



## The U-Series: Hybrid No-Arc Contactors

### New Generation AC Contactor



#### General:

The KS-U series (arc-free) hybrid contactors are a new generation AC contactors and combine an electronic semiconductor control module with a commercially available mechanical contact. Under the use of several patented processes, they combine the advantages of mechanical contacts with their low energy consumption with the arc-free switching operations of semiconductor relays. As a result, the contactors can be switched on or off without an arc, therefore they have a dozens of times longer service life compared to conventional contactors. It is an environmentally friendly, energy-saving, safe and explosion-proof high-tech product with an ultra long service life.

#### Applications:

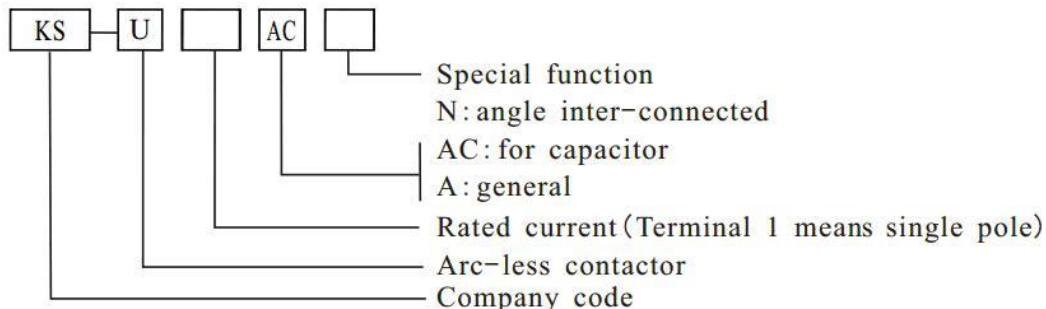
Applicable for current systems with a low-voltage AC frequency of 50/60 Hz and a rated operating current of up to 250 A for the remote-controlled disconnection or connection of a power circuit. Together with various protective devices, an electromagnetic starter can be formed which is suitable for demanding application scenarios such as switching of power factor compensation capacitors, control of electric motors and electric heating systems as well as other loads.

#### Features:

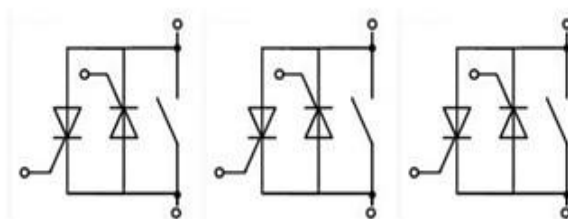
1. Circuit for real-time sampling, short connection time for arc suppression modules (theoretically equal or less than the sine half wave), strong overload capability and high reliability.
2. Good explosion protection due to arc-free operation, no burn-out of the electrical contacts, low and stable contact resistance, ultimate longevity.
3. Interconnection at zero crossing of the voltage, no surge currents (AC), disconnection at zero crossing of the current, no switching over voltages and no harmonic pollution.
4. Unique and special pulse start circuit, DC coil, thyristor-based starting, ultra-long life of the starter, and incombustible coil, are offering additional advantages such as high switching frequency and reliability with the usual electromagnetic coils and ultra-low energy consumption with DC versions.
5. Removable cover to facilitate the inspection of the main contact.



## Product Code:



## Operating Principle:



The thyristor is put into operation when a voltage difference is present between the ends of the main contact at the moment the main contact is switched on or off. In this case, arc-free disconnection or connection of the contactor is made possible by branching off the main contact through the thyristor. The working principle can be found in the figure above.

## KS-U40/63/80/100 Product Parameters Table:

Parameter \ Type	U40A	U63A	U40AC	U63AC	U80A	U100A	U80AC	U100AC
Main rated working current	40A	63A	40A	63A	80A	100A	80A	100A
Rated heating current	60A	80A	60A	80A	100A	120A	100A	120A
Rated controlling voltage①	220 110 AC (75%~120%)							
Rated working voltage	450V							
Withstand voltage	>1500V/AC							
Keeping voltage	20%~50%Ue							
Keeping power consumption	1. 8W							
Starting mode	Transistor pulse							
Working environment temperature	-25℃~+50℃							
Electrical life	>100million times							
Mechanical endurance	>500million times							
Total weight	2KG		2. 1KG		2. 4KG		2. 5KG	
Auxiliary contacts	2normally open/close		Optional		2normally open/close		Optional	
Operating frequency (AC-3)	1000cycles/h		--		1000cycles/h		--	
Operating frequency (AC-4)	600cycles/h		--		600cycles/h		--	
Control capacity②	≤30KVA	≤45KVA	≤30KVAR	≤45KVAR	≤50KVA	≤65KVA	≤50KVAR	≤65KVAR
Residual voltage check	--		Yes		--		Yes	



## KS-U125/160/200/250 Product Parameters Table:

Parameter / Items	Type	U125A	U160A	U125AC	U160AC	U200A	U250A	U200AC	U250AC
Main rated working current		125A	160A	125A	160A	200A	250A	200A	250A
Rated heating current		150A	180A	150A	180A	220A	250A	220A	250A
Rated controlling voltage①		220 110 AC (75%~120%)							
Rated working voltage		450V 790V 1350V		450V	450V 790V 1350V			450V	
Withstand voltage		>1500V/AC							
Keeping voltage		20%~50%Ue							
Keeping power consumption		3W							
Starting mode		Transistor pulse							
Working environment temperature		-25℃~+50℃							
Electrical life		>100million times							
Mechanical endurance		>500million times							
Total weight		5KG		5.2KG		5.5KG		5.7KG	
Auxiliary contacts		2normally open/close		Optional		2normally open/close		Optional	
Operating frequency (AC-3)		1000cycles/h		--		1000cycles/h		--	
Operating frequency (AC-4)		600cycles/h		--		600cycles/h		--	
Control capacity②		≤80KVA	≤100KVA	≤80KVAR	≤100KVAR	≤130KVA	≤165KVA	≤130KVAR	≤165KVAR
Residual voltage check		--		Yes		--		Yes	

①The customer can choose the Aux.control voltage 5V/9V/12V/24V/36V/48V.

②The load capacity when the angle exter-connected common control is applied under the condition with 380V main circuit.Terminal “N” represents the load capacity increase 1.7 times when the angle inter-connected common control is applied .

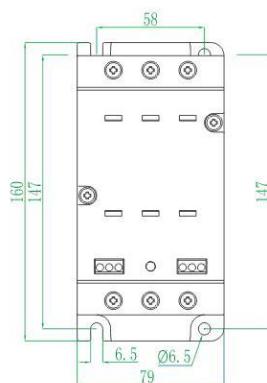
Note :

KS-UXXAC is capacitor load dedicated type, have the cross-zero input function and auxiliary switch to be choosed.

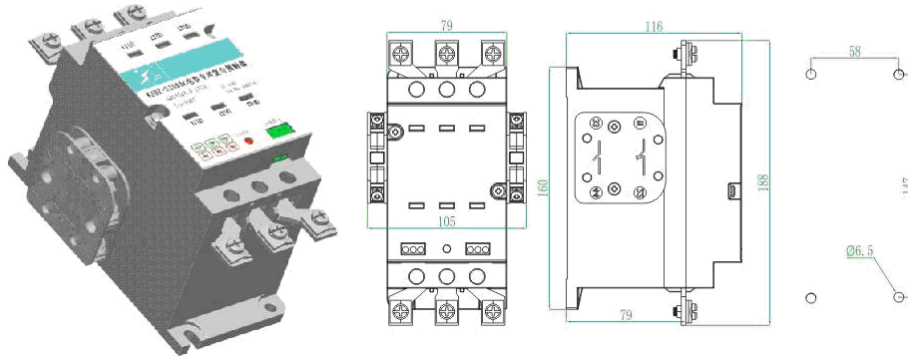
KS-UXXA is general type, have not the cross-zero input function and Auxiliary switch.

## UXX Products Configuration and Installation(Unit: mm):

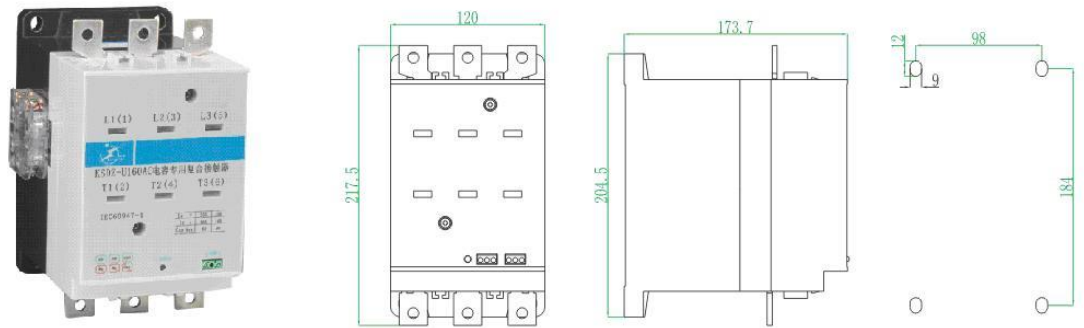
KS-U40、63



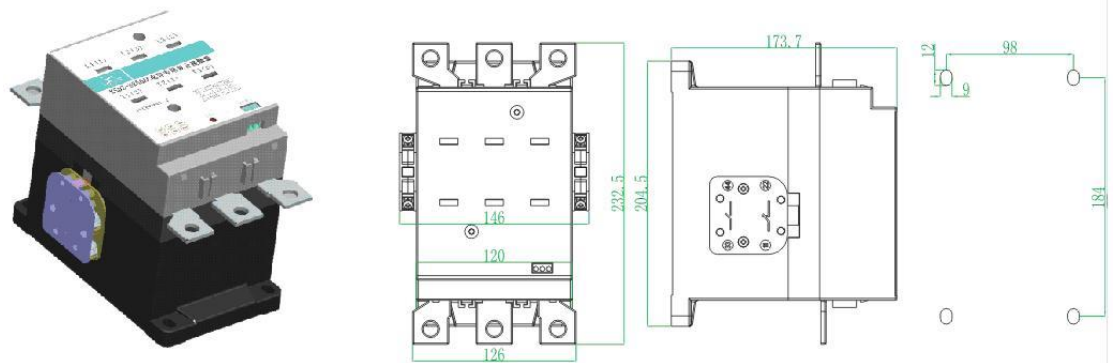
## KS-U80/100



## KS-U125、160



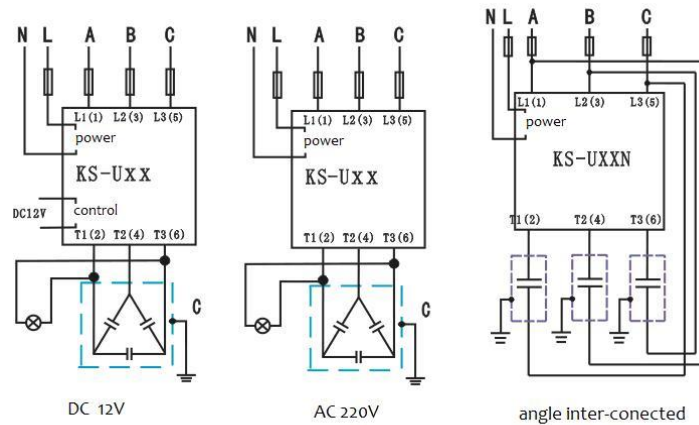
## KS-U200、250





**Appel Innovation Ltd., Reg. No.: 2458246**  
**1A-1L Tung Choi Street, 20F Witty Commercial Bldg., Mong Kok, Kowloon, Hong Kong**  
**email: contact@appelinnovation.com, website: http://www.appelinnovation.com**

### UXX Wiring Diagram:



(Note: Load capacitor can be other loads)

### KS-U801/1251/1601/2501 Product Parameters Table:

Parameter Items	Type								
		U801A	U1251A	U1601A	U2501A	U801AC	U1251AC	U1601AC	U2501AC
Main rated working current		80A	125A	160A	250A	80A	125A	160A	250A
Rated heating current		120A	160A	180A	270A	120A	160A	180A	280A
Rated controlling voltage①		380 220 110 AC (75%~120%)50Hz AC							
Rated working voltage		220V	450V	790V	1350V	220V	450V	790V	
Withstand voltage		>1500V/AC							
Keeping voltage		20%~50%Ue							
Operating frequency (AC-3)		1000cycles/h							
Operating frequency (AC-4)		600cycles/h							
Working environment temperature		-25℃~+50℃							
Electrical life		>100million times							
Mechanical endurance		>500million times							
Residual voltage check		--				Yes			
Control capacity②		≤15KVA	≤25KVA	≤35KVA	≤50KVA	≤15KVAR	≤25KVAR	≤35KVAR	≤50KVAR
Keeping power consumption		1.8W		2W		2W		2.5W	
Total weight		1.8KG		1.9KG		1.8KG		1.9KG	

①The customer can choose the Aux.control voltage 5V/9V/12V/24V/36V/48V.

②The load capacity under the main voltage is 220V.

Note :

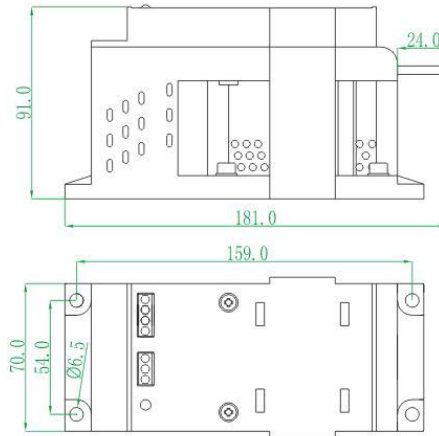
KS-UXX1AC is capacitive load dedicated type, with the cross-zero input function, has auxiliary switch to choose.

KS-UXX1A is normal type,no have the cross-zero input function and no Auxiliary switch.

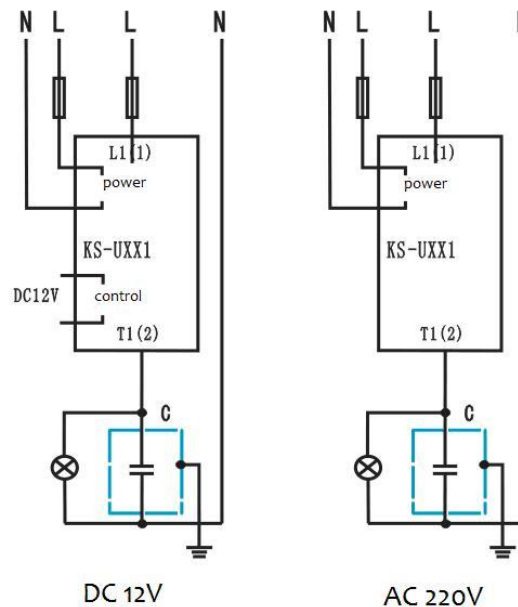


## UXX1 Products Configuration and Installation Size(Unit: mm):

UXX1



## UXX1 Wiring Diagram:



## Operation Conditions:

- 1.Environment temperature:  $-25\text{ }^{\circ}\text{C}\sim+50\text{ }^{\circ}\text{C}$
- 2.Installation elevation : less than 2000 m
- 3.Relative humidity: less than 95%
- 4.Pollution levels: levels 3
- 5.Installation category: III category
- 6.Mounting limitation: incline angle shall be less than  $\pm 5$  degree from mounting surface to vertical line; Mounting surface shall be no vibration, no outside impact and no movement at all
- 7.Impact vibration: Check name plate of contactor for proper voltage and power.

## Caution:

- 1.The main circuit can't be used in the DC circuit.
- 2.If the main circuit use in the parallel circuit or positive and negative conversion phase circuit of motor, please apply for technical support
- 3.You must check the technology parameter before installation.
4. In case of one of the below mentioned conditions are fulfilled , please check the contactor immediately.
  - a.Operating over 200.000 times;
  - b.Operating anomaly ;
  - c.Running for half a year from the beginning