

YCP6-32P


Motor Starter

OPERATION INSTRUCTION

Standard: IEC60947-2
IEC60947-4-1

CNC

Deliver
Power For Better Life

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

1 General

YCP6-32P series motor starter (short for MCCB in below) is mainly applied for AC690V, 50Hz, 0.1-32A electrical circumstance, protecting overload, short-circuit & phase failure of the three-phase squirrel-cage asynchronous motor, it also works well in incontinuous load switching, circuit protecting & isolating in large distribution system. All breakers provided has been approved with 3C, CE, TSE certificate.

2 Operating conditions

2.1 Installation position's altitude should be under 2000M.

2.2 Circumstance temperature should be around -5°C to +40°C

2.3 Relative humidity shouldn't be higher than 50% at +40°C, average relative humidity shouldn't be higher than 90% in the most humid month of the year (temperature shouldn't be lower than 25°C in this month)

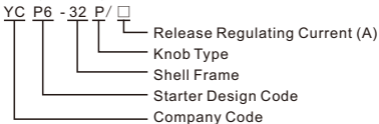
2.4 Pollution level can be as high as 3.2.5 Starter's install type is II & III (load level & distributing level)

2.6 the lean degree between Install side and vertical side shouldn't be bigger than $\pm 5^\circ$

2.7 Rated working type, uninterruptable working type.

3 Basic parameters

3.1 Type designation

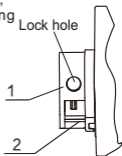


4 Working Theory & Structure parameter

YCP6-32P starter is an integration of isolator, breaker, thermal relay, etc., it contains the functions of isolation, overload, overtemperature, phase failure & short-circuit protection, our products are all in compliance with standards IEC60947-2, IEC60947-4-1.

YCP6-32 P structure: Current enters into the main loop through thermal elements, when it flows over the motor and get it overloaded, bimetallic strip heats up to make the starter act. When phase failure occurs, Bimetallic strip cools down and reposition, with the exaggerating effects from differential attachment, breaker then acts. When current reaches the the rated instantaneous release value, the iron core react immediately, forcing the lever to cutoff the current at once, in the mean time, operating module trips and make breaker act. Starter is consist of main base, contacting point, arc-chute, insulation base,

thermalmagnetic system (including instantaneous release, bimetallic strip, thermal element, etc.), differential attachment, current regulating module, operation module, cover, buttons and so on. Starter structure is of flip-over direct-acting double-contact type, contact bridge, contact support and arc-chute are equipped at the bottom, thermalmagnetic system, static contact, operation module, differential attachment, current regulating module are equipped in main base. Breaker has switching test function: follow the arrow to push the bar in the "test" window, you may test on the switching function and make sure of the reliability of the overload trip. To avoid unnecessary improper operation by unprofessional ones, breaker has a lock-down setup (refer to Picture 1), there is an indication piece on closing button, pull it out and fix it up with a lock, in this case the closing button gets stuck and won't be able to realize its function, thus effectively get the breaker under control.



1. Closing button
2. Indication piece

Picture 1

5 Technical Date

5.1 Rated insulating voltage U_i (V): 690

5.2 Rated impulse withstanding voltage U_{imp} (kV): 6

5.3 Rated working voltage U_e (V): 230(240),

400(415), 440, 500, 690

5.4 Rated frequency (Hz): 50

5.5 Structure level rated current I_{nm} (A): 32

5.6 Rated current I_n (A): Refer to diagram 1

Diagram 1 model and breaking capacity

Rated current I_n (A)	Regulating range(A)	Rated ultimate short-circuit breaking capacity I_{cu} Rated working short-circuit breaking capacity I_{cs}										Arc distance mm
		230/240V		400/415V		440V		500V		690V		
		I_{cu} KA	I_{cs} KA	I_{cu} KA	I_{cs} KA	I_{cu} KA	I_{cs} KA	I_{cu} KA	I_{cs} KA	I_{cu} KA	I_{cs} KA	
0.16	0.1-0.16	100	100	100	100	100	100	100	100	100	100	50
0.25	0.16-0.25	100	100	100	100	100	100	100	100	100	100	
0.4	0.25-0.4	100	100	100	100	100	100	100	100	100	100	
0.63	0.4-0.63	100	100	100	100	100	100	100	100	100	100	
1	0.63-1	100	100	100	100	100	100	100	100	100	100	
1.6	1-1.6	100	100	100	100	100	100	100	100	100	100	
2.5	1.6-2.5	100	100	100	100	100	100	100	100	3	2	
4	2.5-4	100	100	100	100	100	100	100	100	3	2	
6.3	4-6.3	100	100	100	100	50	50	50	50	3	2	
10	6-10	100	100	100	100	15	10	10	10	3	2	
14	9-14	100	100	6	2	6	2	6	2	3	2	
18	13-18	100	100	6	2	6	2	6	2	3	2	
23	17-23	50	50	6	2	6	2	6	2	3	2	
25	20-25	50	50	6	2	6	2	6	2	3	2	
32	24-32	50	50	6	2	6	2	6	2	3	2	

5.7 Regulating current range, rated ultimate & working short circuit breaking capacity refers to diagram 1.

5.8 Rated power of the starter controlled 3-phase motor refers to diagram 2.

Diagram 2 Starter controlled 3-phase motor rated power

Rated current In(A)	Regulating current range (A)	3-phase motor rated power (KW)		
		AC-3, 50Hz		
		230V	400V	690V
0.16	0.1-0.16	-	-	-
0.25	0.16-0.25	-	-	-
0.4	0.25-0.4	-	-	-
0.63	0.4-0.63	-	-	0.37
1	0.63-1	-	-	0.55
1.6	1-1.6	-	0.37	1.1
2.5	1.6-2.5	0.37	0.37	1.5
4	2.5-4	0.75	1.5	3
6.3	4-6.3	1.1	2.2	4
10	6-10	2.2	4	7.5
14	9-14	3	5.5	9
18	13-18	4	7.5	11
23	17-23	5.5	11	15
25	20-25	5.5	11	18.5
32	24-32	7.5	15	22

5.9 Protection level of the shell is IP2L0.

5.10 Operation data of the breaker refers to diagram 3.

Diagram 3 starter operating lifespan

1	2	3	4	5
Structure level rated current $I_{nm}(A)$	Operating time per hour	Operating time		
		with Power	w/o power	total
32	120	2000	10000	12000

5.11 Overcurrent protection

5.11.1 Particularity of starter's each phase under load balance refers to diagram 4, diagram 5.

Diagram 4 Particularity of distribution starter's each phase under load balance

Distribution starter			Temperature
Regulating current	Acting time	Initial status	
$1.05I_n$	Above 1h	Default	$+40^{\circ}C \pm 2^{\circ}C$
$1.3I_n$	Within 1h	Following code 1	
$10I_n$	$< 0.2s$	Default	Any degree

Diagram 5 Particularity of motor starter's each phase under load balance

Motor Starter			Temperature
Regulating current	Acting time	Initial status	
1.05In	Above 2h	Default	+40°C±2°C
1.2In	Within 2h	Following code 1	
1.5In	Within 3h	Under code 1 current till break reaches thermal balance	
7.2In	Within 2~10s	Default	Any degree
12In	< 0.2s	Default	

5.11.2 Particularity of starter when load among each phase unbalance(phase failure) refers to diagram 6.

5.11.3 Starter's wire connecting sectional area refers to diagram 7.

5.11.4 Selection of the backup fuse.

If the expected short-circuit current is higher than the circuit starter's ultimate breaking capacity, backup fuse ought to be required.

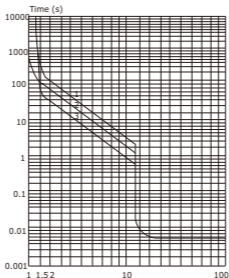
Diagram 6 Particularity of starter when load among each phase unbalance(phase failure)

Regulating Current		Initial status	Defined time	Result	Temperature
Random 2 phase	The third phase				
1.0	0.9	Default	$t \geq 2h$	Non-trip	+40°C±2°C
1.15	0	Following code 1	$t < 2h$	Trip	

Diagram 7 Starter's wire connecting sectional area

Rated working current (regulating current of thermal element) $I_e(A)$	Sectional area mm^2
$0 < I \leq 8$	1.0
$8 < I \leq 12$	1.5
$12 < I \leq 20$	2.5
$20 < I \leq 25$	4.0
$25 < I \leq 32$	6.0

5.12 YCP6-32P time-current particularity refers to diagram 2.



- (1) From default status 3P (2) From default status 2P
 (3) From heated up status 3P

Diagram 2 YCP6-32P time-current particularity curve(40°C)

6 Shape & install dimension(refers to diagram 3)

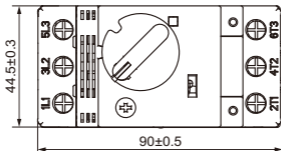
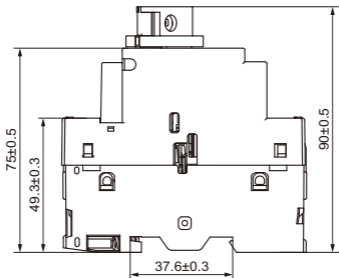


Diagram 3 Shape & install dimension

7 Accessories

7.1 Starter is capable of accessories as undervoltage release, shunt release, auxiliary contact, etc., accessories type refers to diagram 8.

Diagram 8 Accessory type

Name	Type	Remark
Undervoltage release	AC110V	50Hz
	AC220V	50Hz
	AC380V	50Hz
Shunt release	AC110V	50Hz
	AC220V	50Hz
	AC380V	50Hz
Auxiliary release	1NC+1NO	NO+NC
	2NO	2NO
	2NC	2NC

7.2 Undervoltage release particularity

When voltage falls in between 35%~70% of rated voltage, undervoltage release shall act, when voltage falls under 35% of rated voltage, undervoltage release shall prevent breaker switching ON, if voltage recovers to higher than 85% of rated voltage, undervoltage release shall turn the breaker ON.

7.3 Shunt release particularity

Shunt release' s acting voltage range lies between 70%~110% of rated working voltage, making the breaker switching OFF effectively.

7.4 Accessories install position & dimension refers to diagram 4.

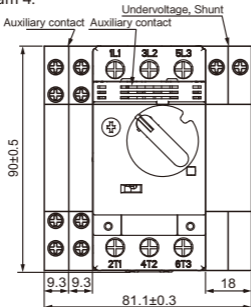


Diagram 4 Accessories install position & dimension

8 Selection & installation

8.1 Selection

8.1.1 Starter's thermal elements current regulating range shall include motor's rated current.

8.1.2 Starter's overcurrent protection particularity must match the protected motor's allowed heating particularity.

8.2 installation

8.2.1 Starter has standard mounting rail, which is in compliance with the standards of A2.1 TH35-7.5 rail in JB6525, breaker can be installed in distribution box or cabinet.

8.2.2 install the starter vertically to the ground, make the arabic number on the breaker up straight.

8.3 Wiring

8.3.1 All wiring terminals shall be in good contacting condition, avoiding phase unbalance false caused by different heating rates from contacting resistances.

8.3.2 For motors with different functions, wiring method could be different as well, refer to diagram 5 for working theories. For single phase or DC motor wiring, refer to diagram 6.

8.4 Current Regulating

Starter's working current(thermal element's regulating current) should be decided by motor's rated current. If a current value between the two scales is required, just slightly whirl on the knob to find the proper position, you can also adjust it during the applying process.

8.5 Protecting function

When short-circuit current is lower or equals to breaker's ultimate breaking capacity, breaker shall protect the motor (load), if short-circuit current become higher than the ultimate breaking capacity, the backup fuse should protect the motor(load).

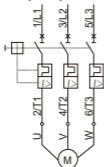


Diagram 5 Breaker's working theory

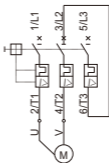


Diagram 6 Wiring for single-phase or DC motor

9 Malfunction and maintenance

9.1 Product's installing, wiring & testing doesn't require to open the upper cover, the upper cover shouldn't be dismantled by any unprofessional staff that is not from the manufacturer.

9.2 Main causes for starter' misaction.

a) Breaker's regulating current is lower than motor's rated current (or practical working current), it'll lead the motor into an overload Switching OFF.

b) Motor's starting time is too long, which would causing the breaker to act during this period.

c) Motor keeps Switching ON & OFF too frequently, putting breaker under continuous starting current impulses and making it act incorrectly.

d) Sudden strong blow or shock on the breaker may lead it into misaction as well.

e) Short-circuit, phase failure or great unbalance between 3 phases would also activate the breaker.

f) Wiring sectional area is too small.

9.3 Main causes for breaker's inaction.

a) Starter's regulating current is higher than motor's rated current.

b) Wiring sectional area is too big.

10 Placing order

10.1 Do emphasize the model code, rated current, quantity, accessory name, etc., when placing an order, e.g. if you want to purchase 20 pieces of YCP6-32P, rated current 18A, with motor protection function (default type) and 1NO+1NC auxiliary contact. You can put down the order in short for: YCP6-32P-25/18, NO+NC, 20pcs.

10.2 For any breaker applied for particular usage or beyond our normal technology defined area, please contact our technical department for special order procedure.



CERTIFICATE

Product Model: YCP6-32P

Standard: IEC60947-2 IEC60947-4-1

Inspector : **CNC003**

Production date: Printed on the product
or package.

This product is qualified according
to the delivery inspection

CNC

YCP6-32P

CNC ELECTRIC

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