

▶ **Application**

RDM10 series Moulded case circuit breaker, mainly applied to the circuit of AC50Hz, rated current from 16A to 630A, rated insulation voltage up to 500V, rated operational voltage up to 400V, it used to power distribution and overload, short-circuit, under-voltage protection of circuit and electronic equipment.

Under normal conditions, It also can be used to circuit transfer infrequently. And it can be used to protect and start Motor infrequently. This production conforms to Standard of GB14048.2.



▶ **Model No.**

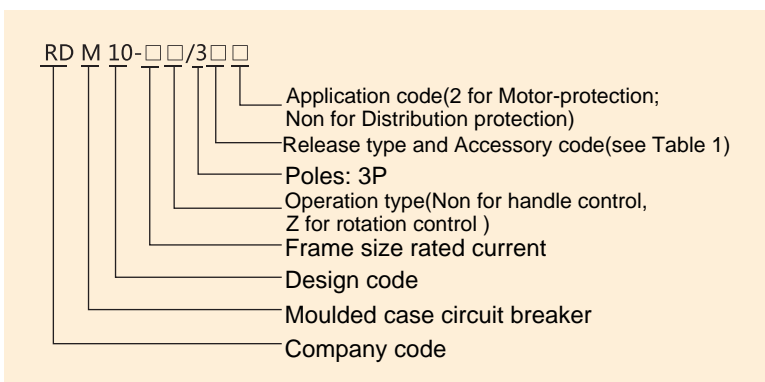


Table 1

Accessory name		No accessories	Alarm contact	Shunt release	Auxiliary contact	Under voltage release	Shunt release+ Auxiliary contact	Two groups of Auxiliary contact	Auxiliary contact +Under -voltage release
overcurrent release type	Instantaneous	200	208	210	220	230	240	260	270
	Double type	300	308	310	320	330	340	360	370

▶ **Normal operational conditions and installation conditions**

- 3.1 Temperature: no higher than +40 , and no lower than -5 , and the average temperture no higher than +35 .
- 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 in special measurements
- 3.4 Class of pollution : 3 Class; Accessories in the circuit breaker pollution class: 2 class.
- 3.5 Main circuit breaker installation type : III Class;  
Auxiliary circuit and control circuit installation type : II Class
- 3.6 Installation condition: Vertical installation

## ▶ Main parameter

4.1 Main circuit rated values, see Table 2

Table 2

Frame size Inm A	Rated current range A	Rated current In A	Rated operational voltage V	Rated short-circuit breaking capacity		Arc distance mm
				Ics kA	Icu kA	
100	100	16, 20, 25, 32, 40, 50, 63, 80, 100	400	7.5	15	≤100
160	100	16, 20, 25, 32, 40, 50, 63, 80, 100	400	7.5	15	≤100
	160	125, 160				
400	250	100, 125, 160, 180, 200, 250	400	12.5	25	≤100
	400	315, 350, 400				
630	630	315, 350, 400, 500, 630	400	15	30	≤100

4.2 Control circuit

Rated control power supply voltage(Us) of Shunt release and Motor mechanism, and Under-voltage release rated operational voltage (Ue), see Table 3

Table 3

Type		Rated operational voltage V		
		AC 50Hz		DC
Release	Shunt release	Us	220, 380	24, 110, 220
	Under-voltage release	Ue	220, 380	—

4.3 Auxiliary circuit

Auxiliary contact and Alarm contact of auxiliary circuit, and it can not be seperated in electric.

4.3.1 auxiliary contact and alarm contact rated value, see Table 4

Table 4

conventional thermal current Ith A	rated insulation voltage Ui V	rated operational current Ie A		Applicable frame size Inm A
		AC400	DC220	
1	380	0.3	0.15	For Alarm contact
3	380	0.4	0.15	160
6	380	3	0.2	400, 630

4.3.1 auxiliary contact and alarm contact abnormal connecting and breaking capacity, see Table 5

Table 5

Using type	connecting			breaking			operational frequency and cycle index		
	I/Ie	U/Ue	cos φ 或T <sub>0.95</sub>	I/Ie	U/Ue	cos φ 或T <sub>0.95</sub>	cycle times	operational frequency Time/Min	Charge time s
AC-15	1.0	1.1	0.3	1.0	1.1	0.3	10	2	≥0.05
DC-13	1.1	1.1	6Pe	1.1	1.1	6Pe			

注：T<sub>0.95</sub>的上限≈6Pe≤300ms。DC-13的通电时间当T<sub>0.95</sub>大于0.05s时至少为T<sub>0.95</sub>。

4.3.3 Auxiliary contact and alarm contact coordinates and cooperates with Short-circuit protection device. Auxiliary contact and alarm contact connects with Fuse (like RL6-25/6), in the inductive test circuit of 1.1 times rated operational voltage, factor between 0.5 to 0.7, it can stand the assessment of 1000A expected short-circuit current in the fuse breaking times.

▶ **Main technical performance**

5.1 Material

Circuit breaker shell and shaft insulation part, can fit the requirements of not lower than B class insulation material.

5.2 Electrical clearance and creepage, see Table 6

Table 6

Circuit type	Auxiliary, control circuit	Main circuit, under-voltage release
Installation type	II	III
Electrical clearance	3	5.5
Creepage distance	6.3	8

5.3 Operational mechanism

It has free release mechanism, and has operational mechanism handle and inductive part of Main circuit has a great insulation for protection.

5.4 Operational condition

5.4.1 Shunt release tripping

when power supply voltage is at the range of 70% to 110% of rated control power supply voltage, then Shunt release should make circuit breaker tripping under any operational conditions.

5.4.2 Under-voltage tripping

when power supply voltage decrease (even slowly) to the range of 70% to 35% rated operational voltage, the under-voltage release should make circuit breaker breaking; when voltage less than 35% rated operational voltage, it should prevent circuit breaker closing; when voltage is more than 85% rated operational voltage, it should make circuit breaker closed reliably.

5.4.3 Over-current release tripping under overload condition (inverse time operate)

a) electric distribution protection circuit breaker

At the basic temperature from +28C to +32C, when each pole charged, time inverse limit breaking characteristic, see Table 7.

b) motor protection circuit breaker

At the basic temperature from +38C to +42C, when each pole charged, time inverse limit breaking characteristic, see Table 8.

Table 7

Testing current name	setting current multiple	limit time		Initial state
		In ≤ 63A	In > 63A	
Conventional not-tripping current	1.05	≥ 1h	≥ 2h	cold state
Conventional tripping current	1.30	< 1h	< 2h	heat state

Table 8

Testing current name	setting current multiple	limit time		Initial state
		$I_n \leq 100A$	$100A < I_n \leq 400A$	
Conventional not-tripping current	1.0	$\geq 2h$		cold state
Conventional tripping current	1.2	$< 2h$		heat state
	1.5	$\leq 2min$	$\leq 4min$	heat state
	7.2	$2s < T \leq 10s$	$4s < T \leq 10s$	cold state

c) The breaking characteristic of 3 poles overload release charged 2 poles as it used for motor-protection, 3 poles overload release which charged with 1time setting current from cold state should not tripping in 2 hours under temperature from +38°C to +42°C. And then it increases 2 poles current to 1.25 times setting current, and the third pole not charged should trip in 2 hours.

5.4.4 Overcurrent release breaks under the short-circuit conditions, see Table 9

5.5 Operational performance

5.5.1 cyclic operation times, should meet Table 10 and Table 11 requirements.

Table 9

Model No.	Short-circuit protection setting current (for Power distribution)	Short-circuit protection setting current (for Motor-protection)	Accuracy
RDM10-100	10 $I_n$	12 $I_n$	$\pm 20\%$
RDM10-160	10 $I_n$	12 $I_n$	$\pm 20\%$
RDM10-400	5 $I_n$ and 10 $I_n$	12 $I_n$	$\pm 20\%$
RDM10-630	5 $I_n$ and 10 $I_n$	12 $I_n$	$\pm 20\%$

Note: short-circuit protection setting current 5  $I_n$  or 12  $I_n$  is special production.

Table 10

Frame size $I_n mA$	Operational cycle time each hour	Operation cycle time		
		Charged	Uncharged	Total
100	120	1500	8500	10000
160	120	1000	7000	8000
400、630	60	1000	4000	5000

Note: Each charge operation cycle, circuit breaker keeps connection's longest time is 2s.

Table 11

Using type	Rated operational voltage $U_e V$	connection condition			breaking condition		
		$I/I_e$	$U/U_e$	$\cos\phi$	$I/I_e$	$U/U_e$	$\cos\phi$
A	400	1	1	0.8	1	1	0.8
AC-3		6	1	0.35	1	0.17	0.35

▶ Overall and installation dimension

断路器的外形尺寸和安装尺寸见图1和表12

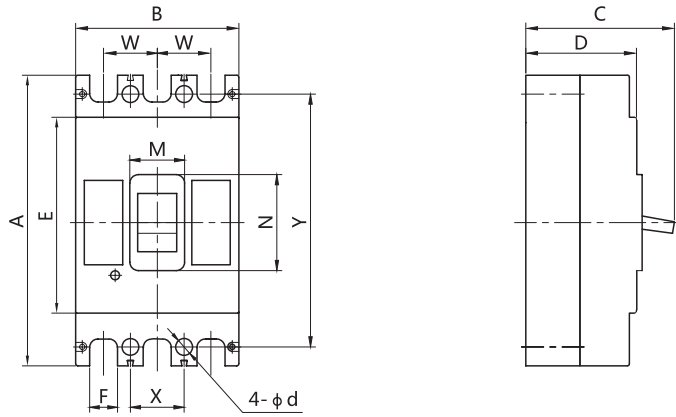


Fig 1

Table 12

Model No.	front board connection dimension mm									Installation dimension mm		
	A	B	C	D	E	F	W	M	N	X	Y	φ d
RDM10-100	153	108	105	86	100	16	35	29	64	35	135	φ 5
RDM10-160	153	108	105	88	74	16	35	34	51	35	135	φ 5
RDM10-400 (100A ~ 250A)	276	155	140	103	200	30	51	58	78	51	240	φ 7
RDM10-400 (315A ~ 400A)	276	155	143	113.5	220	30	51	60	85	51	240	φ 7
RDM10-630	395	210	150	106	280	38	70	75	84	70	362	φ 7

▶ Order Notice

- 7.1 Model No.
- 7.2 Release rated current
- 7.3 Short-circuit protection current setting value(default is 10In)
- 7.4 Tripping type and accessories code(see Table1); if shunt release or under-voltage release is in the order, the control power voltage should be noticed.(see Tabel 3);
- 7.5 Order quantity
- 7.6 Special requirements should be noticed to the manufacture.