## 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)

	Rated	Polenum-	Ratedinsui-	Rated operat-	Arcing- over	Ultimate short circuit	Serves short circuit	perf	ration orm- ice	Utiliza-tionc				
Туре	current (A)	ber	atingvolt- age(V)	ingvolt- age(V)	distance (mm)	breaking capacity (KA)	breaking capacity (KA)	Load	Unload	at-egory				
KCM1-63L	(6),10,16,20		5001		0	25	18							
KCM1-63M	25 ,32,40,50 63		500V		0	50	35	1500	8500					
KCM1-100L	(10),16,20,25				0(≤50)	35	22	1500	6500					
KCM1-100M	32,40,50,63				0(≤50)	50	35							
KCM1-100H	80,100				0(≤50)	85	50							
KCM1-225L					≤50	35	22	1000	7000					
KCM1-225M	100,125,160 180,200,225	3, 4			≤50	50	35							
KCM1-225H	.00,200,220			400V	≤50	85	50							
KCM1-400L	225,250,315				≤50	50	35			A				
KCM1-400M	350,400		800V		≤100	65	42			A				
KCM1-630L			8007		≤100	50	35							
KCM1-630M	400,500,630				≤100	65	42							
KCM1-630H					≤100	100	65	1000	4000					
KCM1-800M	020 700 000				≤100	75	50							
KCM1-800H	630,700,800	3			≤100	100	65							
KCM1-1250M	4000 4050				≤100	100	65							
KCM1-1250H	1000,1250										≤100	125	75	
KCM1-1600M	1600				≤100	150	80							

### **Moulded Case Circuit Breaker**

## KCM<sub>1</sub>

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	Thermodynamic release( amb	Operating current of			
release (A)	1.05In(cold state) Inoperative	1.30ln(heat state) Operative	magnetic release (A)		
	time(h)	time(h)			
10≤In≤63	≥1	<1	10In±20%		
63 <in≤100< td=""><td>≥ 2</td><td>&lt; 2</td><td>TOTH ± 20 %</td></in≤100<>	≥ 2	< 2	TOTH ± 20 %		
100≤In≤800	≥ 2	< 2	5ln±20% 10ln±20%		

#### Table3

Rated current	Thermodynamic	c release ( ambien +4	t temperature)lan 5°C	d +40°C marine	Operating current
of 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)	of magnetic release (A)
10 ≤ In ≤ 225	≥2	<2	≤ 4min	4s < Tp ≤ 10s	12lp±200/
225 ≤ In ≤ 630	22	\ <u>\</u>	≤ 8min	6s < Tp ≤ 20s	12In±20%

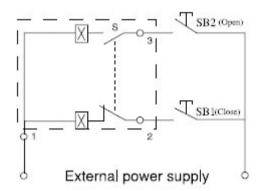
## KCM<sub>1</sub>

#### 3 Installation

- 3.1 Accessories of Circuit breaker
- The external accessories of the breaker

Motor-driven operation device

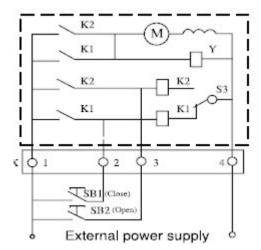
1) Wiring diagram of type CDM electromagnetic operation device(fitting AM1-63,100,225) seethe following drawing (wiring diagram of the external accessories of the breaker in the dotted frame)



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 bellows (wiring diagram of the external accessories of the breaker in the dotted frame)



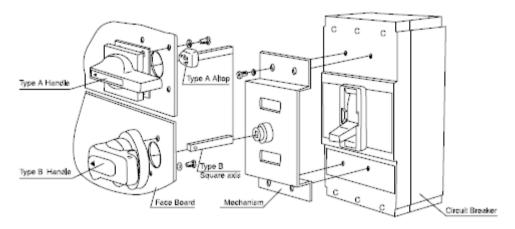
Code description:  $SB_1 SB_2$  stand for push button. (provided by users themselves) "X" stands for line

connection terminals

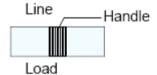
Voltage rating: AC50Hz 230V 400V DC 220V

Rotary handle operation device

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 equiped 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

Sitt. Shunt le	lease, OVK. Officer-	voltage release, Ax	t. Auxiliary Cortact	, AL. Alaim Contac	
Release pattern and accessories code	Name/Type	KCM1-63, 100, 225	KCM1-400	KCM1-630	KCM1-800
200, 300	No accessories	1	ease (only short cir e(both overload ar	• ,	thermal magnetic ection)
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	SHT	SHT AX	AX SHT

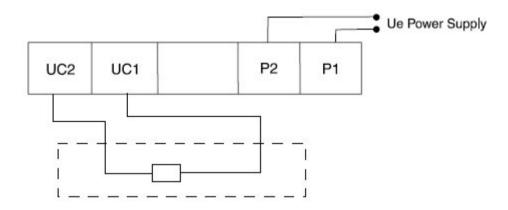
Release pattern and accessories code	Name/Type	KCM1-63, 100, 225	KCM1-400	KCM1-630	KCM1-800
250, 350	Shunt release Under-voltage release	SHT	SHT	SHT	UVR
260, 360	Two group of auxiliary contact	AX AX	AX AX	AX AX	AX AX
270,370	Under-voltage release Auxiliary contact	AX UVR	AX UVR	AX UVR	UVR AX
218, 318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

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).

## KCM<sub>1</sub>

### Under-voltage release

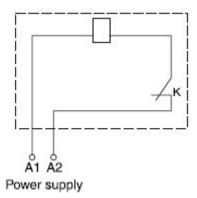
Wring diagram of the under-voltage module connected externally (the internal accessories in the dotted frame) Ue: AC50Hz 230V, 400V



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 recramped 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 220VThe shunt release should make the breaker trip reliably when the operation voltage is 70%~110% of the rated control voltage.

	<u>-</u>
Alarm contact	
The position of the breaker in "off" or "on"	B <sub>14</sub> — B <sub>11</sub>
II he position of the breaker in "tree trin" (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"	F14 — F11 F24 — F21 F22 — F21	For the breaker with frame current400A and above
	F <sub>14</sub> — F <sub>11</sub>	For the breaker with frame current225A and below
When the breaker is in"on"	When the breaker is in "off", the contacts s the breaker is in "off", the contacts switch f	·

Туре										sions(	,						
	W	W1	L	L1	L2	Н	H1	H2	НЗ	H4	С	D	Е	F	G	W2	W3
KCM1-63L	76	50	135	170	117	74	92		7	4	85	28.5	48	22	14	100	75
KCM1-63M	76	50	135	170	117	82	98.5	28	7	4	85	28.5	48	22	14	100	75
KCM1-100L	92	60	150	185	132	68	86	24	7	4	88	35.5	50	22	17.5		
KCM1-100M	92	60	150	185	132	86	104	24	7	4	88	35.5	50	22	17.5	122	90
KCM1-100H	92	60	150	185	132	86	104	24	7	4	88	35.5	50	22	17.5		
KCM1-225L	107	70	165	215	144	86	110	24	5	4	102	31.5	50	22	17		
KCM1-225M	107	70	165	215	144	103	127	24	5	4	102	31.5	50	22	17	142	105
KCM1-225H	107	70	165	215	144	103	127	24	5	4	102	31.5	50	22	17		
KCM1-400L	150	96	257	357	224	105	155	38	8	6	128	64.5	89	65	φ6	198	144
KCM1-400M	182	116	270	370	234	110	160	43	8	6	134	70	89	65	φ9		
KCM1-630L	182	116	270	370	234	110	160	43	8	6	134	70	89	65	φ9	240	174
KCM1-630M	182	116	270	370	234	110	160	43	8	6	134	70	89	65	φ9		
KCM1-630H	210	140	280	380	243	106	145	33	30	128							
KCM1-800M	210	140	280	380	243	106	145	33	30	128							
KCM1-800H	210	140	280	380	243	106	145	33	30	128							
KCM1-1250M	210	140	393			200											
KCM1-1250H	210	140	393			200											
KCM1-1600M	210	140	393			200											

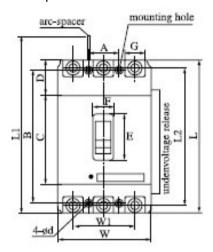
						Outli	ne Di	men	sions	(mm)						Ins	ion	
Туре	Back panel connection						Plug-in connection									Din	nensi	ons
	L4	H5	H6	φD	φD1	L5	L6	H7	Н8	Н9	H10	J	K	φd1	М	Α	В	φd
KCM1-63L	117	44	66	8	8											25	117	3.5
KCM1-63M	117	44	66	8	8											25	117	3.5
KCM1-100L	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	M8	30	129	4.5
KCM1-100M	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	М8	30	129	4.5
KCM1-100H	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	М8	30	129	4.5
KCM1-225L	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
KCM1-225M	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
KCM1-225H	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
KCM1-400L	194	60	120	33	33	169	279	60	83.5	106. 5	21	129	60	8.5	M10	44	194	7
KCM1-400M	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
KCM1-630L	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
KCM1-630M	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
KCM1-630H		128														70	243	7.2
KCM1-800M		128														70	243	7.2
KCM1-800H		128														70	243	7.2
KCM1-1250M																		
KCM1-1250H																		
KCM1-1600M																		

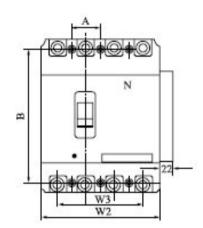
### le> KCM1-1250H 210 140 393 200 AM1-1600M 210 140 393 200

						Outli	ne Di	men	sions(	mm)						Ins	ion	
Туре	Bac	k par	nel co	nnec	tion				Plug	j-in co	onnec	ction				Din	nensi	ons
	L4	H5	H6	φD	φD1	L5	L6	H7	Н8	Н9	H10	J	K	φd1	М	Α	В	φd
KCM1-63L	117	44	66	8	8											25	117	3.5
KCM1-63M	117	44	66	8	8											25	117	3.5
KCM1-100L	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	M8	30	129	4.5
KCM1-100M	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	M8	30	129	4.5
KCM1-100H	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	M8	30	129	4.5
KCM1-225L	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
KCM1-225M	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
KCM1-225H	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
KCM1-400L	194	60	120	33	33	169	279	60	83.5	106. 5	21	129	60	8.5	M10	44	194	7
KCM1-400M	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
KCM1-630L	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
KCM1-630M	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
KCM1-630H		128														70	243	7.2
KCM1-800M		128														70	243	7.2
KCM1-800H		128														70	243	7.2
KCM1-1250M																		
KCM1-1250H																		
KCM1-1600M																		

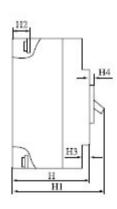
#### 3.2 Installation dimension

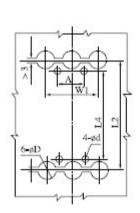
### Front panel connection

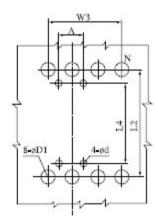




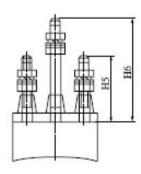
### Back panel connection picture

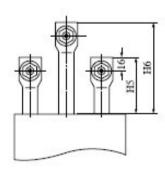




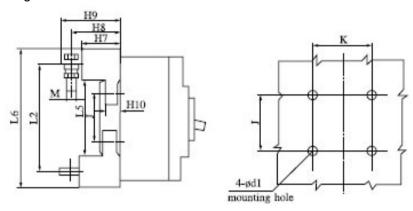


## Back panel connection





#### 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.