YCM1 series

Molded Case Circuit Breaker

OPERATION INSTRUCTION

Standard: IEC 60947-2

CNC Deliver 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 Applicationr

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 200om (when altitude is higher than 2000 m. please consult with manufacturer and use);

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

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

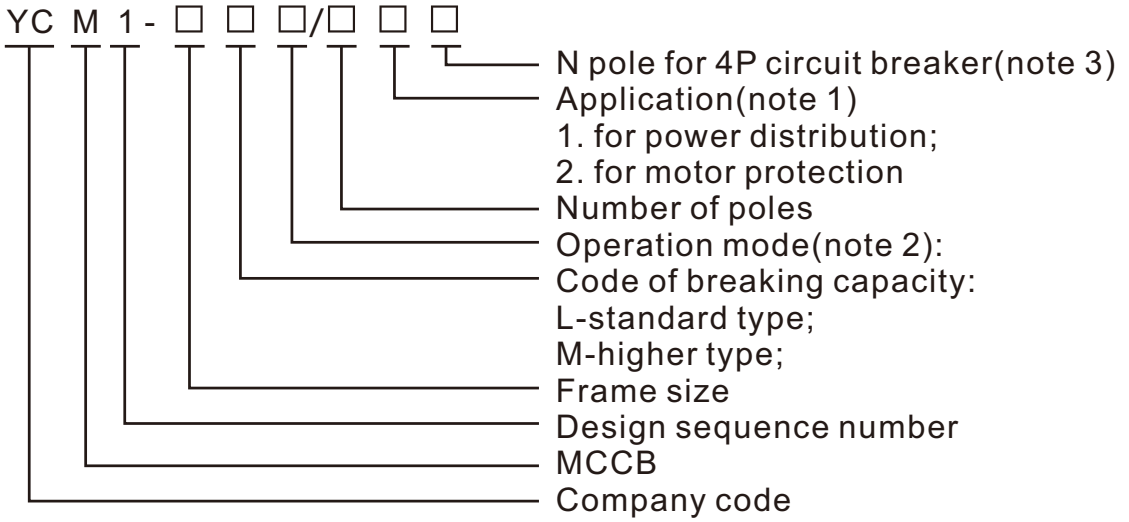
2.3 In the medium without explosion danger or without gas and conductive dust which can corrode metal and damage insulation.

2.4 Places without rain or snow damage;

2.5 When ambient air temperature is +40℃, atmospheric relative hamidity 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℃ 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 leve1: 225 type is 100,125,140, 160, 180, 200, 225A.

Seventh Leve1: 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 leve1.

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 Code / Release Method / Accessories Name	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 10In±20%; the instantaneous operating characteristic of electromotor protection Circuit Breaker be set as 12In ± 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)	1.05In unoperating time(cold state)	1.3In operating time(hot state)	Electromagnetic Release Operating Current(A)
1	10≤In≤63	≥1h	<1h	10In±20%
2	63< In≤1250	≥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	35*	22*	3	⩽50
YCM1-63M	63		400	500	50*	25*	3, 4	
YCM1-100L	100	(10), 16, 20, 25, 32, 40, 50, 63, 80, 100	400	500	35*	22*	3	
YCM1-100M	100		400	500	50*	25*	3, 4	
YCM1-125L	125	(10), 16, 20, 25, 32, 40, 50, 63, 80, 100, 125	400/690	800	35/8	22/4	2, 3, 4	
YCM1-125M	125		400/690	800	50/10	25/5	2, 3, 4	
YCM1-225L	225	100, 125, 140, 160, 180, 200, 225	400/690	800	35/8	22/4	2, 3, 4	
YCM1-225M	225		400/690	800	50/10	25/5	2, 3, 4	
YCM1-250L	250	125, 140, 160, 180, 200, 225, 250	400/690	800	35/8	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	50/10	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	50/10	35/5	3, 4	
YCM1-630M	630		400/690	800	65/20	42/10	3, 4	
YCM1-800M	800	630, 700, 800	400/690	800	75/30	50/15	3, 4	
YCM1-1250M	1250	700, 800,1000, 1250	400/690	800	85/25	42.5/12.5	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.

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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					

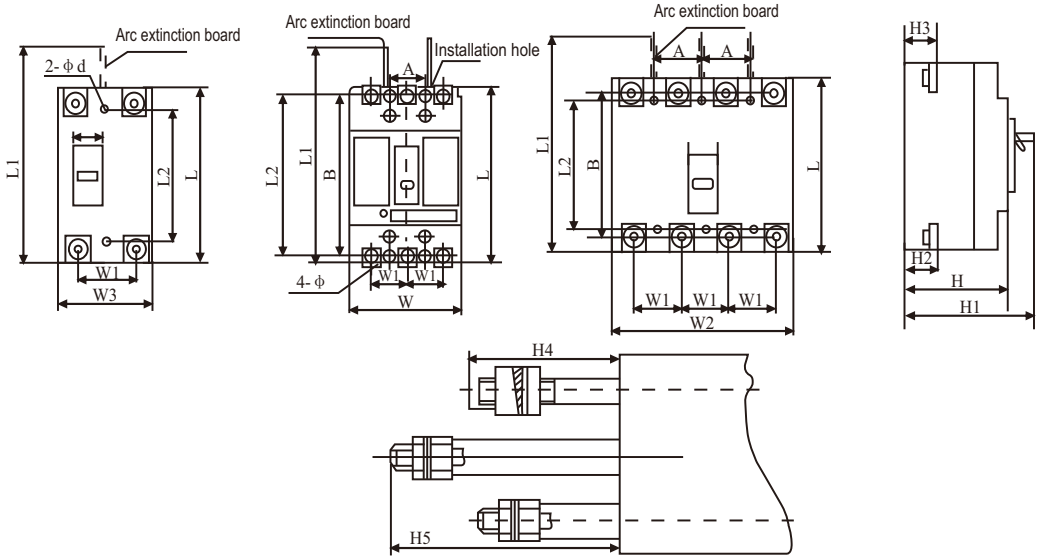
5.2 When the Rated Control Power Voltage of Shunt Release is: AC50Hz, 230V, 400V; DC110V, 220, 24V, external voltage lied the Rated Control Power Voltage from 70% ~ 110%, it could break the Circuit Breaker reliably.

Note: when Voltage Specification select DC24V, Rated Current should attain 5A ±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



Sheet 6 mm

Type	Overall size													Installation Size(mm)		
	Front connection											Rear connection				
	W	W3	W2	L	H	W1	L1	H1	H2	H3	L2	H4	H5	A	B	ϕ d
YCM1-63L	76	-	-	135	74	25	170	90.5	25	28	117	44	66	25	117	3.5
YCM1-63M	76	-	103	135	82	25	170	98.5	25	28	117	44	66	25	117	3.5
YCM1-100L	92	-	120	150	68	30	185	86	24	24	132	68	108	30	129	4.5
YCM1-100M	92	65	120	150	68	30	185	86	24	24	132	68	108	30	129	4.5
YCM1-125L	92	-	120	150	86	30	200	104	24	24	144	66	110	35	126	5
YCM1-125M	92	65	120	150	86	30	200	104	24	24	144	66	110	35	126	5
YCM1-225L	107	-	-	165	86	35	215	110	24	24	144	66	110	35	126	5
YCM1-225M	107	74.5	140	165	103	35	215	127	24	24	144	66	110	35	126	5
YCM1-250L	107	-	-	165	86	35	215	110	24	24	144	66	110	35	126	5
YCM1-250M	107	-	140	165	103	35	215	127	24	24	144	66	110	35	126	5
YCM1-400L	150	-	198	257	105	48	357	155	38	38	224	60	120	44	194	7
YCM1-400M	150	-	198	257	105	48	357	155	38	38	224	60	120	44	194	7
YCM1-630L	182	-	240	270	110	58	370	160	43	43	224	65	125	58	200	7
YCM1-630M	182	-	240	270	110	58	370	160	43	43	224	65	125	58	200	7
YCM1-800M	210	-	280	280	116	70	370	168	41.5	41.5	243	64	64	70	243	7
YCM1-1250M	210	-	280	330	137	70	435	191	41	41	229	64	64	70	-	7

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
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	YCM1-100 125	YCM1-225 (250)	YCM1-400	YCM1-630	YCM1-800	YCM1-1250
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 theearth tomeasure the insulation resistance (not less than 20M Ω).
Making sure terminals connected and the fixed screws should be tightening.
· The operating handle should be f1exib1e 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 prob1ems,we can do the c1ose 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 :_____

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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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