

YCCD8 series
High voltage DC contactor
OPERATION INSTRUCTION
Standard: IEC 60947-4-1



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

⚡ Safety Warning

- It is strictly prohibited to install the product in an environment containing flammable and explosive gases, damp condensation, and to operate the product with wet hands;
- During product operation, it is strictly prohibited to touch the conductive parts of the product;
- When installing, maintaining, and maintaining products, it is necessary to ensure that the power supply line is cut off;
- Children are strictly prohibited from playing with products or packaging;
- Sufficient space and safe distance should be reserved around the installation of 5 products;
- Do not install in areas where gas media can corrode metals and damage insulation;
- When installing and using the 7 products, standard wires must be used and a power and load that meet the requirements must be connected;
- After dismantling the packaging, the product should be checked for any damage and the integrity of the items should be checked;
- The controller should be stored, installed, and used according to the rated control power supply voltage and specified conditions indicated in the manual;
- products must be installed and maintained by personnel with professional qualifications, otherwise there is a risk of electric shock;
- products, please strictly follow the wiring diagram for correct wiring;

1 Main uses and scope of application

The YCC8DC series high-voltage DC contactor products are mainly used in resistive load systems such as mining drive and control systems, electric vehicles, mobile mining equipment, power backup systems, charging piles, photovoltaic equipment systems, and battery drive system power matching.

2 Series model specifications and their meanings

YCC8 DC - 1000 / 1000 - XX - H A C 5 - 3
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

- Product design serial number
- Direct Current
- Load Current
- Load Voltage
- Coil Voltage
- Main contact form: H-normally open
- Auxiliary contact form: A: normally open; Q: QC lead out end
- Form of coil lead out end: C-connector
- Main contact lead out form: 5-internal thread
- Coil characteristics: 3-PWM energy-saving type

3 Normal usage, installation, and transportation conditions

3.1 Normal usage conditions

- Surrounding air temperature: -5℃ ~ +40℃
- Humidity: When the maximum temperature is +40℃, the relative humidity of the air does not exceed 50%, and higher relative humidity can be allowed at lower temperatures. When the monthly average minimum temperature is +20℃, the average maximum relative humidity of the month is 90%. Special measures should be taken for occasional condensation caused by temperature changes.
- Installation location: Altitude not exceeding 2000 meters
- Atmospheric pressure: 50kPa-106 kPa
- Pollution level: Level III
- Environment: A

3.2 Installation conditions

- When installing contactors, washers should be used to prevent screws from loosening
- There should be no significant impact, vibration, or conductive dust at the installation site

3.3 Transportation and storage conditions

The product storage and transportation environment should be dry and ventilated, without significant impact vibration, direct sunlight, rain, dust, chemical gas corrosion, and other conditions.

4 Main technical parameters and performance

4.1 Main contact parameters

Model	YCC8DC-20	YCC8DC-40	YCC8DC-60	YCC8DC-100	YCC8DC-150	YCC8DC-200	YCC8DC-250
Structure	H						
Contact Material	Silver alloy		Silver copper alloy				
Contact resistance	≤5mΩ (@1A)	≤0.5mΩ (@60A)	≤0.5mΩ (@100A)	≤0.3mΩ (@150A)	≤0.3mΩ (@200A)	≤0.3mΩ (@250A)	
Contact pressure drop	/						
Rated Load	DC1000V 20A	DC1000V 40A	DC1500V 60A	DC1500V 100A	DC1500V 150A	DC1500V 200A	DC1500V 250A
Switching electrical lifespan	20A/1000V 10000times	20A/1000V 10000times	20A/750V 20000times	60A/450V 50000times	/		
Power on lifespan	20A,1500V 20000times	40A,450V 25000times	60A,450V 50000times	100A,450V 30000times	/	/	/
Impact electrical life	/	/	/	/	150A/1500V 20V, 100000 cycles	200A/1500V 20V, 100000 cycles	250A/1500V 20V, 100000 cycles

Model	YCC8DC-20	YCC8DC-40	YCC8DC-60	YCC8DC-100	YCC8DC-150	YCC8DC-200	YCC8DC-250
Power outage lifespan	200A,300V 1times	200A,300V 1times	60A,1500V 100times	100A,1500V 50times	20A,1500V 15000times	20A,1500V 15000times	20A,1500V 15000times
Short-circuit Current	/	/	4000A (5ms) 1times	4000A (5ms) 1times	6000A (5ms) 1times	8000A (5ms) 1times	8000A (5ms) 1times
Rated current	20A	40A	60A	100A	150A	200A	250A
Minimum load current	6V/1A						
Mechanical durability	200000 times (0.5 seconds on and 0.5 seconds off)						

Model	YCC8DC-300	YCC8DC-400	YCC8DC-500	YCC8DC-600	YCC8DC-800	YCC8DC-1000
Structure	H					
Contact Material	Silver copper alloy					
Contact resistance	≤0.3mΩ (@300A)	≤0.2mΩ (@400A)	≤0.2mΩ (@500A)	≤0.2mΩ (@600A)	≤0.3mΩ (@800A)	≤0.15mΩ (@1000A)
Contact pressure drop	/					
Rated Load	DC1500V 300A	DC1500V 400A	DC1500V 500A	DC1500V 600A	DC1500V 800A	DC1500V 1000A
Switching electrical lifespan	/					
Power on lifespan	/	Steady state 400A, C=1100 37.5V, 20000 times	Steady state 500A, C=1100 37.5V, 20000 times	Steady state 600A, C=1100 37.5V, 20000 times	Steady state 800A, C=1100 37.5V, 20000 times	Steady state 1000A, C=1100 37.5V, 20000 times
Impact electrical life	300A/1500V 20V, 50000 cycles	/	/	/	/	/

Model	YCC8DC-300	YCC8DC-400	YCC8DC-500	YCC8DC-600	YCC8DC-800	YCC8DC-1000
Power outage lifespan	20A,1500V 15000times	40A,1500V 200times	50A,1500V 100times	60A,1500V 50times	80A,1000V 50times	100A,750V 50times
Short-circuit Current	8000A (5ms) 1times	8000A (5ms) 1times	8000A (5ms) 1times	8000A (5ms) 1times	8000A (5ms) 1times	8000A (5ms) 1times
Rated current	300A	400A	500A	600A	800A	1000A
Minimum load current	6V/1A					
Mechanical durability	200000 times (0.5 seconds on and 0.5 seconds off)					

4.2 Coil Parameters

Model	YCC8DC-20			YCC8DC-40		
	12	24	PWM type	12	24	PWM type
Rated voltage (Vd. c.)	12	24	PWM type	12	24	PWM type
Action voltage (Vd. c.)	≤9	≤18	/	≤9	≤18	/
Working voltage (Vd. c.)	9~14	18~28	/	9~14	18~28	/
Release voltage (Vd. c.)	≥1	≥2	/	≥1	≥2	/
Coil resistance (Ω) (1 ± 7%)	55.4	221.6	/	48	192	/
Starting current (A)	0.22	0.11	/	0.25	0.125	/
Start time (ms)	/	/	/	/	/	/
Rated current (A)	0.22	0.11	/	0.25	0.125	/
Starting power consumption (W)	2.6	2.6	/	3	3	/
Steady state power consumption (W)	2.6	2.6	/	3	3	/

Model	YCC8DC-60			YCC8DC-100		
	12	24	PWM type	12	24	PWM type
Rated voltage (Vd. c.)	12	24	PWM type	12	24	PWM type
Action voltage (Vd. c.)	≤9	≤18	/	≤9	≤18	/
Working voltage (Vd. c.)	9~16	18~32	/	9~16	18~32	/
Release voltage (Vd. c.)	≥1	≥2	/	≥1	≥2	/
Coil resistance (Ω) (1 ± 7%)	27.7	111	/	27.7	111	/
Starting current (A)	0.43	0.22	/	0.43	0.22	/
Start time (ms)	/	/	/	/	/	/
Rated current (A)	0.43	0.22	/	0.43	0.22	/
Starting power consumption (W)	5.2	5.2	/	5.2	5.2	/
Steady state power consumption (W)	5.2	5.2	/	5.2	5.2	/

Model	YCC8DC-150			YCC8DC-200		
	12	24	PWM type	12	24	PWM type
Rated voltage (Vd. c.)	12	24	PWM type	12	24	PWM type
Action voltage (Vd. c.)	≤9	≤18	≤9	≤9	≤18	≤9
Working voltage (Vd. c.)	9~16	18~32	9~36	9~16	18~32	9~36
Release voltage (Vd. c.)	≥1	≥2	≥5	≥1	≥2	≥5
Coil resistance (Ω) (1 ± 7%)	24	96	3.1	24	96	3.1
Starting current (A)	0.5	0.25	3.8	0.5	0.25	3.8
Start time (ms)	/	/	≤150	/	/	≤150
Rated current (A)	0.5	0.25	0.2	0.5	0.25	0.2
Starting power consumption (W)	6	6	46	6	6	46
Steady state power consumption (W)	6	6	2.5	6	6	2.5

Model	YCC8DC-300			YCC8DC-400		
	12	24	PWM type	12/24	/	/
Rated voltage (Vd. c.)	12	24	PWM type	12/24	/	/
Action voltage (Vd. c.)	≤9	≤18	≤9	≤9	/	/
Working voltage (Vd. c.)	9~16	18~32	9~36	9~36	/	/
Release voltage (Vd. c.)	≥1	≥2	≥5	≥5	/	/
Coil resistance (Ω) (1 ± 7%)	24	96	3.1	3.1	/	/
Starting current (A)	0.5	0.25	3.8	3.8	/	/
Start time (ms)	/	/	≤150	≤150	/	/
Rated current (A)	0.5	0.25	0.2	0.33	/	/
Starting power consumption (W)	6	6	46	48	/	/
Steady state power consumption (W)	6	6	2.5	4	/	/

Model	YCC8DC-500			YCC8DC-600		
Rated voltage (Vd. c.)	12/24	/	/	12/24	/	/
Action voltage (Vd. c.)	≤9	/	/	≤9	/	/
Working voltage (Vd. c.)	9~36	/	/	9~36	/	/
Release voltage (Vd. c.)	≥5	/	/	≥5	/	/
Coil resistance (Ω) (1 ± 7%)	3.1	/	/	3.1	/	/
Starting current (A)	3.8	/	/	3.8	/	/
Start time (ms)	≤150	/	/	≤150	/	/
Rated current (A)	0.33	/	/	0.33	/	/
Starting power consumption (W)	48	/	/	48	/	/
Steady state power consumption (W)	4	/	/	4	/	/

11

Model	YCC8DC-800			YCC8DC-1000		
Rated voltage (Vd. c.)	12/24	/	/	12/24	/	/
Action voltage (Vd. c.)	≤9	/	/	≤9	/	/
Working voltage (Vd. c.)	9~36	/	/	9~36	/	/
Release voltage (Vd. c.)	≥5	/	/	≥5	/	/
Coil resistance (Ω) (1 ± 7%)	3.1	/	/	3.1	/	/
Starting current (A)	3.8	/	/	3.8	/	/
Start time (ms)	≤150	/	/	≤150	/	/
Rated current (A)	0.33	/	/	0.33	/	/
Starting power consumption (W)	48	/	/	48	/	/
Steady state power consumption (W)	4	/	/	4	/	/

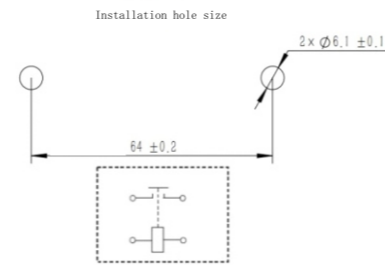
12

5 Structural features and working principles

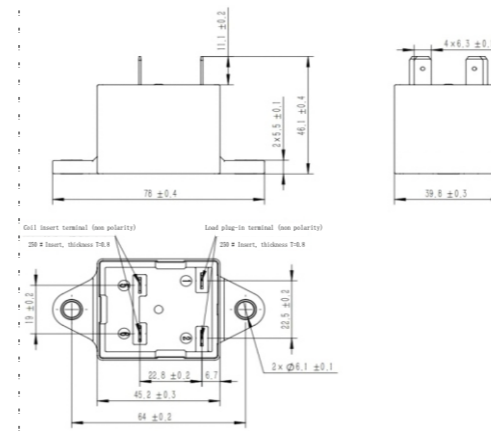
After the coil is energized, the coil current generates a magnetic field, generating sufficient electromagnetic attraction to overcome the reaction force, causing the static iron core to generate electromagnetic attraction to attract the moving iron core. The moving iron core pushes the moving contact to move until it makes contact with the static contact, making the contact connected. When the coil voltage disappears or decreases to a certain value, known as the release voltage, the moving iron core is released under the action of the return spring, and the contact immediately breaks.

6 Appearance, installation dimensions, and circuit schematic diagram

1. YCC8DC-20~40 Product appearance, installation, and wiring diagram

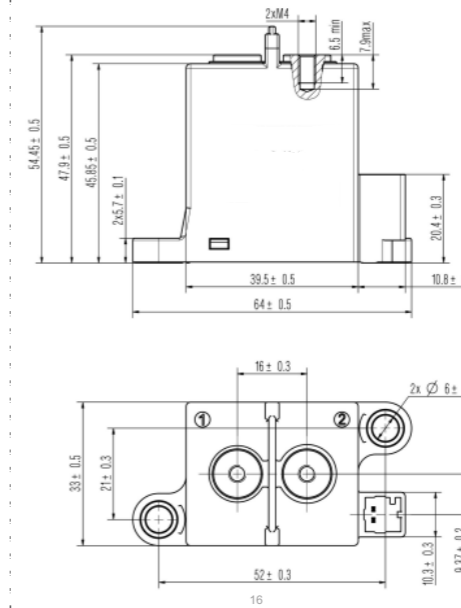


13



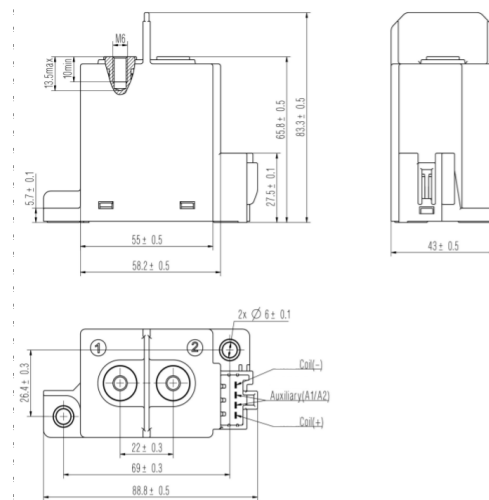
14

2. YCC8DC-60~100 Product appearance, installation, and wiring diagram

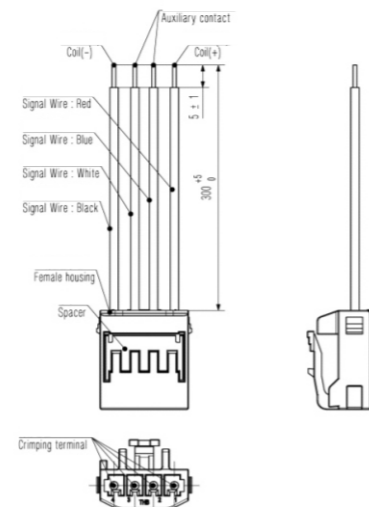


17

3. YCC8DC-150~300 Product appearance, installation, and wiring diagram

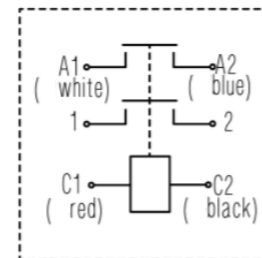


18



Note: connector are optional parts.

19

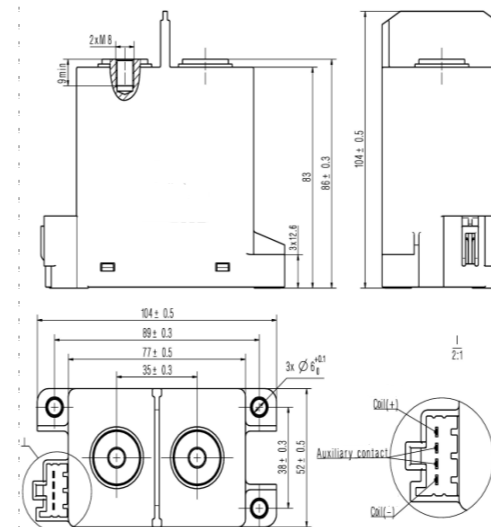


Explanation:

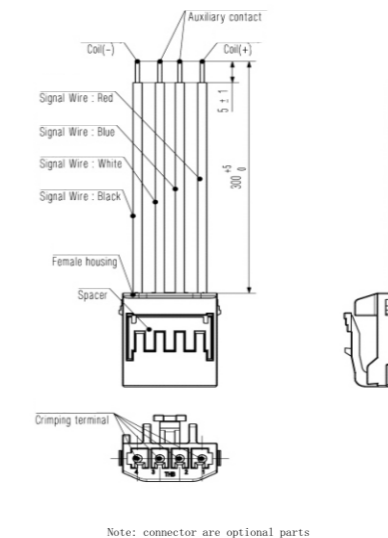
- 1) 1 and 2 are load terminals, with no polarity in the load
- 2) C1 and C2 are coil terminals with polarity, red "+" and black "-"
- 3) A1 and A2 are auxiliary contacts, and the auxiliary contacts have no polarity

20

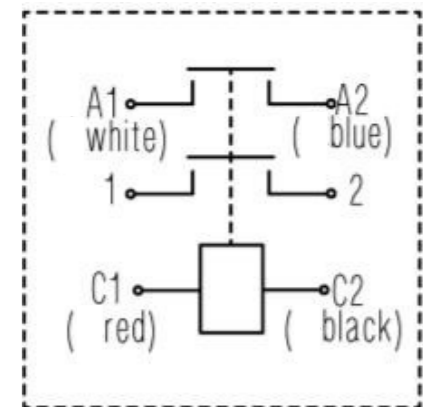
4. YCC8DC-400~600 Product appearance, installation, and wiring diagram



21



22

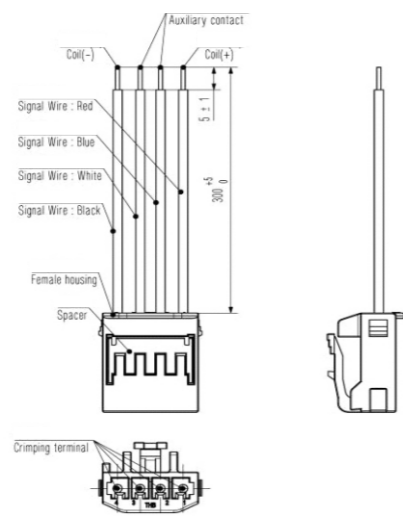
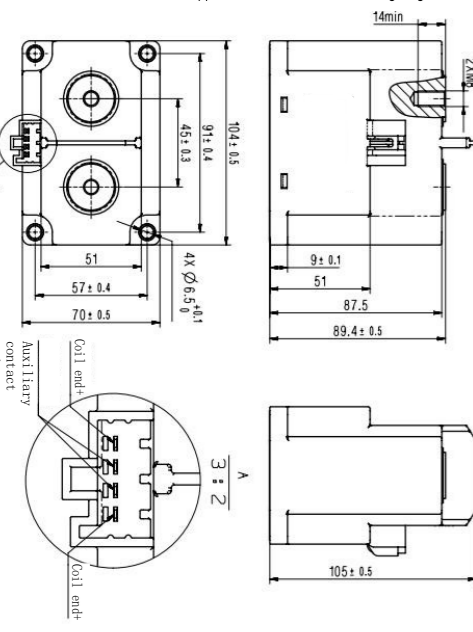


Explanation:

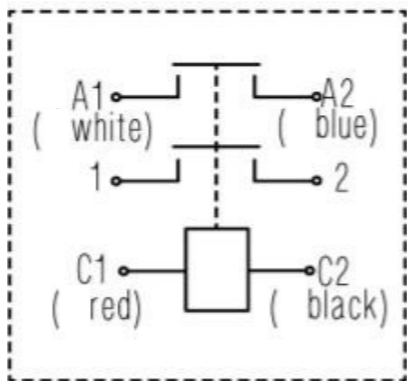
- 1) 1 and 2 are load terminals, with no polarity in the load
- 2) C1 and C2 are coil terminals with polarity, red "+" and black "-"
- 3) A1 and A2 are auxiliary contacts, and the auxiliary contacts have no polarity

23

5. YCC8DC-800~1000 Product appearance, installation, and wiring diagram



Note: connector are optional parts.



Explanation:

- 1) 1 and 2 are load terminals, with no polarity in the load
- 2) C1 and C2 are coil terminals with polarity, red "+" and black "-"
- 3) A1 and A2 are auxiliary contacts, and the auxiliary contacts have no polarity

7 Main circuit inner diameter and torque

Model	Main circuit screw inner diameter	Tightening torque
YCC8DC-20	/	/
YCC8DC-40	/	/
YCC8DC-60	M4	2N·m~3·m
YCC8DC-100	M4	2N·m~3·m
YCC8DC-150	M6	6N·m~8·m
YCC8DC-200	M6	6N·m~8·m
YCC8DC-250	M6	6N·m~8·m
YCC8DC-300	M6	6N·m~8·m
YCC8DC-400	M8	8N·m~10·m
YCC8DC-500	M8	8N·m~10·m
YCC8DC-600	M8	8N·m~10·m
YCC8DC-800	M8	8N·m~10·m
YCC8DC-1000	M8	8N·m~10·m

8. Matters needing attention

- 8.1 Before installation, first check whether the actual usage situation meets the purpose and scope of application, technical parameters, normal working conditions, and installation conditions of the contactor. During installation, attention should be paid to whether the positive and negative polarity of the main contact meet the installation requirements, and whether the installation torque is set within the qualified range.
- 8.2 When wiring contactors, appropriate screwdrivers should be used, and the wires should not be loose. The exposed copper wire ends should not be exposed outside the wiring terminals. After checking the correctness of the wiring, the coil should be energized and opened several times to ensure the reliability of the product's operation before it can be put into use.
- 8.3 Do not use dropped products.
- 8.4 Avoid installing the product in areas with strong magnetic fields (near transformers or magnets) or near objects with thermal radiation.
- 8.5 Electrical lifespan:
This contactor is a DC switch, and in its final breakdown mode, it may lose its proper cut-off function. Therefore, do not use it in a state that exceeds its switching capacity and lifespan parameters (please treat this contactor as a product with a specified lifespan and replace it if necessary). Once the contactor loses its ability to disconnect, it may cause combustion of its surrounding components. Therefore, it is necessary to design a circuit diagram to ensure that the power supply can be cut off within 1 second.
- 8.6 Internal gas diffusion life: This contactor adopts a sealed chamber

- contact, which is filled with gas. The diffusion life of the gas is determined by the temperature inside the contact chamber.
- (i.e. ambient temperature+temperature rise generated by contact electrification), so the ambient temperature should be ensured to be -40 to +85 °C.
- 8.7 If the coil and contact of the contactor are continuously connected to the rated voltage (or current), and the power is cut off and immediately connected again, the resistance of the coil will increase due to the increase in temperature of the coil, which may cause the suction voltage of the product to rise, potentially exceeding the rated suction voltage. In this case, the following measures should be taken: such as reducing the load current, limiting the continuous power on time, or using a coil voltage higher than the rated suction voltage.
- 8.8 When subjected to resistive loads, the rated parameters of the main contact in the rated value are applicable. If an inductive load (L load) is used with L/R>1 millisecond, a surge current protection device should be connected in parallel for that inductive load.
- 9.9 The driving circuit power of the product coil must be greater than or equal to the product coil power, otherwise it will reduce the cutting ability of the product.
- 8.10 Avoid getting debris and oil stains on the static terminal, and ensure that the external terminal is in reliable contact with the main lead out of the product, otherwise it may cause serious heating of the static terminal. The leads connected to the product must have the necessary conductivity to prevent overheating and affect its lifespan.

9. Maintenance, upkeep, transportation, and storage period

- 9.1 Maintenance and upkeep
Daily dust removal; Check if the screws on each terminal are loose, and check if the wires are damaged or aged.
Before using products that have been stored or discontinued for six months and meet the environmental conditions specified in the manual, please inspect them.

10. Warranty period, environmental protection, and other legal provisions

- 10.1 Warranty period
Under normal storage and transportation conditions, and with the product packaging or product itself intact, the warranty period for the product is 18 months from the date of production.
The following situations are not covered by the warranty:
1) Damage caused by improper user use, storage, and maintenance;
2) Damage caused by unauthorized organization or personnel, or self disassembly and repair;
3) The product has exceeded the warranty period;
4) Damage caused by force majeure factors.
- 10.2 Environmental Protection
In order to protect the environment, when this product or its components are scrapped, please dispose of them properly as industrial waste; Or it can be handed over to the recycling station for classification, disassembly, recycling, and reuse in accordance with relevant national regulations.

CNC
ELECTRIC

CERTIFICATE

Product Model: YCC8DC
Standard: IEC 60947-4-1
Inspector: CNC 003

Production date: Printed on the product or package.
This product is qualified according to the delivery inspection

CNC
YCC8DC series