

# MOULDED CASE CIRCUIT BREAKER

## RDM1L

### Moulded Case Circuit Breaker



#### Application

RDM1L series moulded case circuit breaker, is mainly applied to the distribution circuit of AC50/60Hz, rated working voltage is 400V, rated current up to 800A for providing protection indirectly and prevent the fire caused by the fault grounding current, and it also can be used for power distribution and circuit protection against overload and short-circuit, it also works for transferring circuit and starting motor unfrequently.

This product is suitable for isolating.

This product is applied to standard of IEC 60947-2.

#### Normal operation condition and installation condition

3.1 Temperature: no higher than +40°C, and no lower than -5°C, and the average temperature no higher than +35°C.

3.2 Installation location no more than 2000m.

3.3 The relative humidity: no more than 50%, when Temperature is +40°C, The product can withstand the higher humidity under lower temperature, for instance, when temperature at +20°C, the product can withstand 90% relative humidity.

The condensation that happened because of temperature changes should be taken care with special measurements

3.4 Class of pollution : 3 Class

3.5 It should be installed at the place that have no danger of explosion, it also has no gas and conductive dust which would cause metal-corrosion and insulation-damage.

3.6 Maximum install inclined Angle 5°, it should be installed at the place has no obvious impact and weather-influence.

3.7 Main circuit installation type: III, Auxiliary circuit and control circuit installation type: II

3.8 External magnetic field of Installation location should not exceed than 5 times of earth magnetic field.

3.9 Installation electromagnetic environment: B type

#### Classification

3.1 Pole: 2P, 3P and 4P(2P product only has RDM1L-125L/2300, RDM1L-125M/2300, RDM1L-250M/2300, RDM1-250M/2300)

3.2 Connection type: front board connection, back board connection and plug-in type.

3.3 Application: power-distribution type and motor-protection type

3.4 Residual current release type: electromagnetic type, instantaneous type.

3.5 Residual current breaking time: delay type and Non-delay type

3.6 Rated limited short-circuit breaking capacity: L-standard type, M-Medium type, H-high type

3.7 Operational type: Handle-directed operation, Motor operation(P), rotation-handle operation(Z, for cabinet)

#### Main technical parameter

4.1  $U_i=690V$ ,  $U_{imp}=8kV$ , the main technical parameter see Table 1.

Table 1

Model No.	Rated current $I_n(A)$	Rated operational voltage(V)	Rated short-circuit breaking capacity R		Rated residual short circuit making and breaking capacity $I_m(A)$	Rated residual action current $I_n(mA)$	Arc distance mm
			$I_{cu}(kA)$	$I_c(skA)$			
RDM1L-125L	10 16 20	400	35	22	25% $I_{cu}$	30/100/300	$\leq 50$
RDM1L-125M	25 32 40		50	35		No delay type	
RDM1L-125H	50 63 80 100 125		85	50		100/300/500 delay type	
RDM1L-250L	100 125	400	35	22	25% $I_{cu}$	100/300/500	$\leq 50$
RDM1L-250M	160 180		50	35			
RDM1L-250H	200 225 250		85	50			
RDM1L-400L	225 250	400	50	25	25% $I_{cu}$	100/300/500	$\leq 100$
RDM1L-400M	315 350		65	35			
RDM1L-400H	400		100	50			
RDM1L-800L	400 500	400	50	25	25% $I_{cu}$	300/500/1000	$\leq 100$
RDM1L-800M	630 700		70	35			
RDM1L-800H	800		100	50			

Table 3

Code	Instruction
A type	N pole has no overload release, and N pole is always connected and do not connect or break with the other 3 pole together.
B type	N pole has no overload release, and N pole connect or break with the other 3 pole together.
C type	N pole has overload release, and N pole connect or break with the other 3 pole together.
D type	N pole has overload release, and N pole always connected,do not connected or break with the other 3 pole together.

4.2 Circuit breaker residual current action protection time see Table4

Table4

Residual current		$I\Delta n$	$2I\Delta n$	$5I\Delta n$	$10I\Delta n$
Non-delay type	Max breaking time(s)	0.3	0.15	0.04	0.04
	Max breaking time(s)	0.4/1.0	0.3/1.0	0.2/0.9	0.2/0.9
Delay type	Limited undrive time t(s)	-	0.2/0.5	-	-

4.3 Overload release consists of the thermal long-delay release which has inverse-time characteristic and instantaneous action release, the action feature see Table5

Table5

Power-Distribution circuit breaker				Motor-protection circuit breaker			
Rated current $I_n(A)$	Thermal release		electromagnetic release action current	Rated current $I_n(A)$	Thermal release		electromagnetic release action current
	1.05 $I_n$ (cool state) Non-action time(h)	1.30 $I_n$ (heat state) Action time(h)			1.0 $I_n$ (cool state) non-action time(h)	1.20 $I_n$ (heat state) action time(h)	
$10 \leq I_n \leq 63$	1	1	$10I_n \pm 20\%$	$10 \leq I_n \leq 800$	2	2	$12I_n \pm 20\%$
$63 < I_n \leq 125$	2	2					
$125 < I_n \leq 800$	2	2	$5I_n \pm 20\%$ $10I_n \pm 20\%$				

4.4 Accessory device technical parameter

4.4.1 Rated value of auxiliary contact and alarming contact, see Table6

Table6

Contact	Frame size rated current	conventional heating current $I_{th}(A)$	Rated operation current $I_e(A)$	
			AC400V	DC220V
Auxiliary contact	$I_{nm} \leq 400$	3	0.3	0.15
	$I_{nm} \geq 400$	3	0.4	0.15
Alarm contact	$100 \leq I_{nm} \leq 800$	3	0.3	0.15

4.4.2 Control circuit release and motor rated control power voltage( $U_s$ ) and rated operational voltage( $U_e$ ) See Table7.

Table7

Type		Rated voltage (V)		
		AC 50Hz		DC
Release	shunt release	$U_s$	230 400	110 220
	undervoltage release	$U_e$	230 400	—
motor mechanism		$U_s$	230 400	110 220

4.4.2.1 shunt release external voltage is between rated control power voltage 70%~110%, it can tripping the release reliably.

4.4.2.2 when power supply voltage decrease to 70% to 35% undervoltage rated operating voltage,under-voltage release can breaking the line.When the power supply voltage is higher than 85% of undervoltage release rated operating voltage,the undervoltage release will that circuit breaker close.Warning: Undervoltage release must be charged at first, then circuit breaker closed. If not, the circuit breaker would be damaged.

4.4.2.3 Motor operation mechanism ensure that it can make the circuit breaker closed when the power voltage is between 85% - 110%,under rated frequency.

4.4.3 Leakage alarming module(RDM1L-125L,250L do not have it.) Specification: P5-P6 port for input power-source AC50/60Hz,230V or 400V.P1-P2,P3-P4 port for capacity is AC230V 5A, see Fig1

Note: 1. Mode II could satisfy the special place needs, User adopts this function after the consideration.

2.Circuit breaker with leakage alarming module. when the leakage alarming is happening, the leakage protection module would function after resetting the reset button of Module II.Fig1.

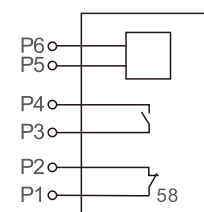


Fig1.

# MOULDED CASE CIRCUIT BREAKER

## Appearance and Installation dimension

5.1 Appearance and Installation dimension see Fig2, Fig3 and Fig8.

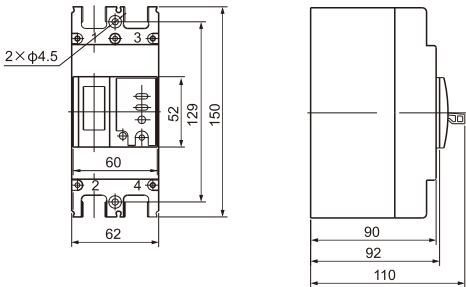


Fig2a RDM1L-125M/2300

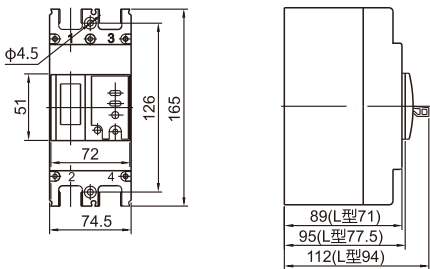


Fig2b RDM1L-250M/2300

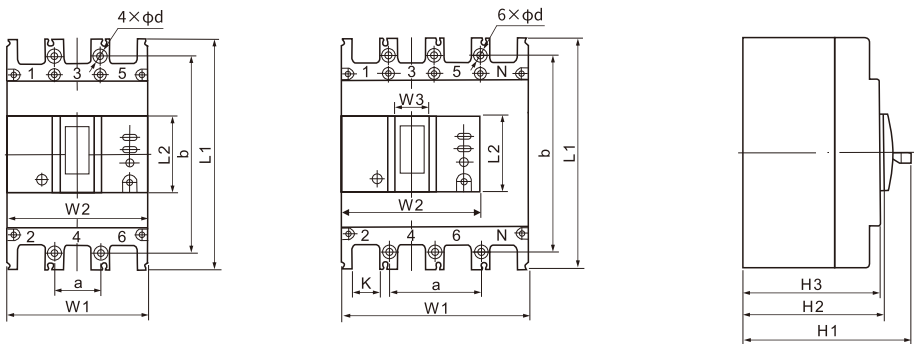


Fig3 Appearance

Table8

Model No.	Pole	Front board connection									Installation Dimension		
		L1	L2	W1	W2	W3	H1	H2	H3	K	a	b	φd
RDM1L-125L	3	150	52	92	88	23	94	75	72	18	30	129	φ4.5
	4	150	52	122	88	23	94	75	72	18	60	129	φ4.5
RDM1L-250L	4	150	52	92	88	23	110	92	90	18	30	129	φ4.5
	3	150	52	122	88	23	110	92	90	18	60	129	φ4.5
RDM1L-250M.H	3	165	52	107	102	23	94	72	70	23	35	126	φ5
	3	165	62	142	102	23	94	72	70	23	70	126	φ5
RDM1L-400	3	165	52	107	102	23	110	90	88	23	35	126	φ5
	4	165	62	142	102	23	110	90	88	23	70	126	φ5
RDM1L-800	4	257	130	150	150	65	150	110	108	32	44	194	φ7
	4	257	92	198	142	65	150	110	108	32	44	194	φ7