HONGFA GROUP

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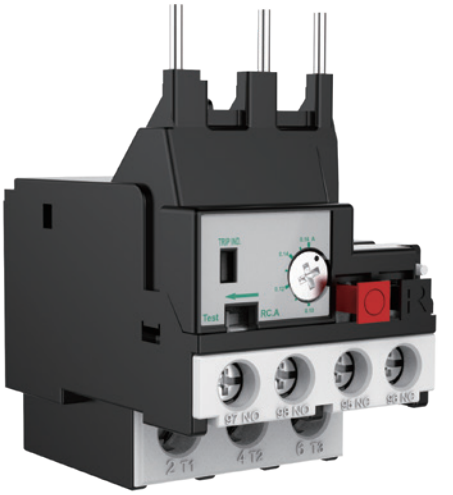
Motor Control and Protection Components

UEC3-06C...25C AC Contactors
UER3 Thermal Overload Relays



CONTENT

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UEC3-06C...25C AC Contactors

UEC3-06...25C AC Contactors

Product Overview

The UEC3-06C...25C AC contactors range to a rated current of 6...25A under the utilization category AC-3 and can be driven by both 50Hz and 60Hz. They can be combined with a thermal overload protection.

Product Features

- The product is exquisite, small in size, light in weight and low in power consumption.
- Wide range of pick up voltage and reliable operation though there's grid voltage fluctuation.
- Strong terminal electroplating protection, competent for high humidity and high salt spray environment application.
- Buffer optimization, less noise of electromagnetic system.
- Full automatic production, stable testing equipment and high product consistency.

Design Features

- Modular accessories like auxiliary contact block, thermal overload relay, etc., can be equipped to meet different applications.
- The main contacts and auxiliary contacts are designed in the same layer to reduce the structure height and save installation space.
- The coil wiring can be either on the same side or on the opposite side, which is convenient for maintenance.
- The installation method can be 35mm DIN rail installation and screw installation, and the installation dimension is compatible with the products of the same category.

Typical Applications

Machinery, manufacturing control, elevator, metallurgy, chemical industry, power management, air conditioning compressor, water pump, conveyor belt, lighting control, heater, and electric vehicles.

Product Appearance

Approval Certificate

CCC	CCC	GB/T 14048.4, GB/T 14048.5
CE	CE	EN 60947-4-1, EN 60947-5-1
VDE	VDE	EN 60947-4-1 (VDE 0660 Teil 102) EN 60947-5-1 (VDE 0660 Teil 200)
c UL us LISTED	UL (cULus LISTED)	UL 60947-4-1, UL 60947-5-1 CAN/CSA C22.2 No. 60947-4-1-14, CSA/CAN 22.2 No. 60947-5-1

Ordering Information

UEC3 Contactors

UEC	3	-	25	C	10	M7

Contactor series

Design series number

Rated operational current at rated operational voltage 400V under AC-3 category

06: 6A **09:** 9A **12:** 12A **18:** 18A **25:** 25A

Product structure

C : C type

Number of built-in auxiliary NO contacts/NC contacts

10: 1NO **01:** 1NC

Coil control voltage (AC supply - 50/60Hz)

B7: 24V **F7:** 110V
CC7: 36V **M7:** 220-230V
E7: 48V **Q7:** 380V

* Other coil versions on request

CA1 Auxiliary Contact Blocks

CA	1	R	22

Auxiliary contact block

Design series number

Mounting type

R: Top mounting

S: Side mounting

Number of auxiliary NO contacts/NC contacts

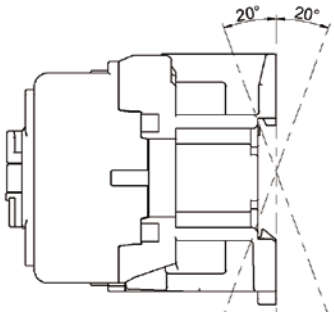
1) CA1R (2P) and CA1S:

11: 1NO+1NC **20:** 2NO **02:** 2NC

2) CA1R(4P):

22: 2NO+2NC **40:** 4NO **31:** 3NO+1NC **13:** 1NO+3NC **04:** 4NC

Technical Data

Parameters \ Model			UEC3-06C	UEC3-09C	UEC3-12C	UEC3-18C	UEC3-25C
Operating environment							
Rated insulation voltage U_i		V	690				
Rated impulse withstand voltage U_{imp}		kV	6				
Conforming to standards			GB/T 14048.4，GB/T 14048.5，IEC/EN 60947-4-1，IEC/EN 60947-5-1 UL 60947-4-1，UL 60947-5-1，CAN/CSA C22.2 No. 60947-4-1-14，CSA/CAN 22.2 No. 60947-5-1				
Certifications			CCC, CE, VDE, UL(cULus LISTED)				
Degree of protection (front only)			Against direct finger contact: IP20				
Ambient air temperature	**Storage**	**°C**	-60…+80				
	Operation	**°C**	-25…+60				
Max. operating altitude		m	3000				
Pollution degree			3				
Mounting category			III				
Mounting type			Screw 35mm DIN rail				
Flame resistance			Current-carrying part: 850°C				
Operating position			Vertical mounting(±20°) 				

Parameters / Model					UEC3-06C	UEC3-09C	UEC3-12C	UEC3-18C	UEC3-25C
Power circuit, 3-pole contactors									
IEC	AC-3	I_e	400V	A	6	9	12	18	25
		Rated operational power	220V/230V	kW	1.5	2.2	3	4	5.5
			380V/400V	kW	2.2	4	5.5	7.5	11
			660V/690V	kW	3	5.5	7.5	10	10
	AC-1	I_e	≤690V	A	20	20	25	32	32
	Conventional thermal current I_{th}			A	20	20	25	32	32
UL CSA	1-phase motor rating		110–120 V	hp	1/2	1/2	3/4	1	-
			200–208 V	hp	3/4	1	2	2	-
			220–240 V	hp	1	1	2	3	3
	3-phase motor rating		200–208 V	hp	2	2	3	5	-
			220–240 V	hp	2	3	3	5	7-1/2
			440–480 V	hp	5	5	7-1/2	10	15
			550–600 V	hp	5	7-1/2	10	15	15
	AC general use rating AC resistance rating		600 V	A	20	20	25	30	30

Built-in auxiliary contacts standard type		1NO or 1NC
Max. electrical operating frequency AC-3/400V	**cycles/h**	1200
Mechanical durability	**10^6 cycles**	10
Max. mechanical operating frequency	**cycles/h**	3600
Auxiliary contact blocks(1)		CA1R, CA1S
Outline dimension W x H x D 	**mm**	45×80×74
Net weight	**kg**	0.31

Note: (1) The max. total number of add-on NO and NC auxiliary contact is 4 besides the build-in auxiliary contact; if more add-on auxiliary contacts are required, please contact us for evaluation.

Technical Data

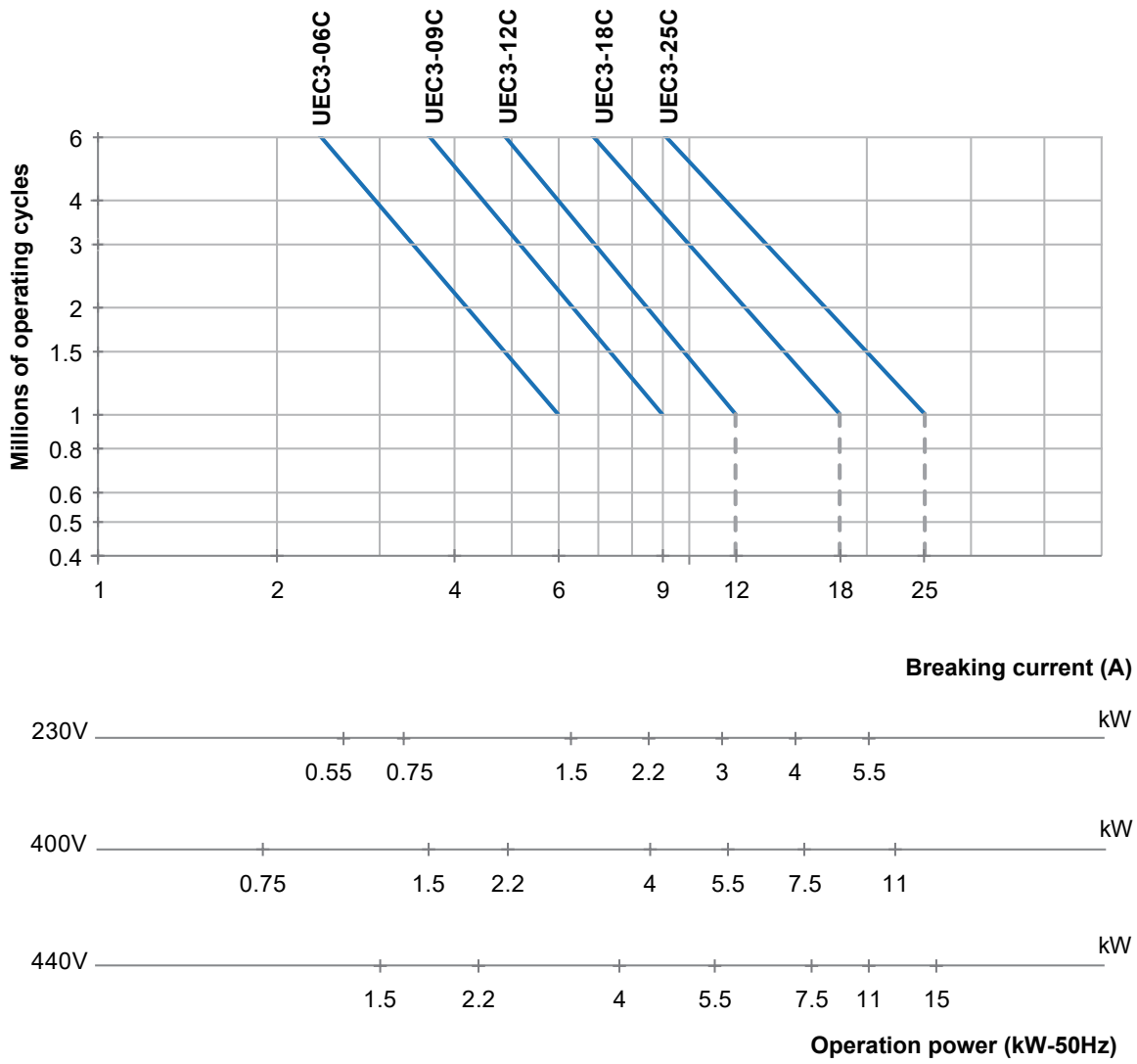
Parameters / Model			UEC3-06C...25C					
Coil control circuit, a.c. supply								
Rated control voltage U_s 50Hz/60Hz		V	24V, 36V, 48V, 110V, 220-230V, 380V					
Control voltage range (Tested at room temperature and cold state)	Operating voltage		$0.65U_s$...$1.2U_s$ 50Hz $0.75U_s$...$1.2U_s$ 60Hz					
	Drop-out voltage		$0.2U_s$...$0.6U_s$					
Max. power consumption at 25°C (for reference)	Inrush	VA	63					
	Sealed	VA	10					
Operating time Between coil energization and	main NO contact	ms	12...22					
	auxiliary NO closing	ms	15...26					
	auxiliary NC opening	ms	4...19					
Operating time Between coil de-energization and	main NO contact	ms	4...19					
	auxiliary NO opening	ms	4...19					
	auxiliary NC closing	ms	12...32					
Built-in auxiliary contacts								
Max. rated operational voltage U_e		V	690					
Max. insulation voltage U_i		V	690					
Min. switching capacity	U_{min}	V	17					
	I_{min}	A	5					
A600 AC-15	Conventional enclosed thermal current I_{the}	A	10					
	Rated operational voltage U_e	V	120	240	380	480	500	600
	Rated operational current	A	6	3	1.9	1.5	1.4	1.2
	Make apparent power VA rating	VA	7200					
	Break apparent power VA rating	VA	720					
P600 DC-13	Conventional enclosed thermal current I_{the}	A	2.5					
	Rated operational voltage U_e	V	125	250	-	400	500	600
	Rated operational current	A	1.1	0.55	-	0.31	0.27	0.2
	Make apparent power VA rating	VA	138					
	Break apparent power VA rating	VA	13					

Parameters \ Model			UEC3-06C...25C
Power circuit connections			
Solid cable without cable end 	1 conductor	mm²	1...4
	2 conductors	mm²	1...4
Flexible cable without cable end 	1 conductor	mm²	1...4
	2 conductors	mm²	1...4
Flexible cable with cable end 	1 conductor	mm²	1...4
	2 conductors	mm²	1...4
Lugs 	L ≤	mm	8.1
	l >	mm	3.7
Connection capacity acc. to UL/CSA	1 conductor	AWG	18-10
	2 conductors	AWG	18-12
Screwdriver	Phillips screwdriver		N°2
	Φ Slotted screwdriver		Φ 6
Tightening torque		Nm	1.2
		lb.in	10.7
Coil circuit connections and Built-in auxiliary circuit connections			
Solid cable without cable end 	1 conductor	mm²	1...4
	2 conductors	mm²	1...4
Flexible cable without cable end 	1 conductor	mm²	1...4
	2 conductors	mm²	1...4
Flexible cable with cable end 	1 conductor	mm²	1...4
	2 conductors	mm²	1...4
Lugs 	L ≤	mm	8.1
	l >	mm	3.7
Connection capacity acc. to UL/CSA	1 conductor	AWG	18-12
	2 conductors	AWG	18-12
Screwdriver	Phillips screwdriver		N°2
	Φ Slotted screwdriver		Φ 6
Tightening torque		Nm	1.2
		lb.in	10.7

Technical Data

Selection table according to endurance

The breaking current (I_c) of AC-3 utilization catalogue is equal to the rated operational current of motor. The characteristic curve in the figure below shows the endurance of the main contact when the contactor is used for making and breaking three-phase (AC-3 $U_e \leq 440V$) inductive load.



Example:

Asynchronous motor: P = 4 kW, U_e = 400 V, I_e = 8.5 A, Ic = I_e = 8.5 A

Or asynchronous motor: P =4 kW, U_e = 415 V, I_e = 8.5 A, I_c = I_e = 8.5 A

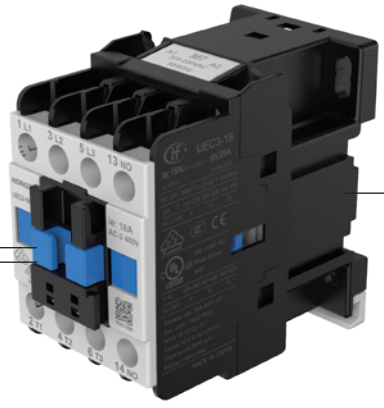
Need electrical endurance of 1 million cycles.

Above selective curve shows that the contactor part number is UEC3-09C.

Accessories - auxiliary contact blocks

Top mounting auxiliary contact block
CA1R (4 poles)

Top mounting auxiliary contact block
CA1R (2 poles)



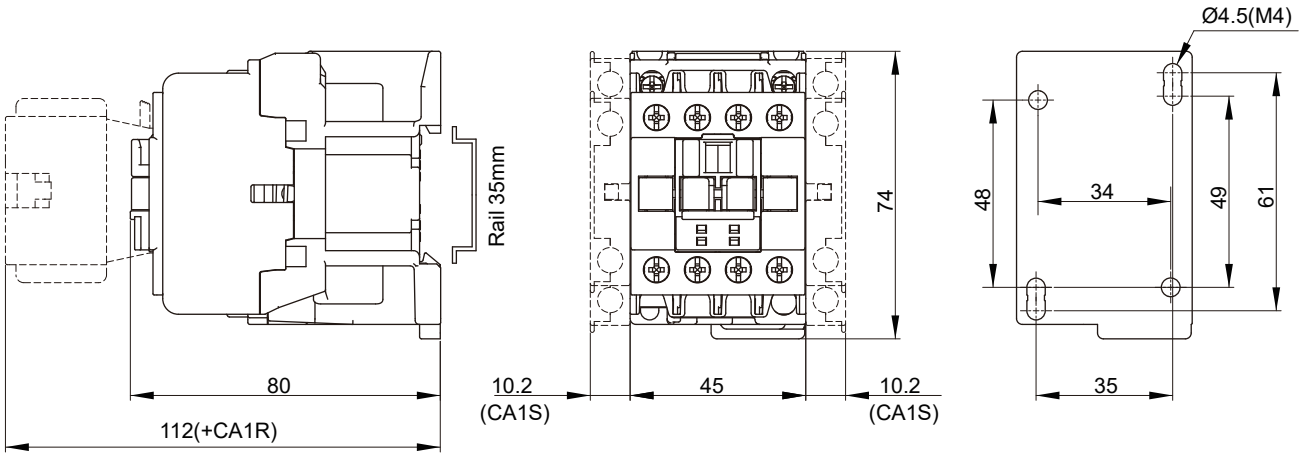
Contactor UEC3

Side mounting auxiliary contact block
CA1S (2 poles)

Accessories - auxiliary contact blocks

Parameters \ Model			CA1R, CA1S					
Standards			GB/T 14048.5, IEC/EN 60947-5-1, UL 60947-5-1(CSA/CAN 22.2 No. 60947-5-1）					
Certifications			CCC, CE, VDE, UL(cULus LISTED)					
Degree of protection			IP20					
Ambient air temperature	Storage	°C	-60…+80					
	Operation	°C	-25…+60					
Max. operating altitude		m	3000					
Solid cable without cable end	1 conductor	mm²	1…4					
	2 conductors	mm²	1…4					
Flexible cable without cable end	1 conductor	mm²	1…4					
	2 conductors	mm²	1…4					
Flexible cable with cable end 	1 conductor	mm²	1…4					
	2 conductors	mm²	1…2.5					
Lugs 	L ≤	mm	8.1					
	I >	mm	3.7					
Connection capacity acc. to UL/CSA	1 conductor	AWG	18-10					
	2 conductors	AWG	18-10					
Screwdriver	Phillips screwdriver		N°2					
	Φ Slotted screwdriver		Φ6					
Tightening torque		Nm	1.2					
		lb.in	11					
Max. rated operating voltage U_e		V	690					
Max. insulation voltage U_i		V	690					
Min. switching capacity	U_{min}	V	17					
	I_{min}	mA	5					
A600 AC-15	Conventional enclosed thermal current I_{the}	A	10					
	Rated operational voltage U_e	V	120	240	380	480	500	600
	Rated operational current	A	6	3	1.9	1.5	1.4	1.2
	Make apparent power VA rating	VA	7200					
	Break apparent power VA rating	VA	720					
Q600 DC-13	Conventional enclosed thermal current I_{the}	A	2.5					
	Rated operational voltage U_e	V	125	250	-	400	500	600
	Rated operational current	A	0.55	0.27	-	0.15	0.13	0.1
	Make apparent power VA rating	VA	69					
	Break apparent power VA rating	VA	69					
For use on contactors			UEC3-06…25					

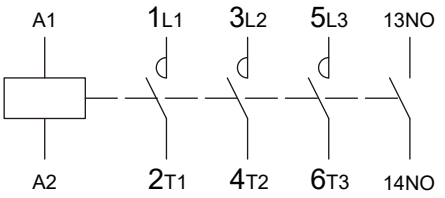
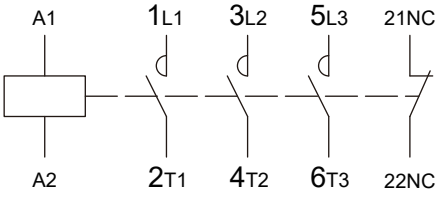
Dimensions



UEC3-06C, UEC3-09C, UEC3-12C, UEC3-18C, UEC3-25C

Note: The unit is mm. The tolerance for mounting holes: ± 0.5; for other external dimensions: ± 1.5, unless otherwise specified.

Circuit Diagram

UEC3-06C10 UEC3-09C10 UEC3-12C10 UEC3-18C10 UEC3-25C10	
UEC3-06C01 UEC3-09C01 UEC3-12C01 UEC3-18C01 UEC3-25C01	

Reference Selection Table

UEC3 contactors

IEC			UL/CSA			Number of poles	Built-in auxiliary contacts		Coil control voltage(1) 50Hz/60Hz	Reference	Net weight (1PC)
Standard power ratings of 3-phase motors 50Hz/60Hz in category AC-3 (θ≤60°C)		Rated operational current	3-phase motor rating		General use rating						
220 V 230 V	380 V 400 V	400 V	220 V 240 V	440 V 480 V	600 V						
kW	kW	A	hp	hp	A				V		kg
1.5	2.2	6	2	5	20	3	0	1	24	UEC3-06C01B7	0.31
									110	UEC3-06C01E7	
									220-230	UEC3-06C01M7	
									380	UEC3-06C01Q7	
							1	0	24	UEC3-06C10B7	
									110	UEC3-06C10E7	
									220-230	UEC3-06C10M7	
									380	UEC3-06C10Q7	
2.2	4	9	3	5	20	3	0	1	24	UEC3-09C01B7	0.31
									110	UEC3-09C01E7	
									220-230	UEC3-09C01M7	
									380	UEC3-09C01Q7	
							1	0	24	UEC3-09C10B7	
									110	UEC3-09C10E7	
									220-230	UEC3-09C10M7	
									380	UEC3-09C10Q7	
3	5.5	12	3	7-1/2	25	3	0	1	24	UEC3-12C01B7	0.31
									110	UEC3-12C01E7	
									220-230	UEC3-12C01M7	
									380	UEC3-12C01Q7	
							1	0	24	UEC3-12C10B7	
									110	UEC3-12C10E7	
									220-230	UEC3-12C10M7	
									380	UEC3-12C10Q7	
4	7.5	18	5	10	30	3	0	1	24	UEC3-18C01B7	0.31
									110	UEC3-18C01E7	
									220-230	UEC3-18C01M7	
									380	UEC3-18C01Q7	
							1	0	24	UEC3-18C10B7	
									110	UEC3-18C10E7	
									220-230	UEC3-18C10M7	
									380	UEC3-18C10Q7	
5.5	11	25	7-1/2	15	30	3	0	1	24	UEC3-25C01B7	0.31
									110	UEC3-25C01E7	
									220-230	UEC3-25C01M7	
									380	UEC3-25C01Q7	
							1	0	24	UEC3-25C10B7	
									110	UEC3-25C10E7	
									220-230	UEC3-25C10M7	
									380	UEC3-25C10Q7	

Note :

(1) Coil control voltage code as followed (other coil versions on request).

Coil control voltage (V) (50Hz/60Hz)	24	36	48	110	220-230	380
Coil control voltage code	**B7**	**CC7**	**E7**	**F7**	**M7**	**Q7**

CA1 auxiliary contact blocks

Mounting type		Switching capacity	Auxiliary contacts[1]		Reference	Net weight (1 pc)
						kg
Top mounting		A600 Q600	0	2	**CA1R02**	0.035
			1	1	**CA1R11**	
			2	0	**CA1R20**	
			0	4	**CA1R04**	0.066
			1	3	**CA1R13**	
			2	2	**CA1R22**	
			3	1	**CA1R31**	
			4	0	**CA1R40**	
Side mounting			1	1	**CA1S11**	0.040

Note:

[1] All the above auxiliary contacts are all instantaneous auxiliary contacts.

Information for Use

Altitude dependent compensation factor

- The rarefied atmosphere at high altitude reduces the dielectric strength of the air and hence the rated operational voltage of the contactor. It also reduces the cooling effect of the air and hence the rated operational current of the contactor (unless the temperature drops at the same time).

- At an altitude of less than 3000m, no significant effect on the performance of the product. When the altitude is above 3000m, conditions of air cooling and decrease of rated impulse withstand voltage have to be considered, so the design and application need to be further communicated with manufacturer.
  Correction coefficients of operational voltage and operational current when the altitude is above 3000m are described as below.

Altitude(m)	Rated operational voltage	Rated operational current
≤3500	0.90	0.92
≤4000	0.80	0.90
≤4500	0.70	0.88
≤5000	0.60	0.86

Technical parameter explanation

- Parameters contained in this catalogue such as electrical durability and mechanical durability are based on standard samples' test results, and the actual use may differ from these due to the difference of environment, operating frequency, devices etc.