MODULAR CONTACTOR
AC Contactor

Operating instruction

This product has been approved.
The certification has been issued by TÜV Rheinland Germany. Issued CB Test Report and CE certificate

Safety Warning:

1、 During product installation, do not operate the device while it is powered on to prevent electric shock;

2、 The wiring screws should be tightened securely to prevent the wires from becoming loose, which could lead to poor contact or damage to the product;

3、 The product does not provide protection against electric shock, circuit overload, or equipment leakage current.

1 Applications and Scope of Use

1.1 use

The series AC contactors (hereinafter referred to as "contactors") are control devices designed for the remote switching on and off of inductive or low-inductive loads, resistance furnaces, household appliances and other low-inductive loads, as well as household motors.

1.2 scope of application

The contactor is primarily designed for power systems operating at AC 50 Hz/60 Hz with a rated operating voltage up to 400 V and a rated operating current up to 125 A; it is intended for use as a remote switching and control device under the AC-1 and AC-7a usage categories (for inductive or low-inductive loads, resistance furnaces, household appliances, and similar low-inductive load applications).

The contactor is not intended for interrupting short-circuit currents; therefore, an appropriate short-circuit protection device should be selected for use.

2 Normal operating and installation conditions

2.1 Normal Operating Conditions 2.1.1 Ambient Air Temperature

The maximum ambient air temperature is +60°C, and the minimum ambient air temperature is-20°C.

When a contactor is installed inside a distribution box, spacer plates must be fitted on both sides to facilitate heat dissipation.

2.1.2 height

The installation site's elevation shall not exceed 2000 m.

2.1.3 atmospheric conditions

2.1.3.1 humidity

When the maximum temperature is +60°C and the relative humidity of the air does not exceed 50%, a higher relative humidity is permissible at lower temperatures—for example, up to 90% at 20°C. Special measures should be taken to address condensation that may occasionally occur due to temperature variations;

2.1.3.2 Pollution level: Level 2.

2.2 Installation Requirements

2.2.1 The installation category is Class II.

2.2.2 The installation site shall be free from significant impact or vibration.

2.2.3 Install using the TH35-7.5 steel rail installation kit.

2.2.4 Vertical installation; the inclination of the mounting surface in any direction shall not exceed 5°.

3 Main Technical Specifications

3.1 rated duty

a) The eight-hour workday is the standard working schedule; the rated free-air heating current (Ith) for the contactor is determined based on this workday schedule.

b) The rated operating frequency of the intermittent cyclic-duty contactor under this operating condition is 30 cycles per hour, with a load factor of 40%.

3.2 Action (Operation) Condition

Within the ambient air temperature range of –20°C to +60 °C, when a rated control supply voltage Us is applied to the contactor's attracting coil until the contactor reaches a stable heating state, the contactor shall reliably close at any voltage within the range of (85%–110%) Us; its release voltage shall be between (20%–75%) Us.

3.2 Technical Specifications Table

Parameter \ Model			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
Rated heating current Ith (A)			16	20	25	32	40	63	80	100	125
Rated insulation voltage UI (V)			500								
Rated operating voltage Ue (V)			250V(1P 2P) 400V(3P 4P)								
Number of main contacts		1P	1NO、1NC								
		2P	1NO1NC、2NO、2NC								
		3P	3NO、3NC								
		4P	2NO2NC、3NO1NC、4NO、4NC								
Control 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 service life (cycles)			10×10^4								
Mechanical service life (operational cycles)			100×10^4								
Maximum switch operation count per hour			30								
Rated control power supply voltage Us (V)			AC 24V AC110V AC230V AC380V								
Wiring (mm^2)	Control Return circuit	Rigid line	1.5~2.5			2×1.5					
		Flexible wire	1.5~2.5			2×2.5					
	Power Return circuit	Rigid line	1.5~6			6~25					
		Flexible wire	1.5~4			6~16					
Torsion(N.m)	Power Circuit		0.8			3.5					
	Control Circuit		0.8								

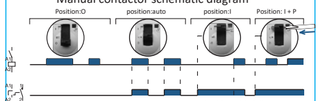
4 Product Working Principle

4.1 Product Main Structure

4.2 operational principle

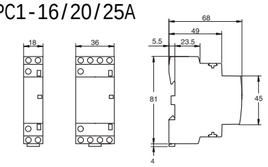
The working principle of a contactor is as follows: when the coil is energized, the coil current generates a magnetic field that produces sufficient electromagnetic attraction to overcome the opposing force, thereby attracting the armature and closing the contacts. When the coil voltage is removed or falls below a certain threshold—known as the release voltage—the magnetic flux generated at the armature's end face decreases, and the electromagnetic attraction begins to be weaker than the opposing forces exerted by the return spring and the contact spring. As a result, the armature is released from the yoke under this opposing force, and the contacts are immediately opened.

Manual contactor schematic diagram



5 outline overall and installing dimensions

EPC1-16/20/25A



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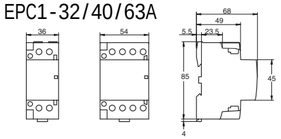

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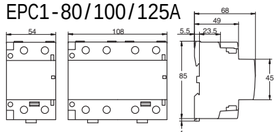

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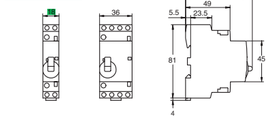

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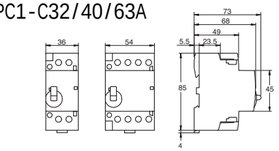
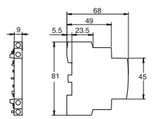


EPC1-MA



6 Installation, Operation and Maintenance

6.1 install

6.1.1 Before installation, first verify whether the actual application environment complies with the contactor's intended use and applicable range, its technical specifications, as well as its normal operating and installation conditions.

6.1.2 During installation, pull the contactor's stopper downward to position the contactor on the mounting rail; then push the stopper upward to secure the contactor firmly on the mounting rail – ensure it does not become loose or fall off. To remove the contactor, simply pull the stopper down to easily detach it.

6.1.3 When connecting a contactor, insert the wire into the terminal hole and then tighten the terminal screw to ensure the wire is securely fastened and not pulled out; exposed copper wire ends must not be exposed outside the terminal block.

6.1.4 When connecting the contactor, do not forcefully tighten the wiring screws; use an appropriate screwdriver when tightening or loosening the screws.

6.1.5 After verifying that the wiring is correct and error-free, the coil should be energized and de-energized several times while the main contacts are de-energized to check whether the device operates reliably; only then should it be put into service.

6.2 maintenance

6.2.1 During the service life of the contactor, the tightness of the wiring screws should be checked periodically; if any loosening is detected, the screws should be tightened promptly. Dust on the housing surface should be cleaned regularly to maintain good insulation performance of the housing. If significant noise is heard during operation or if the housing insulation fails, the contactor should be replaced with a new unit immediately. Based on the product's operating frequency and service duration, when the number of operational cycles reaches (or approaches) the product's service life, the contactor should be replaced with a new unit promptly.

6.2.2 The contactor must not be exposed to rainwater or subjected to drops during use, storage, or transportation.