GLOBAL ELECTRIC LTD

גלובל אלקטריק הנדסת חשמל בע''מ

BCH8 | MODULAR CONTACTOR

User Manual

Safety Notice:

Make sure to read this manual carefully before installation, operation, maintenance and inspection and correctly install and use this product according to the manual.

Danger:

- Prohibit to operate the contactor with wethands;
- Never touch the conductive parts in use;
- Make sure that the product is electrically neutral during maintenance and care.

Attention:

- The installation, repair and maintenance shall be implemented by qualified persons;
- Confirm whether the product voltage, current, frequency and use category meet the requirements before use;
- Connect the control circuit first for no-load operation test and then connect the load in case of no abnormality;
- Regularly tighten the terminals and remove the deposited dust;
- Don't make the foreign matters fall into the product;
- Use the supporting accessories provided by the company as optional accessories;
- Refuse the use and contact the supplier in case of damage or abnormal sound during product unpacking;
- Make industrial waste treatment for product scrap.

Thank you for your cooperation.

Use and scope of application

(1) Use

BCH8 series household AC contactor (hereinafter referred to as "contactor") is a controller used for connecting and breaking non-inductive or low-inductive load, resistance furnace, household appliances, low-inductive load with similar use and household electromotor in a long distance.

(2) Scope of application

The contactor is mainly used under the power system with AC 50/60Hz, rated operational voltage of 400V and rated operational current of 125A, and also can be used as remote switch and control circuit under the circumstance of AC-1, AC-7a and AC-7b.

As the contactor is not used for breaking short-circuit current, a proper short-circuit protective device is required at the same time.

Conditions of normal Use and installation

(1) The ambient temperature ranges between -5℃and +60℃. If the contactor is installed in a distribution box , distance pieces are required to be assembled on both sides, so as to help thermal dissipation;

(2)Altitude: ≤2000m;

(3) The atmospheric relative humidity does not exceed 50% when the maximum ambient temperature is +60℃. It is allowed to have relative higher humidity under lower temperature, e.g. up to 90% for +20℃.For the occasional condensation due to changes of the temperature, preventive measures shall be taken;

(4) The installation site shall be vertical, with inclination at all directions not exceeding ±5°；

(5) It shall be installed in a place without shock and vibration;

(6) Pollution class: 2;

(7) Installation category: **II**;

(8) Use of steel DIN Rail 35-7.5 for installation.

Main technical parameters

(1) Technical characteristics

See Table 1 for common use category and relevant code.

Table 1 Use category and relevant code

Use category	Typical use
AC-7a	Household appliances and other low-inductive loads with similar use
AC-7b	Household motor load.
AC-1	Resistance load
AC-3	Motor load
*AC-7b/AC3 category can be applied for accidental dense breaking (jog) or reversed braking in a limited time, during which operations shall not be conducted for more than 5 times per minute or 10 times in 10 minutes.	

(2) See Table 2 for basic parameters of a contactor

Table 2 Basic parameters of a contactor

Parameter \ Specification			16A	20A	25A	32A	40A	63A	80A	100A	125A
Rated Current In(A)	AC-7a		16	20	25	32	40	63	80	100	125
	AC-7b		6	7	9	12	18	25	32	40	50
Conventional Free Air Thermal Current Ith(A)			16	20	25	32	40	63	80	100	125
Rated Insulation Voltage Ui(V)			500								
Rated Voltage Ue(V)			250V(1P 2P) 400V(3P 4P)								
Main Contacts		1P	1NO、1NC								
		2P	1NO1NC、2NO、2NC								
		3P	3NO、3NC								
		4P	2NO2NC、3NO1NC、4NO、4NC								
Controlled power (kW)	AC-7a	250V	3.5	3.5	5.4	8	9	14	17.6	21.6	27.5
		400V	10	10	16	21	26	41	52	64.8	82.1
	AC-7b	250V	0.55	0.77	0.77	1.7	2.6	4	7	8.8	11
		400V	2.2	3.1	4	5.3	7.8	11	21	26.2	32.8
Electrical durability(times)			10×10^4								
Mechanical durability(times)			100×10^4								
Operation frequency /1h			30								
Coil Voltage Us(V)			AC 24V / AC110V / AC230V / AC380V								
Wiring Ability (mm^2)	Control circuit	Rigid wire	1.5~2.5			2×1.5					
		Flexible wire	1.5~2.5			2×2.5					
	Main ircuit	Rigid wire	1.5~6			6~25			6~35		
		Flexible wire	1.5~4			6~16			6~35		
Fastening torque (N·m)	Main circuit terminal		0.8			3.5					
	Control circuit terminal		0.8								

(3) Rated duty

a) Eight-hour duty

The conventional free air thermal current Ith of a contactor is determined by this basic duty.

b) Intermittent periodic duty

Under this duty, the rated operation frequency shall be 30 times/h and load factor shall be 40% for a contactor.

(4) Action (operation) conditions

As the ambient temperature ranges between -5℃ and 60℃， apply rated control power voltage Us to the magnetic coil of a contactor until it reaches a stable heat condition, when the contactor can be closed up under any voltage within 85%-110% Us with a release voltage of (20%~75%)Us.

Working principle of the product

The working principle of the contactor: Upon energization, the circuit with current will create a magnetic field and generate sufficient magnetic adhesion to overcome counterforce, close armature and connect the contacts. When the coil voltage dies out or reduces to a certain value (i.e. at the state of

voltage release), for the flux generated at the end face of the armature decreases, the magnetic adhesion becomes weaker than the counterforce generated by the reaction spring, contact spring, etc. Under the counterforce, the armature will be released and free from the field yoke, and then the contacts will be disconnected.

Installation, use and maintenance

(1) Installation

a) Before installation, please check whether the actual usage site complies with the use, application scope, technical parameters and conditions of normal operation and installation of the contactor.

b) For installation, pull down the retainer of the contactor, place the contactor on the mounting rail and push up the retainer to fasten the contactor on the rail without lose or fall-off. Pull down the retainer to remove the contactor.

(2) In wiring a contactor, stretch the wire into the wiring hole and tighten the binding screw so that the wire is not loosened or pulled out. The bare copper wire head shall not be exposed outside the terminal;

a) Do not forcefully tweak the binding screws in wiring. Use a proper screwdriver to tighten and unscrew the binding screws on the contactor.

b) After the wiring is confirmed, energize and deenergize the coil for several times when the main contacts are uncharged, so as to check if the product has normal function before the operation.

(3) Maintenance

a) Make regular check on the binding screws in use of the contactor, such as tightening the loose screws, and remove the dust on the shell on a regular basis to maintain a favorable insulativity. In case of loud noise or failed insulation on shell or the product reaches (or approaches) the end of its service life (based on its operating frequency and service time), please replace with a new product immediately.

b) The contactor shall be prevented from exposure to rain or falling during use, storage of transportation.

Overall Dimension of Installation