



Shanghai Liangxin Electrical Co., Ltd. is one of the leading low-voltage electrical component companies in high-end market, listed in the Shenzhen Stock Exchange.

The company drives the development process based on the customer's demands and focuses on the continuous technology innovation to enhance the customer value, thereby providing customers with safe, reliable, environmentally friendly and energy-saving low-voltage electrical products.

The company position is experts for high-end low-voltage electrical system solutions, dedicated to solving customer's pressure and challenges, thus winning competitive advantages for our customers.



We are dedicated to more safe, convenient and efficient usage of electricity by human beings



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Example of low-voltage power distribution system

### Part 1 Transformer Mated with Circuit Breaker Motor Mated with Feeding Device

Recommendation table of transformer operation in parallel and low-voltage circuit breaker mating

Transformer capacity/ number in	Rated current of each	Transformer resistance voltage	Short-circuit current through	Minimum breaking capacity of		Short- circuit current at		Circuit	breaker model at the branch c	outlet	
parallel NxkVA	transformer In (A)	Ucc (%)	each transformer (kA)	circuit breaker at the bus outlet (kA)	Lircuit preaker model at the bus outlet	the branch outlet (KA)	s100A	160A	250A	400A	630A
1 × 50	70	4	2	2	NDM2-100L/NDM3-100C	2	NDM2-100L/NDM3-100C				
2 x 50	70	4	2	2	NDM2-100L/NDM3-100C	4	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C			
3 x 50	70	4	2	4	NDM2-100L/NDM3-100C	9	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C		
1 × 100	141	4	4	4	NDM2-250L/NDM3-250C	4	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C			
2 x 100	141	4	4	4	NDM2-250L/NDM3-250C	8	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C		
3 x 100	141	4	4	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	NDM2-250L/NDM3-250C	12	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	
1 × 160	255	4	9	9	NDM2-250L/NDM3-250C	9	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C		
2 x 160	255	4	9	9	NDM2-250L/NDM3-250C	12	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	
3 x 160	255	4	9	12	NDM2-250L/NDM3-250C	18	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	NDM2-630L/NDM3-630L
1 x 250	352	4	6	6	NDM2-400L/NDM3-400L	6	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	
2 x 250	352	4	6	6	NDM2-400L/NDM3-400L	18	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	NDM2-630L/NDM3-630L
3 x 250	352	4	6	18	NDM2-400L/NDM3-400L	27	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	NDM2-630L/NDM3-630L
1 x400	563	4	14	14	NDM2-630L/NDM3-630L	14	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	NDM2-630L/NDM3-630L
2 x 400	563	4	14	14	NDM2-630L/NDM3-630L	28	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400L/NDM3-400L	NDM2-630L/NDM3-630L
3 x 400	563	4	14	28	NDM2-630L/NDM3-630L	42	NDM2-100M/NDM3-125M	NDM2-250M/NDM3-250M	NDM2-250M/NDM3-250M	NDM2-400L/NDM3-400L	NDM2-630L/NDM3-630L
1 x 630	887	4	22	22	NDW1-2000(C) 1000A/NDW3-4000S 1000A	22	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400M/NDM3-400M	NDM2-630M/NDM3-630M
					NDM3EX-1600 1000A						
2 x 630	887	4	22	22	NDW1-2000(C) 1000A/NDW3-4000S 1000A NDM3EX-1600 1000A	44	NDM2-100M/NDM3-100M	NDM2-250M/NDM3-250M	NDM2-250M/NDM3-250M	NDM2-400M/NDM3-400M	NDM2-630M/NDM3-630M
3 x630	887	4	22	44	NDW1-2000(C) 1000A/NDW3-4000S 1000A	99	NDM2-100H/NDM3-125H	NDM2-250H/NDM3-250H	NDM2-250H/NDM3-250H	NDM2-400H/NDM3-400H	NDM2-630H/NDM3-630H
				-	NDM3EX-1600 1000A						
1 x 800	1127	9	19	19	NDW1-2000(C) 1250A/NDW3-4000S 1250A	19	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400M/NDM3-400M	NDM2-630M/NDM3-630M
				_	NDM3EX-1600 1250A						
2 × 800	1127	9	19	19	NDW1-2000(C) 1250A/NDW3-4000S 1250A NDM3EX-1600 1250A	38	NDM2-100M/NDM3-100M	NDM2-250M/NDM3-250M	NDM2-250M/NDM3-250M	NDM2-400M/NDM3-400M	NDM2-630M/NDM3-630M
3 x 800	1127	9	19	38	NDW1-2000(C) 1250A/NDW3-4000S 1250A	57	NDM2-100H/NDM3-125H	NDM2-250H/NDM3-250H	NDM2-250H/NDM3-250H	NDM2-400M/NDM3-400H	NDM2-630H/NDM3-630H
				-	NDM3EX-1600 1250A						
1 × 1000	1408	9	23	23	NDW1-2000(C) 1600A/NDW3-4000S 1600A	23	NDM2-100L/NDM3-100C	NDM2-250L/NDM3-250C	NDM2-250L/NDM3-250C	NDM2-400M/NDM3-400M	NDM2-630M/NDM3-630M
2 × 1000	1408	9	23	23	NDW1-2000(C) 1600A/NDW3-4000S 1600A	46	NDM2-100M/NDM3-100M	NDM2-250M/NDM3-250M	NDM2-250M/NDM3-250M	NDM2-400M/NDM3-400M	NDM2-630M/NDM3-630M
3 x 1000	1408	9	23	46	NDW1-2000(C) 1600A/NDW3-4000S 1600A	69	NDM2-100H/NDM3-125H	NDM2-250H/NDM3-250H	NDM2-250H/NDM3-250H	NDM2-400M/NDM3-400H	NDM2-630H/NDM3-630H

Recommendation table of transformer operation in parallel and low-voltage circuit breaker mating (continued)

		3-630M	3-630H		3-630M			3-630M				3-630H			
	630A	NDM2-630M/NDM	NDM2-630H/NDM	NDM5-630L	NDM2-630M/NDM	NDM5-630L	NDM5-630L	NDM2-630M/NDM		NDM5-630L	NDM5-630L	NDM2-630H/NDM	NDM5-630L	NDM5-630L	NDM5-630L
outlet	400A	NDM2-400M/NDM3-400M	NDM2-400H/NDM3-400H	NDM5-400L	NDM2-400M/NDM3-400M	NDM5-400L	NDM5-400L	NDM2-400M/NDM3-400M		NDM5-400L	NDM5-400L	NDM2-400H/NDM3-400H	NDM5-400L	NDM5-400L	NDM5-400L
breaker model at the branch o	250A	NDM2-250L/NDM3-250C	NDM2-250H/NDM3-250H	NDM5-250L	NDM2-250M/NDM3-250M	NDM5-250L	NDM5-250L	NDM2-250M/NDM3-250M		NDM5-250L	NDM5-250L	NDM2-250H/NDM3-250H	NDM5-250L	NDM5-250L	NDM5-250L
Gircuit	160A	NDM2-250L/NDM3-250C	NDM2-250H/NDM3-250H	NDM5-160L	NDM2-250M/NDM3-250M	NDM5-160L	NDM5-160L	NDM2-250M/NDM3-250M		NDM5-160L	NDM5-160L	NDM2-250H/NDM3-250H	NDM5-160L	NDM5-160L	NDM5-160L
	s100A	NDM2-100L/NDM3-100C	NDM2-100H/NDM3-125H	NDM5-160L 100A	NDM2-100M/NDM3-100M	NWM5-160L 100A	NDM5-160L 100A	NDM2-100M/NDM3-100M		NDM5-160L 100A	NDM5-160L 100A	NDM2-100H/NDM3-125H	NDM5-160L 100A	NDM5-160L 100A	NDM5-160L 100A
Short- circuit current at	the branch outlet (kA)	29	58	87	38	76	114	47		94	141	59	118	74	148
Circuit husebor model as the hur outlet		NDW1-2000(C) 2000A/NDW3-4000S 2000A	NDW1-2000(C) 2000A/NDW3-4000S 2000A	NDW1-2000(C) 2000A/NDW3-4000S 2000A	NDW1-3200(C) 2500A/NDW3-4000S 2500A	NDW1-3200(C) 2500A/NDW3-4000S 2500A	NDW1-3200(C) 2500A/NDW3-4000S 2500A	NDW1-3200(C) 3200A/NDW3-4000S 3200A	4000	NDW1-4000(C) 4000A/NDW3-4000H 3200A	4000 NDW1-6300(C) 4000A/NDW3-4000H 3200	NDW1-6300(C) 4000A		NDW1-6300(C) 5000A	
Minimum breaking capacity of	circuit breaker at the bus outlet (kA)	29	29	58	38	38	76	47		47	94	59	59	74	74
Short-circuit current through	each transformer (kA)	29	29	29	38	38	38	47		47	47	59	59	74	74
Transformer resistance voltage	Ucc (%)	9	9	9	9	9	9	9		9	Q	9	9	9	9
Rated current of each	transformer In (A)	1760	1760	1760	2253	2253	2253	2816		2816	2816	3521	3521	4436	4436
in ^ mer	_	250	1250	1250	1600	1600	1600	2000		2000	2000	2500	2500	3150	31 50

### Selection Manual of Low-voltage Products Part 1 Transformer Mated with Circuit Breaker, Motor Mated with Feeding Device

	Current setting range A	0.16~0.25	0.25~0.40	0.40~0.63	0.63~0.1	1~1.6	1~1.6	1.6~2.5	2.5~4	2.5~4	4~6	5.5~8	7~10	9~13	12~18	17~25	17~25	23~32
Thermal overload relay	Bimetallic	NDR2-38 02	NDR2-38 03	NDR2-38 04	NDR2-38 05	NDR2-3806	NDR2-38 06	NDR2-3807	NDR2-3808	NDR2-3808	NDR2-3810	NDR2-3812	NDR2-3814	NDR2-3816	NDR2-38 21	NDR2-38 22	NDR2-38 22	NDR2-38 53
	Electronic	NDR1-38A12 or NDR1-38M12	NDR1-38A13 or NDR1-38M13	NDR1-38A14 or NDR1-38M14	NDR1-38A15 or NDR1-38M15	NDR1-38A16 or NDR1-38M16	NDR1-38A16 or NDR1-38M16	NDR1-38A17 or NDR1-38M17	NDR1-38A18 or NDR1-38M18	NDR1-38A18 or NDR1-38M18	NDR1-38A21 or NDR1-38M21	NDR1-38A22 or NDR1-38M22	NDR1-38A23 or NDR1-38M23	NDR1-38A24 or NDR1-38M24	NDR1-38A25 or NDR1-38M25	NDR1-38A26 or NDR1-38M26	NDR1-38A26 or NDR1-38M26	NDR1-95A31 orNDR1-38M31
Contactor	Model	NDC1-09	NDC1-18	NDC1-18	NDC1-25	NDC1-25	NDC1-32	NDC1-32	NDC1-38	NDC1-50								
	Breaking capacity kA	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10	4.5/10
Protection circuit breaker	Model	NDM1-63/NDB2-63 D 3P 1A	NDM1-63/NDB2-63 D 3P 2A	NDM1-63/NDB2-63 D 3P 4A	NDM1-63/NDB2-63 D 3P 4A	NDM1-63/NDB2-63 D 3P 4A	NDM1-63/NDB2-63 D 3P 6A	NDM1-63/NDB2-63 D 3P 10A	NDM1-63/NDB2-63 D 3P 12A	NDM1-63/NDB2-63 D 3P 16A	NDM1-63/NDB2-63 D 3P 20A	NDM1-63/NDB2-63 D 3P 25A	NDM1-63/NDB2-63 D 3P 25A	NDM1-63/NDB2-63 D 3P 32A	NDM1-63/NDB2-63 D 3P 40A			
380V)	Rated current A	0.22	0.35	0.42	0.7	1.2	1.6	2	2.8	3.7	5.3	7	δ	12	16	18.1	23	30
Motor (	Control power kW	0.06	0.09	0.12	0.18	0.37	0.55	0.75		1.5	2.2	m	4	5. 5.	7.5	0	=	15

Qualified Transformer and Circuit Breaker Voltage Machine Mated with Feeding Device

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NDM1/NDB2 circuit breaker mated with contactor and thermal relay

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Quantity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L	L	L	-	-	-	-
Contactor model	NDC1-09	NDC1-12	NDC1-18	NDC1-25	NDC1-32	NDC1-32	NDC1-38	NDC1-38	NDC1-40	NDC1-40	NDC1-40	NDC1-50	NDC1-65	NDC1-80	NDC1-95							
Quantity	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	1	-	-	1
Current setting range A	0.16~0.25	0.25~0.40	0.40~0.63	0.63~0.1	0.63~0.1	1~1.6	1~1.6	1.6~2.5	2.5~4	2.5~4	4~6.3	6∼10	6~10	9~14	17~23	17~23	24~32	25~50	25~50	40~63	46~80	56~80
Scheme component list Motor starter model	NDD1-32A02	NDD1-32A03	NDD1-32A04	NDD1-32A05	NDD1-32A05	NDD1-32A06	NDD1-32A06	NDD1-32A07	NDD1-32A08	NDD1-32A08	NDD1-32A10	NDD1-32A14	NDD1-32A14	NDD1-32A16	NDD1-32A21	NDD1-32A21	NDD1-32A32	NDD1-80A40	NDD1-80A40	NDD1-80A63	NDD1-80A80	NDD1-80A80
Rated current A	0.22	0.34	0.44	0.72	0.83	1.1	1.5	1.9	2.7	3.6	4.9	6.5	6	12	18	18.3	25	32	38	50	65	80
Motor (AC-3, 400V) rated power kW	0.06	0.09	0.12	0.18	0.37	0.37	0.55	0.75	1.1	1.5	2.2	Э	4	5.5	7.5	6	11	15	18.5	22	30	37

## Motor starting scheme Optional table of heavy load direct starting-400/415V, 50/60HZ with circuit breaker and electronic overload relay protection

Principal Princi	imponent list tection Quanti saker model	ity	Contactor model	Quantity	Electronic overload appliance model	Quantity
60(L/N	)32002 1		NDC1-09	-	NDR1-38A16/NDR1-38M16	-
60(L/M)3	2002 1		NDC1-09	-	NDR1-38A16/NDR1-38M16	-
60(L/M)32	1 1		NDC1-09	1	NDR1-38A17/NDR1-38M17	1
60(L/M)320	02 1		NDC1-12	1	NDR1-38A18/NDR1-38M18	1
60(L/M)3200	1		NDC1-18	-	NDR1-38A18/NDR1-38M18	-
60(L/M)3200	2 1		NDC1-25	-	NDR1-38A21/NDR1-38M21	1
60(L/M)3200	2		NDC1-32	-	NDR1-38A22/NDR1-38M22	1
60(L/M)32002	1		NDC1-32	1	NDR1-38A23/NDR1-38M23	1
60(L/M)32002	1		NDC1-38	1	NDR1-38A24/NDR1-38M24	1
60(L/M)32002	-		NDC1-38	-	NDR1-38A25/NDR1-38M25	1
60(L/M)32002	1		NDC1-40	-	NDR1-38A26/NDR1-38M26	1
60(L/M)32002	1		NDC1-40	1	NDR1-38A26/NDR1-38M26	1
60(L/M)32002	1		NDC1-50	1	NDR1-95A31/NDR1-38M31	1
60(L/M)32002	-		NDC1-50	1	NDR1-95A32/NDR1-38M32	1
60(L/M)32002	1		NDC1-65	1	NDR1-95A33/NDR1-38M33	1
60(L/M)32002	1		NDC1-80	1	NDR1-95A34/NDR1-38M34	1
0(C/L/M/H)3200	2		NDC1-95	1	NDR1-95A35/NDR1-38M35	1
5(C/L/M/H)32002	2		NDC1-115	1	NDR1-95A36/NDR1-38M36	1
5(C/L/M/H)3200	1 1		NDC1-150	-		
5(C/L/M/H)320	02 1		NDC1-185	1		
5(C/L/M/H)320	02 1		NDC1-225	-		
0(C/L/M/H)320	02 1		NDC1-265	-		
0(C/L/M/H)320	02 1		NDC1-330	1		
0(C/L/M/H)32	202 1		NDC1-400	-		
-800H/3200	1		NDC1-630	-		
0C 5/H008-	1					

### Nader 良信电器

Electrical machine starting scheme
Optional table of conventional load direct starting-380/415V, 50/60HZ with circuit breaker
and thermal overload relay protection

tor (AC-3, 400V) rated power kW	Rated current A	Scheme component list Protection circuit breaker model	Quantity	Contactor model	Quantity	Themal relay model	Quantity
0.37	1.1	NDM2-60(L/M)32002	-	NDC1-09	-	NDR2-38 06	-
0.55	1.5	NDM2-60(L/M)32002	-	NDC1-09	-	NDR2-38 06	-
0.75	1.8	NDM2-60(L/M)32002	-	NDC1-09	-	NDR2-38 07	-
1.1	2.6	NDM2-60(L/M)32002	1	NDC1-12	1	NDR2-38 08	-
1.5	3.4	NDM2-60(L/M)32002	-	NDC1-18	-	NDR2-38 08	-
2.2	4.8	NDM2-60(L/M)32002	-	NDC1-25	-	NDR2-3810	-
m	6.5	NDM2-60(L/M)32002	-	NDC1-32	-	NDR2-3812	-
4	8.2	NDM2-60(L/M)32002	-	NDC1-32	-	NDR2-38 14	-
5.5	11	NDM2-60(L/M)32002	-	NDC1-38	-	NDR2-3816	-
7.5	14	NDM2-60(L/M)32002	1	NDC1-38	1	NDR2-38 21	1
10	19	NDM2-60(L/M)32002	-	NDC1-40	-	NDR2-95 22	-
11	21	NDM2-60(L/M)32002	-	NDC1-40	-	NDR2-95 22	-
15	28	NDM2-60(L/M)32002	1	NDC1-40	1	NDR2-95 53	-
18.5	34	NDM2-60(L/M)32002	1	NDC1-50	1	NDR2-95 55	1
22	40	NDM2-60(L/M)32002	1	NDC1-65	1	NDR2-95 57	1
30	55	NDM2-60(L/M)32002	1	NDC1-80	1	NDR2-95 59	1
37	66	NDM2-100(C/L/M/H)32002	-	NDC1-95	-	NDR2-95 61	-
45	80	NDM2-225(C/L/M/H)32002	1	NDC2-115	1	NDR2-140 65	1
55	100	NDM2-225(C/L/M/H)32002	1	NDC2-150	1	NDR2-140 65	1
75	135	NDM2-225(C/L/M/H)32002	1	NDC2-170	1	NDR2-140 69	1
90	160	NDM2-225(C/L/M/H)32002	1	NDC1-225	1		
110	200	NDM2-400(C/L/M/H)32002	1	NDC1-265	1		
132	230	NDM2-400(C/L/M/H)32002	1	NDC1-330	1		
160	270	NDM2-400(C/L/M/H)32002	1	NDC1-400	1		
300	500	NDM2-800H/32002	1	NDC1-630	1		
315	560	NDM2-800H/32002	-	NDC1-780	-		

# Motor starting scheme Optional table of direct starting-380/415V, 50/60HZ with motor starter protection Application areas of fire pump: With Moulded case circuit breaker and thermal overload relay protection

Quantity	1	1	1	-	-	-	-	-	-	-	-									
Thermal overload relay model	NDR2-38 16	NDR2-38 22	NDR2-38 32	NDR2-38 35	NDR2-95 55	NDR2-95 59	NDR2-95 61	NDR2-95 63	NDR2-140 65	NDR2-140 67	NDR2-140 69									
Quantity	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contactor model	NDC1-38	NDC1-38	NDC1-38	NDC1-40	NDC1-50	NDC1-65	NDC1-80	NDC1-95	NDC2-115	NDC2-150	NDC2-170	NDC1-225	NDC1-265	NDC1-330	NDC1-400	NDC1-400	NDC1-500	NDC1-630	NDC1-630	NDC1-780
Quantity	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scheme component list Protection circuit breaker model	NDM2-100(C/L/M/H)32002	NDM2-800H/32002	NDM2-800H/32002	NDM2-800H/32002																
Rated current A	12	18	25	32	38	50	65	80	83	98	135	158	193	232	282	349	430	520	545	610
Motor (AC-3, 400V) rated power kW	5.5	7.5	11	15	18.5	22	30	37	45	55	75	06	110	132	160	200	250	290	315	355

### Nader 良信电器

Application areas of fire pump: With Moulded case circuit breaker and electronic overload relay protection Motor starting scheme Optional table of direct starting-380/415V, 50/60HZ with motor starter protection

Motor (AC-3, 400V) rated power kW	Rated current A	Scheme component list Protection circuit breaker model	Quantity	Contactor model	Quantity	Thermal overload relay model	Quantity
5.5	12	NDM2-100(C/L/M/H)32002	-	NDC1-38	-	NDR1-38A24orNDR1-38M24	-
7.5	18	NDM2-100(C/L/M/H)32002	-	NDC1-38	-	NDR1-38A26orNDR1-38M26	F
11	25	NDM2-100(C/L/M/H)32002	-	NDC1-38	-	NDR1-38A27orNDR1-38M27	F
15	32	NDM2-100(C/L/M/H)32002	-	NDC1-40	-	NDR1-38A28or NDR1-38M28	F
18.5	38	NDM2-100(C/L/M/H)32002	-	NDC1-50	-	NDR1-95A32or NDR1-95M32	F
22	50	NDM2-100(C/L/M/H)32002	-	NDC1-65	-	NDR1-95A34 or NDR1-95M34	F
30	65	NDM2-100(C/L/M/H)32002	-	NDC1-80	-	NDR1-95A35 or NDR1-95M35	F
37	80	NDM2-100(C/L/M/H)32002	-	NDC1-95	-	NDR1-95A36 or NDR1-95M36	F
45	83	NDM2-100(C/L/M/H)32002	-	NDC2-115	-		
55	98	NDM2-225(C/L/M/H)32002	-	NDC2-150	-		
75	135	NDM2-225(C/L/M/H)32002	-	NDC2-170	L		
90	158	NDM2-225(C/L/M/H)32002	-	NDC1-225	-		
110	193	NDM2-225(C/L/M/H)32002	-	NDC1-265	1		
132	232	NDM2-400(C/L/M/H)32002	1	NDC1-330	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	-	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	-	NDC1-780	-		

### Qualified Transformer and Circuit Breaker Voltage Machine Mated with Feeding Device

1

### Motor starting scheme Selection table of reversing starting-400/415V, 50/60HZ Reversing starting scheme: With motor starter protection

Quantity	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	1	1	1	-
Contactor model	NDC1N-09	NDC1N-09	NDC1N-09	NDC1N-09	NDC1 N-09	NDC1N-09	NDC1N-09	NDC1N-09	NDC1N-12	NDC1N-18	NDC1N-25	NDC1N-32	NDC1N-32	NDC1N-38	NDC1 N-38	NDC1N-40	NDC1N-40	NDC1N-40	NDC1N-50	NDC1N-65	NDC1N-80	NDC1N-95
Quantity	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	1	1	1	-
Current setting range	0.16~0.25	0.25~0.4	0.4~0.63	0.63~1	0.63~1	1~1.6	1~1.6	1.6~2.5	2.5~4	2.5~4	4~6.3	6~10	6~10	9~14	17~23	17~23	24~40	25~40	25~40	40~63	46~80	56~80
Scheme component list Motor starter model	NDD1-32A02	NDD1-32A03	NDD1-32A04	NDD1-32A05	NDD1-32A05	NDD1-32A06	NDD1-32A06	NDD1-32A07	NDD1-32A08	NDD1-32A08	NDD1-32A10	NDD1-32A14	NDD1-32A14	NDD1-32A16	NDD1-32A21	NDD1-32A21	NDD1-32A32	NDD1-80A40	NDD1-80A40	NDD1-80A63	NDD1-80A80	NDD1-80A80
Rated current A	0.22	0.34	0.44	0.72	0.83	1.1	1.5	1.9	2.7	3.6	4.9	6.5	6	12	18	18.3	25	32	38	50	65	80
Motor (AC-3, 400V) rated power kW	0.06	0.09	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	£	4	5.5	7.5	6	11	15	18.5	22	30	37

Contactor (NDC1-09~95)							
Maximum starting frequency	y: 30 times/hour, maximum startin	ig time:30s					
Motor Class AC3 50Hz	Three-phase motor	Direct connection	Delta connection of contactor	Star connection of contactor	Contactor	Overload relay	
			KM2	KM3	KM1 (3)		
Ч	Ц	IrD	Model	Model	Model	Model	Setting range
kw	Υ	A					А
1.5	3.5	2	NDC1-09	NDC1-09	NDC1-09	NDR1-38A17/NDR1-38M17/NDR2-3807	1.6~2.5
2.2	5	ĸ	NDC1-09	NDC1-09	NDC1-09	NDR1-38A18/NDR1-38M18/NDR2-38 08	2.5~4
ĸ	6.6	4	NDC1-09	NDC1-09	NDC1-09	NDR1-38A21/NDR1-38M21/NDR2-38 10	4~6
4	8.5	5	NDC1-09	NDC1-09	NDC1-09	NDR1-38A22/NDR1-38M22/NDR2-38 12	5.5~8
5.5	11.5	Q	NDC1-09	NDC1-09	NDC1-09	NDR1-38A22/NDR1-38M22/NDR2-38 12	5.5~8
7.5	15.5	6	NDC1-12	NDC1-12	NDC1-09	NDR1-38A23/NDR1-38M23/NDR2-38 14	7~10
6	18.5	11	NDC1-18	NDC1-18	NDC1-09	NDR1-38A24/NDR1-38M24/NDR2-38 16	9~13
11	22	13	NDC1-18	NDC1-18	NDC1-09	NDR1-38A24/NDR1-38M24/NDR2-38 16	9~13
15	30	16	NDC1-25	NDC1-25	NDC1-12	NDR1-38A25/NDR1-38M25/NDR2-38 21	12~18
18.5	37	22	NDC1-25	NDC1-25	NDC1-18	NDR1-38A26/NDR1-38M26/NDR2-38 22	17~25
22	44	26	NDC1-32	NDC1-32	NDC1-18	NDR1-38A27/NDR1-38M27/NDR2-38 32	23~32
30	60	35	NDC1-38	NDC1-38	NDC1-25	NDR1-38A28/NDR1-38M28/NDR2-38 35	30~40
37	72	40	NDC1-50	NDC1-50	NDC1-32	NDR1-95A33/NDR1-95M33/NDR2-95 57	37~50
45	85	47	NDC1-65	NDC1-65	NDC1-40	NDR1-38A33/NDR1-95M33/NDR2-95 57	37~50
55	105	58	NDC1-65	NDC1-65	NDC1-40	NDR1-38A35/NDR1-95M35/NDR2-95 61	55~70
75	138	78	NDC1-95	NDC1-95	NDC1-50	NDR1-95A36/NDR1-95M36/NDR2-95 63	63~80
96	170	66	NDC1-115	NDC1-115	NDC1-65	NDR2-14065	80~104
110	205	118	NDC1-150	NDC1-150	NDC1-80	NDR2-14067	95~120

## Selection table of star-delta starter

### Part 2 Air Circuit Breaker

### NDW1 Series Air Circuit Breaker

### NDW1-1600 Circuit Breaker

### NDW1-2000/3200/6300 Circuit Breaker







- 1. Reset button
- 2. Off-position key lock (optional)
- 3. Opening button
- 4. Closing button
- 5. Handle
- 6. Sign
- 7. Energy releasing and storing indicator
- 8. Opening and closing indication
- 9. Nameplate
- 10. Rocker operating position
- 11. "Connection", "Test", "Separation" position indicator
- 12. Rocker and its storage position
- 13. Cover plate
- 14. Knob

Note: 1~9 is fixed type, 1~12 is drawout type, 13~14 are special parts for the replacement controller circuit breaker.

### Quick Selection Table of NDW1-1600 Series Air Circuit Breaker



### ND W 1-1600 C 200/4 K 3M D1 F1 B1 Q10 A4 Optional accessories



Quick Selection Table of NDW1-2000~6300 Series Air Circuit Breaker





### ND W 1-2000 C 1250/4 K 3M D1 F1 B1 Q10 S11 A4 Optional accessories

	M: Door frame         G: Phase partition         F: Dust cover         L: Door interlock         Z: Three-position si         S: Button lock         I: ST-I power supply         R: ST201 relay mode         P: ST-IV power supply         J: Wiring mode (0-horizontal; 2-L-type         T/E/W: Grounding r         E-External current I         W-External transfor         FD: Product type (r         wind power product         Contact combination         closed (not to be widen and six closed         Voltage loss releas         S: Voltage: 1-AC38         Delay time: 1-Delay         Undervoltage relea         Q: Voltage 1-AC 38         Delay time: 0-Instal         3-Delay 3s 5-Delay         Closed electromage         B1: AC380V         B3: DC220V         B3: DC220V         Electric energy stor         D1: AC380V         B3: DC220V         Electric energy stor         D1: AC380V         B3: DC220V         Controller type: M.         Number of poles: 3         Current specification         for details         Installation m	gnal unit y module dule poly module Horizontal wiring; 1-Extended wiring; 3-Cross vertical wiring) mode (T-Any accessory not required; eakage transformer ZCT1 required; mer ZT100 to be connected) not marked for normal products, is) n: A4-Four opened and four ritten in default) A6-Six opened e: 0V 2-AC220V / 1s 3-Delay 3s se: 0/400V 2-AC 220/230V ntaneous 1-Delay 1s 5s net: B2: AC220V B4: DC110V F2: AC220V F4: DC110V age mechanism: D2: AC220V D4: DC110V 3M, 3H (see Note b) -3 poles 4-4 poles 5-3P+N ns: See the parameter table Fixed type (not marked); fize: 2000, 3200, 6300
	Design code: 1	
	Product code: Air c	ircuit breaker
	Enterprise code: Na	ader

Note a: Model: M Voltage: 1-AC380V/400V; 2-AC220V/230V; 3-DC220V; 4-DC110V; Optional function: Y-MCR and HSISC protection; Signal input/output unit: S1-4DO, S2-3DO1DI, S3-2DO2DI.

Model: 3M Communication protocol: 2-Profibus, 3-Modbus, 4-Devicenet; Voltage: 1-AC380V/400V; 2-AC220V/230V; 3-DC220V; 4-DC110V; Optional function: U, D, UD, H, P, HD, PD; Signal input/output unit: S1-4DO, S2-3DO1DI, S3-2DO2DI.

The indicated order is: Model/communication protocol code (ignore if not available)/voltage code/optional function code (ignore if not available)/signal input/output unit code (ignore if not available)/remote reset (ignore if not available).

Note b: Model: M; Voltage: 1-AC380V; 2-AC220V; 3-DC220V; 4-DC110V; Signal input/output unit: S1-4DO; Remote reset: Y. Voltage: 1-AC220V; 2-DC24V;

Model: 3M; Voltage: 1-AC380V; 2-AC220V; 3-DC220V; 4-DC110V; Optional function: U, D, UD, H, P, HD, PD; Signal input/output unit: S1-4DO, S2-3DO1DI, S3-2DO2DI; Remote reset: Y. Voltage: 1-AC220V; 2-DC24V;

Model: 3H; Communication protocol: 1-Profibus, 2-Modbus, 3-Devicenet; Voltage: 1-AC380V; 2-AC220V; 3-DC220V; 4-DC110V; Optional function: U, D, UD, H, P, HD, PD; Signal input/output unit: S1-4DO, S2-3DO1DI, S3-2DO2DI; Remote reset: Y. Voltage: 1-AC220V; 2-DC24V;

The indicated order is: Model/communication protocol code (omit if not available)/voltage code/optional function code (omit if not available)/signal input/output unit code (omit if not available)/remote reset (omit if not available).

### Main Performance Parameters of NDW1 Series

	Circuit	breaker model		NDW1-1600			
Rated current In 40	)°С (А)		200, 400, 630	800, 1000	1250, 1600		
N pole rated current	t (A)			100%ln	I		
Rated working volta	ige Ue (V)		AC220/230	, AC380/400/415, AC440, AC	660/AC690		
Rated frequency f (H	łz)			50/60			
Rated insulation vol	tage Ui (V)			1000			
Rated impulse with	stand voltage	Uimp (kV)		12			
Number of poles				3, 4			
Full break time (≤A0	C690V) (ms)			<18			
Closing time (ms)				<60			
Data du di mata alcan		AC220V/AC230V		55			
breaking capacitylc	u .	AC380V/AC400V/415V		55			
(effective value)	kA	AC440V AC660V/AC690V		35			
Rated service short- breaking capacity Ic	circuit s	AC220V/AC230V AC380V/AC400V/415V		50			
(effective value)	kA	AC440V AC660V/AC690V		35			
Rated short-circuit r capacity	naking	AC220V/AC230V AC380V/AC400V/415V		110			
lcm (peak value)	kA	AC440V AC660V/AC690V		73.5			
Rated short-time wi	thstand	AC220V/AC230V AC380V/AC400V/415V		42			
lcw (effective value)	1s kA	AC440V AC660V/AC690V	35				
	Electrical	AC220V/AC230V AC380V/AC400V	6000				
Operating performance (Number of times)	ine	AC440V AC660V/AC690V	3000				
(Number of times)	Mechanical	Maintenance-free		10000			
	life	With maintenance		15000			
Installation type	1			Fixed type, drawout type			
Wiring method of th	ne main circui	t	Horizontal wiring, verti	cal wiring, extended horizon	tal wiring, mixed wiring		
Dimension: W× (mm)	D×H	Fixed type 3P		255×259×319			
	1	Fixed type 4P		325×259×319			
		Drawout type 3P		282×363×351			
	>	Drawout type 3P		352×363×351			
	-	Drawout type 4P	19	20	21		
Weight(kg)		Fixed type 4P	20	21	25		
	-	Drawout type 3P	40	41	42		
		Drawout type 4P	41	42	52		

Cir	cuit breake	r model	Ν	IDW1-2000		NDW1	-3200	NDW1-6300
Rated current Ir	ר (A)		400, 630, 800	1000, 1250, 1600	2000	2000, 2500	2900, 320	4000, 5000, 6300
N pole rated cu	rrent			100%ln		100	%ln	50%ln
Rated working	voltage Ue (	V)			A	C400, AC690		
Rated frequenc	y f (Hz)					50		
Rated insulation	n voltage Ui	(V)				1000		
Rated impulse v	withstand v	oltage Uimp (kV)				12		
Number of pole	25					3, 4		
Full break time	(ms)					≤30		
Closing time (m	ns)					≤70		
Ultimate short of breaking capac	circuit ity lcu	AC400V		80		10	00	120
(effective value)	) kA	AC690V		50		6	5	85
Rated service sh	nort-circuit	AC400V		65		8	0	100
(effective value)	) kA	AC690V		50		6	5	75
Rated short-tim	e turn on	AC400V		176		22	20	264
(peak value)	kA	AC690V		110		14	43	176
Rated short-tim	ie	AC400V		50		8	0	100
(effective value)	) 1s kA	AC690V		40		5	0	75
	Electrical	AC400V		8000		3000	2000	1000
Operating performance	life	AC690V		5000		2000	1000	800
(number of times)	Mechanical	Maintenance-free	13500			8000	8000	5000
	life	With maintenance	20000			15000	15000	10000
Installation type	2	Fixed type					<b>L</b>	
installation type	-	Drawout type		<b>▲</b>				
Wiring method	of the	Fixed type	Horizontal wiring,	vertical wiring, L-type	wiring	Horizontal wiring		
main circuit		Drawout type	Horizontal wiring,	vertical wiring, L-type	wiring	Horizontal wiring, vertical wiring	Horizontal wiring	Horizontal wiring
Dimension: W×D×H (mm)		Fixed type 3P	36.	2×337×402		422×33	7×402	
	7	Fixed type 4P	45	7×337×402		537×33	7×402	
		Drawout type 3P	37	5×435×432		435×43	5×432	895×507×432
¥W		Drawout type 4P	47	0×435×432		550×43	5×432	895×507×432
		Fixed type 3P	39	40	41	46	56	
Weight (ka)		Fixed type 4P	48	49	50	58	68	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Drawout type 3P	68	70	71	92	96	210
		Drawout type 4P	86	88	91	108	118	210

Note: A represents this function is available

- represents this function is not available

### Controller Functions of NDW1 Series Air Circuit Breaker

Controller is one of the main components of the air circuit breaker, which can provide the function of protecting the overload, short circuit, grounding/current leakage, current imbalance, overvoltage, undervoltage, voltage imbalance, overfrequency, underfrequency, reverse power and other failures, thus realizing the reasonable operation of the power grid through the load monitoring, demand protection, regional interlocking and other functions. Controller has the function of measuring the current, voltage, power, frequency, electric energy, demand, harmonic and other power grid parameters; and the function of recording the fault, alarm, operation, historical maximum current, switch contact wear as well as other operation and maintenance parameters. When the power network is carrying on communication network, the controller can realize the remote sensing, remote communication, remote control and remote regulating at the remote terminal of the electric power automation network and supports several communication protocols. Detailed description is shown in the NDW1-1600 Controller Manual, M Type Controller Manual, 3M and 3H Type Controller Manual.

### Controller Types

NDW1-1600 Controller



M Type Controller



3M Type Controller

### • NDW1-2000/3200/6300 Controller



M Type Controller



3M Type Controller

### Basic Function Table of Controller

### NDW1-1600 Controller

Controller model	Protection function	Measuring function	Maintenance function	Human Machine Interface
	Overload long-time delay protection	Current measurement (Phase pole, N-pole, grounding)	Historic peak current record	LED indicator light
	Overload thermal memory		Self-diagnostic function	Digital display
	Overload alarm		LED fault status indication	Digital setting of protection parameters
	Short circuit short-time delay protection		Fault record (the last 8 times)	Button operation
M type	Short-time delay thermal memory		Fault tripping contact outpu	
	Short circuit instantaneous protection		Simulating tripping test function	
	Ground protection (differential type)		Query of number of operations	
	Neutral phase protection (4P, 3P+N)			
	Current unbalance and phase-failure protection			
	Load monitoring			

Controller model	Protection function	Measuring function	Maintenance function	Human Machine Interface
	Overload long-time delay protection	Four-phase current and ground current measurement	Historic peak current record	LED indicator light
	Overload thermal memory		Self-diagnostic function	Keyboard operation
	Overload alarm		LED fault status indication	Graphic LCD display in Chinese
	Short circuit short-time delay protection		Fault record (the last 8 times)	
3M type	Short-time delay thermal memory		Fault tripping contact output	
	Short circuit instantaneous protection		Simulating tripping test function	
	Ground protection (differential type)		Query of number of operations	
	Neutral phase protection (4P, 3P+N)		Alarm history query	
	Current unbalance and phase-failure protection		Contact wear equivalent (alarm) % query	
	Load monitoring		Clock function	
	Grounding alarm			
	MCR			

### • NDW1-2000/3200/6300 Controller

Controller model	Protection function	Measuring function	Maintenance function	Human Machine Interface	Communication
	Overload long-time delay protection	Phase-pole current and ground current measurement	Self-diagnostic function	LED indicator light	
	Thermal memory function		Tripping test function	Digital display	
	Short circuit instantaneous protection		Fault record (the last 1 times)	Digital setting of protection parameters	
M type	Short circuit short-time delay inverse time-limit protection		Fault tripping contact output	Button operation	
	Short circuit short-time delay fixed time-limit protection		Auxiliary contact output of the circuit breaker status		
	Ground protection (differential type)				
	Load monitoring: Current way 1				
	Overload long-time delay protection	Four-phase current and ground current measurement	Fault records of 8 times	LED indicator light	Modbus protocol (3H)
	Multi-curve long-time delay protection	Thermal capacity	Alarm records of 8 times	Keyboard operation	
	Multi-curve short-time delay inverse time-limit protection		Displacement records of 8 times	Graphic LCD display in Chinese	
	Short-time delay fixed time-limit protection		Historical peak current		
	Instantaneous protection		Contact equivalent		
3M, 3H type	MCR and HSISC protection		Number of operations		
	Current unbalance (phase-failure)		Clock function		
	Ground protection (differential type)		Self-diagnosis		
	Grounding alarm				
	Neutral phase protection				
	Load monitoring: Current way 1				

### Optional Function Table of Controller

### NDW1-1600 Controller

Controller model	Optional function	Optional accessories	
	MCR connection, breaking and out of limit tripping	N-pole transformer (for 3P+N)	
	Grounding alarm	ST201 relay module	
M type	Signal unit: S1, S2, S3	ST-IV power supply module	
	3P+N-type neutral wire protection		
	Undervoltage, overvoltage protection	N-pole transformer (for 3P+N)	
	Voltage unbalance protection	ZT100 ground current transformer	
	Phase sequence protection	ZCT1 residual current transformer	
	Underfrequency, overfrequency protection	ST201 relay module	
	Required value protection (current, power)	ST-IV power supply module (for powering the ST201 relay module)	
	Reverse power protection		
3M type	Regional selective interlocking		
	Accessory function table: Select one from D, U, UD, P, PD, H, HD (see description of the additional function table)		
	Signal unit: S1, S2, S3		
	Communication Modbus protocol		
	Communication Pro bus-DP protocol		
	Communication Device-net protocol		

### • NDW1-2000/3200/6300 Controller

Controller model	Optional function	Optional accessories
	MCR connection, breaking and out of limit tripping	N-pole transformer (for 3P+N)
	Load monitoring: Current way 2	ST-I DC power supply module (for the DC110V/DC220V controller)
M type	Signal unit: S1	ST201 relay module
	Remote reset function	ST-IV power supply module (for powering the ST201 relay module)
	3P+N-type neutral wire protection	
	Load monitoring: Current way 2	N-pole transformer (for 3P+N)
	Accessory function table: Select one from D, U, UD, P, PD, H, HD (see description of the additional function table)	ZT100 ground current transformer
	Ground protection (ground current type)	ZCT1 residual current transformer
3M type	Residual current protection	ST-I DC power supply module (for the DC110V/DC220V controller)
	Signal unit: S1, S2, S3	ST201 relay module
	Remote reset	ST-IV power supply module (for powering the ST201 relay module)
	Pro bus-DP protocol (3H)	
	Device-net protocol (3H)	

Additional Function Table of Controller

D	U	UD	Р	PD	н	HD
<ol> <li>Required measurement value (current)</li> <li>Required protection value</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Overvoltage protection</li> <li>Undervoltage unbalance protection</li> <li>Overfrequency protection</li> <li>Overfrequency protection</li> <li>Underfrequency protection</li> <li>Phase sequence protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Current required value measurement</li> <li>Overvoltage protection</li> <li>Undervoltage unbalance protection</li> <li>Voltage unbalance</li> <li>Overfrequency protection</li> <li>Underfrequency protection</li> <li>Underfrequency protection</li> <li>Phase sequence protection</li> <li>Required value protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Overvoltage protection</li> <li>Undervoltage protection</li> <li>Voltage unbalance protection</li> <li>Voltage unbalance</li> <li>Protection</li> <li>Voltage unbalance</li> <li>Protection</li> <li>Powerfequency protection</li> <li>Phase sequence protection</li> <li>Phase sequence</li> <li>Protection</li> <li>Reverse power protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Required value measurement</li> <li>Required value measurement</li> <li>Required value measurement</li> <li>Noervoltage protection</li> <li>Undervoltage unbalance protection</li> <li>Voltage unbalance</li> <li>Protection</li> <li>Underfrequency protection</li> <li>Underfrequency protection</li> <li>Reverse power protection</li> <li>Required value protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Harmonics measurement</li> <li>Overvoltage protection</li> <li>Undervoltage unbalance protection</li> <li>Overfrequency protection</li> <li>Overfrequency protection</li> <li>Underfrequency protection</li> <li>Hase sequence protection</li> <li>Reverse power protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Required value measurement</li> <li>Required value measurement</li> <li>Overvoltage protection</li> <li>Undervoltage protection</li> <li>Voltage unbalance protection</li> <li>Overfrequency protection</li> <li>Overfrequency protection</li> <li>Harmonics</li> <li>Required value</li> </ol>

### Controller factory setting value

Protective features		Applied specifications	Setting current	Setting time	Thermal memory
Overload long-time delay protection		М	1.0ln	60s	ON
		3M, 3H	1.0ln	60s	Instantaneous
Fixed time limit		М	8ln	0.2s	ON
Short circuit short-time delay protection	Reverse time limit	3M, 3H	6IR		_
	Fixed time limit	3M, 3H	8IR	0.2s	Instantaneous
Instantaneous short circuit		м	10ln		—
		3M, 3H	10ln		—
Ground fault protection		NDW1-1600/2000	0.5In	0.1s	_
		NDW1-3200, 4000	1000A	0.1s	
		NDW1-6300	1000A	0.1s	_

Note: The above setting values can be set by users by themselves as required, which can't be overlapped. For special demands, state it when ordering.

### Introduction of Controller Functions

Working power supply of controller

The working power supply of controller is provided by the auxiliary power supply and power transformer. To ensure reliable operation and breaking of small current in case of failure, please adopt the dual-power supply mode.

◆ To be powered by the power supply CT

When powered by the internal power transformer CT of the circuit breaker, the controller has the following normal operating conditions:

★NDW1-2000/3200/6300 M type controller:

When the circuit breaker In>400A, the primary current single-phase and three-phase of the main circuit are no less than 0.8In and 0.4In respectively; when the circuit breaker In is 400A, the primary current single-phase and three-phase are no less than 1.0In and 0.6In respectively.

★ NDW1-1600 controller and NDW1-2000/3200/6300 3M, 3Htype controllers:

When the circuit breaker In>400A, the primary current single-phase and three-phase of the main circuit are no less than 0.4In and 0.2In respectively; when the circuit breaker In is 400A, the primary current single-phase and three-phase are no less than 0.8In and 0.4In respectively.

To be powered by the auxiliary power supply

The controller is powered by the auxiliary power supply at 1 and 2 sides with the normal operating conditions of (85%~110%) Ue. When the ground protection, communication and thermal memory are applied or the circuit breaker is required to maintain input and output signals in the opening state, the auxiliary power supply must be provided.

Panel power supply

For M, 3M and 3H type controllers, the power supply can be accessed from the DC24V power supply terminal on the panel. In case of no electricity for the controller due to the power-off or no-load operation of the power grid, check the controller (normality, parameters, etc.). Voltage at the test port: DC24V±5%.

- Ground protection
- In case of current leakage occurred to the line and equipment, disconnect the circuit breaker instantaneously or with delay for protection.

For the single-phase metallic grounding fault protection, there are two protection modes: Residual current type (differential T) and ground current type (W). For the T-type detection zero-sequence current, namely take the vector sum of the four-phase (3-phase 4-wire system) or three-phase (3-phase 3-wire system) current for protection. The ground current type is to directly detect the current on the grounding cable through the special external transformer, thus protecting the higher and lower grounding faults of the circuit breaker, with the maximum distance from the transformer to the circuit breaker no more than 10m. For the differential type ground fault, regional interlocking can be realized.

Differential type grounding or neutral wire (T): It is divided into 3PT, 4PT, (3P+N) T according to the number of poles of the circuit breaker. (3P+N) T requires to be provided with an external N-phase transformer with the maximum distance from the installation site of transformer to the circuit breaker of 2m; see the picture below for the bore size.



2





Inm(A)	а	b	c	d
2000	60	20	34	Φ89
3200	80	30	35	Φ109.5

Current leakage protection of the ground current type (W): It protects the grounding fault of the circuit breaker through the current on the direct grounding cable of the ZT100 transformer, with the maximum distance from the ZT100transformer to the circuit breaker no more than 10m. See the picture below for the wiring diagram and boundary dimension of the transformer with the same rated current as the circuit breaker.



<sup>1-</sup>Terminal board 2-Bus 3 -Fixing plate 4-Transformer
## Accessory Selection Table of NDW1 Series Air Circuit Breaker









Dust cover







2

Power supply module ST-IV

Three-position signal unit

Temperature alarm tripping device

Drawout type

Power automatic switching device

Mechanical interlocking







Electric operating mechanism



Auxiliary switch

For what kind of circuit breakers Accessory name Supply mode Power supply module ST-IV Fixed type/drawout type Optional ordering for customers Relay module Fixed type/drawout type Optional ordering for customers, to be used with ST-IV Optional ordering for customers, NDW1-1600 not provided with this accessory Power supply module ST-I Fixed type/drawout type Off-position key lock Fixed type/drawout type Optional ordering for customers Door interlock Drawout type Optional ordering for customers, NDW1-1600 included Auxiliary switch Fixed type/drawout type Standard configuration Closed electromagnet Fixed type/drawout type Standard configuration Shunt release Fixed type/drawout type Standard configuration Motor operating mechanism Fixed type/drawout type Standard configuration Fixed type/drawout type Phase partition Optional ordering for customers Undervoltage release Fixed type/drawout type Optional ordering for customers Optional ordering for customers Door frame Fixed type/drawout type Mechanical interlocking Fixed type/drawout type Optional ordering for customers Power automatic switching device Fixed type/drawout type Optional ordering for customers Optional ordering for customers, NDW1-1600 not provided with this accessory Dust cover Fixed type/drawout type Optional ordering for customers, NDW1-1600 not provided with this accessory Fixed type/drawout type Voltage loss release Three-position signal unit Drawout type Optional ordering for customers Temperature alarm tripping device Fixed type/drawout type Optional ordering for customers

Included, only NDW1-1600 provided with this accessory





Undervoltage release

Door frame

Drawout three-position lock

Relay module



Power supply module ST-I



excitation coil



Door interlock







Closed/shunt

### Electric Circuit Diagram of NDW1 Series Air Circuit Breaker

#### NDW1-1600 Secondary Terminal Wiring Diagram



- 1, 2—Power supply inputs of controller, as the controller is available with several types of power supplies, pay attention to whether the type of the input power supply is consistent with the working power supply type of the controller; otherwise, the controller will be burnt damaged. For DC, the optional ST DC power supply module is necessary;
- 3, 4, 5—Fault tripping contact outputs (4 for public end), contact capacity: AC380V, 2A; DC250V, 0.3A;
- 6, 7, 8 and 9, 10, 11—Two groups of auxiliary state contacts of synchronous action with the circuit breaker (7 and 10 for public ends), contact capacity: AC380V, 1A; DC250V, 0.15A;
- 12, 13—Output contact point 1(optional function, DO1);
- 14, 15-Output contact point 2(optional function, DO2);
- 16, 17—Output contact point 3 (optional function, DO3 or DI2);
- 18, 19—Output contact point 4 (optional function, DO4 or DI1);
- 20—Protective ground wire (to be connected to the earthing terminal of the circuit breaker by users);
- 21—N-phase voltage measurement signal input end (with the optional voltage measurement function);
- 22—A-phase voltage measurement signal input end (with the optional voltage measurement function);
- 23—B-phase voltage measurement signal input end (with the optional voltage measurement function);
- 24—C-phase voltage measurement signal input end (with the optional voltage measurement function);
- 25, 26—3P+N-phase transformer, external ZT100, external ZCT1 transformer signal input (choose either by users);
- 36— Communication shielding ground wire (3M controller with communication);
- 55— Communication interface RS485A (3M controller with communication);
- 56— Communication interface RS485B (3M controller with communication);
- SB1—Shunt button (to be prepared by users);
- SB2—Undervoltage disconnection button (to be prepared by users);
- SB3—Closing coil button (to be prepared by users);

- SB4—Electric energy storage button (to be prepared by users);
- F-Shunt release (accessory);
- B—Closed electromagnet (accessory);
- M—Energy storage motor (accessory);
- XT—Wiring terminal (user wiring number);
- 37~54—Auxiliary contacts (Note 6);
- Q-Undervoltage release (accessory);
- SA—Motor travel switch;
- FU—Fuse (prepared by users).

Note 1: The dashed part shall be wired by users; Note 2: In case of different rated working voltages (Q, F, X, M) adopted,

please connect to the different supply voltage; Note 3: The opening, closing and energy storage indicators shall be prepared by users;

Note 4: Contact capacity DO: DC110V 0.5A, AC250V 5A; contact capacity DI: DC110V~130V or AC110V~AC250V;

Note 5: The order from 21 to 24 shall not be wrongly wired and connected into the inlet wire side of the power supply. If there's no optional function, the pin will be empty;

Note 6: 37~48 are four opened and four closed auxiliary contacts; 37~54 are six opened and six closed auxiliary contacts;

Note 7: Description of DI and DO is shown in the NDW1-1600 Controller Manual;

Note 8: Power supply—When the power supply module of Q, F, X, M controllers is not the same, they shall be powered on respectively; Note 9: If there's optional ground current or current leakage protection, it shall not be connected to ZT100 or ZCT1, but shall be short connected; Note 10: The circuit breaker is in the opening and non-energy storage state with the body in the connection position.

## NDW1-1600 Controller Terminal Diagram



• 1, 2—Power supply input of controller, the working power supply AC220V/AC230V, AC380V/AC400V, DC220V, DC110V input end, 1 for anode;

- 3, 4, 5—Fault tripping contact outputs (4 for public end), contact capacity: AC380V, 2A; DC250V, 0.3A;
- 6, 7, 8 and 9, 10, 11—Two groups of auxiliary state contacts of synchronous action with the circuit breaker (7 and 10) for public ends), contact capacity: AC380V, 1A; DC250V, 0.15A;
- 12, 13—Output contact point 1(optional function, DO1);
- 14, 15—Output contact point 2(optional function, DO2);
- 16, 17-Output contact point 3 (optional function, DO3 or DI2);
- 18, 19—Output contact point 4 (optional function, DO4 or DI1);
- 20 —Protective ground wire, to be connected to the outer plate of the circuit breaker body;
- 21-N-phase voltage measurement signal input end (with the optional voltage measurement function);
- 22-A-phase voltage measurement signal input end (with the optional voltage measurement function);
- 23—B-phase voltage measurement signal input end (with the optional voltage measurement function);
- 24-C-phase voltage measurement signal input end (with the optional voltage measurement function);
- 25, 26—3P+N-phase transformer, external ZT100, external ZCT1 transformer signal input (choose either by users);
- 36 Communication shielding ground wire (3M controller with communication);
- 55 Communication interface RS485A (3M controller with communication);
- 56 Communication interface RS485B (3M controller with communication).

Note 1: Contact capacity DO: DC110V 0.5A, AC250V 5A; contact capacity DI: DC110V~130V or AC110V~AC250V;

Note 2: The order from 21 to 24 shall not be wrongly wired and connected into the inlet wire side of the power supply. If there's no optional function, the pin will be empty.

#### Main circuit Electronic release age Electric Electric closing inclution totalon Additional 2 auxiliary sw To the inlet wire side of the circuit breaker Fault, [.-\ Ø[-` Opening Un U2 SB3 SB2 SB1 SB4 ation Fu 27 29 3 5 7 9 15 17 19 21 23 25 31 33 35 S11 S13 10 12 36 38 39 41 42 44 45 47 ХT 6 . 6 M E2 E3 E4 Q X S/ Power supply W2 W1 32 34 1 2 4 6 8 28 30 37 40 43 46 14 16 20 22 24 26 Fu Used wit the circuit breake DC power è ę pply DC22V, DC110

## NDW1-2000/3200/6300 M, 3M Controller Wiring Diagram

- SB1—Shunt button (to be prepared by users)
- SB2—Undervoltage disconnection button (to be prepared by users)
- SB3—Closing coil button (to be prepared by users)
- SB4—Electric energy storage button (to be prepared by users)
- F—Shunt release (accessory)
- X—Closed electromagnet (accessory)
- Q—Undervoltage release (accessory)
- M—Energy storage motor (accessory)
- SA—Motor travel switch
- XT—User wiring number
- FU—Fuse (to be prepared by users)
- W1, W2 For the electrical interlocking of the shunt release and closed electromagnet (for the internal wiring)

Note 1: The dashed part shall be wired by users.

Note 2: In case of different rated working voltages (Q, F, X, M) adopted, please connect to the different supply voltage based on the rated voltage condition.

Note 3: The opening, closing and energy storage indicators shall be prepared by users.

Note 4: The circuit breaker secondary terminals25, 26 of the charged replacement controller are the normally-closed signal output terminal and state alarm output of the controller.

Note 5: The circuit breaker is in the opening and non-energy storage state with the body in the connection position.



### NDW1-2000/3200/6300 3H Controller Wiring Diagram

• SB1—Shunt button (to be prepared by users)

SB2—Undervoltage disconnection button

(to be prepared by users)

• SB3—Closing coil button (to be prepared by users)

• SB4—Electric energy storage button (to be

prepared by users)

- F—Shunt release (accessory)
- X—Closed electromagnet (accessory)
- Q—Undervoltage release (accessory)
- M—Energy storage motor (accessory)
- SA—Motor travel switch
- XT—User wiring number
- FU—Fuse (to be prepared by users)

• W1, W2 - For the electrical interlocking of the shunt release and closed electromagnet (for the internal wiring)

Note 1: The dashed part shall be wired by users.

Note 2: In case of different rated working voltages (Q, F, X, M) adopted, please connect to the different supply voltage based on the rated voltage condition. Note 3: The opening, closing and energy storage indicators shall be prepared by users.

Note 4: The circuit breaker secondary terminals25, 26 of the charged replacement controller are the normally-closed signal output terminal and state alarm output of the controller.

Note 5: The circuit breaker is in the opening and non-energy storage state with the body in the connection position.



### NDW1-2000/3200/6300 3H Controller Wiring Diagram

• 1#, 2#: Power supply inputs of controller, as the controller is available with several types of power supplies, pay attention to whether the type of the input power supply is consistent with the working power supply type of the controller; otherwise, the controller will be burnt damaged. For DC, the DC power supply module I is necessary.

• 3#, 4#, 5#: Fault tripping contact outputs (4 for public end), contact capacity: AC250V, 16A.

• 6#, 7# and 8#, 9#: Two groups of auxiliary contacts of the circuit breaker status, contact capacity: AC250V, 16A.

• 10 #, 11#: R485 communication line interfaces (10 # shall be connected to the red wire, while 11# shall be connected to the green wire). This pin is empty for the M/3M controller.

• 12#, 13# and 14#, 15# and 16#, 17# and 18#, 19#: Four groups of signal outputs S1-S3 (see the sample controller—signal unit description), if there's no optional signal unit, the pin will be empty.

• 20#: Grounding wire of controller.

• 21#, 22#, 23#, 24#: Voltage signal input ends (optional function), signal taken from the inlet wire side of the circuit breaker. When the power distribution system is three-phase three-wire system, 21# and 23#shall be short connected to U2; when it is three-phase four-wire system, wire according to the wiring diagram. If there's no optional voltage function, the pin will be empty.

• 25#, 26#: (1) Inputs used for external transformer if there's an external transformer.

(2) The optional remote reset function is used for controlling the remote reset (DC24V). Choose either from both functions. When the grounding mode is ground current return type (W type), this pin will be the output end of the external transformer ZT100. When the grounding mode is current leakage type (W type), this pin will be the output end of the external transformer ZCT1. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer.



### Electrical Wiring Diagram of NDW1-2000/3200/6300 Power Automatic Switching Device

### Electrical Wiring Diagram of NDW1-1600/2000/3200/6300 Temperature Alarm Tripping Device



PRODUCT PROFILE 2-21

## NDW1A Series Air Circuit Breaker

Introduction of Structure and Indications



- 1. Reset button
- 2. Specification sign
- 3. Off-position key lock (optional function)
- 4. Nader sign
- 5. Disconnection button
- 6. Closing button
- 7. Counter (optional function)
- 8. Energy releasing and storing indicator
- 9. Closing ready "OK" indication (optional function)
- 10. Opening and closing indication
- 11. Nameplate
- 12. "Connection", "Test", "Separation" position locking and unlocking device
- 13. Rocker operating position
- 14. "Connection", "Test", "Separation" position indicator

15. Rocker and its storage position

Note: 1~11 is fixed type, 1~15 is drawout type. As the standard configuration, the universal circuit breaker includes a M, 3M or 3H type intelligent controller, four normally-open and four normally-closed auxiliary contacts, shunt release, closing electromagnet, electric operating mechanism and horizontal wiring. The 3H communication protocol is optional and excluded.

#### Drawout Type Circuit Breaker Structure

Drawout type circuit breaker is composed of the circuit breaker body and the drawer seat. The drawer seat has din rails on both sides. There's a movable din plate on the din rail. The circuit breaker is placed on the left and right din plates. The drawout type circuit breaker connects to the main circuit by inserting the busbar on the circuit breaker body into the bridge contact on the drawer seat.



"Connection", "Test", "Separation" position



Rocker and its storage position

### Quick Selection Table of NDW1A-1600~6300 Series Air Circuit Breaker

### ND W 1A-1600 C 200/4 K3M D1 F1 B1 Q10 A4 Optional accessories



#### Note a:

For the 1600 frame size controller, choose the KM and K3M controllers
 (KM voltage 1-AC380/400V 2-AC220/230V 3-DC220V 4-DC110V)
 (K3M voltage 1-AC380/400V 2-AC220/230V 3-DC220V 4-DC110V)
 For the 2000, 3200 and 6300 frame size controllers, choose the KM (NWK21) and KY (NWK22) controllers
 (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. Controller optional functions:
 Protection type: Not-marked -Conventional type, V Voltage measurement and protection type, P-Harmonic measurement and protection 1600 frame size communication function: 3M (communication protocols: 2-Profibus, 3-Modbus, 4-Deviecnet) 2000-6300 frame size communication function: H (communication protocol: Modbus)
 Signal unit: S1-4DO; S2-3DO, 1DI; S3-2DO, 2DI
 Remote reset function: Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V) Independent N-phase protection function: N (including N-phase transformer, and shall be used together) Contact wear equivalent, query of operation times (optional for NWK21): J

This shall be omitted if the controller has no optional function NWK2121 controller only has S1-4DO

NDW1A-1600 has no remote reset

#### Note b:

Auxiliary contact combination 1600 frame size: Not marked-Four-group conversion , A6-Six-group conversion 2000, 3200, 6300 frame sizes: Not-marked-Four normally opened and four normally closed, A5-Five normally opened and five normally closed and six normally closed

## Main Performance Parameters of NDW1A Series

	Circuit brea	aker model	NDW1A-1600				
Rated current In (A)			200, 400, 630, 800, 1000, 1250, 1600				
N pole rated current	:		100%ln				
Rated working volta	ge Ue (V)		AC220/230/240, AC380/400/415, AC440, AC660/690				
Rated frequency f (H	łz)			50/60			
Rated insulation vol	tage Ui (V)			1000			
Rated impulse with	stand voltage	Uimp (kV)		12			
Number of poles				3, 4			
Full break time (≤AC	C690V) (ms)			<18			
Closing time (ms)				<60			
Rated ultimate shor	t-circuit	AC415V		65			
(effective value) kA	u	AC690V		42			
Rated service short-	circuit	AC415V		55			
(effective value) kA		AC690V	35				
Rated short-circuit making		AC415V	143				
capacity lcm (peak v	value) kA	AC690V	88				
Rated short-time wi	thstand	AC415V	42				
1s kA	e value)	AC690V	35				
	Electrical	AC415V	8000				
Operating performance	life	AC690V	4000				
(number of times)	Mechanical	Maintenance-free	15000				
	life	With maintenance	30000				
Installation type				Fixed type, drawout ty	Fixed type, drawout type		
Wiring method of th	ne main circuit		Horizontal wiring, vertical wiring, extended horizontal wiring, mixed wiring (upper horizontal and lower vertical), mixed wiring (upper vertical and lower horizontal)				
Outline dimension: W	×D×H (mm)	Fixed type 3P	260×253×319				
	1	Fixed type 4P		330×253×319			
		Drawout type 3P		282×354×350			
	Y	Drawout type 4P		352×354×350			
		Fixed type 3P	19 (200A~630A)	20 (800A~1000A)	21 (1250A~1600A)		
		Fixed type 4P	20 (200A~630A)	21 (800A~1000A)	25 (1250A~1600A)		
weight (kg)		Drawout type 3P	40 (200A~630A)	41 (800A~1000A)	42 (1250A~1600A)		
		Drawout type 4P	41 (200A~630A)	42 (800A~1000A)	52 (1250A~1600A)		

2

Circuit breaker model			NDW1A-2000			NDW1A-3200		
Rated current Ir	n (A)		400, 630, 800	1000, 1250, 1600	2000	2000, 2500	2900, 3200	
N pole rated cu	rrent		100%ln					
Rated working	voltage Ue (V)				AC	400/415, AC690		
Rated frequency	y f (Hz)					50/60		
Rated insulation	n voltage Ui (V)					1000		
Rated impulse v	withstand voltage U	Jimp (kV)				12		
Number of pole	S					3, 4		
Full break time	(≤690V) (ms)					≤30		
Closing time (m	s)					≤70		
Rated ultimate	short circuit	AC415V		80			100	
lcu (effective va	lue) kA	AC690V		65			75	
Rate service sho	ort-circuit	AC415V		80			85	
lcs (effective va	lue) kA	AC690V		65			65	
Rated short-circ	uit making	AC415V		176		220		
lcm (peak value	) kA	AC690V	143			165		
Rated short-tim	e withstand	AC415V	60			85		
current Icw (effective value) 1s kA		AC690V	40			55		
	Electrical life	AC415V	10000			10	0000	
Operating performance	Electrical life	AC690V	5000			5	000	
(Number of times)	Mechanical life	Maintenance -free	15000			10000		
		With maintenance	30000			20000		
Installation type		Fixed type	▲			<b>A</b>		
Installation type	2	Drawout type	▲			▲		
Wiring method	of	Fixed type	Horizontal wiring	, vertical wiring, L-typ	e wiring	Horizontal wiring, vertical wiring		
the main circuit		Drawout type	Horizontal wiring	, vertical wiring, L-typ	e wiring	Horizontal wiring, vertical wiring		
Outline dimens	ion: W×D×H (mm)	Fixed type 3P	3	362×332×398		422×332×398		
		Fixed type 4P	2	157×332×398		537×332×398		
		Drawout type 3P	3	375×430×432		435×430×432		
<u> </u>	W (V)	Drawout type 4P	4	70×430×432		550×4	430×432	
		Fixed type 3P	39	40	41	46	56	
Weight (kg)		Fixed type 4P	48	49	50	58	68	
weight (Ng)		Drawout type 3P	68	70	71	92	96	
		Drawout type 4P	86	88	91	108	118	

Note: A represents this function is available

Circuit breaker model			NDW1A-6300			
Rated current In (A)			4000	5000, 6300		
N pole rated current	t		50%ln			
Rated working voltage Ue (V)			AC400, AC690			
Rated frequency f (H	łz)		5	50/60		
Rated insulation vol	tage Ui (V)			1000		
Rated impulse with	stand voltage	Jimp (kV)		12		
Number of poles				3, 4		
Full break time (≤AC	C690V) (ms)			≤30		
Closing time (ms)				≤70		
Rated ultimate shor	t circuit	AC400V		120		
breaking capacity Icu (effective value) kA		AC690V	85			
Rate service short-ci	ircuit	AC400V		100		
breakering capacity lcs (effective value)	breakering capacity Ics (effective value) kA		75			
Rated short-circuit making		AC400V	264			
lcm (peak value)	kA	AC690V	187			
Rated short-time wi	thstand	AC400V	100			
lcw (effective value)	1s kA	AC690V	75			
	Electrical	AC400V	1000			
Operating	life	AC690V	800			
(Number of times)	Mechanical life	Maintenance-free	5000			
		With maintenance	10000			
Installation type			Drav	vout type		
Wiring method of t	he main circui	t	Horizo	ntal wiring		
Outline dimension: W	/×D×H (mm)	Fixed type 3P		/		
	7	Fixed type 4P		/		
		Drawout type 3P	895>	:497×432		
, <u> </u>		Drawout type 4P	895>	:497×432		
		Fixed type 3P		/		
		Fixed type 4P		/		
Weight (ko	g)	Drawout type 3P	186	214		
		Drawout type 4P	182	210		

## Controller Functions of NDW1A Series Air Circuit Breaker

Controller is one of the main components of the circuit breaker, which can provide the function of protecting the overload, short circuit, grounding, current imbalance, overvoltage, undervoltage, voltage imbalance, overfrequency, underfrequency, reverse power and other failures, thus realizing the reasonable operation of the power grid through the load monitoring, demand protection, regional interlocking and other functions. Controller has the function of measuring the current, voltage, power, frequency, electric energy, demand, harmonic and other power grid parameters; and the function of recording the fault, alarm, operation, historical maximum current, contact wear as well as other operation and maintenance parameters; when the power network is carrying on communication network, the controller can realize the remote sensing, remote communication, remote control and remote regulating at the remote terminal of the electric power automation network.

#### Controller Types





	Functional items	М	3M
Disular interfece	Nixie tube numbers and symbols display	$\checkmark$	
Display Interface	LCD panel symbols and graphics display in Chinese	_	$\checkmark$
	Overload long-time delay protection (multi-curve)	$\checkmark$	$\checkmark$
Protection functions	Overload thermal memory	√	√
	Overload alarm	√	√
	Short circuit short-time delay protection	$\checkmark$	√
	Short-time delay thermal memory	√	√
	Short circuit instantaneous protection	√	√
	Ground protection (differential type)	√	√
	Grounding alarm	<b>A</b>	√
	Neutral phase protection (4P, 3P+N)	√	√
	Current unbalance and phase-failure protection	V	$\checkmark$
	MCR	<b></b>	√
	Load monitoring	$\checkmark$	$\checkmark$
	Undervoltage, overvoltage		<b></b>
	Voltage unbalance protection	_	<b></b>
	Phase sequence protection		<b></b>
	Underfrequency, overfrequency protection	_	<b></b>
	Required value protection (current, power)	_	<b></b>
	Reverse power protection	_	
	Regional selective interlocking		<b></b>
	Regional selective interlocking       Current measurement (phase pole, N-pole, grounding)	√	√
	Voltage (phase voltage, circuit voltage, voltage unbalance rate)	_	
	Phase sequence detection	_	
	Frequency measurement		<b></b>
Measuring	Power measurement (active power, reactive power, apparent power)	_	<b></b>
function	Power factor measurement	_	<b></b>
	Electric energy measurement (active electric energy, reactive electric energy, apparent electric energy)		<b></b>
	Required value measurement (current, power)		<b></b>
	Harmonics measurement		<b></b>
	LED fault status indication	√	√
	Fault record (8 times) and query	√	√
	Historic peak current record	√	√
	Alarm history query		√
Maintenance	Fault tripping signal output	√	√
function	Self-diagnostic function	√	√
	Simulating tripping test function	√	√
	Contact wear equivalent (alarm) % query		√
	Query of number of operations	√	√
	Clock function	_	√
	Signal unit		
Others	Communication	_	

Note: "\" represents this function is available " " represents optional functions for users, and "---" represents this function is not available

### Selection Manual of Low-voltage Products Part 2 AirCircuit Breaker

	Functional items	NWK21	NWK21/V	NWK22	NWK22/V	NWK22/P	
	Nixie tube numbers and symbols display	$\checkmark$	$\checkmark$	_	_	_	
Display Interface	LCD panel symbols and graphics display in Chinese	_	_	√	$\checkmark$	√	
	Overload long-time delay protection	$\checkmark$	√	√	√	√	
	Interface       LCD panel symbols and graphics display in Chinese        V       V       V         Overload long-time delay protection       V       V       V       V       V       V         Overload thermal memory (30min)       V       V       V       V       V       V         Overload pre-alarm       A       A       A       A       A       A       A       A       V	$\checkmark$					
		<b></b>					
		√					
	Short circuit instantaneous protection	$$ $\sqrt{$ $\sqrt{$ $\sqrt{$ $\sqrt{$ $\sqrt{$ y $\sqrt{$ $   \sqrt{$ $\sqrt{$ $    \sqrt{$ $   -$					
	Ground protection (differential type)						
	Grounding alarm						
	Neutral line protection (4P, 3P+N)						
Protection	Current unbalance protection		$\checkmark$	√	√	√	
functions	MCR	√	√	V	V	√	
	Load monitoring			√	√	√	
	Undervoltage, overvoltage protection	$\checkmark$ $\checkmark$ $\checkmark$ $\checkmark$ $\checkmark$ $\checkmark$ voltage protection $ \checkmark$ $\checkmark$ protection $\checkmark$ $\checkmark$ $\checkmark$ otection $\checkmark$ $\checkmark$ $\checkmark$ verfrequency protection $\checkmark$ $\checkmark$ tection (current) $\checkmark$ $\checkmark$	√				
	Voltage unbalance protection	_	_	_	√	√	
	Phase sequence protection	_	_	_	√	√	
	Underfrequency, overfrequency protection	_	_	_	√	√	
	Required value protection (current)		_	_	√	√	
	Reverse power protection		_	_			
	Regional selective interlocking						
	Current measurement (phase pole, N-pole, grounding)	√		√	√	√	
	Voltage (phase voltage, circuit voltage, voltage unbalance rate)		۰ ۷		v √	√ √	
	Phase sequence detection		_	_	۰ ا	۰ ۷	
	Frequency measurement				√ √	 √	
Measuring	Required value measurement (current)	$\checkmark$ grounding) $\checkmark$ $\checkmark$ $\checkmark$ $\checkmark$ $\checkmark$ grounding) $\checkmark$ $\checkmark$ $$ $\checkmark$ $\checkmark$ $=$ $$ $\checkmark$ $$ $\checkmark$ $\checkmark$ $$	√ √				
function	Required value measurement (nower)		_		• 	v V	
	Power measurement (active power, reactive power, apparent power)					۰ ۷	
	Power factor measurement		_			۰ ۷	
	Electric energy measurement (active electric energy,		- $$			v 	
	reactive electric energy, apparent electric energy) Harmonics measurement				v 1		
	LED fault status indication		2	2/		, v	
	Fault record (8 times) and query	v 	v ا	v v	v 1	v v	
	Historic peak current record			v 1	1	v 1	
	Alarm history guery			1	۰ ۷	۰ ۷	
Maintenance	Fault tripping signal output	1	1	v v	√	v v	
function	Self-diagnostic function	1	۰ ۷		1		
	Simulating tripping test function			v 	V	v 	
	Contact wear equivalent (alarm) % query	V	V A	v	v ./	v N	
	Ouery of number of operations			v	v	v	
	Clock function	-		v	V	v	
	DC controllers (DC220V, DC110V)			V A	V	V A	
	Remote reset of controller						
Others	Signal unit						
	Communication	-					
	communication					▲	

Note: "\" represents this function is available " \* " represents optional functions for users, and "-" represents this function is not available

Protective features	Setting current	Setting time	Remarks
Overload long-time delay protection	1.0ln	60s	Thermal memory ON
Short circuit short-time delay protection	81 <sub>R</sub>	0.2s	Fixed time limit, I <sup>2</sup> t-OFF
Instantaneous short circuit	10In	-	-
Ground protection	0.5In	0.1s	-
Current unbalance	OFF	-	Users can open it as needed

## Introduction of the Controller

• NWK21 Type Controller



- 1 Controller model
- 2 Tx (communication receiving), Rx (sending), fault and alarm indicators
- 3 Voltage indicators
- 4 % (current), current, time and I2t (inverse time limit) indicators
- 5 Fault current protection feature, load testing indicators
- 6 Setup, query, test and storage indicators
- 7 Operating set value buttons
- 8 Test port
- 9 Digital display screen
- 10 Three-phase current, N current indicators
- 11 Digital display screen
- 12 N-phase and A, B, C phases voltage indicators
- 13 Controller rated current sign

• NWK22 Type Controller



- 1 Controller model
- 2 LCD screen
- 3 Controller rated current sign
- 4 Fault and alarm reset buttons
- 5 Fault current protection feature indicators
- 6 "Information function" button
- 7 "Protection function" button
- 8 "Select" button
- 9 "Exit" button
- 10 Test port
- 11 "Up" button
- 12 "Down" button
- 13 "Measurement" button
- 14 "Setup" button
- 15 "Communication", "Normal", "Failure/Alarm" indicators (LED)

#### • M Type Controller



- 1 Controller model
- 2 Fault and alarm indicators
- 3 % (current), current, time unit indicators
- 4 Operating set value buttons
- 5 Setup, query, test and storage indicators
- 6 Fault current protection feature, load testing indicators
- 7 Digital display screen
- 8 Three-phase current, N current indicators
- 9 Controller rated current sign

• 3M Type Controller



- 1 Controller model
- 2 LCD screen
- 3 Controller rated current sign
- 4 Fault and alarm reset buttons
- 5 Fault current protection feature indicators
- 6 "Information function" button
- 7 "Protection function" button
- 8 "Select" button
- 9 "Exit" button
- 10 "Down" button
- 11 "Up" button
- 12 "Setup" button
- 13 "Measurement" button
- 14 "Communication", "Normal", "Failure/Alarm" indicators (LED)
- 15 Test port

## Main Performance Parameters of NDW1A Series

• Working power supply of controller

The working power supply of controller is an important link enabling the entire controller to work long hours, of which its voltage specification is respectively AC220V/AC230V, AC380V/AC400V, DC110V, DC220V, AC24/DC24V, with frequency of 50Hz/60Hz and an allowable error of  $\pm$ 15%.

Rated power consumption of the controller is less than 7W.

The controller's contact capacity (DO) contact capacity: AC250V 5A resistance DC110V 0.5A resistance

#### • Ground protection (differential type)

Ground protection is suitable for the fault caused by damage of equipment insulation, and is commonly used in neutral-point directly grounded system. Its way of protection is four phase or three phase current vector and the differential type T protection. For 3M/NWK22 type controller differential type ground fault, regional interlocking can be realized.

Differential type grounding or neutral wire (T): It is divided into 3PT, 4PT, (3P+N)T according to the number of poles of the circuit breaker.



## Accessory Selection Table of NDW1A Series Air Circuit Breaker



Power supply

module ST-IV







Auxiliary switch



Phase partition



Electronic release



Counter





Mechanical interlocking









Undervoltage

release



Electric operating mechanism



Closed/shunt excitation coil



Door frame

Accessory name	For what kind of circuit breakers	Supply mode
Controller power supply module	Fixed type/drawout type	Optional ordering for customers
Relay module	Fixed type/drawout type	Optional ordering for customers, to be used with ST-IV
Off-position key lock	Fixed type/drawout type	Optional ordering for customers
Door interlock	Drawout type	Optional ordering for customers
Circuit breaker triolocation locking device	Drawout type	Standard configuration
Auxiliary switch	Fixed type/drawout type	Standard configuration
Closed electromagnet	Fixed type/drawout type	Standard configuration
Shunt release	Fixed type/drawout type	Standard configuration
Motor operating mechanism	Fixed type/drawout type	Standard configuration
Phase partition	Fixed type/drawout type	Optional ordering for customers
Closing ready signal output device	Fixed type/drawout type	Optional ordering for customers (NDW1A-1600 without this function)
Undervoltage release	Fixed type/drawout type	Optional ordering for customers
Counter	Fixed type/drawout type	Optional ordering for customers (NDW1A-1600 without this function)
Door frame	Fixed type/drawout type	Optional ordering for customers
Dust cover	Fixed type/drawout type	Optional ordering for customers
Mechanical interlocking	Fixed type/drawout type	Optional ordering for customers
Power automatic switching device	Fixed type/drawout type	Optional ordering for customers

## Electric Circuit Diagram of NDW1A Series Air Circuit Breaker

#### NDW1A-1600 Electric Circuit Diagram The following diagram is the full-function circuit diagram

Figure 1 is the electric circuit diagram of M type controller, while Figure 2 is the electric circuit diagram of 3M type controller.



#### Fig. 1 Wiring Diagram of Circuit Breaker (apply to the M-type controller)







1, 2 - Working power supply, users wiring (1 for the anode);

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity of AC250V/16A;

6, 7, 8 - Opening and closing contact outputs (7 for public end), contact capacity of AC250V/16A;

9, 10, 11 - Closing ready electric indicators;

12, 13 and 14, 15 and 16, 17 and 18, 19 - Four groups of signal outputs; if there's no optional signal unit, the pin will be empty; 20 - Grounding wire of controller;

21, 22, 23, 24 - Voltage signal input ends, signal taken from the inlet wire side of the circuit breaker. When the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2; when it is three-phase four-wire system, wire according to the wiring diagram. If there's no optional voltage function, the pin will be empty;

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer is CT-W or ZCT1, this pin will be the input end of the external transformer;

27 - Communication shielding ground wire;

28, 29 - R485 communication interfaces (28 shall be connected to the red wire, while 29 shall be connected to the green wire);

SB1 - Disconnection button (to be prepared by users);

SB2 - Undervoltage disconnection button (to be prepared by users);

SB3 - Closing button (to be prepared by users);

SB4 - Electric energy storage button (to be prepared by users);

J - Relay normally open, remote disconnection circuit breaker (to be prepared by users);

SA - Motor travel switch (to be prepared by users);

XT - Wiring terminal;

I - Four-group conversion (auxiliary contact of the circuit breaker);

II - Six-group conversion (auxiliary contact of the circuit breaker);

M - Energy storage motor;

Fu - Fuse (to be prepared by users);

W - Circuit breaker;

F - Shunt release;

B - Closed electromagnet;

Q - Undervoltage (instantaneous or delayed) release;

30, 31 - Can directly connect the power supply

(automatic energy storage beforehand).

Note: 1. The dashed part shall be wired by users;

 If the rated working voltage of Q, F, B, M, controller power supply module is not the same, please connect to the different supply voltage;
 The opening, closing and energy storage indicators shall be prepared by users;

4. Contact capacity DO:DC110V 0.5A, AC250V 5A; contact capacity DI: DC110V~DC130V or DC110V~AC250V

5. The order from 21 to 24 shall not be wrongly wired and connected into the inlet wire side of the power supply. If there's no optional function, the pin will be empty;

6. 45~56 are the auxiliary contacts of four-group conversion; 45~62 are the auxiliary contacts of six-group conversion;

7. Description of DI and DO is shown in the Controller Manual;

8. If there's optional ground current or current leakage protection, it shall not be connected to CT-W or ZCT1, but shall be short connected.

 $\Delta$  $\Diamond$  $\nabla$ 



### The following chart shows the input/output interface of controller

1, 2 - Power supply inputs of controller, the working power supply AC220V/AC230V, AC380V/AC400V, DC220V, DC110V input end, 1 for anode;

D01

12

13

D02

14 15 D03 or DI2

16 17

Programmable input/output contact

D04 or DI1

18 19 27 28 29

> B(-) A(+)

> > Voltage measurement

Connected to the power inlet side

UC

signal input UB

UN UA

21 22 23 24

Communication

interface

M/3M controller

Communication

shielding ground

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity: AC380V, 2A; DC250V, 0.3A;

25 26

3P+N-phase transformer, external CT-W, external ZCT1 transformer signal input

6, 7, 8 and 9, 10, 11 - Two groups of auxiliary state contacts of synchronous action with the circuit breaker (7 and 10) for public ends), contact capacity: AC380V, 1A; DC250V, 0.15A;

12, 13 - Signal contact 1, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

(choose either)

14, 15 - Signal contact 2, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

16, 17 - Signal contact 3, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

18, 19 - Signal contact 4, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

21, 22, 23, 24 - Voltage signal input ends (N, A, B, C respectively); when the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2.

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer is CT-W or ZCT1, this pin will be the input end of the external transformer; 27 - Communication shielding ground wire (3M controller with communication).

28 - Communication interface RS485A (3M controller with communication);

29 - Communication interface RS485B (3M controller with communication).

Note: 1. Contact capacity DO: DC110V 0.5A, AC250V 5A; contact capacity DI:DC110V~DC130V or AC110V~AC250V; 2. The order from 21, 22, 23 to 24 shall not be wrongly wired and connected into the inlet wire side of the power supply. If there's no optional function, the pin will be empty.



## NDW1A-1600 Auxiliary Switch Wiring Mode



## NDW1A-2000/3200/6300 Electric Circuit Diagram

1, 2 - Working power supply;

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity of AC250V/16A;

6, 7, 8 - Opening and closing contact outputs (7 for public end), contact capacity of AC250V/16A;

9, 10, 11 - Closing ready electric indicators;

12, 13 and 14, 15 and 16, 17 and 18, 19 - Four groups of signal outputs; if there's no optional signal unit, the pin will be empty;

20 - Grounding wire of controller;

21, 22, 23, 24 - Voltage signal input ends (N, A, B, Crespectively); when the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2. When it is three-phase four-wire system, carry out wiring according to the wiring diagram. If there's no optional voltage function, the pin will be empty;

25, 26 - When it is 3P+N, only choose one from the N-phase transformer output end or ZCT1 output end, ZT100 output end or the input end of remote reset function;

27 - Communication shielding ground wire;

28, 29 - Communication interfaces, 28 for red (+), and 29 for green (-);

30, 31, 32 - Electric energy storage and energy storage indicators;

- 33, 34 Undervoltage release;
- 35, 36 Shunt release;
- 37, 38 Closed electromagnet;

39~62 - Connecting terminals of auxiliary switch;

SB2 - Undervoltage button (to be prepared by users); SB5 - Remote

reset button (to be prepared by users);

- SA1 Motor travel switch;
- SA2 Closing ready travel switch;
- SA3 Undervoltage indicating travel switch;
- SA4 Fault tripping travel switch;
- SA5 Opening and closing indicating travel switch;
- XT Secondary terminal;
- F Shunt release;
- B Closed electromagnet;
- Q Undervoltage (instantaneous or delayed) release;
- YF Remote reset;
- T Auxiliary contact of the circuit breaker (see attached figure);
- Fu Fuse (to be prepared by users);
- M Energy storage motor.

#### Note:

1. The current state of the circuit breaker is de-energized, disconnected, connected, no energy stored;

2. The dashed part shall be wired by users;

3. Power supply - When the power supply of Q, F, B, M controllers is not the same, they shall be powered on respectively;

4. When the current of the main circuit is less than 0.4In, terminals 1 and

2 must be connected to the auxiliary power supply;

5. The schematic diagram is suitable for products with the communication function.



### The following diagram is the full-function circuit diagram

12, 13 - Signal contact 1, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

14, 15 - Signal contact 2, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

16, 17 - Signal contact 3, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

18, 19 - Signal contact 4, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

21, 22, 23, 24 - Voltage signal input ends; when the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2.

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is

3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer

is ZT100 or ZCT1, this pin will be the input end of the external transformer; 27 - Communication shielding ground wire;

28, 29 - Communication interfaces, 28 for red (+), and 29 for green (-);

39, 40 - Remote reset of controller.

Note: All the signal units are passive signals. Users can choose S1, S2, S3 modes as required.





### NDW1A-2000/3200/6300 Auxiliary Switch Wiring Mode





### Wiring diagram of the power automatic switching device (ATS)

- QN Frequently-used power supply universal low-voltage circuit breaker
- QR Standby power supply universal low-voltage circuit breaker
- XT Secondary wiring terminal
- M Energy storage motor
- SA Motor travel switch
- F Shunt release
- B Closed electromagnet
- Q Undervoltage release.

Note: 1. The dashed part shall be wired by users;

- 2. The rated voltage of controller, F, B, M shall be selected as AC230V;
- 3. For electrical accessories, Q (undervoltage release) cannot be selected;
- 4. For other wiring modes, see the electric wiring diagram example of the circuit breaker.

### NDW2 Series Air Circuit Breaker

Introduction of Structure and Indications



- 1. Reset button
- 2. Specification sign
- 3. Off-position key lock (optional function)
- 4. Nader sign
- 5. Disconnection button
- 6. Closing button
- 7. Counter (optional function)
- 8. Energy releasing and storing indicator
- 9. Closing ready "OK" indicator (optional function)
- 10. Opening and closing indicator
- 11. Nameplate

12. "Connection", "Connection", "Separation" position locking and unlocking device

- 13. Rocker operating position
- 14. "Connection", "Test", "Separation" position indicator
- 15. Rocker and its storage position

Note: 1~11 is fixed type, while 1~15 is drawout type

#### Drawout Type Circuit Breaker Structure

Drawout type circuit breaker is composed of the circuit breaker body and the drawer seat. The drawer seat has din rails on both sides. There's a movable din plate on the din rail. The circuit breaker is placed on the left and right din plates. The drawout type circuit breaker connects to the main circuit by inserting the busbar on the circuit breaker body into the bridge contact on the drawer seat.





Rocker and its storage position

### Quick Selection Table of NDW2-1600~6300 Series Air Circuit Breaker



#### Note a:

For the 1600 frame size controller, choose the KM and K3M controllers
 (KM voltage 1-AC380/400V 2-AC220/230V 3-DC220V 4-DC110V)
 (K3M voltage 1-AC380/400V 2-AC220/230V 3-DC220V 4-DC110V)
 For the 2000, 3200 and 6300 frame size controllers, choose the KM (NWK21) and KY (NWK22) controllers
 (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)
 (KY voltage 1-AC380/400V 2-AC220/230V 3-DC220V 4-DC110V 5-AC24V/DC24V)
 3. Controller optional functions:
 Protection type: Not-marked -Conventional type, V Voltage measurement and protection type, P-Harmonic measurement and protection 1600 frame size communication function: 3M (communication protocols: 2-Profibus, 3-Modbus, 4-Deviecnet)
 2000-6300 frame size communication function: H (communication protocol: Modbus)
 Signal unit: S1-4DO; S2-3DO, 1DI; S3-2DO, 2DI

Remote reset function: Z2 (AC220V/AC230V), Z3 (DC220V), Z4 (DC110V) Independent N-phase protection function: N (including N-phase transformer, and shall be used together) Contact wear equivalent, query of operation times (optional for NWK21): J

This shall be omitted if the controller has no optional function NWK2121 controller only has S1-4DO NDW2-1600 has no remote reset

#### Note b:

Auxiliary contact combination 1600 frame size: Not marked-Four-group conversion, A6-Six-group conversion 2000, 3200, 6300 frame sizes: Not-marked-Four normally opened and four normally closed, A5-Five normally opened and five normally closed, A6-Six normally opened and six normally closed

4000 frame size: Not-marked-Four-group conversion, A6-Six-group conversion, A44-Four normally opened and four normally closed

## Main Performance Parameters of NDW2 Series

Cir	rcuit breaker m	nodel	NDW2-1600				
Rated current In (A	)		200, 400, 630, 800, 1000, 1250, 1600				
N pole rated currer	nt		100%ln				
Rated working volt	age Ue (V)		AC220/230/240, AC380/400/415, AC440/480, AC660/690				
Rated frequency f (	Hz)			50/60			
Rated insulation vo	oltage Ui (V)			1000			
Rated impulse with	stand voltage	Uimp (kV)		12			
Number of poles				3, 4			
Full break time (≤A	C690V) (ms)			≤18			
Closing time (ms)				≤60			
Rated ultimate sho	rt-circuit	AC415V		65			
(effective value)	kA	AC690V		42			
Rated service short	-circuit	AC415V		55			
(effective value)	(effective value) kA		35				
Rated short-circuit making		AC415V	143				
(peak value)kA	(peak value)kA		88				
Rated short-time w	vithstand	AC415V	42				
1s kA	ve value)	AC690V	35				
	Electrical	AC415V	10000				
Operating performance	life	AC690V	6000				
oftimes)	Mechanical	Maintenance-free	15000				
	life	With maintenance	30000				
Installation type				Fixed type, drawout type			
Wiring method of th	ne main circuit		Horizontal wiring, vertical wiring, extended horizontal wiring, mixed wiring (upper horizontal and lower vertical), mixed wiring (upper vertical and lower horizontal)				
Outline dimension:	W×D×H (mm)	Fixed type 3P		260×253×319			
	1	Fixed type 4P		330×253×319			
		Drawout type 3P		282×354×350			
	$\langle \mathfrak{P} \rangle$	Drawout type 4P		352×354×350			
		Fixed type 3P	19 (200A~630A)	20 (800A~1000A)	21 (1250A~1600A)		
Woight (he)		Fixed type 4P	20 (200A~630A)	21 (800A~1000A)	25 (1250A~1600A)		
weight (Kg)		Drawout type 3P	40 (200A~630A)	41 (800A~1000A)	42 (1250A~1600A)		
		Drawout type 4P	41 (200A~630A)	42 (800A~1000A)	52 (1250A~1600A)		

Circuit breaker model			NDW2-2000			NDW2-3200	
Rated current In (A)			400, 630, 800	1000, 1250, 1600	2000	2000, 2500	2900, 3200
N pole rated current			100%ln				
Rated working volta	ge Ue (V)			AC220/230/240, AC380/40	0/AC415, AC4	140/AC480, AC660/690	
Rated frequency f (H	lz)				50/60		
Rated insulation vol	tage Ui (V)				1000		
Rated impulse withs	tand voltage	Uimp (kV)			12		
Number of poles					3, 4		
Full break time (≤69	0V) (ms)				≤30		
Closing time (ms)					≤70		
Rated ultimate short	t-circuit	AC415V		80			100
(effective value)	kA	AC690V		65			80
Rated service short-circuit		AC415V		80			85
(effective value)	kA	AC690V		65			65
Rated short-circuit making capacity lcm (peak value)kA		AC415V	176			220	
		AC690V	143			176	
Rated short-time withstand current Icw (effective value) 1s kA		AC415V	60			85	
		AC690V	50				55
	Electrical	AC415V	11000			1	1000
Operating	life	AC690V	6000				6000
Number of times	Mechanical	Maintenance-free	15000			1	5000
	life	With maintenance	30000			20000	
Installation type		Fixed type	▲				
installation type		Drawout type	▲			<b>A</b>	
Wiring method of th	e	Fixed type	Horizontal wiring, vertical wiring, L-type wiring			Horizontal wiring, vertical wiring	
main circuit		Drawout type	Horizontal wiri	ng, vertical wiring, L-type wii	ring	Horizontal wiring, vertical wiring	
Outline dimension:	N×D×H (mm)	Fixed type 3P		362×332×398		422×332×398	
	7	Fixed type 4P		457×332×398		537>	×332×398
		Drawout type 3P		375×430×432		435>	×430×432
- W	Þ	Drawout type 4P		470×430×432		550>	×430×432
		Fixed type 3P	39	40	41	46	56
M 1. //		Fixed type 4P	48	49	50	58	68
Weight (kg)		Drawout type 3P	68	70	71	92	96
		Drawout type 4P	86	88	91	108	118

Note: A represents this function is available

Circui	t breaker mo	del	NDW2	2-4000	NDW2-6300			
Rated current Ir	(A)		800, 1000, 1250, 1600, 2000, 2500	3200, 4000	4000	5000, 6300		
N pole rated current			100	%In	509	%In		
Rated working v	voltage Ue (V)	)	AC220/230/240, A AC660/690, AC100	C380/400, AC415, 00	AC220/230/240, AC440/480, AC60	AC380/400/415, 50/690		
Rated frequency	y f (Hz)			<u>.</u>	50/60			
Rated insulation	n voltage Ui (\	/)			1000			
Rated impulse v	vithstand vol	tage Uimp (kV)			12			
Number of pole	s				3, 4			
Full break time	(≤AC690V) (m	ns)			≤30			
Closing time (m	s)				≤70			
Rated ultimate	short-	AC415V	10	00	1:	20		
circuit breaking capacity Icu		AC690V	7	5	8	5		
(effective value)	kA	AC1000V	5	0		/		
Rated service sh	ort-circuit	AC415V	10	00	1:	20		
breaking capacity lcs		AC690V	7	5	85			
		AC1000V	5	0	/			
Rated short-circ	uit	AC415V	22	20	264			
making capacity	/ ) kA	AC690V	16	55	187			
		AC1000V	11	10		/		
Rated short-tim	e	AC415V	8	5	10	00		
withstand current lcw		AC690V	7	5	8	5		
(effective value) 1s kA		AC1000V	5	0		/		
		AC415V	10000 (no more than 1600 6000 (3000, 4000A)	A), 8000 (2000, 2500A),	30	00		
Operating performance	Electrical life	AC690V	10000 (no more than 1600A), 6000 (2000, 2500A), 3000 (3200, 4000A)		2000			
(Number of times)		AC1000V	20000 (no more than 1600 500 (3200, 4000A)	0 (no more than 1600A), 1000 (2000, 2500A), 3200, 4000A)		1		
	Mechanical	Maintenance -free	100	000	5000			
	life	With maintenance	150	000	10000			
Installation typ	e		Fixed type, d	Irawout type	Drawout type			
Wiring method	of the main c	ircuit	Horizontal wiring, ver horizontal wiring, exte	tical wiring, extended ended vertical wiring	Horizontal wiring			
Outline dimens W×D×H (mm)	ion:	Fixed type 3P	422×339	×394	/			
	7	Fixed type 4P	537×339	×394	1			
		Drawout type 3P	435×450	×432	895×497×432			
<u> </u>	<u> </u>	Drawout type 4P	550×450	×432	895×497×432			
		Fixed type 3P	59 (800A~2500A)	60 (3200A, 4000A)		/		
Weight (kg)		Fixed type 4P	70 (800A~2500A)	71.5 (3200A, 4000A)		/		
-		Drawout type 3P	97 (800A~2500A)	103 (3200A, 4000A)	186 (4000A)	214 (5000A, 6300A)		
		Drawout type 4P	114 (800A~2500A)	120 (3200A, 4000A)	182 (4000A)	210 (5000A, 6300A)		

## Controller Functions of NDW2 Series Air Circuit Breaker

Controller is one of the main components of the circuit breaker, which can provide the function of protecting the overload, short circuit, grounding, current imbalance, overvoltage, undervoltage, voltage imbalance, overfrequency, underfrequency, reverse power and other failures, thus realizing the reasonable operation of the power grid through the load monitoring, demand protection, regional interlocking and other functions. Controller has the function of measuring the current, voltage, power, frequency, electric energy, demand, harmonic and other power grid parameters; and the function of recording the fault, alarm, operation, historical maximum current, contact wear as well as other operation and maintenance parameters; when the power network is carrying on communication network, the controller can realize the remote sensing, remote communication, remote control and remote regulating at the remote terminal of the electric power automation network.

#### Controller Types



\*: Applicable to NDW2-1600
#### Selection Manual of Low-voltage Products Part 2 AirCircuit Breaker



\*: Applicable to NDW2-2000/3200/4000/6300

### **Controller Functions**

	Functional items	м	3M
	Nixie tube numbers and symbols display	$\checkmark$	_
Display interface	LCD panel symbols and graphics display in Chinese	_	
	Overload long-time delay protection (multi-curve)		
	Overload thermal memory	ms         M         3M           symbols display         -         -           yraphics display in Chinese         -         -           y protection (multi-curve)         √         √           ry         √         √           sprotection         √         √           us protection         √         √           us protection         √         √           (4P, 3P + N)         √         √           hase-failure protection         √         √           (4P, 3P + N)         √         √           (approtection         -            (and)         √         √           ge protection         -            n (current, power)         -            n (current, power)         -            n         -             n         -             n (current, power)         - <td< td=""><td><math>\checkmark</math></td></td<>	$\checkmark$
	Overload alarm		$\checkmark$
	Short circuit short-time delay protection		$\checkmark$
	Short-time delay thermal memory		$\checkmark$
	Short circuit instantaneous protection	$\checkmark$	$\checkmark$
	Ground protection (differential type)	ry √ / elay protection √ / elay protection √ / memory √ / us protection √ / rential type) √ <sup>(1)</sup> / (4P, 3P+N) √ / hase-failure protection √ / / / ge protection √ / ge protection	$\checkmark$
	Grounding alarm	√ <sup>1)</sup>	
	Neutral phase protection (4P, 3P+N)	$\checkmark$	$\checkmark$
Protection functions	Current unbalance and phase-failure protection	$\checkmark$	$\checkmark$
	MCR		$\checkmark$
	Load monitoring	$\checkmark$	$\checkmark$
	Undervoltage, overvoltage protection		
	Voltage unbalance protection	_	
	Phase sequence protection		<b></b>
	Underfrequency, overfrequency protection		
	Required value protection (current, power)		
	Reverse power protection	_	
	Regional selective interlocking	_	
	Current measurement (phase pole, N-pole, grounding)	√	√
	Voltage (phase voltage, circuit voltage, voltage unbalance rate)		▲
	Phase sequence detection	_	<b>A</b>
	Frequency measurement		<b>A</b>
Measuring function	Power measurement (active power, reactive power, apparent power)	_	<b></b>
	Power factor measurement	_	<b></b>
	Electric energy measurement (active electric energy, reactive electric energy, apparent electric energy)	_	<b></b>
	Required value measurement (current, power)		<b></b>
	Harmonics measurement	_	<b>A</b>
	LED fault status indication	$\checkmark$	$\checkmark$
	Fault record (8 times) and query	$\checkmark$	$\checkmark$
	Historic peak current record	$\checkmark$	$\checkmark$
	Alarm history query		$\checkmark$
	Fault tripping signal output	$\checkmark$	$\checkmark$
Maintenance function	Self-diagnostic function	$\checkmark$	$\checkmark$
	Simulating tripping test function	$\checkmark$	$\checkmark$
	Contact wear equivalent (alarm) % query	_	$\checkmark$
	Query of number of operations	$\checkmark$	$\checkmark$
	Clock function	_	$\checkmark$
	Signal unit		
Others	Communication	_	<b></b>

Note: "\"represents this function is available," A " represents optional functions for users, and "---" represents this function is not available

	Functional items	NWK21	NWK21/V	NWK22	NWK22/V	NWK22/P
Display	Nixie tube numbers and symbols display		√	_	_	_
interface	LCD panel symbols and graphics display in Chinese	_	_	√	√	√
	Overload long-time delay protection	√	√	√	√	
	Overload thermal memory (30min)	√	√	√	√	
Protection         NVNC1         NVNC1/V           Display Interface         Nike tube numbers and symbols display in Chinese         -         -           CV panel symbols and graphics display in Chinese         -         -         -           Overload long-time delay protection         √         √            Overload pre-alarm         ▲         ▲         ▲           Short circuit short time delay protection         √         √         √           Short circuit instantaneous protection         √         √         √           Short circuit instantaneous protection         √         √         √           Retural ine protection (#FPN)         √         √         √           Netural ine protection (#FPN)         √         √         √           NCR         √         √         √         √           NCR         √         √         √         √           Voltage unbalance protection           − <td><b></b></td> <td></td> <td><b></b></td> <td></td>	<b></b>		<b></b>			
	Functional items         NWK21         NWK21/V         NWK22         NWK22         NWK22           *         LCD panel symbols and symbols display in Chinese           -         -         -           *         Overload long-time delay protection         √         √         √         √         √           *         Overload thermal memory (30min)         √         √         √         √         √           *         Short circuit instantaneous protection         √         √         √         √         √           *         Short circuit instantaneous protection         √	√				
	Short-time delay thermal memory	√	√		√	
	Short circuit instantaneous protection	√	√	√	√	
	Ground protection (differential type)	√1)	√1)	√1)	√ <sup>1)</sup>	√1)
	Night with the numbers and symbols display         V         V          V           LCD panel symbols and graphics display in Chinese          V         V         V           Overload long-time delay protection         V         V         V         V         V           Overload thermal memory (30min)         V </td <td><b>▲</b><sup>1)</sup></td> <td>▲ 1)</td>	<b>▲</b> <sup>1)</sup>	▲ 1)			
	Neutral line protection (4P, 3P+N)	√	√		√	
Protection	Current unbalance protection	√	√	√	√	√
functions	MCR	√	√	√	√	√
	Load monitoring			√	√	
	Undervoltage, overvoltage protection	_	_		√	√
	Voltage unbalance protection	_	_		√	√
	Phase sequence protection		_		√	
	Underfrequency, overfrequency protection		_		√	√
Display interface         Noise tube numbers and symbols display         I           LCD panel symbols and graphics display in Chinese         —           Overload tong-time delay protection         I           Overload thermal memory (30min)         I           Overload pre-alarm         Image: Comparison of the symbols and graphics display           Short circuit instantaneous protection         Image: Comparison of the symbols and graphics display           Short circuit instantaneous protection         Image: Comparison of the symbols and graphics display           Short circuit instantaneous protection         Image: Comparison of the symbols display           Grounding alarm         Image: Comparison of the symbols display           Neutral line protection (differential type)         Image: Comparison of the symbols display           Marcent unbalance protection         Image: Comparison of the symbols display           Neutral line protection (differential type)         Image: Comparison of the symbols display           Indervoltage, overvoltage protection         Image: Comparison of the symbols display           Undervoltage, overvoltage protection         Image: Comparison of the symbols display           Indervoltage circuit voltage:         Image: Comparison of the symbols display           Required value protection         Image: Comparison of the symbols display           Required value protection         Im	_	_		√	√	
	Reverse power protection	_	_		_	$\checkmark$
	Regional selective interlocking	_	_		<b>A</b>	
	Current measurement (phase pole, N-pole, grounding)		√	$\checkmark$	$\checkmark$	
	Voltage (phase voltage, circuit voltage, voltage unbalance rate)	_	$\checkmark$		√	
	Phase sequence detection	_	_		√	$\checkmark$
F F F Measuring function F E E E	Frequency measurement	_	_	_	$\checkmark$	$\checkmark$
	Required value measurement (current)	_	—	_	$\checkmark$	$\checkmark$
	Required value measurement (power)	—	—		—	$\checkmark$
	Power measurement (active power, reactive power, apparent power)	—	—		—	$\checkmark$
	Power factor measurement	—	—		—	$\checkmark$
Measuring       Required value protection (current)         Reverse power protection       Regional selective interlocking         Current measurement (phase pole, N-pole, gu       Voltage (phase voltage, circuit voltage, voltage unbalance rate)         Phase sequence detection       Frequency measurement         Required value measurement (current)       Required value measurement (current)         Phase sequence detection       Frequency measurement         Power measurement       Required value measurement (current)         Power measurement (active power, reactive paparent power)       Power factor measurement         Power factor measurement       Electric energy measurement (active electric reactive electric energy, apparent electric energy, appare	Electric energy measurement (active electric energy, reactive electric energy, apparent electric energy)	—	—		—	$\checkmark$
	Harmonics measurement	—	—		—	$\checkmark$
	LED fault status indication	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Fault record (8 times) and query	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Short circuit ishort-time delay protection         √         √         √           Short-time delay thermal memory         √         √         √         √           Short-time delay thermal memory         √1         √1         √1         √1           Short circuit instananeous protection         √1         √1         √1         √1           Ground protection (differential type)         √1         √1         √1         √1           Neutral line protection (4P, 3P+N)         √         √         √         √           Current unbalance protection         √1         √         √         √           MCR         √         √         √         √         √           Undervoltage, covervoltage protection	$\checkmark$	$\checkmark$				
	—	$\checkmark$	$\checkmark$	$\checkmark$		
	Fault tripping signal output	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Self-diagnostic function	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Simulating tripping test function	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Contact wear equivalent (alarm) % query				$\checkmark$	$\checkmark$
	Query of number of operations		<b>A</b>	√	$\checkmark$	$\checkmark$
	Clock function				$\checkmark$	$\checkmark$
	DC controllers (DC220V, DC110V)					
Others	Remote reset of controller					
others	Signal unit		<b>A</b>			
	Communication					<b>A</b>

" $\sqrt{"}$  represents this function is available, " $\blacktriangle$ " represents optional functions for users, and "—" represents this function is not available 1) Only select one from the ground protection function and the grounding alarm function; the factory setting is the ground protection.

### Additional Function Table of Controller

D	U	UD	Р	PD	Н	HD
<ol> <li>Required value measurement (current)</li> <li>Required value protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Overvoltage protection</li> <li>Undervoltage unbalance protection</li> <li>Overfrequency protection</li> <li>Overfrequency protection</li> <li>Hase sequence protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Current required value measurement</li> <li>Overvoltage protection</li> <li>Undervoltage protection</li> <li>Voltage unbalance protection</li> <li>Voltage unbalance protection</li> <li>Overfrequency protection</li> <li>Underfrequency protection</li> <li>Hoad and a sequence protection</li> <li>Required value protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Overvoltage protection</li> <li>Undervoltage unbalance protection</li> <li>Voltage unbalance protection</li> <li>Voltage unbalance protection</li> <li>Underfrequency protection</li> <li>Underfrequency protection</li> <li>Protection</li> <li>Protection</li> <li>Protection</li> <li>Phase sequence protection</li> <li>Reverse power protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Required value measurement</li> <li>Required value protection</li> <li>Undervoltage protection</li> <li>Overvoltage unotaction</li> <li>Overvoltage protection</li> <li>Overfrequency protection</li> <li>Overfrequency protection</li> <li>Undefrequency protection</li> <li>Severse power protection</li> <li>Required value protection</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Harmonics measurement</li> <li>Hovervoltage protection</li> <li>Overvoltage protection</li> <li>Voltage unbalance protection</li> <li>Overfrequency protection</li> <li>Underfrequency protection</li> <li>Harmonics</li> </ol>	<ol> <li>Voltage measurement</li> <li>Frequency measurement</li> <li>Voltage unbalance rate measurement</li> <li>Phase sequence detection</li> <li>Power measurement</li> <li>Power factor measurement</li> <li>Electric energy measurement</li> <li>Required value measurement</li> <li>Required value measurement</li> <li>Overvoltage protection</li> <li>Overvoltage protection</li> <li>Voltage unbalance protection</li> <li>Voltage unbalance protection</li> <li>Voltage unbalance protection</li> <li>Nerfrequency protection</li> <li>Hase sequence protection</li> <li>Reverse power protection</li> <li>Required value protection</li> </ol>

#### Working power supply and ground protection description of controller

#### • Working power supply of controller

The working power supply of controller is an important link enabling the entire controller to work long hours, of which its voltage specification is respectively AC220V/AC230V, AC380V/AC400V, DC110V, DC220V, AC24/DC24V, with frequency of 50Hz/60Hz and an allowable error of ±15%.

Rated power consumption of the controller is less than 7W.

The controller's electric shock capacity (DO) contact capacity: AC250V 3A resistance

DC110V 0.3A resistance

#### • Ground protection (differential type)

Ground protection is suitable for the fault caused by damage of equipment insulation, and is commonly used in neutral-point directly grounded system. Its way of protection is four phase or three phase current vector and the differential type T protection. For 3M/NWK22 type controller differential type ground fault, regional interlocking can be realized.

Differential type grounding or neutral wire (T): It is divided into 3PT, 4PT, (3P+N)T according to the number of poles of the circuit breaker.



### Additional Function Table of Controller











Power supply module ST-IV

Secondary terminal

Auxiliary switch

witch

Phase partition

Electronic release



Relay module



Off-position lock



Door frame





0

Undervoltage release



Closed/shunt excitation coil

Electric operating mechanism



Mechanical interlocking

Accessory name	For what kind of circuit breakers	Supply mode
Controller power supply module	Fixed type/drawout type	Optional ordering for customers
Relay module	Fixed type/drawout type	Optional ordering for customers, to be used with ST-IV
Off-position key lock	Fixed type/drawout type	Optional ordering for customers
Door interlock	Drawout type	Optional ordering for customers
Circuit breaker triolocation locking device	Drawout type	Standard configuration
Auxiliary switch	Fixed type/drawout type	Standard configuration
Closed electromagnet	Fixed type/drawout type	Standard configuration
Shunt release	Fixed type/drawout type	Standard configuration
Motor operating mechanism	Fixed type/drawout type	Standard configuration
Phase partition	Fixed type/drawout type	Optional ordering for customers
Closing ready signal output device	Fixed type/drawout type	Optional ordering for customers
Undervoltage release	Fixed type/drawout type	Optional ordering for customers
Counter	Fixed type/drawout type	Optional ordering for customers
Door frame	Fixed type/drawout type	Optional ordering for customers
Dust cover	Fixed type/drawout type	Optional ordering for customers
Mechanical interlocking	Fixed type/drawout type	Optional ordering for customers
Power automatic switching device	Fixed type/drawout type	Optional ordering for customers

### Electric Circuit Diagram of NDW2 Series Air Circuit Breaker

NDW2-1600 Electric Circuit Diagram

The following diagram is the full-function circuit diagram

Electric circuit diagram of M type controller, electric circuit diagram of 3M type controller.

Fig. 1 Wiring Diagram of Circuit Breaker (apply to the M-type controller)



#### Fig. 2 Wiring Diagram of Circuit Breaker (apply to the 3M-type controller)





1, 2 - Working power supply, users wiring (1 for the anode );

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity of AC250V/16A;

6, 7, 8 - Opening and closing contact outputs (7 for public end), contact capacity of AC250V/16A;

9, 10, 11 - Closing ready electric indicators;

12, 13 and 14, 15 and 16, 17 and 18, 19 - Four groups of signal outputs; if there's no optional signal unit, the pin will be empty; 20 - Grounding wire of controller;

21, 22, 23, 24 - Voltage signal input ends, signal taken from the inlet wire side of the circuit breaker. When the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2; when it is three-phase four-wire system, wire according to the wiring diagram. If there's no optional voltage function, the pin will be empty;

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer is CT-W or ZCT1, this pin will be the input end of the external transformer;

27 - Communication shielding ground wire;

28, 29 - R485 communication interfaces (28 shall be connected to the red wire, while 29 shall be connected to the green wire);

SB1 - Disconnection button (to be prepared by users);

SB2 - Undervoltage disconnection button (to be prepared by users);

SB3 - Closing button (to be prepared by users);

SB4 - Electric energy storage button (to be prepared by users);

J - Relay normally open, remote disconnection circuit breaker (to be prepared by users);

SA - Motor travel switch (to be prepared by users);

XT - Wiring terminal;

I- Four-group conversion (auxiliary contact of the circuit breaker);

II- Six-group conversion (auxiliary contact of the circuit breaker);

M - Energy storage motor;

Fu - Fuse (to be prepared by users);

W - Circuit breaker;

F - Shunt release;

B - Closed electromagnet;

Q - Undervoltage (instantaneous or delayed) release;

30, 31 - Can directly connect the power supply (automatic energy storage beforehand).

Note: 1. The dashed part shall be wired by users;

 If the rated working voltage of Q, F, B, M, controller power supply module is not the same, please connect to the different supply voltage;
 The opening, closing and energy storage indicators shall be prepared by users:

4. Contact capacity DO:DC110V 0.5A, AC250V 5A; contact capacity DI: DC110V~DC130V or DC110V~AC250V

5. The order from 21 to 24 shall not be wrongly wired and connected into the inlet wire side of the power supply. If there's no optional function, the pin will be empty;

6. 45~56 are the auxiliary contacts of four-group conversion; 45~62 are the auxiliary contacts of six-group conversion;

7. Description of DI and DO is shown in the NDW2-1600 Controller Manual;

8. If there's optional ground current or current leakage protection, it shall not be connected to CT-W or ZCT1, but shall be short connected.

 $\Delta$  $\Diamond$  $\nabla$ 



### The following chart shows the input/output interface of controller



D01

12

13

9 10 11

D02

14 15 D03 or DI2

16 17

Programmable input/output contact

D04 or DI1

18 19 27 28 29

> B(-) A(+)

> > Voltage measurement

Connected to the power inlet side

UC

signal input UB

UN UA

21 22 23 24

Communication

interface

M/3M controller

Communication

shielding ground

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity: AC380V, 2A; DC250V, 0.3A;

25 26

3P+N-phase transformer, external CT-W, external ZCT1 transformer signal input

6, 7, 8 and 9, 10, 11 - Two groups of auxiliary state contacts of synchronous action with the circuit breaker (7 and 10) for public ends), contact capacity: AC380V, 1A; DC250V, 0.15A;

12, 13 - Signal contact 1, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

(choose either)

14, 15 - Signal contact 2, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

16, 17 - Signal contact 3, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

18, 19 - Signal contact 4, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

21, 22, 23, 24 - Voltage signal input ends (N, A, B, Crespectively); when the power distribution system is three-phase three-wire system, 21 and 23shall be short connected to U2.

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer is CT-W or ZCT1, this pin will be the input end of the external transformer;

27 - Communication shielding ground wire (3M controller with communication);

28 - Communication interface RS485A (3M controller with communication);

29 - Communication interface RS485B (3M controller with communication).

Note: 1. Contact capacity DO:DC110V 0.5A, AC250V 5A; contact capacity DI:DC110V~DC130V or AC110V~AC250V; 2. The order from 21, 22, 23 to 24 shall not be wrongly wired and connected into the inlet wire side of the power supply. If there's no optional function, the pin will be empty.



# Figure 1: NDW2-1600 Auxiliary Switch Wiring Mode

### NDW2-2000/3200/6300 Electric Circuit Diagram

The following diagram is the full-function circuit diagram



1, 2 - Working power supply;

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity of AC250V/16A;

6, 7, 8—Opening and closing contact outputs (7 for public end), contact capacity of AC250V/16A;

9, 10, 11 - Closing ready electric indicators;

12, 13 and 14, 15 and 16, 17 and 18, 19 -- Four groups of signal outputs; if there's no optional signal unit, the pin will be empty;

20 - Grounding wire of controller;

21, 22, 23, 24 - Voltage signal input ends (N, A, B, Crespectively)

; when the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2. When it is three-phase four-wire system, wire according to the wiring diagram. If there's no optional voltage function, the pin will be empty;

25, 26 - When it is 3P+N, only choose one from the N-phase transformer output end or ZCT1 output end, ZT100 output end or the input end of remote reset function;

- 27 Communication shielding ground wire;
- 28, 29 Communication interfaces, 28 for red (+), and 29 for green (-);

30, 31, 32 - Electric energy storage and energy storage indicators;

- 33, 34 Undervoltage release;
- 35, 36 Shunt release;
- 37, 38 Closed electromagnet;
- 39~62 Connecting terminals of auxiliary switch;
- SB2 Undervoltage button (to be prepared by users);

SB5 - Remote reset button (to be prepared by users);

- SA1 Motor travel switch;
- SA2 Closing ready travel switch;
- SA3 Undervoltage indicating travel switch;
- SA4 Fault tripping travel switch;
- SA5 Opening and closing indicating travel switch;
- XT Secondary terminal;
- F Shunt release;
- B Closed electromagnet;
- Q Undervoltage (instantaneous or delayed) release;
- YF Remote reset;
- T Auxiliary contact of the circuit breaker (see attached figure);
- Fu Fuse (to be prepared by users);
- M Energy storage motor.

#### Note:

1. The current state of the circuit breaker is de-energized, disconnected, connected, no energy stored;

- 2. The dashed part shall be wired by users;
- 3. Power supply When the power supply of Q, F, B, M controllers is not the same, they shall be powered on respectively;
- 4. When the current of the main circuit is less than 0.4In, terminals 1 and 2 must be connected to the auxiliary power supply;
- 5. The schematic diagram is suitable for products with the communication function.

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Air Circuit Breaker

### The following chart shows the input/output interface of controller



Controller Input/Output Interface

12, 13 - Signal contact 1, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

14, 15 - Signal contact 2, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

16, 17 - Signal contact 3, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

18, 19 - Signal contact 4, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

20 - Grounding wire of controller;

21, 22, 23, 24 - Voltage signal input ends; when the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2;

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer is ZT100 or ZCT1, this pin will be the input end of the external transformer; 27 - Communication shielding ground wire. 28, 29 - Communication interfaces, 28 for red (+), and 29 for green (-);

Note: All the signal units are passive signals. Users can choose S1, S2, S3 modes as required.





#### NDW1A-2000/3200/6300 Auxiliary Switch Wiring Mode



### NDW2-4000 Electric Circuit Diagram

#### The following diagram is the full-function circuit diagram



1, 2 - Working power supply;

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity of AC250V/16A;

6, 7, 8—Opening and closing contact outputs (7 for public end), contact capacity of AC250V/16A;

9, 10, 11 - Closing ready electric indicators;

12, 13 and 14, 15 and 16, 17 and 18, 19 - Four groups of signal outputs; if there's no optional signal unit, the pin will be empty;

20 - Grounding wire of controller;

21, 22, 23, 24 - Voltage signal input ends ( N, A, B, C respectively); when the power distribution system is three-phase three-wire system, 21 and 23shall be short connected to U2. When it is three-phase four-wire system, wire according to the wiring diagram. If there's no optional voltage function, the pin will be empty;

25, 26 - When it is 3P+N, only choose one from the N-phase transformer output end or ZCT1 output end, ZT100 output end or the input end of remote reset function;

27 - Communication shielding ground wire;

28, 29 - Communication interfaces, 28 for red (+), and 29 for green (-);

30, 31, 32 - Electric energy storage and energy storage indicators;

33, 34 - Undervoltage release;

- 35, 36 Shunt release;
- 37, 38 Closed electromagnet;

39~62 - Connecting terminals of auxiliary switch;

- SB2 Undervoltage button (to be prepared by users);
- SB5 Remote reset button (to be prepared by users);
- SA1 Motor travel switch;
- SA2 Closing ready travel switch;
- SA3 Undervoltage indicating travel switch;
- SA4 Fault tripping travel switch;
- SA5 Opening and closing indicating travel switch;
- XT Secondary terminal;
- F Shunt release;
- B Closed electromagnet;
- Q Undervoltage (instantaneous or delayed) release;
- YF Remote reset;
- T Auxiliary contact of the circuit breaker (see attached figure);
- Fu Fuse (to be prepared by users);
- M Energy storage motor.

#### Note:

1. The current state of the circuit breaker is de-energized, disconnected, connected, no energy stored;

- 2. The dashed part shall be wired by users;
- 3. Power supply When the power supply of Q, F, B, M controllers is not the same, they shall be powered on respectively;
- When the current of the main circuit is less than 0.4ln, terminals 1 and 2 must be connected to the auxiliary power supply.

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Air Circuit Breaker





12, 13 - Signal contact 1, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

14, 15 - Signal contact 2, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

16, 17 - Signal contact 3, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

18, 19 - Signal contact 4, contact capacity: AC250V/5A; DC110V/0.5A, optional function;

21, 22, 23, 24 - Voltage signal input ends; when the power distribution system is three-phase three-wire system, 21 and 23 shall be short connected to U2.

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer is ZT100 or ZCT1, this pin will be the input end of the external transformer; 27 - Communication shielding ground wire; 28, 29 - Communication interfaces, 28 for red (+), and 29 for green (-);

39, 40 - Remote reset of controller.

Note: All the signal units are passive signals. Users can choose S1, S2, S3 modes as required.



#### The following is the simple circuit diagram

NDW2-4000 Auxiliary Switch Wiring Mode





### Wiring diagram of the power automatic switching device (ATS)

QN - Frequently-used power supply universal low-voltage circuit breaker

- QR Standby power supply universal low-voltage circuit breaker
- XT Secondary wiring terminal
- M Energy storage motor
- SA Motor travel switch
- F Shunt release
- B Closed electromagnet
- Q Undervoltage release.

Note: 1. The dashed part shall be wired by users;

- 2. The rated voltage of controller, F, B, M shall be selected as AC230V;
- 3. For electrical accessories, Q (undervoltage release) cannot be selected;
- 4. For other wiring modes, see the electric wiring diagram example of the circuit breaker.

### NDW3 Series Air Circuit Breaker

Introduction of Structure and Indications



- 1. Reset button
- 2. Specification sign
- 3. Off-position key lock (optional function)
- 4. Nader sign
- 5. Disconnection button
- 6. Closing button
- 7. Counter (optional function)
- 8. Energy releasing and storing indicator
- 9. Closing ready "OK" indicator (optional function)
- 10. Opening and closing indicator
- 11. Nameplate
- 12. "Connection", "Test", "Separation"
- Position locking and unlocking device
- 13. Rocker operating position
- 14. "Connection", "Test", "Separation"
- position indicator
- 15. Rocker and its storage position

Note: 1~11 is fixed type, while 1~15 is drawout type

#### Drawout Type Circuit Breaker Structure

Drawout type circuit breaker is composed of the circuit breaker body and the drawer seat. The drawer seat has din rails on both sides. There's a movable din plate on the din rail. The circuit breaker is placed on the left and right din plates. The drawout type circuit breaker connects to the main circuit by connecting the busbar on the circuit breaker body with the bridge contact of the drawer seat.



Three operating positions of the drawout type circuit breaker "Connection" position - The main circuit and wiring terminal are connected. "Test" position - The main circuit is disconnected with the wiring terminal connected for test operation. "Separation" position - The main circuit and wiring terminal are disconnected with the circuit breaker body removed from this position. The drawout type circuit breaker has an interlocking device. The breaker can only be closed in the connection and test position, but can't be closed in other positions or during movement.



#### ND W 3-4000 S 800/C 4 KM D1 F1 B1 Q10 A4 Optional accessories M: Door frame F: Dust cover TH, etc.: Product usage type (Not marked-Conventional FD-Wind power, plateau TH-Thermal and humidity ATS-R/S/F Power automatic switching device products, kV-AC1000V, DL-Power) Contact combination: See Note b Undervoltage release: Q: Voltage 1-AC380/400V 2-AC220/230V 3-DC220V 4-DC110V Delay time: 0-Instantaneous 1-Delay 1s 2-Delay 3s 5-Delay 5s Closed electromagnet: B1: AC380/400V B2: AC220/230V B3: DC220V B4: DC110V Shunt release: F1: AC380/400V F2: AC220/230V F3: DC220V F4: DC110V Electric energy storage 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 (3P+N products are included with the external N-phase transformer) Installation structure: Not marked-Fixed type C-Drawout type Rated current: See the parameter table Breaking type: S-Conventional breaking H-High breaking Frame size: 4000A Design code: 3 Product code: Air circuit breaker Enterprise code: Nader

Note a:

KM (NWK21), KY (NWK22) controllers (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)

Note b:

Auxiliary contact combination: Not marked-Four-group conversion, A6-Six-group conversion, A44-Four normally opened and four normally closed

# Main Performance Parameters of NDW3 Series

Circuit breaker	model	NDW3-4	1000					
Rated current In (A) 40 C		800, 1000, 1250, 1600, 20	000, 2500, 3200, 4000					
N pole rated current		100%	In					
Rated working voltage Ue (V)		AC220/230, AC380/400/415	AC220/230, AC380/400/415, AC660/AC690, AC1000					
Rated frequency f (Hz)		50 /60						
Rated insulation voltage Ui (V)		1000	)					
Rated impulse withstand voltag	ge Uimp (kV)	12						
Number of poles		3, 4						
Full break time (AC690V) (ms)		< 30						
Closing time (ms)		<70	)					
Short-circuit breaking capacity	level	S (conventional breaking)	H(high breaking)					
	AC220V/AC230V AC380V/AC400V	85	100					
Rated ultimate short-circuit breaking capacity lcu (effective value) (kA)	AC415V AC660V/AC690V	75	85					
	AC1000V	50	/					
	AC220V/AC230V AC380V/AC400V	85	100					
Rated service short-circuit breaking capacity lcs (effective value) (kA)	AC415V AC660V/AC690V	75	85					
	AC1000V	50	/					
	AC220V/AC230V AC380V/AC400V	187	220					
Rated short-circuit making capacity Icm (peak value) (kA)	AC415V AC660V/AC690V	165	187					
	AC1000V	110	/					

Circ	uit breaker m	odel		NDW3-	4000					
		AC220V/AC230V AC380V/AC400V	85			100				
Rated short-time wi current Icw (effectiv 1s (kA)	thstand e value)	AC415V AC660V/AC690V	75		85					
		AC1000V	50		/					
		AC220V/AC230V AC380V/AC400V	10000 (800A~1600A)	10000 (800A~1600A) 8000 (2000		6000 (3200A, 4000A)				
Operating	Electrical life	AC415V AC660V/AC690V	10000 (800A~1600A)	6000 (200	00A, 2500A)	3000 (3200A, 4000A)				
(number of times)		AC1000V	2000 (800A~1600A)	1000 (200	00A, 2500A)	500 (3200A, 4000A)				
	Mechanical	Maintenance-free	10000							
		With maintenance		1500	00					
Installation type			Fixed t	ype, drawout type	2					
Wiring method of the main circuit		Horizontal wiring, vertical wiring, extended horizontal wiring, extended vertical wiring								
Outline dimension:	W×D×H (mm)	Fixed type 3P	422×339×394							
	$\uparrow$	Fixed type 4P	537×339×394							
		Drawout type 3P		435×4	50×432					
W		Drawout type 4P		550×4	50×432					
		Fixed type 3P	59 (800A~2500A)		60	(3200A, 4000A)				
		Fixed type 4P	70 (800A~2500A)		71.5 (3200A, 4000A)					
Weight (k	g)	Drawout type 3P	97 (800A~2500A)		103 (3200A, 4000A)					
		Drawout type 4P	114 (800A~2500A)		120 (3200A, 4000A)					

## Controller Functions of NDW3 Series Intelligent Universal Circuit Breaker

#### Controller

Controller is one of the main components of the circuit breaker, which can provide the function of protecting the overload, short circuit, grounding, current imbalance, overvoltage, undervoltage, voltage imbalance, overfrequency, underfrequency, reverse power and other failures, thus realizing the reasonable operation of the power grid through the load monitoring, demand protection, regional interlocking and other functions. Controller has the function of measuring the current, voltage, power, frequency, electric energy, demand, harmonic and other power grid parameters; and the function of recording the fault, alarm, operation, historical maximum current, contact wear as well as other operation and maintenance parameters; when the power network is carrying on communication network, the controller can realize the remote sensing, remote communication, remote control and remote regulating at the remote terminal of the electric power automation network.

#### Controller Types



# **Controller Functions**

	<b>Functional items</b>	NWK21	NWK21/V	NWK22	NWK22/V	NWK22/P
Display	Overload long-time delay protection	$\checkmark$	$\checkmark$	_	_	_
interface	Overload thermal memory (30min)		_	$\checkmark$	$\checkmark$	$\checkmark$
	Overload long-time delay protection	NWK21         NWK21/V         NWK22/V         NWK22/V         NWK22/V $\checkmark$ $\checkmark$ $$ $$ $$ $\neg$ $\neg$ $\checkmark$	$\checkmark$			
	Overload thermal memory (30min)	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Overload pre-alarm	<b>A</b>	<b></b>		<b></b>	
Functional items           Display interface         Overload long-time delay protection           Overload thermal memory (30min)         Overload thermal memory (30min)           Overload thermal memory (30min)         Overload thermal memory (30min)           Overload pre-alarm         Overload pre-alarm           Short circuit short-time delay protection         Short circuit instantaneous protection           Ground protection (differential type)         Grounding alarm           Neutral line protection (4P, 3P+N)         Current unbalance protection           McR         Load monitoring           Undervoltage, overvoltage protection         Voltage unbalance protection           Vhase sequence protection         Phase sequence protection           Phase sequence protection         Required value protection (current)           Reverse power protection         Voltage (phase voltage, circuit voltage, voltage, incluit voltage, voltage unbalance rate)           Voltage (unbalance protection         Phase sequence detection           Phase sequence detection         Phase sequence detection           Phase sequence detection         Frequency measurement (phase pole, N-pole, grounding)           Voltage (phase voltage, circuit voltage, voltage, voltage, inbalance rate)         Phase sequence detection           Frequency measurement (current)         Required value measurement (current)	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
	Short circuit instantaneous protection	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Ground protection (differential type)	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Grounding alarm		<b></b>	<b></b>	<b></b>	
	Neutral line protection (4P, 3P+N)	$\checkmark$	√	$\checkmark$	$\checkmark$	$\checkmark$
Protection	Current unbalance protection	$\checkmark$	√	$\checkmark$	$\checkmark$	$\checkmark$
functions	MCR	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Load monitoring	<b>A</b>	<b></b>	$\checkmark$	$\checkmark$	$\checkmark$
	Undervoltage, overvoltage protection	_	_	_	$\checkmark$	$\checkmark$
-	Voltage unbalance protection	_	_	_	$\checkmark$	$\checkmark$
	Phase sequence protection	_	_	_	$\checkmark$	$\checkmark$
	Underfrequency, overfrequency protection	_	_	_	$\checkmark$	$\checkmark$
	Required value protection (current)	_	_	_	$\checkmark$	$\checkmark$
	Reverse power protection	_	_	_	_	$\checkmark$
	Regional selective interlocking	_	_	<b></b>	<b></b>	
	Current measurement (phase pole, N-pole, grounding)	$\checkmark$	- $$			
Protection functions         Short-time delay thermal memory           Protection functions         Ground protection (differential type)           Grounding alarm         Neutral line protection (4P, 3P+N)           Current unbalance protection         MCR           Load monitoring         Undervoltage, overvoltage protection           Voltage unbalance protection         Voltage unbalance protection           Voltage unbalance protection         Underfrequency, overfrequency protection           Required value protection (current)         Required value protection (current)           Regional selective interlocking         Current measurement (phase pole, N-poi grounding)           Voltage (phase voltage, circuit voltage, voltage unbalance rate)         Phase sequence detection           Phase sequence detection         Frequency measurement (phase pole, N-poi grounding)           Voltage (phase voltage, circuit voltage, voltage unbalance rate)         Phase sequence detection           Phase sequence detection         Frequency measurement (power)           Phase sequence detection         Phase sequence detection           Prequired value measurement (power)         Power measurement (active power, reactive electric energy measurement (active power, reactive electric energy measurement (active electric energy, apparent power)	Voltage (phase voltage, circuit voltage, voltage unbalance rate)		√	_	$\checkmark$	$\checkmark$
	Phase sequence detection	_	_	_	$\checkmark$	$\checkmark$
	Frequency measurement	_	_	_	$\checkmark$	$\checkmark$
Measuring	Required value measurement (current)	_	_	_	$\checkmark$	$\checkmark$
function	Required value measurement (power)	_	_	_	_	$\checkmark$
	Power measurement (active power, reactive power, apparent power)		_	_		$\checkmark$
	Power factor measurement	_	_	_	_	$\checkmark$
	Electric energy measurement (active electric energy, reactive electric energy, apparent electric energy)	_	_	_	_	$\checkmark$
Protection functions	Harmonics measurement	_	_	_	_	$\checkmark$

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	Functional items	NWK21	NWK21/V	NWK22	NWK22/V	NWK22/P
	LED fault status indication	$\checkmark$	$\checkmark$			$\checkmark$
	Fault record (8 times) and query	$\checkmark$	NWK21         NWK21/V         NWK22         NWK22/V         NWK22/V $\checkmark$ $\neg$ $\neg$ $\checkmark$ $\checkmark$ $\checkmark$ $\neg$ $\neg$ $\checkmark$ $\checkmark$ $\checkmark$ $\neg$ $\neg$ $\checkmark$ <	$\checkmark$		
	Historic peak current record	_		$\checkmark$		
	Alarm history query—— $$ Fault tripping signal output $$ $$ $$		$\checkmark$			
-	Fault tripping signal output	$\checkmark$	$\checkmark$			$\checkmark$
function	Self-diagnostic function	$\checkmark$	$\checkmark$			√
	Simulating tripping test function	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Contact wear equivalent (alarm) % query			$\checkmark$	$\checkmark$	$\checkmark$
	Query of number of operations			$\checkmark$		$\checkmark$
	Clock function	_	_			$\checkmark$
	DC controllers (DC220V, DC110V)				<b>A</b>	
Other	Remote reset of controller					
	Signal unit					
	Communication					

Note: "\/" represents this function is available, " A" represents optional functions for users, and "--" represents this function is not available

• Working power supply of controller

Working power supply of controller is an important link enabling the entire controller to work long hours, its voltage specification is respectively AC220V/AC230V, AC380V/AC400V, DC110V, DC220V, AC24/DC24V, frequency 50Hz/60Hz, allowable error is ±15%. Rated power consumption of the controller is less than 7W.

The controller's electric shock capacity (DO) contact capacity: AC250V 3A resistance

DC110V 0.3A resistance

• Ground protection (differential type)

Ground protection is suitable for the fault caused by damage of equipment insulation, and is commonly used in neutral-point directly grounded system. Its way of protection is four phase or three phase current vector and the differential type T protection. For the differential type ground fault of the NWK22 type controller, regional interlocking can be realized.

Differential type grounding or neutral wire (T): it is divided into 3PT, 4PT, (3P+N)T according to the number of poles of the circuit breaker.



# Accessory Selection Table of NDW3 Series Intelligent Universal Circuit Breaker











Power supply module ST-IV

Secondary terminal

Auxiliary switch



Phase partition

Electronic release



Relay module

Off-position lock



Counter







Undervoltage release





Closed/Shunt excitation coil

Mechanical interlocking

Electric operating mechanism

Accessory name	For what kind of circuit breakers	Supply mode
Controller power supply module	Fixed type/drawout type	Optional ordering for customers
Relay module	Fixed type/drawout type	Optional ordering for customers, to be used with ST-IV
Off-position key lock	Fixed type/drawout type	Optional ordering for customers
Door interlock	Drawout type	Optional ordering for customers
Circuit breaker triolocation locking device	Drawout type	Standard configuration
Auxiliary switch	Fixed type/drawout type	Standard configuration
Closed electromagnet	Fixed type/drawout type	Standard configuration
Shunt release	Fixed type/drawout type	Standard configuration
Motor operating mechanism	Fixed type/drawout type	Standard configuration
Phase partition	Fixed type/drawout type	Standard configuration
Closing ready signal output device	Fixed type/drawout type	Optional ordering for customers
Undervoltage release	Fixed type/drawout type	Optional ordering for customers
Counter	Fixed type/drawout type	Optional ordering for customers
Door frame	Fixed type/drawout type	Optional ordering for customers
Dust cover	Fixed type/drawout type	Optional ordering for customers
Mechanical interlocking	Fixed type/drawout type	Optional ordering for customers
Power automatic switching device	Fixed type/drawout type	Optional ordering for customers

### Electric Circuit Diagram of NDW3 Series Intelligent Universal Circuit Breaker

#### NDW3-4000 Electric Circuit Diagram

The following diagram is the full-function circuit diagram







1, 2 - Working power supply, users wiring (1 for the anode);

3, 4, 5 - Fault tripping contact outputs (4 for public end), contact capacity of AC250V/16A;

6, 7, 8 - Opening and closing contact outputs (7 for public end), contact capacity of AC250V/16A;

9, 10, 11 - Closing ready electric indicators;

12, 13 and 14, 15 and 16, 17 and 18, 19 - four groups of signal outputs; if there's no optional signal unit, the pin will be empty; 20 - Grounding wire of controller;

21, 22, 23, 24 - Voltage signal input ends, signal taken from the inlet wire side of the circuit breaker. When the power distribution system is three-phase three-wire system, 21, 23 shall be short connected to U2; when it is three-phase four-wire system, wire according to the wiring diagram. If there's no optional voltage function, the pin will be empty;

25, 26 - Inputs used for external transformer if there's an external transformer. When the grounding protection mode is 3P+N differential type, this pin will be the output end of the external N-phase transformer; when the external transformer is CT-W or ZCT1, this pin will be the input end of the external transformer;

27 - Communication shielding ground wire;

28, 29 - R485 communication interfaces (28 shall be connected to the red wire, while 29 shall be connected to the green wire).

30, 31, 32 - Electric energy storage and energy storage indicators; it will be manual energy storage if SB4 button is connected; and it

will be pre-energy storage if SB4 button isn't connected;

33, 34 - Undervoltage release;35, 36 - Shunt release;

37, 38 - Closed electromagnet;

39, 40 - Remote reset of controller; 41~44 - user-defined;

45~62 - If the four-opened four-closed auxiliary switch is adopted, 61, 62 are user-defined; if the four-group conversion auxiliary switch is adopted, 56~62 are user-defined; adopt the six-group conversion auxiliary switch;

SA1 - Motor travel switch;

SA2 - Closing ready travel switch;

SA4 - Fault tripping travel switch;

SA5 - Opening and closing indicating travel switch;

SB2 - Undervoltage button (to be prepared by users);

SB5 - Remote reset button (to be prepared by users);

F - Shunt release;

B - Closed electromagnet;

Q - Undervoltage (instantaneous or delayed) release;

YF - Remote reset;

M - Energy storage motor.

Note:

1. The current state of the circuit breaker is de-energized, disconnected, connected, no energy stored.

2. The dashed part shall be wired by users.

3. Power supply - when Q, F, B, M, controllers power supply is not the same, they shall be powered on respectively.

#### The following is the simple circuit diagram



Air Circuit Breaker



### NDW3-4000 Auxiliary Switch Wiring Mode

### Wiring Diagram of NDW3-4000 Power Automatic Switching Device



Note: 1. The dashed part shall be wired by users; 2. Controller, F, B, M rated voltage shall be AC230V; 3 For electrical accessories, Q (undervoltage release) cannot be selected:

be selected; 4. For other wiring modes, see the circuit breaker sample electric wiring diagram.

QN - Frequently-used power supply universal low-voltage circuit breaker QR - Standby power supply universal low-voltage circuit breaker XT - Secondary wiring terminal M - Energy storage motor

SA - Motor travel switch F - Shunt release B - Closed electromagnet Q - Undervoltage release

# Part 3 Moulde Case Circuit Breaker (MCCB)

# Quick Selection Table of NDM2 Series Moulded Case Circuit Breaker



#### ND M 2 X-255 L P/4 3 18 2 A P 225A



Note a. The neutral line (N-pole) type of the 4P product is divided into three types:

Type A: The N-pole isn't installed with an overcurrent release, but always connected.

Type B: The N-pole isn't installed with an overcurrent release, but on-off with the other three poles.

Type C: The N-pole is installed with a current release, and on-off with the other poles.

Note b. Wiring type code:

No code: Conventional

P: Extended busbar

JK type: Inlet wire end wiring: Connection frame, outlet wire end wiring: Front-plate connection CK type: Inlet wire end wiring: Front-plate connection, outlet wire end wiring: Connection frame K type: Inlet/outlet wire end wiring: Connection frame

Z1: Rear-plate connection
Z2Q: Plug-in front-plate connection
Z2H: Plug-in rear-plate connection
Z3Q: Integrated plug-in front-plate connection
Z3H: Integrated plug-in rear-plate connection

### Main Performance Parameters of NDM2 Series Moulded Case Circuit Breaker

Мос	del		NDM2-	63		I	NDM2-10	D		NDM2-125				
Frame size Inm (A	N)		63				100					125		
Rated current In (	A)	10, 12.5	, 16, 20, 25,	32, 40, 50, 63	1	6, 20, 25,	32, 40, 50,	63, 80, 10	0	16, 20, 25, 32, 40, 50, 63, 80, 100,				125
Rated insulation	voltage Ui (V)		1000		1000					1000				
Rated impulse wi voltage Uimp (V)	thstand		8000				8000					8000		
Power frequency voltage U (1min)	withstand (V)		3000				3000					3000		
Utilization catego	ory		А				А			А				
Number of poles		3	3	4	3	3	3	3	4	3	3	3	3	4
Rated ultimate sh breaking capacity	ort-circuit / level	L	М		С	L	М	Н		C L M H			Н	
Rated ultimate short-circuit	AC 400V	25	50	50	25	35	50	85	50	25	35	50	85	50
breaking capacity Icu (kA)	AC 690V						10					10		
Rated service short-circuit	AC 400V	19	38	38	19	26	38	64	38	19	26	38	64	38
breaking capacity Ics (kA)	AC 690V						8					8		
Operating	Electrical life		8000		8000							8000		
(times)	Mechanical life		20000	)	20000							20000		
Outline	L	135	135	135	150	150	150	150	150	150	150	150	150	150
dimension (mm)	W	78	78	103	92	92	92	92	122	92	92	92	92	122
	н	73.5	81.5	81.5	69	69	87	87	87	69	69	87	87	87
Flashover distance (mm) ≤50 ≤50		≤50												
Wiring mode		Conven	tional, P, Z	21, Z2Q, Z2H	Co Z2	onvention 2H, Z3Q, Z	al, P, JK, C 3H	K, K, Z1, Z	2Q,		Conventi Z2H, Z3Q	onal, P, JK, , Z3H	. CK, K, Z1,	Z2Q,

Мос	lel	NDM2X-125			NDM2-22	5				NDM2-25	0		
Frame size Inm (A	.)	125			225					250			
Rated current In (	A)	16, 20, 25, 32, 40, 50, 63, 80, 100, 125		100, 125, 1	40, 160, 1	80, 200, 2	25	1	25, 140, 1	40, 160, 180, 200, 225, 250			
Rated insulation	voltage Ui (V)	1000			1000					1000			
Rated impulse wi voltage Uimp (V)	thstand	8000			8000					8000			
Power frequency voltage U (1min)	withstand (V)	3000			3000					3000			
Utilization catego	ory	А			А					A			
Number of poles		2	3	3	3	3	4	3	3	3	3	4	
Rated ultimate short-circuit breaking capacity level			с	L	м	Н		С	L	М	н		
Rated ultimate short-circuit	AC 400V	35	25	35	50	85	50	25	35	50	85	50	
breaking capacity Icu (kA)	AC 690V				10								
Rated service short-circuit	AC 400V	26	19	26	38	64	38	19	26	38	64	38	
capacity lcs (kA)	AC 690V				8								
Operating	Electrical life	8000			8000	·		8000					
(times)	Mechanical life	20000			20000			20000					
Outline dimension (mm)	L	150	165	165	165	165	165	165	165	165	165	165	
	W	64	107	107	107	107	142	107	107	107	107	142	
	Н	69	86	86	103	103	103	86	86	103	103	103	
Flashover distanc	e (mm)	≤50			≤50					≤50			
Wiring mode		Conventional, P, JK, CK, K	Cc Z2	nvention H, Z3Q, Z	al, P, JK, Cl 3H	<, K, Z1, Z2	2Q,	Z	Conventio 22H, Z3Q, 2	nal, P, JK, ( Z3H	CK, K, Z1, Z	22Q,	

Model		NDM2-400				NDM2-630					NDM2-800				
Frame size Inm (A	)			400					630				800		
Rated current In (	A)		225, 2	50, 315, 3	50, 400		400, 500, 630					630, 700, 800			
Rated insulation v	voltage Ui (V)			1000					1000			1000			
Rated impulse wit voltage Uimp (V)	thstand			8000					8000				8000		
Power frequency voltage U (1min)	withstand (V)			3000					3000				3000		
Utilization catego	ry			A					А				A		
Number of poles		3	3	3	3	4	3 3 3 4			4	3	3	4		
Rated ultimate sh breaking capacity	short-circuit C L M H C				С	L	м	Н		М	Н				
Rated ultimate short-circuit	AC 415V	35	50	65	100	65	35	50	65	100	65	75	100	75	
short-circuit breaking capacity lcu (kA)	AC 690V			15					15			20			
Rated service short-circuit	AC 415V	26	38	49	75	49	26	38	49	75	49	56	56	75	
breaking capacity lcs (kA)	AC 690V			11					11			15			
Operating performance	Electrical life		1	7500	1	1	7500				1		7500	<u> </u>	
(times)	Mechanical life			10000					10000				10000		
Outline dimension (mm)	L	257	257	257	257	257	270	270	270	270	270	280	280	280	
	W	150	150	150	150	198	182	182	182	182	240	210	210	280	
	н	106.5	106.5	106.5	106.5	106.5	110	110	110	110	110	115.5	115.5	115.5	
Flashover distanc	hover distance (mm) ≤100 ≤100			≤100											
Wiring mode		Conv	entional, F	P, Z1, Z2Q	, Z2H, Z3C	), Z3H	Conv	ventional,	P, Z1, Z2C	), Z2H, Z3(	Q, Z3H	Conv Z2H,	Conventional, P, Z1, Z2Q, Z2H, Z3Q, Z3H		

## Accessory Selection Table of NDM2 Series Moulded Case Circuit Breaker

Comparison Table of Accessory Code

	Installation Model position Hungeroc	NDM2-63		NDM2-100		NDM2-125		NDM2-125		NDM2-225		
Accessory code	Accessory name	3	4	3	4	3	4	2		3	4	
00	None											
10	Shunt release											
20	Dual-auxiliary contact											
21	Single auxiliary contact											
30	Undervoltage release	0		0		0		[			0	
40	Shunt release Dual-auxiliary contact											
41	Shunt release Single auxiliary contact											
50	Shunt release Undervoltage release					• 0				•		
60	Two sets of dual-auxiliary contacts											
61	Two sets of single auxiliary contacts								[			
62	Dual-auxiliary contact Single auxiliary contact											
70	Undervoltage release Dual-auxiliary contact											
71	UUndervoltage release Single auxiliary contact											
08	Alarm contact											
18	Shunt release Alarm contact											
28	Dual-auxiliary contact Alarm contact											
38	UndervoltageUndervoltage release Alarm contact											
48	Shunt release Auxiliary alarm contact											
58	Auxiliary alarm contact											
68	Dual-auxiliary contact Auxiliary alarm contact											
78	UndervoltageUndervoltage release Auxiliary alarm contact											



#### Legend:

Single auxiliary contact

Dual-auxiliary contact

Alarm contact

Shunt release

O Undervoltage release

Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

	Installation position Munder Munder or	NDM2-250		NDM2-400		NDM2-630		NDM2-800		
Accessory code	Accessory name	3	4	3	4	3	4	3	4	
00	None									
10	Shunt release									
20	Dual-auxiliary contact									
21	Single auxiliary contact									
30	Undervoltage release	0		0		0		0		
40	Shunt release Dual-auxiliary contact							•		
41	Shunt release Single auxiliary contact									
50	Shunt release Undervoltage release									
60	Two sets of dual-auxiliary contacts									
61	Two sets of single auxiliary contacts									
62	Dual-auxiliary contact Single auxiliary contact									
70	Undervoltage release Dual-auxiliary contact									
71	UUndervoltage release Single auxiliary contact									
08	Alarm contact									
18	Shunt release Alarm contact									
28	Dual-auxiliary contact Alarm contact									
38	UndervoltageUndervoltage release Alarm contact									
48	Shunt release Auxiliary alarm contact									
58	Auxiliary alarm contact									
68	Dual-auxiliary contact Auxiliary alarm contact									
78	UndervoltageUndervoltage release Auxiliary alarm contact		0		0		0			







Single auxiliary contact

Dual-auxiliary contact

Alarm contact

Shunt release

O Undervoltage release

Auxiliary alarm contact (a single accessory

integrates the auxiliary and alarm functions)

### Quick Selection Table of NDM2E Series Moulded Case Circuit Breaker

3

Molded Case Circu Breaker (MCCB)


# Main Performance Parameters of NDM2E Series Moulded Case Circuit Breaker

М	odel	NDM2E-100	NDM2E-250	NDM2E-400	NDM2E-630	NDM2E-800
Frame size Inm (/	A)	100	250	400	630	800
Rated current In	(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 insulation	voltage Ui (V)	800	800	800	800	800
Rated impulse withstand voltage Uimp (V)		8000	8000	8000 8000		8000
Power frequency withstand voltage U (1min) (V)		3000	3000	3000	3000	3000
Utilization category		А	А	В	В	В
Short time withs current Icw (kA/1	tand Is)	1	2.5	5	8	10
Number of poles		3	3	3	3	3
Rated ultimate short-circuit breaking capacity level		Н	Н	Н	Н	Н
Rated ultimate short-circuit breaking capacity Icu (kA)	AC 400V	85	85	100	100	100
Rated service short-circuit breaking capacity Ics (kA)	AC 400V	50	50	65	65	65
Operating	Electrical life	8000	8000	7500	7500	7500
(times)	Mechanical life	20000	20000	20000	20000	20000
Outline dimension (mm)	L	150	165	257	280	280
	W	92	107	150	210	210
<u>+ + +</u> <u>+ ₩</u> + H +	Н	92	90	106.5	123.5	123.5
Flashover distan	ce (mm)	≤50	≤50	≤100	≤100	≤100
Wiring mode		Conventional, P, Z1, Z2Q, Z2H, Z3Q, Z3H	Conventional, P, Z1, Z2Q, Z2H, Z3Q, Z3H			

	Installation Model position Number of	NDM2E-100	NDM2E-250	NDM2E-400	NDM2E-630	NDM2E-800
Accessory code	Accessory name	3	3	3	3	3
300	None					
310	Shunt release					
320	Dual-auxiliary contact					
321	Single auxiliary contact					
330	Undervoltage release	0	0	0	0	0
340	Shunt release Dual-auxiliary contact					
341	Shunt release Single auxiliary contact					
350	Shunt release Undervoltage release				$\circ$ $\bullet$	
360	Two sets of dual-auxiliary contacts361					
361	Two sets of single auxiliary contacts					
362	Dual-auxiliary contact Single auxiliary contact					
370	Undervoltage release Dual-auxiliary contact					
371	Undervoltage release Single auxiliary contact	$\circ$	$\circ$	$\circ$	$\circ$	
308	Alarm contact328					
318	Shunt release Alarm contact					
328	Dual-auxiliary contact Alarm contact					
338	Undervoltage release Alarm contact		$\bigcirc \square$	$\bigcirc \square$		
348	Shunt release Auxiliary alarm contact					
358	Auxiliary alarm contact					
368	Dual-auxiliary contact Auxiliary alarm contact					
378	Undervoltage release Auxiliary alarm contact					

### Accessory Selection Table of NDM2E Series Moulded Case Circuit Breaker

Note: The first number "3" of the release accessory code represents the intelligent controller with the three-section protection while the last two numbers represent the inner accessory code.



#### Legend:

Single auxiliary contact

Dual-auxiliary contact

- Alarm contact
- Shunt release
- Undervoltage release

Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

### ND M 2 Z-250 P/3 3 18 P 225A Rated current Cabling type: No code: Conventional P: Extended busbar JK type: Inlet wire end wiring: Connection frame, outlet wire end wiring: Front-plate connection CK type: Inlet wire end wiring: Front-plate connection, outlet wire end wiring: Connection frame K type: Inlet/outlet wire end wiring: Connection frame Z1: Rear-plate connection Z2Q: Plug-in front-plate connection Z2H: Plug-in rear-plate connection Accessory code: See the accessory table Release code: 0-Release (none) 2-Instantaneous release only 3-Complex release Number of poles: 3-3P 4-4P Operation mode: No code: Direct handle-operated mode P: Motor-operated Z: Rotation handle Frame size: 63, 125, 250, 400, 630 Z: DC Moulded case ZX: Small housing Moulded case (only 125) Design code: 2 Product code: Moulded case circuit breaker Enterprise code: Nader Electrical

#### Quick Selection Table of NDM2Z Series Moulded Case Circuit Breaker

### Main Performance Parameters of NDM2Z Series Moulded Case Circuit Breaker

Mo	del	NDM2Z-63	NDM2Z-125	NDM2ZX-125		
Frame size Inm (A)		63	125	125		
Rated current In (A	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		
Rated insulation v	oltage Ui (V)	1000	1000	1000		
Rated impulse wit Uimp (V)	hstand voltage	8000	8000	8000		
Power frequency withstand voltage U (1min) (V)		3500	3500	3500		
Utilization category		А	А	А		
Number of poles		2, 3	2, 3	2		
Rated working voltage Ue DC (V)		250	250	250		
Rated ultimate sho breaking capacity	ort-circuit Icu (kA)	25	35	35		
Rated service shor breaking capacity	t-circuit Ics (kA)	25	35	35		
Operating	Electrical life	2000	1500	1500		
(times)	Mechanical life	10000	8500	8500		
Outline dimension (mm)	L	135	150	150		
	W	78	92	64		
	Н	73.5	69	69		
Flashover distance	e (mm)	≤50	≤50	≤50		
Wiring mode		Conventional, P, Z1, Z2Q, Z2H	Conventional, P, JK, CK, K, Z1, Z2Q, Z2H	Conventional, P, JK, CK, K		

Мос	lel	NDM2Z-250	NDM2Z-400	NDM2Z-630		
Frame size Inm	(A)	250	400	630		
Rated current In	(A)	125, 140, 160, 180, 200, 225, 250	225, 250, 315, 350, 400	400, 500, 630		
Rated insulation	voltage Ui (V)	1000	1000	1000		
Rated impulse withstand voltage Uimp (V)		8000	8000	8000		
Power frequency withstand voltage U (1min) (V)		3500	3500	3500		
Utilization cate <u>c</u>	jory	A	A	A		
Number of pole	S	2, 3	2, 3	2, 3		
Rated working voltage Ue DC (V)		250	250	250		
Rated ultimate s breaking capaci	short-circuit ty Icu (kA)	35	50	50		
Rated service sh breaking capaci	ort-circuit ty Ics (kA)	35	50	50		
Operating	Electrical life	1500	1000	1000		
(times)	Mechanical life	8500	4000	4000		
Outline dimension	L	165	257	270		
(mm)	W	107	150	182		
	Н	86	106.5	110		
Flashover distar	nce (mm)	≤50	≤100	≤100		
Wiring mode		Conventional, P, JK, CK, K, Z1, Z2Q, Z2H	Conventional, P, Z1, Z2Q, Z2H	Conventional, P, Z1, Z2Q, Z2H		

Installation Model position Nutrient		NDM2Z-63		NDM2Z-125		NDM2ZX	-125	NDM2Z-250		NDM2Z-400		NDM2Z-630	
	Striber or												
Accessory code	Accessory name	2	3	2	3	2		2	3	2	3	2	3
00	None	_	_	_			-	_			_	_	_
10	Shunt release320	•								•		•	
20	Dual-auxiliary contact												
21	Single auxiliary contact												
30	Undervoltage release		0		0		-		0		0		0
40	Shunt release Dual-auxiliary contact		•	•			-					•	
41	Shunt release Single auxiliary contact	•		•			-	•		•		•	
50	Shunt release Undervoltage release	•	0	•	0		-	•	0	•	0	•	0
60	Two sets of dual-auxiliary contacts		_				-						
61	Two sets of single auxiliary contacts						-						
62	Dual-auxiliary contact Single auxiliary contact						-						
70	Undervoltage release Dual-auxiliary contact		0		0		-		0		0		0
71	Undervoltage release Single auxiliary contact		0		0		-		0		0		0
08	Alarm contact												
18	Shunt release Alarm contact				•		-				•		
28	Dual-auxiliary contact Alarm contact						-						
38	Undervoltage release Alarm contact		_		0		-		0		0		0
48	Shunt release Auxiliary alarm contact		•		•		-		•		•		•
58	Auxiliary alarm contact												
68	Dual-auxiliary contact Auxiliary alarm contact						-						
78	Undervoltage release Auxiliary alarm contact		_		0		-		0		0		0

# Accessory Selection Table of NDM2Z Series Moulded Case Circuit Breaker



#### Legend:

Single auxiliary contact

Dual-auxiliary contact

Alarm contact

Shunt release

O Undervoltage release

 Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

### Quick Selection Table of NDM2ZB Series Moulded Case Circuit Breaker

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

TWE TRANS
<ul> <li>Rated current: See the parameter table</li> <li>Short delay time: 10: 10ms 30: 30ms 60: 60ms</li> </ul>
<ul> <li>Cabling type: No code: Conventional</li> <li>P: Extended busbar</li> <li>JK type: Inlet wire end wiring: Connection frame, outlet wire end wiring: Front-plate connection</li> <li>CK type: Inlet wire end wiring: Front-plate connection, outlet wire end wiring: Connection frame</li> <li>K type: Inlet/outlet wire end wiring: Connection frame</li> <li>Z1: Rear-plate connection</li> <li>Z2Q: Plug-in front-plate connection</li> <li>Z2H: Plug-in rear-plate connection</li> <li>J: Mechanical interlocking</li> </ul>
- Accessory code: See the accessory table
<ul> <li>Release code: 2-Instantaneous release+short circuit short delay 3-Complex release+short circuit short delay</li> </ul>
- Number of poles: 3-3P 4-4P
<ul> <li>Operation mode:</li> <li>No code: Direct handle-operated mode</li> <li>P: Motor-operated</li> <li>Z: Rotation handle</li> </ul>
- Frame size: 63, 125, 250, 400, 630
<ul> <li>ZB: DC Moulded case circuit breaker with the short circuit short-time delay protection</li> </ul>
- Design code: 2
- Product code: Moulded case circuit breaker
- Enterprise code: Nader Electrical

### Main Performance Parameters of NDM2ZB Series Moulded Case Circuit Breaker

Mod	lel	NDM2	NDM2ZB-63		NDM2ZB-125		ZB-250	NDM2	ZB-400	NDM2ZB-630	
Frame size Inm (A	)	6	53	1	125		250		00	630	
Rated current In (.	A)	40, 50, 63		40, 50, 63 and 125	40, 50, 63, 80, 100, and 125		125, 160, 180, 200, 225, and 250		225, 250, 315, 350, 400		00, 630
Rated insulation voltage Ui (V)		10	000	10	000	10	1000		1000		00
Rated impulse withstand voltage Uimp (V)		80	000	80	8000		8000		8000		000
Power frequency withstand voltage U (1min) (V)		35	500	35	500	35	3500		3500		00
Utilization category			Ą		Ą		В		В		В
Short time withstand current Icw (kA / 1s)		1	.5	2	.5	5		5		8	
Poles in series		2	3	2	3	2	3	2	3	2	3
Rated working vo	ltage Ue DC (V)	250	250	250	250	250	250	250	250	250	250
Rated ultimate sh breaking capacity	ort-circuit r Icu (kA)	25	35	35	50	35	50	50	75	50	75
Rated service sho breaking capacity	rt-circuit / Ics (kA)	25	35	35	50	35	50	50	75	50	75
Operating	Electrical life	2000	2000	1500	1500	1500	1500	1000	1000	1000	1000
(times)	Mechanical life	10000	10000	8500	8500	8500	8500	4000	4000	4000	4000
Outline dimension	L	135	135	150	150	165	165	257	257	270	270
	W	78	78	92	92	107	107	150	150	182	182
<u>↓ + +</u> + W → H →	Н	81.5	81.5	87	87	103	103	106.5	106.5	110	110
Flashover distanc	Flashover distance (mm)		50	≤	50	≤	50	≤100		≤1	00
Wiring mode		Conve P, Z1, Z	ntional, Z2Q, Z2H	Conventional, P, JK, CK, K, Z1, Z2Q, Z2H		Conventional, P, JK, CK, K, Z1, Z2Q, Z2H		Conventional, P, Z1, Z2Q, Z2H		Conventional, P, Z1, Z2Q, Z2H	

Installation Model position Number of Rode			NDM2ZB-63		NDM2ZB-125		NDM2ZB-250		NDM2ZB-400		NDM2ZB-630	
Accessory code	Accessory name	2	3	2	3	2	3	2	3	2	3	
00	None			_							_	
10	Shunt release	•						•		•		
20	Dual-auxiliary contact											
21	Single auxiliary contact											
08	Alarm contact											
58	Auxiliary alarm contact											

# Accessory Selection Table of NDM2ZB Series Moulded Case Circuit Breaker



# Legend: Single auxiliary contact Dual-auxiliary contact Alarm contact Shunt release Undervoltage release Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

# Quick Selection Table of NDM3 Series Moulded Case Circuit Breaker



### ND M 3 -125 H P/4 3 18 2 A P 100A Rated current: See the parameter table Wiring type code: See Note b N-pole (neutral pole) type of the 4P pro-



Note a: The neutral line (N-pole) type of the 4P product is divided into three types: Type A: The N-pole isn't installed with an overcurrent release, but always connected Type B: The N-pole isn't installed with an overcurrent release, but on-off with the other three poles

Type C: The N-pole is installed with a current release, and on-off with the other poles

Note b: No code: Conventional P: Extended busbar JK type: Inlet wire end wiring: Connection

frame

Outlet wire end wiring: Front-plate connection CK type: Inlet wire end wiring: Front-plate connection

Outlet wire end wiring: Connection frame

K type: Inlet/outlet wire end wiring: Connection frame Z1: Rear-plate connection Z2Q: Plug-in front-plate connection Z2H: Plug-in rear-plate connection Z3Q: Integrated plug-in front-plate connection Z3H: Integrated plug-in rear-plate connection

# Main Performance Parameters of NDM3 Series Moulded Case Circuit Breaker

Model		NDM3-100		NDM	3-125			NDM3-160				
Frame size Inm (A	)	100		1:	25			1	60			
Rated current In (	A)	10, 16, 20, 25, 32, 40, 50, 63, 80, 100	16, 20	), 25, 32, 40, 5	50, 63, 80, 10	0, 125		125, 14	40, 160			
Rated insulation v	voltage Ui (V)	800		10	00		1000					
Rated impulse wit Uimp (V)	thstand voltage	8000		80	00		8000					
Power frequency voltage U (1min)	withstand (V)	3000		30	00			30	000			
Utilization catego	ry	А		,	Ą				A			
Number of poles		3	3	3	3	4	3	3	3	4		
Rated ultimate sh breaking capacity	ort-circuit level	C	L	М	Н		С	L	М			
	AC 400V	35										
	AC380/400 /415V		40	70	100	70	35	40	70	70		
Rated ultimate short-circuit breaking	AC 500V	10		40		40						
capacity lcu (kA)	AC 690V	10										
	AC 660/690V			20		20			20	20		
	AC 400V	22										
Rated service	AC380/400 /415V		30	50	70	50	25	30	50	50		
short-circuit breaking	AC 500V	10		40		40						
	AC 690V	6										
	AC 660/690V			10		10			10	10		
Operating performance	Electrical life	8000		80	00			80	000			
(times)	Mechanical life	20000		20	000			20	000			
Outline	L	130	150	150	150	150	139	150	150	150		
	W	75	92	92	92	122	92	92	92	122		
	Н	65	68	86	86	86	75.5	74.5	92.5	92.5		
Flashover distanc	e (mm)	≤50		≤.	50			≤	50			
Wiring mode		Conventional, P, Z1, Z2Q, Z2H	Conv Z2H, 2	entional, P, . Z3Q, Z3H	IK, CK, K, Z1,	Z2Q,	Conventional, P, Z1, Z2Q, Z2H					

Model			NI	DM3-250			NDM3-400						
Frame size Inm (A)				250					400				
Rated current In (A)		100	), 125, 140, 1	160, 180, 200	, 225, 250		225, 250, 315, 350, 400						
Rated insulation volta	age Ui (V)	800	1000	1000	1000	1000			1000				
Rated impulse withsta voltage Uimp (V)	and	8000	8000	8000	8000	8000	8000						
Power frequency with voltage U (1min) (V)	nstand			3000				3000					
Utilization category				А				A					
Number of poles		3	3	3	3	4	3	3	3	3	4		
Rated ultimate short- breaking capacity lev	circuit el	С	L	М	Н		С	L	М	Н			
AC 400V		35											
Rated ultimate	AC380/400 /415V		40	70	100	70	35	50	70	100	70		
short-circuit breaking	AC 500V			40		40			50		50		
	AC 690V												
	AC 660/690V			20					20		20		
	AC 400V	25											
Rated service	AC380/400 /415V		30	50	70	50	35	50	70	75	70		
short-circuit breaking	AC 500V			40		40			50		50		
capacity Ics (kA)	AC 690V												
	AC 660/690V			10					15		15		
Operating	Electrical life			8000					7500				
(times)	Mechanical life			20000					10000				
Outline dimension (mm)	L	165	165	165	165	165	257	257	257	257	257		
	W	105	107	107	107	142	150	150	150	150	198		
	Н	63.4	88.5	105.5	105.5	105.5	104.5	104.5	104.5	104.5	104.5		
Flashover distance (m	ım)			≤50					≤100				
Wiring mode		Conventional, P, Z1, Z2Q, Z2H, Z3Q, Z3H		Conventio Z1, Z2Q, Z2	nal, P, JK, CK 2H, Z3Q, Z3H	. К,	Conventional, P, Z1, Z2Q, Z2H, Z3Q, Z3H						

Mo	del			NDM3-630				NDM3-800		
Frame size Inm (A	()			630				800		
Rated current In (	A)			400, 500, 630				630, 700, 800		
Rated insulation v	voltage Ui (V)			1000			1000			
Rated impulse wi voltage Uimp (V)	thstand			8000			8000			
Power frequency voltage U (1min)	withstand (V)			3000				3000		
Utilization catego	ory			A				A		
Number of poles		3	3	3	3	4	3	3	4	
Rated ultimate sh breaking capacity	ort-circuit / level	с	L	М	Н		М	Н		
	AC 400V									
Bated ultimate	AC380/400 /415V	35	50	70	100	70	70	100	70	
short-circuit breaking capacity Icu (kA)	AC 500V			50						
	AC 690V									
	AC 660/690V			20		20	20		20	
	AC 400V									
Rated service	AC380/400 /415V	35	50	70	75	70	70	75	70	
snort-circuit breaking capacity lcs (kA)	AC 500V			50						
	AC 690V									
	AC 660/690V			15		15	15		15	
Operating	Electrical life			7500				7500		
(times)	Mechanical life			10000				10000		
Outline dimension (mm)	L	270	270	270	270	270	280	280	280	
	W	182	182	182	182	240	210	210	280	
	Н	108.5	108.5	108.5	108.5	108.5	112	112	112	
Flashover distanc	e (mm)			≤100	≤100					
Wiring mode			Convention	al, P, Z1, Z2Q, Z2	2H, Z3Q, Z3H		Conventional, P, Z1, Z2Q, Z2H, Z3Q, Z3H			

# Accessory Selection Table of NDM3 Series Moulded Case Circuit Breaker

	Installation Model position Number of	NDM3- 100	NDM3- 125	NDM3- 160	NDM3- 250 C	NDM3- 250 L/M/H	NDM3- 250	NDM3- 400	NDM3- 630	NDM3- 800
Accessory code	Accessory name	3	3 4	3 4	3	3	4	3 4	3 4	3 4
00	None									
10	Shunt release									
20	Dual-auxiliary contact									
21	Single auxiliary contact									
30	Undervoltage release	0	0	0	0	0	0	0	0	0
40	Shunt release Dual-auxiliary contact									
41	Shunt release Single auxiliary contact									
50	Shunt release Undervoltage release	$\circ$ $\bullet$	0		• 0	0	$\circ \bullet$	0	0	0
60	Two sets of dual-auxiliary contacts									
61	Two sets of single auxiliary contacts									
62	Dual-auxiliary contact Single auxiliary contact									
70	Undervoltage release Dual-auxiliary contact		0	0		0	0	0	0	0
71	Undervoltage release Single auxiliary contact	$\circ$	0	$\circ \blacksquare$			0	0	0	$\circ$
08	Alarm contact									
18	Shunt release Alarm contact									
28	Dual-auxiliary contact Alarm contact									
38	Undervoltage release Alarm contact	$\circ$	0 🗆							
48	Shunt release Auxiliary alarm contact									
58	Auxiliary alarm contact									
68	Dual-auxiliary contact Auxiliary alarm contact									
78	Undervoltage release Auxiliary alarm contact	0	0			0	0	0	0	



#### Legend:



- Dual-auxiliary contact
- Alarm contact
- Shunt release
- O Undervoltage release
- Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

### Quick Selection Table of NDM3L Series Moulded Case Circuit Breaker

#### ND M 3 L-250 P/4 3 18 2 A 250A



Note a: The N-pole (neutral line) type of the 4P product is divided into three types:

Type A: The N-pole isn't installed with an overcurrent release, but always connected.

Type B: The N-pole isn't installed with an overcurrent release, but on-off with the other three poles.

Type C: The N-pole is installed with a current release, and on-off with the other poles.

# Main Performance Parameters of NDM3L Series Moulded Case Circuit Breaker

м	odel		NDM:	3L-125	NDM	3L-250	NDM3	8L-400	NDM3	L-630	
Frame size Inm (A	.)		1	25	2!	50	40	00	63	80	
Rated current In (	A)		16, 20, 25, 3 80, 100, 125	2, 40, 50, 63,	100, 125, 14 200, 225, 2	40, 160, 180, 50	225, 250, 3	315, 350, 400	400, 500, 630		
Rated insulation v	voltage	Ui (V)	1000		10	00	10	00	1000		
Rated impulse withstand voltage Uimp (V)			8000		80	00	80	00	8000		
Utilization category			A		,	٩		Ą	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)	40	AC380/ 0V/415V	50	50	50	50	70 70		70	70	
			30	30	30	30			300/500/1000		
Rated residual operating current I∆n (mA)	Non- time delay	Type AC	100/300/ 500	100/300/ 500	100/300/ 500	100/300/ 500	300/50	0/1000			
		Type A		30/100/300 /500/1000		30/100/300 /500/1000					
	Time delay	Type AC	100/300/ 500	100/300/ 500	100/300/ 500	100/300/ 500	300/50	0/1000	300/50	0/1000	
		Type A		100/300/ 500/1000		100/300/ 500/1000					
Rated residu current l∆no	al non-c (mA)	operating	1/2 l∆n		1/2 l∆n		1/2 l∆n		1/2 l∆n		
Rated residu making (brea capacity l∆m	al short aking) n (kA)	-time	1/4 lcu		1/4	lcu	1/4	lcu	1/4 lcu		
Operating	Elec	trical life	80	00	80	00	75	00	75	00	
performance (times)	Mech	anical life	20	000	200	000	100	000	100	000	
Outline dimension		L1	225	225	225	225	257	257	280	280	
(mm)		L2	50	50	65	65	108	108	108	108	
		W	92	122	107	142	150	198	210	280	
(j) + (i) +		H2	87	87	105.5	105.5	104.5	104.5	112	112	
Flashover distanc	e (mm)		<	50	≤	50	≤!	50	≤1	00	
Wiring mode			Conve	ntional, P	Conven	Conventional, P		tional, P	Conventional, P		
Action features of with the DC comp (Type AC, Type A)	f residua ponent	al current	AC	AC,A	AC AC,A		A	C	AC		

# Accessory Selection Table of NDM3L Series Moulded Case Circuit Breaker

Installation Model position Number or or		NDM3L-125	NDM3L-250	NDM3L-400	NDM3L-630	NDM3L-800	
Accessory code	Accessory name	3 4	3 4	3 4	3 4	3 4	
00	None						
10	Shunt release						
20	Dual-auxiliary contact						
21	Single auxiliary contact						
30	Undervoltage release	0	0	0	0	0	
40	Shunt release Dual-auxiliary contact		•		•	•	
41	Shunt release Single auxiliary contact						
60	Two sets of dual-auxiliary contacts						
61	Two sets of single auxiliary contacts						
62	Dual-auxiliary contact Single auxiliary contact						
70	Undervoltage release Dual-auxiliary contact						
71	Undervoltage release Single auxiliary contact				0		
08	Alarm contact						
28	Dual-auxiliary contact Alarm contact						
58	Auxiliary alarm contact						
68	Dual-auxiliary contact Auxiliary alarm contact						

NDM2Z-63 NDM2Z-125 NDM2ZX-125

Note: 1. NDM3L series of 3P products can only choose the left-installation single accessory, namely with the accessory code below: 10, 20, 21, 30, 08, 58; 2. When dual accessories are chosen for 4P products, N (neutral pole) must be Type B or Type C.



#### Legend:

- Single auxiliary contact
- Dual-auxiliary contact
- Alarm contact
- Shunt release
- O Undervoltage release
- Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

### Quick Selection Table of NDM3E Series Moulded Case Circuit Breaker

#### ND M 3 E X-125 H P G/3 18 2 C P 20



		Setting current Ir: See the parameter table Cabling type: See Note a N-pole (neutral pole) type of the 4P product: Type C: The N-pole is on-off with the other three poles simultaneously Type D: The N-pole is always connected Application code: No code: Power distribution type 2: Protection motor Accessory code: See the accessory table Number of poles: 3-3P 4-4P Derived code of the intelligent release: Basic type: No code G: Ground protection type T: Telecommunication type GT: Ground protection telecommunication type GT: Ground protection telecommunication type G: Accession mode: No code: Direct operation P: Motor-operated Z: Rotation handle Breaking capacity level: M: Relatively high breaking type H: High breaking type Frame size: 125, 250, 400, 630, 800, 1600 This code is only available for the 1600 shell frame product Electronic Design code: 3
		Electronic
		Design code: 3
	L	 Product code: Moulded case circuit breaker
L		Enterprise code: Nader Electrical

Note a: Cabling type No code: Conventional P: Extended busbar Z1: Rear-plate connection Z2Q: Plug-in front-plate connection Z2H: Plug-in rear-plate connection Z3Q: Integrated plug-in front-plate connection Z3H: Integrated plug-in rear-plate connection

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# Main Performance Parameters of NDM3E Series Moulded Case Circuit Breaker

I	Model			NDM3	E-125			ſ	NDM3E-25	0	n	NDM3E-40	D	
Frame size In	ım (A)			12	25				250			400		
Release setti	ng current Ir (A)	10, 20, 25, 32			40, 50, 6	40, 50, 63, 80, 90, 100, 125			100, 125, 140, 160, 180, 200, 225, 250			200, 225, 250, 280, 315, 350, 400		
Rated insula	tion voltage Ui (V)	1000			1000			1000			1000			
Rated impuls voltage Uim	se withstand o (V)	8000			8000			8000			8000			
Power frequency withstand voltage U (1min) (V)		3000			3000			3000			3000			
Utilization ca	itegory		А			А			А			В		
Short time w current Icw (	ithstand kA/1s)	1			1			2.5			5			
Number of p	oles	3	3	4	3	3	4	3 3 4		3	3	4		
Rated ultima breaking cap	te short-circuit bacity level	М	Н		М	Н		М	ни		М	Н		
Rated ultimate	AC 380/400/415V	50	85	50	50	85	50	50	85	50	65	100	65	
short-circuit breaking capacity	AC 500V													
breaking capacity Icu (kA)	AC 660/690V	20		20	20		20	20		20	20		20	
Rated service	AC 380/400/415V	35	50	35	35	50	35	35	50	35	42	65	42	
short-circuit breaking capacity	AC 500V													
lcs (kA)	AC 660/690V	15		15	15		15	15		15	15		15	
Operating	Electrical life		8000			8000			8000			7500		
(times)	Mechanical life		20000			20000			20000			10000		
Outling	L	150	150	150	150	150	150	165	165	165	257	257	257	
dimension (mm)	W	92	92	122	92	92	122	107	107	142	150	150	198	
	Н	93	93	93	93	93	93	90	90	90	104.5	104.5	104.5	
Flashover dis	stance (mm)		≤50			≤50			≤50			≤100		
Wiring mode			Conventi	onal, P, Z1,	Z2Q, Z2H,	Z3Q, Z3H		Conv Z2Q,	ventional, F Z2H, Z3Q,	2, Z1, Z3H	Conven Z2H, Z3	Conventional, P, Z1, Z2Q, Z2H, Z3Q, Z3H		

Model			NDM3E-630	)		NDM3E-800		NDM3EX-1600		
Frame size Inm (A)			630			800		1600		
Release setting current Ir (A)		280, 3 500, 9	315, 350, 40 550, 600, 63	0, 450, 0	400, 450 700, 750	, 500, 550, 600 , 800	0, 630,	800, 1000, 1250, 1600		
Rated insulation voltage Ui (	V)		1000			1000		1000		
Rated impulse withstand vo	ltage Uimp (V)		8000			8000		12000		
Power frequency withstand		3000			3000		3500			
Utilization category			В			В		В		
Short time withstand current lcw (kA/1s)			8			10		20		
Number of poles		3	3	4	3	3	4	3		
Rated ultimate short-circuit breaking capacity level		М	Н		М	Н		М		
	AC 380/400/415V	65	100	65	65	100	65	70		
Rated ultimate short- circuit breaking capacity Icu (kA)	AC 500V							50		
	AC 660/690V	20		20	20		20	20		
	AC380/400/415V	42	65	42	42	65	42	50		
circuit breaking capacity lcs (kA)	AC 500V							50		
	AC 660/690V	15		15	15		15	20		
Operating	Electrical life		7500			7500		3000		
performance (times)	Mechanical life		10000			10000		10000		
Outline dimension (mm)	L	280	280	280	280	280	280	268		
	W	210	210	280	210	210	280	210		
	Н	112	112	112	112	112	112	154		
Flashover distance (mm)			≤100			≤100		≤100		
Wiring mode		Conv Z2H,	entional, P, Z3Q, Z3H	Z1, Z2Q,	Conv Z2H,	ventional, P, Z Z3Q, Z3H	1, Z2Q,	Conventional, P, front-plate connection		

	Installation Model position Number or	NDM3E-	125	NDM3	E-250	NDM:	3E-400	NDM:	3E-630	NDM	BE-800
Accessory code	Accessory name	3	4	3	4	3	4	3	4	3	4
300	None				_	_		_	_	_	
310	Shunt release			•							
320	Dual-auxiliary contact										
321	Single auxiliary contact										
330	Undervoltage release	0		0		0		0		0	
340	Shunt release Dual-auxiliary contact			•							
341	Shunt release Single auxiliary contact			•			•				
350	Shunt release Undervoltage release					0	•	0		0	•
360	Two sets of dual-auxiliary contacts										
361	Two sets of single auxiliary contacts										
362	Dual-auxiliary contact Single auxiliary contact										
370	Undervoltage release Dual-auxiliary contact			0		0		0		0	
371	Undervoltage release Single auxiliary contact	0		0		0		0		0	
308	Alarm contact										
318	Shunt release Alarm contact				_				•		
328	Dual-auxiliary contact Alarm contact										
338	Undervoltage release Alarm contact				_	0		_	_	-	
348	Shunt release Auxiliary alarm contact						•		•		
358	Auxiliary alarm contact										
368	Dual-auxiliary contact Auxiliary alarm contact										
378	Undervoltage release Auxiliary alarm contact				_	0		_		_	

# Accessory Selection Table of NDM3E Series Moulded Case Circuit Breaker

备注:脱扣器方式附件代号首位数字"3"表示具有三段保护的智能控制器,后两位数字表示内部附件代号。



#### Legend:

Single auxiliary contact

Dual-auxiliary contact

- Alarm contact
- Shunt release

Undervoltage release

Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

	Installation Model position Number of	NDM3EX- 1600
Accessory code	Accessory name	3
300	None	
308	One set of alarm contacts	
398	Two sets of alarm contacts	
310	Shunt release	•
3K01	Two sets of shunt releases	••
330	Undervoltage release	0
3A01	Two sets of Undervoltage releases	00
321	Single auxiliary contact	
361	Two sets of single auxiliary contacts	
323	Three sets of single auxiliary contacts	
324	Four sets of single auxiliary contacts	
318	Shunt release, alarm contact	
338	Undervoltage release, alarm contact	
322	Single auxiliary contact, alarm contact	
388	Two sets of single auxiliary contacts, alarm contact	
326	Three sets of single auxiliary contacts, alarm contact	
325	Four sets of single auxiliary contacts, alarm contact	
342	Shunt release, single auxiliary contact, alarm contact	
344	Shunt release, two sets of single auxiliary contacts, alarm contact	
346	Shunt release, three sets of single auxiliary contacts, alarm contact	
314	Shunt release, four sets of single auxiliary contacts, alarm contact	
375	Undervoltage release, single auxiliary contact, alarm contact	
377	Undervoltage release, two sets of single auxiliary contacts, alarm contact	

### Accessory Selection Table of NDM3EX-1600 Series Moulded Case Circuit Breaker



	Installation Model position Number or	NDM3EX- 1600
Accessory code	Accessory name	3
381	Undervoltage release, three sets of single auxiliary contacts, alarm contact	
382	Undervoltage release, four sets of single auxiliary contacts, alarm contact	
341	Shunt release, single auxiliary contact	
311	Shunt release, two sets of single auxiliary contacts	
312	Shunt release, three sets of single auxiliary contacts	
313	Shunt release, four sets of single auxiliary contacts	
371	Undervoltage release, single auxiliary contact	
372	Undervoltage release, two sets of single auxiliary contacts	0
373	Undervoltage release, three sets of single auxiliary contacts	
374	Undervoltage release, four sets of single auxiliary contacts	0
331	Undervoltage release, shunt release, alarm contact	
337	Undervoltage release, shunt release, two sets of single alarm contacts	
351	Undervoltage release, shunt release, single auxiliary contact	
352	Undervoltage release, shunt release, two sets of single auxiliary contacts	
353	Undervoltage release, shunt release, three sets of single auxiliary contacts	
354	Undervoltage release, shunt release, four sets of single auxiliary contacts	
319	Shunt release, two sets of single alarm contacts	
379	Undervoltage release, two sets of single alarm contacts	
363	Single auxiliary contact, two sets of single alarm contacts	
364	Two sets of single auxiliary contacts, two sets of single alarm contacts	
365	Three sets of single auxiliary contacts, two sets of single alarm contacts	
366	Four sets of single auxiliary contacts, two sets of single alarm contacts	
343	Shunt release, single auxiliary contact, two sets of single alarm contacts	

Legend:

- Single auxiliary contact
- Dual-auxiliary contact
- Alarm contact
- Shunt release
- O Undervoltage release
- Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

	Installation Model position Number of a	NDM3EX- 1600
Accessory code	Accessory name	3
345	Shunt release, two sets of single auxiliary contacts, two sets of single	
347	Shunt release, three sets of single auxiliary contacts, two sets of single	
315	Shunt release, four sets of single auxiliary contacts, two sets of single alarm contacts	
375	Undervoltage release, single auxiliary contact, two sets of single alarm contacts	
377	Undervoltage release, two sets of single auxiliary contacts, two sets of single alarm contacts	
381	Undervoltage release, three sets of single auxiliary contacts, two sets of single alarm	
382	Undervoltage release, four sets of single auxiliary contacts, two sets of single alarm contacts	
332	Undervoltage release, shunt release, single auxiliary contact, alarm contact	
333	Undervoltage release, shunt release, two sets of single auxiliary contacts, alarm contact	
334	Undervoltage release, shunt release, three sets of single auxiliary contacts, alarm contact	
335	Undervoltage release, shunt release, four sets of single auxiliary contacts, alarm contact	
339	Undervoltage release, shunt release, single auxiliary contact, two sets of single alarm contacts	
355	Undervoltage release, shunt release, two sets of single auxiliary contacts, two sets of single alarm contacts	
356	Undervoltage release, shunt release, three sets of single auxiliary contacts, two sets of single alarm contacts	
336	Undervoltage release, shunt release, four sets of single auxiliary contacts, two sets of single alarm contacts	
3A02	Two sets of undervoltage releases, single auxiliary contacts	
3A07	Two sets of undervoltage releases, Two sets of single auxiliary contacts	
3A08	Two sets of undervoltage releases, three sets of single auxiliary contacts	
3A09	Two sets of undervoltage releases, four sets of single auxiliary contacts	
3A10	Two sets of undervoltagereleases, single auxiliary contact, alarm contact	
3A12	Two sets of undervoltagereleases, two sets of single auxiliary contacts, alarm contact	
3A14	Undervoltage release	
3A16	Undervoltage release	

	Installation Model position Number of	NDM3EX- 1600
Accessory code	Accessory name	3
3A11	Two sets of undervoltage releases, single auxiliary contact, two sets of single alarm contacts	
3A13	Two sets of undervoltage releases, two sets of single auxiliary contacts, two sets of single alarm contacts	
3A15	Two sets of undervoltage releases, three sets of single auxiliary contacts, two sets of single alarm contacts	
3A17	Two sets of undervoltage releases, four sets of single auxiliary contacts, two sets of single alarm contacts	
3A05	Two sets of undervoltage releases, alarm contact	00
3A06	Two sets of undervoltage releases, two sets of single alarm contacts	
3K04	Two sets of shunt releases, single auxiliary contact	
3K06	Two sets of shunt releases, two sets of single auxiliary contacts	
3K07	Two sets of shunt releases, three sets of single auxiliary contacts	
3K08	Two sets of shunt releases, four sets of single auxiliary contacts	
3K12	Two sets of shunt releases, single auxiliary contact, alarm contact	
3K09	Two sets of shunt releases, two sets of single auxiliary contacts, alarm contact	
3K10	Two sets of shunt releases, three sets of single auxiliary contacts, alarm contact	
3K11	Two sets of shunt releases, four sets of single auxiliary contacts, alarm contact	
3K13	Two sets of shunt releases, single auxiliary contact, two sets of single alarm contacts	
3K14	Two sets of shunt releases, two sets of single auxiliary contacts, two sets of single alarm contacts	
3K15	Two sets of shunt releases, three sets of single auxiliary contacts, two sets of single alarm contacts	
3K16	Two sets of shunt releases, four sets of single auxiliary contacts, two sets of single alarm contacts	
3K02	Two sets of shunt releases, alarm contact	
3K05	Two sets of shunt releases, two sets of single alarm contacts	

Remark: The first number "3" of the release accessory code represents the intelligent controller with the three-section protection while the last two numbers represent the inner accessory code.



Legend:

Single auxiliary contact

- Dual-auxiliary contact
- Alarm contact
- Shunt release

O Undervoltage release

Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

Quick Selection Table of NDM3Z Series

Moulded Case Circuit Breaker



### Main Performance Parameters of NDM3Z Series Moulded Case Circuit Breaker

M	odel		NDM3Z-125	;		NDM	3Z-250		NDM3Z-250V	
Frame size Inm (A	)		125			2	50		250	
Rated current In (	A)	16, 2 80, 1	0, 25, 32, 40, 5 00, 125	0, 63,	12	5, 140, 160, 1	80, 200, 225, 2	160, 200, 250		
Rated insulation v		1000			12	00	1500			
Rated impulse wit voltage Uimp (V)	thstand		8000			80	00		12000	
Power frequency voltage U (1min)	withstand (V)		3500			35	00		3820	
Utilization catego	ry		A				Ą	А		
Poles in series		2	3	4	2	3	4	4	3	
Rated working voltage Ue DC (V)		500	750	1000	500	750	1000	1200	1500	
Rated ultimate short-circuit breaking capacity lcu (kA)		20	20	20	35	40	40	10	20	
Rated service sho breaking capacity	rt-circuit r Ics (kA)	20	20	20	35	25 25		10	16	
Operating	Electrical life		5000			50	00	2000		
(times)	Mechanical life		20000			10	000	10000		
Outline dimension (mm)	L	150	150	150	165	165	165	165	200	
	W	92	92	122	107	107	142	142	135	
	Н	87	87	87	104.5	104.5	104.5	104.5	104.5	
Flashover distanc	e (mm)		≤50			<u></u>	50	≤50		
Wiring mode		Conven tional	Conven tional, J0	JO, J1, J2, J3	Conven tional	Conven tional, J0	J0, J1, J2, J3	JO, J1, J2, J3	Conventional	

Мс	ode	r	NDM3Z-400	0		NDI	M3Z-630			NDI	W3Z-800	
Frame size Inm (A	N)		400				630				800	
Rated current In (	A)	225, 2	250, 315, 350	0, 400	4	100, 500, 63	)	1000, 1250 (in parallel)	e	530, 700, 800	0	1250, 1440 (in parallel)
Rated insulation	voltage Ui (V)	1000			1000			1000	1000			1000
Rated impulse withstand voltage Uimp (V)		8000				8000			8000			8000
Power frequency voltage U (1min)	withstand (V)		3500			3500		3500	3500			3500
Utilization catego	ory		A			A		A		A		
Poles in series		2	3	4	2	3	4	4	2	3	4	4
Rated working voltage Ue DC (V)		500	750	1000	500	750	1000	500	500	750	1000	500
Rated ultimate short-circuit breaking capacity Icu (kA)		35	40	40	35	40	40	30	35	40	40	30
Rated service sho breaking capacity	rt-circuit r Ics (kA)	35	40	40	35	40	40	30	35	40	40	30
Operating	Electrical life		1000			1000 1			1000			500
(times)	Mechanical life		5000			5000				5000		5000
Outline dimension (mm)	L	257	257	257	270	270	270	270	280	280	280	280
	W	150	150	198	182	182	240	240	210	210	280	280
	Н	104.5	104.5	104.5	108.5	108.5	108.5	108.5	112	112	112	112
Flashover distanc	e (mm)		≤100				≤100			≤100		
Wiring mode		Conven tional	Conven tional	J2, J3	Conven tional	Conven tional	J2, J3	In parallel	Conven tional	Conven tional	J2, J3	In parallel

	Installation Model position Number of	NDM3Z -125	NDM3Z -250	NDM3Z -250V	NDM3Z -400	NDM3Z -630	NDM3Z -800	
Accessory code	Accessory name	2 3 4	2 3 4	3	2 3 4	2 3 4	2 3 4	
00	None							
10	Shunt release							
20	Dual-auxiliary contact							
21	Single auxiliary contact							
30	Undervoltage release	0	0		0	0	0	
40	Shunt release Dual-auxiliary contact							
41	Shunt release Single auxiliary contact							
50	Shunt release Undervoltage release	0	$\circ$ $\bullet$		$\circ \bullet$	$\circ$ $\bullet$	0	
60	Two sets of dual-auxiliary contacts							
61	Two sets of single auxiliary contacts							
62	Dual-auxiliary contact Single auxiliary contact							
70	Undervoltage release Dual-auxiliary contact				0			
71	Undervoltage release Single auxiliary contact	$\circ$				$\circ$		
08	Alarm contact							
18	Shunt release Alarm contact							
28	Dual-auxiliary contact Alarm contact							
38	Undervoltage release Alarm contact	$\circ \square$						
48	Shunt release Auxiliary alarm contact							
58	Auxiliary alarm contact							
68	Dual-auxiliary contact Auxiliary alarm contact							
78	Undervoltage release Auxiliary							

# Accessory Selection Table of NDM3Z Series Moulded Case Circuit Breaker



#### Legend:

- Single auxiliary contact
- Dual-auxiliary contact
- Alarm contact
- Shunt release
- Undervoltage release
- Auxiliary alarm contact (a single accessory integrates the auxiliary and alarm functions)

### Quick Selection Table of NDM3G Series Moulded Case Disconnecting Switch



#### ND M 3 G-400 P/2 21 P 250A



Note: Utilization categories:

AC/DC21A, 21B: Switching of resistive loads, including moderate overloads

AC/DC22A, 22B: Switching of mixed resistive and inductive loads, including moderate overloads AC/DC23A: Switching of motor loads or other highly inductive loads

# Main Performance Parameters of NDM3G Series Moulded Case Disconnecting Switch

Model NDM3G-2			NDM3G-250		NDM3G-400				
Frame size Inm (A)			250		400				
Rated current In (A)			250		400				
Rated insulation voltage Ui (V)			1000		1000				
Rated impulse wit voltage Uimp (V)	hstand		8000		8000				
Power frequency v voltage U (1min) ('	withstand 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 working 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 v current Icw (kA/1s	withstand )	3	3	3	5	5	5		
Operating	Electrical life		5000		7500				
performance (times)	Mechanical life		10000		10000				
Outline dimension (mm)	L	165	165	165	257	257	257		
	W	107	107	142	150	150	198		
	Н	105.5	105.5	105.5	104.5	104.5	104.5		
Flashover distance	e (mm)		≤50		≤50				
Wiring mode			Conventional, P		Conventional, P				

3	Frame size Inm
<	Rated current Ir
lolded Ca	Rated insulation
	Rated impulse voltage Uimp (N
Ŧ	Power frequent voltage U (1mir

Model			NDM3G-630		NDM3G-800				
Frame size Inm (A)			630		800				
Rated current In (A)			630		800				
Rated insulation voltage Ui (V)			1000		1000				
Rated impulse withstand voltage Uimp (V)			8000		8000				
Power frequency v voltage U (1min) (	withstand 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 working 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-current making capacity Icm (kA)		8	8	8	10	10	10		
Rated short-time v current Icw (kA/1s	withstand )	8 8		8	10 10		10		
Operating	Electrical life		7500		7500				
(times)	Mechanical life		10000		10000				
Outline dimension (mm)	L	270	270	270	280	280	280		
	W	182	182	240	210	210	280		
	н	108.5	108.5	108.5	112	112	112		
Flashover distance	e (mm)		≤50		≤50				
Wiring mode			Conventional, P		Conventional, P				

Installation Model position Aumoration		NDM3G-250		NDM3G-400			NDM3G-630			NDM3G-800			
Accessory code	Accessory name	2	3	4	2	3	4	2	3	4	2	3	4
00	None												
20	Dual-auxiliary contact												
21	Dual-auxiliary contact												

# Accessory Selection Table of NDM3G Series Moulded Case Disconnecting Switch





Single auxiliary contactDual-auxiliary contact

### Nader 良信申器



#### Note a:

2: 2 poles; 3: 3 poles; 4: 4 poles

4A: N-pole without the over-current protection, and is always on.

4B: N-pole without the over-current protection, and is on-off together with other three poles (N-pole is on and then off). 4C: N-pole with the over-current protection, and is on-off together with other three poles (N-pole is on and then off).

4D: N-pole with the over-current protection, and is always on.

Note b:

Release code

TMD (distribution protection): (thermo-adjustable (0.8-0.9-1.0) In, magnet-adjustable (5-6-7-8-9-10) In, for the distribution. TMM (motor protection): (thermo-adjustable (0.8-0.9-1.0) In, magnet-adjustable (8-9-10-11-12-13-14) In, electric adjustable.

#### Note c:

Wiring mode

Front connection: no code; Front extended connection: "ES"; Front bare-copper cable connection: "FCu"; Rear screw connection: "R".

Note d:

Operation mode Direct handle-operated: no code; Rotation handle operated: "R"; Motor-operated: "M" (note: 2P not applicable).

# Main Performance Parameters of NDM5 Series Moulded Case Circuit Breaker

Model			NDM5-160		NDM5-250			
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 working	voltage Ue (V)	AC230	), AC400 (2P not applic C690 (2P not applicab	cable), le)	AC230/AC240, AC400/AC415 (2P not applicable), AC690 (2P not applicable)			
Rated impulse voltage Uimp (	withstand 1sec)		8000			8000		
Rated insulatio	n voltage Ui (V)		800			800		
Power frequen voltage (1min)	cy withstand (V)		3000			3500		
Number of pol	25			2P, 3P	, 4P			
Rated ultimate short-circuit	Code	L	М	Н	L	М	Н	
	AC230V (2P, 3P, 4P)	100	120	150	70	100	150	
breaking capacity lcu	AC400V (3P, 4P)	70	100	150	70	100	150	
(KA)	AC690V (3P, 4P)	8	12	15	8	12	15	
Rated service sh capacity lcs (kA)	ort-circuit breaking	lcs=100%lcu						
	Mechanical life			250	000			
Life (times)	Electrical life AC230V, AC400V		18000		10000			
	Electrical life AC690V		8000		4000			
Outline dimension(mm)	2P (L×W×H)	135×6 155:	1×80 (without access ×61×80 (with accesso	ories), ories)	165×70×86 (without accessories), 185×70×86 (with accessories)			
	3P (L×W×H)	135×9 155:	0×80 (without access ×90×80 (with accesso	ories), ories)	165×105×86 (without accessories), 185×105×86 (with accessories)			
	4P (L×W×H)	135×12 155>	20×80 (without acces (120×80 (with access)	sories), ories)	165×140×86 (without accessories), 185×140×86 (with accessories)			
	Front-plate connection				<b>A</b>			
Installation mode, optional	Extended front-plate connection							
	DIN rail installation		<b>A</b>		<b>A</b>			

Note: ▲ represents this function is available, — represents this function is not available

### Accessory Selection Table of NDM5 Series Moulded Case Circuit Breaker

<b>A</b>	•	Installation position						
code	Accessory name	2P	ЗР	4P				
00	None							
10	Alarm contact		0					
20	Shunt release							
30	Undervoltage release							
40	Single auxiliary contact							
50	Dual-auxiliary contact							
60	Tri-auxiliary contact							
12	Alarm contact+shunt release							
13	Alarm contact+undervoltage release							
14	Alarm contact+single auxiliary contact							
15	Alarm contact+dual-auxiliary contact			0 0 0				
16	Alarm contact+tri-auxiliary contact							
70	Alarm contact+shunt release+ single auxiliary contact							
71	Alarm contact+shunt release+ dual-auxiliary contact							
72	Alarm contact+shunt release+ tri-auxiliary contact							
80	Alarm contact+undervoltage release+ single auxiliary contact							
81	Alarm contact+undervoltage release+ dual-auxiliary contact							
82	Alarm contact+undervoltage release+ tri-auxiliary contact							
24	Shunt release+single auxiliary contact							
25	Shunt release+dual-auxiliary contact							
26	Shunt release+tri-auxiliary contact							
34	Undervoltage release+ single auxiliary contact							
35	Undervoltage release+ dual-auxiliary contact			00				
36	Undervoltage release+ tri-auxiliary contact							

### Quick Selection Table of NDM5E Series Moulded Case Circuit Breaker

#### ND M 5 E-250 M 125/3 TMD P ES R 10



Note a:

#### 3: 3 poles; 4: 4 poles

4A: N-pole without the over-current protection, and is always on. 4B: N-pole without the over-current protection, and is on-off together with other three poles (N-pole is on and then off). 4C: N-pole with the over-current protection, and is on-off together with other three poles (N-pole is on and then off). 4D: N-pole with the over-current protection, and is always on.

#### Note b:

Release code ETB (electronic release), with the functions listed below: Overload long-time delay function: 1) Setting current Ir=(0.4-0.5-0.6-0.7-0.8-0.9-1-0FF) In 2) Setting time Tr=)10-15-30-45-60-80-100-120-OFF) Ir

- Short-circuit short-time delay function:
- 1) Setting current Is=(2-3-4-5-6-7-8-9-10-12-14-OFF) Ir
- 2) Setting time: When the current is (1-1.5) Is, the short-time
- delay timeTs is the reverse time limit

When the current is >1.5 ls, the short-time delay time Ts=(0.1-0.2-0.3-0.4sec)

- Short-circuit Instantaneous tripping function:
- 1) Setting current li=Is=(3-4-5-6-7-8-9-10-12-14-OFF) Ir
- 2) Setting time: < 50ms

N-phase protection function: (ON-OFF): The N-phase current is set to Irn=0.5Ir or Irn=1Ir with the protection function (ON) Pre-alarm function: NDM5E-160/3P; external (0.9-1) Ir, optional adjustment. NDM5E-160/4P; internal 0.9Ir, non-adjustable. Alarm non-tripping function: When the long-time delay is set to the OFF position. ETC (intelligent release): Electronic tripping function+communication function.

Note c: Wiring mode Front connection: no code; Front extended connection: "ES": Front bare-copper cable connection: "FCu", Rear screw connection: "R".

Note d: Operation mode Direct handle-operated: no code; Rotation handle operated: "R": Motor-operated: "M".

### Main Performance Parameters of NDM5E Series Moulded Case Circuit Breaker

Model			NDM5E-160		NDM5E-250			
Frame size Inm(A)			160		250			
Rated current I	n (A)		160			250		
Rated working	voltage Ue (V)	AC3	80/400/415, AC660/6	90		AC400/AC415, AC690		
Rated impulse voltage Uimp (	withstand 1sec)		8000			8000		
Rated insulatio	n voltage Ui (V)		1000			1000		
Power frequen voltage (1min)	cy withstand (V)		3000			3500		
Number of pole	25			3P,-	4P			
Rated ultimate short-circuit breaking capacity Icu (kA)	Code	L	М	Н	L	М	Н	
	AC400V/AC415V	70	100	150	70	100	150	
	AC690V	8	12	15	8	12	15	
Rated service short-circuit breaking capacity Ics (kA)		lcs=100%lcu						
	Life (times)	25000						
Life (times)	Electrical life AC400V/AC415V		18000		10000			
	Electrical life AC690V		8000		4000			
Outline dimension (mm	) 3P (L×W×H)	135×90> 155×90>	<80 (without accesso <80 (with accessories	ries), ;)	165×105×86 (without accessories), 185×105×86 (with accessories)			
4P (L×W×H) 135×120×80 (without accessorie)			ories), s)	165×140×86 (without accessories), 185×140×86 (with accessories)				
	Front-plate connection		<b>A</b>			<b></b>		
Installation mode, optiona	Extended front- plate connection		•			<b></b>		
ομιστια	DIN rail installation				<b>▲</b>			
Accessory Selection Table of NDM5E	Series							
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Moulded Case Circuit Breaker								

Accessory		Installatio	n position
code	Accessory name	ЗР	4P
00	None		
10	Alarm	0	
20	Shunt		
30	Undervoltage	0	
40	Single auxiliary		
50	Dual-auxiliary		
60	Tri-auxiliary		
12	Alarm+shunt		
13	Alarm+undervoltage		
14	Alarm+single auxiliary		
15	Alarm+dual-auxiliary		0 0 0
16	Alarm+tri-auxiliary		
70	Alarm+shunt+single auxiliary		
71	Alarm+shunt+dual-auxiliary		
72	Alarm+shunt+dual-auxiliary		
80	Alarm+undervoltage+single auxiliary		
81	Alarm+undervoltage+dual-auxiliary		
82	Alarm+undervoltage+tri-auxiliary		
24	Shunt+single auxiliary		
25	Shunt+dual-auxiliary		
26	Shunt+tri-auxiliary		
34	Undervoltage+single auxiliary		
35	Undervoltage+dual-auxiliary		
36	Undervoltage+tri-auxiliary		



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

Note b:

Release code: TMDC: Thermo-adjustable (0.8-0.9-1.0) In, magnet-adjustable (5-6-7-8-9-10) In, for the distribution.

Note c:

Wiring mode: Front connection: no code; Front extended connection: "ES"; Front bare-copper cable connection: "FCu"; Rear screw connection: "R".

Note d:

Operation mode: Direct handle-operated: no code; Rotation handle operated: "R"; Motor-operated: "M" (note: 2P not applicable).

# Main Performance Parameters of NDM5Z Series Moulded Case Circuit Breaker

		Model		NDM5Z-160		NDM5Z-250			
Frame si	ze Inm	(A)		160		250			
Rated cu	irrent In	(A)	16, 20, 25,	32, 40, 50, 63, 80, 10	0, 125, 160	160, 200, 250			
Rated we	orking v	voltage Ue (V)		[	DC: 500 (2P), 750 (3 P	), 1000 (4P), 1200 (4P)			
Rated im	npulse v Uimp (1	vithstand sec)		8000			8000		
Rated in:	sulation	voltage Ui (V)	1200				1200		
Power fr voltage (	equenc (1min) (	y withstand V)	3000				3500		
		Code	L	М	Н	L	М	Н	
		DC500V (2P)	50	85	100	50	85	100	
Rated ulti	mate	DC750V (2P)			None	1		25	
short-circ breaking	uit	DC750V (3P)	50	85	100	50	85	100	
сараситу і	CU (KA)	DC1000V (3P)			None			25	
		DC1000V (4P)	25	35	50	50	70	85	
		DC1200V (4P)	No	None 25 None				40	
Rated ser capacity	rvice sh Ics (kA)	ort-circuit breaking			lcs=10	00%lcu			
	М	echanical life			250	000			
		DC500V (2P)			50	00			
Life (times)	Elect rical	DC750V (2P/3P)			50	00			
	life	DC1000V (3P/4P)			40	00			
		DC1200V (4P)			30	00			
Outline dimensio	on(mm)	2P (L×W×H)	135×61 155×	×80 (without access 61×80 (with accesso	ories), ries)	165×7 185:	0×86 (without access <70×86 (with access	sories), ories)	
		3P (L×W×H)	135×90 155×	×80 (without access 90×80 (with accesso	ories), ries)	165×10 185×	5×86 (without acces 105×86 (with access	sories), ories)	
+ + + +		4P (L×W×H)	135×120 155×1	0×80 (without access 20×80 (with accesso	ories), pries)	165×14 185×	0×86 (without acces 140×86 (with access	sories), ories)	
		Front-plate connection					<b>A</b>		
Installatio mode, op	on otional	Extended front-plate connection		<b>A</b>		- 	<b>A</b>		
		DIN rail installation		<b></b>			<b></b>		

Note: ▲ represents this function is available, — represents this function is not available

# Accessory Selection Table of NDM5Z Series Moulded Case Circuit Breaker

Accessory		Installation position					
code	Accessory name	2P	ЗР	4P			
00	None						
10	Alarm		0				
20	Shunt	0		0			
30	Undervoltage		0				
40	Single auxiliary						
50	Dual-auxiliary						
60	Tri-auxiliary						
12	Alarm+shunt						
13	Alarm+undervoltage						
14	Alarm+single auxiliary						
15	Alarm+dual-auxiliary			0 0 0			
16	Alarm+tri-auxiliary						
70	Alarm+shunt+single auxiliary						
71	Alarm+shunt+dual-auxiliary						
72	Alarm+shunt+dual-auxiliary						
80	Alarm+undervoltage+single auxiliary						
81	Alarm+undervoltage+dual-auxiliary						
82	Alarm+undervoltage+tri-auxiliary						
24	Shunt+single auxiliary						
25	Shunt+dual-auxiliary			00			
26	Shunt+tri-auxiliary						
34	Undervoltage+single auxiliary			0 0			
35	Undervoltage+dual-auxiliary			00			
36	Undervoltage+tri-auxiliary						

# Part 4 Disconnecting Switch

# Quick Selection Table of NDG(R)2 Series Disconnecting Switch



### ND G2-125/3/F1 125A



### Note:

4 poles are not available for the disconnecting switch 1250 and 1600 as well as the disconnecting switch fuse 1000 and 1250.

# Main Performance Parameters of NDG2 Series Disconnecting Switch

Specifications	NDG2 -125	NDG2 -160	NDG2 -200	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	3
Rated insulation voltage Ui (V)	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage Uimp (kV)	12	12	12	12	12	12	12	12
Rated working voltage UeV		'			'			<u></u>
AC 50Hz	400/690	400/690	400/690	400/690	400/690	400/690	400/690	400/690
DC	500	500	500	500	500	1000		<u></u>
Rated operational current le (A)/ po	ower AC							
400V AC-23B A/kW	125/75	160/90	200/110	400/200	630/355	1000/500	1250/515	1600/660
690V AC-23B A/kW	125/110	160/150	160/150	250/375	400/375	800/710	1000/890	1250/1110
Rated operational current le (A)/ De	C							<u></u>
500V L/R=15ms DC-23B (A)				400	630			
1000V L/R=2.5ms DC-22B (A)						500		
Rated short-circuit making capacity AC 690V kA	20	20	20	50	50	85	85	85
Rated short-time withstand current AC 690V kA/1s	4	4	4	15	15	50	50	50
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		

Specifications	NDG2 -125	NDG2 -160	NDG2 -200	NDG2 -400	NDG2 -630	NDG2 -1000	NDG2 -1250	NDG2 -1600
Rated making and breaking capac	ity							
Rated making capacity 690V AC-23B (A)	1250	1600	1600	4000	4000	8000	12500	12500
Rated breaking capacity 690V AC-23B (A)	1000	1280	1280	3200	3200	6400	10000	10000
Rated making and breaking resistive load capacity 400V (kVAr)	131	131	131	251	251	540	820	820
Mechanical capacities		'		'				·
Mechanical life (times)	15000	15000	12000	3000	3000	3000	1000	1000
Electrical life (times)	1000	1000	1000	300	300	150	100	100
Operating torque Nm	7.5	7.5	7.5	16	16	30	38	38
Permissible load								
Ambient temperature: 40 $^\circ\!$	125	160	200	400	630	1000	1250	1600
Ambient temperature: 45 $^\circ\!$	125	150	180	395	600	960	1220	1550
Ambient temperature: 50 $^\circ\!\mathrm{C}$ , A	125	145	160	390	570	920	1180	1500
Ambient temperature: 55 $^\circ\!\mathrm{C}$ , A	125	140	140	380	540	880	1140	1445
Connection								
Minimum cross-sectional area of the copper cable mm2	70	120	150	240	2x150	2x240	-	-
Maximum cross-sectional area of the copper cable mm2	20x5	40x16	40x16	40x16	40x16	40x16	70x14	70x14
Maximum copper cable density mm	20	20	20	25	25	40	70	70
Terminal tightening torque Nm	7-10	15-22	15-22	35-45	35-45	35-45	50-65	50-65
Others								
Neutral pole current A/A	125/125	160/160	200/200	400/400	400/400	630/630	1000/1000	1000/1000
Auxiliary switch 380V AC-15 A	4	4	4	4	4	6	6	6
Auxiliary switch 220V DC-13A	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.6

# Main Performance Parameters of NDGR2 Series Disconnecting Switch

Specifications	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
Size of the adapted fuse link	000	00	00	1-2	1-2	3	3	4	4
Biggest fuse	100	160	160	400	400	800	800	1250	1250
Rated insulation 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 working voltage Ue V									
AC 50Hz	380	380	380/690	380/690	380/690	400/415/690	400/415/690	400/415/690	400/415/690
Rated operational current le									
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 ultimate short-circuit cur	rent kA								
AV 380V	100	100	100	100	100	100	100	100	100
AV 690V			50	50	50	50	50	50	50
DC 500V						50	50	50	50
Rated making and breaking cap	pacity								
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 making and breaking resistive load capacity 400V (kVAr)	131	131	251	251	251	540	540	830	830
Mechanical capacities									
Mechanical life (times)	15000	15000	12000	12000	12000	3000	3000	1000	1000
Electrical life (times)	1000	1000	300	300	300	200	150	100	100
Minimum operating torque (Nm)	7.5	7.5	16	16	16	30	30	38	38

Specifications	NDGR2 -63	NDGR2 -125	NDGR2 -160	NDGR2 -250	NDGR2 -400	NDGR2 -630	NDGR2 -800	NDGR2 -1000	NDGR2 -1250
Permissible load									
Ambient temperature: 40 °C , A	63	125	160	250	400	630	800	1000	1250
Ambient temperature: 45 °C , A	63	125	150	250	380	610	770	970	1200
Ambient temperature: 50 °C , A	63	125	145	250	360	590	740	940	1150
Ambient temperature: 55 °C , A	63	125	140	240	340	570	710	910	1100
Connection	-		1	-	1	-			
Minimum cross-sectional area of the copper cable mm <sup>2</sup>	35	70	120	150	240	2x150	2x240	2x240	-
Maximum cross-sectional area of the copper cable mm <sup>2</sup>	20x5	20x5	40x16	40x16	40x16	40x16	70x14	70x14	70x14
Maximum copper cable width mm	20	20	20	25	25	40	40	70	70
Terminal tightening torque Nm	7-10	7-10	15-22	15-22	35-45	35-45	35-45	35-45	35-45
Others	'	,	1	'	'	'	'	,	'
Neutral pole current A/A	63/63	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1000
Auxiliary switch 380V AC-15A	4	4	4	4	4	6	6	6	6
Auxiliary switch 220V DC-13A	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.6

# Accessory Selection Table of NDG(R)2 Series Disconnecting Switch

- Type H handle (operation handle outside a cabinet, to be used with Type H spindle and coupling)
- Type H spindle (shaft length of L, L1, L2, to be used with Type H handle and coupling)
- coupling (to be used with Type H handle and spindle)
  Type B handle (operation handle outside a cabinet, to be used with Type B spindle)
- Type B spindle (shaft length of L, L1, L2, to be used with Type B handle)
- Inside-cabinet handle (handle and spindle installed, with the shaft length of L, L1, L2)
  Protective cover (applicable to NDG2-125~1000 products, 3 covers are needed for each product)
- Auxiliary switch (1 or 2 switches can be used for a product, F1 for 1 and F2 for 2)
- ◆ Fuse link (applicable to NDGR2, 3 are needed for a product)

◆ Flash barrier (applicable to NDGR2. 5 pieces to be used for a product in NDGR2-63~400, 4 pieces to be used for a product in NDGR2-630~1250)

#### ♦ Shaft sleeve

Note: For the inside-cabinet operation of NDG2-125~630 products, the auxiliary switch can't be installed due to too low installation depth.



Auxiliary switch



Protective cover

## Quick Selection Table of NDG3-125~160 Series Disconnecting Switch



Note:

The derived code is only applicable to NDG3-125

## Quick Selection Table of NDG3-250~400 Series Disconnecting Switch



### ND G 3-250/4 A Z K

#### Note:

- 1. For the side operation product and K handle type, only 03 and 04 poles are available;
- 2. For the pole type with Type A or B, only 04 poles are available for the product with the neutral pole;
- 3. Only 3 and 4 poles are available for the wide phase spacing product.

Number of poles:

- 02:2 (mechanism is located on the left side of the switch);
- 11:2 (mechanism is between the switch poles, applicable to the front operation);

03:3 (mechanism is located on the left side of the switch);

- 12:3 (mechanism is between the switch poles, applicable to the front operation);
- 04:4 (mechanism is located on the left side of the switch);
- 22:4 (mechanism is between the switch poles, applicable to the front operation, DC product);

## Main Performance Parameters of NDG3-125~400 Series Disconnecting Switch

Specifications		NDG3-125		NDG3-160		
Number of poles		3, 4, 6, 8		3, 4		
Rated insulation voltage (V)		750			1000	
Rated impulse withstand voltage Uimp (kV)		8			12	
	Utilization category	Rated voltage	Rated current	Utilization category	Rated voltage	Rated current
		380/400/415V			380/400/415V	
	AC-21A AC-22A	500V	125	AC-21A AC-22A	500V	160
Rated operational current (A)		660/690V	-		660/690V	
	AC-23A	380/400/415V	90	AC-23A	380/400/415V	135
		500V	70		500V	125
		660/690V	50		660/690V	80
		110V	125/2	DC-21A	750V	160/4
	DC-22A	250V	80/4	DC-22A	500V	160/3
Rated short-time withstand current Icw (kA)		2.5/1s		4/1s		
Rated short-circuit making capacity Icm (kA)		3.6			12	
Mechanical life		20000			20000	
Connection capacity (mm <sup>2</sup> ) (bare-copper cable)	٨	/ain product: 10-70 Auxiliary: 0.75-2.5			Main product: 10-70 Auxiliary: 0.75-2.5	
Terminal tightening torque (locking torque Nm)	Main	product: 6 Auxiliary	: 0.8	Main product: 6 Auxiliary: 0.8		
Operating torque (Nm)		2.5			5	
Installation mode	DIN rail and screv	v installation: Cabinet	door installation	DIN rail and screv	v installation: Cabinet	door installation

Specifications		NDG3-250		NDG3-400		
Number of poles		2, 3, 4		2, 3, 4		
Rated insulation voltage (V)		1000			1000	
Rated impulse withstand voltage Uimp (kV)		12			12	
	Utilization category	Rated voltage	Rated current	Utilization category	Rated voltage	Rated current
		380/400/415V	250		380/400/415V	
Rated operational current (A)	AC-23A	500V		AC-23A	500V	400
		660/690V			660/690V	
		500V	250/3		500V	400/3
	DC-21B	1000V	250/4	DC-21B	1000V	400/4
Rated short-time withstand current Icw (kA)		8/1s	'	15/1s		
Rated short-circuit making capacity Icm (kA)		30			50	
Mechanical life		20000			20000	
Connection capacity (mm <sup>2</sup> ) (bare-copper cable)	Ν	Main product: 120-150 Auxiliary: 0.75-2.5			uct: 240 (1 piece) - 150 Auxiliary: 0.75-2.5	) (2 pieces)
Terminal tightening torque (locking torque Nm)		Main product: 15-22 Auxiliary: 0.8			Main product: 30-44 Auxiliary: 0.8	
Operating torque (Nm)		2P-4P:7			2P-4P:15	
Installation mode	Во	ottom plate installatio	on	Bottom plate installation		

# Accessory Selection Table of NDG3-125~400 Series Disconnecting Switch



### NDG3-125 accessory mode

No.	Name	Remarks
1	Auxiliary switch NGF1-01	Installed on both sides of the product with a maximum of 2 on each side; for the cabinet door installation product or if installed on the same side of the N-phase, install the switch on the product after wiring with the maximum wiring no more than 1 mm <sup>2</sup>
2	Auxiliary switch NGF1-10	Installed on both sides of the product with a maximum of 2 on each side; for the cabinet door installation product or if installed on the same side of the N-phase, install the switch on the product after wiring with the maximum wiring no more than 1mm <sup>2</sup>
3	Auxiliary switch NGF1-11	Installed on both sides of the product with 1 on each side, which shall not be installed on the N-phase side; for the cabinet door installation product, install the switch on the product after wiring with the maximum wiring no more than 1 mm <sup>2</sup>
4	Terminal cover NGZ1-125/3	Installed on the inlet&outlet wire ends of the main switch
5	Terminal cover NGZ1-125/1	Installed on the inlet&outlet wire ends of the N-pole product
б	Handle NGSB1-B	To be used for the cabinet door installation product with 1 for each set; before installation, select the installation hole position and open up a knock-down hole
7	Handle NGSB1-06C	Optional shaft length of 130, 150, 161, 210, 290



### NDG3-160 accessory mode

No.	Name	Remarks
1	Auxiliary switch NGF2-01	Must be used with NGA1-2/160 and installed on the product front with a maximum of 2 on each side, which can't be used for the inside cabinet handle
2	Auxiliary switch NGF2-10	Must be used with NGA1-2/160 and installed on the product front with a maximum of 2 on each side, which can't be used for the inside cabinet handle
3	Auxiliary switch NGF1-11	Must be used with NGA1-1/160 and installed on both sides of the product with a maximum of 2 on each side, which can't be used for the screw installation
4	Terminal cover NGZ1-160/1	Installed on the inlet&outlet wire ends of the product, which can't be used with the secondary wiring terminal
5	NDG3-160 (short) short busbar	Installed between two adjacent poles
6	NDG3-160 (long) short busbar	Installed between two poles of the spacing operating mechanism
7	Secondary wiring terminal NGXTG1-160	Installed on the both ends of the product's each pole, which can't be used with the terminal cover
8	Mounting base NGA1-1/160	Installed on both sides of the product, to be used with NGF1-11, with the screw installation not optional
9	Handle NGSB1-06C	Optional shaft length of 130, 150, 161, 210, 290 (only 130 for the cabinet door installation)
10	Mounting base NGA1-2/160	Installed on the top of the product, to be used with NGF2-01 and NGF2-10, with the inside-cabinet handle not optional



### NDG3-250 accessory mode

No.	Name	Remarks
1	Auxiliary switch NGF1-01	Installed underneath the mechanism front cover with a maximum of 1 up and down, which shall be installed on the product after wiring
2	Auxiliary switch NGF1-10	Installed underneath the mechanism front cover with a maximum of 1 up and down, which shall be installed on the product after wiring
3	Auxiliary switch NGF1-11	Must be used with NGA1-1/250 and installed on both sides of the product with a maximum of 2 on each side
4	Terminal cover NGZ1-250/1S	Installed on the inlet&outlet wire ends of the product
5	Terminal cover NGZ1-250/1L	Installed on the inlet&outlet wire ends of the product
6	NDG3-250 short connection bar	Installed between two adjacent poles
7	NDG3-250 long connection bar	Installed between two poles of the spacing operating mechanism
8	Mounting base NGA1-1/250	Installed on both sides of the product, to be used with NGF1-11
9	Handle NGSB1-06C	Optional shaft length of 130, 150, 161, 210, 290



### NDG3-400 accessory mode

No.	Name	Remarks
1	Auxiliary switch NGF1-01	Installed underneath the mechanism front cover with a maximum of 2 up and down, which shall be installed on the product after wiring
2	Auxiliary switch NGF1-10	Installed underneath the mechanism front cover with a maximum of 2 up and down, which shall be installed on the product after wiring
3	Auxiliary switch NGF1-11	Must be used with NGA1-1/250 and installed on both sides of the product with a maximum of 2 on each side
4	Terminal cover NGZ1-400/1S	Installed on the inlet&outlet wire ends of the product
5	Terminal cover NGZ1-400/1L	Installed on the inlet&outlet wire ends of the product
6	NDG3-400 short connection bar	Installed between two adjacent poles
7	NDG3-400 long connection bar	Installed between two poles of the spacing operating mechanism
8	Mounting base NGA1-1/250	Installed on both sides of the product, to be used with NGF1-11
9	Handle NGSB1-10J	Optional shaft length of 166, 185, 250, 280, 325, 395, 465, 535

### Accessories Function Description

Part	Function
Auxiliary switch	Simultaneous monitoring ON-OFF status of the product
Handle outside a cabinet	Operate the disconnecting switch outside the cabinet
Terminal cover	Insulation protection
DC short busbar	In series connection for DC application
Secondary wiring terminal	Auxiliary wiring
Mounting base	To be used with the auxiliary switch

### Configuration of standard accessories

		Terminal cover				
		Model	Applicable switch	Number of poles		
NGZ1-125/1	NGZ1-125/3	NGZ1-125/1	NDG3-125	1-8 pole(s)		
		NGZ1-125/3	NDG3-125	3, 4, 6, 8 poles		
NGZ1	1-160	NGZ1-160/1	NDG3-160	1-4 pole(s)		
		NGZ1-250/15	NDG3-250	1-4 pole(s)		
NGZ1-250/15	NGZ1-250/1L	NGZ1-250/1L	NDG3-250	1-4 pole(s)		
		NGZ1-400/15	NDG3-400	1-4 pole(s)		
NGZ1-400/15	NGZ1-400/1L	NGZ1-400/1L	NDG3-400	1-4 pole(s)		

Nader Nort-HO IECOSIAT-3-1	Auxiliary switch			
$\begin{array}{c} & & & & & & & & & \\ & & & & & & & & & $	Model	Applicable switch	Function	
NGF1-01/10	NGF1-01	NDG3-125/250/400	1NC	
	NGF1-10	NDG3-125/250/400	1NO	
NGF1-11	NGF1-11	NDG3-125/160/250/400	1NO+1NC	
Nadar andreas account	NGF2-01	NDG3-160	1NC	
「「「「「「」」) NGF2-01/10	NGF2-10	NDG3-160	1NO	

		Handle+shaft				
0.01		Model	Applicable switch	Square shaft dimensions		
	No. of Concession, Name	NGSB1-B	NDG3-125	6*6		
		NGSB1-06C 130	NDG3-125, 160, 250	6*6		
		NGSB1-06C 150	NDG3-125, 160, 250	6*6		
		NGSB1-06C 161	NDG3-125, 160, 250	6*6		
		NGSB1-06C 210	NDG3-125, 160, 250	6*6		
NGSB1-06C		NGSB1-06C 290	NDG3-125, 160, 250	6*6		
		NGSB1-10J 166	NDG3-400	10*10		
		NGSB1-10J 185	NDG3-400	10*10		
		NGSB1-10J 250	NDG3-400	10*10		
		NGSB1-10J 280	NDG3-400	10*10		
		NGSB1-10J 325	NDG3-400	10*10		
		NGSB1-10J 395	NDG3-400	10*10		
		NGSB1-10J 465	NDG3-400	10*10		
NGSB1-10J		NGSB1-10J 535	NDG3-400	10*10		
		Mounting base				
		Model	Applicable switch	Function		
NGA1-1/160		NGA1-1/160	NDG3-160	Auxiliary installation NGF1-11		
		NGA1-2/160	NDG3-160	Auxiliary installation NGF2-01/10		
NGA1-2/160 NGA1-1	1/250	NGA1-1/250	NDG3-250/400	Auxiliary installation NGF1-11		
		Secondary wiring terminal				
		Model	Applicable switch	Function		
NGXTG1-160		NGXTG1-160	NDG3-160	Ease for wiring		
		DC short busbar				
		Model	Applicable switch	Function		
(Short) (Long) NDG3-160 short bu:	sba	NDG3-160 (short) short busbar	NDG3-160	DC in series connection		
0 0 0		NDG3-160 (long) short busbar	NDG3-160	DC in series connection		
(Short) (Long) NDG3-250 bushar		NDG3-250 short connection bar	NDG3-250	DC in series connection		
		NDG3-250 long connection bar	NDG3-250	DC in series connection		
		NDG3-400 short connection bar	NDG3-400	DC in series connection		
(Short) (Long) NDG3-400 short bu	ısbar	NDG3-400 long connection bar	NDG3-400	DC in series connection		

PRODUCT PROFILE Selection Manual of Low-voltage Products

# Quick Selection Table of NDG3-500~1250 Series Disconnecting Switch



Note:

The short busbar MX1/G3- shall be ordered for the DC PV product; please contact the local dealer.

## Main Performance Parameters of NDG3-500~1250 Series Disconnecting Switch

Specifications	Category/unit		Parameter description				
Rated current In	А		500	630	800	1000	1250
Conventional thermal current Ith	A		800 1250			50	
Number of poles		Pole			3, 4	1	
Insulation Voltage, Ui		V			1000		
Rated impulse withstand voltage Uimp	kV				12		
		380/400/415V	500	630	800	1000	1250
	AC22B	660/690V	400	500	500	800	800
	AC23B	380/400/415V	400	500	/	800	1000
Pated operational		660/690V	315	315	/	500	500
current le (A)	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	ŀ	(A 1s	AC: 16 DC: 10		AC: 35 DC: 10		
Rated short-circuit making capacity Icm		kA	AC: 32 AC: DC: 17 DC			: 50 : 17	
Mechanical life	-	limes	5000				
Operating torque	N.m		18		40		
Wiring screw tighten torque	N.m		14		1	0	
Wiring copper bus cross-section	mm²		2 pieces, 30×5	2 pieces, 40×5	2 pieces, 50×5	2 pieces, 60×5	2 pieces, 80×5
Installation			M6 screw installation		M8 screw installation		

# Accessory Selection Table of NDG3-500~1250 Series Disconnecting Switch



### NDG3-500, NDG3-630, NDG3-800 accessory mode

No.	Name	Remarks
1	Handle	Installed on the cabinet door with one for each door and the optional shaft length of 200mm, 400mm
2	Auxiliary switch	Installed on the front left of the main switch, up to two units
3	Short busbar	Installed on the terminal board of the main switch



### NDG3-1000, NDG3-1250 accessory mode

No.	Name	Remarks
1	Handle	Installed on the cabinet door with one for each door and the optional shaft length of 200mm, 400mm
2	Auxiliary switch	Installed on the front left of the main switch, up to two units
3	Short busbar	Installed on the terminal board of the main switch

### Accessories Function Description

Part	Function
Auxiliary switch	Simultaneous monitoring on-off status of the product
Handle outside a cabinet	Operate the disconnecting switch outside the cabinet
Short busbar	In series connection of the main poles for DC application

### Configuration of standard accessories

	Handle				
SP1/C2 900	Model	Applicable switch	Square shaft dimensions		
561/03-800	SB1/G3-800	NDG3-500/630/800	Without a square shaft		
SB1-200/G3-800	SB1-200/G3-800	NDG3-500/630/800	Shaft length 200mm		
SB1-400/G3-800	SB1-400/G3-800	NDG3-500/630/800	Shaft length 400mm		
SB1/G3-1250	SB1/G3-1250	NDG3-1000/1250	Without a square shaft		
	SB1-200/G3-1250	NDG3-1000/1250	Shaft length 200mm		
SB1-200/G3-1250 SB1-400/G3-1250	SB1-400/G3-1250	NDG3-1000/1250	Shaft length 400mm		

Auxiliary switch



F1-11A/G3-800



Model	Applicable switch	Function
F1-11A/G3-800	NDG3-500/630/800/1000/1250	1NO+1NC, 1 unit to be installed
F1-11B/G3-800	NDG3-500/630/800/1000/1250	1NO+1NC, 2 units to be installed

### Features: According to GB 14048.5, IEC 60947-5-1

Contact type	Rated current In(A)	Operational current le (A)			
		250V AC AC-12	250V DC DC-12	125V DC DC-12	
NO+NC	16	16	0.3	0.6	

	Short busbar				
	Mode	Applicable switch	Function		
MX1/G3-800	MX1/G3-800	NDG3-500/630/800	In series in DC		
22 23	MX1/G3-1250	NDG3-1000/1250	In series in DC		
MX1/G3-1250					

# Part 5 Automatic Transfer Switch Equipment

## Quick Selection Table of NDQ1 Series Intelligent Automatic Transfer Switch



### ND Q 1-100 R 80/3 Z



Note: The lead length of the split controller is 1.8m in default; for special requirements, please notice 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

Selection description

Users can select different types of protection features or accessories according to the actual condition.

Frame size	Standard ci	rcuit breaker		Optional accessories		
	3P	4P	Optional protection			
63	NDM2-63L/3300	NDM2-63/4300B		Shunt release Single auxiliary contact Dual-auxiliary contact		
100	NDM2-100L/3300	NDM2-100/4300B	Complex release (Default)			
225	NDM2-225L/3300	NDM2-225/4300B	Instantaneous release only			
400	NDM2-400H/3300	NDM2-400/4300B	motor protection type			
630	NDM2-630H/3300	NDM2-630/4300B				

Note: The dual-auxiliary contact can only be installed on the product with 100A frame size and above; please notice us in advance for ordering the optional function in the table.

# Quick Selection Table of NDQ2 Series Intelligent Automatic Transfer Switch



# ND Q 2 - 63 / 20 / 3 Number of poles: 3-3P 4-4P 2P can be ordered Current specifications: 6, 10, 16, 20, 25, 32, 40, 50, 63 Frame size: 63 Design SN: 2 Product code: Automatic transfer switch Enterprise code: Nader Electrical

## Quick Selection Table of NDQ2A Series Intelligent Automatic Transfer Switching





Note a: Rated current: 63A frame size: 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A 100A frame size: 32A, 63A, 100A

Note: If there is no special identification, the circuit breaker adopts C tripping curve for the CB-level ATS; if D tripping curve is needed, "(Type D)" shall be added behind the product model. Example: NDQ2A-63/40/4CB (Type D).

# Main Parameters of NDQ1 and NDQ2(A) Series Intelligent Automatic Transfer Switch

Model & specifications	NDQ1 -63	NDQ1-100	NDQ1-225	NDQ1-400	NDQ1-630	NDQ2 -63	NDQ2A -63	NDQ2A -100
Number of poles	3, 4	3, 4	3,4	3, 4	3, 4	3, 4	2,3	3, 4
Configuration	Configuration							
Integral type								
Split type		-				-	-	-
Executive switch		NDM2 serie	es Moulded cas	e circuit break	er	NDB2 series miniature circuit breaker	NDM1T series miniature circuit breaker	NDG1-100 disconnecting switch
Rated insulation voltage Ui (V)	690	690	690	690	690	440	40	00
Rated impulse withstand voltage Uimp (kV)	8	8	8	8	8	4		4
Rated operational voltage Ue (V)	400	400	400	400	400	400	230 (2P), 4	00 (3P, 4P)
Rated short-circuit breaking capacity Icn (kA)	50	50	50	65	65	10	б	-
Rated short-circuit making capacity Icm (kA) peak value	105	105	105	143	143	17	9.18	-
Rated conditional short-circuit current lq (kA)	-	-	-	-	-	-	-	10
Utilization category	AC-33iB	AC-33iB	AC-33iB	AC-33iB	AC-33iB	AC-33iB	AC-	33iB
Isolating function								
Mechanical life (times)	12000	12000	12000	12000	12000	12000	100	000
Electrical life (times)	8000	6000	6000	6000	6000	8000 6000		00
Electrical apparatus level	СВ	СВ	СВ	СВ	СВ	СВ	СВ	PC
Controller								
Operational voltage of controller (V)	220	220	220	220	220	220	220	220
Rated frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Overvoltage switching value (V)		AC 264				-	-	-
Undervoltage switching value (V)	(60-85) %Ue, continuously adjustable				154	-	-	
OFF/ON delay time (s)	0.5-60 (continuously adjustable)			1-10 adjustable	-	-		

# Controller Function Table of NDQ1 and NDQ2(A) Series Intelligent Dual Power Supply

Controller Overview

Picture		<u>NOQ1 自动转换开关电器</u> 「…」 Q2 公式 Q — Nader-上指究图电晶层的有限公司-		NOL-10 REREPTOR VIEL 10
Model	NDQ1		NDQ2	NDQ2A
Structure form	Integral	Split	Built-in	Built-in
Control mode	R: Self-throwing-self-restoring S: Self-throwing-non-self-restoring F: Grid-generator		R: Self-throwing-self-restoring	R: Self-throwing-self-restoring

### **Controller Function Features**

Model & specifications	NDQ1	NDQ2	NDQ2A
Structure form	Integral/split	Built-in	Built-in
Common power detection	Three-phase	Three-phase	Three-phase
Standby power detection	Three-phase	Single phase	Single phase
Power detection type	Overvoltage/Undervoltage/default phase	Undervoltage/default phase	Default phase
Generator frequency detection		-	-
Automatic/manual switching			
Manual button operation		-	-
Self-throwing-self-restoring			
Self-throwing-non-self-restoring		-	-
Generator starting signal		-	-
Power/closing status display			
Tripping status display		-	-
Display mode	LED	LED	LED
Undervoltage value adjustable		-	-
Overvoltage value adjustable	-	-	-
Delay time adjustable			-
Power status output	-		
Closing status output			
Alarm of the abnormal standby power supply		-	-
Unloading instruction output		-	-
Fire dual-tripping		-	
Fault automatic stop, alarm function		-	-
RS485 communication	Only split	-	-

Note: The PC-level product has the consistent function with the CB-level product in the NDQ2A series. Standard configuration - This function is not available

## Quick Selection Table of NDQ3 Series Intelligent Automatic Transfer Switch



### ND Q 3 - 100 Z / 3 R



Automatic Transfer Switch Equipment

# Main Parameters of NDQ3 Series Intelligent Automatic Transder Switch

Model	NDQ3				
Frame size (A)	125	200	400		
Number of poles	3, 4	3, 4	3, 4		
Rated insulation voltage (V) Ui	690	690	690		
Rated impulse withstand voltage (kV) Uimp	б	б	6		
Rated operational voltage (V) Ue	400	400	400		
Rated short-time withstand current (kA) Icw	10	10	10		
Peak value of rated short-circuit making capacity (kA) Icm	17	17	17		
Utilization category	AC-33B	AC-33B	AC-33B		
Mechanical life (times)	7000	6000	6000		
Electrical life (times)	2000	1500	1500		
Working voltage of controller (V)	220	220	220		
Undervoltage switching value (V)	165	165	165		
Undervoltage return value (V)	175	175	175		
Overvoltage switching value (V)	270	270	270		
Overvoltage return value (V)	260	260	260		
Adjustable delay time (0-30s)	Standard configuration	Standard configuration	Standard configuration		
Generator starting signal	To be optional	To be optional	To be optional		
Fire dual-tripping	None	None	None		
Button operation	Standard configuration	Standard configuration	Standard configuration		
### Controller Function Table of NDQ3 Series Intelligent Dual Power Supply

Model & specifications	NDQ3	Model & specifications	NDQ3
Structure form	Built-in/split	Operation mode	
Rated working voltage V	220	Auto switch and auto recover	
Rated working frequency Hz	50/60	Auto switch and non-auto recover	
Operation mode		Generator	•
Automatic operation		Secondary terminal output	
Manual button operation		Common power status	•
Handle operated		Common closing status	
Power monitoring		Standby power status	
Common three-phase detection		Standby closing status	
Standby single-phase detection	-	Standby abnormal alarm	-
Standby three-phase detection	-	Generator control	
Undervoltage detection		Load removal	-
Overvoltage detection	-	Fire dual-tripping	-
Default phase detection		Display	
Voltage loss detection		Common and standby power	
Standby generation frequency detection	-	Common making	
Adjustable parameters		Standby making	
Undervoltage setting value	-	Common tripping	-
Time delay setting value		Standby tripping	-
Operation mode		Display mode	LED

Note: Standard configuration - This function is not available

### Quick Selection Table of NDQ3A Series Intelligent Dual Power Automatic Switching Device

#### ND Q 3A-3150 D 1600/3 R II



#### Note:

1. Type A controller is not provided with the grid generator control mode (Type F) while Type D controller can freely adjust the different control modes. Therefore, the control mode is empty;

2. Type D controller is only applicable to the 1250A and 3150A frame size products while Type A, B and C controllers are applicable to other frame size products:

3. 800A shell frame only has the three-segment structure (III type); 1250A and 3150A frame sizes only have the two-segment type (II type) while other frame sizes share the two-segment and three-segment type; 4. If the manual transfer switch of the mechanism is to be ordered, the controller type and control mode are empty; 4000 A and 5000 A products can be provided separately (to be realized through the parallel connection of the 3150 A frame size product);

5. Type A controller is factory set to be pluggable and fixed on the switch body. It can also be extended to be the split type, which shall be indicated during ordering. Type B and C controllers are the split type with the default cable length as

1.8m, which can be customized.

Note a: 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: 315A, 350A, 400A, 500A, 630A 800A frame size: 700A, 800A 1250A frame size: 800A, 1000A, 1250A 3150A frame size: 1600A, 2000A, 2500A, 3150A



### Main Parameters of NDQ3A Series Intelligent Dual Power Supply

Model & specifications					NDQ3A			•	
Agreed thermal current Ith (A)	63	125	250	400	630	800	1250	3150	5000
Number of poles			1	1	3, 4		1	1	1
Switch contact position			/			III		Ш	
Rated insulation voltage Ui (V)			8	00				1000	
Rated impulse withstand voltage Uimp (kV)				3				12	
Rated working voltage Ue (V)			4	00	,			400	
Rated short-time withstand current lcw (kA)				-			32	5	0
Rated short-circuit making capacity Icm (kA) peak value				-			67.2	10	05
Rated limited short-circuit current lq (kA)	100			120				-	
Contact transfer time (ms)			∥:≤200	) III:≤700				≤200	
Operating transfer time (ms)			<b>I</b> :≤500	)∭:≤100	0			≤500	
Utilization category	AC	33B		AC-33iB		AC-33iB			
Mechanical life (times)	12000	10000		10	000		10	000	10000
Electrical life (times)	6000	6000		25	500		2500 20		2000
Electrical equipment level					PC level				
Controller					Integral/spli	t			
Working voltage of controller (V)			220						
Undervoltage switching value (V)		187 (only Type B, C)					165 (only Type D)		
Undervoltage return value (V)		198 (only Type B, C)					180 (only Type D)		
Overvoltage switching value (V)			264 (only	264 (only Type B, C)				260 (only Typ	pe D)
Overvoltage return value (V)			253 (only	r Type B, C)			:	275 (only Typ	pe D)
Adjustable delay time (s)	■ (0-60)								
Generator starting signal			(only	Type B, C)					e D)
Fire dual-tripping			(only the II	-segment ty	ype)		■ (only the II -segment type)		
Button operation			(only	Type B, C)				(only Typ)	e D)
Wiring mode			Front-plate	connectior	ı		Re	ar-plate con	nection

Note: Standard configuration Optional function - This function is not available

### Controller Function Table of NDQ3A Series Intelligent Dual Power Supply

#### **Controller Overview**

Picture		NDO3A 控制語 - 8 III III - 18 III - 18 III III - 18 III III - 18 III - 18 III - 18 III III - 18 III - 18 III - 18 III - 18 III III - 18 III - 18 III - 18 III - 18 III III - 18 III - 18 IIII - 18 III - 18 IIII - 18 III - 18 III - 18 IIII - 18	NDO3A 控制器 - CIII Search Control Cont	West B28-12 West 12   West B28-12 west   West B28-12 west		
Model	NDQ3A-A	NDQ3A-B	NDQ3A-C	NDQ3A-D		
Structure form	Integral	Split	Split	Split		
Control mode	R: Auto switch and auto recover S: Auto switch and non-auto recover	R: Auto switch and auto recover S: Auto switch and non-auto recover F: Grid generator	R: Auto switch and auto recover S: Auto switch and non-auto recover F: Grid generator	R: Auto switch and auto recover S: Auto switch and non-auto recover F: Grid generator		

#### **Controller Function Features**

Model & specifications	NDQ3A-A	NDQ3A-B/C	NDQ3A-D
Structure form	Integral	lSplit	Split
Common power detection	Three-phase	Three-phase	Three-phase
Standby power detection	Three-phase	Three-phase	Three-phase
Type of power detection	Default phase	Overvoltage/Undervoltage/default phase	Overvoltage/Undervoltage/default phase
Generator frequency detection	-		
Phase unbalance detection	-	-	
Automatic/manual switching			
Manual button operation	-		
Auto switch and auto recover			
Auto switch and non-auto recover			
Generator starting signal	-		
Power/closing status display			
Display mode	LED	LED	LED+LCD
Undervoltage value adjustable	-		
Overvoltage value adjustable	-	-	
Delay time adjustable			
Power priority adjustable	-	-	
Power status output	-	-	-
Closing status output			
Abnormal alarm of the power supply	-	-	
Switching abnormal alarm			-
Fire dual-tripping			-
Fault automatic stop, alarm function			
Coil working voltage judgment			-
RS485 communication	-	Only Type C	
Password protection, fault record	-	-	

Note: Standard configuration - This function is not available

# Part 6 Low-voltage Terminal Power Distribution Products

### Quick Selection Table of NDM1 Series Products

Product type	Product name	Rated voltage (V)	Breaking capacity Icu/Icn (kA)	Number of poles	Rated current (A)
	NDM1-63	AC230/240 (1P) AC400 (2P, 3P, 4P) DC80 (1P, 2P)	6, 4.5 (50A, 63A and Type D)		1, 2, 3, 4, 6, 10, 16, 20, 25, 32, 40,
	NDM1T-63	AC230/240 (1P) AC400/415 (2P, 3P, 4P) DC60 (1P)	6	12, 22, 32, 42	50, 63
	NDM1-125	AC230/240 AC400/415 (2P, 3P, 4P) DC60/80 (1P) DC80/125 (2P)	10	1P, 2P, 3P, 4P	50, 63, 80, 100, 125
	NDM1F-63	AC230/240 (1PN) AC400/450 (3PN)	4.5 (no less than 50A), 6 (no more than 40A)	1PN, 3PN	6, 10, 16, 20, 25, 32, 40, 50, 63
MCD	NDB1-32	AC230	4.5	1P+N	6, 10, 16, 20, 25, 32
Circuit breaker	NDB1-125	AC230/240 (1P) AC400/415 (2P, 3P, 4P)	10	1P, 2P, 3P, 4P	50, 63, 80, 100, 125
	NDB1L(G)-32	AC230/240	4.5	1P+N	6, 10, 16, 20, 25, 32
	NDM1L-32	AC230/240 (1PN, 2P) AC380/400/415 (3P, 3PN, 4P)	6 (Type B, C) 4.5 *(Type D)	1PN, 2P, 3P, 3PN, 4P	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32
	NDM1L-50	AC230/240 (1PN, 2P) AC380/ 400/415 (3P, 3PN, 4P)	6 (1~40A for Type B, C) 4.5 (50A for Type B, C, Type D)	1PN, 2P, 3P, 3PN, 4P	6, 10, 16, 20, 25, 32, 40, 50 (50A not available for Type D)
	NDM1L-100	AC230 (1P+N, 2P, 3P+N, 4P) AC400 (3P)	10	1P+N, 2P, 3P, 3P+N, 4P	50, 63, 80, 100
	NDM1-63G		б	2P	1, 2, 3, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63
Overvoltage/ Undervoltage protection	NDM1GQ-50	AC380/400/415 (4P)	6 (1~40A for Type B, C) 4.5 (50A for Type B, C, Type D)	4P	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50
	NDM1GQ-63	AC230/140 (1PN, 2P)	6 (1~40A for Type B, C) 4.5 (50A for Type B, C, Type D)	1PN, 2P	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63
	NGQ1A	AC230	/		
circuit breaker	NDG1-100	AC230/240 (1P) AC400/415 (1P, 2P, 3P, 4P)	/	1P, 2P, 3P, 4P	32, 63, 100
	NDG1-100+NCJ1	AC400/415 (3P, 4P)	/	3P, 4P	32, 63, 100
Modular	NDA1	AC250/AC440	/	2, 3, 4 (number of holes)	10, 16, 25
socket	NDA3	AC250	/	3 (number of holes)	10, 16
Puchan	NDH1	/	/	1P, 2P, 3P	63, 100
Busbar	NDH2	/	/	1P, 2P, 3P	63

Product type	Product name	Tripping curve	Product standards	Residual current action type	Rated residual operating current (mA)	Overvoltage protection (V) and action time Uover	Undervoltage protection (V)	Modulus (9mm times)
	NDM1-63	B, C, D	IEC60898-1 GB10963.1					
	NDM1T-63	4ln, 8ln, 12ln	IEC60947-2 GB14048.2					2, 4, 0, 8
	NDM1-125	C (8ln) D (12ln)	IEC60947-2 GB14048.2					3, 6, 9, 12
	NDM1F-63	С	IEC60898-1 GB10963.1					4, 8
Circuit breaker	NDB1-32	С	IEC60898-1 GB10963.1					4
MCB	NDB1-125	C, D	IEC60898-1 GB10963.1					3, 6, 9, 12
	NDB1L (G)-32	С	IEC61009-1 GB16917.1	AC, electronic	10, 30mA (10mA is not available for Type G)	AC280±	12/0.1s	4
	NDM1L-32	B, C, D	IEC61009-1 GB16917.1	AC, electronic	30, 50, 100			5, 7, 10, 11, 13
	NDM1L-50	B, C, D	IEC61009-1 GB16917.1	AC, electronic	300mA	AC280±12/0.1s (optional)	AC170±7/1s (optional)	١
	NDM1L-100	8ln	IEC60947-2 GB14048.2	AC, electronic	100mA	AC280±12/0.1s (optional)	AC170±7/1s (optional)	١
Overvoltage/	NDM1-63G	B, C, D	IEC60898-1 GB10963.1			AC 280±12	AC170±7	١
Undervoltage protection circuit	NDM1GQ-50	B, C, D				AC280±12/0.1s	AC170±7/1s	١
breaker	NDM1GQ-63	B, C, D				AC280±12/0.1s	AC170±7/1s	١
	NGQ1A					AC280±5%	AC170±7%	١
Disconnecting switch	NDG1-100	/	IEC60947-3 GB14048.3					2, 4, 6, 8
	NDG1-100+NCJ1	/	IEC60947-3 GB14048.3					112, 148
Modular	NDA1	/	IEC60884-1 GB2099.1					2, 4, 6, 8
JULKE	NDA3	/	/					4
Buchar	NDH1	/	/					Maximum length up to 60×18mm
DUSDOL	NDH2	/	/					Maximum length up to 60×18mm

### Quick Selection Table of NDM1-63 Series Miniature Circuit Breaker



1

#### Description:

1. 50A and 63A products are not available for the NDM1-63 series Type D product.

2. The breaking capacity of Type B and C products in the NDM1-63 series with the rated current of 1-40A is 6kA, while that of 50A, 63A and Type D product is 4.5kA.

3. Only one type of protection accessories can be assembled on the right side; see the accessory for the specific model and parameters.

4. A maximum of 3 OFs or SDs can be assembled on the left side of each product with the recommended number of assembly no more than 2.

5. If the shunt release accessory is assembled on the right side, the residual current protection accessory or overvoltage/undervoltage accessory can't be assembled.

6. The NDM1-63 product has passed the 3C certification.

#### Example:

Product model: NDM1-63 C16/2+NGQ1A+OF+SD

Represent: NDM1-63 series miniature circuit breaker, 6kA breaking, Type C curve, rated current of 16A, assembled with the overvoltage/undervoltage protection accessory, provided with the auxiliary and alarm contacts.



Description:

1. The NDM1-125 circuit breaker has an isolating function with the practical indication of the contact position.

2. Only one type of protection accessories can be assembled on the right side; see the accessory for the specific model and parameters.

3. A maximum of 3 OFs or SDs can be assembled on the left side of each product with the recommended number of assembly no more than 2.

4. If the shunt release accessory is assembled on the right side, the residual current protection accessory or overvoltage/undervoltage protection accessory can't be assembled.

5. The NDM1-125 product has passed the 3C, CE, TUV, UL1077 certification.

Example:

Product model: NDM1-125 C80/4+OF+SD

Represent: NDM1-125 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 80A, provided with the auxiliary and alarm contacts.



Description:

- 1. The whole series of the NDM1T-63 circuit breakers has a breaking capacity of 6kA.
- 2. Only one type of protection accessories can be assembled on the right side; see the accessory for the specific model and parameters.
- 3. A maximum of 3 OFs or SDs can be assembled on the left side of each product with the recommended number of assembly no more than 2.
- 4. If the shunt release accessory is assembled on the right side, the residual current protection accessory or overvoltage/undervoltage protection accessory can't be assembled.
- 5. NDM1T-63 has passed the 3C, CE, TUV certification.

#### Example:

Product model: NDM1T-63 C63/2+NDM1L-32/2P 30mA+OF+SD

Represent: NDM1T-63 series miniature circuit breaker, 6kA breaking, Type C curve, rated current of 63A, 2P accessory with the electronic residual current protection, residual current of 30mA, provided with the auxiliary and alarm contacts.



# 6 Low-voltage Terminal Power Distribution Products



#### Description:

1. The residual action current 32A and 50A frames include 30mA, 50mA, 100mA, 300mA and other specifications

while the 100A frame size includes the 100mA specifications.

2. The body of NDM1L-32 and NDM1L-50 products is the NDM1-63 product.

3. The body of NDM1L-100 product is the NDM1-125 product.

4. Type B tripping curve is not available for the NDM1L-100 product.

5. NDM1L-50 and NDM1L-100 products provide the optional overvoltage/undervoltage protection function; when this function is selected, the 3P product is not available.

#### Example:

Product model: NDM1L-50 C40 GQ/4 30mA

Represent: NDM1L-50 series residual current action circuit breaker, 6kA breaking, Type C curve, rated current of 40A, 4P with the current leakage and overvoltage/undervoltage protection function, residual current of 30mA.



#### Description:

1. Overvoltage action value: AC280V±12V, maximum breaking time: 0.1s.

2. Undervoltage action value: AC170V±7V, maximum breaking time: 1s.

3. The overvoltage and undervoltage function can be selected separately.

4. The maximum working current of 1PN, 2P overvoltage/undervoltage or overvoltage and undervoltage release is

63A. The maximum working current of 4P overvoltage/undervoltage or overvoltage and undervoltage releases is 50A.

#### Example:

Product model: NDM1GQ-50C16 4P

Represent: NDM1GQ-50 series overvoltage/undervoltage protection circuit breaker, 6kA breaking, Type C curve, rated current of 16A, 4P with the overvoltage and undervoltage protection function.

# Quick Selection Table of NDM1-63G Overvoltage Protection Circuit Breaker



#### Description:

The NDM1-63G series product adopts the 2P combination with Type B, C and D tripping curves.

Example: NDM1-63G C20 NDM1-63G series miniature circuit breaker, 6kA breaking, Type C curve, rated current of 20A, with the overvoltage protection.

				CONTRACTOR OF CO
Specifications	OF auxiliary contact	SD alarm contact	MX+OF shunt release	NGQ1A overvoltage/ undervoltage accessory
Specifications Material number	OF auxiliary contact 30000336	SD alarm contact 30000347	MX+OF shunt release 30000364	NGQ1A overvoltage/ undervoltage accessory 30000986

### Quick Selection Table of NDM1 Series Electrical Accessories

#### **OF3 auxiliary contact**



Technical parameters: AC 250V  $\,$  6  $\rm A$  AC 415V  $\,$  3A Width (mm): 18  $\,$ 

**Function:** Install on the left side of the NDG1 small disconnecting switch for synchronously making and monitoring the product's on-off status and extending the number of auxiliary contacts.

#### **OF** auxiliary contact

Application: Install on the left side of the NDM1 miniature circuit breaker for indicating the on-off state of the circuit breaker. Technical parameters: Rated working 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 NDM1 circuit breaker, 11, 14 are connected during closing; 11, 12 are connected during opening. A maximum of 2 OFs or 10F+1 SD can be connected and assembled.



#### SD alarm contact

Application: Install on the left side of the NDM1 miniature circuit breaker for indicating the fault tripping state of the circuit breaker. Technical parameters: Rated working 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 NDM1 circuit breaker, 91, 92 are connected during closing; 91, 94 are connected during the fault opening; 91, 92 are connected during the manual opening, but 91, 94 are not connected. A maximum of 2 SDs can be connected and assembled.

#### **Connection capacity:**

★ Single line: 2.5mm2; double-wire: 1.5mm2.

★ Accessories of the NDM1 series miniature circuit breaker can be supplied separately, but are not recommended to be used with the miniature circuit breaker of other companies.

#### MX+OF shunt release

Application: Install on the left side of the NDM1 miniature circuit breaker for indicating the fault tripping state of the circuit breaker. Technical parameters: Control voltage: AC 230V/400V DC 24V/48V Width (mm): 18

Note: As the active contact, the transfer contact is not allowed to be connected into other weak-current modules as the passive contact.





Connection capacity:

★ Single line: 2.5mm2; double-wire: 1.5mm2.

 $\star$  This accessory can be supplied separately, but are not recommended to be used with the miniature circuit breaker of other companies.

#### NGQ1A overvoltage/undervoltage release

Application: Install on the right side of the NDM1-63 circuit breaker for realization of the single-phase overvoltage, undervoltage, overvoltage/undervoltage protection functions.

#### Technical parameters:

Rated overvoltage action value Uover: AC280V $\pm$ 5%, maximum breaking time: 0.2s. Rated overvoltage action value Uunder: AC170V $\pm$ 7%, maximum breaking time: 1s. Width (mm): 18

Note: Users can only select the overvoltage release (NG1A) or undervoltage release (NQ1A) as required.

One overvoltage release can only be assembled for each circuit breaker for the one-way protection.







Quick Selection Table of NDB1-32 Series (Phase

Description:

1. The NDB1-32 series product adopts the 1P+N combination with Type C tripping curve and the breaking capacity

of the whole series products of 4.5kA.

2. The NDB1-32 series product can't be assembled with accessories.

3. The width of the NDB1-32 series product is 18mm, equivalent to the width of the 1P NDM1-63.

Example:

Product model: NDB1-32 C16

Represent: NDB1-32C series miniature circuit breaker, 4.5kA breaking, Type C curve, rated current of 16A.

### Quick Selection Table of NDB1-125 Series Miniature Circuit Breaker





#### Description:

1. The NDB1-125 series product has two types of tripping curves, Type C and D.

2. The NDB1-125 product has passed the GB10963.1 and GB14048.2 certification with the rated short-circuit capacity of the whole series products Icn=10kA, and the operating short-circuit capacity Ics=7.5kA.

3. A maximum of 3 OFs or SDs can be assembled on the left side of each product with the recommended number of assembly no more than 2.

#### Example:

Product model: NDB1-125 C80

Represent: NDB1-125 series miniature circuit breaker, 10kA rated short-circuit breaking capacity, Type C curve, rated current of 80A.



#### Quick Selection Table of NDB1L (G)-32 Series Residual Leakage (with Overvoltage) Action Circuit Breaker (Phase Line+Neutral Wire)

Description:

1. The NDB1L(G)-32 series product adopts the 1P+N combination with Type C tripping curve and the breaking capacity of the whole series products of 4.5kA.

2. The NDB1L(G)-32 series product can't be assembled with accessories.

3. The width of the NDB1L(G)-32 series product is 36mm, equivalent to the width of the 2P NDM1-63.

4. The residual action current is 10mA and 30mA (10mA not available for Type G)

5. Overvoltage action value: 280V±12V, breaking time: 0.1s.

Example:

Product model: NDB1LG-32 C16

Represent: NDB1LG-32 C16 series miniature circuit breaker, 4.5kA breaking, Type C curve, rated current of 16A, with the current leakage and overvoltage/Undervoltage protection.

## Quick Selection Table of NDG1 Series Disconnecting Switch



Represent: NDG1 series disconnecting switch, rated current of 32A, 2P, with the auxiliary contact.

Example:

Product model: NDG1-100 32/2+OF3

Low-voltage Terminal Power Distribution Products

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### Quick Selection Table of NDG1-100+NCJ1 Series Disconnecting Switches+Transfer Operation Accessories

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



Description:

Three positions are provided with the handle, namely the common power making position, standby power making position and dual-tripping position respectively.

#### Example:

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

Represent: Two sets of 4P NDG1-100 100A disconnecting switches plug one set of NCJ1-4G1Zs, forming a manual transfer switch.

### Quick Selection Table of NDA Series Modular Socket



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Example:

Product model: NDA1-16/2 4

modulus width of 4 (36mm).

Represent: NDA1 series modular socket, rated current of 16A, single-phase dual-hole,

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Description: Divided according to the number of poles: 1 pole, 2 poles, 3 poles, the 2P product is not available for NDH2.

Divided according to the length: Times of 18mm for the length, such as 5 digits, 10 digits, with the length of 90mm and 180mm respectively; it can be specially customized according to the user demands (width of the NDM1-63 series miniature circuit breaker is 18mm for each level) with the maximum length of 60 digits. Divided by the digital number: Tooth number of each busbar, namely the busbar is used to connect the poles of circuit breaker.

#### Example:

Order notes: 10 pieces of NDH1-63 3P 60digital busbars, 20 pieces of terminal covers, 30 pieces of connectors.

### Quick Selection Table of Self-reset Over/ Undervoltage Protector





#### Description:

NDGQ1Z is installed vertically in series with the load circuit with the upper as the inlet wire and the lower end as the outlet wire end. The rated current of 220V or 230V shall be stated during ordering.

#### Action value parameter value:

Madal	Rated	Overv	oltage	Unde	rvoltage	Overvoltage	Undervoltage	Undervoltage
Model	voltage (V)	Action value	Return value	Action value	Return value	action time	action time	reset time
NDGQ1Z	220	270V±5V 250V±5V		170V±5V	190V±5V	0.05s≤t≤0.1s	0.5s≤t≤0.1s	60s±10V
NDGQ1Z	230	280V±5V	250±5V	170V±5V	190V±5V	0.05s≤t≤0.1s	0.5s≤t≤0.1s	60s±10V

Example:

Product model: NDGQ1Z-63 220V

Represent: Self-reset overvoltage/undervoltage protector with the rated current of 63A and rated voltage of 220V.

Quick Selection Table of NDB1C Series Products

Product type	Product name	Rated voltage (V)	Breaking capacity Icu/Icn (kA)	Number of poles	Rated current (A)	Tripping Curve	Product standards	Residual current action type	Rated residual operating current (mA)	Overvoltage protection (V)	Undervoltage protection (V)	Modulus (9mm times)
	NDB1C-63	AC230/400	6, 4.5 (50A, 63A and Type D)	1P, 2P, 3P, 4P	3, 4, 6, 10, 1620, 25, 32, 4050, 63		IEC60898-1 GB10963.1					2, 4, 6, 8
Circuit breaker MCB	NDB1 C-125	AC230/240 AC400/415 (2P, 3P, 4P) DC60/80 (1P) DC80/125 (2P)	0	1P, 2P, 3P, 4P	50,63,80,100,125	C (8ln) D (12ln)	IEC60947-2 GB14048.2					3, 6, 9, 12
	NDB1C-32	AC230	4.5	1P+N	6, 10, 1620, 25, 32	U	IEC60898-1 GB10963.1	AC, electronic	10, 30 (10mA not available for Type G)	AC280±1	2/0.1s	2
	NDB1CL(G)-32	AC230	4.5	1P+N	6, 10, 16, 20, 25, 32	U	IEC61009-1 GB16917.1					4
Disconne cting switch	NDG1C-100	AC230/240 (1P) AC400/415 (1P, 2P, 3P, 4P)	~	1P, 2P, 3P, 4P	32, 63, 100	~	IEC60947-3 GB14048.3					2, 4, 6, 8
Building contactor	NDC2J	AC250 (1P, 2P) AC400 (3P, 4P)	~	1P, 2P, 3P, 4P	16, 20, 2532, 40, 63	`	IEC61095 GB17885					2,4,6
:	NDP1											8, 12, 15, 18, 20, 24, 30, 36
box	NDP3											8, 12, 15, 18, 20, 24, 30, 36

### Quick Selection Table of DB1C-63 Series Miniature Circuit Breaker



### ND B 1 C - 63 C 32 / 4 + NGO1A + OF

	 - T		·						
								 	 Electrical accessories to be equipped: OF: Auxiliary contact SD: Alarm contact MX+OF: Shunt release
							 		 Overvoltage/Undervoltage protection accessories to be equipped: (See accessories for details)
									 Number of poles: 1, 2, 3, 4
				L					3, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63
					 	 	 		 Instantaneous tripping characteristics: B: 3In~5In C: 5In~10In D: 10In~14In
					 	 	 		 Frame size level: 63
						 		 	 Derived code
		 			 	 	 	 	 Design SN: 1
		 			 	 			 Product code: Miniature circuit breaker
Į									 Enterprise code: Nader Electrical

#### Description:

50A and 63A products are not available for the NDB1C-63 series Type D product.

The breaking capacity of Type B and C products in the NDB1C-63 series with the rated current of 1-40A is 6kA, while that of 50A, 63A and Type D product is 4.5kA.

Only one type of protection accessories can be assembled on the right side; see the accessory for the specific model and parameters.

A maximum of 3 OFs or SDs can be assembled on the left side of each product with the recommended number of assembly no more than 2.

If the shunt release accessory is assembled on the right side, the residual current protection accessory or overvoltage/undervoltage accessory can't be assembled.

The NDB1C-63 series product applies to the NDB1C-63 series product. Example:

Product model: NDB1C-63 C16/2+OF+SD

Represent: NDB1C-63 series miniature circuit breaker, 6kA breaking, Type C curve, rated current of 16A, provided with the auxiliary and alarm contacts.

Quick Selection Table of DB1C-125 Series Miniature Circuit Breaker ND B 1 C - 125 C 32 / 4 + NGQ1A + OF	
	Electrical accessories to be equipped: OF: Auxiliary contact SD: Alarm contact MX+OF: Shunt release
	Overvoltage/Undervoltage protection accessories to be equipped: (See accessories for details)
	Number of poles: 1, 2, 3, 4
	Rated working current (A): 50, 63, 80, 100, 125
	Instantaneous tripping characteristics: C: 5In~10In D: 10In~14In
	Frame size level: 125
	Derived code
	Design SN: 1
	Product code: Miniature circuit breaker
	Enterprise code: Nader Electrical

Description:

The NDB1C-125 circuit breaker has an isolating function with the practical indication of the contact position.

Only one type of protection accessories can be assembled on the right side; see the accessory for the specific model and parameters.

A maximum of 3 OFs or SDs can be assembled on the left side of each product with the recommended number of assembly no more than 2.

If the shunt release accessory is assembled on the right side, the residual current protection accessory or overvoltage/undervoltage protection accessory can't be assembled.

The NDB1C-125 product has passed the 3C certification.

The NDB1C-125 series product applies to the NDB1C-125 series product.

Example:

Product model: NDB1C-125 C80/4+OF+SD

Represent: NDB1C-125 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 80A, 4P, provided with the auxiliary and alarm contacts.

### Quick Selection Table of DB1C-32 Series Miniature Circuit Breaker



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Low-voltage Terminal Power Distribution Products

#### Description:

1. The NDB1C-32 series product adopts the 1P+N combination with Type C tripping curve and the breaking capacity of the whole series products of 4.5kA

the whole series products of 4.5kA. 2. The NDB1C-32 series product can't be assembled with accessories.

3. The width of the NDB1C-32 series product is 18mm, equivalent to the width of the 1P NDM1-63.

#### Example:

Product model: NDB1C-32 C16 Represent: NDB1C series miniature circuit breaker, 4.5kA breaking, Type C curve, rated current of 16A.



Description:

1. The NDB1CL(G)-32 series product adopts the 1P+N combination with Type C tripping curve and the breaking capacity of the whole series products of 4.5kA.

2. The NDB1CL(G)-32 series product can't be assembled with accessories.

3. The width of the NDB1CL(G)-32 series product is 36mm, equivalent to the width of the 2P NDM1-63.

4. The residual action current is 30mA

Example:

Product model: NDB1CLG-32 C16

Represent: NDB1CLG-32 C16 series miniature circuit breaker, 4.5kA breaking, Type C curve, rated current of 16A, with the current leakage and overvoltage/undervoltage protection.

### Quick Selection Table of NDC2J Series Contactor



#### Description: 1 The NDC

1. The NDC2J product adopts TH35-7.5mm type installation rails.

2. The NDC2J product can be used with the NF8-11 auxiliary contact. Model of the suitable body contactor: NDC2J-32, NDC2J-40, NDC2J-63. Mainly used for the AC 50Hz/60Hz, rated voltage of 250V (1P, 2P), 500V (3P, 4P).

#### Example:

Product model: NDC2J-63 11 2P+NF8-11

Represent: NDC2J series AC contactor, rated working current of 63A, one-opened and one-closed contact, 2P product, to be used with the NF8-11 auxiliary contact.



Example: Product model: NDG1C-100 32/3 Represent: NDG1C series disconnecting switch, rated current is 32A.



#### Example: Product model: NDP1-8/B

Represent: NDP1 series distribution box, with the digit number of 8 (18mm/digit) and the opaque door.

Modulus (9mm times)	2, 4, 6, 8	2, 4, 6, 8	4	2	6, 8, 13, 15, 15	S		2	2	2 3 2 3
Undervoltage protection (V)								AC170±7	AC170±7	AC170±5
Overvoltage protection (V)								AC280±12	AC280±12	AC270±5
Rated residual operating current (mA)							30, 50, 100, 300			
Residual current action type							AC, electronic			
Product stan dards	IEC60898-1 GB10963.1 UL1077	IEC60947-2 GB14048.2 UL489 (optional)	IEC60898-1 GB10963.1	IEC60898-1 GB10963.1 UL1077	GB 14048.2 UL1077	GB14048.2-2008	IEC61009-1 GB16917.1			
Tripping curve	B, C, D	B, C, D	U	B, C	B (6ln) C (12ln)	Three- segment protection	B, C, D			
Rated current (A)	1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 20, 25, 32, 40, 50, 63	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	1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63	2, 4, 6, 10, 16, 20, 25, 32, 40 (2A not available for Type B)	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, 63	16, 20, 25, 32, 40	1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63			
Number of poles	1P 2P 3P 4P	1P 2P 3P 4P	1P+N	1P+N	1P 2P 3P 4P	ЗР	1P+N, 2P, 3P, 3P +N, 4P	1P 2P 3P 4P	1P 2P 3P 4P	1P 2P 3P 4P 2P 4P
Breaking capacity Icu/Icn (kA)	0	0	Q	Q	10 (DC125 /220 /250/ 440/500) 5 (DC750, DC1000)	10	0			
Rated voltage (V)	AC230/240/400/415/(1P) AC400/415 (2P, 3P, 4P) DC80 (1P, 2P)	AC230/240 (1P) AC400/415 (2P, 3P, 4P) DC60/80 (1P) DC80/125 (2P)	AC230	AC230/240	DC125/220/250 (1P) DC250/440/500 (2P) DC750 (3P) DC750 (3P) DC1000 (4P)	DC250 (2P)	AC230/240 (1P+N, 2P) AC380/400/415 (3P, 3P+N, 4P)	AC230	AC230	AC230/DC220 AC110/DC110 DC48 DC24 DC12 AC230 AC400
Product name	NDB2-63	NDB2T-63	NDB2-63K	NDB2-40	NDB2Z-63	NDB2ZB-40	NDB2LE-63	NGQ2	NGQ2A	Tm2 Tm2GQ J51-11Y/B2-63
Product type	Residual current action Acted Acted breaker breaker						Overvoltage/ Undervoltage protection Accessory			

Quick Selection Table of NDB2 Series Products

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### Quick Selection Table of NDB2-63 Series Miniature Circuit Breaker



Description:

The NDB2-63 series has passed the IEC60898-1 (GB10963.1) UL1077 certification with the practical indication function of the contact position.

The breaking capacity of the whole NDB2-63 series is 10kA.

Only one type of protection accessories can be assembled; see the accessory for the specific model and parameters.

A maximum of 3 OF2s or SD2s can be assembled for each product.

If the accessory ATM is used, it shall be used together with TM2 and SD2, but TM2 can be used separately.

Example:

Product model: NDB2-63 C16/2+NGQ2A+OF2+SD2

Represent: NDB2-63 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 16A, 2P accessory with the overvoltage/undervoltage protection (voltage loss non-tripping), provided with the auxiliary and alarm contacts.



Description:

1. The NDB2T-63 series has passed the IEC60947-2 (GB14048.2) certification and the option to pass the UL489 certification with the breaking capacity of the whole series of 10kA.

2. Only one type of protection accessories can be assembled; see the accessory for the specific model and parameters.

3. A maximum of 3 OF2s or SD2s can be assembled for each product.

4. If the accessory ATM is used, it shall be used together with TM2 and SD2, but TM2 can be used separately.

Example:

Product model: NDB2T-63 C16/2+NGQ2A+OF2+SD2

Represent: NDB2T-63 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 16A, 2P accessory with the overvoltage/undervoltage protection (voltage loss non-tripping), provided with the auxiliary and alarm contacts.

### Quick Selection Table of NDB2-63K Series Miniature Circuit Breaker



Description:

1. The NDB2-63K series belong to the 1P+N product with the breaking capacity of 6kA.

2. A maximum of 3 OF2s or SD2s can be assembled for each product.

Example:

Product model: NDB2-63K C/16 +MX+OF2+SD2

Represent: NDB2-63K series miniature circuit breaker, 6kA breaking, Type C curve, rated current of 16A, provided with the shunt release and alarm contact.


Description:

The NDB2-40 series can disconnect the phase line and the neutral wire simultaneously, but the protection function is not available for the neutral wire.

The green identification in the inspection window indicates that the contact is in the disconnection position. A maximum of 3 OF2s or SD2s can be assembled for each product.

Example:

Product model: NDB2-40C32/1PN +MX+OF2+SD2

Represent: NDB2-40 series miniature circuit breaker, 6kA breaking, Type C curve, rated current of 32A, 1P+N-pole with the shunt release, provided with the alarm contact.



Description:

Rated working voltage of the NDB2Z-63 series: 1P: DC125 /220 /250V. 2P: DC250/440/500V. 3P: DC750V. 4P: DC1000V. Rated breaking capacity of NDB2Z-63: DC125 /220 /250/440/500 V: 10kA; DC750V/ DC1000V: 5 kA. A maximum of 3 OF2s or SD2s can be assembled for each product.

Example:

Product model: NDB2Z-63C16/2 +MX+OF2+SD2

Represent: NDB2Z-63 series miniature circuit breaker, Type C curve, rated current of 16A, 2P with the shunt release, provided with the alarm contact.



Description:

The NDB2ZB-40 series has the overload long time delay, short circuit short delay and short circuit instantaneous action three-segment protection functions.

A maximum of 3 OF2s or SD2s can be assembled for each product.

Example:

Product model: NDB2ZB-40/16 +MX+OF2+SD2

Represent: NDB2ZB-40 series miniature circuit breaker, 10kA breaking, rated current of 16A, 2P with the shunt release, provided with the alarm contact.



Description: The residual action current of the NDB2LE series is 30mA, 50mA, 100mA and 300mA that can be customized. A maximum of 3 OF2s or SD2s and 1 NGQ2A can be assembled for each product. If the accessory ATM is used, it shall be used together with TM2 and SD2, but TM2 can be used separately.

Example:

Product model: NDB2LE-63 C40/4P

Represent: NDB2LE-63 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 40A, 4P, leakage current of 30mA.



#### Description:

The Tm2 remote control accessory (Tm2 for short) belongs to the NDB2 accessory, which is used in the circuit with the control voltage of AC230V, AC110V, DC12V, DC24V, DC48V, DC110V, DC220V and the AC frequency of 50~60Hz for the remote control of the circuit breaker and local control of the circuit breaker via the handle as well as the function of locking the circuit breaker in the opening status. The controlled load type includes: Heater, incandescent lamp low-voltage halogen lamp and low rated motor.

#### Example:

Product model: NDB2-63 C20/4+TM2-4P

NDB2-63 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 20A, 4P, for the remote control.

### Quick Selection Table of TM2GQ Series Over/Undervoltage Automatic Reclosing Device

### TM 2 / GQ / 4



#### Description:

The Tm2GQ overvoltage/undervoltage automatic reclosing accessory (Tm2GQ for short) belongs to the NDB2 accessory, which is used in the circuit with the control voltage of AC230V, AC400V (230V relative to the neutral wire voltage) and the frequency of 50/60Hz for the automatic detection of the line voltage, automatic disconnection of the fault line in case of the line overvoltage or undervoltage, manual operation of the circuit breaker via the handle after the voltage restores to the normal range and padlock opening state locking function of the circuit breaker via the accessory, thus ensuring the on-site safe operation.

#### Example:

Product model: NDB2-63 C20/4+TM2GQ-4P

NDB2-63 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 20A, 4P, for the overvoltage/undervoltage automatic reclosing control.

### Quick Selection Table of ATM Remote Reclosing Device

ATM

Product code: Remote control

Description:

Used with the assembled SD2, the ATm reclosing control accessory (ATm for short) is installed on the left side of the Tm2 remote control accessory, which is used in the circuit with the voltage of AC230V (-15%+10%) and frequency of 50~60Hz for reclosing of the circuit breaker after the fault action. It is especially suitable for equipment and systems with the higher power supply continuity requirements that are not easy to access and monitor.

Example:

Product model: NDB2-63 C20/4+ATM-4P

NDB2-63 series miniature circuit breaker, 10kA breaking, Type C curve, rated current of 20A, 4P, for reclosing of the circuit breaker after the fault action.

### Quick Selection Table of NDB2 Series **Electrical Accessories**



#### Description:

- 1. Overvoltage action value: AC280V±5%, maximum breaking time: 0.2s.
- 2. Undervoltage action value: AC170V±7V, maximum breaking time: 1s.
- 3. The overvoltage/undervoltage action release only matches with the company's miniature circuit breaker, which is not supplied separately.

4. Install on the left side of the MDB2-63 miniature circuit breaker for realization of the single-phase overvoltage, undervoltage, overvoltage/undervoltage protection functions. 5. Release with the overvoltage or undervoltage function can be provided separately, with the overvoltage release as

NG2A and the the undervoltage release as NQ2A.

### Example:

Product model: NDB2-63 C40/4+NGQ2A

Represent: NDB2-63 series miniature leakage circuit breaker, 6kA breaking, Type C curve, rated current of 40A, certain phase accessory with the electronic overvoltage/undervoltage protection.

### **OF2** Auxiliary Contact



### Application

Install on the left side of the NDB2 miniature circuit breaker for indicating the on-off state of the circuit breaker.

#### • Technical parameters

#### Rated working 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	6A	DC	24V	6A

Density (mm): 9.

Note: After assembled with the NDB2 circuit breaker, 11, 14 terminals are connected during closing.

11, 12 terminals are connected during opening.

A maximum of 3 OFs can be assembled.

## SD2 Alarm Contact



### Application

Install on the left side of the NDB2 miniature circuit breaker for indicating the fault state of the circuit breaker.

#### • Technical parameters

Rated working parameters

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

Density (mm): 9.

Note: After assembled with the NDB2 circuit breaker, 91, 92 are connected during closing.

91, 94 are connected during the fault opening.

91, 92 are connected during the manual opening, but 91, 94 are not connected.

A maximum of 3 SD2s can be assembled.

#### Application

Single line: 2.5mm2: double-wire: 1.5mm2. Accessories of the NDB2 series miniature circuit breaker can be supplied separately, but are not recommended to be used with the miniature circuit breaker of other companies.

## NFS2 Auxiliary and Alarm Contact Set



#### • Rated current of the auxiliary contact

Rated working voltage	Rated working current	Utilization category
AC 240V	6A	AC 12
AC 415V	3A	AC 12
DC 24V	6A	DC 12
DC 48V	2A	DC 12
DC130V	1A	DC 12

### Application

The NFS2 auxiliary and alarm contact set is assembled on the left side of the NDB2-63 series product for use; the auxiliary product mainly switches the two functions between OF2+SD2 and OF2+OF2 via a selection switch. Highlight: Integrate OF2 with SD2 into one with the width as a modulus.

• Two switching contacts provide the indication function Indicate the "Opening" or "Closing" state of the circuit breaker via OF2-OF2; "Fault tripping" of the circuit breaker.

• Two circuits Upper: OF2-OF2; Lower: SD2 or OF2; Turn the function with the right rotary switch.

#### • Wiring

Laminated thread terminal, can be wired to 1 or 2 pieces of conductors with a maximum section of 2.5mm2; There is an obvious mark beside the terminal.

## MX+OF2 Shunt Release



#### Application

Install on the left side of the NDB2-63 miniature circuit breaker for the remote control of the circuit breaker tripping.

#### • Technical parameters

Control power AC 230V/400V DC 24V/48V; Width (mm): 18

Note: As the active contact, the transfer contact is not allowed to be connected into other weak-current modules as the passive contact.



Note: When the power supply of the control circuit is DC24V, the above picture is recommended for the shunt control circuit design. ZJ: As the DC24V intermediate relay, with the contact current capacity of 1A.

• Connection capacity

Single line: 2.5mm2

Double-wire: 1.5mm2

This accessory can be supplied separately, but are not recommended to be used with the miniature circuit breaker of other companies.

• Technical parameters Control power AC 230V/400V DC 24V/48V; Width (mm): 18

Quick Selection Table of NDB6 Series Products

Product type	Product name	Breaking capacity Icu/Icn (kA)	Number of poles	Rated current (A)	Tripping Curve	Product standards	Residual current action type	Rated residual operating current (mA)	Overvoltage protection(V)	Undervoltage protection(V)	Modulus (9mm times)
Circuit breaker	NDB6-125	5	1P, 2P, 3P, 4P	63, 80, 100, 125	Q Ŭ	IEC60947-2 GB14048.2					3, 6, 9, 12
	NDB6Z-125	6 (2P-4P) 15 (1P)	1P, 2P, 3P, 4P	63, 80, 100, 125	U	IEC60947-2 GB14048.2					3, 6, 9, 12
Residual current action Circuit breaker	NDB6LM-40	10	1P+N	6, 10, 16, 20, 25, 32, 40	B, C	IEC61009-1 GB16917.1	A, AC	30, 100, 300			4
Residual current action switch	NDL6M-100		2P, 4P	16, 25, 40, 63, 80, 100		IEC61008-1 GB16916.1	A, AC	30, 100, 300			4, 8

### Quick Selection Table of NDB6-125 Series Miniature Circuit Breaker



Low-voltage Terminal Power Distribution Products

### Description:

Type D tripping characteristics are not available for NDB6-125 at 125A. Type C tripping curve mainly protects the conventional load and distribution cable while Type D tripping curve mainly protects the impact load with the large starting current (such as motor, transformer). Example:

Product model: NDB6-125 C63/3

Represent: NDB6-125 series miniature circuit breaker, 15kA breaking, Type C curve, rated current of 63A, 3 poles.

### Quick Selection Table of NDB6Z-125 Series Miniature Circuit Breaker



Description: Rated working voltage DC60/80/125/250/300V (1P), DC500/600 (2P), DC750/1000V (3P), DC1000/1200V (4P) Breaking capacity: Icu=6kA (2P-4P) Icu=15kA (1P)

Example: Product model: NDB6Z-125 C63/3 Represent: NDB6Z-125 series miniature circuit breaker, 6kA breaking at DC1000V, Type C curve, rated current of 63A, 3 poles.

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### Quick Selection Table of NDB6LM-40 Series **Residual Leakage Circuit Breaker**



#### Description:

Type B tripping curve of the NDB6LM-40 series mainly protects the load with the small short-circuit current (such as non-inductive or micro-inductive circuit) while Type C tripping curve mainly protects the conventional load and distribution cable. Rated working voltage (Ue): AC230V.

Example:

Product model: NDB6LM-40C16/1P+N/30/A

Represent: NDB6LM-40 series residual leakage circuit breaker, Type C tripping curve, rated current of 16A, pole number (1P+N), rated residual current of 30mA.

### Quick Selection Table of NDL6M-100 Series Residual Current Action Switch

## ND L 6 M - 100 63 / 2 / 30 A



Description: NDL6M-100 is an electromagnetic leakage switch without the overload and short circuit protection.

Example:

Product model: NDBL6M-10063/2P/30/A

Represent: NDLB6M-100 series residual leakage switch, rated current of 63A, pole number (2P), rated residual current of 30mA.

# Part 7 Circuit Breaker for Equipment

### Quick Selection Table of NDB3-30 Series Circuit Breaker for Equipment

### ND B 3 - 30 Z4 4 / 1 Q H Y1 - 1 0 R FL FL: Surge-protection product Certification code: Empty: 3C, TUV, CE certification R: 3C, TUV, CE UL1077 certification L: Passed the 3C, TUV, CE, UL489A certification Without accessory Housing color code 2: Grey 1: Black 3: Black without the operation protection 4: Grey without the operation protection Operation mode code: Y1: Black remote-control key, vertical white word Y2: Black remote-control key, horizontal white word Y3: White remote-control key, vertical black word Y4: White remote-control key, horizontal black word Y5: Orange remote-control key, vertical black word Y6: Orange remote-control key, horizontal black word Y7: Red remote-control key, vertical black word Y8: Red remote-control key, horizontal black word Wiring mode code: See "Description 2" Installation mode code: Q: Embedded installation Number of poles: 1:1P 2:2P See "Description 1" for the rated current (A) Tripping curve code: Z2: DC short time delay Z4: DC intermediate time delay J2: AC short time delay J4: AC intermediate time delay Frame size level: 30 Design SN: 3 Product code: Miniature circuit breaker Enterprise code: Nader Electrical

#### Description:

1. Rated current of the normal product (A): 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 of the surge-protection product (A): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30. 2. Wiring mode code: H: Welded type/connection-piece wiring; C: Plug-in post wiring; E: 8-32UNC screw wiring; J: 8-32UNC upturning connection-piece screw wiring;

P: M4 screw wiring; R: M4 upturning connection-piece screw wiring;

#### Example:

Product model: NDB3-30 Z4 20/2 QHY1-2-0-R

Represent: NDB3-30 circuit breaker for equipment, DC intermediate time delay, 20A, 2 poles, embedded installation, welded-type wiring, black remote-control key, vertical white word, grey housing, with the 3C, TUV, CE, UL1077 certification passed.

## Main Technical Parameters of NDB3-30 Series

- Rated working voltage: AC250V (50/60Hz), DC80V, DC65V
- ♦ Mechanical and electrical life: 10,000 times (electrical life: 6,000 times), operation frequency: 6 times/1min
- Power frequency withstand voltage: 2500V
- ◆ Free tripping characteristics: Completely free tripping
- ◆ Lightning protection parameters: In the electrical system with the rated voltage of AC250V or DC80V and below,

the product meets the lightning test wave form impact for 5 times (positive/negative) with duration of 8/20us at the respective rated current specifications. During the whole process of the lightning test, the product shall not be damaged, which can be tripped normally after the test.

Rated current (A)	Lightning test parameters (kA)
10≤l<15	10
15≤l<20	12
20≤l ≤30	15

- ◆ Certified: CCC, CE, TUV, UL1077, UL489A
- Rated breaking capacity Icn: see the table below:

					Rated	short-circuit bre	aking capacity	(A)	
Rated voltage (V)	Frequency	Rated current (A)	Number of poles	3C (GB	17701)	111 1077	111 400 4	TUV/CE (EI	N60934)
				Inc	lcn	UL1077	UL489A		lcn
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 of NDB3-50 Series Circuit Breaker for Equipment

## ND B 3 - 50 Z4 10 / 1 Q H A1 - A 0 R XXXX Accessory category with special functions: See the accessory table Certification code: See "Description 4" 0: Without accessory 1: With an auxiliary contact Number of manipulator: A: 1 for each pole B: 1 for each multipole (2P and above) Operation mode code: See "Description 3" Wiring mode code: See "Description 2" Installation mode code: L: M3 screw installation Q: Embedded installation M: 6-32UNC screw installation Number of poles: 1: 1 pole 2: 2 poles 3: 3 poles (only AC) Rated current (A): See "Description 1" Tripping curve code: Z2/Z4/Z6 (DC short/intermediate/long time delay) J2/J4/J6 (AC short/intermediate/long time delay) Frame size level: 50 Design SN: 3 Product code: Miniature circuit breaker Enterprise code: Nader Electrical

Description:

1. Rated current: 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. Wiring mode code:

L: M5 screw terminal (conventional<50A)

H: Quick connection-piece terminal (conventional≤30A, UL489≤20A)

C: Plug-in post terminal (conventional≤50A, UL489≤30A)

F: M5 upturning connection-piece screw terminal (conventional≤50A, UL489≤30A)

E: 8-32UNC screw terminal (conventional≤30A, UL489≤20A)

G: 10-32UNF screw terminal (conventional ≤50A, UL489≤30A)

J: 8-32UNC upturning connection-piece screw terminal (conventional≤30A, UL489≤20A)

K: 10-32UNF upturning connection-piece screw terminal (conventional≤50A, UL489≤30A)

P: M4 screw terminal (conventional≤30A, UL489≤20A)

R: M4 upturning connection-piece screw terminal (conventional≤30A, UL489≤20A)

3. Operation mode code:

S1 black long handle, white word: ON/OFF, with current specifications

S2 black long handle, white word: ON/OFF, I/O, with current specifications

S3 white long handle, black word: ON/OFF, with current specifications

S4 white long handle, black word: ON/OFF, I/O, with current specifications

S5 yellow long handle, black word: ON/OFF, with current specifications

S6 yellow long handle, black word: ON/OFF, I/O, with current specifications

D1 black short handle, white word: ON/OFF, with current specifications

D2 black short handle, white word: ON/OFF, I/O, with current specifications

D3 white short handle, black word: ON/OFF, with current specifications

D4 white short handle, black word: ON/OFF, I/O, with current specifications

D5 yellow short handle, black word: ON/OFF, with current specifications

D6 yellow short handle, black word: ON/OFF, I/O, with current specifications

Y1 monochrome remote-control key, vertical white word: ON/OFF, I/O, with current specifications

Y2 monochrome remote-control key, horizontal white word: ON/OFF, I/O, with current specifications

Y3 monochrome remote-control key, vertical white word: ON/OFF, I/O

Y4 monochrome remote-control key, horizontal white word: ON/OFF, I/O

Y5 bi-color remote-control key, vertical white word: ON/OFF, I/O, indicator ON, with current specifications

Y6 bi-color remote-control key, horizontal white word: ON/OFF, I/O, indicator ON, with current specifications

Y7 bi-color remote-control key, vertical white word: ON/OFF, I/O, indicator OFF, with current specifications

Y8 bi-color remote-control key, horizontal white word: ON/OFF, I/O, indicator OFF, with current specifications

A1 black key, white vertical double-word: ON/OFF, I/O, indicator OFF, with current specifications, white indicator OFF, OFF position with protection

A2 black key, white vertical double-word: ON/OFF, I/O, indicator OFF, with current specifications, white indicator OFF A4 black key, white horizontal double-word: ON/OFF, I/O, indicator OFF, with current specifications, white indicator OFF

4. Certification code:
No code: CCC, TUV, CE certification
R: CCC, TUV, CE, UL1077
L: CCC, TUV, CE, UL489A (only for the DC product)
I: UL1500 certification (only for the NDB3-50 product)
K: CCC, TUV, CE certification, UL489 (only for the AC product)
K1: CCC, TUV, CE certification, UL489 (only for the AC product with the number of poles as 2)

## Accessory Category with Special Functions

Inrush current resistance	YL 1 ① ② Description: ① represent the accessory category with different functions; product with the inrush current resistance ② represents different times; 1: 12In Note: 1. DC pole number of the product with the inrush current resistance: 1~2 pole(s), AC pole number: 1~3 pole(s); current specifications≤50A
Double coil	MX 1 2 3 ① ② ③ ④ Description: ① represent the accessory category with different functions: Double coil product ② represents the different tripping modes and AC/DC; 1: Relay tripping, AC; 2: Relay tripping, DC; 3: Shunt tripping, AC; 4: Shunt tripping, DC; ③ represents the voltage coil terminal code; 1: welded-type/quick connection-piece wiring; 2: M4 screw wiring; ④ represents the control voltage code; 1: 18V; 2: 24V; 3: 32V; 4: 36V; 5: 48V; 6: 65V; 7: 110V ~ 220V (only AC); Note: 1. Current specifications≤50A; number of poles: 1~2 pole(s); 2. The auxiliary contact of the double coil 2P product is always installed on the utmost right pole side, subject to the installation direction; The single-pole product is not provided with an auxiliary contact;

Note: Models listed in the table are conventional models. According to the user's requirements, the tripping curve, current specifications, manipulator color and printing mode of the product can be changed with the changed models as the special models, which are beyond the range of the above table.

Product certification		3C /Tl	JV/CE	I		UL10	077			UL48	89A			UL48	9	
Current specifications (A)	1-30			31-50	1-30			31-50	1-30			31-50	1-20			21
Wiring mode	H, C, L, F, G, K, P, R	, E, J,	L,	C, F, G, K	H, C, L, F, J, G, K, P,	, E, R	L, (	C, F, G, K	H, E, J, L,	C, F,		L, C, F	H, C, F, E G, K, P, F	, J,	C	, F, G, K
Operation mode		) A	( A	D	S	Y	, L	D	S	Y A		D	S	Y A		D
Number of manipulator	A B	Æ	A 3	А	A B	AB		A	A B	AB		A	A B	A B		A
Installation mode	L M Q	L	- /\	L M Q	L M Q	L	1	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	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. Auxiliary contacts are all installed on the utmost left pole side (facing the direction of the operation side).

2. The selection range beyond the table complies with the non-marked process.

## Main Technical Parameters of NDB3-50 Series

- Rated working voltage: DC80V, AC230/400V, AC125/250V, AC120/240V
- Mechanical and electrical life : 10,000 times (electrical life:6,000 times)
- ◆ Power frequency withstand voltage: 3000V for the main circuit, 1000V for the auxiliary circuit
- Certified: CCC, CE, TUV, UL1077, UL489A, UL489, CRCC
- ◆ Auxiliary contact parameters: AC250V 5A
- ◆ Technical parameters of the product with the inrush current resistance (YL)

Inrush current resistance capacity: Non-tripping for 8.33ms at 60Hz 12In, non-tripping for 10ms at 50Hz 12In;

Rated breaking capacity:

					Rated sh	ort-circuit breakin	g capacity (A)	
Model	Voltage (V)	Rated current (A)	of poles	3C (GB17701)	UL1077	UL489A	UL489	TUV/CE (EN60934)
		1≤ln≤30		3000	3000, U1a		_	3000
	DC80	30 <in≤50< td=""><td>1, 2</td><td>1500</td><td>1500, U1a</td><td>3000</td><td>/</td><td>1500</td></in≤50<>	1, 2	1500	1500, U1a	3000	/	1500
	DC65	1≤ln≤50	1, 2	/	3000, U1a	/	/	/
	DC32	1≤ln≤50	1, 2	/	5000, U3	/	/	/
		1≤ln≤30	_	4000 (L, K) 3000 (R, I)	/	/	/	/
	AC240	30 <ln≤50< td=""><td>1</td><td>3000 (L, K) 1500 (R, I)</td><td>/</td><td>/</td><td>/</td><td>/</td></ln≤50<>	1	3000 (L, K) 1500 (R, I)	/	/	/	/
		1≤ln≤30		4000 (L, K) 3000 (R, I)	/	/	/	/
NDB3-50	AC415	30 <in≤50< td=""><td>2, 3</td><td>3000 (L, K) 1500 (R, I)</td><td>/</td><td>/</td><td>/</td><td>1</td></in≤50<>	2, 3	3000 (L, K) 1500 (R, I)	/	/	/	1
	AC250	1≤ln≤30	1	/	5000, C1a 3000, U1a	/	/	/
		30 <in≤50< td=""><td></td><td></td><td>1000, U1a</td><td></td><td></td><td></td></in≤50<>			1000, U1a			
	4.5.425/252	1≤ln≤30	-	,	3000, U1a	,	,	
	AC 125/250	30 <in≤50< td=""><td>2</td><td>/</td><td>2000, U3</td><td></td><td>/</td><td>/</td></in≤50<>	2	/	2000, U3		/	/
	AC250.20	1≤In≤30	2	,	5000, U1a	1	1	
	ΑC250 3Ψ	30 <in≤50< td=""><td>3</td><td>/</td><td>1000, U3</td><td></td><td>/</td><td></td></in≤50<>	3	/	1000, U3		/	
	AC120	1≤ln≤30	1	/	/	/	5000	/
	AC120/240	1≤In≤30	2, 3	/	/	/	5000	/

Note: "L, K, R, I" represent the certification code.

## Quick Selection Table of NDB3-100 Series Circuit Breaker for Equipment

ND	B	3 -	100	<b>Z4</b>	10	/	1 L	- F	1	- /	A	0	R )		XX	XX	
																	Customer code
																	Accessory category with special functions: See the "Description"
																	<ul> <li>Certification code:</li> <li>See the "Description"</li> </ul>
														 			<ul><li>— 0: Without accessory</li><li>1: With an auxiliary contact</li></ul>
																	<ul> <li>Operation mode code:         <ul> <li>A: 1 for each pole</li> <li>B: Up to 1 for each pole</li> <li>(2P and above)</li> </ul> </li> <li>Operation mode code:         <ul> <li>See the "Description"</li> <li>Wiring mode code:</li> <li>See the "Description"</li> <li>Installation mode code:</li> <li>L: M3 screw installation</li> <li>M: 6-32UNC screw installation</li> </ul> </li> </ul>
																	<ul> <li>Number of poles:</li> <li>1: 1 pole</li> <li>2: 2 poles</li> <li>3: 3 poles</li> <li>4: 4 poles (current≥275A and for the DC product, only applicable to Type S/L operation mode)</li> </ul>
									 					 			— Rated current (A): See the "Description"
									 								<ul> <li>Tripping curve code:</li> <li>Z2/Z4/Z6 (DC short/intermediate/long time delay)</li> <li>J2/J4/J6 (AC short/intermediate/long time delay)</li> </ul>
									 								— Frame size level: 100
									 					 			— Design SN: 3
																	Product code: Miniature circuit breake
																	— Enterprise code: Nader Electrical

## Description:

	Conventional current specifications	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
Rated current (A)	Specifications of multiple poles in parallel (only for the DC product)	B+ current specifications: represent the parallel wiring (3P, 4p) F+ current specifications: represent the parallel branch-wiring (2P, 3P, 4P) P+ current specifications: represent multiple poles in parallel, but without the parallel product (2P, 3P, 4P) Current specifications: 2P: 100A, 125A, 150A, 160A, 175A, 200A 3P: 175A, 200A, 225A, 250A, 275A, 300A 4P: 275A, 300A, 325A, 350A, 375A, 400A
	Current specifications of the single coil in parallel	<ul> <li>2P: 125A, 150A, 160A, 175A, 200A</li> <li>3P: 200A, 225A, 250A</li> <li>Note: 1. The auxiliary switch of the single coil in parallel is subject to the product's installation direction and installed on the utmost right side;</li> <li>2. When Type L is adopted for the operation mode with the number of manipulator as "A", select Type S/U wiring terminal;</li> <li>3. For selection of the single coil in parallel, ① in the number 14 is indicated with "DX".</li> </ul>
Wiring mode code	S: M6 bolted wiring (d T: M5 bolted wiring (c V: M5 bolted wiring (si L: M5 screw type (conv U: M6 bolted wiring (si C: Plug-in wiring (conv B: Plug-in wiring (conv H: 1/4-20 UNC bolted P: 10-32 UNF bolted wi W: 10-32 UNF bolted wi K: 10-32 UNF screw type	ouble nuts) louble nuts) (conventional≤50A, UL489≤30) ngle nut) (conventional≤50A, UL489≤30) rentional≤50A, UL489≤30) ngle nut) <i>v</i> entional≤100A, UL489≤50A) entional≤100A, UL489≤50A) wiring (double nuts) iring (double nuts) (conventional≤50A, UL489≤30) <i>v</i> iring (single nut) (conventional≤50A, UL489≤30) be (conventional≤50A, UL489≤30A)
Operation mode code	S1 black long handle, v S2 black long handle, v S3 white long handle, S4 white long handle, S5 yellow long handle, S6 yellow long handle, Y1 monochrome remo Y2 monochrome remo Y3 monochrome remo Y4 monochrome remo Y5 bi-color remote-cor Y6 bi-color remote-cor Y6 bi-color remote-cor Y6 bi-color remote-cor Y6 bi-color remote-cor Y6 bi-color remote-cor X1 black key, white ver A1 black key, white ver A4 black long handle, v L2 black long handle, L4 white long handle, L6 yellow long handle,	white word: ON/OFF, with current specifications white word: ON/OFF, With current specifications black word: ON/OFF, With current specifications te-control key, vertical white word: ON/OFF, I/O, with current specifications te-control key, horizontal white word: ON/OFF, I/O, with current specifications te-control key, vertical white word: ON/OFF, I/O te-control key, vertical white word: ON/OFF, I/O the control key, vertical white word: ON/OFF, I/O throl key, vertical white word: ON/OFF, I/O introl key, vertical white word: ON/OFF, I/O, indicator ON, with current specifications throl key, horizontal white word: ON/OFF, I/O, indicator ON, with current specifications throl key, vertical white word: ON/OFF, I/O, indicator OFF, with current specifications throl key, vertical white word: ON/OFF, I/O, indicator OFF, with current specifications throl key, horizontal white word: ON/OFF, I/O, indicator OFF, with current specifications throl key, vertical white word: ON/OFF, I/O, indicator OFF, with current specifications throl key, horizontal white word: ON/OFF, I/O, indicator OFF, with current specifications throl key, horizontal white word: ON/OFF, I/O, indicator OFF, with current specifications throl key, Norder ON/OFF, I/O, indicator OFF, with current specifications, white indicator OFF, ection tical double-word: ON/OFF, I/O, indicator OFF, with current specifications, white indicator OFF white word: ON/OFF, I/O black word: ON/OFF, I/O black word: ON/OFF, I/O black word: ON/OFF, I/O black word: ON/OFF, I/O
Certification code	Empty CCC, TUV, CE cc R CCC, TUV, CE, UL107 L CCC, TUV, CE certific K CCC, TUV, CE certific Note: The AC current s C Korea KC certificatio	ertification 77 certification (only for the AC product) cation, UL489 listing (only for the DC product) cation, UL489 pecifications are within 1~70A while the DC current specifications are within 1~100A on, CCC, TUV, CE, UL1077 certification (the wiring mode is only applicable to Type S/T terminal)

	Remote control	RB 1 2 (1) (2) (3) Description: (1) represent the accessory category with different functions: Remote-control "Product" (2) represents different control voltages: 1: DC12V; 2: DC24V; 3: DC48V; (3) represents the different outgoing lines: 0: none; 1: outgoing line 200mm; 2: special outgoing line. Note: 1. Current specifications 50A; number of poles: 1~2 pole(s); 2. The auxiliary contact of the double coil 2P product is installed on the utmost right side, subject to the installation direction; 3. The single-pole product is not provided with an auxiliary contact.
Accessory Category with special functions	Inrush current resistance	YL 1 ① ② Description: ① represent the accessory category with different functions: Product with the inrush current resistance; ② represents different times; 1: 12In. Note: 1. DC pole number of the product with the inrush current resistance: 1~2 pole(s), ① represent the accessory category with different functions: Product with the inrush current resistance; ② represents different times; 1: 12In.
	Middle trigger	MT 1 ① ② Description: ① represent the accessory category with different functions: Middle trigger product; ② represents the different alarm contacts: 0: represents that the alarm contact is unavailable; 1: with an alarm contact Note: The pole number of the middle tripper product is 1~3 pole(s); current specifications≤100A; 2. When the product is not provided with an alarm contact, the auxiliary contact is installed on the utmost left side, subject to the installation direction; 3. When the product is provided with an alarm contact, the alarm contact is installed on the utmost left side, subject to the installation direction; the aulixiary contact is installed on the utmost left side,
	Single coil in parallel	DX: Single coil product in parallel (only for the DC product in parallel)

Models listed in the table are conventional models. According to the user's requirements, the tripping curve, current specifications, manipulator color and printing mode of the product can be changed with the changed models as the special models, which are beyond the range of the above table.

Current specifications (A)	1~	100	>100		
Operation mode		S/Y/A	L	L/Y/A	
Wiring mode	S/T/C/U/V/B/L/H/P/W/K	U/V/B/L/W/K	S/U/H/	U	
Number of poles	1,2,3	1,2,3	2,3,4	2,3	
Number of manipulator	А	В	А	В	

超出表中的选型范围以非标流程为准。

## Main Parameters of NDB3-100 Series Circuit Breaker for Equipment

- Rated working voltage: DC80V, AC230/400V, DC125V
- Mechanical and electrical life: 10,000 times (electrical life: 6,000 times)
- ◆ Power frequency withstand voltage: 3000V for the main circuit, 1000V for the auxiliary circuit
- Certified: CCC, CE, TUV, UL1077, UL489A, UL489, KC, CRCC
- Parameters of the auxiliary contact/middle trigger alarm contact: AC250V 5A
- ◆ Technical parameters of the remote (RB) product:

#### Rated Working Voltage/Current of Remote Controller

Models and specifications	Rated voltage	Voltage tolerance	Maximum starting current (A)	最大运行电流(A)
RB1	12V	±20%	1.75	0.60
RB2	24V	±20%	1.20	0.30
RB3	48V	±20%	0.5	0.25

♦ Mechanical and electrical life: 4,000 times for the operation number of the circuit breaker;

◆ Automatic operation rate of the remote controller: ≥2sec.

Namely: The power-on time of the controller shall be at least 2 seconds to ensure the reliable operation during use.

Technical parameters of the product with the inrush current resistance (YL)

♦ Inrush current resistance capacity: When the frequency is 60Hz, the product bears 12In without tripping for 8.33ms; When the frequency is 50Hz, the product bears 12In without tripping for 10ms.

## Quick Selection Table of NDB5 Series Circuit Breaker for Equipment



Description:

1. 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.

2. Models listed in the table are conventional models. According to the user's requirements, the tripping curve and current specifications of the product can be changed with the changed models as the special models, which are beyond the listed range.

## Main Parameters of NDB5 Series Circuit Breaker for Equipment

Product type	1	Р	1N 2P		3P 3N		2PU	3PU	
Rated voltage	AC230V AC250V	DC80V	AC230V AC230/400V AC230/400V AC250V AC480/277V AC480/277V		)/400V )/277V	DC80V			
Rated current (A)	0.5, 0.6, 0.7, 0.8 2.5, , 3, 3.5, 6.5, 7, 7.5, 8, 8 15, 16, 20, 24, 40, 45, 50, 55,	8, 0.9, 1, 1 .5 , 2 , 4 , 4 .5, 5, 5 .5 , 6, .5, 9, 9.5, 10, 12, 25, 30, 32, 35, 60, 63	0.5, 0.6, 0. 6.5, 7, 7, 5, 35, 40, 45,	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 mode	35mm standard din rail, miniature din rail								
Tripping curve	J2, J4, J6	Z2, Z4, Z6	J2, J4, J6 J2, J4, J6 Z2, Z4, Z6 J2, J4, J6 Z2, Z4, Z6					4, Z6	

◆ Applicable standards: IEC 60934, EN 60934, IEC 60947-2, EN 60947-2, GB 17701, GB14048.2, UL1077, UL489A;

- Rated working voltage: DC80V, AC230/400V, AC250V, AC480/277V;
- Frequency: 50/60Hz;
- Mechanical and electrical life : 10,000 times (electrical life:6,000 times);
- ◆ Certified: CCC, UL1077, UL 489A, TUV, CE;
- ♦ Connection capacity: 0.5~25mm2, 2P in parallel: 35 mm2 and below, 3P in parallel: 70 mm2 and below;
- Rated breaking capacity

Rated current (A)		Breaking capacity (kA)						
	Voltage (V)	CCC UL			TUV/CE			
		GB17701	UL 1077	UL 489A	EN60934	EN60947-2		
0.5~63	DC80	10	10, U1	10	10	10		
	AC230/400	3	/	/	3	б		
	AC277/480	/	6, U1	/	/	/		
	AC250	/	6, U1	/	/	/		
20~150 (product in parallel)	DC80	/	10, U1	10	/	/		

# Part 8 Surge Protector

## Quick Selection Table of NDU1 (10kA-65kA) Series Surge Protector



## Main Parameters of NDU1 (10kA-65kA) Series Surge Protector

Model			NDU1-10					
Specifications	NDU1-10/275	NDU1-10/	320	NDU1-10/385	NDU1-10/NPE			
Maximum continuous working voltage Uc (V)	275	320		385	255			
Frequency (Hz)			50/60					
Maximum discharge current Imax (8/20us) (kA)			10					
Nominal discharge current In (8/20us) (kA)			5					
Voltage protection level Up (kV)	≤1.0	≤1.2		≤1.35	≤1.2			
Ambient Temperature ( $\circlearrowright$ )	-40 ~ +85							
Response time (ns)		≤25						
Protection level			IP 20					
Working parameters of the remote communication contact (maximum)		1.5A 250VAC						
Section of the connecting wire (mm2)	SPD cable: BVR-16; grounding wire: BVR-25							
Product certification	Type Test Report of Beijing Testing Center for Surge Protective Devices							
Model			NDU1-20					
Specifications	NDU1-20/275	NDU1-20/320	NDU1-20/38	35 NDU1-20/440	NDU1-20/NPE			
Maximum continuous working voltage Uc (V)	275	320	385	440	255			
Frequency (Hz)			50/60					
Maximum discharge	20							
current imax (8/20us) (kA)			20					
Current Imax (8/20us) (kA) Nominal discharge current In (8/20us) (kA)			20					
Nominal discharge current In (8/20us) (kA) Voltage protection level Up (kV)	≤1.1	≤1.2	20 10 ≤1.5	≤1.8	≤1.5			
Current Imax (8/20us) (kA)         Nominal discharge         current In (8/20us) (kA)         Voltage protection level Up (kV)         Ambient Temperature ( C)	≤1.1	≤1.2	20 10 ≤1.5 -40 ~ +85	≤1.8	≤1.5			
Current Imax (8/20us) (kA)         Nominal discharge         current In (8/20us) (kA)         Voltage protection level Up (kV)         Ambient Temperature (°C)         Response time (ns)	≤1.1	≤1.2	20 10 ≤1.5 -40 ~ +85 ≤25ns	≤1.8	≤1.5			
Current Imax (8/20us) (kA)         Nominal discharge         current In (8/20us) (kA)         Voltage protection level Up (kV)         Ambient Temperature (°C)         Response time (ns)         Protection level	≤1.1	≤1.2	20 10 ≤1.5 -40 ~ +85 ≤25ns IP 20	≤1.8	≤1.5			
Current Imax (8/2003) (kA)         Nominal discharge         current In (8/2003) (kA)         Voltage protection level Up (kV)         Ambient Temperature (°C)         Response time (ns)         Protection level         Working parameters of the remote communication contact (maximum)	≤1.1	≤1.2	20 10 ≤1.5 -40 ~ +85 ≤25ns IP 20 1.5A 250VA	≤1.8 C	≤1.5			
Current Imax (8/20us) (kA)         Nominal discharge         current In (8/20us) (kA)         Voltage protection level Up (kV)         Ambient Temperature (C)         Response time (ns)         Protection level         Working parameters of the remote communication contact (maximum)         Section of the connecting wire (mm2)	≤1.1	≤1.2 SPD cat	20 10 ≤1.5 -40 ~ +85 ≤25ns IP 20 1.5A 250VA	≤1.8 C ding wire: BVR-25	≤1.5			

Model			NDU	1-40			
Specifications	NDU1-40/275	NDU1-40/320	NDU1-40/385	NDU1-40/440	NDU1-40/550	NDU1-40/NPE	
Maximum continuous working voltage Uc (V)	275	320	385	440	550	255	
Frequency (Hz)	50/60						
Maximum discharge current Imax (8/20us) (kA)		40					
Nominal discharge current In (8/20us) (kA)		20					
Voltage protection level Up (kV)	≤1.3	≤1.5	≤1.8	≤2.2	≤2.8	≤1.5	
Ambient Temperature ( $\overset{\circ}{C}$ )			-40 ~	+85			
Response time (ns)		≤25					
Protection level			IP	20			
Working parameters of the remote communication contact (maximum)			1.5A 2	50VAC			
Section of the connecting wire (mm2)			SPD cable: BVR-16; gr	ounding wire: BVR-2	5		
Product certification		Type Test Rep	ort of Beijing Testing	Center for Surge Prot	tective Devices		

Model			NDU	1-65			
Specifications	NDU1-65/275	NDU1-65/320	NDU1-65/385	NDU1-65/440	NDU1-65/550	NDU1-65/NPE	
Maximum continuous working voltage Uc (V)	275	320	385	440	550	255	
Frequency (Hz)	50/60						
Maximum discharge current Imax (8/20us) (kA)		65					
Nominal discharge current In (8/20us) (kA)		30					
Voltage protection level Up (kV)	≤1.5	≤1.8	≤2	≤2.5	≤3	≤1.5	
Ambient Temperature ( $\circlearrowright$ )			-40 ~	· +85			
Response time (ns)			≤2	25			
Protection level			IP	20			
Working parameters of the remote communication contact (maximum)			1.5A 2	50VAC			
Section of the connecting wire (mm2)		9	SPD cable: BVR-16; gr	ounding wire: BVR-2	5		
Product certification		Type Test Repo	ort of Beijing Testing	Center for Surge Prot	ective Devices		


#### Quick Selection Table of NDU1 (80kA-120kA) Series Surge Protector

Quick Selection Table of NDU1Z Series DC Surge Protector



Surge Protector

## Main Parameters of NDU1(Z) Series Surge Protector

Model	NDU1Z-40 600	NDU2Z-40 1000	NDU1-80 275	NDU1-100 275	NDU1-120 275	NDU1-80 440	NDU1-100 440	NDU1-120 440
Number of poles	3P	ЗP			1P, 1PN, 2P, 3P,	3PN, 4P	`	
Protection level	Level B	Level B		Level B			Level B	
Rated voltage (V)	DC600	DC1000		AC230			AC400	
Nominal discharge current (8/20us) (kA)	20	20	40	50	60	40	50	60
Maximum discharge voltage (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
Maximum continuous operating voltage (V)	600	1000		275			440	
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	
Section of the connecting wire (mm2)	SPD cable: BVR-16 Grounding wire: BVR-25	SPD cable: BVR-16 Grounding wire: BVR-25	Gro	SPD cable: BVR-16 ounding wire: BVR	5 -25	Gr	SPD cable: BVR-16 ounding wire: BVR	-25
Shell material	Flame retardant material	Flame retardant material	Fla	me retardant mate	erial	Fla	me retardant mate	erial
Operating environment (C)	Temperature: 85 C : -40 C relative humidity: <95%	Temperature: 85°C:-40°C relative humidity: <95%	Tem rela	nperature:85 °C : -40 tive humidity: < 9	) C 5%	Te re	mperature:85 <sup>°</sup> C : lative humidity: <	40 <sup>°</sup> C 95%
Installation position			Power inl distributic	et wire side of the on box or distribut	general ion board	Power distribu	r inlet wire side of t ution box or distrib	he general bution board
Number of ports	1 port	1 port		1 port			1 port	
Structure type	Pluggable	Pluggable	As	sembling-type des	ign		Assembling-type c	lesign
Protection class	IP20	IP20		IP20			IP20	
Protection type				Voltage lim	niting type			
Product certification			Type Test of E	Being Testing Cent	er for Surge Protec	tive Devices		

Surge Protector

#### Quick Selection Table of NDU1-I Series Surge Protector





## Main Parameters of NDU1-I Series Surge Protector

	NDU1-I15/320	NDU1-I15/385	NDU1-I50/275	NDU1-I50/385			
Rated working voltage Ue (VAC)		220	/380				
Maximum continuous working voltage Uc (VAC)	320	385	275	385			
Frequency Hz	50	/60	50,	/60			
Impact current limp (kA) 10/350µs	1	5	5	0			
Quantity of electric charge Q (As)	7	.5	2	5			
Nominal discharge current (kA) 8/20µs	5	0	5	0			
Voltage protection level Up (kV)	2.2	2.5	2	.5			
Response time (ns)	5	25	≤1	00			
Rated breaking afterflow capacity (kA)	N	/A	:	3			
Protection class		IP	20				
Protection mode		L/N	I-PE				
Shell material		Flame retardar	nt material PA6				
Operating environment		Temperature: -40 <sup>°</sup> C ~+70 <sup>°</sup> C	C; relative humidity: <95%				
Number of ports		1 p	port				
Overcurrent protection function		No	one				
Remote communication function	Avai	lable	Avai	lable			
Connection capacity (mm2)	4-	25	4-	35			
Number of poles	1, 2, 3, 4						
Back-up protection	Fuse: 125AgL circuit breaker: NDM3-125 125						
Product certification	Type Test Report of Beijing Testing Center for Surge Protective Devices						

Surge Protector

# Part 9 Motor Control Protection Products

#### Quick Selection Table of NDC1 (Z)-09~95 Series AC Contactor





For example: NDC1Z-0910 DC 220V, represents the 3P AC contactor with the main circuit for the 9A DC operation and a pair of NO auxiliary contacts, of which its control coil voltage is DC 220V.

Parameters		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
		415V	9	12	18	25	32	38	40	50	65	80	95
Rated working	AC-3	690V	6.6	8.9	12	18	21	21.5	34	39	42	49	49
current (le/A)		415V	3.5	5	7.7	8.5	12	13.9	18.5	24	28	37	44
	AC-4	690V	1.5	2	3.8	4.4	7.5	8	9	12	14	17.3	21.3
	220/2	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	
Control power 415 V		4	5.5	9	11	15	18.5	22	25	37	45	45	
(KW) AC-5	44	0 V	4	5.5	9	11	15	18.5	22	30	37	45	45
	50	0 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
Agreed therma free air (Ith/	l current of A) (θ≤60 ℃)	the	25	25	32	40	50	50	60	80	80	125	125
Rated insulation	n voltage (U	i / V)	1000										
Impulse withsta	ind voltage	(kV)	6 8										
Rated working	voltage (Ue	/ V)					22	20/240, 380	/415, 660/6	90			
AC-3 (6le. le)	Electrical	life (times)	110 × 104	110 ×104	$100 \times 10^{4}$	100 × 104	80×10 <sup>4</sup>	80 ×104	80 × 10 <sup>4</sup>	60 ×104	60 × 10 <sup>4</sup>	60 ×104	60 ×104
	Oper frequer	ation ncy (h <sup>-1</sup> )	1200	1200	1200	1200	600	600	600	600	600	600	600
	Electrical	life (times)	20×104	20×104	$20  imes 10^4$	20 × 104	$20 \times 10^4$	15×104	$15  imes 10^4$	15×104	15 × 104	10 ×104	10 × 10 <sup>4</sup>
AC-4 (ble, ble)	Oper frequer	ation ncy (h <sup>-1</sup> )						300					
Short-time allowable withstand	1	S	210	210	240	380	430	430	720	810	900	990	1100
current, starting from the cold state,	withstand current, starting from 10s the cold state		105	105	145	240	260	310	320	400	520	640	800
ambient temperature ≤40℃, a	the cold state, ambient temperature $60s \le 40 \text{ C}$ , a		61	61	84	120	138	150	165	208	260	320	400
nd the zero- current duration of 30min /A	setuc, a nd the zero- current duration 10min of 30min /A		30	30	40	50	60	60	72	84	110	135	135
Impedance of eac	of 30min /A Impedance of each pole (Max, mΩ)		2.5	2.5	2.5	2.5	2	2	2	2.5	2.5	2.5	0.8

## Main Performance Parameters of NDC1 (Z)-09~95 Series

Paran	neters		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
	Agreed the free air (Ith/	rmal curren (A)	t of the						10					
Auxili ary	Electrical	AC-15 (3	360VA)		100	. 104			00 × 104			(0)	104	
cont act	life (times	DC-13 (3	33W)		100	χ 10.			80 X 10.			60 X	104	
	Minimum	connected	load						17V 5mA					
	Rated cor	itrol voltage	e (Us/V)			AC (50/	60Hz); 24, 3	6, 48, 110, 2	20/230, 380	)/400, 415, [	DC: 24, 48,	110, 220		
	Pull-ir	n voltage ra	nge			65%	5Us~120%U	ls (<40^); 80	0%Us - 1109	%Us (<60^);	100%Us (<	70^)		
Coil	Discharge voltage range				25%Us ~60%Us (AC) ,10%Us~110%Us (DC);									
	50Hz Starting			65	65	65	100	100	100	200	200	200	200	200
	power (VA)	Ret	ention	8	8	8	11	11	11	20	20	20	20	20
	Mechanic	al life (time	s)		1000	X 10 <sup>4</sup>				800 X104			600	X10 <sup>4</sup>
Conta	ict switching	Close	"C"		12-2	20		15-24			20-25			-35
time (	ms)	Open	"0"		4-1	2		5-1	5		8-12		6-	20
		Non- prefab ricated	1piece	1,	/4	1.5/6	1.5/10	2.5	/10		2.5/25		4/	50
		end cord	2piece	1,	/4	1.5/6	1.5/6	2.5	/10		2.5/16		4/	25
Conne	ection ity of	on Prefab 1piece			/4	1/6	1/6	1/	10		2.5/25		4/	50
termi (min/	nals (mm²) (max)	end cord	2piece	1/.	2.5	1/4	1/4	1.5	5/6		2.5/10		4/	16
		Non-pre fabricated	1piece	1,	/4	1.5/6	1.5/6	1.5	/10		2.5/25		4/	50
		fabricated end Hard wire 2piec		1.	/4	1.5/6	1.5/6	2.5	/10		2.5/16		4/25	



#### Note:

a. NDC1-115~800 series product represents the le value at AC-3 with the rated voltage of 415V;

NDC1-1050~2650 series product represents the le value at AC-1 with the rated voltage of 690V.

b. The 4P product is not available at the current more than 1050A.

c. For accessories, select the NF1 auxiliary contact set and NS1 air delay auxiliary contact set.

### Main Performance Parameters of NDC1-115~2650

Param	neters	Model	NDC1- 115	NDC1- 150	NDC1- 185	NDC1- 225	NDC1- 265	NDC1- 330	NDC1- 400	NDC1- 500	NDC1- 630	NDC1- 800			
	16.5	415V	115	150	185	225	265	330	400	500	630	800			
Rated working	AC-3	690V	86	107	118	135	170	225	305	335	460	470			
current (le/A)		415V	52	60	79	85	105	117	138	147	188	195			
	AC-4	690V	49	57	69	82	98	107	135	145	170	175			
	AC-1	690V	200	250	275	315	350	500	600	750	900	1050			
Ag	greed therm the free a	al current of ir (Ith /A)	200	250	275	315	350	500	600	750	900	1050			
R	ated impuls voltage (U	e withstand imp /kV)	12												
Rate	d insulation	voltage (Ui /V)	1000												
Rate	ed working	voltage (Ue /V)					380/415	660/690							
	Rated makir	ng capacity		10×le (AC-3), 12×le (AC-4), 1.5×le (AC-1)											
F	ated breaki	ng capacity	8×le (AC-3), 10×le (AC-4), 1.5×le (AC-1)												
	Mechanical	life (times)			300	X 10 <sup>4</sup>			100 X 10 <sup>4</sup>						
		Electrical life (times)	40 X 10 <sup>4</sup>	40 X 10 <sup>4</sup>	40 X 10 <sup>4</sup>	40 X 10 <sup>4</sup>	35 X 10 <sup>4</sup>	35 X 10 <sup>4</sup>	30 X 10 <sup>4</sup>	20 X 10 <sup>4</sup>	20 X 10 <sup>4</sup>	20 X 10 <sup>4</sup>			
,	AC-1	Operation frequency (h <sup>-1</sup> )	300	300	300	300	200	200	200	200	150	100			
	16.2	Electrical life (times)	80 X 10 <sup>4</sup>	80 X 10 <sup>4</sup>	50 X 10 <sup>4</sup>	50 X 10 <sup>4</sup>	50 X 10 <sup>4</sup>	50 X 10 <sup>4</sup>	30 X 10 <sup>4</sup>	20 X 10 <sup>4</sup>	20 X 10 <sup>4</sup>	10 X 10 <sup>4</sup>			
,	AC-3	Operation frequency (h <sup>-1</sup> )		60	00				300						
		Electrical life (times)			15 X	10 <sup>4</sup>			8 X	10 <sup>4</sup>	5 X 10 <sup>4</sup>	3 X 10 <sup>4</sup>			
,	AC-4	Operation frequency (h <sup>-1</sup> )					1:	50							
Avera and 5	age impedar 50Hz below (	ice of each pole lth mΩ)	0.37	0.35	0.33	0.32	0.3	0.28	0.26	0.18	0.12	0.12			
Conne	Cable	Number of bars	1	1	1	1	1	1	2	2	١	١			
ction capa	Cubic	Dimension (mm)	95	120	150	185	240	250	150	240	١	١			
city of the main	Copper	Number of bars	2	2	2	2	2	2	2	2	2	2			
circuit	bar	Dimension (mm)	20 X 3	25 X 3	25 X 3	32 X 4	32 X 4	30 X 5	30 X 5	40 X 5	60 X 5	60 X 5			
Impact re	sistance 1/2	Contactor opened (gn)	ç	9		7		5	6		9	6			
sine wa	ive=11 ms	Contactor suction (gn)	1	5	1	5	1	5	15	1	5	15			
Anti-v	ibration	Contactor opened (gn)		2	2	2		2	1.5	:	2	2			
8	300Hz	Contactor suction (gn)	e	5	e	5	1	5	5		4	4			

Parameters	Model	NDC1-1050	NDC1-1250	NDC1-1350	NDC1-1450(L)	NDC1-1700(L)	NDC1-2100(L)	NDC1-2650					
Rated wor (open in Ue≤€	king current (le/A) stallation) AC-1, 590V, θ≤40 ℃	1000	1250 <sup>3)</sup>	1350	1450	1700	2100	2650 <sup>4)</sup>					
Agreed the the fre	ermal current of ee air (Ith /A)	1000	1250 <sup>3)</sup>	1350	1450	1700	2100	2650 <sup>4)</sup>					
Rated imp voltage	oulse withstand e (Uimp / kV)			1	12	1							
Rated insulat	ion voltage (Ui / V)				1000								
Rated worki	ng voltage (Ue / V)			38	0/415 660/690 10	000							
Rated m	aking capacity	1.5×le (AC-1)											
Rated bre	eaking capacity			1	1.5×le (AC-1)								
Mechani	Mechanical life (times)		× 10 <sup>4</sup>			60 × 10 <sup>4</sup>							
Maximun operation fre	n mechanical quency (times/h)		1	1	600	1							
AC-1 electrical	≤690V	8×10 <sup>4</sup>	8×10 <sup>4</sup>	7×	10 <sup>4</sup>	7 ×10 <sup>4</sup>	$4 \times 10^{4}$	3×10 <sup>4</sup>					
life (times)	Operation frequency (h <sup>-1</sup> )	200 times/hour											
Average imp Ith and 50Hz	edance of each pole below (mΩ)	0.	12			0.1							
Connection capacity of the main	Number of bars	2	2	:	3	3	4	3					
circuit (copper bar)	Dimension (mm)	100 × 5	100×5	100	)× 5	100 ×5	100×5	100×10					
Impact resistance	Contactor opened (gn)				6								
1/2 sine wave=11 ms	Contactor suction (gn)				15								
Anti-vibration performance	Anti-vibration Contactor opened (gn) performance				2								
5300Hz	5300Hz Contactor suction (gn)				4								

## NDC1-115~2650 Control Circuit Characteristics

		Model		NDC1-115	NDC1-150	NDC1-185	NDC1-225	NDC1-265 NDC1-330					
	Rate	d control volta	ge (Uc / V)	AC: 24, 36, 48, 380, 415, 480 ( DC: 24, 110, 22	110, 220, 240, (50Hz, 50/60Hz) 20	AC: 24, 36, 48, 380, 415, 480 ( DC: 24, 110, 22	110, 220, 240, 50Hz, 50/60Hz) 0	AC: 24, 36, 48, 110, 220, 230, 380, 400 (50/60Hz) DC: 24, 48, 110, 220					
		Pull-in voltage	e range			85%~11	0%Uc	1					
		Release voltag	ge range		2	0%~75%Uc (AC), 1	0%~70%Uc (DC)						
		Pull-in	time (ms)	23~	·35	20-	-35	40~65					
		ReleaseRel	ease time (ms)	5~15 (50Hz) 1	30 (50/60Hz)	7~15 (50Hz) <sup>-</sup>	30 (50/60Hz)	100	~170				
Normal coil	AC coil	Pull-in power of	consumption (VA)	≤550 (50Hz) ≤8	855 (50/60Hz)	≤805 (50Hz) ≤	1180 (50/60Hz)	≤6	50				
		Retenti consum	ion power nption (VA)	≤55 (50Hz) ≤	9 (50/60Hz)	≤64 (50Hz) ≤	14 (50/60Hz)	≤	15				
		Pull-in	time (ms)	30~	40	30-	-40	40	~50				
	DC coil	releaseRel	easetime (ms)	30~	-50	30-	~50	40	~65				
	De con	Pull-in power	consumption (W)	≤7	760	≤9	00	≤8	10				
		Retentio consum	on power ption (W)	<u>≤</u> ∠	4.9	<u>≤5</u>	5.1	≤5.0					
	Rated	control voltage	e (Uc / V)		AC/DC: 48~132, 100~250								
	Ρι	ull-in voltage ra	nge			85%Ucmin~	110%Ucmax						
	Re	lease voltage ra	ange			0.48Ucmin	-0.52Ucmin						
		Pull-in	PLC control	30~	~40	30~40		55~	-70				
		time (ms)	Power control	30-	~40	30-	~40	55~	-70				
Wide voltage	48~132V	Release	PLC control	18-	~22	18-	~22	21~	-25				
coil	AC/DC	time (ms)	Power control	80~	-140	80~	140	60~	120				
		Pull- consum	in power ption (VA / W)	≤2	250	≤2	50	≤4	50				
		Retent	tion power ption (VA / W)	≤`	13	≤	13	≤1	3				
		Pull-in	PLC control	30~	~40	34-	~40	55~	-70				
		time (ms)	Power control	30~	~40	34-	~40	55~	-70				
	100~250V	Belease	PLC control	18-	~22	18-	-22	21~	.25				
	AC/DC	time (ms)	Power control	100~	~150	100-	-150	60~	120				
		Pull- consum	in power ption (VA / W)	≤2	250	≤2	50	≤4	50				
		Retent	tion power ption (VA / W)	≤´	16	≤	16	≤1	6				
C	onnection	Cord (mm <sup>2</sup> )	1 piece	2	.5	2	.5	2.	5				
c. tl	apacity of ne control	Hard wire (mm <sup>2</sup> )	1 piece	2	4		1	2	Ļ				
C	ircuit	Tightenin	g torque (N.m)	1.	.2	1	.2	1.	2				

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		Model		NDC1-400	NDC1-500	NDC1-630	NDC1-800/1050/1250							
	Rated co	ntrol voltage (	Uc / 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 the quick reaction coil) 110~120, 220~230, 380~400 (50/60Hz) DC: 48 (only the quick reaction coil) 110, 220							
	Pul	l-in voltage rar	nge		859	6Uc∼110%Uc								
	Rel	ease voltage ra	ange		20%Uc~75%Uc (AC), 7	10%Uc~70%Uc (DC)								
		Pull-in	time (ms)	40~75	40~75	40~80	60~80 (normal) ≤60 (quick)							
Normal	AC coil	ReleaseRelease time (ms)		ReleaseRelease time (ms)		ReleaseRelease time (ms)		ReleaseRelease time (ms)		100~170	100~170	100~200	150~180 (normal) ≤80 (quick)	
coil		Pull-in power of	consumption (VA)	≤1075	≤1100	≤1650	≤1700 (normal) ≤1000 (quick)							
		Retent consum	ion power nption (VA)	≤22	≤24	≤27	≤27 (normal) ≤47 (quick)							
		Pull-in	time (ms)	50~65	50~65	60~70	60~80 (normal) ≤20 (quick)							
	DC coil	releaseRele	easetime (ms)	45~65	45~65	40~50	40~50 (normal) ≤80 (quick)							
		Pull-in power	consumption (W)	≤1140	≤1220	≤1920	≤1700 (normal) ≤733 (quick)							
		Retent consur	ion power nption (W)	≤7.5	≤7.5 ≤8.0 ≤12.5									
	Rated o	control voltage	e (Uc / V)		48~132V AC/DC 100~250V AC/DC									
	Pu	ll-in voltage ra	nge		nin ~ 110%Ucmax									
	Rele	ease voltage ra	ange		0.48U	cmin-0.52Ucmin								
		Pull-in	PLC control	60~75	70~85		70~85							
		time (ms)	Power control	60~75	70~85		70~85							
Wide	48~132V	Release	PLC control	21~25	21~25		21~25							
voltage coil	AC/DC		Power control	60~120	80~140		80~140							
		Pull-i consump	in power otion (VA / W)	≤450	≤550		≤600							
		Retent consump	ion power otion (VA / W)	≤13	≤13		≤13							
		Pull-in	PLC control	60~75	70~85		70~85							
		time (ms)	Power control	60~75	70~85		70~85							
	100~250V	Release	PLC control	21~25	21~25		21~25							
	AC/DC	time (ms)	Power control	60~120	100~160		100~160							
		Pull-ii consump	n power tion (VA / W)	≤450	≤550		≤600							
		Retenti consump	on power tion (VA / W)	≤16	≤16		≤16							
(	Connection	Cord (mm <sup>2</sup> )	1 piece 2 pieces	2.5	2.5	2.5	2.5							
1	capacity of the control	Hard wire (mm <sup>2</sup> )	1 piece	4	4	4	4							
	circuit	Tightening	g torque (N.m)	1.2	1.2	1.2	1.2							

		Model		NDC1-1250	NDC1-1450(L)	NDC1-1700(L)	NDC1-2100(L)	NDC1-2650				
	Rated	control voltage (	Uc / V)	AC: 110, 220, 380 (50/60Hz) DC: 220~250	AC: 110	), 110~120, 220, 220~2 (50/60Hz) DC: 1	30, 240, 277, 380,380~ 10, 125, 220~250, 250	400, 415~400				
	Pu	ll-in voltage rang	e			85%Uc~110%Uc						
	Re	lease voltage ran	ge		20%Uc~7	5%Uc (AC), 10%Uc~70	0%Uc (DC)					
,		Pull-in ti	me (ms)	40~80		40~	75					
	AC coil	ReleaseRelea	ase time (ms)	100~200	100~170							
Normal coil	//2 2011	Pull-in power co	onsumption (VA)	≤2200		≤22	200					
		Retentic	on power otion (VA)	≤60		<u>≤</u> 4	14					
,		Pull-in ti	me (ms)	60~70		50~	-60					
	DC coil	releaseRelea	asetime (ms)	40~60		45~	-60					
		Pull-in power co	onsumption (W)	≤2400		≤25	500					
		Retentic consum	on power ption (W)	≤15		≤1	6					
	Rate	ed control voltage	e (Uc / V)		1	AC/DC: 100~250						
		Pull-in voltage ra	nge		8	5%Ucmin~110%Ucma	х					
	I	Release voltage ra	inge		0.48Ucmin-0.52Ucmin							
		Pull-in	PLC control	60~75		70~	•85					
Wide		time (ms)	Power control	60~75		70~	•85					
voltage coil	100~250V	Release	PLC control	21~25		21~	·25					
	AC/DC	time (ms)	Power control	60~120		100~	-160					
		Pull-in consumpt	power ion (VA / W)	≤900		≤11	00					
		Retentic consumpt	on power ion (VA / W)	≤18		≤'	8					
Con	naction	Cord (mm <sup>2</sup> )	1 piece 2 pieces	2.5		2.	5					
capa	acity of control	Hard wire (mm²)	1 piece	4	4							
circu	uit	Tightening	torque (N.m)	1.2		1.	2					

#### Quick Selection Table of NDC1N-09~95 Series AC Contactor



Comment:

a: The auxiliary contact number code of the 3P contactor is represented with a two-digit number with the ten-digit number as the logarithm of the NO contact; the single-digit number is the logarithm of the NC contact; The main contact number code of the 4P contactor: "40" represents that there are four pairs of NO main contacts; 08 represents there are two pairs of NO and NC main contacts.

b: The NF1 auxiliary contact set, NS1 air delay contact, NF2 auxiliary contact set and NG1 surge suppression module can be assembled.

### Main Performance Parameters of NDC1N-09~95 Series

Para	meters		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
			415V	9	12	18	25	32	38	40	50	65	80	95
Ra	ted working	AC-3	690V	6.6	8.9	12	18	21	21.5	34	39	42	49	49
cu	rrent (le /A)		415V	3.5	5	7.7	8.5	12	13.9	18.5	24	28	37	44
		AC-4	690V	1.5	2	3.8	4.4	7.5	8	9	12	14	17.3	21.3
Å	Agreed thermal o (Ith /A	current of the .) (θ≤60℃)	e free air	25	25	32	40	50	50	60	80	80	125	125
	Rated insulati	on voltage (	Ui / V)						1000					
	Impulse with	stand voltag	e (kV)			(	5					8		
	Rated workin	g voltage (U	e / V)					380	/415 660/	/690				
		Electrical	life (times)	$100 \times 10^{4}$	100 × 104	$100 \times 10^{4}$	$100 \times 10^{4}$	80 ×104	80 ×104	80 × 104	60 × 104	60×104	60 ×104	60 ×104
ļ	AC-3 (6le, le)	Operation fr	equency (h-1)	1200	1200	1200	1200	600	600	600	600	600	600	600
	AC-4 (6le 6le)	Electrical	life (times)	20×104	20×104	20×104	20×104	20 × 104	15 ×104	15 × 104	15 × 104	15×104	10 × 104	10 ×104
,	10 4 (010, 010)	Operation frequency (h <sup>-</sup>							300					
Short-t	ime allowable	1	s	210	210	240	380	430	430	720	810	900	990	1100
starting	g from the cold	1	Os	105	105	145	240	260	310	320	400	520	640	800
state, a tempe	rature ≤40°C,	6	Os	61	61	84	120	138	150	165	208	260	320	400
and the time fo	e zero-current or 30min /A	10	min	30	30	40	50	60	60	72	84	110	135	135
Im	pedance of ea	ch pole (Ma	x, mΩ)	2.5	2.5	2.5	2.5	2	2	2	2.5	2.5	2.5	0.8
	Agreed thern free air (Ith /A	nal current ( \)	of the						10					
Auxi liary	Electrical	AC-15 (3	60VA)		100	. 104			00104			<b>CO</b> .	104	
con tact	life/times	DC-13 (	33W)		100 × 10 <sup>4</sup> 80 × 10 <sup>4</sup> 60 × 104									
	Minimum	connected	load						17V 5mA					
	Rated conti	rol voltage (	(Us / V)			A	.C (50/60Hz	): 24, 36, 48,	110, 220/2	3, 240, 380/	400, 415, 44	10		
Cail	Pull-in	voltage ran	ge					659	%Us~120%	Us				
COII	Release	e voltage ra	nge					209	%Us~60%U	ls				
	50Hz AC coil	Star	ting	65	65	65	100	100	100	200	200	200	200	200
	power / VA	Reter	ntion	8	8	8	11	11	11	20	20	20	20	20
	Mechanica	al life (times	)		1000	×10⁴				800 × 10 <sup>4</sup>			600	×10 <sup>4</sup>
Cont	act switching	Close	"C"		12 -	~20		15 ~	~24		20~25		20 -	~35
time	(ms)	Open	"O"		4 ~	-12		5 ~	-15		8~12		6~	-20
		Flexible	1 piece	1,	/4	1.5/6	1.5/10	2.5	/10		2.5/25		4/	50
Conr	nection	without cable end	2 pieces		-	-	-		-		2.5/16		4/	25
capa	city of inals (mm2)	Prefabri	1 piece	1,	/4	1/6	1/6	1/	10		2.5/25		4/	16
(Min	/Max)	end cord	2 pieces		-	-	-		-		2.5/10		4/	16
		Non-prefa bricated	1 piece	1,	/4	1.5/6	1.5/6	1.5	/10		2.5/16		4/	50
		end hard wire	2 pieces		-	-	-		-		2.5/16		4/	25

#### Quick Selection Table of NDC1N-115~800 Series Reversing AC Contactor



Comment:

a. For the coil installation mode, select the horizontal assembling (represented by S) and vertical assembling (represented by C), with the former as default.

b. Select AC, DC and AC/DC for the coil voltage; see the sample ordering specification for details.

AC/DC represents the wide voltage coil for AC/DC.

### Main Performance Parameters of NDC1N-09~95 Series

Parameters		Model	NDC1 -115	NDC1 -150	NDC1 -185	NDC1 -225	NDC1 -265	NDC1 -330	NDC1 -400	NDC1 -500	NDC1 -630	NDC1 -800			
		415V	115	150	185	225	265	330	400	500	630	800			
Rated working	AC-3	690V	86	107	118	135	170	225	305	335	460	470			
current (le /A)		415V	52	60	79	85	105	117	138	147	188	195			
	AC-4	690V	49	57	69	82	98	107	135	145	170	175			
Agreed thermal cu	rent of the	free air (Ith /A)	200	250	275	315	350	400	500	700	900	1000			
Rated impulse with	thstand voltage (Uimp /kV)			8											
Rated insula	tion voltag	e (Ui / V)	1000												
Rated worki	ng voltage	(Ue / V)	380/415 660/690												
Mechan	ical life (tin	nes)		300×10 <sup>4</sup>											
	Electri	cal life (times)			15×	< 10 <sup>₄</sup>		8 ×	104	5×104	3 × 10 <sup>4</sup>				
AC-3 (6le, le)	Operatio	on frequency (h <sup>-1</sup> )	150												
	Cable	Number of bars	1	1	1	1	1	1	2	2	١	١			
Connection capacity of	Cable	Dimension (mm²)	95	120	150	185	240	250	150	240	١	١			
the main circuit	Copper	Number of bars	2	2	2	2	2	2	2	2	2	2			
	bar	Dimension (mm²)	20×3	25×3	25 × 3	32×4	32×4	30 × 5	30 × 5	40×5	60 × 5	60×5			
Impact resistance	Impact resistance Contactor opened (gn)		9	9	-	7		5	6	9	9	6			
wave=11 ms	Contac	tor suction (gn)	1	5	1	5	1	5	15	1	5	15			
Anti-vibration	Contac	tor opened (gn)	:	2		2		2	1.5	:	2	2			
8300Hz	Contac	tor suction (gn)	6	5	6	5	-	5	5		4	4			

#### Quick Selection Table of NDC1T Dust-proof AC Contactor



### Main Performance Parameters of NDC1T Series

	Model		NDC1T-4011	NDC1T-5011	NDC1T-6511				
		415V	40	50	65				
Rated working	AC-3	690V	34	39	42				
current (le /A)		415V	18.5	24	28				
	AC-4	690V	9	12	14				
Agre	ed thermal current (I	th /A)	60	80	80				
Rateo	d insulation voltage (	Ji / V)	1000						
Rate	d working voltage (U	e / V)	380/415 660/690						
Power fr	equency withstand v	oltage (V)							
		Electrical life (10 <sup>4</sup> times)	80 60						
	AC -3	Limit operation frequency (h <sup>-1</sup> times)		1					
Electrical life		Electrical life (10 <sup>4</sup> times)	15	15	15				
	AC -4	Limit operation frequency (h-1 times)		300	1				
	Mechanica	life		$800 \times 10^{4}$					
	Electi	rical life (10 <sup>4</sup> times)	15	15	15				
AC-4 (6le, 6le)	Operatio	n frequency (h <sup>-1</sup> times)		300	1				
	Rated working	380/400V	18.5	24	28				
	current (le A)	660/690V	9	14					
	Agreed t	hermal current (A)		10	1				
		AC-15 (360VA)							
Auxiliary contact	Electrical life	DC-13 (33VA)	$80 \times 10^4$	60 ×10 <sup>4</sup>	60×10⁴				
	Minim	um connected load		17V 5mA					
	Rated	control voltage (Us / V)	AC (50Hz	z, 50Hz/60Hz, 60Hz): 24, 48, 110	), 220, 380				
	Pul	l-in voltage range		85%Us~110Us					
Coil	Rele	ease voltage range		20%Us~75%Us					
	Coil power	Starting	230	230	230				
	50/60Hz	Retention	32	32	32				
		Close "C"		20~25					
Contact act	ion time (ms)	Open "O"		8~12					
Wiring troq	ue (N.m) max	Wiring terminal of the main circuit		2.5~5					
Connection ca	ipacity (mm²) max	Type O terminal block	16 (connected to Type O terminal block without the direct bare v						



#### Quick Selection Table of NDC2 Series AC Contactor

#### Note a.

The auxiliary contact number code of the 3P AC contactor is represented with a two-digit number with the ten-digit number as the logarithm of the NO contact; the single-digit number is the logarithm of the NC contact. "10" represents a pair of NO auxiliary contacts while "01" represents a pair of NC auxiliary contacts; The main contact number code of the 4P contactor: "40" represents that there are four pairs of NO main contacts; 08 represents there are two pairs of NO and NC main contacts.

### Main Performance Parameters of NDC2 Series

Paran	Mode		Model	NDC2-06	NDC2-09	NDC2-12	NDC2-16	NDC2-115	NDC2-150	NDC2-170	
Rate	d working current	380/-	415V	6	9	12	16	115	150	170	
le (A	C-3) /A	660/	690V	3.8	4.9	4.9	4.9	86	107	118	
Rate	d working current	380/-	415V	1.4	1.4	1.9	1.9	54	63	75	
le (A	C-4) /A	660/	660/690V		3.3	4.3	5.6	27	35	42	
	Agreed therm	al current lth/A	Ą		2	20			200	1	
	Rated working	g voltage Ue /V	,	220/230, 380/415, 660/690							
	Rated insulation voltage Ui/V				6	90			1000		
	AC-3 Electrical life (times)				100	× 10 <sup>4</sup>		40 × 10 <sup>4</sup>	30 >	< 10 <sup>4</sup>	
	(6le, le)	Operation f	requency h <sup>-1</sup>		12	200		600	3	00	
	AC-4	Electrical life	e (times)		20	× 10 <sup>4</sup>			2 × 10 <sup>4</sup>		
	(6le, le)	Operation f	requency h <sup>-1</sup>		6	00			300		
	Agreed thermal co	urrent of the fre	ee air Ith /A		1	10			/		
Auxiliary	Electrical life	AC-15 (3	60VA)								
contact	(times)	DC-13 (2	33W)		100	× 10 <sup>4</sup>			/		
	Minimum connected load				24V	10mA			/		
	Rated c	ontrol voltage	Us/V			AC (50Hz, 5	50/60Hz): 24, 36	, 48, 110, 220/2	30, 380/415		
	Pull-in	voltage range					0.85Us	~1.1Us			
Coil	Release	Release voltage range					0.20Us <sup>,</sup>	~0.75Us			
param eters		Ctartin a	50Hz	30				300			
	50Hz AC coil	Starting	50/60Hz		3	30		350			
	power VA	Retention	50Hz			5		22			
		neteniion	50/60Hz			5			22		
	Mechar	nical life (times)			1000	× 10 <sup>4</sup>		400 × 104	300	x104	
		Flexible cable	1 piece		0.7	75-4			10-120		
		without cable end	2 pieces		0.7	75-4			10-120+10-	50	
Сог	nnection capacity	Prefabricated	1 piece		0.34	4-2.5			10-120		
of t (mr	he main circuit m <sup>2</sup> ) ( min/max )	end cord	2 pieces		0.34-1 x	1.5+1 x2.5			10-120+10-	50	
(	,(,,	Non-prefabr	1 piece		1.	5-4			10-120		
		hard wire	2 pieces		1.	5-4			10-120+10~50		
			1 piece		0.34	4-2.5			1-2.5		
Cor	nection capacity	Cord	2 pieces		0.34-1 x 1	I.5+1 x 2.5			1-2.5		
(mr	m <sup>2</sup> ) ( min/max )	Hard wire	1 piece		1.	5-4		1-2.5			
			2 pieces	1.5-4 1-2.5							

#### Quick Selection Table of NDC2N Series AC Contactor



### Main Performance Parameters of NDC2N Series

Model Parameters			Model	NDC2N-06	NDC2N-09	NDC2N-12	NDC2N-16				
			380/415V	6	9	12	16				
	Rated working	AC-3	660/690V	3.8	4.9	4.9	4.9				
	current (le/A)		220/230V	2.4	3.5	4.4	5.7				
		AC-4	380/415V	2.3 3.3 4.3 5.6							
	Agreed thermal	current lth/A		20							
	Rated working v	oltage Ue /V		220/230, 380/415, 660/690							
Rated insulation voltage Ui/V				690							
	AC-3	Electrical life	(times)		100	x 10 <sup>4</sup>					
	(6le, le)	Operation fr	equency h <sup>-1</sup>		12	200					
	AC-4	Electrical life	(times)		20 >	< 10 <sup>4</sup>					
	(6le, le)	Operation fr	equency h <sup>-1</sup>	600							
	Agreed thermal	current of the fr	ee air (Ith/A)		1	0					
Auxil iarv	Electrical life	AC-15 (3	60VA)			1.04					
con tact	(times)	DC-13 (	33W)								
	Minimun	n connected loa	ad		24V	10mA					
	Rated co	ntrol voltage (L	Js/V)		AC (50Hz, 50/60Hz): 24, 36	, 48, 110, 220/230, 380/415					
Coil	Pull-in vo	oltage range (U	s)		0.85	- 1.1					
	Release v	voltage range (l	Us)		0.20 -	0.75					
		Starting	50Hz	30							
	Power V/A	Starting	50/60Hz	30							
	TowervA	Retention	50Hz			5					
		Netention	50/60Hz			5					
	Mechani	ical life (times)		1000 x 10 <sup>4</sup>							
		Flexible cable	1 piece		0.7	/5-4					
		cable end	2 pieces		0.7	/5-4					
Con of th	nection capacity ne main circuit	Prefabrica	1 piece		0.5	-2.5					
mm	<sup>2</sup> (min/max)	ted end cord	2 pieces		0.5-1 x 1	.5+1 x 2.5					
		Hard wire	1 piece		1.	5-4					
			2 pieces		1.	5-4					
		Prefabri	1 piece		0.34	4-2.5					
Con	nection capacity	cord	2 pieces		0.34-1 x <sup>-</sup>	1.5+1 x2.5					
mm	<sup>2</sup> (min/max)	Hard wire	1 piece		1.5	-2.5					
			2 pieces	1.5 -2.5							
v	Viring torque	Main	circuit	0.5 - 0.8							
(N.m)		Auxiliary/c	ontrol circuit		0.5	- 0.8					

Model Parameters			NDC2N-115	NDC2N-150	NDC2N-170				
Num	ber of poles		3	3	3				
Agreed thermal cu	irrent of the fr	ee air (Ith /A)	200	200	200				
		380/400/415V	115	150	170				
	AC-3	660/690V	86	107	118				
Rated current (A)		220/230/240V	54	63	75				
	AC-4	380/400/415V	27	35	42				
	2	20/230/240V	30	40	55				
Rated power (AC-3) (kW)	3	80/400/415V	55	75	90				
		660/690V	80	100	110				
	2	20/230/240V	9	11	22				
Rated power (AC-4) (kW)	3	80/400/415V	18.5	22	40				
Power consumption of		At Ith	24	24	24				
each pole (W)	At	AC-3 /415V/le	7.9	13.5	17.5				
Rat	ed working vol	tage (V)	AC220/	/230/240, AC380/400/415, AC660/	690				
Ins	ulation voltage	e Ui (V)		AC1000					
Impulse	withstand volta	age Uimp (kV)		12					
Rate	d control volta	ge Uc (V)	AC50/60Hz 24	4, 36, 48, 110, 200, 220, 230, 380, 4	00, 415, 480				
				Pull-in: 0.85Uc ~ 1.1Uc					
C	ontrol voltage	range		Release: 0.2Uc ~ 0.75Uc					
Cold state, coil p	ower consump	otion (VA) at 1.0 X Uc	Pull-in 350 Hold 22						
			From the coil po	wer-on to the closing of the main	contact: 20-35				
Action time (ms)			From the co	oil power-off to the main off-cont	act: 40-75				
Mechan	Mechanical life at Uc, 10,000 times			30	30				
	A	C-3 (6le, le)	600	300	300				
	Operatio	on frequency (h <sup>-1</sup> )		2	'				
Electrical life (times)	A	C-4 (6le, 6le)		300					
	Operatio	on frequency (h <sup>-1</sup> )		24V 10mA					
Short time withstand		10s	950	1200	1200				
current (starting from		30s	720	820	820				
the cold state, $0 \le 60^{\circ}$ C,		1min	550	580	580				
before) (A)		3min	340	350	350				
		10min	200	250	250				
	Hardwire	1 piece		10~120					
	riatu wite	2 pieces		10~120+10~50					
Connection capacity of	Cord	1 piece		10~120					
the main circuit (mm <sup>2</sup> )		2 pieces		10~120+10~50					
	Cold-press	1 piece		10~120					
	end Cord	2 pieces		10~120+10~50					
Tight	tening torque l	N.m		12					
	Hard wire	1 piece		1~2.5					
		2 pieces		1~2.5+1~2.5					
Connection capacity of the control circuit (mm <sup>2</sup> )	Cord	1 piece		1~2.5					
		2 pieces		1~2.5+1~2.5					
	Cold-press	1 piece		1~2.5					
	end Cord	2 pieces	1~2.5+1~2.5						
Tight	ening torque (	N.m)		1.2					
	Weight (Kg)			4.4					

#### Main Performance Parameters of NDC2N Series



#### Note a:

Represented with a two-digit number with the ten-digit number as the logarithm of the NO contact; the single-digit number is the logarithm of the NC contact. Three sizes are available, 40, 31 and 22.

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	Model		NDJ1-40, 31, 22	NDJ1Z-40, 31, 22			
Rated working	AC-15 (3	:80V)	0.	95			
current le (AC-3) A	DC-13 (2	220V)	0.15				
Agreed therr	nal current (Ith	/A)	1	0			
Rated workir	ng voltage (Ue ,	′ V)	AC380, DC220				
Rated insulat	ion voltage (Ui	/ V)	69	90			
Minimum	connected load	1	17V	5mA			
Rated operati	on frequency (	h-1)	24	00			
Mechani	cal life (times)		1000	× 10 <sup>4</sup>			
Electric	al life (times)		120×104				
	Rated control voltage (Us / V)		AC: 50/60Hz, 24, 48, 110, 220, 380	DC: 24, 48, 110, 220			
Coil	Pull-in	voltage	0.85Uc~1.1Uc	0.85Uc~1.1Uc			
2011	Release	voltage	0.20Uc~0.75Uc	0.10Uc~0.75Uc			
	Starting	) power	65 VA	11W			
	Retentio power cor	n power/ nsumption	8VA	11W			
Dielectric withstan	d voltage (AC 5	0Hz)	1890V/1min				
NO NC switch	ning time (ms)		4				
Instantaneous	1	S	10	00			
overcurrent allowable value (A)	500	lms	120				
	100	)ms	18	30			
Connection capacity	Cord	1 piece or 2 pieces	2.5				
of terminals (mm2)	Hard wire	1 piece or 2 pieces	4				

### Main Performance Parameters of NDJ1 Series

#### Quick Selection Table of NDK1 Series Switching Capacitor Contactor



#### Note a:

The auxiliary contact number code of the 3P contactor is represented with a two-digit number with the ten-digit number as the logarithm of the NO contact; the single-digit number is the logarithm of the NC contact.

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#### Main Performance Parameters of NDK1 Series

	Mode	2	NDK	1-25	NDK	1-32	NDK	1-40	NDK	1-50	NDK	1-60	NDK	1-80	NDK	1-125
Agreed f	ree thermal	current (Ith /A)	3	2	4	0	5	D	6	0	8	0	8	0	12	25
Rated work	ng current	le (AC-6b 400V) /A	1	8	24	4	2	9	3	6	4	8	5	8	8	7
Controllable	:	200~240V	6	.7	8.	5	1	)	1	5	2	0	2	5	4	0
AC-6b Kvar		400~440V	12	2.5	16	.7	2	)	2	5	33	8.3	4	0	6	0
Surge sup	pression ca	apacity (times)	20													
Ele	ectrical life	(times)							30>	<10 <sup>₄</sup>						
Me	chanical life	e (times)							300	× 104						
Maximum	operation	frequency (h <sup>-1</sup> )							20	00						
Rated in	sulation vo	ltage (Ui / V)							6	90						
Con	tactor speci	ifications	NDK1- 2511,	2520, 2502	NDK1- 3211,	3220, 3202	NDK1- 4011,	4020, 4002	NDK1- 50	5021, 012	NDK1- 60	6021, )12	NDK1- 80	8021, 012	NDK1-7 12	12521, 512
	Agree cu	10														
Auxiliary	Electrical life	AC-15 (360VA)		12×10 <sup>4</sup>												
contact	(times)	DC-13(33W)														
	Minimur	n connected load							24V	10mA						
Current limiti	ng resistan	ce time input (ms)	7~9													
	50Hz	Starting	7	0		11	10		200							
Coil		Pull-in	8	8		1	1		20							
	60Hz	Starting	8	0		11	15		220							
		Pull-in	8	3		1	1		20							
Rated cont	rol supply vo	ltage Us / V					AC (50	Hz, 50Hz	:/60Hz): 2	4, 48, 11	0, 220, 38	30, 400				
P	ull-in time (m	ns)	12-	~22		15-	~24				20-	-26			20-	~35
Re	lease time (n	ns)	4~	12		5~	19				8~	12			6~	20
F	ull-in voltag	e							85%~1	10%Us						
Release voltage					30%~5	55%Us						30%~6	50%Us			
Connection	Piece	e(s) of conductors	1	2	1	2	1	2	1	2	1	2	1	2	1	2
capacity of		Cord (mm <sup>2</sup> )	4	4	4	4	6	6	16	16	16	16	16	16	50	25
terminals	Ha	ard wire (mm <sup>2</sup> )	6	6	6	6	10	10	25	16	25	16	25	16	50	25

Note: 1. Due to the voltage fluctuation and harmonics, the capacitor circuit generally operator at the current 1.3 times of the rated current of the capacitor;

2. The manufacturing error of the capacitor is generally -5%~+10%, so that the actual circuit current can reach I=1.3×1.1×In=1.43In. Therefore, consider this situation for selection of the contactor.

#### Quick Selection Table of NDCQ1 Series Star-Delta Starter



### Main Performance Parameters of NDCQ1 Series

Paramete	Model Parameters		NDCQ1-18	NDCQ1-25	NDCQ1-32	NDCQ1-40	NDCQ1-50	NDCQ1-65	NDCQ1-80	NDCQ1-95			
Rate (le	Rated working current (le /A) (AC-3 415V)		31	43	55	69	86	112	138	164			
Rated ins	Rated insulation voltage (Ui / V)		690										
Rated working voltage (Ue / V)		380/415, 660/690											
Electr	Electrical life (AC-3 415V)		104	2.5 :	×10 <sup>4</sup>	1.5 × 10 <sup>4</sup>							
Opera	tion frequency (h-1)		30										
ľ	Mechanical life	$30 \times 10^4$											
Auxiliary	Rated working voltage (V)		AC380, DC220										
contact	Agreed thermal current (A)		10										
	Rated control voltage (V)				AC (50Hz 50/6	50Hz): 24, 36, 4	3, 110, 380, 415						
Coil	Pull-in voltage				8	85%Us~110%U	S						
	Release voltage					20%Us~75%Us							



#### Quick Selection Table of NDY1 Transfer Switch

Comment:

a. Special demand code T: First on and off during switching; F: Auxiliary terminal;

FH: Auxiliary terminal gold plating; M1~5: Panel type, etc.

### Main Performance Parameters of NDY1 Series

Models and	specifications	NDY1-20		NDY1-25		NDY1-32	NDY1-63	NDY1-125	NDY1-160
Rated insulation voltage (Ui / V)		69	690		690		690	690	690
Agreed thermal current (Ith /A)		2	0	25		32	63	125	160
Rated working voltage (Ue / V)		DC240	AC400	DC240 AC400		AC400	AC400	AC400	AC400
Rated	AC-21A	/	20	/	25	32	63	100	150
working current	AC-23A	/	15	/	22	30	57	90	135
(Ie/A)	DC-21A	0.4	/	0.6	/	/	/	/	/
Rated impulse withstand voltage (Uimp /kV)				- 		8	- -	·	~ 

Actuator Angle Position									
Conversion angle code Characteristic code	3 (30°)	4 (45°)							
В									
С	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°60°90°	90°45°0°45°90°135°							
Н	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°60°90°120°								
К	120°90°60°30°0°30°60°90°120°150°								
L	150°120°90°60°30°60°30°60°90°120°150°								
М	150°120°90°60°30°0°30°60°90°120°150°180°								
Ν		45° 45°							

	Actuator Angle Position										
Conversion angle code Characteristic code	6 (60°)	9 (90°)									
В		90°0°									
С	0°60°	0°90°									
D	60°0°60°	30°0°30°									
E	60°0°60°120°	270°0°90°180°									
F	60°0°60°120°180°										
G	120°60°0°60°120°180°										
Н											
I											
J											
К											
L											
М											
Ν	30° 30°										

#### NF1, NF2 Series Auxiliary Contact Sets, NS1 Series Auxiliary Contact (Air Delay Type)



### Main Performance Parameters of NF1, NF2 and NS1 Series

M . 1.1	Contact	number	lastallation mode		
Model	Normally open (NO)	Normally closed (NC)	Installation mode		
NF1-40	4	0			
NF1-31	3	1			
NF1-22	2	2	NDC1(N)-09~95, NDC1(7)-09~95, NDC2(N)-115~170 series		
NF1-13	1	3	contactors and NDJ1(Z) series contactor relay adopt the top		
NF1-04	0	4	NDC1(N)-115~780 series contactor adopts the side		
NF1-20	2	0	top-mounting mode.		
NF1-11	1	1			
NF1-02	0	2			
NF2-20	2	0	NDC1(N)-09~95, NDC2(N)-115~170, NDC1(Z)-09~38		
NF2-11	1	1	relay adopt the side mounting mode.		
NF3-40	4	0			
NF3-31	3	1			
NF3-22	2	2			
NF3-13	1	3	NDC2-06~16 series contactor adopts the top hanging mode		
NF3-04	0	4			
NF3-20	2	0			
NF3-11	1	1			
NF3-02	0	2			

#### Specification Table of NF Series

## Auxiliary Contact (Air Delay Type)

Model	Delay time	Number of relay contacts	Time delay way	Hanging method		
NS1-220	0.15~3s					
NS1-222	0.15~30s		Power-on delay			
NS1-224	105~180s	110.110		Tables		
NS1-320	0.1S~3s	INO+INC		lop hanging		
NS1-322	0.15~30s		Power-off delay			
NS1-324	10S~180s					

#### Main Performance

Contents		Name	NF1	NF1 NF2 NF3 NF4					
Ap	plicable standards			IEC60947-5	GB14048.5				
Rated i	nsulation voltage (Ui/	V)		690					
Rated	working voltage (Ue/\	V)		AC380 DC220					
Agreed therm	Agreed thermal current of the free air (Ith/A)			1	0				
Rated working	AC-15 (380	)V/400V)		0.	95				
current (le / A)	DC-13 (220	)V/230V)		0.	15				
Mir	imum connected load	d		17V	5mA				
Life (times)	Mechani	cal life		10 x 10 <sup>6</sup>					
	Electrica	al life		1.2 x 10 <sup>6</sup>					
Op	eration frequency (h <sup>-1</sup>	)		1200					
	Connect the	Max / mm²		4x2 pieces					
	conductor	Min / mm <sup>2</sup>		1.5 x 1 piece					
Connection	Connect the	Max / mm²		2.5 x 2	pieces				
сарасну	conductor	Min / mm <sup>2</sup>		1.0 x <sup>2</sup>	1 piece				
	Tightening to	orque (N.m)		0.5/	~0.8				
	Delay repeat error			1		±5%			
	Delay stability error			1					
	Temperature error			1					
	Applicable model		NDC2- NDC2N-	115-170 115-170	NDC2-115-170 NDC2N-115-170				





#### Main Performance Parameters of NG1 Series

Model	Protection form	Applicable coil voltage
NG1-2NRE	- Varistor	AC 24V~48V
NG1-2NRG		AC 50V~127V
NG1-2NRU		AC 110V~240V
NG1-2NRN		AC 380V~415V
NG1-2RCE	- RC circuit	AC 24V~48V
NG1-2RCG		AC 50V~127V
NG1-2RCU		AC 110V~240V
NG1-2RCN		AC 380V~415V
NG1-2DC	Diode	DC 24~220V

# Quick Selection Table of NDR1 Electronic Thermal Overload Relay



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### Main Performance Parameters of NDR1 Series

#### **Parameters Selection**

Setting current specification code		(SCPD)	RT16 fuse (A)	Madalaada	Comparting and star	
Adjustment range o	f the setting current (A)	aM	gG	Model code	Supporting contactor	
11	0.1~0.16	0.25	2			
12	0.16~0.25	0.5	2			
13	0.25~0.40	1	2			
14	0.40~0.63	1	2			
15	0.63~1	2	4			
16	1~1.6	2	4			
17	1.6~2.5	4	6			
18	2.5~4	6	10	3	38	
21	4~6	8	16	NDC1-09~38		
22	5.5~8	12	20			
23	7~10	12	20			
24	9~13	16	25			
25	12~18	20	35			
26	17~25	25	50			
27	23~32	40	63			
28	30~40	40	80			
31	23~32	40	63			
32	30~40	40	100			
33	37~50	63	100			
34	48~65	63	100	S NDC1	95 -40~95	
35	55~70	80	125			
36	63~80	80	125			
37	80~95	100	160			

## Main Performance Parameters

Name of technical parameters		neters	Technical parameters		
Product specifications			NDR1-38 series	NDR1-95 series	
Sett	ting current rang	je	0.1~40A	23~95A	
Rated ins	sulation voltage	(Ui)/ V	AC	590	
Rated w	orking voltage (	Ui)/ V	AC400,	AC690	
	Rated duty		8-hour duty type; i Intermittent periodic duty type (operation	ntermittent duty; frequency 30 times/, load factor of 40%)	
Tripping level	Comply wit	h GB14048.4	1	0	
	Overload	protection	Comply with the GB14048.4 standard (see the	e characteristic curve of Figure 1 for details)	
Protective characteristics	Phase unbala	nce protection	When the three-phase current satisfies I $\geq$ 0.4In and t	he phase unbalance rate is ≥50%, it trips within 8s.	
	Open-phase	e protection	When the two-phase current satisfies I $\geq$ 0.4In with the other-phase current as 0, it trips within 8s.		
	Reset	t type	Manual or aut	omatic reset	
Reset	Reset time		Manual reset: Push the reset button for immediate reset		
			Automatic reset: Realize reset within 90s after the fault tripping		
LED lig	ht status indicat	ion	The LED light is used to indicate the on and off of the control power supply (constantly on when connected) and the overload pre-alarm of the main circuit (>105le, LED flashing)		
	Flexible conductor (1 piece) without terminals		1.5/10	4/35	
Connection capacity	Flexible conductor (1 piece) with terminals	Minimum/ maximum cross section (mm <sup>2</sup> )	1/6	4/35	
	Hard conductor (1 piece) without terminals		1/6	4/35	
Tiç	ghtening torque	(N.m)	1.5	8	
EMC	Conduction	RF radiation	Comply with GB1	4048.4, GB4824	
radiation level	Radioactiv	e radiation	Comply with GB14048.4, GB4824		
	Electrostat	tic Release	Comply with GB14048.4, GB17626.2		
FMC with	Electrom field radio f	agnetic Frequency	Comply with GB14048.4, GB17626.3		
interference level	Fast tra	ansient	Comply with GB140	48.4, GB/T 17626.4	
	Surge ti	ransient	Comply with GB14048.4, GB/T 17626.5		

#### Auxiliary Contact Characteristics

	Name of technical parameters	Technical parameters		
Agreed thermal cu	irrent (lth/A)	2.5		
		10.15	AC400V, 0.47A	
Utilization category and control capacity		AC-15	AC230V, 0.75A	
		DC-13	DC230V, 0.1A	
	Flexible conductor (1 piece or 2 pieces) without terminals		1/2.5	
Connection capacity	Flexible conductor (1 piece or 2 pieces) with terminals	Minimum/maximum cross section (mm <sup>2</sup> )	1/2.5	
	Hard conductor (1 piece or 2 pieces) without terminals		1/2.5	
	Tightening torque (N.m)	0.8		

#### Auxiliary Power Supply Characteristics

Auxiliary power vo	bltage (V)	AC (50/60Hz), 110, 220/230, 380/400	
	Flexible conductor (1 piece or 2 pieces) without terminals		1/2.5
Connection capacity	Flexible conductor (1 piece or 2 pieces) with terminals	Minimum/maximum cross section (mm <sup>2</sup> )	1/2.5
	Hard conductor (1 piece or 2 pieces) without terminals	1/2.5	
	Tightening torque (N.m)	0.8	

### Quick Selection Table of A1/R1 Stand-alone Mounting Base



Comment:

a. The A1/R1 stand-alone mounting base is only socketable and used with NDR1.

b. For installation, the screw or TH35 type standard installation rail is supported.

### Quick Selection Table of A1/R1 Stand-alone Mounting Base



# Main Performance Parameters of NDR2 Series

#### Model Analysis Table

N	Current	Setting current	With (SCPD) fuse (A)		Product basic-type	
NO.	specification code	range (A)	aM	gG	code	Install a contactor
1	01	0.1~0.16	0.25	2		
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		NDC1-09~38
7	07	1.6~2.5	4	б		
8	08	2.5~4	6	10		
9	10	4∼6	8	16	38	
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		
16	35	30~38	50	80		NDC1-32~38
17	22	17~25	25	50		
18	53	23~32	40	63		
19	55	30~40	40	100		NDC1-40~95
20	57	37~50	63	100	05	
21	59	48~65	63	100	95	
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		
24	67	95~120	125	224	140	NDC2-115~170
25	69	110~140	160	250	1	

### **Normal Characteristics**

		Туре	NDR	2-38	NDR2-95/140		
Setting current range (le /A)			0.1	~38	17~140		
	Rated ins	ulation voltage (Ui / V)		69	90		
	Rated wo	orking voltage (Ue / V)		69	90		
Rated	impulse v	vithstand voltage (Uimp /kV)		6	6		
		Tripping level		10	A		
	Compens	ation temperature (Č)		-5 -	~ +40		
	Туре			1NC	D+1NC		
	Agreed	thermal current (Ith /A)	5				
Auxiliary	AC-15	Rated working voltage (Ue / V)	220	380	220	380	
contact		Rated working current (le /A)	1.63	0.94	2.73	1.58	
	DC-13	Rated working voltage (Ue / V)	110	220	110	220	
		Rated working current (le /A)	0.25	0.12	0.46	0.21	
	Produc	t basic-type	3801-3821	3822-3835	95	140	
		Cord (without the prefabricated end), 1 piece	1.5/10	1.5/10	4/35	4/50	
	Main	Cord (prefabricated end), 1 piece	1/4	1/6	4/35	4/50	
Connection	circuit	Hard wire, 1 piece	1/6	1.5/10	4/35	4/50	
capacity Min/Max		Tightening torque (N.m)	1.7	2.5	6~	7	
(mm²)		Cord (without the prefabricated end), 1 piece or 2 pieces		I	1		
	Auxilia ry	Cord (prefabricated end), 1 piece or 2 pieces		1/2.5			
	circuit	Hard wire, 1 piece or 2 pieces					
		Tightening torque (N.m)	0.6~0.8				

## Quick Selection Table of NA2 Stand-alone Mounting Base



Comment:

- a. The NA2 stand-alone mounting base is only socketable and used with NDR2.
- b. For installation, the screw or TH35 type standard installation rail is supported.



Comment: The product is only available with three poles for the pole number.

## Main Performance Parameters of NDD1 Series

#### Main Performance Parameters

Туре	Model	NDD1-32A	NDD1-80A	
	GB14048.2	A	А	
Utilization category	GB14048.4	AC-3	AC-3	
Rated working voltage (V)		380, 400, 415, 690	380, 400, 415, 690	
Rated insulation voltage (V)		690	690	
Rated working frequency (Hz)		50/60	50/60	
Rated impulse withstand voltage (kV	)	6	6	
Power consumption of a single pole (	W)	2.5	8	
	Operation times with electricity	60000	10000	
Operating performance	Operation times without electricity	60000	17000	
Operation fre	equency (times/h)	120	120	
Tripp	bing level	10A	10A	
	Hard wire	2×1/2×6	1×2.5/1×35	
Connection capacity of terminals mm <sup>2</sup> (min / max)	Flexible wire without terminals	2×1.5/2×6	1.42.44	
	Flexible wire with terminals	2×1/2×4	1×4/2×16	
Wiring torque (N.m)	· 	Wiring torque of the main circuit: 1.5N.m, wiring torque of the auxiliary and accessory product terminals: 0.8N.m	Wiring torque of the main circuit: 8N.m, wiring torque of the accessory product terminal: 0.8N.m	

	Current setting	Breaking capacity (	KA) 380V/400V/415V	Breaking capacity (KA) 690V		
Product model	range	Rated limit short-circuit breaking capacity lcu	Rated operating short-circuit breaking capacity Ics	Rated limit short-circuit breaking capacity Icu	Rated operating short-circuit breaking capacity Ics	
NDD1-32A01	0.1~0.16A	50	50	50	50	
NDD1-32A02	0.16~0.25A	50	50	50	50	
NDD1-32A03	0.25~0.4A	50	50	50	50	
NDD1-32A04	0.4~0.63A	50	50	50	50	
NDD1-32A05	0.63~1A	50	50	50	50	
NDD1-32A06	1~1.6A	50	50	50	50	
NDD1-32A07	1.6~2.5A	50	50	3	2.25	
NDD1-32A08	2.5∼4A	50	50	3	2.25	
NDD1-32A10	4∼6.3A	50	50	3	2.25	
NDD1-32A14	6~10A	50	50	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	

#### Short-circuit Breaking Capacity

#### Tripping Characteristics and Tripping Curve

Characteristicitem	No.	Test current	Preset time	Initial state	Expected results	Notes
	а	1.05ln	t≤2h	Cold state	Non-tripping	None
Delay protection	b	1.2ln	t<2h	Warm state	Tripping	The current rises to the specified value steadily within 5s following the test in Item a
characteristics 20±2 <sup>°</sup> C	с	1.5ln	t≤2min	Warm state	Tripping	The 1x setting current starts after reaching the thermal balance
	d	7.2ln	2s <t≤10s< td=""><td>Cold state</td><td>Tripping</td><td>Tripping level: Level 10A</td></t≤10s<>	Cold state	Tripping	Tripping level: Level 10A
	e	7.68ln	t≤0.2s	Cold state	Non-tripping	In < 0.25A
Instantaneous protection		11.52ln	t<0.2s	Cold state	Tripping	
characteristics	f	9.6In	t≤0.2s	Cold state	Non-tripping	In>0.25A
		14.4ln	t<0.2s	Cold state	Tripping	
Open-phase protection 20±2 C	g	2P 1.0ln, 1P 0.9ln	t≤2h	Cold state	Non-tripping	None
	h	2P 1.15In, 1P without electricity	t<2h	Warm state	Tripping	The current rises to the specified value steadily within 5s following the test in Item 9

# Installation Schematic Diagram of NDD1-32 Accessories



No.	Accessory name	Installation position	Accessory code	Structure description	Remarks	
	Top-mounting	Тор	F1-11D/D1-32	One NO, one NC	Only install 1 piece on the upper end of	
Û	auxiliary	mounting	F1-20D/D1-32	Two NO	NDD1-32	
			FB1-1010Z/D1-32	Alarm - NO, auxiliary - NO		
۲	Alarm and	Left	FB1-1001Z/D1-32	Alarm - NO, auxiliary - NC	Only install 1 piece on	
(2)	auxiliary contact	mounting	FB1-0110Z/D1-32	Alarm - NC, auxiliary - NO	the left side of NDD1-32	
			FB1-0101Z/D1-32	Alarm - NC, auxiliary - NC		
_	3 Left-mounting auxiliary	Left	F1-11Z/D1-32	One NO, one NC	Install up to 2 pieces on	
(3)		mounting	F1-20Z/D1-32	Two NO	the left side of NDD1-32	
		Itage Right	Q1-11AY/D1-32	Rated working voltage 110V~127V AC 50Hz		
			Q1-20AY/D1-32	Rated working voltage 200V AC 50Hz, 200V~220V AC 60Hz	Only install 1 piece on the right side of NDD1-32	
(4)	Undervoltage		Q1-22AY/D1-32	Rated working voltage 220V~240V AC 50Hz, 240V~265V AC 60Hz		
٢	release	mounting	Q1-38AY/D1-32	Rated working voltage 380V~415V AC 50Hz, 400V~440V AC 60Hz		
			Q1-41AY/D1-32	Rated working voltage 415V~440V AC 50Hz, 440V~480V AC 60Hz		
			Q1-44AY/D1-32	Rated working voltage 440V AC 50Hz, 440V~480V AC 60Hz		
			FT1-11AY/D1-32	Rated working voltage 110V~127V AC 50Hz		
(5)	Shunt release	unt release Right mounting	FT1-22AY/D1-32	Rated working voltage 220V~240V AC 50Hz	Only install 1 piece on the right side of NDD1-32	
			FT1-38AY/D1-32	Rated working voltage 380V~415V AC 50Hz		
Note: Tw	o sets of left-mounting	accessories F1 a	nd FB1 can be installed	on the left side of the circuit breaker at the same time, with FB1 to	be installed first and then F1	



## Installation Schematic Diagram of NDD1-80 Accessories

No.	Accessory name	Installation position	Accessory code	Structure description	Remarks	
			F1-11Y/D1-80	One NO, one NC		
1	Auxiliary contact	act Right mounting	F1-20Y/D1-80	Two NO	Only install 1 piece on the right side of NDD1-80	
			F1-21Y/D1-80	Two NO, one NC	ingin side of the bit of	
			BJ1-10/D1-80	One NO	Only install 1 piece inside	
2	Alarm contact Ins	Alarm contact Inside	BJ1-01/D1-80	One NC	NDD1-80	
	③ Shunt release	Inside	FT1-22A/D1-80	Rated working voltage 220V~240V AC 50Hz	Only install 1 piece inside	
(3)		ase	FT1-38A/D1-80	Rated working voltage 380V~415V AC 50Hz	NDD1-80	
	Undervoltage	Undervoltage Uncide Q1		Rated working voltage 220V~240V AC 50Hz	Only install 1 piece inside	
(4)	release	inside	Q1-38A/D1-80	Rated working voltage 380V~415V AC 50Hz	NDD1-80	

# Accessories Function Description

Accessory type	Function and application
Auxiliary contact	The connection indicator can be used to indicate the making and breaking of the circuit breaker.
Alarm contact	For indicating breaking of the circuit breaker at the fault current.
Alarm/auxiliary contact	The product provides the alarm contact and auxiliary contact for realization of the above auxiliary and alarm functions, which is space-saving.
Shunt release	For breaking of the circuit breaker and remote control at the rated working voltage of 70%-110%.
Undervoltage release	For breaking of the circuit breaker at the rated working voltage of 70%~35%. To prevent closing of the circuit breaker at the voltage less than 35% of the rated working voltage. No impact on breaking of the circuit breaker at the rated working voltage of 85%~110%.

Contact type	Operating power and AC current operation AC-15				Operating power and DC current operation DC-13			
Auxiliary contact F1-11Z/D1-32 F1-20Z/D1-32	Rated working voltage Ue	Operating power under normal conditions	Occasional on/off under abnormal conditions	Rated working current	Rated working voltage Ue	Operating power under normal conditions	Occasional on/off under abnormal conditions	Rated working current
	48	300	3000	6	24	140	240	6
	110/127	500	7000	4.5	48	240	360	5
	230/240	720	13000	3.3	60	180	240	3
FB1 auxiliary contact part	380/415	850	15000	2.2	110	140	210	1.3
	440	650	13000	1.5	220	120	180	0.5
	500	500	12000	1	-	-	-	-
	690	400	9000	0.6	-	-	-	-
FB1 alarm contact part	24	36	220	1.5	24	24	100	1
	48	48	300	1	48	15	50	0.3
	110/127	72	450	0.5	60	9	50	0.15
	220/240	72	450	0.3	-	-	-	-
Instantaneous auxiliary contact F1-11D/D1- 32F1-20D/D1-32	24	48	480	2	24	24	10	1
	48	60	600	1.25	48	15	50	0.3
	110/127	120	1270	1	60	9	50	0.15
	220/240	120	2400	0.5	-	-	-	-

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