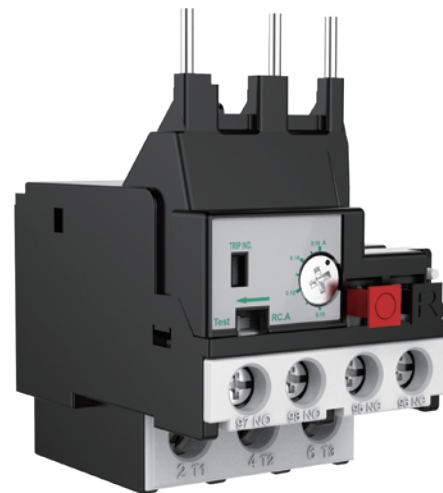


Motor Control and Protection Components

UEC3-06N...18N Series AC Contactors
UER3 Series Thermal Overload Relays



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UEC3-06N...18N AC Contactors

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NOTE:

The contents and data in this catalogue are not binding. We reserve the right to modify the contents of this document on the basis of technical development of the products, without prior notice. The real order requirements and technical agreements shall prevail.

UEC3 Series

Product Overview

The UEC3-06N...18N AC contactors range to a rated current of 6...18A 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	GB/T 14048.4, GB/T 14048.5
	CE	EN 60947-4-1, EN 60947-5-1
	VDE	EN 60947-4-1 (VDE 0660 Teil 102) EN 60947-5-1 (VDE 0660 Teil 200)
	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

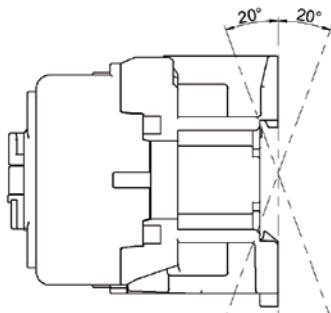
UEC3 Contactors

	UEC	3	-	06	N	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							
Product structure							
N: N 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							
Coil structure type code							
No code(Blank) :Coil with two wiring terminals(Standard type)							
S: Coil with three wiring terminals							



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

Model		UEC3-06N	UEC3-09N	UEC3-12N	UEC3-18N
Parameters					
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°) 			











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

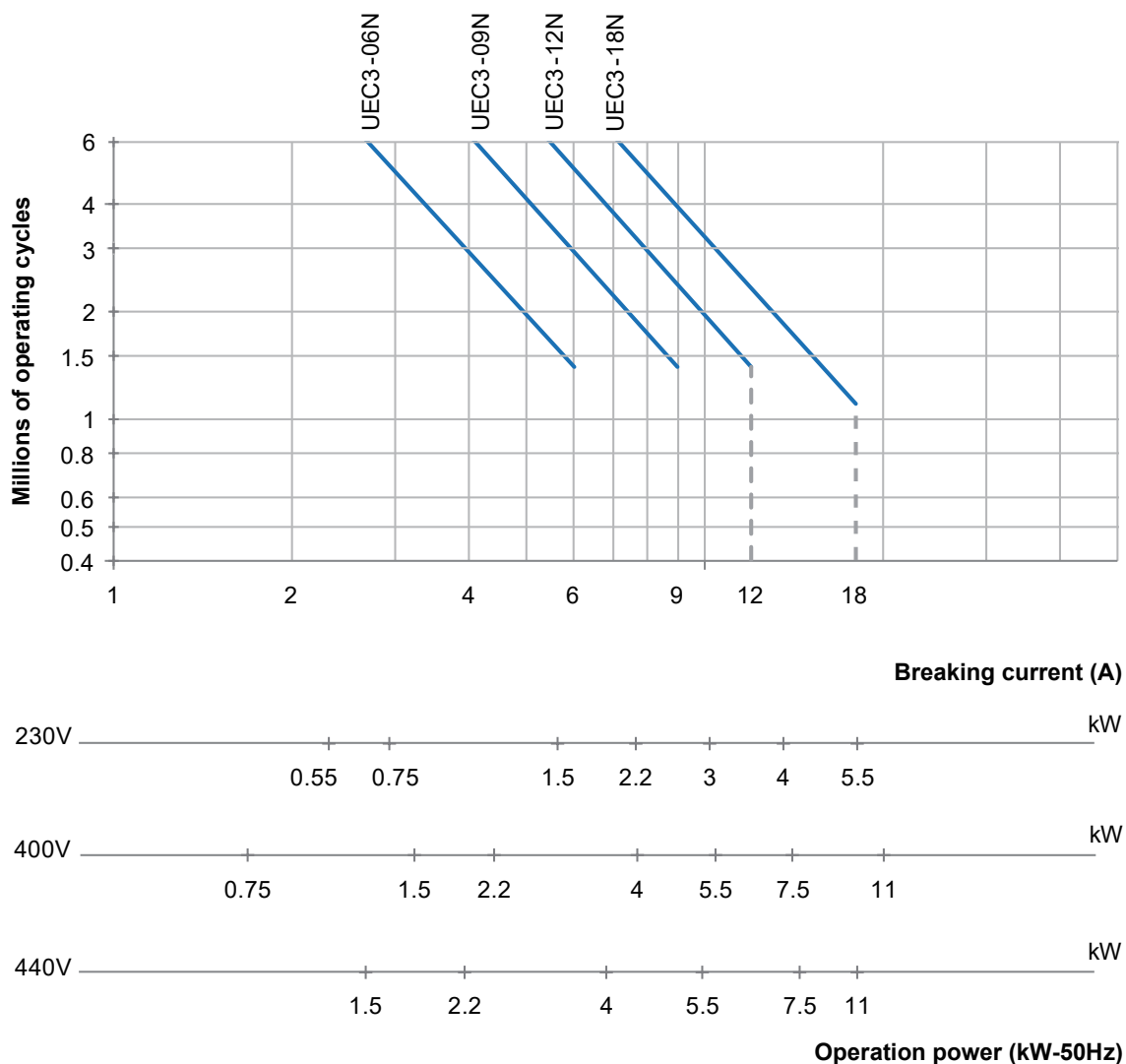
Parameters		Model	UEC3-06N...18N					
Coil control circuit, a.c. supply								
Rated control voltage U _s 50Hz/60Hz		V	24V, 36V, 48V, 110V, 220-230V, 380V					
Control voltage range (Tested at room temperature and cold state)	Operating voltage		0.65U _s ...1.2U _s 50Hz					
			0.75U _s ...1.2U _s 60Hz					
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 closing	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 opening	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	UEC3-06N...18N
Power circuit connections			
Solid cable without cable end 	1 conductor	mm ²	1...4
	2 conductors	mm ²	1...4
Flexible cable without cable end 	1 conductor	mm ²	1...4
	2 conductors	mm ²	1...4
Flexible cable with cable end 	1 conductor	mm ²	1...4
	2 conductors	mm ²	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	mm ²	1...4
	2 conductors	mm ²	1...4
Flexible cable without cable end 	1 conductor	mm ²	1...4
	2 conductors	mm ²	1...4
Flexible cable with cable end 	1 conductor	mm ²	1...4
	2 conductors	mm ²	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: $P = 4kW$, $U_e = 400V$, $I_e = 8.5A$, $I_c = I_e = 8.5A$

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

Need electrical endurance of 1.5 million cycles.

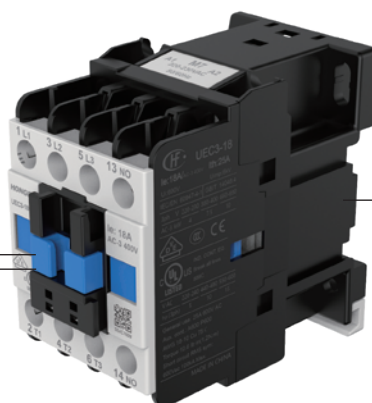
Above selective curve shows that the contactor part number is UEC3-09N.

Accessories - auxiliary contact blocks

Top mounting auxiliary contact block
CA1R (4 poles)



Top mounting auxiliary contact block
CA1R (2 poles)







Contactor UEC3

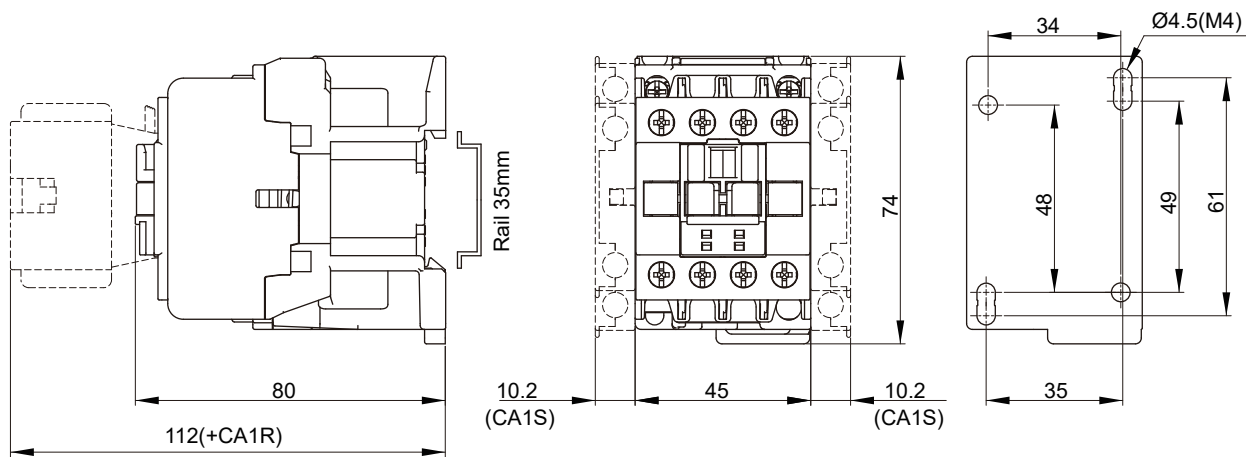
Side mounting auxiliary contact block
CA1S (2 poles)



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	mm ²	1...4						
	2 conductors	mm ²	1...4						
Flexible cable without cable end 	1 conductor	mm ²	1...4						
	2 conductors	mm ²	1...4						
Flexible cable with cable end 	1 conductor	mm ²	1...4						
	2 conductors	mm ²	1...2.5						
Lugs 	L ≤	mm	8.1						
	L >	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...18						

Dimensions



UEC3-06N, UEC3-09N, UEC3-12N, UEC3-18N


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

Circuit Diagram

UEC3-06N10 UEC3-09N10 UEC3-12N10 UEC3-18N10	
UEC3-06N01 UEC3-09N01 UEC3-12N01 UEC3-18N01	

Reference Selection Table

UEC3 series contactors






IEC			UL/CSA			Number of poles	Built-in auxiliary contacts		Coil control voltage ⁽¹⁾ 50Hz/60Hz	Reference	Net weight (1 pc)
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						
1.5	2.2	6	2	5	20	3	0	1	24	UEC3-06N01B7	0.31
									110	UEC3-06N01E7	
									220-230	UEC3-06N01M7	
									380	UEC3-06N01Q7	
							1	0	24	UEC3-06N10B7	
									110	UEC3-06N10E7	
									220-230	UEC3-06N10M7	
									380	UEC3-06N10Q7	
2.2	4	9	3	5	20	3	0	1	24	UEC3-09N01B7	0.31
									110	UEC3-09N01E7	
									220-230	UEC3-09N01M7	
									380	UEC3-09N01Q7	
							1	0	24	UEC3-09N10B7	
									110	UEC3-09N10E7	
									220-230	UEC3-09N10M7	
									380	UEC3-09N10Q7	
3	5.5	12	3	7-1/2	25	3	0	1	24	UEC3-12N01B7	0.31
									110	UEC3-12N01E7	
									220-230	UEC3-12N01M7	
									380	UEC3-12N01Q7	
							1	0	24	UEC3-12N10B7	
									110	UEC3-12N10E7	
									220-230	UEC3-12N10M7	
									380	UEC3-12N10Q7	
4	7.5	18	5	10	30	3	0	1	24	UEC3-18N01B7	0.31
									110	UEC3-18N01E7	
									220-230	UEC3-18N01M7	
									380	UEC3-18N01Q7	
							1	0	24	UEC3-18N10B7	
									110	UEC3-18N10E7	
									220-230	UEC3-18N10M7	
									380	UEC3-18N10Q7	

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.

UER3 Series

Product Overview

The UER3-40 of thermal overload relay ranges up to an insulation voltage of 690V and an operational voltage of 690V, and can be driven by both 50Hz and 60Hz. It can provide current overload protection and phase loss protection, and the setting current is adjustable(0.1...38A). It is also with the function of temperature compensation, action indication, automatic and manual reset and stop, etc.

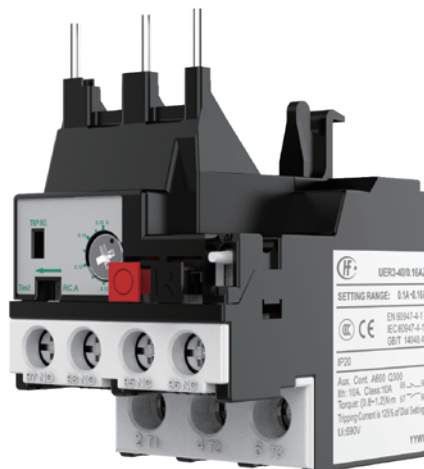
Product Features

- Temperature self-compensation design can adjust the compensation to improve the reliability of products.
- Auxiliary contact design of 1NO + 1NC can be used for the control of two different power sources.
- With manual reset and automatic reset switching button, easy for switching.

Approval Certificate

CE	CE	EN 60947-4-1, EN 60947-5-1
CCC	CCC	GB/T 14048.4, GB/T 14048.5

Product Appearance



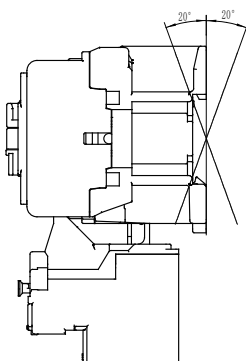
Ordering Information








	UER	3	-	40	/	0.16	A	Z
Thermal overload relays								
Design series number								
Reference code								
40: Setting current 0.1...38A								
Code for the current setting range: See Table 1								
Function								
A: Three phase overload protection and phase loss protection								
B: Three phase overload protection								
Mounting method								
Z: Combined mounting (Direct mounting on contactor)								

Table 1

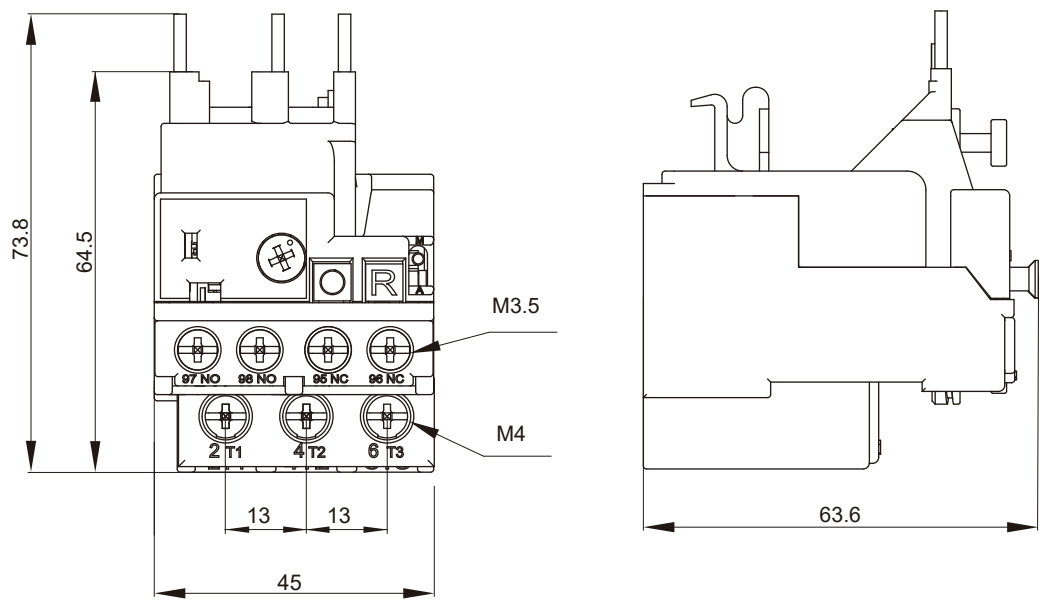
Type	Code for the current setting range	
	Code	Current setting range (A)
UER3-40	0.16	0.1...0.16
	0.25	0.16...0.25
	0.4	0.25...0.4
	0.5	0.35...0.5
	0.63	0.45...0.63
	0.8	0.55...0.8
	1.0	0.75...1.0
	1.3	0.9...1.3
	1.6	1.1...1.6
	2.0	1.4...2.0
	2.5	1.8...2.5
	3.2	2.3...3.2
	4.0	2.9...4.0
	4.8	3.5...4.8
	6.3	4.5...6.3
	7.5	5.5...7.5
	10	7.2...10
	12.5	9...12.5
	16	11.3...16
	20	15...20
	21.5	17.5...21.5
	25	21...25
	30	24.5...30
	36	29...36
	38	33...38

Technical Data

Parameters		Type	UER3-40						
Operating environment									
Rated insulation voltage U_i (V)			690						
Rated impulse withstand voltage U_{imp} (kV)			6						
Tripping class			10A						
Degree of protection (front only)			IP20						
Ambient air temperature (°C)	Storage		-40...+70						
	Operation		-5...+60						
Pollution degree			3						
Mounting type	Combined mounting		Plug connect with AC contactor						
	Independent mounting		Screw or 35mm DIN rail						
Flame resistance			Current-carrying part: 850°C						
Operating position			Vertical mounting(±20°) 						
Built-in auxiliary contacts									
Number of auxiliary contacts			1NO+1NC						
Highest rated operation voltage U_e (V)			690						
Rated 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						
Q300 DC-13	Conventional enclosed thermal current I_{the} (A)		2.5						
	Rated operational voltage U_e (V)		125	250	-	-	-	-	
	Rated operational current (A)		0.55	0.27	-	-	-	-	
	Make apparent power VA rating (VA)		69						
	Break apparent power VA rating (VA)		69						

Parameters		Type	UER3-40
Power circuit connections			
Solid cable without cable end 	1 conductor (mm ²)		1...6
	2 conductors (mm ²)		
Flexible cable without cable end 	1 conductor (mm ²)		1...6
	2 conductors (mm ²)		
Flexible cable with cable end 	1 conductor (mm ²)		1...6
	2 conductors (mm ²)		
Screwdriver	Philips screwdriver		N° 2
	Φ Slotted screwdriver		Φ6
Tightening torque (Nm)			2.2
Built-in auxiliary circuit connections			
Solid cable without cable end 	1 conductor (mm ²)		1...2.5
	2 conductors (mm ²)		
Flexible cable without cable end 	1 conductor (mm ²)		
	2 conductors (mm ²)		
Flexible cable with cable end 	1 conductor (mm ²)		
	2 conductors (mm ²)		
Lugs 	L mm≤		8.1
	l mm>		3.7
Screwdriver	Philip screwdriver		N° 2
	Φ Slotted screwdriver		Φ6
Tightening torque (Nm)			1.2

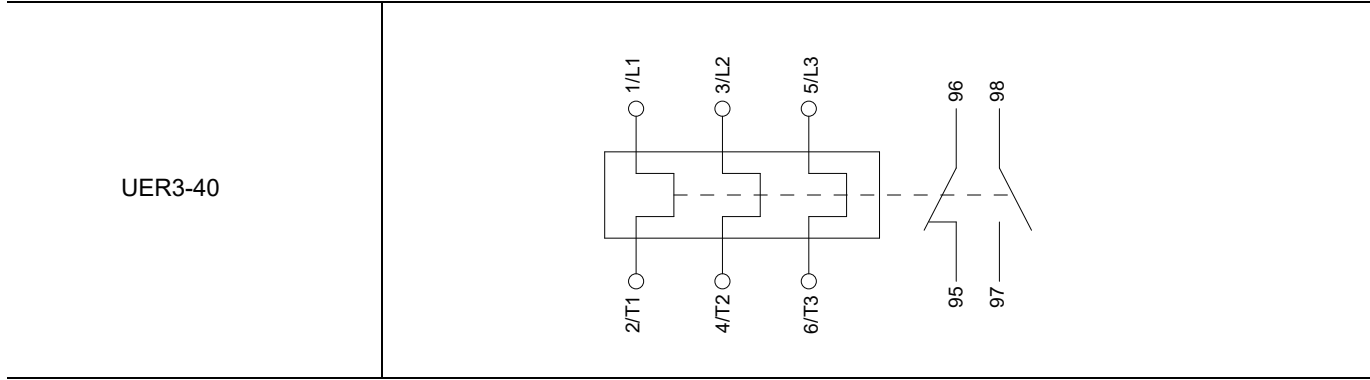
Dimensions



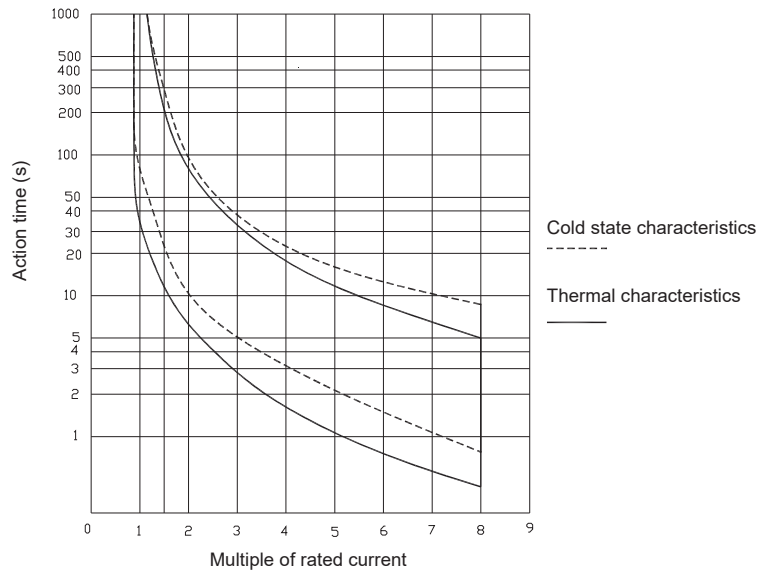
UER3-40/□□Z

Note: The unit is mm. The tolerance for dimensions: ± 2, unless otherwise specified.

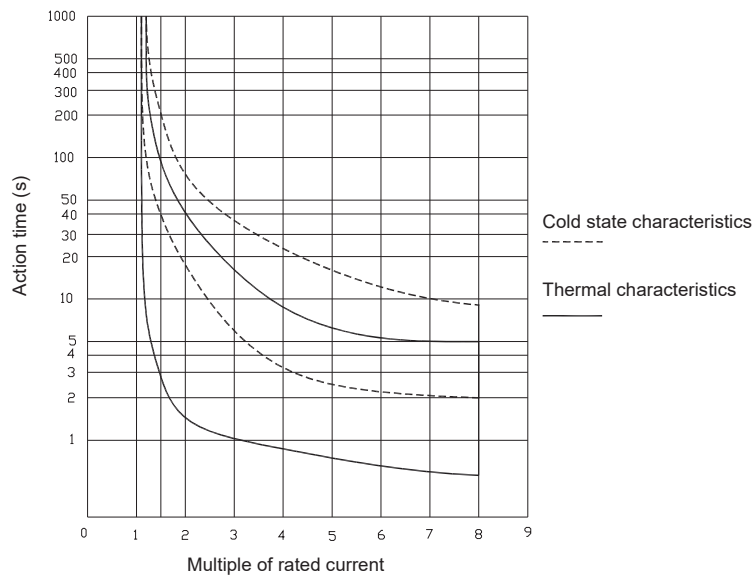
Circuit Diagram



Tripping Curve



Action time characteristics of UER3-40 phase loss



Action time characteristics of UER3-40 three phase overload

Reference Selection Table

UER3-40 thermal overload relay

Type	Current setting range	Coordinate with fuse		Net weight
Combined mounting	A	aM A	gG A	kg
UER3-40/0.16AZ	0.1...0.16	0.25	2	0.114
UER3-40/0.25AZ	0.16...0.25	0.5	2	0.114
UER3-40/0.4AZ	0.25...0.4	1	2	0.114
UER3-40/0.5AZ	0.35...0.5	1	2	0.114
UER3-40/0.63AZ	0.45...0.63	1	2	0.114
UER3-40/0.8AZ	0.55...0.8	1	2	0.114
UER3-40/1.0AZ	0.75...1.0	2	4	0.114
UER3-40/1.3AZ	0.9...1.3	2	4	0.114
UER3-40/1.6AZ	1.1...1.6	2	4	0.114
UER3-40/2.0AZ	1.4...2.0	4	6	0.114
UER3-40/2.5AZ	1.8...2.5	4	6	0.114
UER3-40/3.2AZ	2.3...3.2	4	6	0.114
UER3-40/4.0AZ	2.9...4.0	6	10	0.114
UER3-40/4.8AZ	3.5...4.8	6	10	0.114
UER3-40/6.3AZ	4.5...6.3	8	16	0.114
UER3-40/7.5AZ	5.5...7.5	12	20	0.114
UER3-40/10AZ	7.2...10	12	20	0.114
UER3-40/12.5AZ	9...12.5	16	25	0.114
UER3-40/16AZ	11.3...16	20	35	0.114
UER3-40/20AZ	15...20	25	50	0.114
UER3-40/21.5AZ	17.5...21.5	25	50	0.114
UER3-40/25AZ	21...25	25	50	0.114
UER3-40/30AZ	24.5...30	40	63	0.114
UER3-40/36AZ	29...36	40	63	0.114
UER3-40/38AZ	33...38	40	100	0.114

Note: "A" (stand for three phase overload protection and phase lost protection) can be changed to "B" (stand for three phase overload protection).
For more information about the reference, please refer to the details in page 18.

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