

## 1. Application

KCM1 series moulded case circuit breaker is one of products developed and manufactured by adopting international advanced technology. It is supplied with rated insulating voltage 550 and 800V and used for circuit of AC 50/60Hz, rated operating voltage AC 400V (or below), rated operating current up to 1600A for infrequent changing over and starting of the motors. The products conforms to IEC60947-2 standard.



## 2. Specification

### 2.1 Main Technical Specification(table1)

Type	Rated current (A)	Pole number	Rated insulating voltage(V)	Rated operating voltage(V)	Arcing-over distance (mm)	Ultimate short circuit breaking capacity (KA)	Serves short circuit breaking capacity (KA)	Operation performance		Utilization category
								Load	Unload	
KCM1-63L	(6),10,16,20	3, 4	500V	400V	0	25	18	1500	8500	A
KCM1-63M	25,32,40,50,63				0	50	35			
KCM1-100L	(10),16,20,25				0(≤50)	35	22			
KCM1-100M					0(≤50)	50	35			
KCM1-100H					0(≤50)	85	50			
KCM1-225L	100,125,160,180,200,225				≤50	35	22			
KCM1-225M			≤50		50	35				
KCM1-225H			≤50		85	50				
KCM1-400L	225,250,315,350,400		≤50		50	35	1000	4000		
KCM1-400M			≤100		65	42				
KCM1-630L	400,500,630		≤100		50	35				
KCM1-630M			≤100		65	42				
KCM1-630H		≤100	100	65						
KCM1-800M	630,700,800	≤100	75	50						
KCM1-800H		≤100	100	65						
KCM1-1250M	1000,1250	≤100	100	65						
KCM1-1250H		≤100	125	75						
KCM1-1600M	1600	≤100	150	80						

Note: 6A without thermal protection

The N-pole of four-poles breaker is sited at the right side of the product has four types:

Type A: Without current trip-lease on N pole which making all the time, not closing and opening with the other three poles.

Type B: Without current trip-release on N pole which closing and opening with the other poles.

Type C: With current trip-release which closing and opening with the other three poles.

Type D: With current trip-release which making all the time not closing and opening with the other three poles.

## 2.2 Protection Characteristic

The thermodynamic release of a circuit breaker provides the feature of inverse time-delay, while the magnetic release is the instantaneous operation as shown on table 2(distribution circuit breaker) and table 3 (motor protection circuit breaker).

Table2

Rated current of release (A)	Thermodynamic release( ambient temperature ) land +40°C marine +45°C		Operating current of magnetic release (A)
	1.05In(cold state) Inoperative time(h)	1.30In(heat state) Operative time(h)	
10≤In≤63	≥ 1	< 1	10In±20%
63<In≤100	≥ 2	< 2	
100≤In≤800	≥ 2	< 2	5In±20% 10In±20%

Table3

Rated current of release (A)	Thermodynamic release ( ambient temperature ) land +40°C marine +45°C				Operating current of magnetic release (A)
	1.0In(cold state) non-trip time(h)	1.20In(heat state) trip time (h)	1.50In(heat state) trip time (h)	7.2In(cold state) trip time(h)	
10 ≤ In ≤ 225	≥ 2	<2	≤ 4min	4s < Tp ≤ 10s	12In±20%
225 ≤ In ≤ 630			≤ 8min	6s < Tp ≤ 20s	

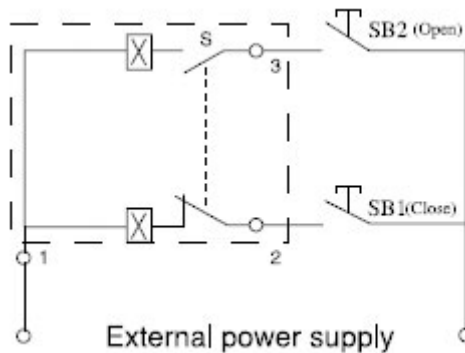
### 3 Installation

#### 3.1 Accessories of Circuit breaker

- The external accessories of the breaker

#### Motor-driven operation device

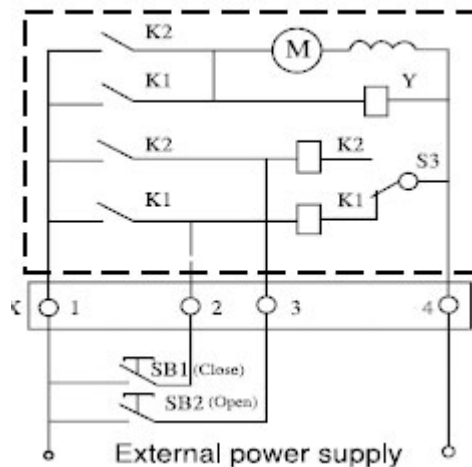
1) Wiring diagram of type CDM electromagnetic operation device (fitting AM1-63, 100, 225) see the following drawing (wiring diagram of the external accessories of the breaker in the dotted frame)



Code description: SB<sub>1</sub> SB<sub>2</sub> stand for push button. (provided by users themselves) Number "1" "2" "3" stand for number of wiring terminals.

Voltage rating: AC50Hz 230V 400V DC 220V

2) Wiring diagram of type CD motor-driven operation device (fitting AM1-400 630 800) see belows (wiring diagram of the external accessories of the breaker in the dotted frame)



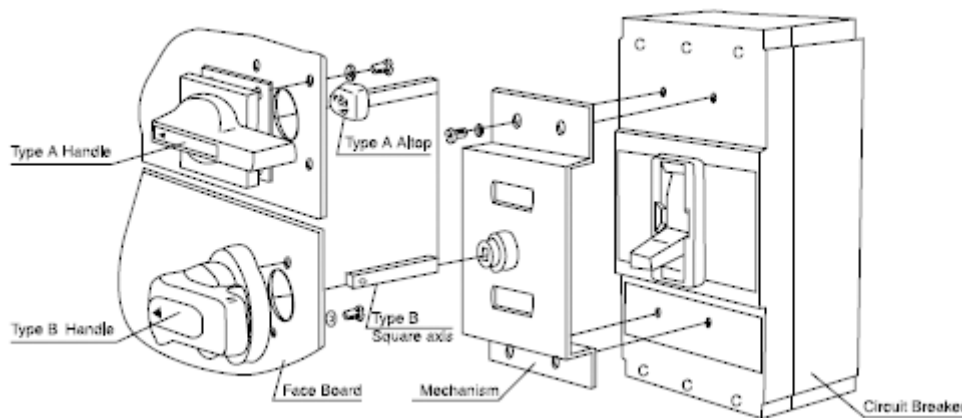
Code description: SB<sub>1</sub> SB<sub>2</sub> stand for push button. ( provided by users themselves) "X" stands for line connection terminals

Voltage rating: AC50Hz 230V 400V DC 220V

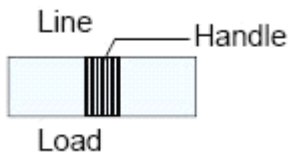
#### Rotary handle operation device

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The mechanism is used in moulded case circuit breaker to operate the draw-out panel. Power distribution panel and supply box outside the panel by turning the handle , and to ensure the door of panel would not be opened when the breaker being on. The hand-drive mechanism can be equipped with two types of operation, one is "A" model square handle , the other is "B" model round handle.







































- Release pattern and accessories code



SHT: Shunt release; UVR: Under-voltage release; AX: Auxiliary contact; AL: Alarm contact

Release pattern and accessories code	Name/Type	KCM1-63, 100, 225	KCM1-400	KCM1-630	KCM1-800
200, 300	No accessories	200: magnetic release (only short circuit protection)300: thermal magnetic release(both overload and short circuit protection)			
208, 308	Alarm contact	AL █ █ █ █	AL █ █ █ █	AL █ █ █ █	AL █ █ █ █
210, 310	Shunt release	SHT █ █ █ █	SHT █ █ █ █	SHT █ █ █ █	█ █ █ █ SHT
220, 320	Auxiliary contact	AX █ █ █ █	AX █ █ █ █	AX █ █ █ █	AX █ █ █ █
230, 330	Under-voltage release	█ █ █ █ UVR	█ █ █ █ UVR	█ █ █ █ UVR	UVR █ █ █ █
240, 340	Shunt release Auxiliary contact	SHT █ █ █ █ AX	SHT █ █ █ █ AX	SHT █ █ █ █ AX	AX █ █ █ █ SHT

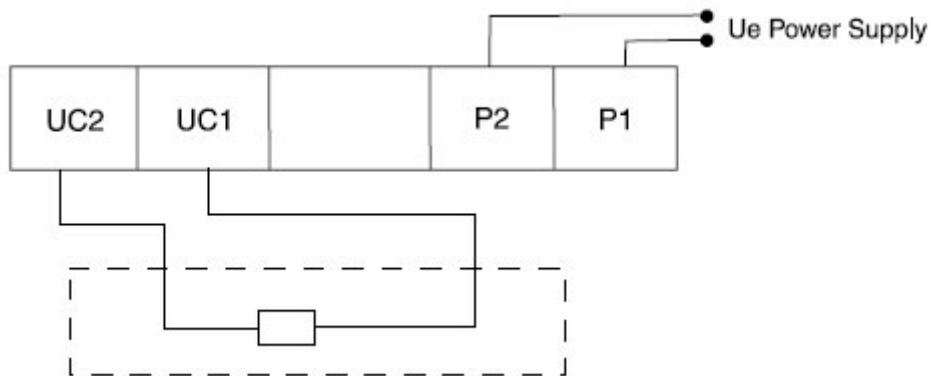
Release pattern and accessories code	Name/Type	KCM1-63, 100, 225	KCM1-400	KCM1-630	KCM1-800
250, 350	Shunt release Under-voltage release				
260, 360	Two group of auxiliary contact				
270,370	Under-voltage release Auxiliary contact				
218, 318	Shunt release Alarm contact				
228, 328	Alarm contact Auxiliary contact				
238, 338	Under-voltage release Alarm contact				
248, 348	Shunt release, Alarm contact, Auxiliary contact				
268, 368	Two group of auxiliary contact Alarm contact				
278, 378	Shunt release, Alarm contact, Under-voltage release				

According to user's demands, accessories could lead to direct wire out coming or line wiring terminals could be added(please mark out in case of making order).

## Under-voltage release

Wiring diagram of the under-voltage module connected externally (the internal accessories in the dotted frame)

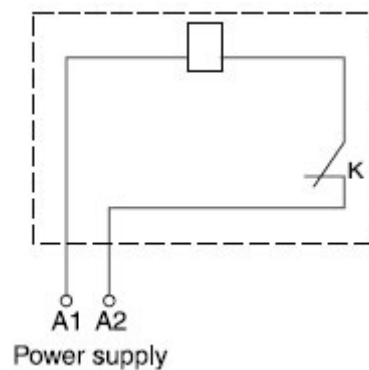
Ue: AC50Hz 230V, 400V



When the operation voltage is 35%~70% of the rated voltage, the under-voltage release should make the breaker trip correctly. When the operation voltage is 85%~110% of the rated voltage, the under-voltage release should make the breaker close. In case of the operation voltage less than 35% of the rated voltage, the under-voltage should prevent the breaker from closing. Note: Only the under-voltage release should be energized in advanced, the breaker could be recamped and turned-on, otherwise the breaker will be damaged.

## Shunt release

Scheme of wiring (the internal accessories in the dotted frame) "K" is the slow motion switch normal-close contact connect the coil in series in the shunt release. It turns-on or turns-off voluntarily as soon as the breaker on or off.



Voltage rating: AC50Hz 230V or 400V, DC 110V 220V  
 The shunt release should make the breaker trip reliably when the operation voltage is 70%~110%of the rated control voltage.

Alarm contact	
The position of the breaker in "off" or "on"	
The position of the breaker in "free trip" (alarm)	B11 and B12 switch from "close" to "open", status of B11 and B14 switch from "open" to "close"

Auxiliary Contact		
When the breaker is in "off"		For the breaker with frame current 400A and above
		For the breaker with frame current 225A and below
When the breaker is in "on"	When the breaker is in "off", the contacts switch from "close" to "open". When the breaker is in "on", the contacts switch from "open" to close"	





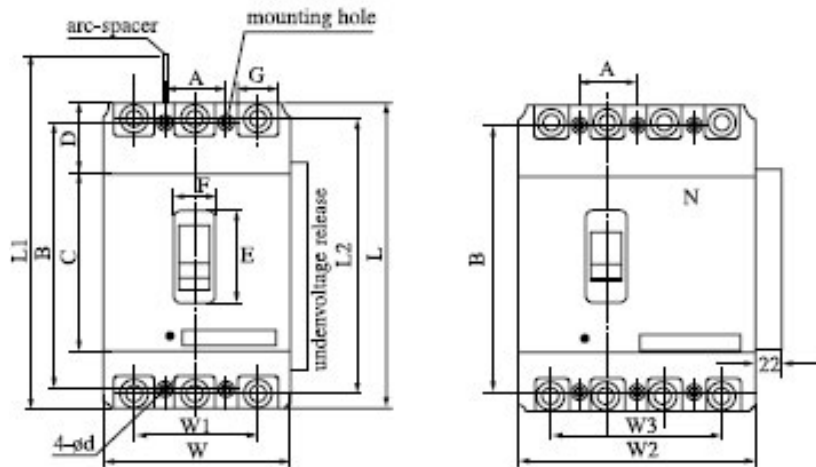




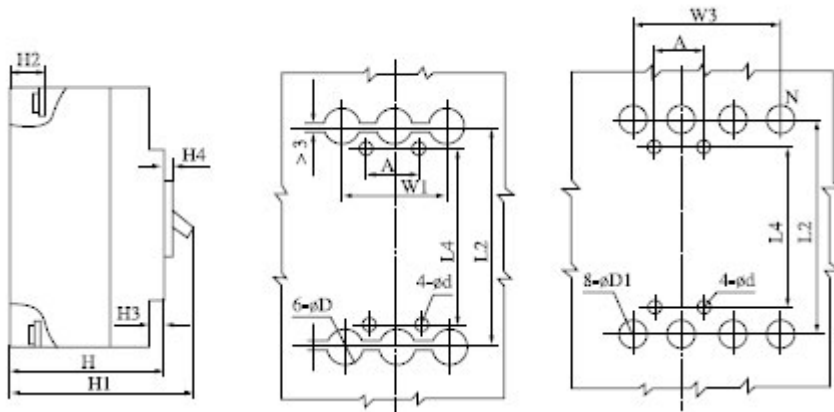
# KCM1

## 3.2 Installation dimension

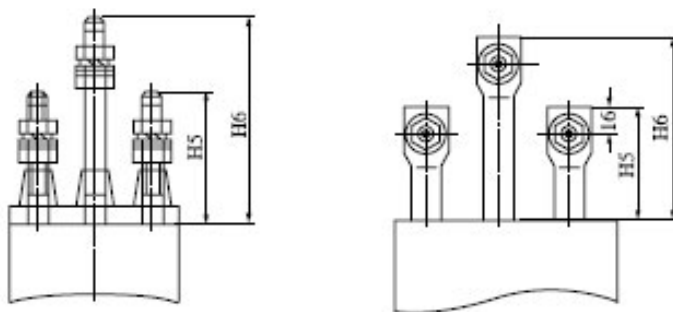
### Front panel connection



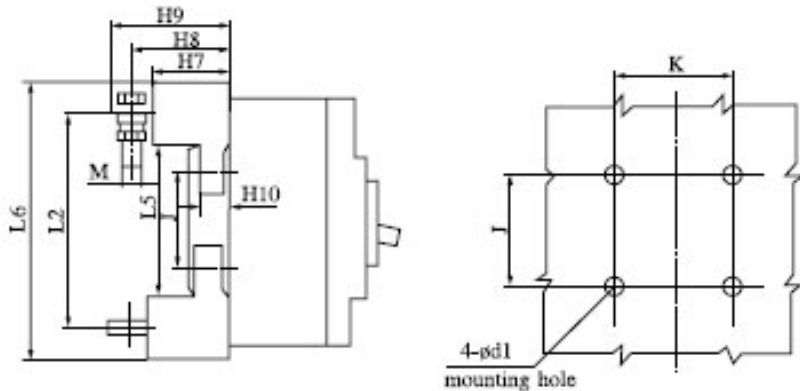
### Back panel connection picture



### Back panel connection



## Plug-in connection



### 3.3 Normal working condition

The maximum ambient temperature should be  $-5^{\circ}\text{C} < T < +40^{\circ}\text{C}$ , average temperature should be  $\leq 35^{\circ}\text{C}$  at 24h. The altitude of installation place should not exceed 2000m. The relative humidity should not exceed 50% at  $40^{\circ}\text{C}$ , it permits higher relative humidity when at a higher temperature, the average maximum relative humidity should not exceed 90% at maximum humidity month, and this month's average minimum temperature does not exceed  $+25^{\circ}\text{C}$ , and it should take consideration on the product's surface for temperature change.

### 3.4 Installation condition

The Mini Circuit Breaker is installed by standard mounting rail; the Mini Circuit Breaker is upright installation, knob upwards is switch on position. The installation place is not of obviously impact and librate.