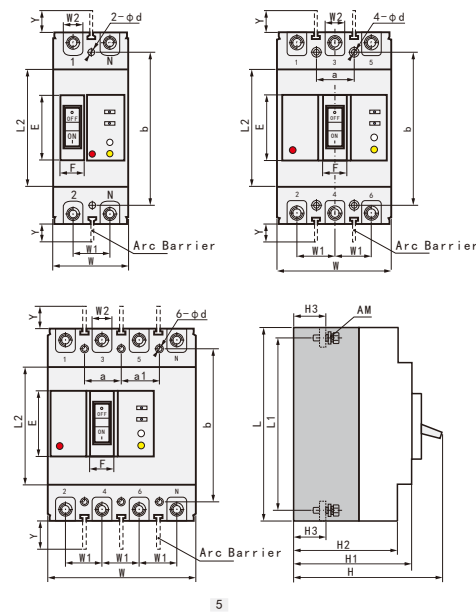


5. Outline and Mounting Dimensions

NLM1L-125, 250, 400, 630, 800 Front Wiring Installation Dimensions



Model	NLM1L-125			NLM1L-250			NLM1L-400			NLM1L-630/800		
	2P	3P	4P	2P	3P	4P	3P	4P	3P	4P	3P	4P
W	67	92	122	82	107	142	150	198	210	280	280	280
W1	30	30	30	35	35	35	48	48	48	70	70	70
W2	15	16	16	22	22	22	30	30	30	44	44	44
E	51	51	51	51	51	55	91	91	91	82	85	85
F	23	23	28	23	23	28	67	67	67	67	67	67
H	L	92	97	96	96	96	96	152	152	158	158	158
M	-	115	115	-	115	115	152	152	158	158	158	158
H1	L	74	74	77	72	72	75	106	111	110	118	118
M	-	91	93	-	91	94	106	111	110	118	118	118
H2	L	66	66	66	68	68	68	99	100	102	102	102
M	-	82	82	-	87	87	99	100	102	102	102	102
H3	L	18	26	26	25	25	38	38	40	40	40	40
L	148	151	151	165	165	165	258	258	280	280	280	280
L1	132	132	132	146	146	146	224	224	243	243	243	243
L2	98	96	96	96	96	96	175	175	204	204	204	204
AM	M8	M8	M8	M8	M8	M8	M10	M10	M12	M12	M12	M12
Y	50	50	50	70	70	70	105	105	105	105	105	105
a/a1	-	30	30	-	35	35	44	44/50	70	70	70	70
b	129	129	129	126	126	126	194	194	243	243	243	243
Φd	Φ5	Φ5	Φ5	Φ5	Φ5	Φ5	Φ7	Φ7	Φ7	Φ7	Φ7	Φ7

Notes: 1. Dimension W2 is the recommended maximum width for user wiring; 2. AM refers to the user connection screw; 3. The dimensions of model NLM1L-125H are the same as those of model W-4. For other details, please refer to the selection catalog.

6. Installation, Operation and Precautions

- The circuit breaker shall be in good appearance and be able to open and close normally under no-load operation.
- The rated values of the circuit breaker and its accessories shall comply with the working conditions of the installation site.
- All protection characteristics of the circuit breaker have been set before delivery; users shall not adjust them at will.
- Internal accessories of the circuit breaker shall be installed and adjusted by the manufacturer before use. If users install them on their own, the work must be carried out by professional personnel.
- Check whether the wiring is correct: all terminal connections and fixing screws shall be tightened without looseness.
- Check whether the arc barrier is properly installed. The operating handle shall be flexible when operated. If the circuit breaker handle has three positions, marked as ON, OFF and TRIPPED respectively. When the handle is in the TRIPPED position, pull it backward to reset the circuit breaker before closing.

h: Recommended cross-sectional areas of conductors connected to the circuit breaker are shown in the table below.

In (A)	16	25	32	40	63	80	100	125	160	180	250	315	400			
	20	4	6	10	16	25	35	50	70	95	120	185	240			
CSA (mm ²)	2.5	4	6	10	16	25	35	50	70	95	120	185	240			
In (A)	Copper Conductor						Copper Busbar									
	Qty.	CSA (mm ²)						Qty.	CSA (mm ²)							
500	2						150						2		30×5	
600	2						185						2		40×5	
700	2						240						2		50×5	
800	2						240						2		50×5	

7. Company Commitment

We warrant that within eighteen (18) months from the date of manufacture, under normal conditions of storage, transportation, maintenance and use by the customer, if the product fails to function properly due to manufacturing defects, our company will provide "Three Guarantees" services.

Due to continuous product technical improvement, all data shall be subject to the latest data issued by our technical department. Any changes shall be made without prior notice.



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CHNAILE®

User Manual



NLM1L Series Residual current Circuit Breaker



NAILE ELECTRIC CO., LTD

1. Scope of Application

The NLM1L series residual current operated molded case circuit breaker (hereinafter referred to as "the circuit breaker") is suitable for AC 50 Hz circuits with a rated insulation voltage of 1000 V, a rated operational voltage of 400 V and below, and a rated current up to 800 A. It is used for distributing electrical energy, infrequent switching of circuits, and infrequent starting of motors. This product features overload long-time delay protection, short-circuit instantaneous protection, under-voltage protection, etc., which can protect circuits and power equipment from damage. It also provides indirect contact protection for personnel and prevents fires caused by earth fault currents resulting from equipment insulation failure.

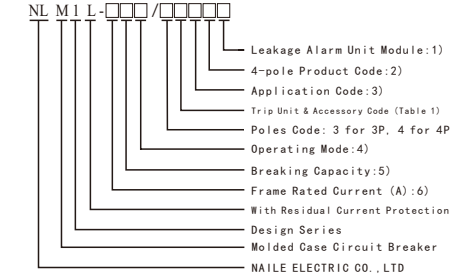
The circuit breakers are divided into three types according to their breaking capacity: Type L (Standard Type), Type M (High Breaking Capacity Type), and Type H (Ultra-High Breaking Capacity Type). The circuit breaker features compact size, high breaking capacity, short arc extinguishing distance, and vibration resistance. This circuit breaker can be installed vertically (upright mounting) or horizontally (sideways mounting).

This circuit breaker does not allow reverse line connection: terminals 1, 3, 5 shall be connected to the power supply side, and terminals 2, 4, 6 to the load side. This circuit breaker complies with the following standards:
IEC 60947-1 and GB/T 14048.1, General rules
IEC 60947-2 and GB/T 14048.2, Low-voltage switchgear and controlgear - Circuit breakers, including Annex B for circuit breakers with residual current protection
IEC 60947-4 and GB/T 14048.4, Contactors and motor-starters

2. Operating Conditions

- The altitude of the installation site shall not exceed 2000 m. For altitudes above 2000 m, please consult the manufacturer for application.
- The ambient air temperature shall not exceed +40°C at the upper limit and shall not be lower than +5°C at the lower limit; the average temperature over 24 hours shall not exceed +35°C. Note: If the upper limit of the ambient air temperature is higher than +40°C or lower than +5°C, use the product according to the data provided in the product catalog; this manual, or consult the manufacturer.
- The installation site shall be in a non-explosive atmosphere, free from gases and conductive dust that can corrode metals and damage insulation, and protected from rain and snow.
- The relative humidity of the air shall not exceed 50% at an ambient temperature of +40°C. Higher relative humidity is allowed at lower temperatures. The average maximum relative humidity of the wettest month is 90%, with an average minimum temperature of +25°C in the same month. Condensation on the product surface due to temperature changes shall be considered.
- The pollution degree is 3.

3. Model and Its Designation



Notes:
1. Leakage Alarm Module: None - No code; 1 - Leakage alarm activation; 11 - No leakage alarm activation.
2. 4-Pole Product Code: There are four types of neutral pole (N-pole) configurations for 4-pole products:
Type A: No over-current tripping element installed in the N-pole; the N-pole is always connected and does not operate together with the other three poles.
Type B: No over-current tripping element installed in the N-pole; the N-pole operates together with the other three poles (N-pole closes first and opens last).
Type C: Over-current tripping element installed in the N-pole; the N-pole operates together with the other three poles (N-pole closes first and opens last).
Type D: Over-current tripping element installed in the N-pole; the N-pole is always connected and does not operate together with the other three poles.
3. Application Code: None - For distribution protection; 2 - For motor protection.
4. Operating Mode: None - Direct handle operation; Z - Rotary handle operation; P - Motorized operation.
5. Breaking Capacity: L - Standard; M - High; H - Ultra-High.
6. Frame Grade: 125, 250, 400, 630, 800.
According to connection method: Front connection, Rear connection, Plug-in.
According to over-current trip unit type: Thermal-Magnetic (Composite) type, Magnetic (Instantaneous) type.
Table 1: Trip Unit Type and Internal Accessory Code



Accessory Name	Accessory Code		Accessory Installation and Load Wiring Method			
	Magnetic	Thermal Magnetic	NLM1L-125, 250		NLM1L-400, 630, 800	
No Accessories	200	300	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Alarm Contact	208	308	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Shunt Trip Release	210	310	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Auxiliary Contact	220	320	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Under-Voltage Trip Release	230	330	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Shunt Trip + Auxiliary Contact	240	340	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Dual Auxiliary Contacts	260	360	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Under-Voltage Trip + Alarm Contact	270	370	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Shunt Trip + Alarm Contact	218	318	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Auxiliary Contact + Alarm Contact	228	328	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Under-Voltage Trip + Auxiliary + Alarm Contact	238	338	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Shunt Trip + Auxiliary + Alarm Contact	248	348	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Dual Auxiliary Contacts + Alarm Contact	268	368	[Diagram]	[Diagram]	[Diagram]	[Diagram]
Under-Voltage Trip + Auxiliary + Alarm Contact	278	378	[Diagram]	[Diagram]	[Diagram]	[Diagram]

4. Main Technical Parameters

Tech. Parameters		Table 2 Main Technical Parameters							
In (A)	Poles	125		250		400		630/800	
		2P, 3P, 4P	2P, 3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P		
Ue		380/400/415V							
Ui		1000V							
Uimp		12kV							
Selectivity Category		A							
Icu (kA)	L	25	35	50	50				
	M	50	55	65	65				
	H	55	-	-	-				
Ics (kA)	L	15	25	35	35				
	M	35	50	50	50				
	H	50	-	-	-				
Operating Cycle (times)	Electrical Endurance	1500	1000	1000	1000				
	Mechanical Endurance	8500	7000	4000	4000				
Arc Extinguishing Distance (mm)		≥ 50	≥ 50	≥ 100	≥ 100				
I Δ n		100/300/500				300/500/1000			
I Δ no		1/2I Δ n							
I Δ m		1/4Icu							

Note: When a 3-pole circuit breaker of this series is connected to a 3-phase load, the load must not have a neutral line, otherwise the circuit breaker may malfunction.
When a 3-pole circuit breaker of this series is connected to a single-phase load, the phase wire must be connected to the left pole, and the neutral wire to the right pole. Do not use the center pole.