

YCM1 series


Molded Case Circuit Breaker

OPERATION INSTRUCTION

Standard: IEC 60947-2

CNC

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Power For Better Life

-  Before installing and using this product, please read this manual carefully and pay more attention to safety.

YCM1 series

Instruction

1 Application

YCM1 series molded case circuit breaker (hereinafter called circuit breaker) is one of the new type circuit breakers designed and developed by our company through using international advanced technology. It can be sorted : L type (standard type), M type(higher breaking capacity type), according to its rated ultimate short-circuit breaking capacity. This product is of small volume, high breaking capacity, short flashover. It is used in distribution network of AC 50Hz, rated insulation voltage 800V (500V for 63 type), rated working voltage up to 690V (400V for 63 type), rated current up to 1250A for distributing electrical power, protecting circuit and power supply equipment from damages of overload, short-circuit and under-voltage, and also can be used for infrequent start, overload, short-circuit and under-voltage protection for electric motor.

This circuit breaker can be installed vertically or horizontally. This product complies with IEC60947-2 standard.

2 Installation Environment

2.1 Altitude of installation position is not more than 2000m (when altitude is higher than 2000 m. please consult with manufacturer and use);

2.2 The upper limit of ambient temperature is + 40°C, lower limit is -5°C. Average value within 24h is not more than +35°C ;

Note: if upper limit of ambient temperature is higher than +40°C, or lower than -5°C, you shall consult with manufacturer and use according to the data in the product catalogue and instruction manual;

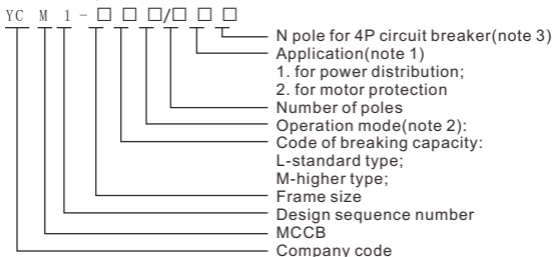
2.3 In the medium without explosion danger or without gas and conductive dust which can corrode metal and damage insulation.

2.4 Places without rain or snow damage;

2.5 When ambient air temperature is +40°C, atmospheric relative humidity shall not be more than 50%; At lower temperature, there is higher relative humidity. At the wettest month, the month average biggest relative humidity is 90%. Meanwhile, month average lowest temperature of this month is +25°C while condensation on the product due to temperature change is considered;

2.6 Pollution degree is 3.

3 Model and specification of circuit breaker



Note:

(1) Circuit breaker for power distribution has no code; circuit breaker protecting electric motor is represented by 2.

(2) Direct handle operation has no code; electric operation is represented by P. Rotary handle operation is represented by Z.

3.2 According to rated current(A) of over-current tripper, it can be sorted into: 63 type is (6), 10, 16, 20, 25, 32, 40, 50, 63A.

Ninth level: 100 type is (10), 16, 20, 25, 32, 40, 50, 63, 80, 100A

Tenth level: 225 type is 100, 125, 140, 160, 180, 200, 225A.

Seventh Level: 250 type is 125, 140, 160, 180, 200, 225, 250A.

Seventh level: 400 type is 225, 250, 315, 400A;

Fifth level: 630 type is 400, 500 and 630A, three level 1.

Note:

(1) 6A specification only has electromagnetic (instantaneous);

(2) with which is not the recommended specification.

(3) 4 pole product Neutral pole (N) has 4 kinds:

A type: not install over-current tripping element on N pole, and N pole is connected all the time and doesn't open or close with other three poles;

B type: not install over-current tripping element on N pole, and N pole opens and closes with other three poles together (N pole closes first, then opens);

C type: install over-current tripping element on N pole, and N pole opens and closes with other three poles (N pole closes first then opens);

D type: install over-current tripping element on N pole, and N pole is connected all the time and doesn't close and open with other 3 poles;

3.3 According to wiring mode, it can be sorted into three type: front panel connection, rear panel connection, plug-in type;

3.4 According to tripper type of over-current, it can be sorted into thermal-electro-magnetic type (compound type), electro-magnetic (instantaneous) type.

3.5 According to attached device , it can be sorted into two types: with attached device and without attached device. Attached device includes interior device and outer device: interior device has shunt release, under-voltage release, auxiliary contact, alarm contact. Outer device has rotary handle operation mechanism, electric operation mechanism. Release method and accessories code, see form 1

Form 1 Release Method and Accessories Code

Accessories Name Release Method	None	Alarm Contact	Shunt Release	Auxiliary Contact	Undervoltage Release	Shunt Release Auxiliary Contact	Shunt Release Undervoltage Release	Secondary Auxiliary Contact	Auxiliary Contact Undervoltage Release.	Shunt Release Alarm Contact	Auxiliary Contact Alarm Contact	Undervoltage Release Alarm Contact	Shunt Release Auxiliary Contact Alarm Contact	Secondary Auxiliary Contact Alarm Contact	Auxiliary Contact Undervoltage Release Alarm Contact
Instantaneous Release	200	208	210	220	230	240	250	260	270	218	228	238	248	268	278
Complex Release	300	308	310	320	330	340	350	360	370	318	328	338	348	368	378

4 Specifications

4.1 The instantaneous operating characteristic of power distribution Circuit Breaker be set as $10I_n \pm 20\%$; the instantaneous operating characteristic of electromotor protection Circuit Breaker be set as $12I_n \pm 20\%$. The operating characteristics of Circuit Breaker overcurrent please see form 2.

Form 2 the operating characteristics of power distribution Circuit Breaker overcurrent Release

Serial No.	Release Rated Current(A)	$1.05I_n$ unoperating time(cold state)	$1.3I_n$ operating time(hot state)	Electromagnetic Release Operating Current(A)
1	$10 \leq I_n \leq 63$	$\geq 1h$	$< 1h$	$10I_n \pm 20\%$
2	$63 < I_n \leq 1600$	$\geq 2h$	$< 2h$	

Form 3 the operating characteristics of electromotor protection Circuit Breaker overcurrent Release

Serial No.	Name of testing current	Current	Time	Initial State
1	The agreement is not tripping current	1.0	2h	Cold State
2	The agreement is not tripping current	1.2	2h	To start after No.1 Test.

4.2 The Rated Value and Breaking Capacity of Circuit Breaker, please see form 4.

Form 4 the rated value and breaking capacity of circuit breaker

Model No.	Frame Structural Level Rated Current(A)	Rated Current(A)	Rated Operation Voltage Ue(V)	Rated Insulation Voltage Ui(V)	Rated ultimate short-circuit breaking capacity Icu(kA) 400/690V	Rated working short-circuit breaking capacity Ics(kA) 400/690V	Poles	Flashover Distance (mm)
YCM1-63L	63	(6), 10, 16, 20, 25, 32, 40, 50, 63	400	500	25*	18*	3	≤50
YCM1-63M	63		400	500	35*	22*	3, 4	
YCM1-125L	125	(10), 16, 20, 25, 32, 40, 50, 63, 80, 100, 125	400/690	800	25, 35/8	18, 22/4	2, 3, 4	
YCM1-125M	125		400/690	800	50/10	25/5	2, 3, 4	
YCM1-250L	250	100, 125, 140, 160, 180, 200, 225, 250	400/690	800	35/8	18, 22/4	2, 3, 4	
YCM1-250M	250		400/690	800	50/10	25/5	2, 3, 4	

Form 4 The Rated Value of Circuit Breaker(to continue)

Model No.	Frame Structural Level Rated Current(A)	Rated Current(A)	Rated Operation Voltage Ue(V)	Rated Insulation Voltage Ui(V)	Rated ultimate short-circuit breaking capacity Icu(kA) 400/690V	Rated working short-circuit breaking capacity Ics(kA) 400/690V	Poles	Flashover Distance (mm)
YCM1-400L	400	225, 250, 315, 350, 400	400/690	800	35, 50/10	18, 35/5	3, 4	≤100
YCM1-400M	400		400/690	800	65/20	32.5/10	3, 4	
YCM1-630L	630	400, 500, 630	400/690	800	35, 50/10	18, 35/5	3, 4	
YCM1-630M	630		400/690	800	65/20	42/10	3, 4	
YCM1-800L/M	800	630, 700, 800	400/690	800	75/30(M)	50/15(M)	3, 4	
YCM1-1250L/M	1250	700, 800, 1000, 1250	400/690	800	85/30(M)	42.5/15(M)	3	
YCM1-1600L	1600	1600	400/690	800	75	36	3	
YCM1-1600M	1600	1600	400/690	800	85/30	50/15	3	

Note: 1* is the testing parameter of 400V;
2* 6A no hot tripping;

5 Technical data of Accessory Device

5.1 The Rated Value of Accessory Contact and Alarm Contact, please see form 5.

Form 5

Category	Frame Structural Level Rated Current	Rated Insulation Voltage (V)	Conventional Thermal Current(A)	AC-15			DC-13	
				Rated Operation Voltage (V)	Rated Frequency (Hz)	Rated Current (A)	Rated Operation Voltage (V)	Rated Current (A)
Accessory Contact	225A And the following	400	3	380	50	0.26	220	0.14
	400A And the following		6			3		0.2
Alarm Contact				3				

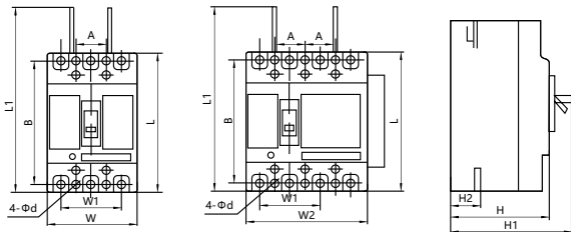
5.2 When the Rated Control Power Voltage of Shunt Release is: AC50Hz, 230V, 400V; DC110V, 220, 24V, external voltage lied the Rated Control Power Voltage from 70% ~ 110%, it could break the Circuit Breaker reliably.

Note: when Voltage Specification select DC24V, Rated Current should attain $5A \pm 10\%A$.

5.3 When the Power Voltage reduce to the 70%~35% scope of Undervoltage Release's rated working voltage, Undervoltage Release could break the Circuit Breaker reliably; when the Power Voltage reduce below 35% of Undervoltage Release's rated working voltage, Undervoltage Release could prevent Circuit Breaker closure; when the Power Voltage is higher than 85% of Undervoltage Release's rated working voltage, Undervoltage Release could guarantee Circuit Breaker reliably closed.

5.4 The rated working voltage and relevant parameters of Alarm Contact, please see form 5. When Circuit Breaker is at normal break-close, alarm contact unoperate; only when at the tripping automatically or faulty tripping, contact will change the original position.

6 Shape and installation size



Type	Overall size (mm)								Installation size (mm)		
	W	L	H	W1	W2	L1	H1	H2	A	B	Φd
YCM1-63L	78	135	74	50	-	156	92	28	25	117	3.5
YCM1-63M	78	135	82	50	103	156	100	28	25	117	3.5
YCM1-125L	92	150	68	60	-	200	88	24	30	129	4.5
YCM1-125M	92	150	86	60	122	200	105	24	30	129	4.5
YCM1-160L	93	151	76	60	-	200	96	24	30	129	4.5
YCM1-250L	107	165	86	70	-	215	110	24	35	126	5
YCM1-250M	107	165	103	70	142	215	127	24	35	126	5
YCM1-400L	150	257	107	96	198	357	162	38	44	194	7
YCM1-400M	150	257	107	96	198	357	162	38	44	194	7
YCM1-630L	182	271	112	116	240	370	165	42	58	200	7
YCM1-630M	182	271	112	116	240	370	165	42	58	200	7
YCM1-800M	210	280	116	140	280	385	168	42	70	243	7
YCM1-1250M	210	406	158	140	-	610	193	60	70	375	11
YCM1-1600M											

7 Installation, employment and maintenance

7.1 The connecting cable for circuit breaker uses the single core PVC copper cable or the copper bars with the same function, dimension and relevant rated current see sheet 7. The main binding screw tightening torque see sheet 8.

Sheet 7 The corresponding sheet of the rated working current and the copper cable section

Rated current In(A)	6	10	16 20	25	32	40 50	63	80	100	125	160	180 200 225	250	315 350	400	500	630	700 800	1000	1250 1600
The dimension of cable or copper bars mm ²	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50	70	95	120	185	240	150	200	250	300	400
The number of root	1										2									

Sheet 8

Type	YCM1-63	YCM1-125	YCM1-250	YCM1-400	YCM1-630	YCM1-800	YCM1-1250/1600
Specification of binding screw	M5	M8	M8	M10	M12	M12	M12
Torque(N m)	3	10	12	22	26	28	30

7.2 The various features and accessories of the circuit breaker is adjusted by the manufacturer, which can't be adjusted randomly when it is used.

7.3 The handle of the circuit breaker can in three position, which mean three conditions, such as close, open and trip. When the handle is the position of trip, you should push the button back, making the circuit breaker re-trip, then switching on.

7.4 Notice of installation

- It must be installed on the flame retardant.
- It can't be installed in the environment including explosion gas.
- It can't be installed in the particular damp place.
- It can't be installed in the place, where the external magnetic field is bigger than the five-fold geomagnetic field.
- It can't be installed in the place, where the shake is bigger than 5g.
- It can't be installed in the place, where the round gas can corrode metal and destroy insulation.

7.5 Note

- The circuit breaker can't be operated frequently, or it will shorten the working life of the circuit breaker.
- If the circuit breaker has the undervoltage release, the undervoltage release should be electrified first, then the circuit breaker can re-trip and switch on, or it will damage the circuit breaker.
- After the circuit breaker with the motor-operated mechanism tripping, the motor-operated mechanism should make the circuit breaker re-trip, then it can switch on.

7.6 Notice for the first-time running

· Checking the connection and technical data, especially the input terminal of the circuit breaker (1).(3, 5) should connect to the power supply terminal, the output(2、 4、 6) should link to load side.

· Using the megger between the phase compares the earth to measure the insulation resistance (not less than 20M Ω).

Making sure terminals connected and the fixed screws should be tightening.

· The operating handle should be fixed and the urgent shunt release button should be pressed in the close position (under condition of no load, the operating handle should in the position of shunt release.)

· If there is under-voltage release, the under-voltage release should be electrified, the closing operation can go on.

8 Notice

8.1 The unauthorized detachment is strictly prohibited, or else you will bear the risk.

8.2 If the product has cover and arc extinction board, the cover and extinction board must be installed before using it, or else you will bear the risk.

8.3 The installation, maintenance and examination should be done by the qualified professionals.

8.4 It is prohibited to operate the circuit breaker with the wet hand, or else the electrical accident might happen.

8.5 If the circuit breaker cuts because the protected circuit faults (overload or short circuit), we must know the reason. After solving the problems, we can do the close operation.

8.6 When the circuit breaker does short-circuit breaking test, it should use the special testing device, which has passed the examination of relevant department and it is strictly prohibited to use the testing way by making the phase line connect directly.

8.7 When the equipment is electrified, you can't make an installation and maintenance. You must make sure there is no voltage before working and you should obey the routine safety regulations.

Date of manufacture : _____



CERTIFICATE

Product Model: YCM1

Standard: IEC 60947

Inspector : **CNC 003**

Production date: Printed on the product
or package.

This product is qualified according
to the delivery inspection

CNC

YCM1 Series

CNC ELECTRIC

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