32	35	39	48	48
	AC-4	415V	33	41	55	66	79
		690V	21	21	21	40	40
Average impedance per pole (mΩ)	Ith 50Hz		1.5	1.5	1.5	0.8	0.8
Dissipated power per pole W	AC-3		2.4	3.7	6.3	5.1	7.2
	AC-1		5.4	9.6	9.6	12.5	12.5
Rated operating voltage (V)			AC220/230/240V, AC380/415V, AC660/690V				
Isolation voltage Ui			1000V				
Impulse withstand voltage			8kV				
Rated control voltage			24V, 36V, 48V, 110V, 220/230V, 380V, 400/415V, 440V (50/60Hz) (for AC products); AC/DC24-60V, AC/DC48-130V, AC/DC100-250V (AC/DC control products)				
Control voltage range	Pull-in		0.85Uc~1.1Uc warm state 60°C				
	Drop-out	0.2~0.6Uc (for AC products)					
		0.1~0.6Uc (for AC/DC products)					
Pull-in power consumption 20°C Uc	AC products		≤200VA				≤300VA
	AC/DC control products		≤70W				≤90W
Hold-in power consumption 20°C Uc	AC products		15VA/5W				26VA/9W
	AC/DC control products		3W				
Operating time	From energization of coil to closing of main contacts	12-30ms (for AC products)					12-35ms (for AC products)
		42-100ms (for AC/DC products)					
	From de-energization of coil to opening of main contacts	4-20ms (for AC products)					6-20ms (for AC products)
		19-105ms (for AC/DC products)					
Rated making capacity A	415V		10Ie (AC-3)				
Rated breaking capacity A	415V		8Ie (AC-3)				
Ultimate making capacity A	415V		800	900	1000	1100	
Ultimate breaking capacity A	415V		800	900	1000	1100	
Mechanical endurance at Uc			600x10 ⁴ operating cycles (single set), 100x10 ⁴ operating cycles (for NDC3N reversing contactors)				400x10 ⁴ operating cycles (single set), 100x10 ⁴ operating cycles (for NDC3N reversing contactors)

Specification			NDC3-40	NDC3-50	NDC3-65	NDC3-80	NDC3-95
Electrical endurance	AC-1	415V	130x10 ⁴ operating cycles, 600 cycles/h	120x10 ⁴ operating cycles, 600 cycles/h	125x10 ⁴ operating cycles, 600 cycles/h	80x10 ⁴ operating cycles, 600 cycles/h	125x10 ⁴ operating cycles, 600 cycles/h
	AC-3	415V	160x10 ⁴ operating cycles, 600 cycles/h	150x10 ⁴ operating cycles, 600 cycles/h	150x10 ⁴ operating cycles, 600 cycles/h	150x10 ⁴ operating cycles, 600 cycles/h	120x10 ⁴ operating cycles, 600 cycles/h
	AC-4	415V	5.5x10 ⁴ operating cycles, 150 cycles/h	3.6x10 ⁴ operating cycles, 150 cycles/h	4.8x10 ⁴ operating cycles, 150 cycles/h	3.9x10 ⁴ operating cycles, 150 cycles/h	3x10 ⁴ operating cycles, 150 cycles/h
Short-time withstand current (starting from a cold state, θ≤40°C, no-current duration≥15min)	1s		720A	810A	900A	990A	1100A
	10s		320A	400A	520A	640A	800A
	1min		165A	208A	260A	320A	400A
	10min		72A	84A	110A	135A	135A
Connection capacity of main circuit	Flexible conductor mm ² without terminals		1...35: 1 pc; 1...25 and 1...35: 2 pcs				2.5...70: 1 pc; 2.5...50 and 2.5...70: 2 pcs
	Flexible conductor mm ² with terminals		1...35: 1 pc; 1...25 and 1...35: 2 pcs				2.5...70: 1 pc; 2.5...50 and 2.5...70: 2 pcs
	Rigid conductor mm ² without terminals		1...35: 1 pc; 1...25 and 1...35: 2 pcs				2.5...70: 1 pc; 2.5...50 and 2.5...70: 2 pcs
	Tightening torque N.m		4				6
Auxiliary contact	Rated isolation voltage		690V				
	Impulse withstand voltage		6kV				
	Conventional free air thermal current I _{th}		10A				
	Utilization category		AC-15 DC-13				
	Rated operating voltage/current	AC-15	400V 2.4A				
		DC-13	250V 0.3A				
	gG fuse protection		10A				
	Min. connectable load		General type: 17V/5mA; low signal type: 5V/3mA				
	Non-overlapping time between NO and NC contacts		≥1.5ms				
	Electrical endurance (operating cycles)		150x10 ⁴				
	Mechanical endurance (operating cycles)		600x10 ⁴				
Auxiliary contact and control circuit	Connection capacity	Rigid conductor	1 pc/2 pcs 1...4mm ²				
		Flexible conductor of non-fabricated terminal	1 pc/2 pcs 0.75...2.5 mm ²				
		Flexible conductor of fabricated terminal	1 pc/2 pcs 0.75...2.5 mm ²				
	Terminal screw		M3.5				
	Tightening torque N.m		1.2				

Quick selection table for NDC5K series AC contactors



ND C 5 K - 1450 R / H AC / DC 110-250

Coil voltage specification:

48-110 represents 48V-110V
110-250 represents 110V-250V
250-500 represents 250V-500V

Coil voltage type:

AC/DC represents applicability to both AC 50/60Hz and DC

Other codes:

Blank: standard type; H: long endurance type

Code of derived variety:

Blank: operating current under AC-3 utilization category
R: operating current under AC-1 utilization category

Frame size:

630, 800: when $U_e = 690V$, I_e under AC-3 is 630A, 800A
1450: when $U_e = 1000V$, I_e under AC-1 is 1450A
1700: when $U_e = 1000V$, I_e under AC-1 is 1700A
2400: when $U_e = 1000V$, I_e under AC-1 is 2400A
2700: when $U_e = 1000V$, I_e under AC-1 is 2700A
3200: when $U_e = 1000V$, I_e under AC-1 is 3200A

Derived code of the series:

K: Vacuum

Design serial number: 5

Product code: AC contactor

Brand code: Nader

Main performance parameters of NDC5K series AC contactors

Name of parameter				Parameter description							
Specification				NDC5K-630	NDC5K-630H	NDC5K-800	NDC5K-800H	NDC5K-1450R	NDC5K-1450R/H	NDC5K-1700R	NDC5K-1700R/H
Number of poles				3		3		3		3	
Conventional free air thermal current Ith /A				1050		1310		1450		1720	
Rated current (A)	AC-1 Ue≤1000V	θ≤40°C		1050		1310		1450		1720	
		θ≤50°C		931		1250		1450		1720	
		θ≤55°C		888		1155		1450		1720	
		θ≤65°C		850		1100		1184		1450	
		θ≤70°C		700		900		1080		1350	
	AC-3	380/400V		630		800		—		—	
		660/690V		630		800		—		—	
		1000V		420		580		—		—	
	AC-4	380/400V		510		650		—		—	
		660/690V		510		650		—		—	
		1000V		345		465		—		—	
Rated power kW	AC-1 +40°C	380/400V		650		766		914		1071	
		660/690V		1130		1330		1576		1861	
		1000V		1712		2015		2044		2417	
	AC-3	380/400V		355		450		—		—	
		660/690V		630		750		—		—	
		1000V		600		800		—		—	
	AC-4	380/400V		280		355		—		—	
		660/690V		494		633		—		—	
		1000V		509		678		—		—	
Average dissipated power per pole (W)		At Ith		69		96		135		188	
Rated operating voltage (V)				AC380/400/415, AC660/690V, AC1000V							
Isolation voltage Ui				AC1000V							
Rated impulse withstand voltage Uimp				8kV							
Rated conditional short-circuit current, Type 2 coordination		Test current		50kA							
		SCPD	Model	RST10-1000/1000V		RST10-1250/1000V		RSF5-2000/1000V		RSF5-2000/1000V	
			Rated current	1000		1250		2000		2000	
Rated control voltage Uc				AC/DC: 48V-110V, 110V-250V, 250V-500V							
Control voltage range (impedance voltage of control transformers≤0.7)				Pull-in: 0.7*Ucmin-1.15*Ucmax							
				Drop-out: 0.2-0.6Ucmin							
Over-voltage protection of control circuit				In the hold-in state, when the control voltage Uc > 1.3Ucmax, the contactor drops out to protect the internal circuit.							
Power consumption of coil at 1.0 *Uc in a cold state (impedance voltage of control transformers≤0.7)		Pull-in	AC	900 VA/W							
			DC								
		Hold-in	AC	45VA (apparent) 20W (active)							
			DC								
Operating time	A1-A2 control		From energization of A1-A2 to closing of main contacts: 30-120ms								
			From de-energization of A1-A2 to opening of main contacts: 33-70ms								
	PLC control (DC24V)		From input of PLC signal to closing of main contacts: 30-90ms								
			From input of PLC signal to opening of main contacts: 10-40ms								
Rated making capacity / A 690V				7800		9840		9840		9840	
Rated breaking capacity A		400V		6500		8200		8200		8200	
		690V		6500		8200		8200		8200	
		1000V		4350		5800		5800		5800	

Name of parameter			Parameter description								
Specification			NDC5K-630	NDC5K-630H	NDC5K-800	NDC5K-800H	NDC5K-1450R	NDC5K-1450R/H	NDC5K-1700R	NDC5K-1700R/H	
Mechanical endurance at Uc /10 ⁴ operating cycles			300								
Operating rate			600 cycles/h								
Electrical endurance	AC-1	400 V	65	100	53	80	40	60	30	50	
		Operating rate, operating cycles/h	600					300			
		690 V	30	50	26	40	18	28	13	20	
		Operating rate, operating cycles/h	200					150			
	AC-3 400V		65	100	65	100	—				
	Operating rate, operating cycles/h		500								
	AC-4 400V		10	15	4	6	—				
	Operating rate, operating cycles/h		200								
Short-time withstand current (starting from a cold state, θ≤40°C, no current within the last 60 min)	1s		8000A					10000A			
	10s		7200A					8000A			
	30s		5200A					5200A			
	1min		4000A					4000A			
	3min		2500A					3000A			
	10min		1700A					2000A			
	15min		1500A					1800A			
Connection capacity of main circuit (if multiple copper busbars are used, vertically clamp them)	Conductor with terminals mm ²		min 50 max 240			min 50 max 240		—			
	Width of copper busbar mm		50			60		70		80	
	Thickness of single copper busbar mm		5			5		5		5	
Terminal bolt of main circuit			M12			M12		M12		M12	
Tightening torque N.m			35±5			35±5		35±5			
Weight kg			16			16		18		18	
Name of parameter			F1-11L/C5K-800					F1-11LS/C5K-800			
Rated isolation voltage			690V					250V			
Impulse withstand voltage			6kV					2.5kV			
Conventional free air thermal current I _{th}			16A					0.1A			
Utilization category			AC-15 DC-13					AC-14 DC-12			
Rated operating voltage/current			AC-15	230V 50/60Hz 6A			AC-14	125V 50/60Hz 0.1A			
				400V 50/60Hz 4A				/			
				500V 50/60Hz 1.5A				/			
			DC-13	DC24V 6A			DC-12	DC30V 0.1A			
				DC48V 2.8A				/			
				DC220V 0.3A				/			
gG fuse protection			16A					/			
Min. connectable load			24V 10mA					12V 5mA			
Protection rating			IP60 (IP20 for terminals)					IP67 (IP20 for terminals)			
Electrical endurance (operating cycles)			100×10 ⁴					30×10 ⁴			
Mechanical endurance (operating cycles)			300×10 ⁴					300×10 ⁴			
Connection capacity	Rigid conductor		1 pc/2 pcs 1...4mm ²								
	Flexible conductor of non-fabricated terminal		1 pc/2 pcs 0.75...2.5 mm ²								
	Flexible conductor of fabricated terminal		1 pc/2 pcs 0.75...2.5 mm ²								
Terminal screw			M3.5								
Tightening torque			1.2N.m±0.2								

Notes:

- When the product is used with a frequency converter or the main circuit is under a large harmonic load, or when the product is under a withstand voltage test, the over-voltage suppressor must be removed from the main circuit;
- Impedance voltage of control transformer $U_k \leq 0.7$;
- 12V 5mA auxiliary contacts are special products.

Main performance parameters of NDC5K series vacuum contactors

Name of parameter			Parameter description					
Specification			NDC5K-2400R	NDC5K-2400R/H	NDC5K-2700R	NDC5K-2700R/H	NDC5K-3200R	NDC5K-3200R/H
Number of poles			3					
Rated current (A)=Ith	AC-1 Ue≤1000 V, 50/60Hz	θ≤70℃	2425A		2700A		3200A	
Average dissipated power per pole (W)	At Ith		192		232		250	
Rated operating voltage (V)			AC380/400/415V, AC660/690V, AC1000V					
Isolation voltage Ui			AC1000V					
Impulse withstand voltage			8kV					
Rated conditional short-circuit current, Type 2 coordination	Test current		50kA/1000V					
	SCPD	Model	STF5-1000/2500		STF5-1000/2800		STF5-1000/3200	
		Rated current /A	2500		2800		3200	
Rated control voltage			AC/DC: 110V-250V					
Control voltage range			(θ≤60℃), 50/60Hz coil, pull-in: 0.7Ucmin-1.15Ucmax.					
			(θ≤60℃), 50/60Hz coil, drop-out: 0.2-0.6Ucmin					
			(θ≤70℃), 50/60Hz coil, pull-in: Ucmin-Ucmax					
Over-voltage protection of control circuit			In the hold-in state, when the control voltage Uc > 1.3Ucmax, the contactor drops out to protect the internal circuit.					
Power consumption of coil at 1.0 *Uc in a cold state (impedance voltage of control transformers≤0.7)	Pull-in	AC VA	1600					
		DC W						
	Hold-in	AC	28W					
		DC						
Operating time	Coil power supply between A1-A2, from energization of coil to closing of main contacts		50-140ms					
	From de-energization of coil to opening of main contacts		20~~70 ms					
	PLC input control, from energization of coil to closing of main contacts		40~~90 ms					
	PLC input control, from de-energization of coil to opening of main contacts		10~~40 ms					
Rated making capacity A	690V		9840		9840		9840	
Rated breaking capacity	690V		8200		8200		8200	
	1000V		5800		5800		5800	
Short-time withstand current (starting from a cold state,no current within the last 60 min)	θ≤40℃, 1S		13000A					
	θ≤40℃, 10S		9000A					
	θ≤40℃, 30S		4800A				/	
	θ≤40℃, 1min		3900A				/	
	θ≤40℃, 3min		3100A				/	

Name of parameter			Parameter description					
Specification			NDC5K-2400R	NDC5K-2400R/H	NDC5K-2700R	NDC5K-2700R/H	NDC5K-3200R	NDC5K-3200R/H
Class of pollution			3					
Mechanical endurance at Uc (operating cycles)			300x10 ⁴ , 600 cycles/h					
Electrical endurance (operating cycles)	AC-1	1000V	10x10 ⁴ 150 cycles/h	15x10 ⁴ 150 cycles/h	10x10 ⁴ 150 cycles/h	15x10 ⁴ 150 cycles/h	10x10 ⁴ 150 cycles/h	15x10 ⁴ 150 cycles/h
Connection capacity of main circuit	Width of copper busbar mm		100					
Terminal bolt of main circuit			M12					
Tightening torque N.m			35±5N					
Protection rating			Contactor body IP20 (except for top and bottom outgoing terminals)					
Parameters of auxiliary contact								
Model			F1-11L/C5K-800			F1—11LS/C5K-800		
Rated isolation voltage			690V			250V		
Impulse withstand voltage			6kV			2.5kV		
Conventional free air thermal current Ith			16A			0.1A		
Utilization category			AC-15 DC-13			AC-14 DC-12		
Rated operating voltage/current			AC-15	230V 50/60Hz 6A		AC-14	125V 50/60Hz 0.1A	
				400V 50/60Hz 4A				
				500V 50/60Hz 1.5A			/	
			DC-13	DC24V 6A		DC-12	DC30V 0.1A	
				DC48V 2.8A			/	
				DC220V 0.3A			/	
gG fuse protection			16A			/		
Min. connectable load			24V 10mA			12V 5mA		
Protection rating			IP60 (IP20 for terminals)			IP67 (IP20 for terminals)		
Electrical endurance (operating cycles)			100x10 ⁴			30x10 ⁴		
Mechanical endurance (operating cycles)			300x10 ⁴			300x10 ⁴		
Connection capacity	Rigid conductor		1 pc/2 pcs 1...4mm ²					
	Flexible conductor of non-fabricated terminal		1 pc/2 pcs 0.75...2.5 mm ²					
	Flexible conductor of fabricated terminal		1 pc/2 pcs 0.75...2.5 mm ²					
Terminal screw			M3.5					
Tightening torque			1.2N.m±0.2					

Quick selection table for NDZ3(X/W/S) series DC contactors



ND	Z	3	X	-	150	10	J	DC12V	
									Coil voltage: DC12V, DC24V, DC48V, DC09~36V
									Blank: general type J: energy-efficient type B: large-sized type Z: combined type (only NDZ3X-100B/Z)
									Number of auxiliary contacts: Blank: without auxiliary contacts 10: with one NO auxiliary contact block 01: with one NC auxiliary contact block 11: with one NO and one NC auxiliary contact blocks
									Frame size: 50: 50A 100: 100A 150: 150A 200: 200A 250: 250A 300: 300A
									Blank: general type X: high-performance type W: non-polarized type S: dedicated for low-speed vehicles
									Design serial number: 3
									Product code: DC contactor
									Brand code: Nader

- Notes:**
- For NDZ3(X)-150, energy-efficient type and general type products area available;
 - For NDZ3(X)-50/100 without accessories, two sizes are available;
 - For NDZ3(X)-50~150, NDZ3W-50~100 and NDZ3S-10~250, three types of coil voltages are available: namely, DC12V, DC24V and DC48V;
For NDZ3(X)-150J~300 and NDZ3W-150~300, the coil voltage is DC9V~36V.

Main performance parameters of NDZ3(X/W/S) series DC contactors

Model Name of parameter		NDZ3-50	NDZ3-100	NDZ3-150	NDZ3-150J	NDZ3-200	NDZ3-250	NDZ3-300	
Conventional thermal current I _{th}		150A		300A		500A			
Rated operating current I _e (DC450V/500V)		50A	100A	150A		200A	250A	300A	
Rated isolation voltage U _i		DC1000V							
Max. cut-off current L/R≤1ms		DC320V 1000A more than once		DC320V 2000A more than once					
Short-circuit current withstand capacity		750A 30ms	1500A 30ms	2250A 30ms		3000A 30ms	3750A 30ms		
Max. contact voltage drop		100A 50mV							
Isolation resistance		100MΩ DC500V							
Withstand voltage		AC2500V 60s		AC3500V 60s					
Mechanical endurance (operating cycles)		100x10 ⁴ , 1200 cycles/h							
Electrical endurance (operating cycles)	DC 500V L/R≤1ms	50A 6000	100A 6000	150A 6000		200A 6000	250A 6000	300A 1000	
	DC 750V L/R≤1ms	10A 6000		15A 6000					300A 1000
	Operating rate	120 cycles/h							360 cycles/h
Auxiliary contact	Type	1NO, 1NC, 1NC+1NO							
	Rated current/voltage	2A/DC30V, 3A/AC125V							
	Min. connectable load	100mA, 8V							
Control coil	Rated voltage U _c	DC12V, DC24V, DC48V			DC12V~24V				
	Operating voltage	75%~110%U _c			DC9V~36V				
	Drop-out voltage	10%~60%U _c			DC1.2V~7.2V				
	Making time	≤35ms			≤35ms				
	Breaking time	≤15ms			≤20ms				
	Hold-in power consumption	6W			3.6W/3.6VA				
	Max. starting current of coil	0.5A			3.5A				
Malfunctioning impact	Pull-in	11ms 1/2 sine wave 15g			11ms 1/2 sine wave 30g				
	Drop-out	11ms 1/2 sine wave 11g			11ms 1/2 sine wave 20g				
Malfunctioning vibration	Pull-in	10g 10~500Hz			20g 10~1000Hz				
	Drop-out	5g 10~500Hz			5g 10~1000Hz				
Weight		210±10g		430±10g	460±10g			485±10g	

Name of parameter		Model	NDZ3X-50	NDZ3X-50B	NDZ3X-100	NDZ3X-100B	NDZ3X-150	NDZ3X-150J	NDZ3X-200	NDZ3X-250	NDZ3X-300	
Conventional thermal current I _{th}			150A					300A		500A		
Rated operating current I _e (DC750V)			50A		100A		150A		200A	250A	300A	
Rated isolation voltage U _i			DC1000V									
Max. cut-off current L/R≤1ms			DC320V 1000A more than once					DC320V 2000A more than once				
Short-circuit current withstand capacity			750A 30ms		1500A 30ms		2250A 30ms		3000A 30ms	3750A 30ms		
Max. contact voltage drop			100A 50mV									
Isolation resistance			100MΩ DC500V									
Withstand voltage			AC2500V 60s					AC3500V 60s				
Mechanical endurance (operating cycles)			100x10 ⁴ , 1200 cycles/h									
Electrical endurance (operating cycles) (forward direction)	DC 750V L/R≤1ms	50A 2000		100A 2000			150A 2000		200A 2000	250A 2000	300A 1500	
	Operating rate	360 cycles/h										
Auxiliary contact	Type	1NO, 1NC, 1NC+1NO (note: NDZ3X-50/100 without auxiliary contacts)										
	Rated current/voltage	2A/DC30V, 3A/AC125V										
	Min. connectable load	100mA, 8V										
Control coil	Rated voltage U _c	DC12V, DC24V, DC48V						DC12V~24V				
	Operating voltage	75%~110%U _c						DC9V~36V				
	Drop-out voltage	10%~60%U _c						DC1.2V~7.2V				
	Making time	≤35ms						≤35ms				
	Breaking time	≤15ms						≤20ms				
	Hold-in power consumption	6W						3.6W/3.6VA				
	Max. starting current of coil	0.5A						3.5A				
Malfunctioning impact	Pull-in	11 ms 1/2 sine wave 15g						11 ms 1/2 sine wave 30g				
	Drop-out	11 ms 1/2 sine wave 11g						11 ms 1/2 sine wave 20g				
Malfunctioning vibration	Pull-in	10g 10~500Hz						20g 10~1000Hz				
	Drop-out	5g 10~500Hz						5g 10~1000Hz				
Weight			226±10g					430±10g	485±10g			

Name of parameter		Model	NDZ3X-100B/Z
Conventional thermal current I _{th}			150A
Rated operating current I _e (DC750V)			100A
Rated isolation voltage U _i			DC1000V
Max. cut-off current L/R≤1ms			DC320V 1000A more than once
Short-circuit current withstand capacity			1500A 30ms
Max. contact voltage drop			100A 50mV
Isolation resistance			100MΩ DC500V
Withstand voltage			AC2500V 60s
Mechanical endurance (operating cycles)			100x10 ⁴ , 1200 cycles/h
Electrical endurance (operating cycles) (forward direction)	DC750V L/R≤1ms		100A 2000
	Operating rate		360 cycles/h
Auxiliary contact	Type		NO, NC
	Rated current/voltage		2A/DC30V, 3A/AC125V
	Min. connectable load		100mA, 8V
Control coil	Rated voltage U _c		DC12V, DC24V, DC48V
	Operating voltage		75%~110%U _c
	Drop-out voltage		10%~60%U _c
	Making time		≤35ms
	Breaking time		≤15ms
	Hold-in power consumption		12W
	Max. starting current of coil		1A
Malfunctioning impact	Pull-in		11ms 1/2 sine wave 15g
	Drop-out		11ms 1/2 sine wave 11g
Malfunctioning vibration	Pull-in		10g 10~500Hz
	Drop-out		5g 10~500Hz
Weight			540±10g

Name of parameter		Model	NDZ3W-50	NDZ3W-100	NDZ3W-150	NDZ3W-200	NDZ3W-250	NDZ3W-300
Conventional thermal current I _{th}		150A			300A	500A		
Rated operating current I _e (DC450V/500V)		50A	100A	150A	200A	250A	300A	
Rated isolation voltage U _i		DC1000V						
Max. cut-off current L/R≤1ms		DC320V 1000A more than once			DC320V 2000A more than once			
Short-circuit current withstand capacity		750A 30ms	1500A 30ms	2250A 30ms	3000A 30ms	3750A 30ms		
Max. contact voltage drop		100A 50mV						
Isolation resistance		100MΩ DC500V						
Withstand voltage		AC2500V 60s			AC3500V 60s			
Mechanical endurance (operating cycles)		100×10 ⁴ , 1200 cycles/h						
Electrical endurance (operating cycles) (forward/reverse)	DC 500V L/R≤1ms	50A 6000	100A 6000	150A 6000	200A 6000	250A 6000	300A 6000	
	DC 750V L/R≤1ms	50A 1000	100A 1000	150A 1000	200A 1000	250A 1000	300A 1000	
	Operating rate	360 cycles/h						
Auxiliary contact	Type	1NO, 1NC, 1NC+1NO						
	Rated current/voltage	2A/DC30V, 3A/AC125V						
	Min. connectable load	100mA, 8V						
Control coil	Rated voltage U _c	DC12V, DC24V, DC48V			DC12V~24V			
	Operating voltage	75%~110%U _c			DC9V~36V			
	Drop-out voltage	10%~60%U _c			DC1.2V~7.2V			
	Making time	≤35ms			≤35ms			
	Breaking time	≤15ms			≤20ms			
	Hold-in power consumption	6W			3.6W/3.6VA			
	Max. starting current of coil	0.5A			3.5A			
Malfunctioning impact	Pull-in	11ms 1/2 sine wave 15g			11ms 1/2 sine wave 30g			
	Drop-out	11ms 1/2 sine wave 11g			11ms 1/2 sine wave 20g			
Malfunctioning vibration	Pull-in	10g 10~500Hz			20g 10~1000Hz			
	Drop-out	5g 10~500Hz			5g 10~1000Hz			
Weight		210±10g			460±10g			

Model		NDZ3S-10	NDZ3S-20	NDZ3S-50	NDZ3S-100	NDZ3S-150	NDZ3S-200	NDZ3S-250
Name of parameter								
Conventional thermal current I _{th}		50A		150A			300A	
Rated operating current I _e (DC120V)		10A	20A	50A	100A	150A	200A	250A
Rated isolation voltage U _i		DC500V						
Max. cut-off current L/R≤1ms		DC320V 1000A more than once					DC320V 2000A more than once	
Short-circuit current withstand capacity		200A 30ms		1500A 30ms			2250A 30ms	
Max. contact voltage drop		100A 50mV						
Isolation resistance		100MΩ DC500V						
Withstand voltage		AC2500V 60s						
Mechanical endurance (operating cycles)		100x10 ⁴ , 1200 cycles/h						
Electrical endurance (operating cycles) (forward direction)	DC 120V L/R≤1ms	10A 5000	20A 5000	50A 5000	100A 5000	150A 5000	200A 5000	250A 5000
	DC 200V L/R≤1ms	10A 2000	20A 2000	50A 2000	100A 2000	150A 2000	200A 2000	250A 2000
	Operating rate	120 cycles/h						
Auxiliary contact	Type	1NO, 1NC, 1NC+1NO Note: NDZ3S-50/100/150 without auxiliary contacts						
	Rated current/voltage	2A/DC30V, 3A/AC125V						
	Min. connectable load	100mA, 8V						
Control coil	Rated voltage U _c	DC12V, DC24V, DC48V						
	Operating voltage	75%~110%U _c						
	Drop-out voltage	10%~60%U _c						
	Making time	≤35ms						
	Breaking time	≤15ms						
	Hold-in power consumption	6W						
	Max. starting current of coil	0.5A						
Malfunctioning impact	Pull-in	11ms 1/2 sine wave 15g						
	Drop-out	11ms 1/2 sine wave 11g						
Malfunctioning vibration	Pull-in	10g 10~500Hz						
	Drop-out	5g 10~500Hz						
Weight		210±10g					430±10g	

Quick selection table for NDZ3T/AT series DC contactors



ND	Z	3	T	-	300	P	/	750V	DC12V	
										Coil voltage: DC12V, DC24V, DC48V
										Load operating voltage DC750V
										Type of load outgoing terminal: P: terminal block Blank: without a terminal block
										Code of basic specification: 10, 20, 40, 100, 150, 200, 300, 350, 400
										Packaging type: T: ceramic packaging
										Design serial number: 3 or 3A
										Product code Z: DC contactor
										Brand code: Nader

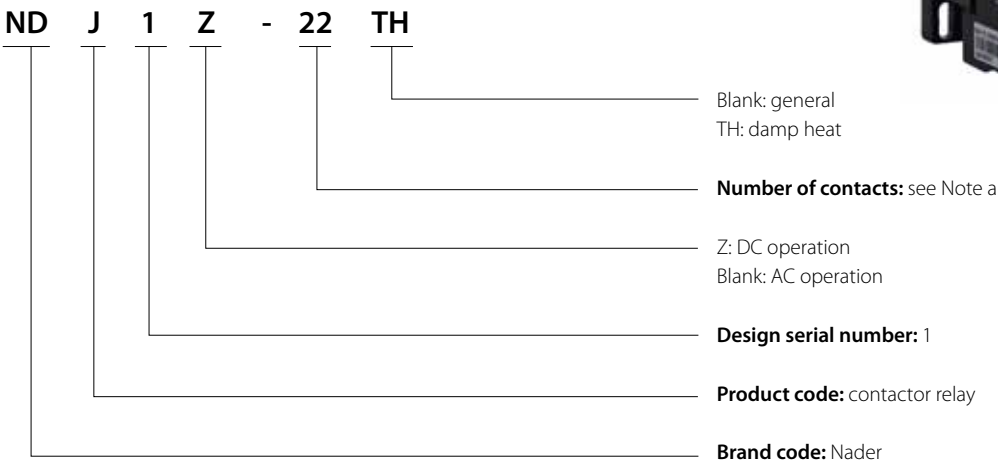
Main performance parameters of NDZ3T/ATseries DC contactors

Frame size Name of parameter		NDZ3T-10	NDZ3T-20	NDZ3T-40	NDZ3T-100	NDZ3T-150
Rated current In		10A	20A	40A	100A	150A
Rated voltage Ue		DC750V				
Isolation voltage Ui		DC1000V				
Control coil	Rated voltage Uc	DC12V, DC24V		DC12V, DC24V, DC48V		
	Operating voltage	75%~110% Uc				
	Drop-out voltage	10%~60% Uc				
	Making time (rated voltage at 20°C)	≤30ms				
	Breaking time (at 20°C)	≤10ms				
	Coil power consumption (at 20°C)	2.6W	2.6W	3.3W	4.5W	6W
Mechanical endurance (operating cycles)		20x10 ⁴ , 3600 cycles/h				
Mechanical endurance (operating cycles) (make-break ratio: 0.6s:5.4s) Resistive load		DC1000V 10A 100000	DC1000V 20A 30000 DC750V 20A 75000 DC450V 20A 100000	DC750V 40A 1000 DC500V 40A 20000	DC750V 100A 1000	DC750V 150A 1000
					DC500V 100A 3000	DC500V 150A 3000
					DC500V -100A 1000	DC500V -150A 1000
Max. cut-off current		DC1000V 100A once	DC1000V 200A once	DC300V 400A once	DC600V 1000A once	DC300V 1500A once
Short-time withstand current		10Ie 600ms				
Contact resistance (rated current)		≤4.5mΩ	≤4.5mΩ	≤ 10 mΩ	≤ 1.5 mΩ	≤ 1.5 mΩ
Isolation resistance		1000MΩ, DC1000V				
Withstand voltage		Main circuit: AC3000V 60s Main circuit and coil: AC4000V 60s	Main circuit: AC3000V 60s Main circuit and coil: AC4000V 60s	AC3000V 60s		
Impact strength		Stable: 20g (half sine shock impulse: 11ms, detection time: 10μs) Disruptive: 50g (half sine shock impulse: 6ms)		Stable: ON: 20g; OFF: 10g (half sine shock impulse: 11ms, detection time: 10μs) Disruptive: 50g (half sine shock impulse: 6ms)		
Vibration strength		10~500Hz 5g				
Product weight		~140g	~150g	~160g	~400g with the terminal block ~365g without the terminal block	~410g with the terminal block ~377g without the terminal block

Frame size		NDZ3T-200	NDZ3T-300	NDZ3T-350	NDZ3T-400
Name of parameter					
Rated current I _n		200A	300A	350A	400A
Rated voltage U _e		DC750V			
Isolation voltage U _i		DC1000V			
Control coil	Rated voltage U _c	DC12V, DC24V, DC48V			
	Operating voltage	Pull-in voltage: 75%~110% U _c			
	Drop-out voltage	Drop-out voltage: 10%~60% U _c			
	Making time (rated voltage at 20°C)	≤30ms			
	Breaking time (at 20°C)	≤10ms			
	Coil power consumption (at 20°C)	Start: 35W; hold: 4.5W	Start: 45W; hold: 4.5W	Start: 45W; hold: 4.5W	Start: 45W; hold: 4.5W
Mechanical endurance (operating cycles)		20x10 ⁴ , 3600 cycles/h			
Mechanical endurance (operating cycles) (make-break ratio: 0.6s:5.4s) Resistive load		DC750V 200A 1000	DC750V 300A 1000	DC750V 350A 1000	DC750V 400A 1000
		DC500V 200A 3000	DC500V 300A 3000	DC500V 350A 2000	DC500V 400A 2000
		DC500V -200A 1000	DC500V -300A 1000	DC500V -350A 1000	DC500V -400A 1000
Max. cut-off current		DC750V 2000A once	DC600V 2500A once	DC750V 3000A once	DC750V 3000A once
Short-time withstand current		10I _e 600ms		3000A 600ms	
Contact resistance (rated current)		≤0.2mΩ	≤0.2mΩ	≤0.2mΩ	≤0.2mΩ
Isolation resistance		1000MΩ, DC1000V			
Withstand voltage		AC3000V 60s			
Impact strength		Stable: ON: 20g; OFF: 10g (half sine shock impulse: 11ms, detection time: 10μs) Disruptive: 50g (half sine shock impulse: 6ms)			
Vibration strength		10~500Hz 5g			
Product weight		~609g with the terminal block ~527g without the terminal block	~800g with the terminal block ~710g without the terminal block	~810g with the terminal block ~710g without the terminal block	~810g with the terminal block ~710g without the terminal block

Frame size		NDZ3AT-120	NDZ3AT-150C	NDZ3AT-150B	NDZ3AT-200B	NDZ3AT-200	NDZ3AT-250	NDZ3AT-400
Name of parameter								
Rated current		120A	150A	150A	200A	200A	250A	400A
Rated voltage		DC450V/DC750V						
Isolation voltage Ui		DC1000V						
Control coil	Rated voltage Uc	DC12V, DC24V						
	Operating voltage	75%~110% Uc						
	Drop-out voltage	10%~60% Uc						
	Making time (rated voltage at 20℃)	≤30ms	≤30ms	≤30ms	≤30ms	≤50ms	≤50ms	≤30ms
	Breaking time (at 20℃)	≤10ms	≤10ms	≤10ms	≤10ms	≤30ms	≤30ms	≤10ms
	Coil power consumption (at 20℃)	6W						Start: 45W Hold-in: 4.5W
Mechanical endurance (operating cycles)		30x10 ⁴ , 3600 cycles/h			20x10 ⁴ , 3600 cycles/h			
Mechanical endurance (operating cycles) (make-break ratio: 0.6s:5.4s)		DC450V 120A 1200 DC750V 120A 500	DC450V 150A 1500 DC750V 150A 500	DC450V 150A 2000 DC750V 150A 500	DC450V 200A 1000 DC750V 200A 500	DC450V 200A 3000 DC750V 200A 500	DC450V 250A 1000 DC750V 250A 500	DC750V 400A 1000
		DC450V -120A 500	DC450V -150A 500	DC450V -150A 500	DC450V -200A 500	DC450V -200A 100	DC450V -250A 100	
Max. cut-off current		DC450V 1200A once	DC450V 1500A once	DC450V 1500A once	DC450V 2000A once	DC450V 2000A once	DC450V 2000A once	DC750V 3000A once
Short-time withstand current		900A 6s 400A 40s 300A 2min 200A 10min 150A 2h	900A 8s 600A 20s 400A 60s 320A 2min 225A 15min 180A 2h	900A 8s 600A 20s 400A 60s 320A 2min 225A 15min 180A 2h	900A 10s 600A 30s 320A 5min 250A 15min	2000A 600ms 800A 30s 400A 240s 300A 15min	2500A 600ms 1000A 30s 500A 120s 375A 10min	3000A 600ms 1200A 30s 600A 20min
Contact resistance (rated current)		≤0.5mΩ	≤0.5mΩ	≤0.5mΩ	≤0.5mΩ	≤0.2mΩ	≤0.2mΩ	≤0.2mΩ
Isolation resistance		1000MΩ, DC1000V						
Withstand voltage		Between open contacts: AC3000V 1min; between contact and coil: AC3000V 1min						
Impact strength		Stable: 20g (half sine shock impulse: 11ms, detection time: 10μs) Disruptive: 50g (half sine shock impulse: 6ms)				Stable: ON: 20g; OFF: 10g (half sine shock impulse: 11ms, detection time: 10μs) Disruptive: 50g (half sine shock impulse: 6ms)		
Vibration strength		10~500Hz 5g						
Product weight		~390g with the terminal block ~355g without the terminal block	~390g with the terminal block ~355g without the terminal block	~350g	~350g	~605g	~605g	~730g

Quick selection table for NDJ1(Z) series contactor relays



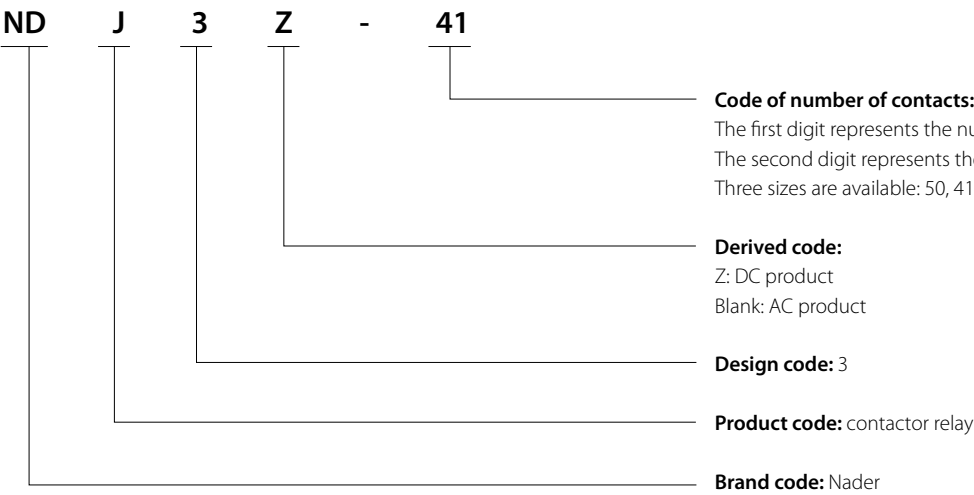
Note a:

The code is expressed in a 2-digit numeral, with the first digit representing the number of NO contact blocks, and the second digit representing the number of NC contact blocks. Three sizes are available: 40, 31 and 22.

Main performance parameters of NDJ1 series contactor relays

Model			NDJ1-40, 31, 22				NDJ1Z-40, 31, 22		
Rated isolation voltage Ui V			690						
Rated operating voltage Ue V			AC380 DC220V						
Conventional thermal current Ith A			10						
Rated operating current Ie A	AC-15 (380V)		0.95						
	DC-13 (220V)		0.15						
Min. connectable load			17V 5mA						
Rated operating rate h ⁻¹			2400						
Mechanical endurance (operating cycles)			1000×10 ⁴						
Electrical endurance (operating cycles)			120×10 ⁴						
Coil	Rated control voltage Us V		AC: 50/60Hz, 24, 48, 110, 220, 380				DC: 24, 48, 110, 220		
	Pull-in voltage		0.85Uc~1.1Uc				0.85Uc~1.1Uc		
	Drop-out voltage		0.20Uc~0.75Uc				0.10Uc~0.75Uc		
	Starting power		65 VA				11W		
	Hold-in power/power consumption		8VA				11W		
Dielectric withstanding voltage (AC 50Hz)			1890V / 1min						
NO/NC switching time			4ms						
Operating time			NO	Make	10~22ms	NO	Make	5~20ms	
			NC	Make	9~24ms	NC	Make	7~20ms	
Permissible instantaneous over-current value	1s		100A						
	500ms		120A						
	100ms		180A						
Connection capacity of terminal mm ²	Flexible conductor	1 pc or 2 pcs	2.5						
	Rigid conductor	1 pc or 2 pcs	4						

Quick selection table for NDJ3(Z) series contactor relays



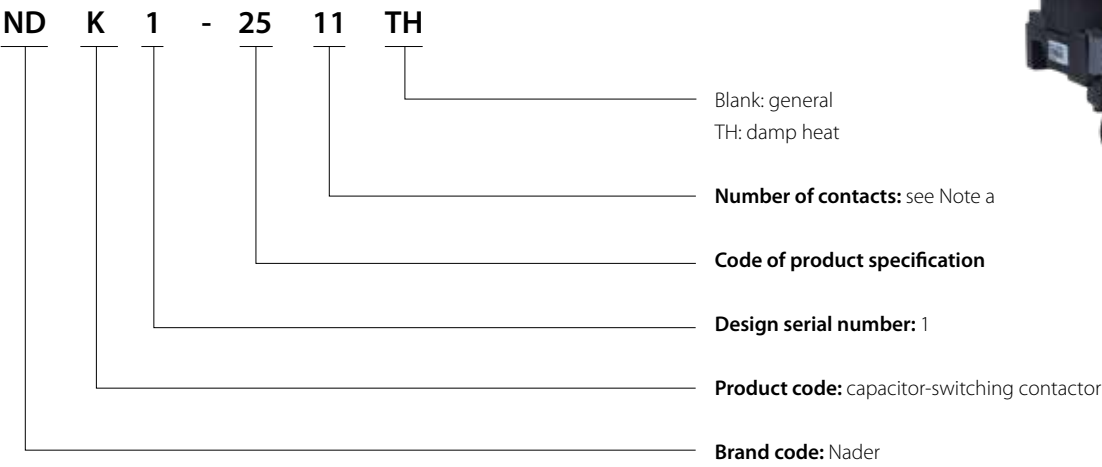
Main performance parameters of NDJ3(Z) series contactor relays

Model			NDJ3(Z)
Number of contacts			5NO or 4NO+1NC or 3NO+2NC
Rated isolation voltage Ui V			690
Rated impulse withstand voltage Uimp kV			6
Conventional free air thermal current Ith A 0≤60°C			10
Short-circuit protection			Short-circuit protection: gG fuse 10A
Min. making capacity			17V/5mA
Short-time withstand current			1s100A, 500ms 120A, 100ms 140A
Non-overlapping time			1.5ms
Rated current			AC-15 400V 2.4V, DC-13 250V 0.3A
Electrical endurance (operating cycles)			100x10 ⁴
Operating rate			AC-15: 2400 cycles/h; DC-13: 1200 cycles/h
Connection capacity of terminal mm ² (min...max)	Flexible conductor without terminals	1 pc	1.....4
		2 pcs	1.....4
	Flexible conductor with terminals	1 pc	1.....4
		2 pcs	1.....2.5
	Rigid conductor without terminals	1 pc	1.....4
		2 pcs	1.....4
Tightening torque			1.7N.m

Control circuit characteristics of NDJ3(Z) series contactor relays

Model			NDJ3(Z)
AC control circuit characteristics	Rated control voltage Uc V	50/60Hz	24, 36, 48, 110, 200, 220, 230, 240, 380, 400, 415, 440
	Pull-in voltage	60°C	85%~110%Uc
	Drop-out voltage		20%~60%Uc
	Coil power consumption Uc	Pull-in	70VA
		Hold-in	8VA
	Operating time	Close	12~22ms
		Open	4~19ms
	Mechanical endurance (operating cycles)		1500x10 ⁴
Operating rate		3600 cycles/h	
DC control circuit characteristics	Rated control voltage Uc V		DC24, 36, 48, 110, 220
	Pull-in voltage	60°C	85%~110%Uc
	Drop-out voltage		10%~60%Uc
	Coil power consumption Uc	Pull-in	66W
		Hold-in	3.5W
	Operating time ms	Close	15~75
		Open	30~100
	Mechanical endurance (operating cycles)		1500x10 ⁴
Operating rate		3600 cycles/h	
control circuit Connection capacity mm² (min...max)	Flexible conductor without terminals	1 pc	1.....4
		2 pcs	1.....4
	Flexible conductor with terminals	1 pc	1.....4
		2 pcs	1.....2.5
	Rigid conductor without terminals	1 pc	1.....4
		2 pcs	1.....4
Tightening torque			1.7N.m

Quick selection table for NDK1 series capacitor-switching contactors



Note a:
The code for the number of auxiliary contacts of a 3P contactor is expressed in a 2-digit numeral, with the first digit representing the number of NO contact blocks, and the second digit representing the number of NC contact blocks.

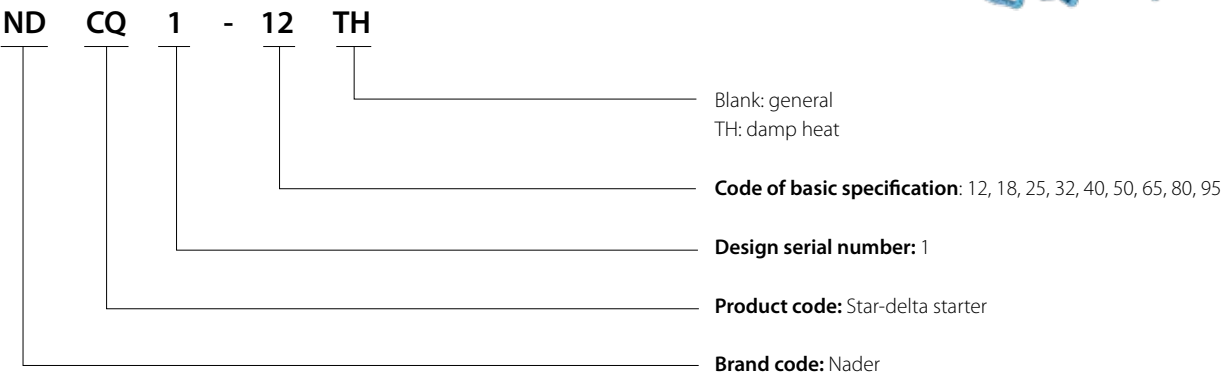
Main performance parameters of NDK1 series capacitor-switching contactors

Model			NDK1-25		NDK1-32		NDK1-40		NDK1-50		NDK1-60		NDK1-80		NDK1-125	
Conventional free air thermal current I _{th} /A			32		40		50		60		80		80		125	
Rated operating current I _e (AC-6b 400V) /A			18		24		29		36		48		58		87	
Controllable capacity AC-6b Kvar	200~240V		6.7		8.5		10		15		20		25		40	
	400~440V		12.5		16.7		20		25		33.3		40		60	
Surge suppression capacity (times)			20													
Electrical endurance (operating cycles)			12×10 ⁴				10×10 ⁴									
Mechanical endurance (operating cycles)			300×10 ⁴													
Max. operating rate h ⁻¹			300						120							
Rated isolation voltage U _i /V			690													
Contactor specification			NDK1-2520, 2511, 2502		NDK1-3220, 3211, 3202		NDK1-4020, 4011, 4002		NDK1-5021, 5012		NDK1-6021, 6012		NDK1-8021 8012		NDK1-12521, 12512	
Auxiliary contact	Conventional free air thermal current I _{th} /A		10													
	Electrical endurance (operating cycles)	AC-15 (360VA)	12×10 ⁴													
		DC-13 (33W)														
	Min. connectable load		17V 5mA													
Current-limiting resistance operating time /ms			7~9													
Coil	50Hz	Start	70		110				200							
		Pull-in	8		11				20							
	60Hz	Start	80		115				220							
		Pull-in	8		11				20							
Rated voltage of control power U _s / V			AC (50Hz, 50Hz/60Hz): 24, 48, 110, 220, 380													
Pull-in time /ms			12~22		15~24				20~26						20~35	
Drop-out time /ms			4~12		5~19				8~12						6~20	
Pull-in voltage			85%~110%U _s													
Drop-out voltage			30%~55%U _s						30%~60%U _s							
Connection capacity of terminal	Number of conductors		1	2	1	2	1	2	1	2	1	2	1	2	1	2
	Flexible conductor mm ²		4	4	4	4	6	6	16	16	16	16	16	16	50	25
	Rigid conductor mm ²		6	6	6	6	10	10	25	16	25	16	25	16	50	25

Notes:

1. Due to voltage fluctuation and harmonics, the operating current of the capacitor circuit will generally reaches 1.3 times the rated current of the capacitor;
2. Since the capacitor manufacturing error is generally -5%~+10%, the actual circuit current $I = 1.3 \times 1.1 \times I_n = 1.43I_n$, which must be taken into consideration during contactor selection.

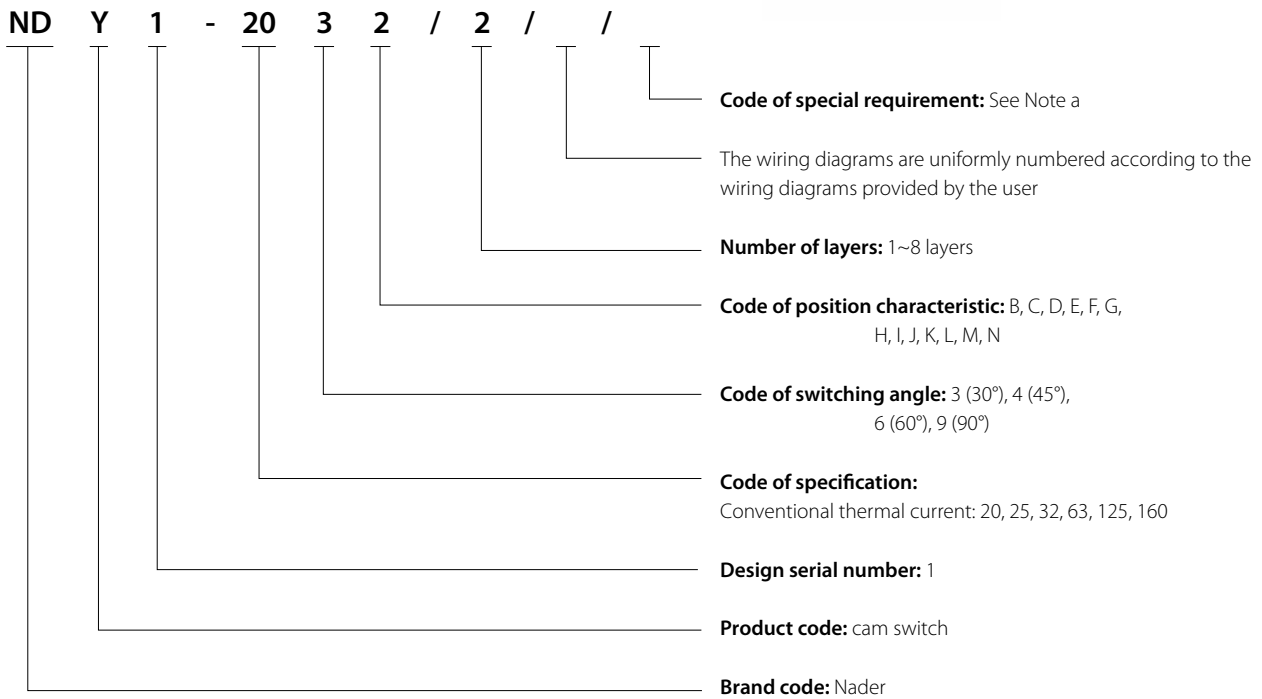
Quick selection table for NDCQ1 series star-delta starters



Main performance parameters of NDCQ1 series star-delta starters

Model		NDCQ1-12	NDCQ1-18	NDCQ1-25	NDCQ1-32	NDCQ1-40	NDCQ1-50	NDCQ1-65	NDCQ1-80	NDCQ1-95
Parameter										
Rated operating current (Ie /A) (AC-3 415V)		20	31	43	55	69	86	112	138	164
Rated isolation voltage (Ui /V)		690								
Rated operating voltage (Ue /V)		380/415, 660/690								
Electrical endurance (operating cycles) (AC-3 415V)		4×10 ⁴		2.5×10 ⁴			2×10 ⁴		1.5×10 ⁴	
Operating rate (h ⁻¹)		30								
Mechanical endurance (operating cycles)		30×10 ⁴								
Auxiliary contact	Rated operating voltage (V)	AC380, DC220								
	Conventional thermal current (A)	10								
Coil	Rated control voltage (V)	AC (50Hz 50/60Hz): 24, 36, 48, 110, 220, 380, 415								
	Pull-in voltage	85%Us~110%Us								
	Drop-out voltage	20%Us~75%Us								

Quick selection table for NDY1 series cam switches



Notes:

a. code of special requirement T: make-before-break switching; F: auxiliary terminal; FH: gold-plated auxiliary terminal; M1~5: panel type.

Main performance parameters of NDK1 series cam switches

Specification and model		NDY1-20		NDY1-25		NDY1-32	NDY1-63	NDY1-125	NDY1-160
Rated isolation voltage (Ui / V)		690		690		690	690	690	690
Conventional thermal current (Ith / A)		20		25		32	63	125	160
Rated operating voltage (Ue / V)		DC240	AC400	DC240	AC400	AC400	AC400	AC400	AC400
Rated operating current	AC-21A	/	20	/	25	32	63	100	150
	AC-23A	/	15	/	22	30	57	90	135
	DC-21A	0.4	/	0.6	/	/	/	/	/
Rated impulse withstand voltage (Uimp / kV)		8							

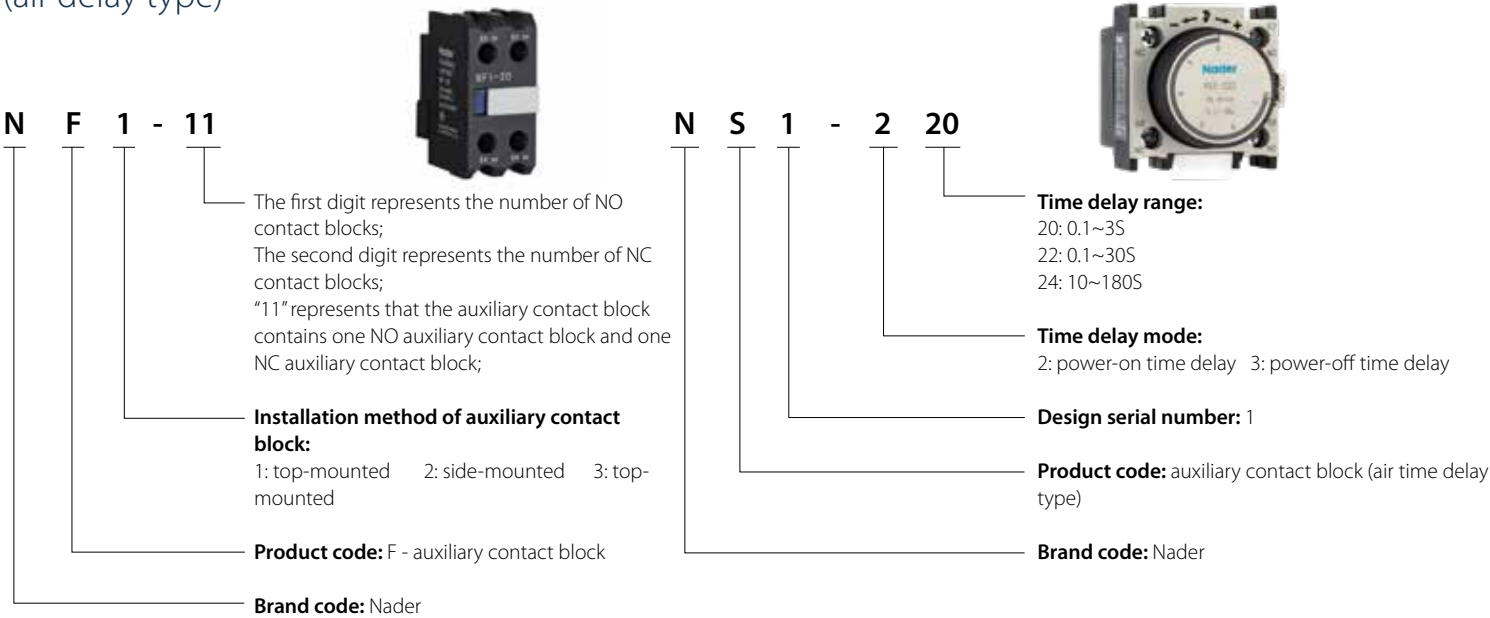
Angle of actuator		
Code of switching angle Code of positioning characteristic	3 (30°)	4 (45°)
B		
C	0°30°	0°45°
D	30°0°30°	45°0°45°
E	30°0°30°60°	45°0°45°90°
F	60°30°0°30°60°	90°45°0°45°90°
G	60°30°0°30°60°90°	90°45°0°45°90°135°
H	90°60°30°0°30°60°90°	135°90°45°0°45°90°135°
I	90°60°30°0°30°60°90°120°	135°90°45°0°45°90°135°180°
J	120°90°60°30°0°30°60°90°120°	
K	120°90°60°30°0°30°60°90°120°150°	
L	150°120°90°60°30°0°30°60°90°120°150°	
M	150°120°90°60°30°0°30°60°90°120°150°180°	
N		45° 45°

Angle of actuator		
Code of switching angle Code of positioning characteristic	6 (60°)	9 (90°)
B		90°0°
C	0°60°	0°90°
D	60°0°60°	90°0°90°
E	60°0°60°120°	270°0°90°180°
F	60°0°60°120°180°	
G	120°60°0°60°120°180°	
H		
I		
J		
K		
L		
M		
N	30° 30°	

Table of compatibility of common accessories with AC contactors

Model	Auxiliary contact block							Surge suppression module				
	NS1	NF1	F1-11DS/ C1	NF2	NF3	NF8-11	F1-11L(S)/ C5K-800 (S means switching contacts)	NG1-1	NG1-2	NG1-3	G1/C1- 2650	NCG1
				2 pcs at most	1 pc at most	1 pc at most	2 pcs at most	One out of three				
NDC1(N)-09~38	Top-mounted, one out of three			Side- mounted	-	-	-	Rear snap-in	Top- inserted	-	-	-
NDC1(N)-40~95	Top-mounted, one out of three			Side- mounted	-	-	-	-	Top- inserted	-	-	-
NDC1Z-09~38	Top-mounted, one out of three			Side- mounted	-	-	-	Rear snap-in	Top- inserted	-	-	-
NDC1Z-40~95	Top-mounted, one out of three			-	-	-	-	-	-	Side- mounted	-	-
NDC1(N)-115~800	Front-mounted, two out of three			-	-	-	-	-	-	-	With a bracket / directly mounted	-
NDC1-1250~2650	Front-mounted, two out of three			-	-	-	-	-	-	-	With a bracket / directly mounted	-
NDC1T-40~65	Top-mounted, one out of two		-	-	-	-	-	-	-	-	-	-
NDC2(N)-06~16	-	-	-	-	Top- mounted	-	-	-	-	-	-	-
NDC2(N)-115~170	Top-mounted, one out of two		-	Side- mounted	-	-	-	-	Top- inserted	-	-	-
NDC3(Z,N)-09~38	Top-mounted, one out of two		-	Side- mounted*1	-	-	-	-	-	-	-	Rear snap-in
NDC3(GV,N)-40~95	Top-mounted, one out of two		-	Side- mounted	-	-	-	-	-	-	-	Rear snap-in
NDC2J-16~25	-	-	-	-	-	-	-	-	-	-	-	-
NDC2J-32~63	-	-	-	-	-	Side- mounted	-	-	-	-	-	-
NDC5K-630~1700	-	-	-	-	-	-	Side- mounted	-	-	-	-	-
NDK1-25~125	-	-	-	Side- mounted	-	-	-	Rear snap-in	Top- inserted	-	-	-
NDJ1(Z)	Top-mounted, one out of two		-	Side- mounted	-	-	-	Rear snap-in	Top- inserted	-	-	-
NDJ3	Top-mounted, one out of two		-	Side- mounted*1	-	-	-	-	-	-	-	Rear snap-in
NDJ3Z	Top-mounted, one out of two		-	Side- mounted*1	-	-	-	-	-	-	-	-

NF1, NF2 and NF3 series auxiliary contact blocks, and NS1 series auxiliary contacts (air delay type)



Main performance parameters of NF1, NF2 and NF3 series auxiliary contact blocks, and NS1 series auxiliary contacts

Specification table of NF series

Model	Number of contacts	
	NO	NC
NF1-40	4	0
NF1-31	3	1
NF1-22	2	2
NF1-13	1	3
NF1-04	0	4
NF1-20	2	0
NF1-11	1	1
NF1-02	0	2
NF2-20	2	0
NF2-11	1	1
NF3-40	4	0
NF3-31	3	1
NF3-22	2	2
NF3-13	1	3
NF3-04	0	4
NF3-20	2	0
NF3-11	1	1
NF3-02	0	2

NS1 auxiliary contact (air time delay type)

Model	Time delay	Number of time delay contacts	Time delay mode
NS1-220	0.1S~3s	1NO+1NC	Power-on time delay
NS1-222	0.1S~30s		
NS1-224	10S~180s		
NS1-320	0.1S~3s		Power-off time delay
NS1-322	0.1S~30s		
NS1-324	10S~180s		

Main performance parameters

Content			Name	NF1	NF2	NF3	NS1	F1-11DS/C1
Reference standard				IEC60947-5 GB14048.5				
Rated isolation voltage (Ui /V)				690				600
Rated operating voltage (Ue /V)				AC380 DC220				AC24 DC50
Conventional free air thermal current (Ith /A)				10				0.5
Rated operating Current (Ie /A)	AC-15 (380V/400V)			0.95				0.1
	DC-13 (220V/230V)			0.15				0.05
Min. connectable load				17V 5mA			24V 10mA	5V 10mA
Endurance (operating cycles)	Mechanical			10×10 ⁶			3×10 ⁶	1×10 ⁶
	Electrical			1.2×10 ⁶			0.5×10 ⁶	0.7×10 ⁶
Operating rate (h ⁻¹)				2400			1200	900
Connection capacity	Flexible conductor	Max / mm ²		4×2 pcs				0.75~2.5
		Min / mm ²		1.5×1 pc				
	Rigid conductor	Max / mm ²		2.5×2 pcs				1~4.0
		Min / mm ²		1.0×1 pc				
	Tightening torque (N.m)			0.8~1.2			0.5~1.0	
Time delay repeatability error				—			±5%	—
Time delay stability error				—			±15%	—
Temperature error				—			±0.3%	—
Applicable model				NDC1(N)-09~95 NDC1(Z)-09~95 NDC2(N)-115~170 series contactors and NDJ1(Z) series contactor relays are top-mounted; NDC1N-115~800 series contactors are side surface top-mounted; and NDC1-115-2650 series contactors are side surface top-mounted.	NDC1(N)-09~95 NDC2(N)-115~170 NDC1(Z)-09~38 series contactors and NDJ1(Z) series contactor relays are side-mounted.	NDC2-06-16, and NDC2N-06~16 series contactors are top-mounted.	NDC1(N)-09~95 NDC1(Z)-09~95 NDC2(N)-115~170 series contactors and NDJ1(Z) series contactor relays are top-mounted; NDC1N-115~800 series contactors are side surface top-mounted; and NDC1-115-2650 series contactors are side surface top-mounted.	NDC1 series, NDC2-06-16.

Selection guide for NG1 series coil surge suppression modules



N

G

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NR

E

Code of matching coil voltage:
E: 24~48V G: 50~127V
U: 110~240V N: 380~415V
The Type DC protective coil voltage is DC24V~220V without a code by default;

Protection type:
NR: varistor suppression module
RC: resistance-capacitance suppression circuit
DC: diode suppression

1: Snap-in
2: Inserted (fixed with screws)

Design serial number: 1

Produce code: coil urge suppression module

Brand code: Nader

Main performance parameters of NG1 series coil surge suppression modules

Model	Protection type	Coil voltage
NG1-1NRE	Varistor	24~48V AC/DC
NG1-1NRG		50~127V AC/DC
NG1-1NRU		110~240V AC/DC
NG1-2NRE		24~48V AC/DC
NG1-2NRG		50~127V AC/DC
NG1-2NRU		110~240V AC/DC
NG1-2NRN	Resistance-capacitance circuit	380~450V AC/DC
NG1-2RCE		24~48V AC/DC
NG1-2RCG		50~127V AC/DC
NG1-2RCU		110~240V AC/DC
NG1-2RCN	Diode	380~450V AC/DC
NG1-2DC		24~220V DC

Quick selection table for NDR1E series electronic thermal overload relays



ND	R	1	E	-	38	10	B	1	/	110V	
											Voltage of auxiliary power supply: 110V, 220/230V, 380/400V (50Hz/60Hz)
											Operating voltage of auxiliary contact: 0: 230V (AC-15) 1: 400V (AC-15)
											Code of tripping level: B: Level 10 C: Level 20
											Code of setting current: see Table 1
											Code of basic product model: 38, 95
											Overload protection mode: electronic
											Design code: 1
											Product code: relay
											Brand code: Nader

Quick selection table for A1/R1 independent relay sockets



A1/R1	-	38	
			95: for NDR1E-95 series thermal overload relays 38: for NDR1E-38 series thermal overload relays
			Product code: independent relay socket

Notes:
a. A1/R1 independent relay sockets are available with only plug-in types, and can only be used with NDR1E.
b. The matching relay can be mounted with screws or TH35 standard rails on the socket in place.

Table 1:

NDR1E-38/95 electronic Setting current of overload relay /A	Type of matching fuse		Matching NDC1-09~95 AC contactor (directly inserted)	Code of rated current
	aM/A	gG/A		
			NDC1-	NDR1E
0.1~0.16	0.25	2	09~38	NDR1E-3811
0.16~0.25	0.5	2	09~38	NDR1E-3812
0.25~0.4	1	2	09~38	NDR1E-3813
0.4~0.63	1	2	09~38	NDR1E-3814
0.63~1	2	4	09~38	NDR1E-3815
1~1.6	2	4	09~38	NDR1E-3816
1.6~2.5	4	6	09~38	NDR1E-3817
2.5~4	6	10	09~38	NDR1E-3818
4~6	8	16	09~38	NDR1E-3821
5.5~8	12	20	09~38	NDR1E-3822
7~10	12	20	09~38	NDR1E-3823
9~13	16	25	09~38	NDR1E-3824
12~18	20	35	12~38	NDR1E-3825
17~25	25	50	18~38	NDR1E-3826
23~32	40	63	25~38	NDR1E-3827
30~40	40	80	32~38	NDR1E-3828
23~32	40	63	40~95	NDR1E-9531
30~40	40	100	40~95	NDR1E-9532
37~50	63	100	40~95	NDR1E-9533
48~65	63	100	50~95	NDR1E-9534
55~70	80	125	65~95	NDR1E-9535
63~80	80	125	65~95	NDR1E-9536
80~95	100	160	80~95	NDR1E-9537

Main performance parameters of NDR1E series electronic thermal overload relays

Main performance parameters

Code of basic product model			NDR1E-38	NDR1E-95
Setting current range			0.1~40A	23~95A
Rated isolation voltage and frequency			690V, 50Hz/60Hz	
Tripping level			10/20	10/20
Connection of main circuit	Flexible conductor without terminals, 1 pc	Min./Max. Cross-sectional area	1.5/10 mm ²	4/35 mm ²
	Flexible conductor with terminals, 1 pc		1/4 mm ²	4/35 mm ²
	Rigid conductor without terminals, 1 pc		1/6 mm ²	4/35 mm ²
Tightening torque of main circuit terminals			1.5 N.m	9 N.m
Voltage of auxiliary power supply			110V, 220/230V, 380/400V (50Hz/60Hz)	
Type of auxiliary contact			1NC+1NO (non-electrically isolated) NDR1E-□□□0 1NC+1NO (electrically isolated) NDR1E-□□□1	
Rated operating voltage of auxiliary contact			AC-15 230V/0.75A 400V/0.47A (optional depending on the model) DC-13 230V/0.1A	
Connection of main circuit	Flexible conductor without terminals, 1 pc	Min./Max. Cross-sectional area	1/2.5 mm ²	
	Flexible conductor with terminals, 1 pc		1/2.5 mm ²	
	Rigid conductor without terminals, 1 pc		1/2.5 mm ²	
Tightening torque of auxiliary terminals			0.8N.m	

Operating characteristic

Operating characteristic	No.	Setting current	Operating time	Starting condition	Ambient air temperature °C
Balanced load on each phase	1	1.05I _n	>2h	Cold state	-25°C~60°C
	2	1.2I _n	<2h	After the No.1 test	
	3	1.5I _n	<4min (Level 10) <8min (Level 20)	After the No.1 test	
	4	7.2I _n	Level 10: 4s<T _p ≤10s	Cold state	
			Level 20: 6s<T _p ≤20s	Cold state	
Open-phase	When the current of one phase or two phases I ≥ 0.3I _n , and the current of the other phase(s) is 0,		3~8s	Cold or warm state	
Phase unbalance	When phase unbalance factor ≥60%		30~40s	Cold or warm state	
	Level 10 products: when the current of one phase or two phases I ≥ 0.8I _n , and the current of the other phase(s) is 0, if the fault time ≥ 8 min, the auto-reset function will be locked after three consecutive faults and manual reset is required				
	Level 10 products: when the overload current I ≥ 4I _n , if the fault time ≥ 8 min, the auto-reset function will be locked after three consecutive faults and manual reset is required				
	Level 20 products: when the current of one phase or two phases I ≥ 0.8I _n , and the current of the other phase(s) is 0, if the fault time ≥ 14 min, the auto-reset function will be locked after three consecutive faults and manual reset is required				
	Level 20 products: when the overload current I ≥ 4I _n , if the fault time ≥ 14min, the auto-reset function will be locked after three consecutive faults and manual reset is required				

Quick selection table for NDR2 series bimetallic thermal overload relays



ND	R	2	-	38	12	G	
							Installation method: Blank: combined installation G: rail-mounted or separately mounted with screws (for Type 38) +NA2-95: rail-mounted or separately mounted with screws (for Type 95)
							Code of rated current: see the table of model description for details
							Code of basic product model: 38, 95, 140
							Design serial number: 2
							Product code: bimetallic thermal overload relay
							Brand code: Nader

Notes:
The installation method "G" represents optional installation of NA2-38 independent relay socket.

Quick selection table for NA2 independent relay sockets



N	A	2	-	38	
					38: for NDR2-38 series thermal overload relays 95: for NDR2-95 series thermal overload relays
					Design serial number: 2
					Product code: independent relay socket
					Brand code: Nader

Notes:
a. NA2 independent relay sockets are available with only plug-in types, and can only be used with NDR2.
b. The matching relay can be mounted with screws or TH35 standard rails on the socket in place.

Main performance parameters of NDR2 series bimetallic thermal overload relays

Table of model description

No.	Code of rated current	Setting current range (A)	(SCPD) fuse (A)		Code of basic product model	Contactor
			aM	gG		
1	01	0.1~0.16	0.25	2	38	NDC1-09~38
2	02	0.16~0.25	0.5	2		
3	03	0.25~0.4	1	2		
4	04	0.4~0.63	1	2		
5	05	0.63~1	2	4		
6	06	1~1.6	2	4		
7	07	1.6~2.5	4	6		
8	08	2.5~4	6	10		
9	10	4~6	8	16		
10	12	5.5~8	12	20		
11	14	7~10	12	20		
12	16	9~13	16	25		NDC1-12~38
13	21	12~18	20	35		NDC1-18~38
14	22	16~24	25	50		NDC1-25~38
15	32	23~32	40	63		NDC1-32~38
16	35	30~38	50	80	95	NDC1-40~95
17	22	17~25	25	50		
18	53	23~32	40	63		
19	55	30~40	40	100		
20	57	37~50	63	100		
21	59	48~65	63	100		
22	61	55~70	80	125		NDC1-50~95
23	63	63~80	80	125		NDC1-65~95
24	65	80~104	100	160		NDC1-80~95
25	65	80~104	125	200	140	NDC2-115~170
24	67	95~120	125	224		
25	69	110~140	160	250		

General characteristic

Type			NDR2-38		NDR2-95/140	
Setting current range Ie /A			0.1~38		17~140	
Rated isolation voltage Ui /V			690			
Rated operating voltage Ue /V			280/400/690V			
Rated impulse withstand voltage Uimp /kV			6			
Tripping level			10A			
compensation temperature ℃			-5℃~+40℃			
Auxiliary contact	Type		1NO+1NC			
	Conventional thermal current Ith /A		5			
	AC-15	Rated operating voltage Ue /V	220	380	220	380
		Rated operating current Ie /A	1.63	0.94	2.73	1.58
	DC-13	Rated operating voltage Ue /V	110	220	110	220
		Rated operating current Ie /A	0.25	0.12	0.46	0.21
Connection capacity Min/Max (mm²)	Basic product model		3801-3821	3822-3835	95	140
	Main circuit	Flexible conductor (without fabricated terminals),1 pc	1.5/10	1.5/10	4/35	4/50
		Flexible conductor (with fabricated terminals),1 pc	1/4	1/6	4/35	4/50
		Rigid conductor, 1 pc	1/6	1.5/10	4/35	4/50
		Tightening torque N.m	1.2	1.2	6~7	
	Auxiliary circuit	Flexible conductor (without fabricated terminals),1 pc or 2 pcs	1/2.5			
		Flexible conductor (with fabricated terminals),1 pc or 2 pcs				
		Rigid conductor, 1 pc or 2 pcs				
	Tightening torque N.m		0.6~0.8			

Quick selection table for NDR3E series electronic thermal overload relays



ND	R	3	E	-	38	11	/	1	/	1
										Voltage of auxiliary power supply: 1: AC110V (±15%) 50Hz/60Hz 2: AC220V (±15%) 50Hz/60Hz 3: AC380V (±15%) 50Hz/60Hz
										Operating voltage of auxiliary contact: 0: 230V (AC-15/DC-13) 1: 400V (AC-15) 230V (DC-13)
										Code of setting current: see Table 1
										Code of basic product model: 38
										Overload protection mode: electronic
										Design code: 3
										Product code: electronic thermal overload relay
										Brand code: Nader

Table 1: Description of rated current

Code of rated current	Setting current range	Type of matching fuse		Model of matching contactor
		aM/A	gG/A	
11	0.1~0.36	0.5	2	NDC3-09-38
12	0.36~1.2	2	4	
13	1.2~4	8	16	
14	3.6~12	16	20	
15	12~40	63	100	

Main performance parameters of NDR3E series electronic thermal overload relays

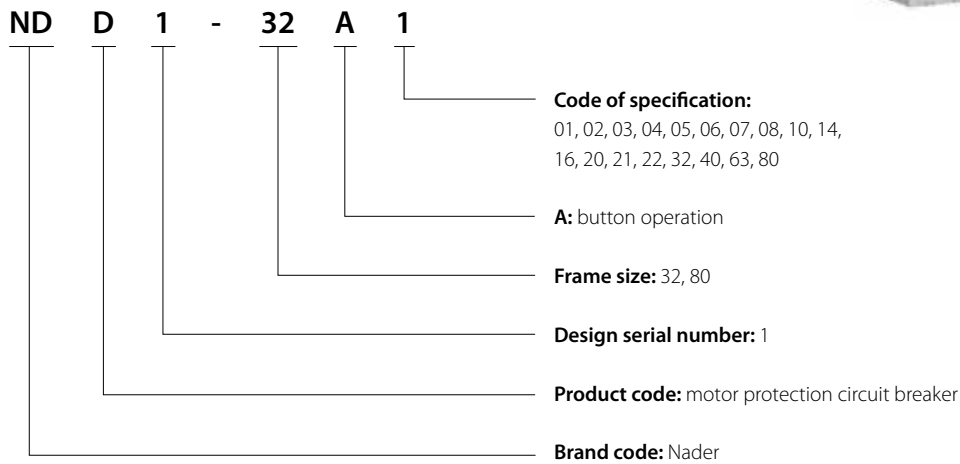
Main performance parameters

Code of basic product model			NDR3E-38
Setting current range			0.1~40A
Rated isolation voltage and frequency			690V, 50Hz/60Hz
Tripping level			10/20 adjustable
Connection of main circuit	Flexible conductor without terminals, 1 pc	Min./Max. Cross-sectional area	1.5/10 mm²
	Flexible conductor with terminals, 1 pc		1/4 mm²
	Rigid conductor without terminals, 1 pc		1/6 mm²
Tightening torque of main circuit terminals			1.5 N.m
Voltage of auxiliary power supply			110V, 220/230V, 380/400V (50Hz/60Hz)
Type of auxiliary contact			1NC+1NO (non-electrically isolated) NDR3E-38□/0/□ 1NC+1NO (electrically isolated) NDR3E-38□/1/□
Rated operating voltage of auxiliary contact			AC-15 230V/0.75A 400V/0.47A (optional depending on the model) DC-13 230V/0.1A
Connection of main circuit	Flexible conductor without terminals, 1 pc	Min./Max. Cross-sectional area	0.75/1.5 mm²
	Flexible conductor with terminals, 1 pc		0.75/1.5 mm²
	Rigid conductor without terminals, 1 pc		0.75/1.5 mm²
Tightening torque of auxiliary terminals			0.5N.m

Operating characteristic

Operating characteristic	No.	Setting current	Operating time	Starting condition	Ambient air temperature °C
Balanced load on each phase	1	1.05In	>2h	Cold state	-25°C~60°C
	2	1.2In	<2h	After the No.1 test	
	3	1.5In	<4min (Level 10) <8min (Level 20)	After the No.1 test	
	4	7.2In	Level 10: 4s<Tp≤10s	Cold state	
			Level 20: 6s<Tp≤20s	Cold state	
Open-phase	When the current of one phase or two phases I ≥ 0.8In, and the current of the other phase(s) is 0,		3~8s	Cold or warm state	
Phase unbalance	When phase unbalance factor ≥60%		30~40s	Cold or warm state	
locking	When the current of one phase or two phases I ≥ 0.8In, and the current of the other phase(s) is 0, the auto-reset function will be locked after three consecutive faults and manual reset is required				
	When the overload current I ≥ 4In, the auto-reset function will be locked after three consecutive faults and manual reset is required				

Quick selection table for NDD1 series motor protection circuit breakers



Note: only 3P products are available.

Main performance parameters of NDD1 series motor protection circuit breakers

Main performance parameters

Type	Model	NDD1-32A	NDD1-80A
Utilization category	GB14048.2	A	A
	GB14048.4	AC-3	AC-3
Rated operating voltage (V)		380, 400, 415, 690	380, 400, 415, 690
Rated isolation voltage (V)		690	690
Rated operating frequency (Hz)		50/60	50/60
Rated impulse withstand voltage (kV)		6	6
Dissipated power per pole (W)		2.5	8
Endurance	Live operating cycles	60000	10000
	Dead operating cycles	60000	17000
Operating rate (operating cycles/h)		120	120
Tripping level		10A	10A
Connection capacity of terminal mm ² (min/max)	Rigid conductor	2×1/2×6	1×2.5/1×35
	Flexible conductor without terminals	2×1.5/2×6	1×4/2×16
	Flexible conductor with terminals	2×1/2×4	
Terminal tightening torque (N.m)	Main circuit of circuit breaker	1.5	8
	Accessories of main circuit	0.8	

breaking capacity

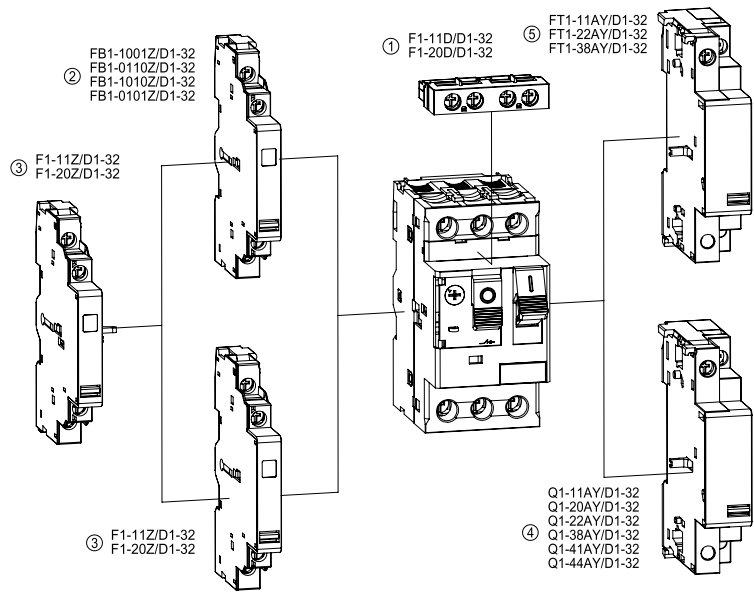
Product model	Current setting range	Breaking capacity (kA) 380V/400V/415V		Breaking capacity (kA) 690V	
		Rated ultimate short-circuit breaking capacity I_{cu}	Rated service short-circuit breaking capacity I_{cs}	Rated ultimate short-circuit breaking capacity I_{cu}	Rated service short-circuit breaking capacity I_{cs}
NDD1-32A01	0.1~0.16A	80	80	80	80
NDD1-32A02	0.16~0.25A	80	80	80	80
NDD1-32A03	0.25~0.4A	80	80	80	80
NDD1-32A04	0.4~0.63A	80	80	80	80
NDD1-32A05	0.63~1A	80	80	80	80
NDD1-32A06	1~1.6A	80	80	80	80
NDD1-32A07	1.6~2.5A	80	80	3	2.25
NDD1-32A08	2.5~4A	80	80	3	2.25
NDD1-32A10	4~6.3A	80	80	3	2.25
NDD1-32A14	6~10A	80	80	3	2.25
NDD1-32A16	9~14A	15	7.5	3	2.25
NDD1-32A20	13~18A	15	7.5	3	2.25
NDD1-32A21	17~23A	15	6	3	2.25
NDD1-32A22	20~25A	15	6	3	2.25
NDD1-32A32	24~32A	10	5	3	2.25
NDD1-80A40	25~40A	35	18	4	3
NDD1-80A63	40~63 A	35	18	4	3
NDD1-80A80	56~80 A	15	8	2	2

Tripping characteristic and tripping curve

Characteristic	No.	Test current	Preset time	Starting state	Expected result	Remarks
Time delay protection 20±2°C	A	1.05I _n	t≥2h	Cold state	Non-tripping	N/A
	b	1.2I _n	t<2h	Warm state	Tripping	The current stably rises to the specified value within 5s immediately after the No. a test
	c	1.5I _n	t≤4min	Warm state	Tripping	Start after the 1x setting current reaches thermal equilibrium
	d	7.2I _n	2s<t≤10s	Cold state	Tripping	Level 10A tripping
Instantaneous protection	e	7.68I _n	t≤0.2s	Cold state	Non-tripping	I _n ≤ 0.25A
		11.52I _n	t<0.2s	Cold state	Tripping	
	f	9.6I _n	t≤0.2s	Cold state	Non-tripping	I _n >0.25A
		14.4I _n	t<0.2s	Cold state	Tripping	
Open-phase protection 20±2°C	g	2P: 1.0I _n ; 1P: 0.9I _n	t≥2h	Cold state	Non-tripping	N/A
	h	2P: 1.15I _n ; 1P: non-energized	t<2h	Warm state	Tripping	The current stably rises to the specified value within 5s immediately after the No. g test

Selection table for accessories of NDD1 series motor protection circuit breakers

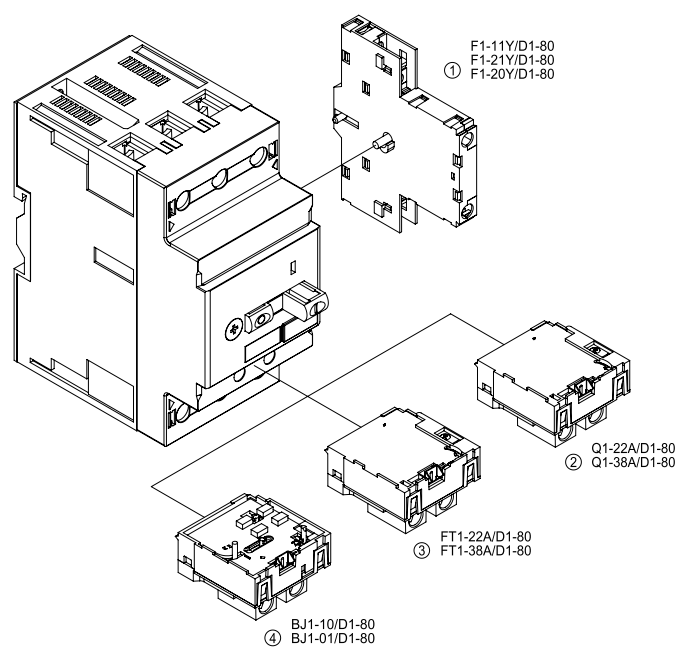
Installation diagram of NDD1-32 accessories



NDD1-32 accessories				
No.	Name of accessory	Mounting position	Model	Installation instruction
①	Auxiliary contact	Top-mounted	F1-11D/D1-32	Mounted at the top of NDD1-32 product, only 1 pc per product
			F1-20D/D1-32	
③		LH mounted	F1-11Z/D1-32	Mounted on the left side of NDD1-32 product, at most 2 pcs per product
			F1-20Z/D1-32	
②	Alarm and auxiliary contacts	LH mounted	FB1-1010Z/D1-32	Mounted on the left side of NDD1-32 product, only 1 pc per product
			FB1-1001Z/D1-32	
			FB1-0110Z/D1-32	
			FB1-0101Z/D1-32	
④	Under-voltage trip unit	RH mounted	Q1-11AY/D1-32	Mounted on the right side of NDD1-32 product, only 1 shunt or under-voltage trip unit per product
			Q1-20AY/D1-32	
			Q1-22AY/D1-32	
			Q1-38AY/D1-32	
			Q1-41AY/D1-32	
			Q1-44AY/D1-32	
⑤	Shunt trip unit	RH mounted	FT1-11AY/D1-32	
			FT1-22AY/D1-32	
			FT1-38AY/D1-32	

Note: One accessory ② and one accessory ③ can be mounted together on the left side of NDD1-32 product, but ② shall be mounted before ③.

Installation diagram of NDD1-80 accessories



NDD1-80 accessories				
No.	Name of accessory	Mounting position	Model	Installation instruction
①	Auxiliary contact	RH mounted	F1-11Y/D1-80	Mounted on the right side of NDD1-80 product, only 1 pc per product
			F1-21Y/D1-80	
			F1-20Y/D1-80	
②	Under-voltage trip unit	Built-in	Q1-22AY/D1-80	Built in the NDD1-80 product, only 1 pc per product
			Q1-38AY/D1-80	
③	Shunt trip unit	Built-in	FT1-22A/D1-80	Built in the NDD1-80 product, only 1 pc per product
			FT1-38A/D1-80	
④	Alarm contact	Built-in	BJ1-10/D1-80	Built in the NDD1-80 product, only 1 pc per product
			BJ1-01/D1-80	

Note: For the NDD1-80 product, please open the top cover before mounting ②, ③ or ④, and mount only one accessory!

Description of accessory functions

Type of accessory	Function
Auxiliary contact	Indicate making/breaking of the circuit breaker.
Alarm contact	Indicate the breaking of the circuit breaker under the action of fault current.
Auxiliary and alarm contact	One accessory combining both auxiliary and alarm functions to save space.
Shunt trip unit	Break the circuit breaker at 70%~110% of the rated operating voltage for remote control.
Under-voltage trip unit	Break the circuit breaker at 70%~35% of the rated operating voltage for remote control. Prevent the circuit breaker from closing when the voltage is below 35% of the rated operating voltage. Impose no influence on the circuit breaker at 85%~110% of the rated operating voltage.

Standard accessories

Product photo	Name of accessory	Model of accessory	Structure and parameter description
	Auxiliary contact	F1-11D/D1-32	1NO, 1NC
		F1-20D/D1-32	2NO
	Auxiliary contact	F1-11Z/D1-32	1NO, 1NC
		F1-20Z/D1-32	2NO
	Alarm and auxiliary contact	FB1-1010Z/D1-32	1NO alarm, 1NC auxiliary
		FB1-1001Z/D1-32	1NO alarm, 1NC auxiliary
		FB1-0110Z/D1-32	1NC alarm, 1NO auxiliary
		FB1-0101Z/D1-32	1NC alarm, 1NC auxiliary
	Auxiliary contact	F1-11Y/D1-80	1NO, 1NC
		F1-21Y/D1-80	2NO, 1NC
		F1-20Y/D1-80	2NO

Product photo	Name of accessory	Model of accessory	Structure and parameter description
	Alarm contact	BJ1-10/D1-80	1NO
		BJ1-01/D1-80	1NC
	Shunt trip unit	FT1-11AY/D1-32	110~127V 50/60Hz
		FT1-22AY/D1-32	220~240V 50/60Hz
		FT1-38AY/D1-32	380~415V 50/60Hz
	Under-voltage trip unit	Q1-11AY/D1-32	110~127V 50Hz
		Q1-20AY/D1-32	200V 50Hz 200~220V 60Hz
		Q1-22AY/D1-32	220~240V 50Hz 240~265V 60Hz
		Q1-38AY/D1-32	380~415V 50Hz 400~440V 60Hz
		Q1-41AY/D1-32	415~440V 50Hz 440~480V 60Hz
		Q1-44AY/D1-32	440V 50Hz 440~480V 60Hz
	Shunt trip unit	FT1-22A/D1-80	220~240V 50Hz
		FT1-38A/D1-80	380~415V 50Hz
	Under-voltage trip unit	Q1-22A/D1-80	220~240V 50Hz
		Q1-38A/D1-80	380~415V 50Hz
	Waterproof case	Z1-03/D1-32	IP55 External dimensions: 148.5×93.5×85.5
	Indicator light	XD1-G22/D1-32	Green 220/240V 50/60Hz
		XD1-G38/D1-32	Green 380/440V 50/60Hz

Technical parameters of accessories

Model of accessory	Rated operating voltage Ue V AC-15	Rated operating current Ie A AC-15	Rated operating voltage Ue V DC-13	Rated operating current Ie A DC-13	Conventional thermal current A Ith	Rated isolation voltage Ui V	Mechanical/ electrical endurance (operating cycles)	Conditional short-circuit current (matched with SCPD)
Auxiliary contact F1-11Z/D1-32 F1-20Z/D1-32 FB1-1010Z/D1-32 FB1-1001Z/D1-32 FB1-0110Z/D1-32 FB1-0101Z/D1-32	48	6	24	6	6	690	60000 / 60000	RT16-6
	110/127	4.5	48	5				
	230/240	3.3	60	3				
	380/415	2.2	110	1.3				
	440	1.5	220	0.5				
	500	1	—	—				
	690	0.6	—	—				
Alarm signal contact FB1-1010Z/D1-32 FB1-1001Z/D1-32 FB1-0110Z/D1-32 FB1-0101Z/D1-32	24	1.5	24	1	2.5	690	1000 / 1000	RT16-2.5
	48	1	48	0.3				
	110/127	0.5	60	0.15				
	220/240	0.3	—	—				
Auxiliary contact F1-11D/D1-32 F1-20D/D1-32	24	2	24	1	2.5	250	60000/60000	RT16-2.5
	48	1.25	48	0.3				
	110/127	1	60	0.15				
	220/240	0.5	—	—				
Auxiliary contact F1-11Y/D1-80 F1-20Y/D1-80 F1-21Y/D1-80	48	6	24	6	6	690	10000/17000	RT16-6
	220/240	3.5	48	5				
	380/415	2	110	1.5				
Alarm signal contact BJ1-10/D1-80 BJ1-01/D1-80	48	6	24	6	6	690	1000/1000	RT16-6
	220/240	3.5	48	5				
	380/415	2	110	1.5				
Connection capacity of accessory terminal mm² (min/max)		Rigid conductor			1 pc or 2 pcs		1/2.5	
		Flexible conductor without terminals			1 pc or 2 pcs		0.75/2.5	
		Flexible conductor with terminals			1 pc or 2 pcs		0.75/1.5	

Product certification information

	Product model	CCC certification	CQC certification	International CB system certification	European Union CE certification	German TUV certification	American UL certification	Australian SAA certification	German VDE certification	Indian SNI certification	South Korean KC certification	Industry standard certification
Air Circuit Breaker	NDW1A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDW2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDW2F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDW2G(Z)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDW3	✓	✓	✓	△	△	✓	✓	✓	✓	✓	
	NDW3Z	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDW3B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM2	✓	✓	✓	✓	✓	✓	△	✓	✓	✓	
	NDM2L	✓	△	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM2E	✓	✓	△	△	△	✓	✓	✓	✓	✓	
Molded case circuit breaker	NDM2Z	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM2ZB	✓	✓	✓	△	△	✓	✓	✓	✓	✓	
	NDM3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM3L	✓	△	✓	△	△	✓	✓	✓	✓	✓	
	NDM3E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM3EU	✓	✓	✓	✓	✓	√ (UL489)	✓	✓	✓	✓	
	NDM3G	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM3Z	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM3A	✓	✓	✓	✓	✓	✓	△	✓	✓	✓	
	NDM3AR	✓	✓									
Switch-disconnector	NDM3ZB	✓	✓	✓	△	△	✓	✓	✓	✓	✓	
	NDM5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDM5G	✓	✓	✓		✓						
	NDG2	✓	△	△	△	△	✓	✓	✓	✓	✓	
	NDGR2	✓	△	△	✓	✓	✓	✓	✓	✓	✓	
	NDGP2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDG3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDG3V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDG3A	✓	✓	✓	△	△	✓	✓	✓	✓	✓	
	NDQ1	✓	✓	△	△	△	✓	✓	✓	✓	✓	
Dual power automatic transfer switch	NDQ2A	✓	✓	△	✓	✓	✓	✓	✓	✓	✓	
	NDQ3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDQ3H	✓	✓	△	△	△	✓	✓	✓	✓	✓	
	NDQ3HP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDQ5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	NDQ5W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Product certification information (cont'd)

	Product model	CCC certification	CQC certification	International CB system certification	European Union CE certification	German TUV certification	American UL certification	Australian SAA certification	German VDE certification	Indian SNI certification	South Korean KC certification	Industry standard certification
Terminal	NDB1	✓	✓	△	△	△	△	△	/	△	/	
	NDB1LE	✓	✓	△	△	△	△	/	/	△	/	
	NDB1T	✓	△	✓	✓	✓	/	/	/	/	/	
	NDB1PT	✓	△	✓	/	/	/	/	/	/	/	
	NDB1Z	✓	△	✓	/	/	/	/	/	/	/	
	NDB2	✓	✓	✓	✓	✓	√(UL1077) △(UL489)	/	/	/	/	
	NDB2N	✓	△	✓	✓	✓	/	/	/	/	/	
	NDB2LE	✓	✓	✓	△	△	/	△	/	△	/	
	NDB2T	✓	✓	✓	✓	✓	√(UL1077, UL489)	/	/	/	/	
	NDB2Z	✓	✓	✓	✓	✓	√(UL1077) △(UL489)	/	/	/	/	
	NDB2ZB	✓	△	△	/	/	/	/	/	/	/	
	NDB2LM	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDB2F	✓	✓	✓	/	/	/	/	/	/	/	
	NDB6	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDB6Z	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDB6AZ	✓	✓	✓	✓	✓	√(UL1077)	✓	/	/	/	
	NDB6LM	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDL6M	✓	/	✓	✓	✓	/	/	/	/	/	
	NDC2J	✓	✓	/	/	/	/	/	/	/	/	
	NDG1	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDA1	✓	/	/	/	/	/	/	/	/	/	
	NDP1	✓	/	/	/	/	/	/	/	/	/	
	NDPIA	✓	/	/	/	/	/	/	/	/	/	
	NDP3A	✓	/	/	/	/	/	/	/	/	/	
	NDP3T	✓	/	/	/	/	/	/	/	/	/	
	NDB3	✓	✓	✓	✓	✓	△	/	△	/	△	
	NDB5	✓	✓	✓	✓	✓	√(UL1077, UL489A)	/	/	/	/	
	NDGQ1Z	/	✓	/	/	/	/	/	/	/	/	
	NDU1	/	/	/	/	/	/	/	/	/	/	Beijing Testing Center for Surge Protective Devices
	NDU1-I	/	/	/	/	/	/	/	/	/	/	Beijing Testing Center for Surge Protective Devices
	NDU1Z	/	/	/	/	/	/	/	/	/	/	Beijing Testing Center for Surge Protective Devices

Product certification information (cont'd)

	Product model	CCC certification	COC certification	International CB system certification	European Union CE certification	German TUV certification	American UL certification	Australian SAA certification	German VDE certification	Indian SNI certification	South Korean KC certification	Industry standard certification
Industrial control	NDC1(Z/N)	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDCTT	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDC2(N)	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDC2J	✓	✓	/	/	/	/	/	/	/	/	
	NDC3	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDC5K	✓	/	✓	✓	✓	/	/	/	/	/	
	NDZ3(X)	✓	✓	✓	△	△	△	/	/	/	/	
	NDZ3T	✓	△	/	△	△	△	/	/	/	/	IATF16949
	NDJ1(Z)	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDK1	✓	✓	/	/	/	/	/	/	/	/	
	NDY1	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDCQ1	✓	/	/	/	/	/	/	/	/	/	
	NDR1E	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDR2	✓	✓	✓	✓	✓	/	/	/	/	/	
	NDR3E	✓	✓	✓	/	/	/	/	/	/	/	
	NDD1	✓	✓	✓	✓	✓	/	/	/	/	/	

1. "✓"/": The series of products have passed the corresponding certification.

2. "△": Please call the technical support hotline 400-99-02706 for details.

3. "✓"/": The series of products have not gone through the corresponding certification.

4. The above-described certification information is specific to the products covered in this selection guide; for which the company reserves the right of final interpretation.



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