Electrics changes Life,
efficiency leads the Future!

NLDM1

Moulded Case Circuit Breaker Series (MCCB)

NLD®

■ Scope of application

☐ The NLDM1 series moulded case circuit breakers (hereinafter referred to as circuit breakers) are suitable for AC 50Hz (or 60Hz) circuits with rated insulation voltage of 1000V (800V for NLDM1-63 and 1140V for NLDM1-1600), rated operating voltage of 400V/690V (1140V for NLDM1-1600) and below, and rated operating current up to 1600A for infrequent switching and infrequent motor starting. The circuit breaker has overload, short circuit, and undervoltage protection functions, which can protect the circuit and power equipment from damage.

☐ Circuit breakers are classified into L-type (standard type) and M-type (high breaking type) according to their rated ultimate short-circuit breaking capacity.

☐ This circuit breaker has the characteristics of small volume, high breaking capacity, short arcing, and high vibration resistance.

☐ The circuit breaker has isolation function, and its corresponding symbol is " —/⊢— " .

☐ Compliant standards: GB/T 14048.2, IEC60947-2.

☐ This circuit breaker allows for reverse wiring.

■ Model and meaning

NLD M 1 - □□□ / □□□□

- N pole type: A, B, C, D(Note 4)
- Utilization code (Note 3)
- Release mode and accessory code (see Table 5)
- Number of poles
- Operation Mode (Note 2)
- Rated ultimate short-circuit breaking capacity
- Class (Note 1)
- Frame current
- Design code
- Moulded case circuit breaker
- Enterprise code

Note:

1. According to rated ultimate short-circuit breaking capacity, it is classified into L type (standard) and M type (medium breaking).
2. No code for direct operation of handle; Electric operation is represented by P; The rotation handle is represented by Z.
3. The circuit breaker for power distribution has no code; The protection motor is represented by 2.
4. It is classified into three poles and four poles according to the number of poles. There are four types of neutral pole (N-pole) in the four-pole products:

Type A: The N-pole is not equipped with over-current release, and the N-pole is always connected, not closed or opened with other three poles.

Type B: N-pole is not equipped with over-current release, and N-pole is closed and opened together with other three poles (N-pole is closed first and then opened).

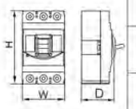
Type C: N-pole is equipped with over-current release, and N-pole is closed and opened together with other three poles (N-pole is closed first and then opened).

Type D: N-pole is equipped with over-current release, and the N-pole is always connected, not closed and opened with other three poles.

■ Main technical performance parameters of moulded case circuit breakers

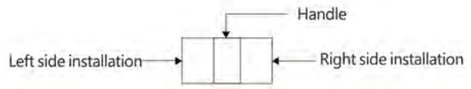
Table5

Rated frame current Inm(A)		63		125		250		400		630		800		1600	
Rated current In (A), 40℃		10、16、20、25、32、40、50、63		16、20、25、32、40、50、63、80、100、125		100、125、160、180、200、225、250		225、250、315、350、400		400、500、630		630、700、800		800、1000、1250、1600	
Rated insulation voltage Ui (V)		800		1000		1000		1000		1000		1140		1140	
Rated impulse withstand voltage Uimp (Kv)		8		12		12		12		12		12		12	
Rated operating voltage Ue (V), AC508/60Hz		400、690		400、690, 220/400 for 2P		400、690, 220/400 for 2P		400、690		400、690		400、690、800、1140		400、690、800、1140	
Selective category		A		A		A		A		A		A		A	
Arc distance (mm)		≤50		≤50		≤50		≤50		≤100		≤100		≤120	
Operation performance (time)	Electrical life (power-on)	1500		1000		1000		1000		1000		500		500	
	Mechanical life (pwer-off)	8500		7000		7000		4000		4000		2500		2500	
Breaking capacity level		L	M	L	M	L	M	L	M	L	M	L	M	L	M
Number of poles	2P	-	-	■	■	■	■	-	-	-	-	-	-	-	-
	3P	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	4P	-	■	■	■	■	■	■	■	■	■	■	■	■	■
Rated ultimate short circuit breaking capacity (kA)	Ue=AC400V	35		35	85	35	85	50	100	50	100	75	100	75	100
	Ue=AC690V											-	50	-	50
	Ue=AC800V	-		-	-	-	-	-	-	-	-	-	50	-	50
	Ue=AC1140V	-		-	-	-	-	-	-	-	-	-	50	-	50
Rated short circuit breaking capacity (kA)	Ue=AC400V	20		22	50	22	50	35	75	35	75	50	65	50	65
	Ue=AC690V											-	50	-	50
	Ue=AC800V	-		-	-	-	-	-	-	-	-	-	50	-	50
	Ue=AC1140V	-		-	-	-	-	-	-	-	-	-	50	-	50
Overall dimension Width(W)× height (H)×depth(D)	2P	-		65		75		-		-		-		-	
	3P (W)	77		92		107		150		182		210		210	
	4P (W)	103		122		142		198		240		280		280	
	(H)	136		150		165		257		270		280		330	
	(D)	74	83	70.5 (69 for 2P)	88 (86 for 2P)	89 (86 for 2P)	108 (105 for 2P)	110		116		120(3P) 118.5(4P)		137	



Note: "-" in the table represents inapplicable, "■" represents applicable

■ Release mode and accessory code



- □ Alarm contact
- ■ Auxiliary contact
- ● Shunt release
- ○ Undervoltage release
- → Lead wire direction

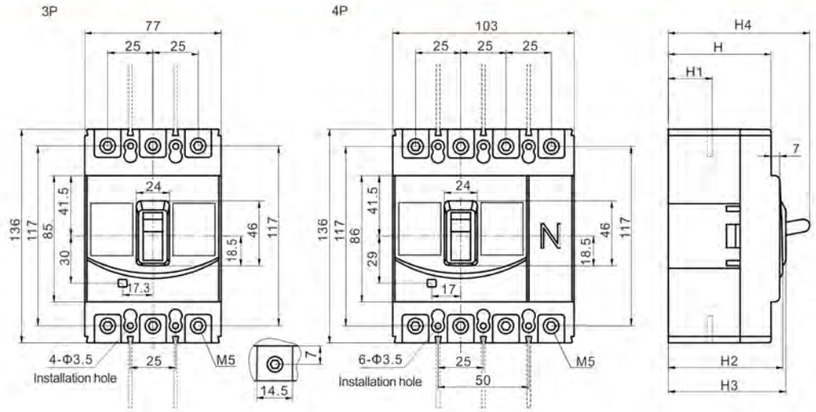
Code	Accessory name	Model / Number of poles	NLDM1-63、NLDM1-125 3	NLDM1-63、NLDM1-125 4	NLDM1-250 3	NLDM1-250 4	NLDM1-400 3	NLDM1-400 4	NLDM1-630 3	NLDM1-630 4	NLDM1-800 3	NLDM1-800 4
200、300	No accessory											
208、308	Alarm contact			□		□	□		□		□	
210、310	Shunt release			●		●	●		●		●	
220、320	Auxiliary contact			■		■	■		■		■	
230、330	Undervoltage release			○		○	○		○		○	
240、340	Shunt release, auxiliary contact		●	■	●	■	●	■	●	■	●	■
250、350	Shunt release, undervoltage release		●	○	●	○	●	○	●	○	●	○
260、360	Two sets of auxiliary contact			■ ■		■ ■		■ ■		■ ■		■ ■
270、370	Auxiliary contact, undervoltage release		■	○	■	○	■	○	■	○	□	○
218、318	Shunt release, alarm contact		●	□	●	□	□	●	□	●	□	●
228、328	Auxiliary contact, alarm contact			■ □		■ □	□ ■		□ ■		□ ■	
238、338	Undervoltage release, alarm contact		□	○	□	○	□	○	□	○	□	○
248、348	Shunt release, auxiliary contact, alarm contact		●	■ □	●	■ □	□ ■	●	■ □	●	■ □	●
268、368	Two sets of auxiliary contact, alarm contact		■	■ □	■	■ □	□ ■	■	■ □	■	■ □	■
278、378	Auxiliary contact, undervoltage release, alarm contact		■	○ □	■	○ □	□ ■	○	■ □	○	● □	■

Note:

- □ 200: it represents circuit breaker with only electromagnetic release; 300: it represents circuit breaker with thermal electromagnetic release; 000: it represents no thermal or electromagnetic release.
- □ For NLDM1-125 and 250 2P products, there are only 210, 310, 220, 320, 230, and 330; for NLDM1-63, 125, 250 4P circuit breakers, there are no 240, 340, 360, 260, 268, 368 when N poles are A and D types;
- □ For NLDM1-63, NL DM1-125, and NL DM1-250, the two pairs of auxiliary contacts can be supplied for specifications 220, 320, 240, 340, 270, and 370 (i.e. two normally open and two normally closed), while three pairs of contacts can be supplied for260 and 360 (i.e. three normally open and three normally closed), but it should be noted when ordering.

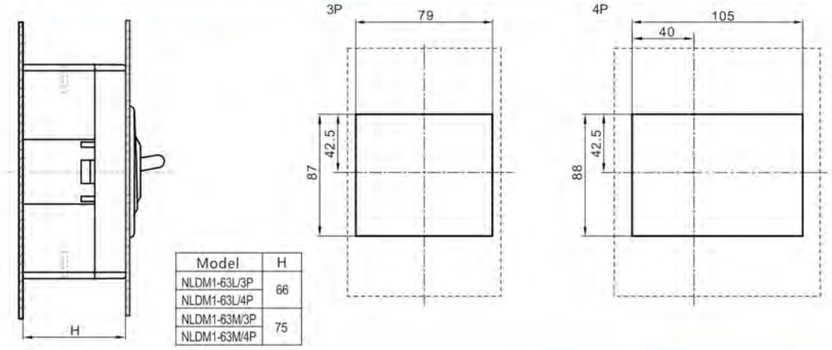
■ Overall and installation dimensions

NLDM1-63 moulded case circuit breaker — Overall and installation dimension diagram



Model	H	H1	H2	H3	H4
NLDM1-63L/3P	65	18.5	74	77	90
NLDM1-63L/4P					
NLDM1-63M/3P	74	27	83	86	99
NLDM1-63M/4P					

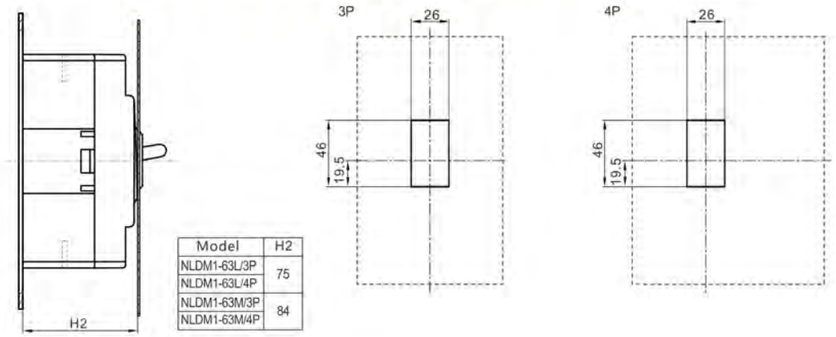
NLDM1-63 moulded case circuit breaker — Cabinet door big cut-out diagram



Model	H
NLDM1-63L/3P	66
NLDM1-63L/4P	
NLDM1-63M/3P	75
NLDM1-63M/4P	

NLDM1-63 moulded case circuit breaker — Cabinet door small cut-out diagram

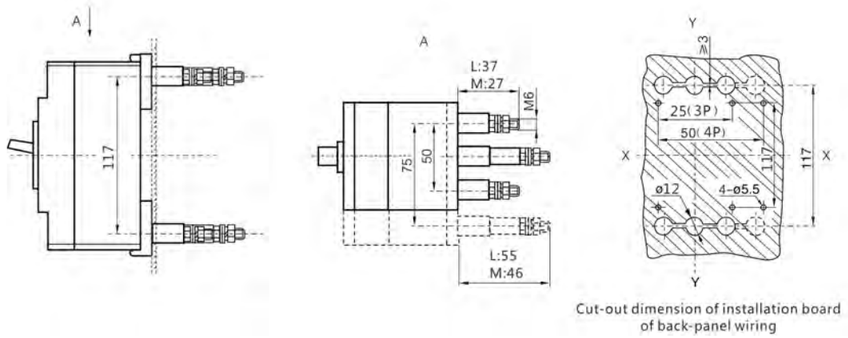
Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



Model	H2
NLDM1-63L/3P	75
NLDM1-63L/4P	
NLDM1-63M/3P	84
NLDM1-63M/4P	

NLDM1-63 moulded case circuit breaker (back-panel wiring) — Installation dimension diagram

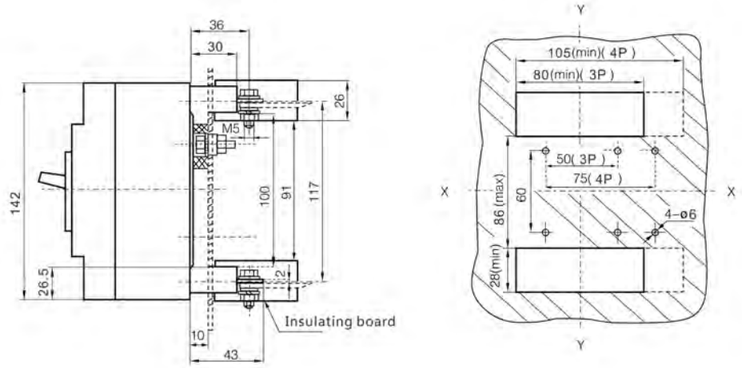
X-X, Y-Y represent the center of the three-pole circuit breaker



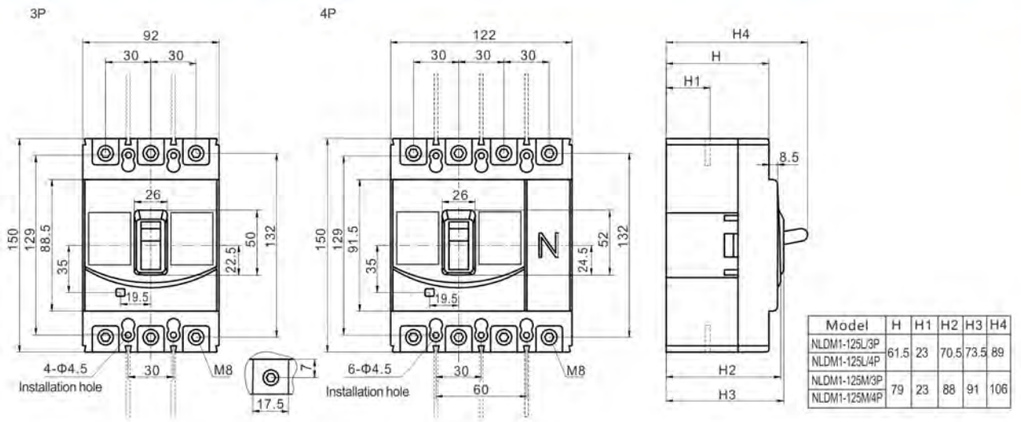
Cut-out dimension of installation board of back-panel wiring

NLDM1-63 molded case circuit breaker (plug-in back-panel) — Installation dimension diagram

X-X, Y-Y represent the center of the three-pole circuit breaker

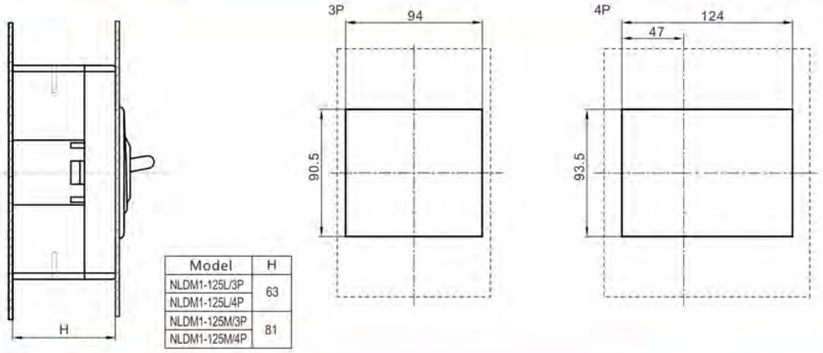


NLDM1-125 moulded case circuit breaker — Overall and installation dimension diagram



Model	H	H1	H2	H3	H4
NLDM1-125L/3P	61.5	23	70.5	73.5	89
NLDM1-125L/4P					
NLDM1-125M/3P	79	23	88	91	106
NLDM1-125M/4P					

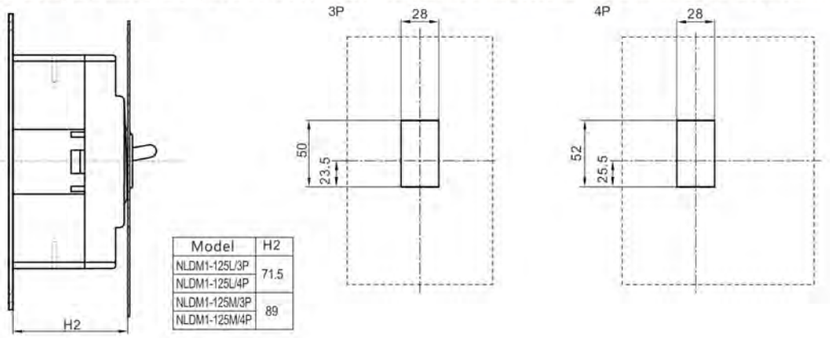
NLDM1-125 moulded case circuit breaker — Cabinet door big cut-out diagram



Model	H
NLDM1-125L/3P	63
NLDM1-125L/4P	
NLDM1-125M/3P	81
NLDM1-125M/4P	

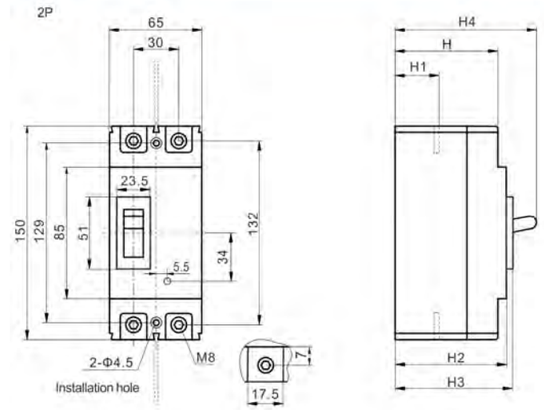
NLDM1-125 moulded case circuit breaker — Cabinet door small cut-out diagram

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



Model	H2
NLDM1-125L/3P	71.5
NLDM1-125L/4P	
NLDM1-125M/3P	89
NLDM1-125M/4P	

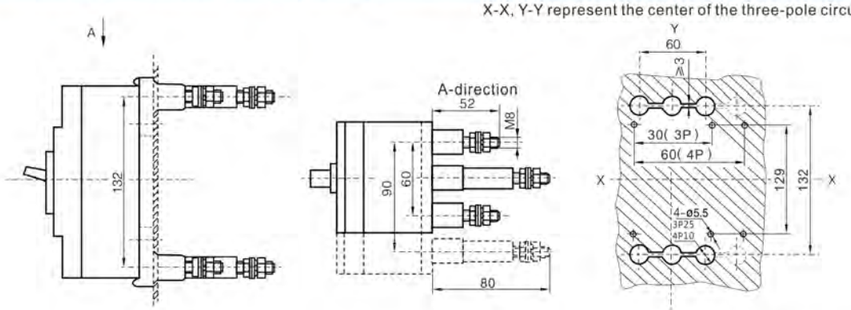
NLDM1-125 moulded case circuit breaker — Installation dimension diagram



Model	H	H1	H2	H3	H4
NLDM1-125L/2P	62.5	24	69	74	89
NLDM1-125M/2P	79	24	86	91	106

NLDM1-125 molded case circuit breaker (back-panel wiring) — Installation dimension diagram

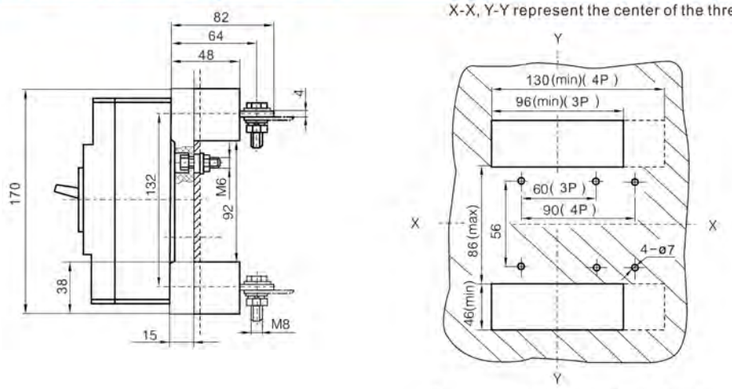
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

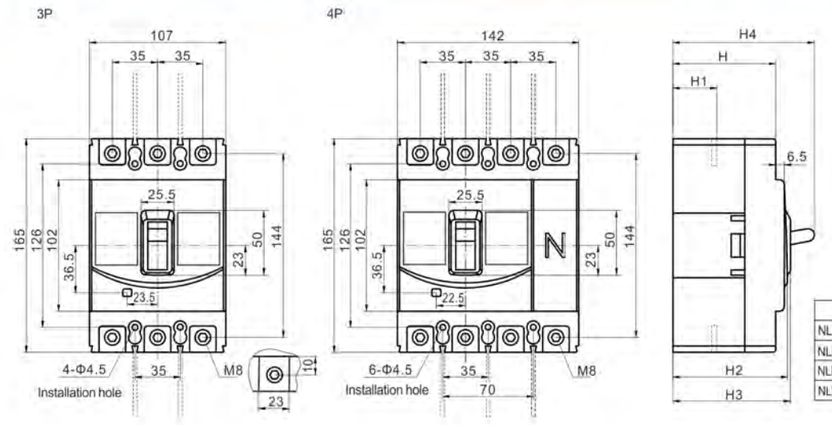
NLDM1-125 molded case circuit breaker (plug-in back-panel) — Installation dimension diagram

X-X, Y-Y represent the center of the three-pole circuit breaker



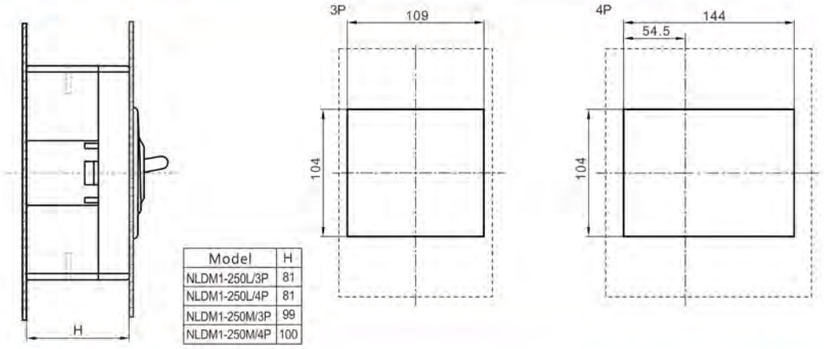
Dimensions of plug-in installation board

NLDM1-250 moulded case circuit breaker — Overall and installation dimension diagram



Model	H	H1	H2	H3	H4
NLDM1-250L/3P	80	23	89	91	110
NLDM1-250L/4P	80	23	89	91	110
NLDM1-250M/3P	98	24	107	109	128
NLDM1-250M/4P	99	24	108	110	129

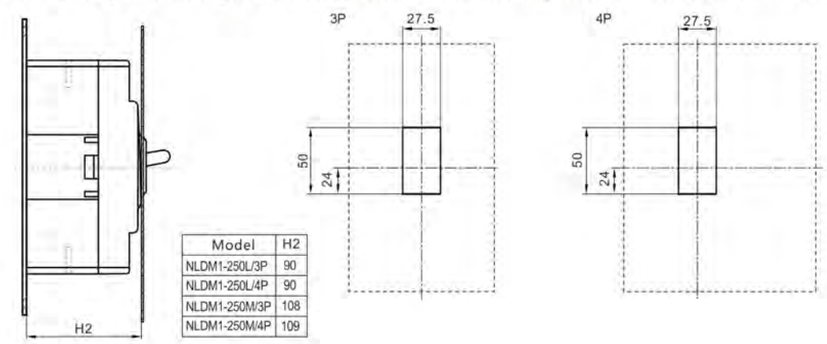
NLDM1-250 moulded case circuit breaker — Cabinet door big cut-out dimension diagram



Model	H
NLDM1-250L/3P	81
NLDM1-250L/4P	81
NLDM1-250M/3P	99
NLDM1-250M/4P	100

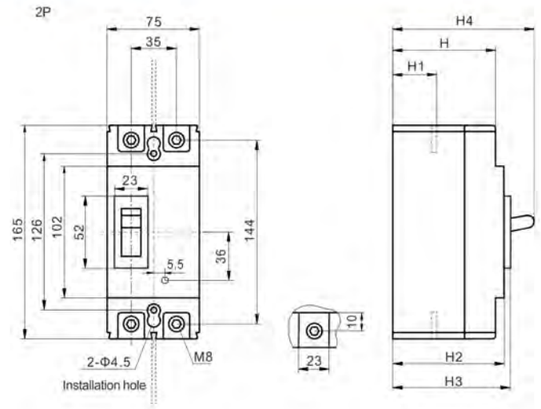
NLDM1-250 moulded case circuit breaker — Cabinet door big cut-out dimension diagram

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



Model	H2
NLDM1-250L/3P	90
NLDM1-250L/4P	90
NLDM1-250M/3P	108
NLDM1-250M/4P	109

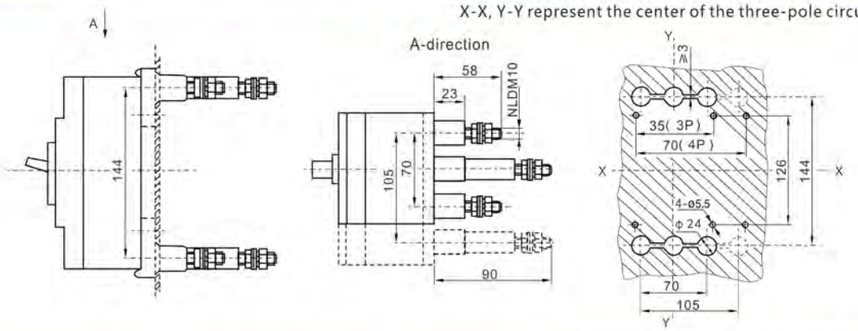
NLDM1-250 moulded case circuit breaker — Installation dimension diagram



Model	H	H1	H2	H3	H4
NLDM1-250L/2P	62.5	24	69	74	89
NLDM1-250M/2P	79	24	86	91	106

NLDM1-250 moulded case circuit breaker (back-panel wiring) — Installation dimension diagram

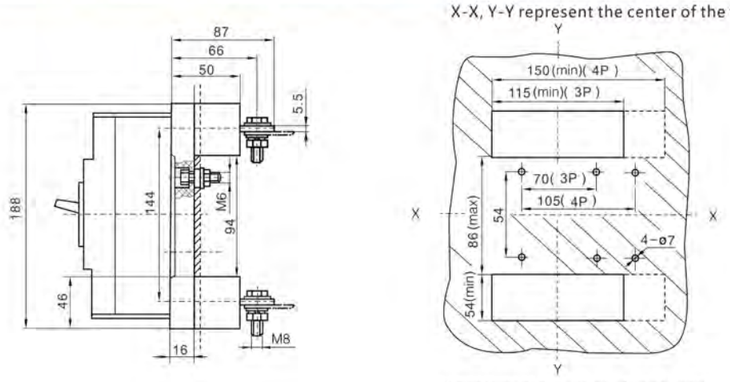
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

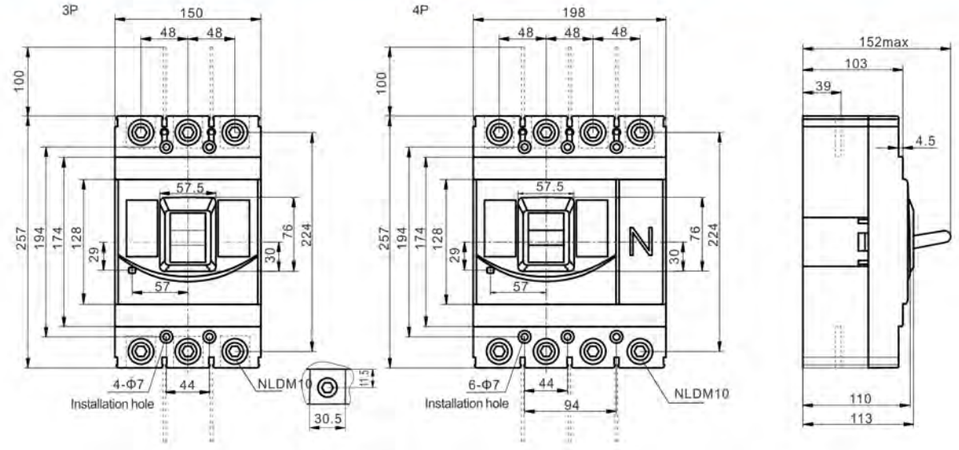
NLDM1-250 moulded case circuit breaker (plug-in back-panel) — Installation dimension diagram

X-X, Y-Y represent the center of the three-pole circuit breaker

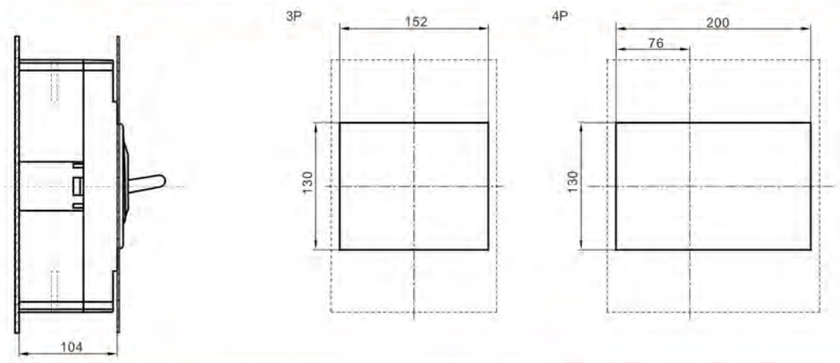


Dimensions of plug-in installation board

NLDM1-400 moulded case circuit breaker — Overall and installation dimension diagram

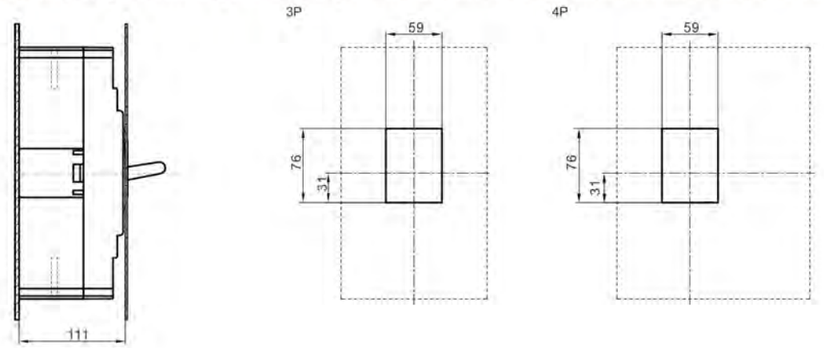


NLDM1-400 moulded case circuit breaker — Cabinet door big cut-out dimension diagram



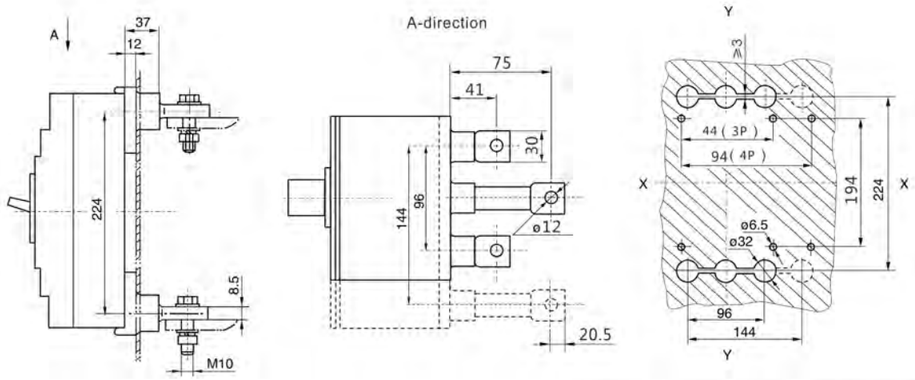
NLDM1-400 moulded case circuit breaker — Cabinet door small cut-out dimension diagram

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



NLDM1-400 moulded case circuit breaker(back-panel wiring) Installation dimension diagram

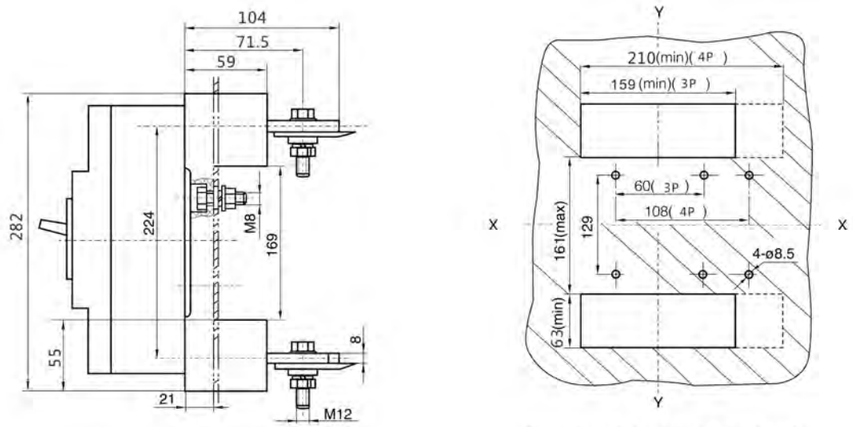
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

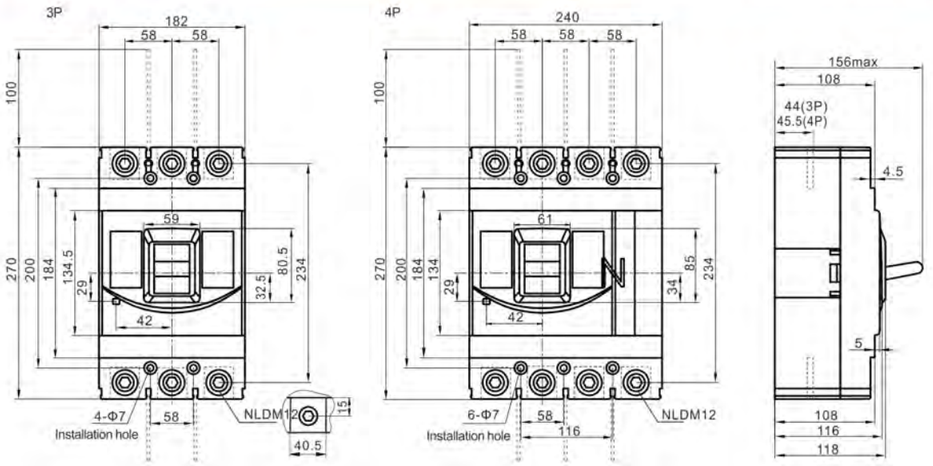
NLDM1-400 moulded case circuit breaker(plug-in back-panel) Installation dimension diagram

Installation dimension diagram

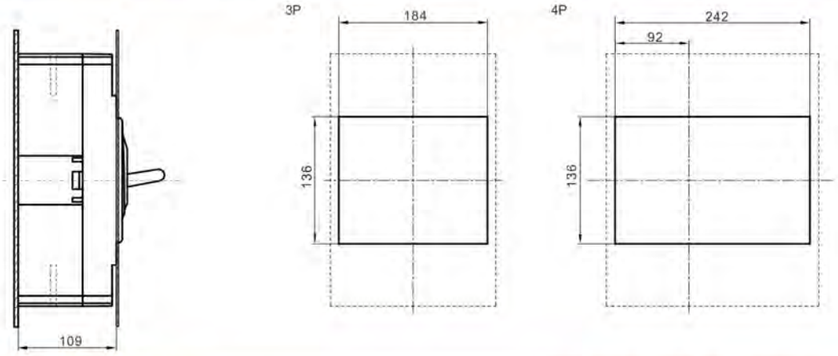


Dimensions of plug-in installation board

NLDM1-630 moulded case circuit breaker Overall and installation dimension diagram

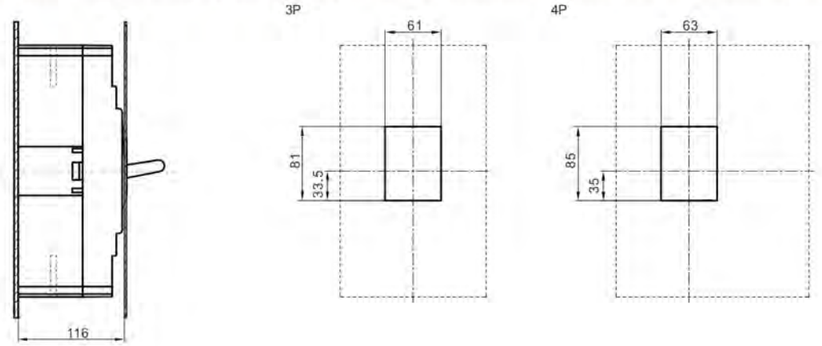


NLDM1-630 moulded case circuit breaker Cabinet door big cut-out dimension diagram



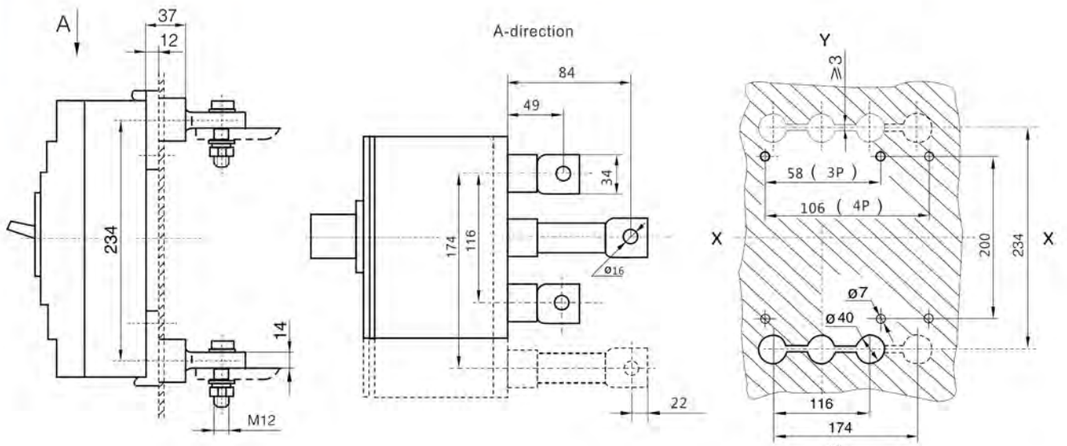
NLDM1-630 moulded case circuit breaker Cabinet door small cut-out dimension diagram

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



NLDM1-630 moulded case circuit breaker(back-panel wiring) Installation dimension diagram

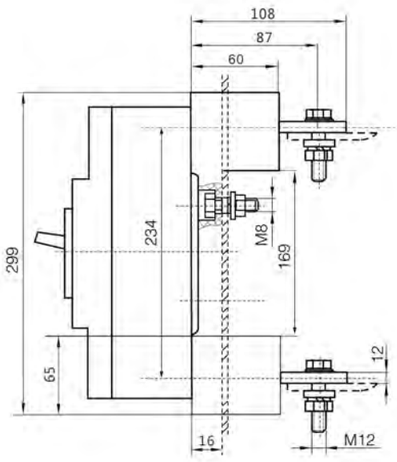
X-X, Y-Y represent the center of the three-pole circuit breaker

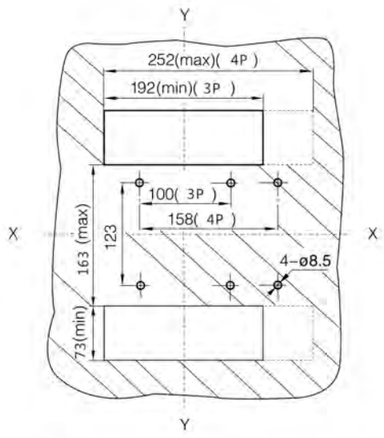


Cut-out dimension of installation board of back-panel wiring

NLDM1-630 moulded case circuit breaker(plug-in back-panel) Installation dimension diagram

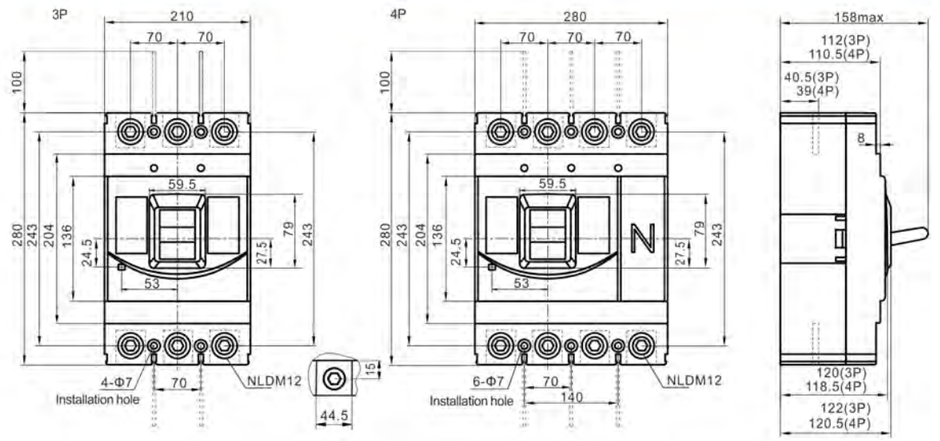
Installation dimension diagram



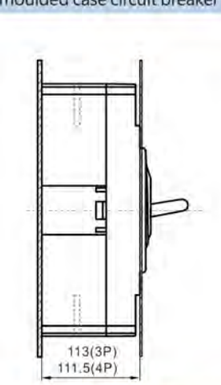


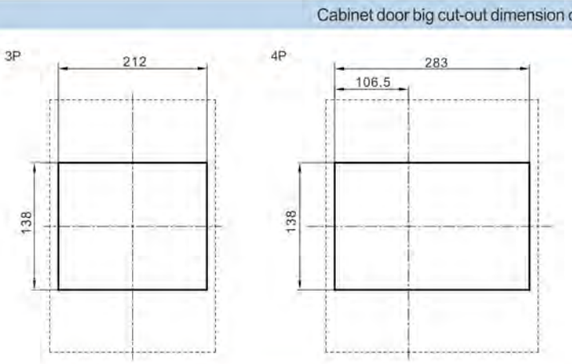
Dimensions of plug-in installation board

NLDM1-800 moulded case circuit breaker Overall and installation dimension diagram



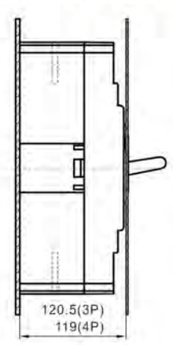
NLDM1-800 moulded case circuit breaker Cabinet door big cut-out dimension diagram

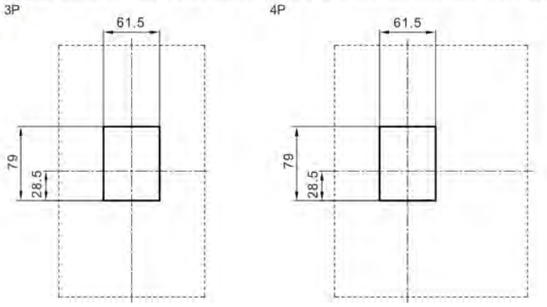




NLDM1-800 moulded case circuit breaker Cabinet door small cut-out dimension diagram

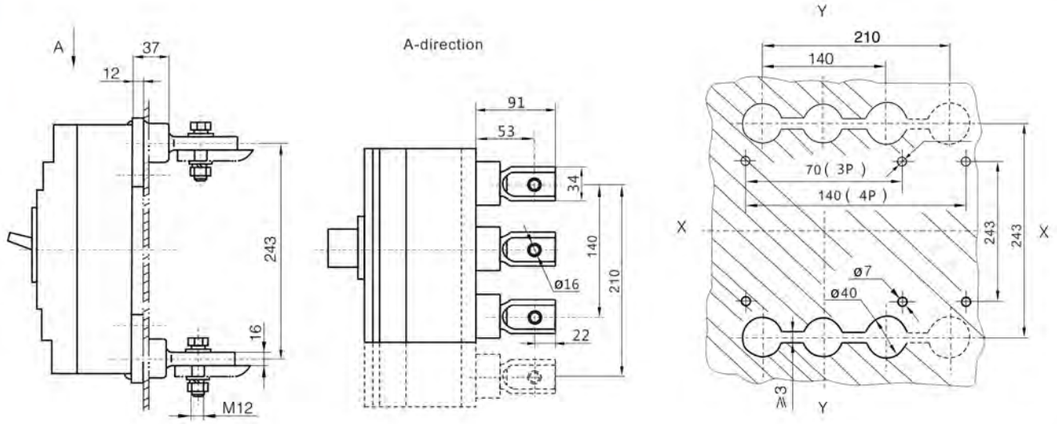
Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics





NLDM1-800 moulded case circuit breaker (back-panel wiring) — Installation dimension diagram

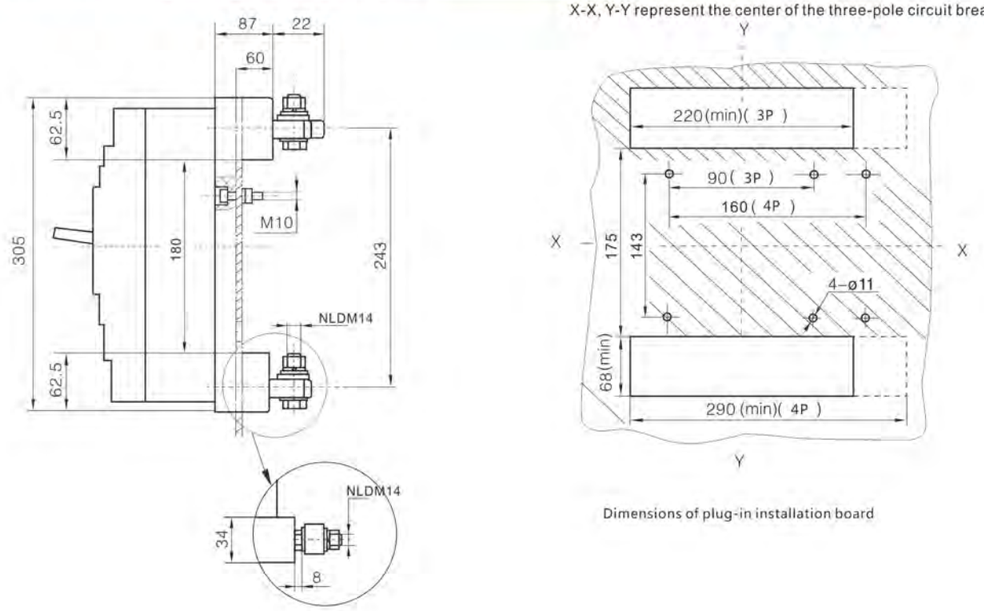
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

NLDM1-800 moulded case circuit breaker (plug-in back-panel) — Installation dimension diagram

X-X, Y-Y represent the center of the three-pole circuit breaker

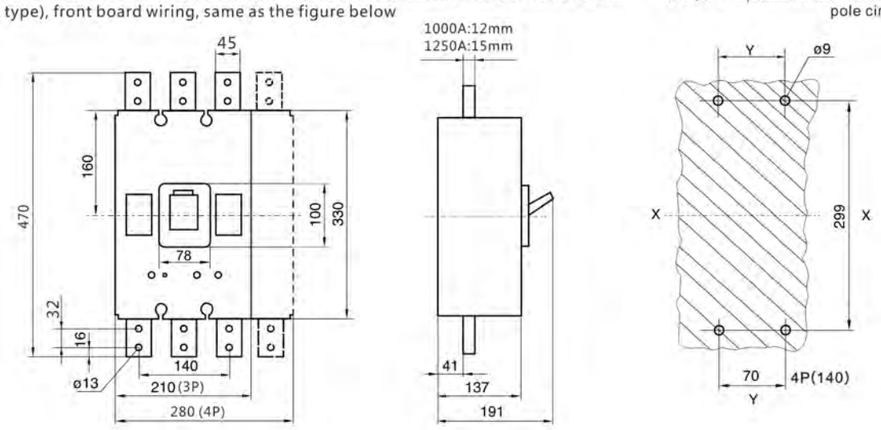


Dimensions of plug-in installation board

NLDM1-1250 moulded case circuit breaker (front board wiring) — Overall and installation dimension diagram

NLDM1L-1250 residual current circuit breaker, NLDM1E-1250 moulded case circuit breaker (electronic type), front board wiring, same as the figure below

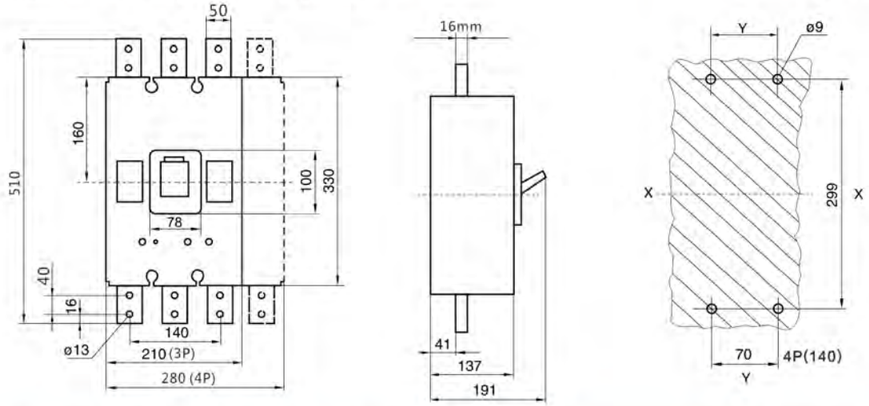
X-X, Y-Y represent the center of the three-pole circuit breaker



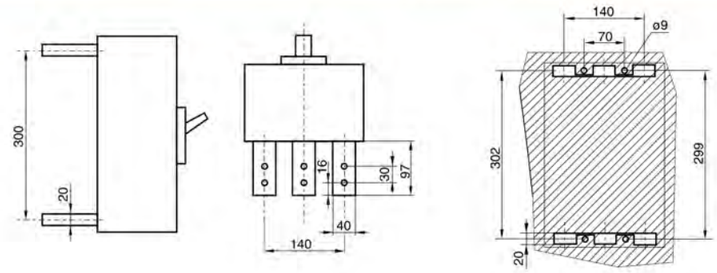
NLDM1-1600 moulded case circuit breaker, front board wiring — Overall and installation dimension diagram (mm)

NLDM1L-1600 residual current circuit breaker, NLDM1E-1600 moulded case circuit breaker (electronic type), front board wiring, same as the figure below

X-X, Y-Y represent the center of the three-pole circuit breaker



NLDM1-1250~ 1600, NLDM1L-1250~ 1600, NLDM1E-1250~ 1600 back-panel wiring(3P) — Dimension diagram (mm)



■ Scope of application

□ Scope of applicationThe NLDM1L series moulded case circuit breaker with residual current protection (hereinafter referred to as residual current circuit breaker) is suitable for infrequent switching and motor starting in AC 50Hz (or 60Hz)circuits with rated insulation voltage of 1000V, rated operating voltage of 400V and rated operating current of 630A (800A). The circuit breaker has overload, short circuit, and undervoltage protection functions, which can protect the circuit and power equipment from damage; meanwhile, it can provide indirect contact protection for people and also provide protection against potential fire hazards caused by long-term grounding faults that cannot be detected by overcurrent protection. When other protective devices fail, the NLDM1L residual current circuit breaker with rated residual operating current of 30mA can directly provide additional protection.

□ The circuit breakers are classified into L-type and M-type according to their rated ultimate short-circuit breaking capacity.

The circuit breaker has the characteristics of small volume, high breaking capacity, short arc and high vibration resistance.

□ The circuit breaker can be installed vertically (i.e. upright) or horizontally (i.e. transversely).

□ The circuit breaker has isolation function, and its corresponding symbol is "——/ ".

□ The circuit breaker complies with the standards of IEC60947-2, GB14048.2 and Appendix B for circuit reakers with residual current protection.

□ The circuit breaker doesn't allow reverse wiring, that is, only 1, 3, and 5 are allowed to connect to the power line, and 2, 4, and 6 are allowed to connect to the load line.

□ Reverse wiring can be customized if needed.

■ Model and meaning

NLD M 1 L- □□□ / □□□□/□□

- Leakage alarm unit module (Note 6)
- Residual current release mode (Note 5)
- N-pole type: A, B (Note 4)
- Utilization code (Note 3)
- Release mode and accessory code (see Table 6)
- Number of poles
- Operation Mode (Note 2)
- Rated ultimate short-circuit breaking capacity level (Note 1)
- Frame current
- With residual current protection
- Design code
- Moulded case circuit breaker
- Enterprise code

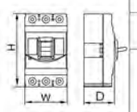
Note:

1. According to rated ultimate short-circuit breaking capacity, it is classified into L type (medium breaking) and M type (high breaking).
2. No code for direct operation of handle; Electric operation is represented by P; The rotation handle is represented by Z.
3. The circuit breaker for power distribution has no code; The protection motor is represented by 2.
4. It is classified into three poles and four poles according to the number of poles. There are four types of neutral pole (N-pole) in the four-pole products:
   Type A: The N-pole is not equipped with over-current release, and the N-pole is always connected, not closed or opened with other three poles.
   Type B: N-pole is not equipped with over-current release, and N-pole is closed and opened together with other three poles (N-pole is closed first and then opened).
5. The residual current release mode is classified into Type I and Type II (see Table for details). Type I is the standard type, and Type II should be specified when ordering.
6. If there is no alarm unit module, then there is no code. It should be specified when ordering if the product with alarm unit module.

■ Main performance parameters of molded case residual current circuit breaker

Table5

Rated frame current Inm (A)			125		250		400		630、800	
Rated current In, 40℃			16A、20A、25A、32A、40A、50A、63A、80A、100A、125A		100、125、140、160、180、200、225、250		225、250、315、350、400		400、500、630、800	
Rated insulation voltage Ui (V)			1000		1000		1000		1000	
Rated impulse withstand voltage Uimp (kV)			12		12		12		12	
Rated operating voltage Ue (V), AC 50/60Hz			400		400		400		400	
Rated residual operating current IΔn	Type I		30、100、300mA		30、100、300mA		100、300、500mA		100、300、500mA	
	Type II		100、300、500mA		100、300、500mA		300、500、1000mA		300、500、1000mA	
Rated residual non-operating current			$I_{\Delta n}$×50%							
Rated residual short circuit making (breaking) capacity IΔm			I_{cu}×25%							
Selective category			A		A		A		A	
Arc distance (mm)			≤50		≤50		≤100		≤100	
Operating performance (time)	Electrical life (power-on)		3000		3000		1500		1500	
	Mechanical life (power-off)		7000		7000		5000		5000	
Breaking capacity level			L	M	L	M	L	M	L	M
Number of poles	2P		■	■	■	■	-	-	-	-
	3P		■	■	■	■	■	■	■	■
	4P		■	■	■	■	■	■	■	■
Rated ultimate short circuit breaking capacity Icu (kA)	Ue=AC400V		35	75	35	75	50	85	50	85
Rated service short circuit breaking capacity Ics(kA)	Ue=AC400V		22	50	22	50	35	65	35	65
Overall dimension Width (W) x height (H) x depth (D)	W	2P	62		72		-		-	
		3P	92		107		150		210	
		4P	122		142		198		280	
	H		150		165		257		280	
	D	2P	74	89	71	88	-		-	
		3P	73	89	71	88	105		112	
		4P	75.5	92.5	73.5	92	107		114	



Note: "-" in the table represents inapplicable, and "■" represents applicable

■ Derating coefficient

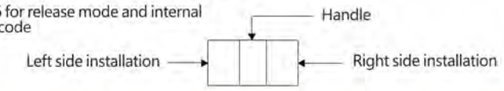
☐ The derating coefficient of the environmental temperature change of the residual current circuit breaker (all derating coefficients in this table are measured at the rated current of the frame)

Table6

Model	Derating coefficient				
	40℃	+45℃	+50℃	+55℃	+60℃
NLDM1L-125	1In	0.95In	0.89In	0.84In	0.76In
NLDM1L-250	1In	0.96In	0.91In	0.87In	0.82In
NLDM1L-400	1In	0.94In	0.87In	0.81In	0.73In
NLDM1L-630、800	1In	0.93In	0.88In	0.83In	0.76In

■ Release mode and accessory code

☐ See table 6 for release mode and internal accessory code



☐ Alarm contact
■ Auxiliary contact
● Shunt release
○ Undervoltage release
→ Lead wire direction

Table 6

Release mode and internal accessory code	Accessory name	Model / Number of poles and N-pole type: NLDM1L-125、NLDM1L-250 3P, 4P A type	NLDM1L-125、NLDM1L-250 4P B type	NLDM1L-400 3P, 4P A type	NLDM1L-400 4P B type	NLDM1L-630 3P, 4P A type	NLDM1L-630 4P B type
208、308▲	Alarm contact	←□	←□	←□	←□	←□	←□
210、310▲	Shunt release	←●	←●	←●	←●	←●	←●
220、320▲	Auxiliary contact	←■	←■	←■	←■	←■	←■
230、330▲	Undervoltage release	←○	←○	←○	←○	←○	←○
240、340	Shunt release, auxiliary contact	——	←●■→	——	←●■→	——	←●■→
250、350	Shunt release, undervoltage release	——	——	——	——	——	——
260、360	Two sets of auxiliary contact	←■■	■■→	←■■	■■→	←■■	■■→
270、370	Auxiliary contact, undervoltage release	——	←○■→	——	←○■→	——	←○■→
218、318	Shunt release, alarm contact	——	←●□→	——	——	——	——
228、328▲	Auxiliary contact, alarm contact	←■□	←■□→	←■□	←■□	←■□	←■□
238、338▲	Undervoltage release, alarm contact	——	←○□→	——	——	——	——
248、348	Shunt release, auxiliary contact, alarm contact	——	←●■□→	——	——	——	——
268、368	Two sets of auxiliary contact, alarm contacts	——	←□■□→	——	←□■□→	——	←□■□→
278、378	Auxiliary contact, undervoltage release, alarm contact	——	←○■□→	——	——	——	——

Note:

☐ The first digit of the release mode and internal accessory code 2 represents electromagnetic (instantaneous) release, and 3 represents thermal-electromagnetic (compound) release; the last two digits represent the internal accessory code. If there are no accessories, they are represented by 00.

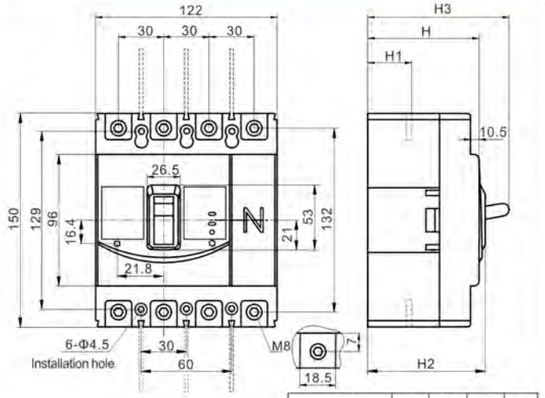
☐ Two pairs of auxiliary contacts can be supplied for specifications 220, 320, 240, and 340 of NLDM1L-125 and 250 (i.e. two normally open and two normally closed), but they must be specified when ordering.

☐ If the NLDM1L series is equipped with a residual current alarm unit module, only ▲ specifications are provided for the accessories: There are two methods for the residual current alarm unit module, which users should specify when ordering according to their needs:
Method 1: When residual current occurs, the residual current alarm module sends a signal and the circuit breaker trips:
Method 2: When residual current occurs, the residual current alarm module sends a signal, but the circuit breaker does not trip. This method is to meet the needs of special occasions, and users should carefully consider using this function to protect electrical appliances.

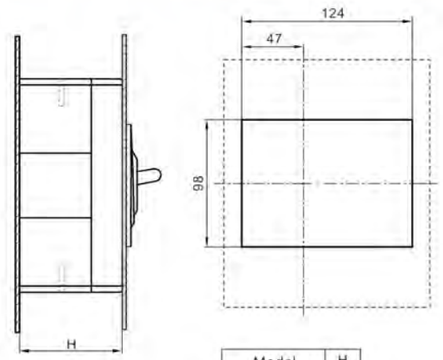
☐ The wiring diagram of the residual current alarm module can be found in the product markings or user manual. P1-P2 and P3-P4 are normally open and normally closed contacts, with contact capacity of AC230V 5A. The input power supply to the P5P6 terminal is AC50Hz, 230 or 400V (according to user needs).

■ Overall and installation dimensions

NLDM1L-125 residual current circuit breaker — Overall and installation dimension diagram — Cabinet door big cut-out dimension diagram (mm)



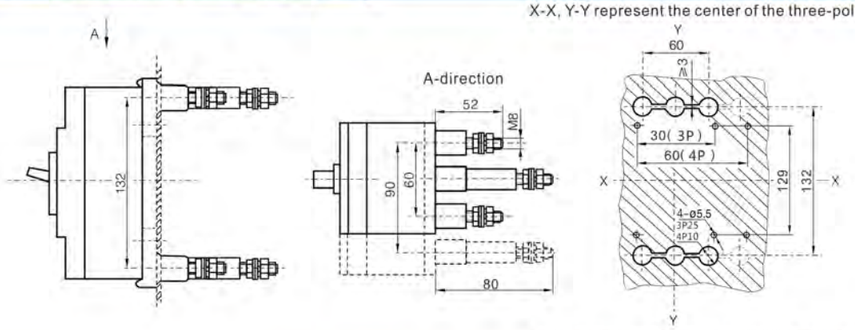
Model	H	H1	H2	H3
NLDM1L-125L/4P	75.5	25.5	79	97
NLDM1L-125M/4P	92.5	28	96	114



Model	H
NLDM1L-125L/4P	66
NLDM1L-125M/4P	83

NLDM1L-125 residual current circuit breaker (back-panel wiring) — Installation dimension diagram

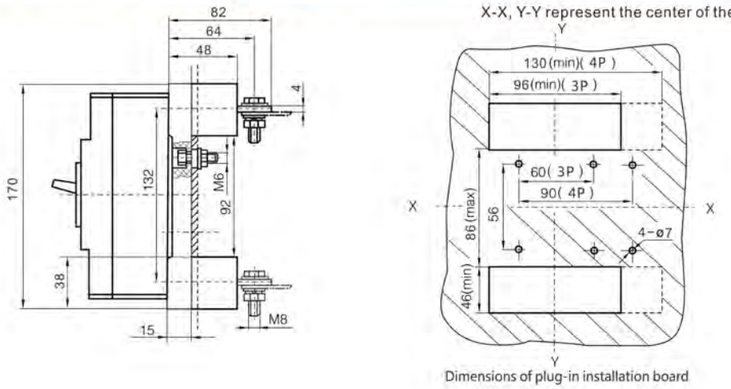
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

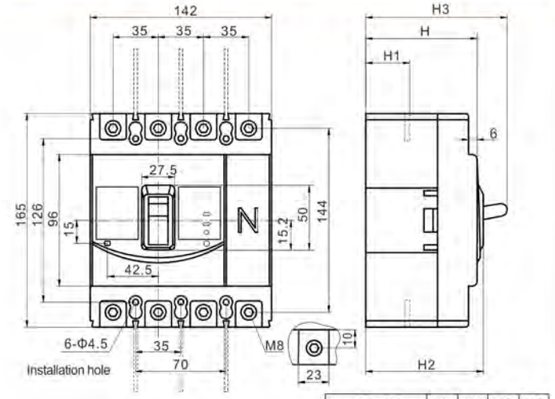
NLDM1L-125 residual current circuit breaker (plug-in back-panel) — Installation dimension diagram

X-X, Y-Y represent the center of the three-pole circuit breaker

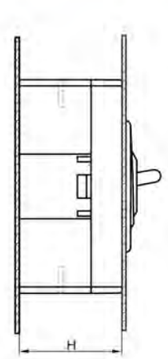


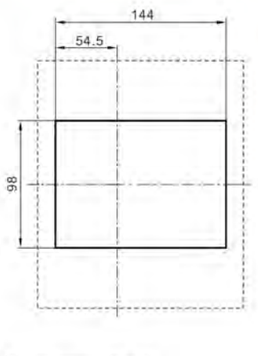
Dimensions of plug-in installation board

NLDM1L-250 residual current circuit breaker — Overall and installation dimension diagram — Cabinet door big cut-out dimension diagram (mm)



Model	H	H1	H2	H3
NLDM1L-250L/4P	73.5	24	77.5	97
NLDM1L-250M/4P	92	22.5	96	115

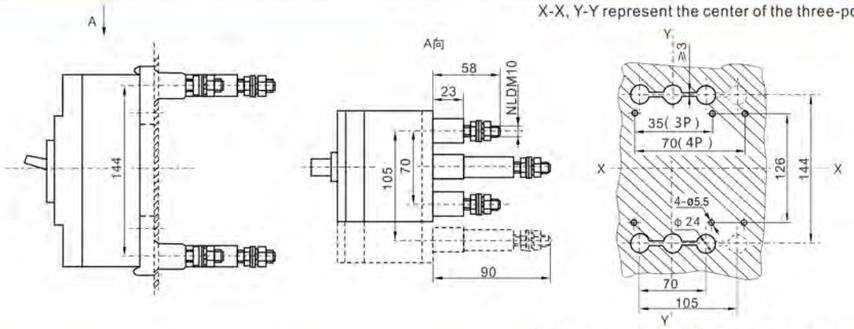




Model	H
NLDM1L-250L/4P	68.5
NLDM1L-250M/4P	87

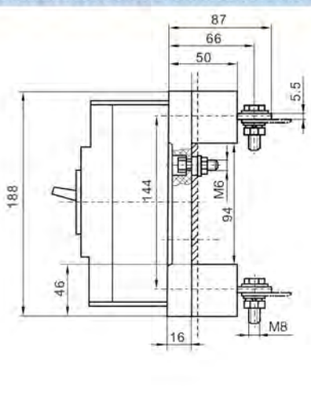
NLDM1L-250 residual current circuit breaker (back-panel wiring) — Installation dimension diagram

X-X, Y-Y represent the center of the three-pole circuit breaker

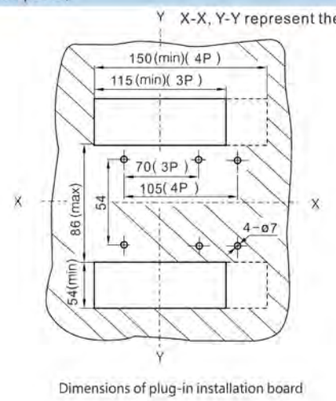


Cut-out dimension of installation board of back-panel wiring

NLDM1L-250 residual current circuit breaker (plug-in back-panel) — Installation dimension diagram

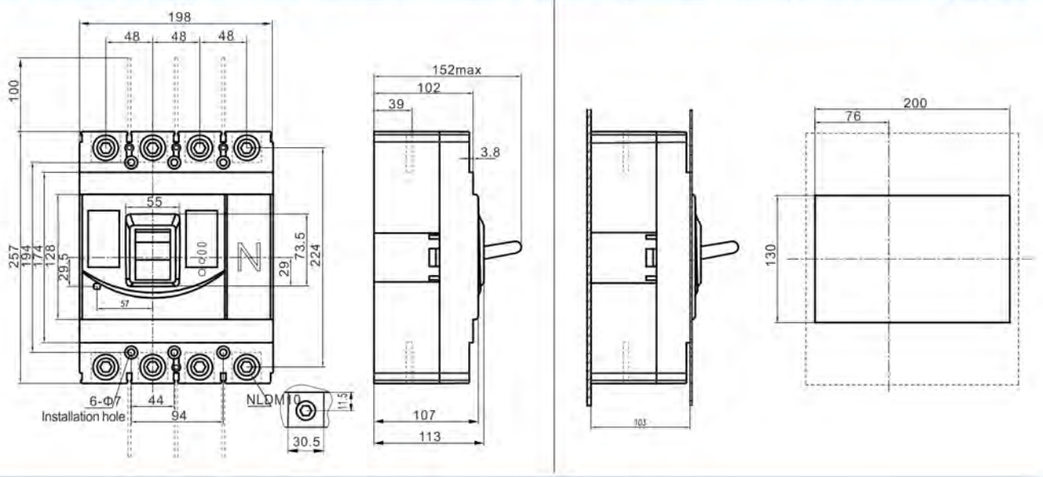


X-X, Y-Y represent the center of the three-pole circuit breaker

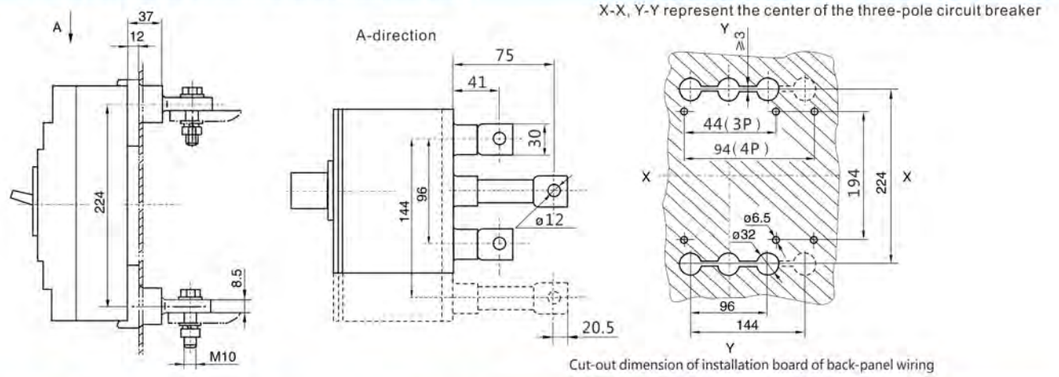


Dimensions of plug-in installation board

NLDM1L-400 residual current circuit breaker　Overall and installation dimension diagram　Cabinet door big cut-out dimension diagram (mm)

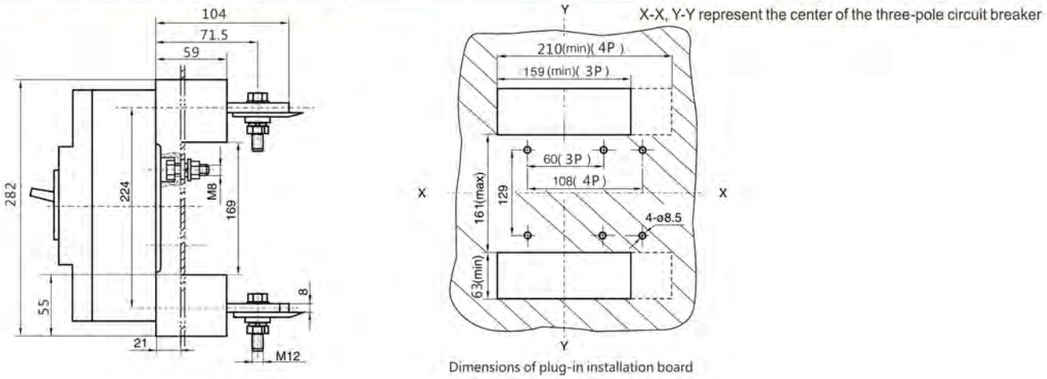


NLDM1L-400 residual current circuit breaker (back-panel wiring)　Installation dimension diagram



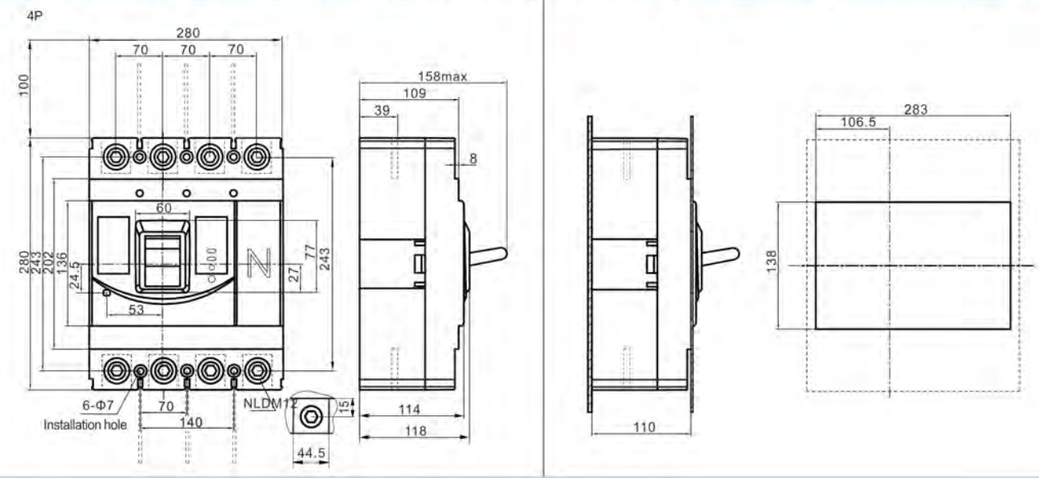
Cut-out dimension of installation board of back-panel wiring

NLDM1L-400 residual current circuit breaker (plug-in back-panel)

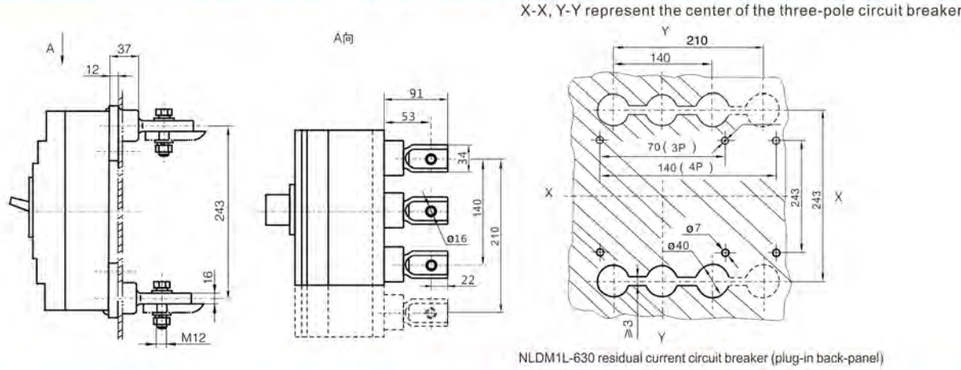


Dimensions of plug-in installation board

NLDM1L-630 residual current circuit breaker　Overall and installation dimension diagram　Cabinet door big cut-out dimension diagram (mm)

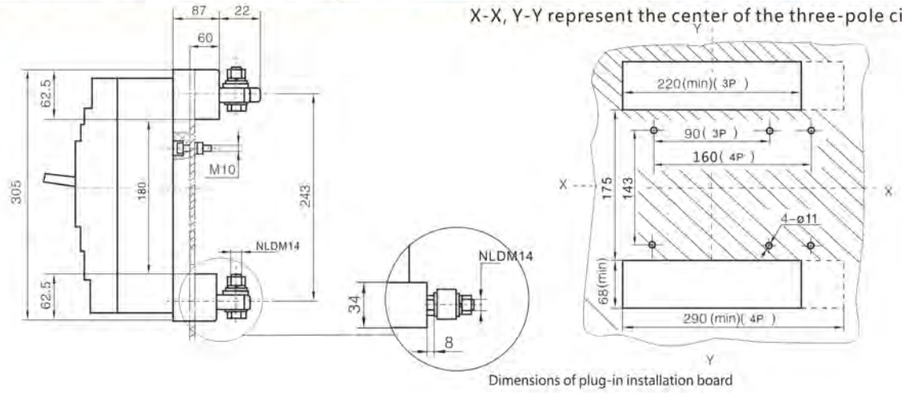


NLDM1L-630 residual current circuit breaker (back-panel wiring)　Installation dimension diagram



NLDM1L-630 residual current circuit breaker (plug-in back-panel)

NLDM1L-630 residual current circuit breaker (plug-in back-panel)　Installation dimension diagram



Dimensions of plug-in installation board

■ Scope of application

□ The NLDM1E series electronic moulded case circuit breakers (hereinafter referred to as circuit breakers) are suitable for AC 50Hz (or 60Hz) circuits with rated insulation voltage of 1000V, rated operating voltage of 400V and below, and rated operating current of 800A for infrequent switching and infrequent starting of motors. The circuit breaker has overload long delay inverse time, short circuit short delay inverse time, short circuit short delay definite time, short circuit instantaneous and undervoltage protection functions, as well as residual current protection (optional) and phase loss protection function (optional), which can protect the circuit and power equipment from damage. The circuit breaker has complete and accurate protection characteristics, which can improve power supply reliability and avoid unnecessary power outages. The "Z, B" type controller has a communication interface and can be used for "three remote" to meet the requirements of the control center and automation system.

□ Circuit breakers are classified into two types based on their rated ultimate short-circuit breaking capacity: M-type (medium breaking type) and H-type (high breaking type). This circuit breaker has the characteristics of small volume, high breaking capacity, short arc and high vibration resistance.

□ The circuit breaker can be installed vertically (i.e. upright) or horizontally (i.e. transversely).

□ The circuit breaker has isolation function, and its corresponding symbol is " ".

□ The circuit breaker allows for reverse wiring.

■ Model and Meaning

NLD M 1 E - □□□ / □□□

- Product type (Note 3)
- Release mode and accessory code (see Table 7)
- Number of poles
- Operation mode (Note 2)
- Rated ultimate short-circuit breaking capacity level (Note 1)
- Frame current
- Electronic release
- Design code
- Moulded case circuit breaker
- Enterprise code

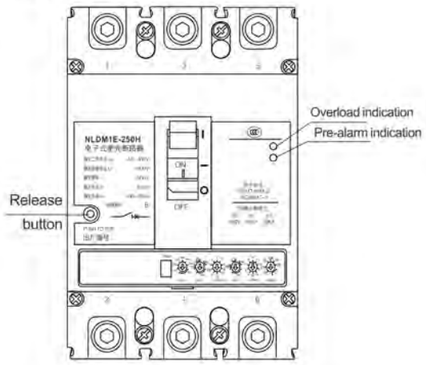
Note: 1. According to rated ultimate short-circuit breaking capacity, it is classified into M type (medium breaking) and H type (high breaking).

2. No code for direct operation of handle; Electric operation is represented by P; The rotation handle is represented by Z.

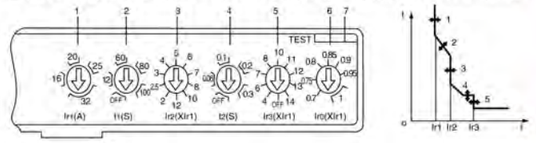
3. The basic type has no code, the intelligent communication type is represented by Z, the programming communication type is represented by B, the fire protection type is represented by X, and the LCD display is represented by L.

■ Introduction to structure and markings

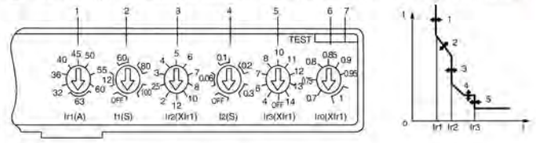
□ Circuit breaker front indication



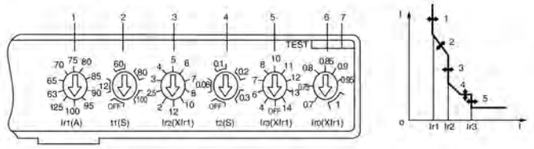
□ NLDM1E-125, In=32AElectronic release Electronic release protection characteristic curve



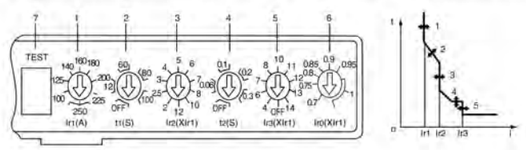
□ NLDM1E-125, In=63AElectronic release Electronic release protection characteristic curve



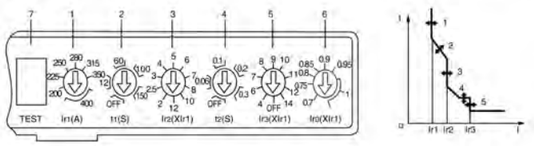
□ NLDM1E-125, In=100AElectronic release Electronic release protection characteristic curve



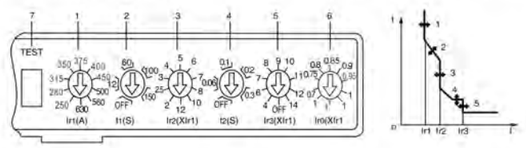
□ NLDM1E-250, In=250AElectronic release Electronic release protection characteristic curve



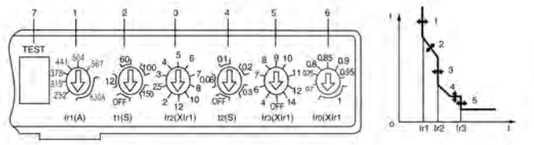
□ NLDM1E-400, In=400AElectronic release Electronic release protection characteristic curve



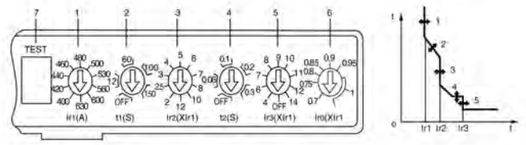
□ NLDM1E-630, In=630AElectronic release Electronic release protection characteristic curve



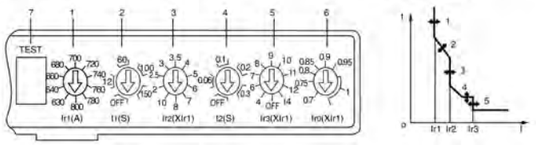
□ NLDM1E-630(400 frame capacity increase 630), In=630A Electronic release Electronic release protection characteristic curve



□ NLDM1E-630(800frame capacity increase 630), In=630AElectronic release Electronic release protection characteristic curve



□ NLDM1E-800, In=800A Electronic release Electronic release protection characteristic curve



Note:

□ 1. For overload long time-delay action current Ir1 adjustment, it can be adjusted from gear 4 to gear 10 according to different rated current of the circuit breaker;

□ 2. For long delay action time t1, it can be adjusted for 4 gears;

□ 3. For short circuit short time-delay action current Ir2 adjustment, 10 gear adjustments available;

□ 4. For short delay action time t2, it can be adjusted for 4 gears;

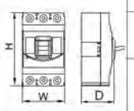
□ 5. For short circuit instantaneous action current Ir3 adjustment, 8, 9 or 10 gears can be adjusted;

□ 6. For pre-alarm action current Ir0, it can be adjusted for 7 gears.

□ 7. Test end, for tripping test (inspection).

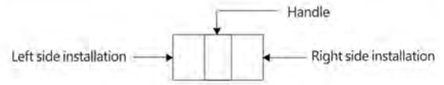
■ Main technical performance parameters of electronic moulded case circuit breaker

Rated frame current Inm (A)		125		250		400		400 frame capacity Increase 630		630		800 frame 630 type		800	
Rated current In, 40℃ Setting current Ir1 (adjustable)		In:32A (Ir1=16A、20A、25A、32A) In:63A (Ir1=32A、35A、40A、45A、50A、55A、60A、63A) In:125A (Ir1=63A、65A、70A、75A、80A、85A、90A、95A、100A、125A)		100、125、140、160、180、200、225、250		200、225、250、280、315、350、400		252、315、378、441、504、567、450、500、560、630		250、280、315、350、375、400、450、500、560、630		400、420、440、460、480、500、530、560、600、630		630、640、660、680、700、720、740、760、780、800	
Rated insulation voltage Ui (V)		1000		1000		1000		1000		1000		1000		1000	
Rated impulse withstand voltage Uimp (kV)		12		12		12		12		12		12		12	
Rated operating voltage Ue (V), AC50/60Hz		400		400		400		400		400		400		400	
Selective category		B		B		B		B		B		B		B	
Arc distance (mm)		≤50		≤50		≤100		≤100		≤100		≤100		≤100	
Operating performance (times)	Electrical life (power-on)	3000		3000		1500		1500		1500		1000		1000	
	Mechanical life power-off)	7000		7000		5000		5000		5000		3000		3000	
Breaking capacity level		M	H	M	H	M	H	M	H	M	H	M	H	M	H
Number of poles	3P	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	4P	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Rated ultimate short circuit breaking capacity Icu (kA)	Ue=AC400V	50	85	50	85	65	100	65	100	65	100	65	100	65	100
Rated service short circuit breaking capaity Ics (kA)	Ue=AC400V	35	50	35	50	50	65	50	65	50	65	50	65	50	65
Rated short time withstand current Icw/1s (kA)	Ue=AC400V	5	5	5	5	8	8	8	8	10	10	10	10	10	10
Overall dimension Width (W) x height (H) x depth (D)	W 3P	92		107		150		150		182		210		210	
	W 4P	122		142		198		198		-		280		280	
	H	150		165		257		257		270		280		280	
	D 3P	93.5		92		111		111		115		120		120	
	D 4P	93.5		95		111		111		-		118.5		118.5	



Note: "-" in the table represents inapplicable, and "■" represents applicable

■ Release mode and internal accessory code



□ Alarm contact
■ Auxiliary contact
● Shunt release
○ Undervoltage release
→ Lead wire direction

Table7

Release mode and internal accessory code	Accessory name	Model / Number of poles and pole type	NLDM1E-125、NLDM1E-250 3P very 、4P very	NLDM1E-400 3P very	NLDM1E-400 4P very	NLDM1E-630 NLDM1E-800 3P very、4P very
308	Alarm contact		← □	← □	← □	← □
310	Shunt release		→ ●	→ ●	→ ●	→ ●
320	Auxiliary contact		← ■	← ■	← ■	← ■
330	Undervoltage release		← ○	← ○	← ○	← ○
340	Shunt release, auxiliary contact		← ■ → ●	← ■ → ●	← ■ → ●	← ■ → ●
350	Shunt release, undervoltage release		——	——	——	← ○ → ●
360	Two sets of auxiliary contact		← ■ ■	← ■ ■	← ■ ■	← ■ ■
370	Auxiliary contact, undervoltage release		——	——	← ○ → ■	← ○ → ■
318	Shunt release, alarm contact		← □ → ●	← □ → ●	← □ → ●	← □ → ●
328	Auxiliary contact, alarm contact		← ■ □	← ■ □	← ■ □	← ■ □
338	Undervoltage release, alarm contact		——	——	——	——
348	Shunt release, auxiliary contact, alarm contact		← ■ □ → ●	← ■ □ → ●	← ■ □ → ●	← ■ □ → ●
368	Two sets of auxiliary contact, alarm contact		——	——	← □ ■ ■	← □ ■ ■
378	Auxiliary contact, undervoltage release, alarm contact		——	——	——	——

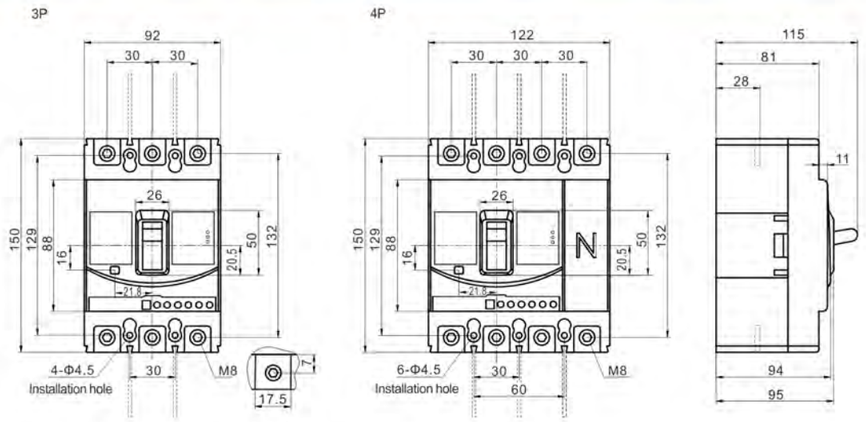
Note:

□ The first digit 3 of the release method and internal accessory code represents electronic release with three-stage protection; the last two digits represent the Internal accessory code. 0 represents no accessory;

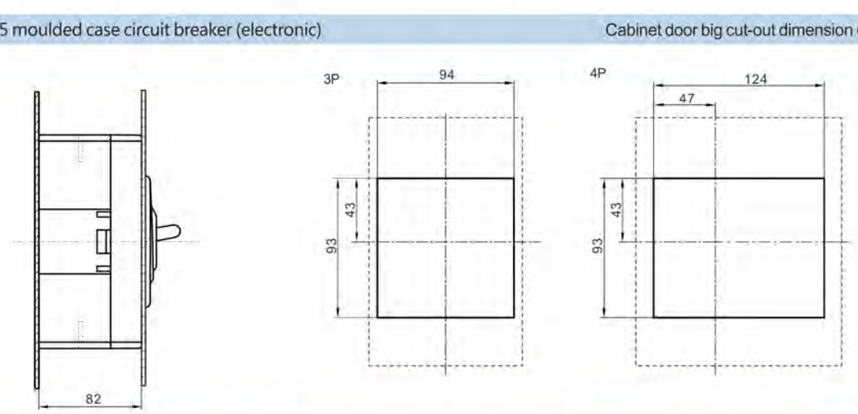
□ When internal accessories cannot be provided or meet customers' needs, more auxiliary functions can also be provided through intelligent controllers. This series of intelligent controllers can provide the following functions: closing and opening auxiliary signals, shunt tripping functions, and various protection function fault signals (see function description 7).

■ Overall and installation dimensions

NLDM1E-125 moulded case circuit breaker (electronic) — Overall and installation dimension diagram (mm)

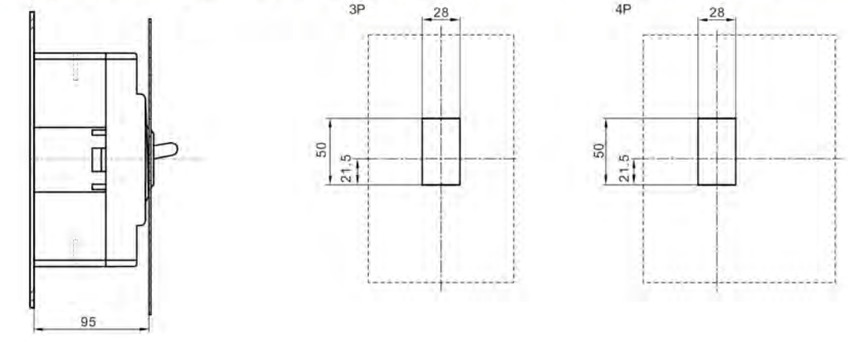


NLDM1E-125 moulded case circuit breaker (electronic) — Cabinet door big cut-out dimension diagram (mm)



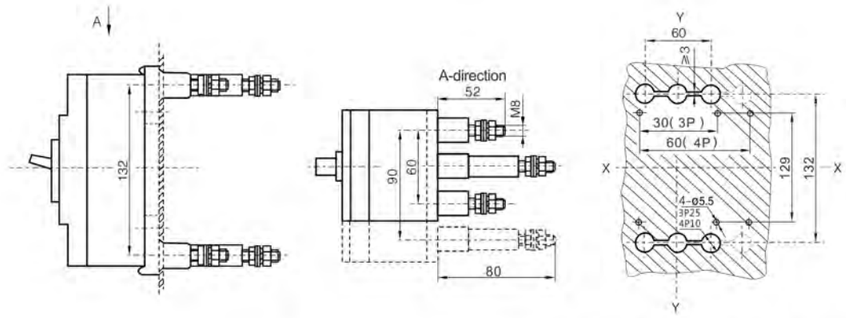
NLDM1E-125 moulded case circuit breaker (electronic) — Cabinet door small cut-out dimension diagram (mm)

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



NLDM1E-125 moulded case circuit breaker (electronic) (back-panel wiring) — Installation dimension diagram(mm)

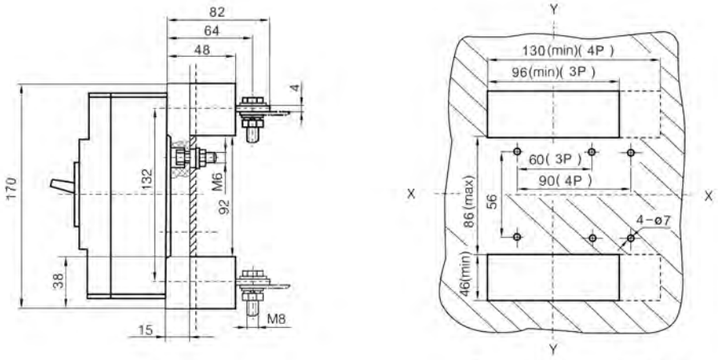
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

NLDM1E-125 moulded case circuit breaker (electronic) (plug-in back-panel) — Installation dimension diagram(mm)

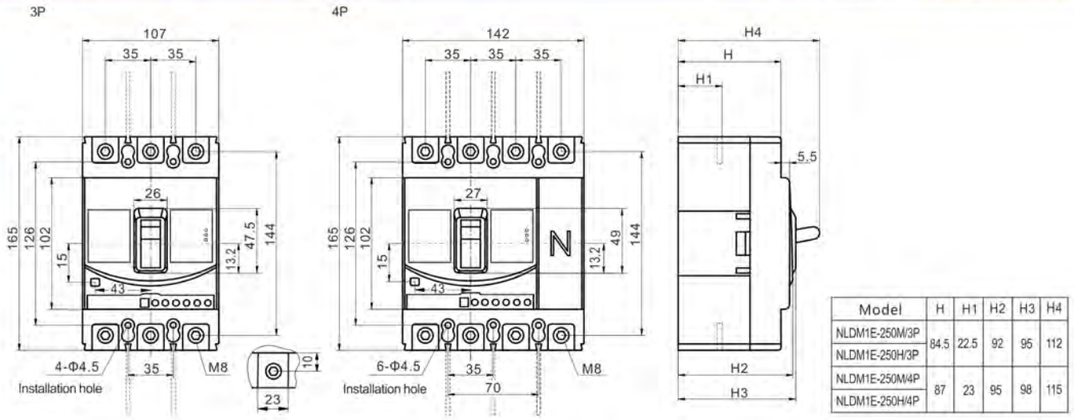
X-X, Y-Y represent the center of the three-pole circuit breaker



Dimensions of plug-in installation board

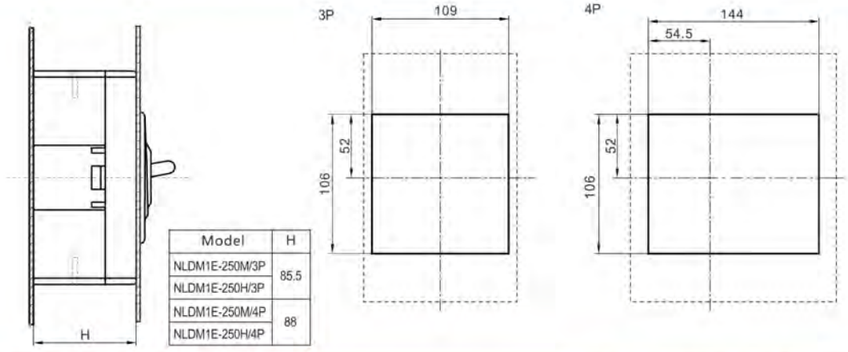
■ Overall and installation dimension

NLDM1E-250 moulded case circuit breaker (electronic) — Overall and installation dimension diagram (mm)



Model	H	H1	H2	H3	H4
NLDM1E-250M/3P	84.5	22.5	92	95	112
NLDM1E-250H/3P					
NLDM1E-250M/4P	87	23	95	98	115
NLDM1E-250H/4P					

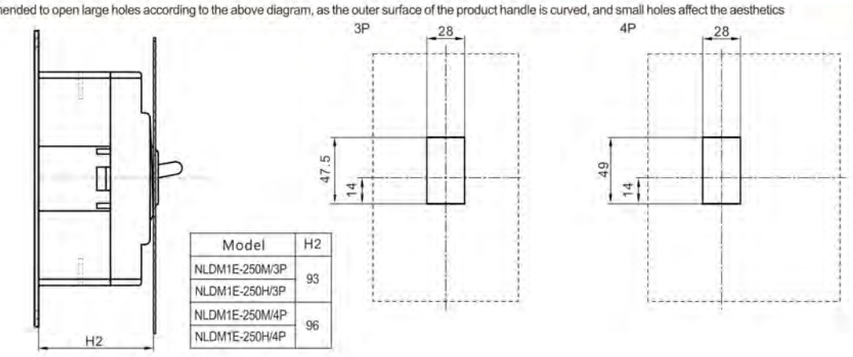
NLDM1E-250 moulded case circuit breaker (electronic) — Cabinet door big cut-out dimension diagram (mm)



Model	H
NLDM1E-250M/3P	85.5
NLDM1E-250H/3P	
NLDM1E-250M/4P	88
NLDM1E-250H/4P	

NLDM1E-250 moulded case circuit breaker (electronic) — Cabinet door small cut-out dimension diagram (mm)

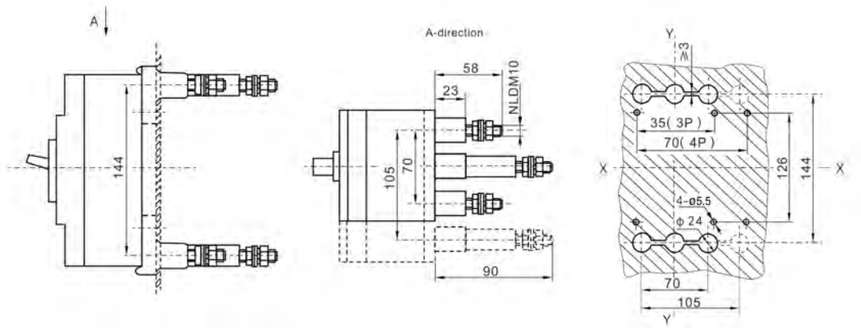
Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



Model	H2
NLDM1E-250M/3P	93
NLDM1E-250H/3P	
NLDM1E-250M/4P	96
NLDM1E-250H/4P	

NLDM1E-250 moulded case circuit breaker (electronic) (back-panel wiring) — Installation dimension diagram (mm)

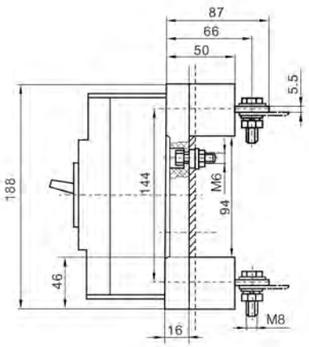
X-X, Y-Y represent the center of the three-pole circuit breaker

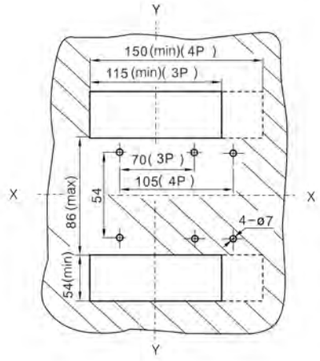


Cut-out dimension of installation board of back-panel wiring

NLDM1E-250 moulded case circuit breaker (electronic) (plug-in back-panel) — Installation dimension diagram (mm)

X-X, Y-Y represent the center of the three-pole circuit breaker

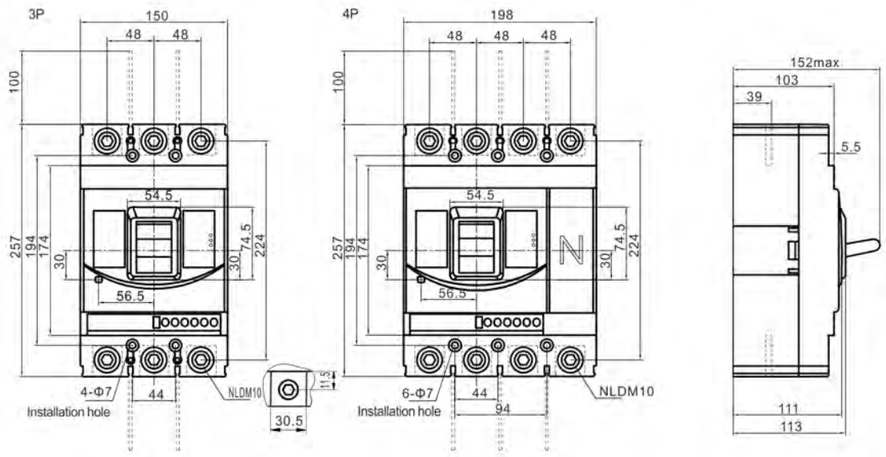




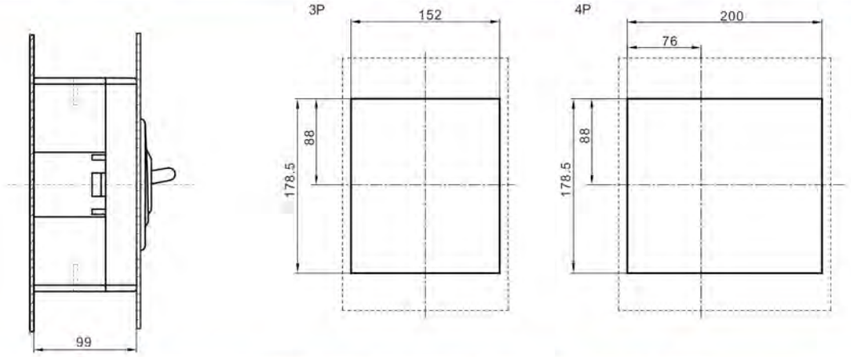
Dimensions of plug-in installation board

■ Overall and installation dimension

NLDM1E-400 moulded case circuit breaker (electronic), 400 frame capacity increase 630(please specify when ordering) Installation dimension diagram (mm)

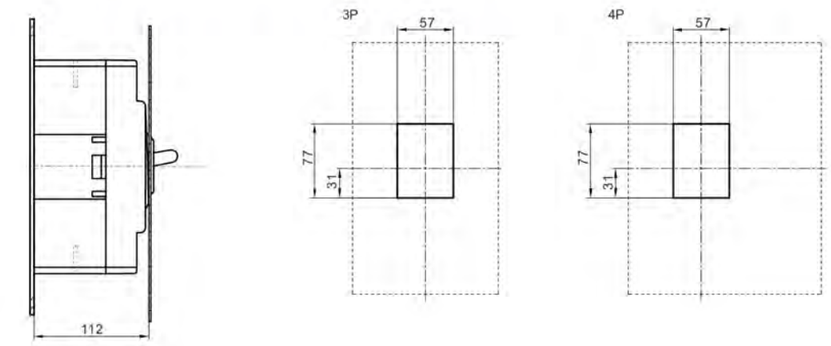


NLDM1E-400 moulded case circuit breaker (electronic), 400 frame capacity increase 630(please specify when ordering) Cabinet door big cut-out dimension diagram (mm)



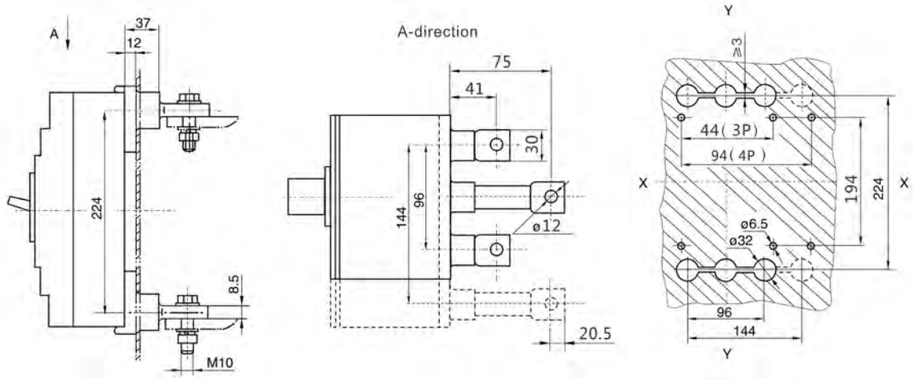
NLDM1E-400 moulded case circuit breaker (electronic), 400 frame capacity increase 630(please specify when ordering) Cabinet door small cut-out dimension diagram (mm)

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



NLDM1E-400 moulded case circuit breaker (electronic) (back-panel wiring), 400 frame capacity increase 630(please specify when ordering) (back-panel wiring) Installation dimension diagram (mm)

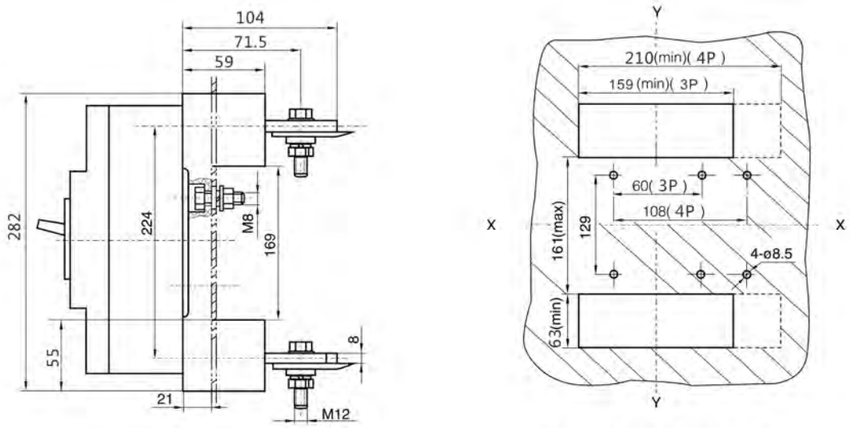
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

NLDM1E-400 moulded case circuit breaker (electronic) (plug-in back-panel), 400 frame capacity increase 630(please specify when ordering) (plug-in back-panel) Installation dimension diagram (mm)

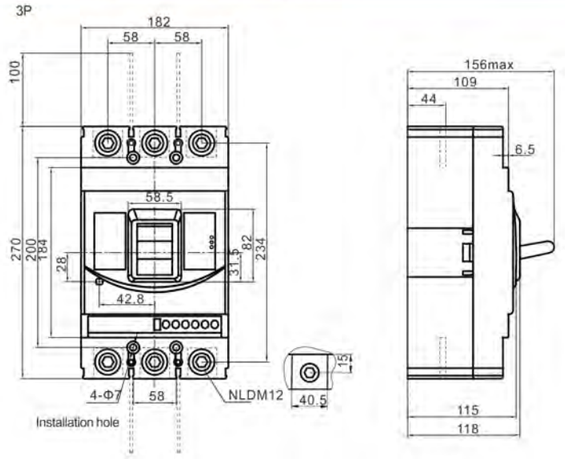
X-X, Y-Y represent the center of the three-pole circuit breaker



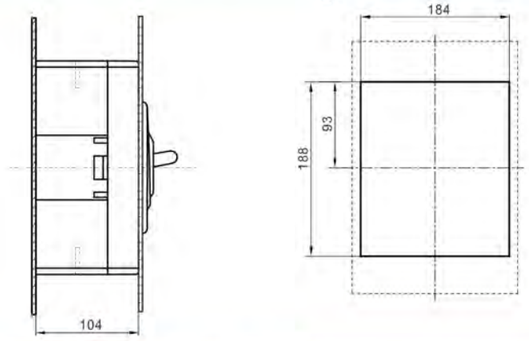
Dimensions of plug-in installation board

■ Overall and installation dimension

NLDM1E-630 moulded case circuit breaker (electronic) — Overall and installation dimension diagram (mm)

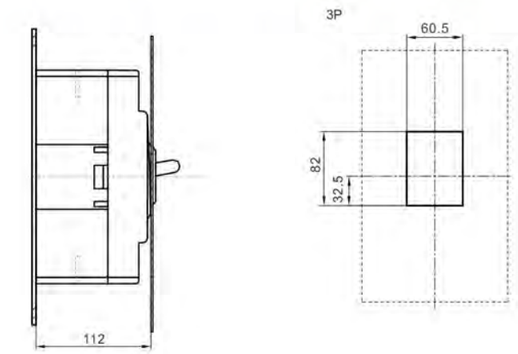


NLDM1E-630 moulded case circuit breaker (electronic) — Cabinet door big cut-out dimension diagram (mm)



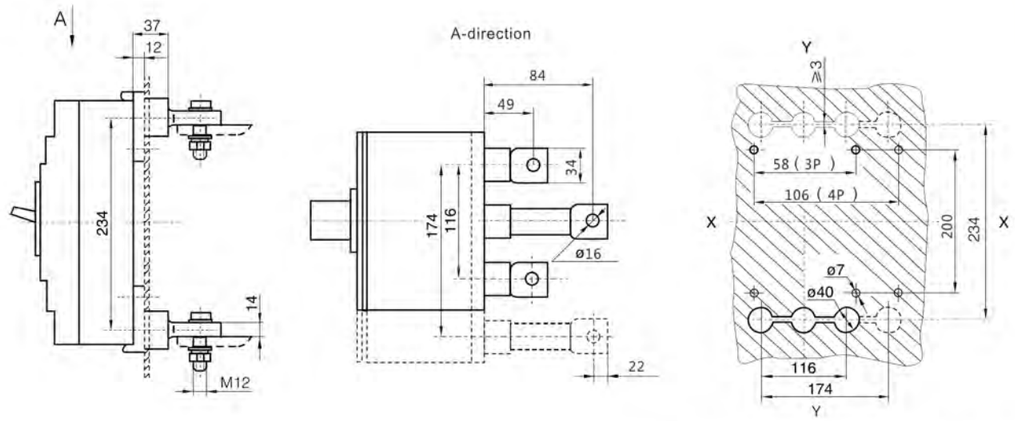
NLDM1E-630 moulded case circuit breaker (electronic) — Cabinet door small cut-out dimension diagram (mm)

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



NLDM1E-630 moulded case circuit breaker (electronic) (back-panel wiring) — Installation dimension diagram (mm)

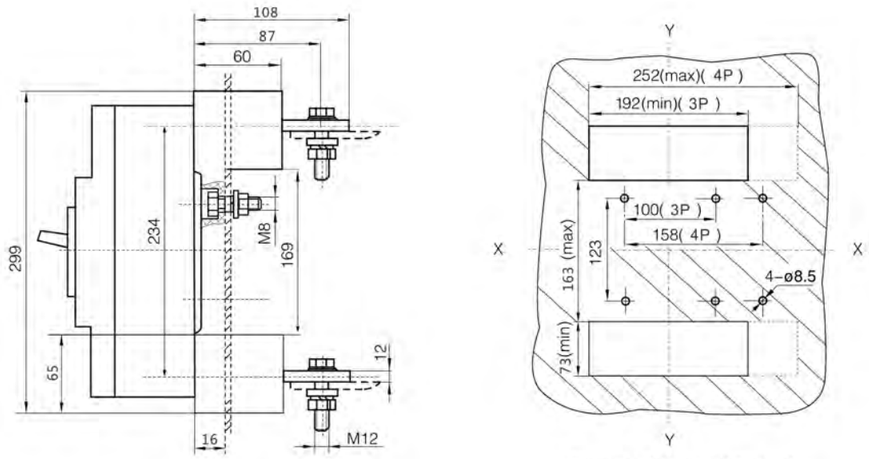
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

NLDM1E-630 moulded case circuit breaker (electronic) (plug-in back-panel) — Installation dimension diagram (mm)

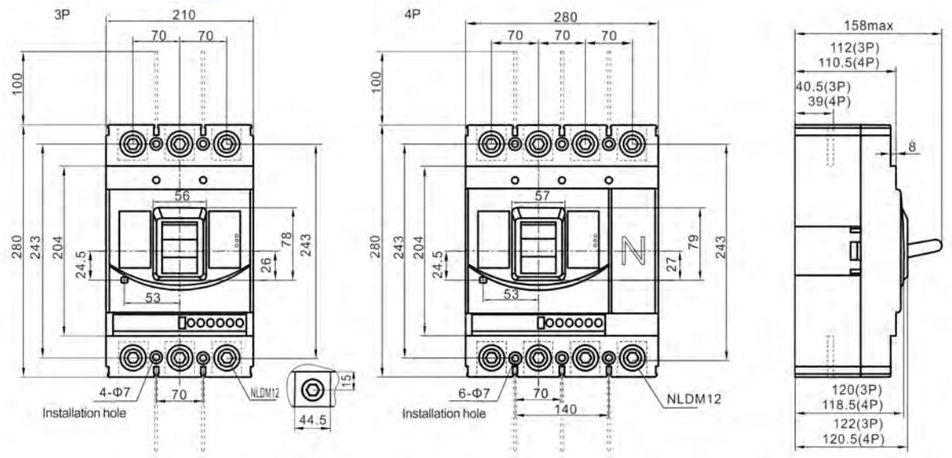
X-X, Y-Y represent the center of the three-pole circuit breaker



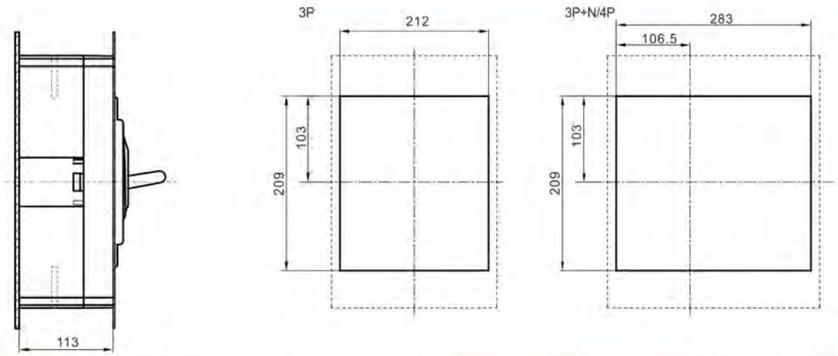
Dimensions of plug-in installation board

■ Overall and installation dimension

NLDM1E-800 moulded case circuit breaker (electronic), 800 frame capacity increase 630(please — Overall and installation dimension diagram (mm)

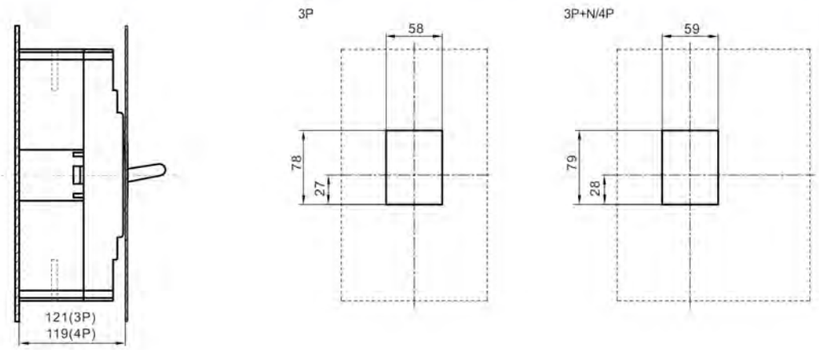


NLDM1E-800 moulded case circuit breaker (electronic), 800 frame capacity increase 630(please specify when ordering) — Cabinet door big cut-out dimension diagram (mm)



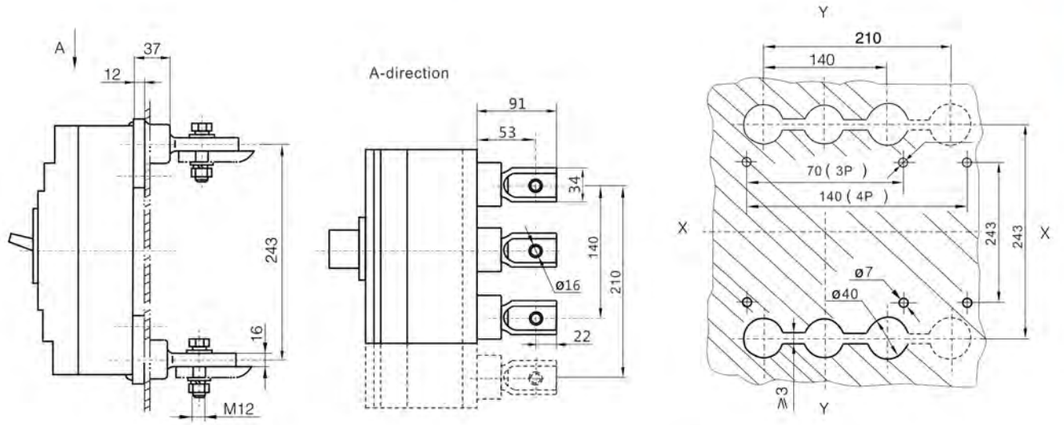
NLDM1E-800 moulded case circuit breaker (electronic), 800 frame capacity increase 630(please specify when ordering) — Cabinet door small cut-out dimension diagram (mm)

Note: It is recommended to open large holes according to the above diagram, as the outer surface of the product handle is curved, and small holes affect the aesthetics



NLDM1E-800 moulded case circuit breaker (electronic) (back-panel wiring), 800 frame capacity increase 630(please specify when ordering) (back-panel wiring) — Installation dimension diagram (mm)

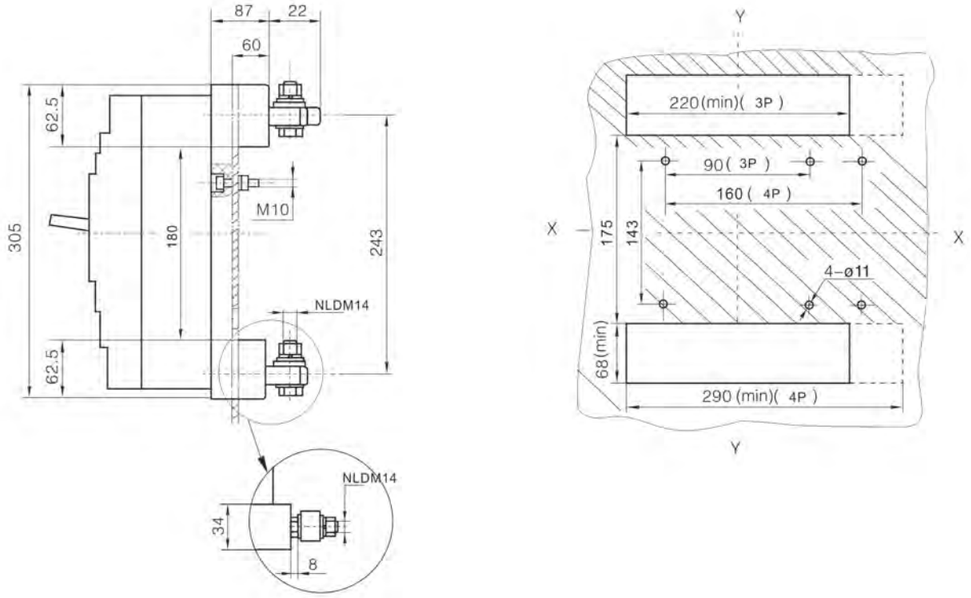
X-X, Y-Y represent the center of the three-pole circuit breaker



Cut-out dimension of installation board of back-panel wiring

NLDM1E-800 moulded case circuit breaker (electronic) (plug-in back-panel), 800 frame capacity increase 630(please specify when ordering) (plug-in back-panel) — Cut-out dimension of installation board of back-panel wiring

X-X, Y-Y represent the center of the three-pole circuit breaker



■ Scope of application

The NLDM2Z series residual current circuit breaker with automatic reclosing function (hereinafter referred to as reclosing) is suitable for AC 50Hz three-phase four-wire neutral-point solid ground (TT) distribution networks with rated voltage 400V and rated current up to 800A. It is used to provide indirect contact protection against personal electric shock hazards and also to protect lines and electrical equipment. The product has overload protection, short circuit protection, overvoltage protection, undervoltage protection, phase loss protection, zero break protection, surge protection, automatic reclosing, communication functions, and is widely used in industries such as power.

The product complies with GB/T14048.2 and IEC60947-2 standards.

■ Model and meaning

NLD M 2 Z - □ □ □

- Display mode: S: digital tube; Y: liquid crystal
- Short-circuit breaking capacity level: M: low breaking type; H: High breaking type
- Rated frame current
- With automatic reclosing function
- Design code
- Residual current circuit breaker
- Enterprise code

■ Normal service and installation conditions

a. Environmental temperature
It meets the temperature range of -5℃~+40℃ required by the national standard. The average value within 24 hours shall not exceed+35℃.
b. Relative air humidity
When the maximum temperature is 40℃, the relative humidity of the air does not exceed 50%. When the monthly average minimum temperature in the wettest month does not exceed 25℃, the monthly average maximum relative humidity in that month does not exceed 90%, and the daily average maximum relative humidity does not exceed 95%, and condensation on the product surface due to temperature changes should be considered. For example, the humidity can reach 90% at 20℃. Special measures should be taken for condensation caused by changes in humidity.
c. Altitude
The altitude of the installation site shall not exceed 2000m. (it must be derated for use when over 2000 meters) .
d. Pollution level
Level 3.
e. Installation category
III (distribution circuit level, i.e. distribution level) .
f. Installation conditions
The external magnetic field of the installation site shall not exceed 5 times the geomagnetic field in any direction; no explosive or corrosive gases; no rain or snow invasion; dry and ventilated. The circuit breaker should be installed according to the requirements of this manual, and its vertical inclination should not exceed 5°.
g. Transportation and storage conditions
The product storage and transportation environment should be dry and ventilated, without significant impact vibration, direct sunlight, rain, dust, chemical gas corrosion and other conditions.

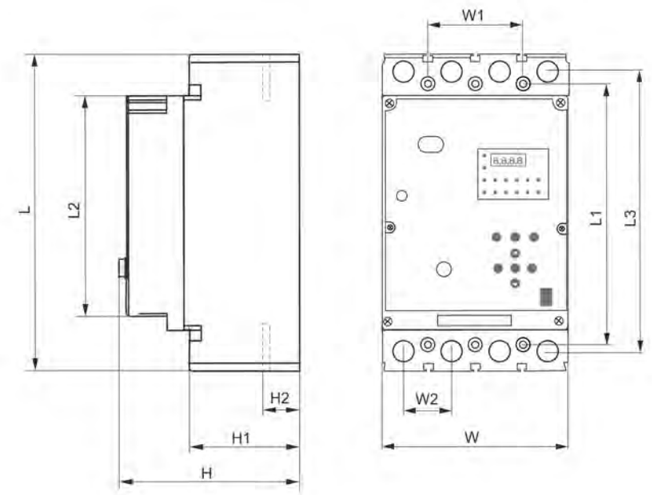
■ Product performance

This product has comprehensive protection functions, including overload protection, short circuit protection, overvoltage protection, undervoltage protection, phase loss protection, zero break protection, surge protection, automatic reclosing, and communication functions, ensuring the reliable opening and closing of the circuit breaker and minimizing the occurrence of accidents. Intelligent circuit design: an intelligent control circuit composed of a microcontroller accurately and timely measures various operating parameters. In case of a fault, it can quickly trip, ensuring the safety of the circuit and personnel. It can set the required functions such as load current, residual current, and residual current action time according to the actual situation, monitor the cause of fault tripping, and display the fault parameters during tripping. After power outage and power failure, the function protection value and a series of parameters are not lost. Convenient human-machine operation: the display interface automatically cycles to display parameters such as operating voltage, current, and real-time residual current values; users can conveniently query the fault parameters and total number of trips caused by various faults; the intelligent circuit breaker has automatic and manual opening and closing functions, making it easy for users to operate in various situations. Exquisite frame volume: integrated from a combination of residual current relays, AC contactors and air circuit breakers, greatly reducing the installation space of the switchgear, simplifying wiring and saving customers' total product cost. Higher breaking capacity: this circuit breaker has the advantages of compact structure and high breaking capacity. Advanced remote communication: it can establish communication connections with computers and remote monitoring screens, and can also use GPRS communication modules to establish communication with mobile phones, making it convenient for users to remotely control and timely understand the operation status of intelligent circuit breakers. (please refer to the communication manual for the operation of the communication function, which is attached separately).

■ Main technical parameters

Model	NLDM2Z-125		NLDM2Z-250		NLDM2Z-400		NLDM2Z-630		NLDM2Z-800	
Rated frame current Inm(A)	125		250		400		630		800	
Setting current Ir	50~125A Adjustable		100~250A Adjustable		160~400A Adjustable		252~630A Adjustable		320~800A Adjustable	
	(0.4-1.0)xIn+off (Adjustable every 0.1In))									
Rated operating voltage Ue (V)	AC400V									
Rated operating frequency (Hz)	50Hz									
Rated insulation voltage Ui (V)	1000V									
Rated impulse withstand voltage Uimp (V)	12kV									
Automatic reclosing time (s)	20s~60s									
Rated residual operation type	Type Ac									
Selective category (Utilization category)	Type B									
Breaking capacity level	M	H	M	H	M	H	M	H	M	H
Rated ultimate short circuit breaking capacity Icu (kA)	50	85	50	65	65	80	65	80	65	100
Rated service short circuit breaking capacity Ics (kA)	35	50	35	50	50	65	50	65	50	75
Rated short time withstand current Icw(kA/s)	10	10	5	5	8	8	8	8	10	10
Rated residual short circuit making (breaking) capacity IΔm	25%Icu									
Rated residual operation current IΔn (non-delay type)	30mA/50mA/75mA/100mA/200mA/300mA/500m A Adjustable									
Rated residual operation current IΔn (delay type)	50mA/75mA/100mA/200mA/300mA/500m A/800mA/1000mA Adjustable									
Rated residual non-operation current	0.5 I△n									
Residual current breaking time	≤ 0.2s Type S 0.5s 1s									
Ultimate non-driving time	△t>0.06s(2 I△ n)(Type S)									

■ Overall and installation dimension



Model and spec.	Overall and installation dimension												
	L	W	H	L1	L2	L3	L4	L5	W1	W2	H1	H2	Φd
NLDM2Z-125	220	122	136.5	200	169	203	7.5	8	60	30	81.5	29	4.5
NLDM2Z-250	240	142	137.5	200	178	218	11.5	10	70	35	87.5	26	5
NLDM2Z-400	336	198	182.5	274	253	305	12	16	96	48	98.5	39	8
NLDM2Z-630	336	198	182.5	274	253	305	12	16	96	48	98.5	41	8