

Scope of application

SJKM1LE plastic shell circuit breaker with residual current protection (hereinafter referred to as the circuit breaker) is one of the new circuit breakers developed and researched by our company using advanced design software and manufacturing technology. Its rated insulation voltage is 800V, suitable for infrequent switching and motor starting in circuits with AC 50Hz, rated working voltage of 400V, and rated working current value of 800A. Circuit breakers have The overload, short circuit, and undervoltage protection functions can protect the circuit and power equipment from damage, and also provide protection against potential fire hazards caused by long-term grounding faults that can be detected by the overcurrent protection unit

Circuit breakers are classified into two types based on their rated short-circuit breaking capacity (LCU): M-type (higher breaking type) and H-type (high breaking type). This circuit breaker has the characteristics of small size, high breaking height, short arcing, and anti vibration

This circuit breaker can be installed vertically or horizontally

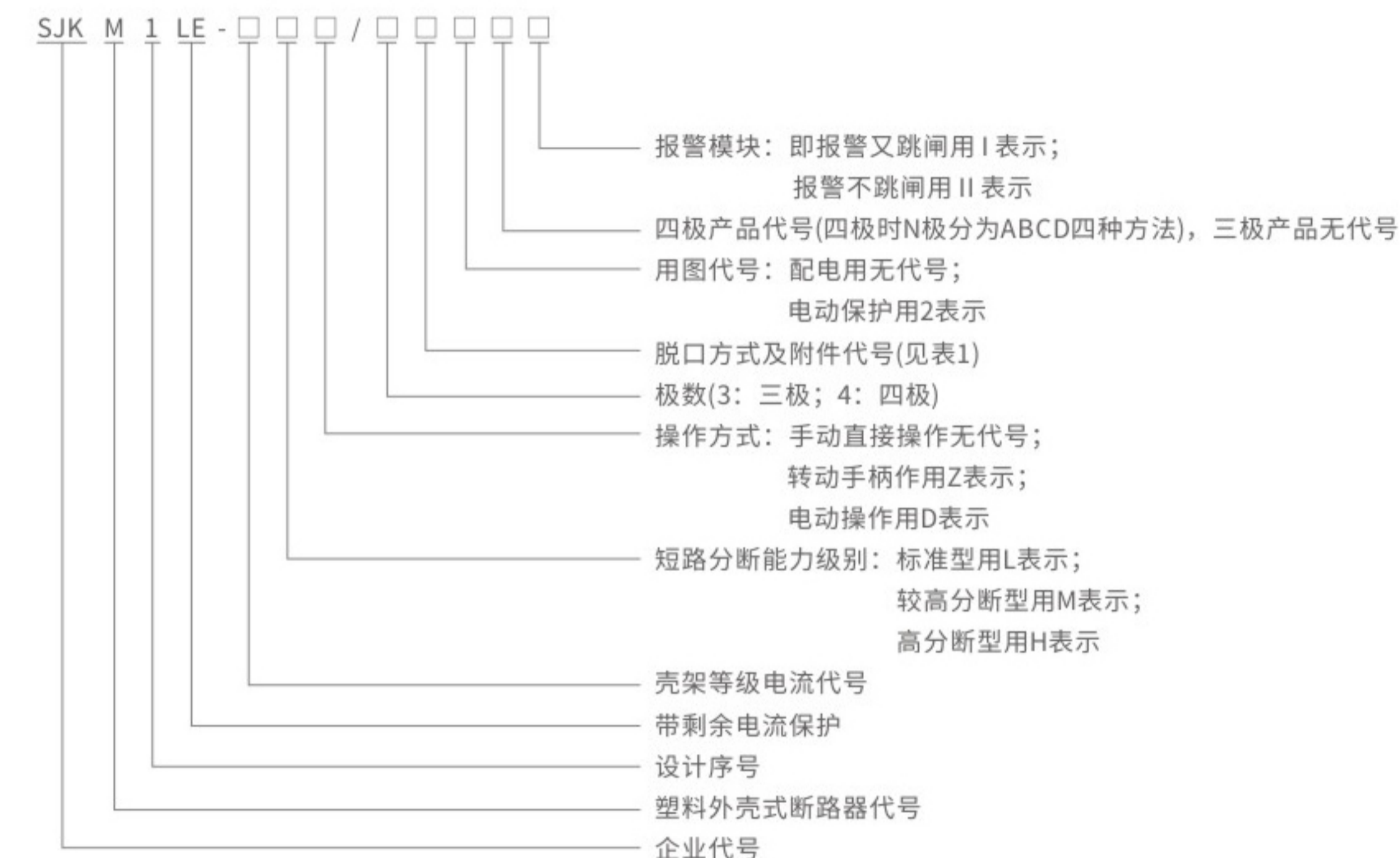
This circuit breaker cannot be reversed, that is, only 1, 3, and 5 are allowed to be connected to the power line, and 2, 4, and 6 are allowed to be connected to the load line

Circuit breakers are suitable for isolation, represented by the symbol: one/x

This circuit breaker product complies with the following standards

IEC60947-1 and GB14048.1-2006 General Principles IEC60947-2 and GB14048.2-2008 Low Voltage Circuit Breakers and Appendix B Circuit Breakers with Residual Current Protection IEC60947-4-1 and GB14048.4-2003 Low voltage electromechanical contactors and motor starters

型号及含义



注：壳架等级电流代号：1N25代表125A，2N50代表250A，4N00代表400A，6N30代表630A，8N00代表800A

◆脱扣方式及附件代号

表1

附件名称	脱扣方式及附件代号		附件安装及引线方式	
	电磁铁脱扣器	复式脱扣器	SJKM1L□/3□	SJKM1L□/4□
无附件	200	300		
报警触头	208	308		
分励脱扣器	210	310		
辅助触头	220	320		
辅助触头、报警触头	228	328		
欠电压脱扣器	230	330		
分励脱扣器、辅助触头	240	340	无	
漏电报警模块	I 或 II	I 或 II		

Product Classification

◆ Divided into three poles and four poles according to the number of poles of the product. There are four types of neutral pole (N-pole) in a four pole circuit breaker:

Type A: The N-pole is not equipped with an overcurrent release, and the N-pole is always connected without being connected or disconnected together with other three poles

Type B: The N-pole does not have an overcurrent release installed, and the N-pole is connected and disconnected together with the other three

Type C: The N-pole is equipped with overcurrent release, and the N-pole is connected and disconnected together with the other three poles

D-type: The N-pole is equipped with an overcurrent release, and the N-pole is always connected without being connected or disconnected together with the other three poles

◆ Classified by purpose: A. for power distribution, B. for motor protection

◆ Divided by residual current interruption time: A: non delayed type, B: delayed type

◆ According to the connection method, it can be divided into three types: board front connection, board back connection, and plug-in disconnection

The types of power release devices are divided into two types: thermal electromagnetic (compound) type and electromagnetic (instantaneous) type

◆ Operation methods: A. Direct operation with handle, B. Rotary handle operation (for switchgear, represented by Z), C. Motor operation (represented by D)

Normal usage conditions

The upper limit of ambient air temperature shall not exceed +40 °C; The lower limit shall not be lower than -5 °C; The average value within 24 hours shall not exceed +35 °C

Note: Circuit breakers used under conditions where the ambient air temperature is above +40C or below -5C should be negotiated with the manufacturer

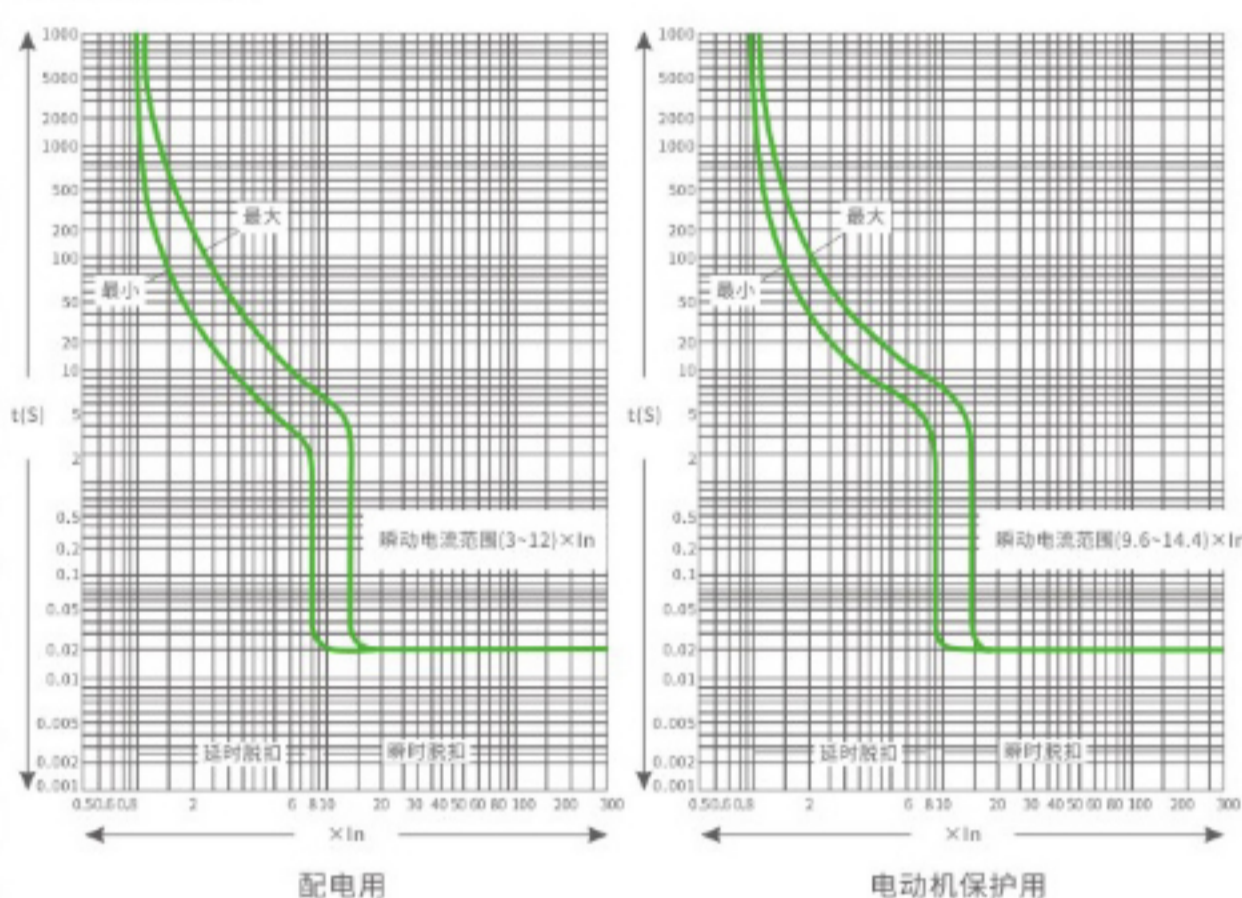
The altitude of the installation location shall not exceed 2000m

The relative humidity of the atmosphere should not exceed 50% at the highest ambient temperature of +40 °C, and higher relative humidity can be achieved at lower temperatures (such as 90% at 20 °C), taking into account condensation on the surface of the product due to temperature changes

主要参数及技术性能

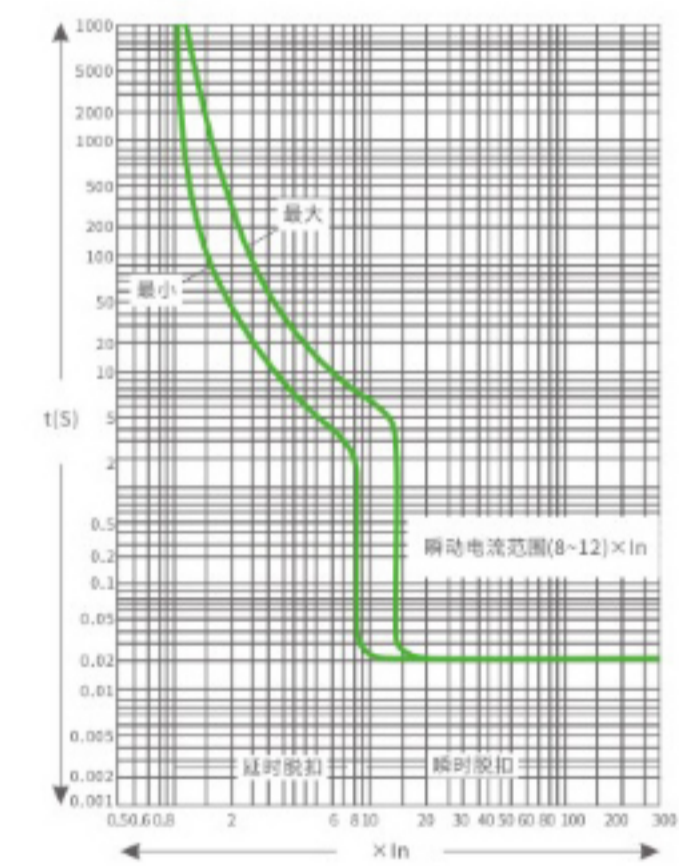
型号	SJKM1LE-125		SJKM1LE-250		SJKM1LE-400		SJKM1LE-630、800		
壳架等级最大的额定电流A	125		250		400		800		
额定电流InA	16 20 25 32 40 50 63 80 100 125		125 160 180 200 225 250		250 315 350 400		400 500 630 700 800		
极数	3	4	3	4	3	4	3	4	
额定绝缘电压Ui V	AC800								
额定工作电压Ue V	AC400								
额定冲击耐受电压Uimp V	8000		8000		8000		8000		
飞弧距离mm	50		50		100		100		
分断能力	l _{cu}	L	M	L	M	L	M	L	M
		AC400V	35	50	35	50	50	65	50
l _{cs}	AC400V	22	35	25	35	35	42	35	42
	额定剩余短路接通(分断)能力I _{cu} /4	8.75		12.5		15.75		16.25	
额定剩余动作电流I _{Δn} (mA)	非延时型	30/50/100 100/300/500		30/50/100 100/300/500		100/300/500		300/500/1000	
	延时型	100/300/500		100/300/500		100/300/500		300/500/1000	
额定剩余动作电流I _{Δn} (mA)	1/2I _{Δn}		1/2I _{Δn}		1/2I _{Δn}		1/2I _{Δn}		
操作性能次	通电	1500		1000		1000		1000	
	不通电	8500		7000		4000		4000	
	总次数	10000		8000		5000		500	
剩作电流保护动作时间	2I _{Δn}		2I _{Δn}		5I _{Δn}		10I _{Δn}		
最大分断时间(S)	非延时型	0.2		0.1		0.4		0.04	
	延时型	0.5/1.15/2.15		0.35/1/2		0.25/0.9/1.9		0.25/0.9/1.9	

◆过电流特性曲线



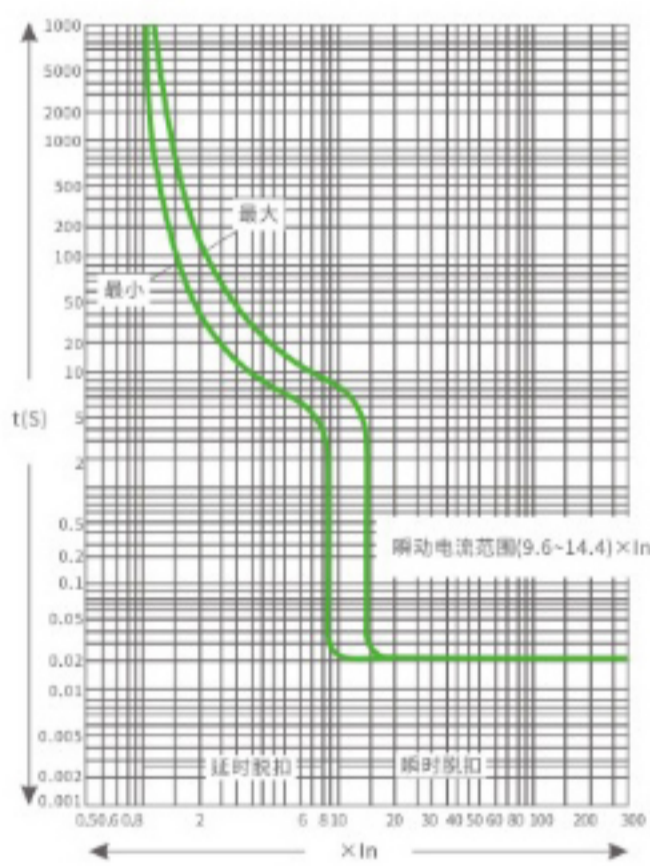
SJKM1LE-125时间/电流特性曲线(电动)

◆过电流特性曲线

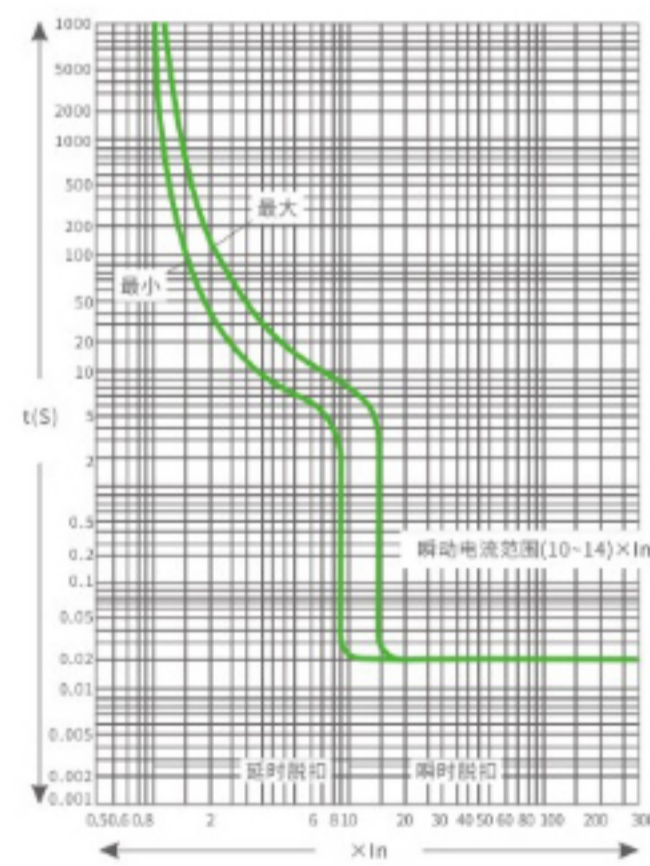
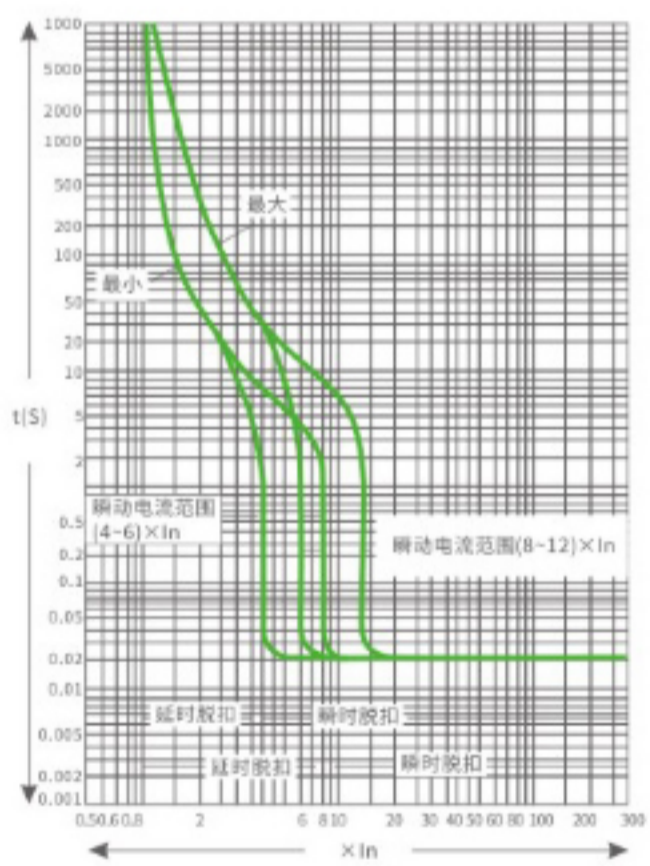


SJKM1LE-250时间/电流特性曲线(电动)

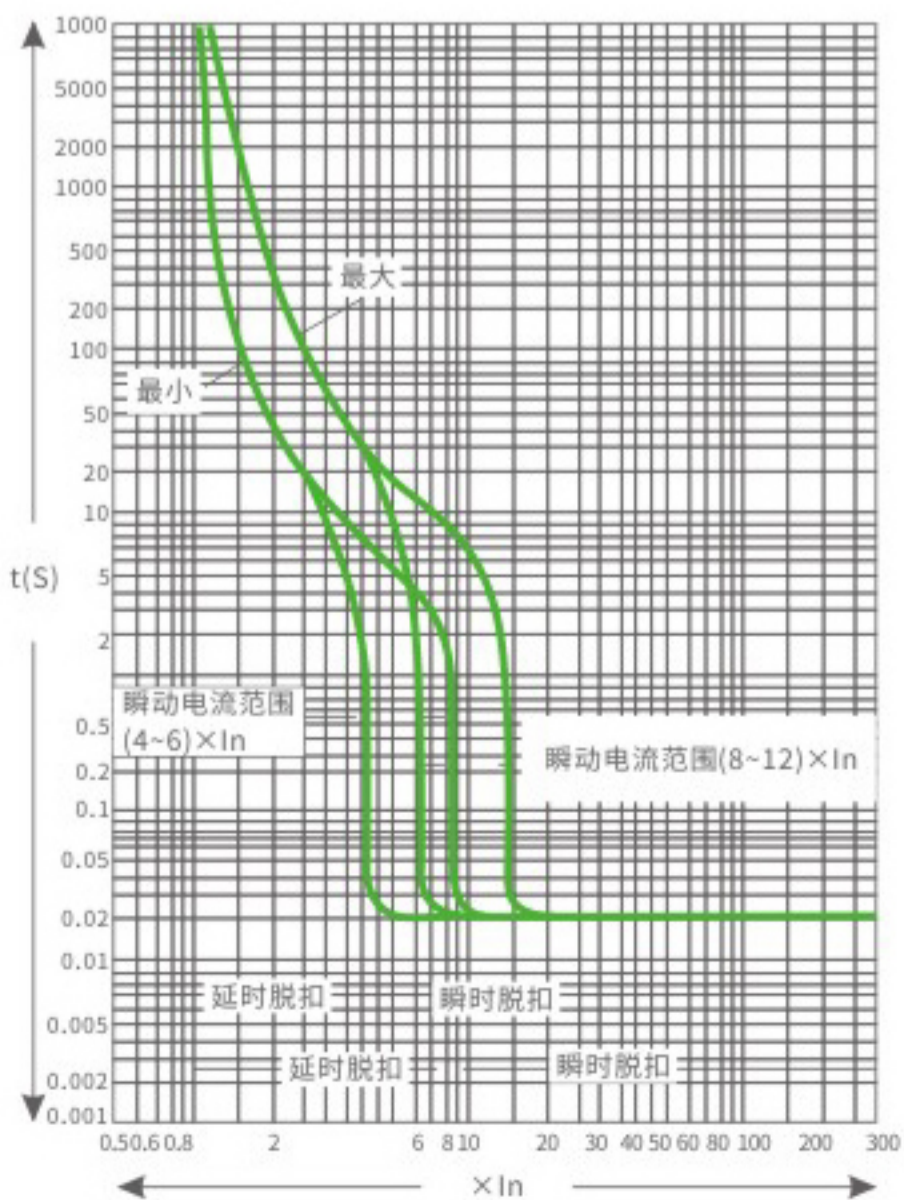
◆过电流特性曲线



SJKM1LE-400时间/电流特性曲线(电动)



◆过电流特性曲线

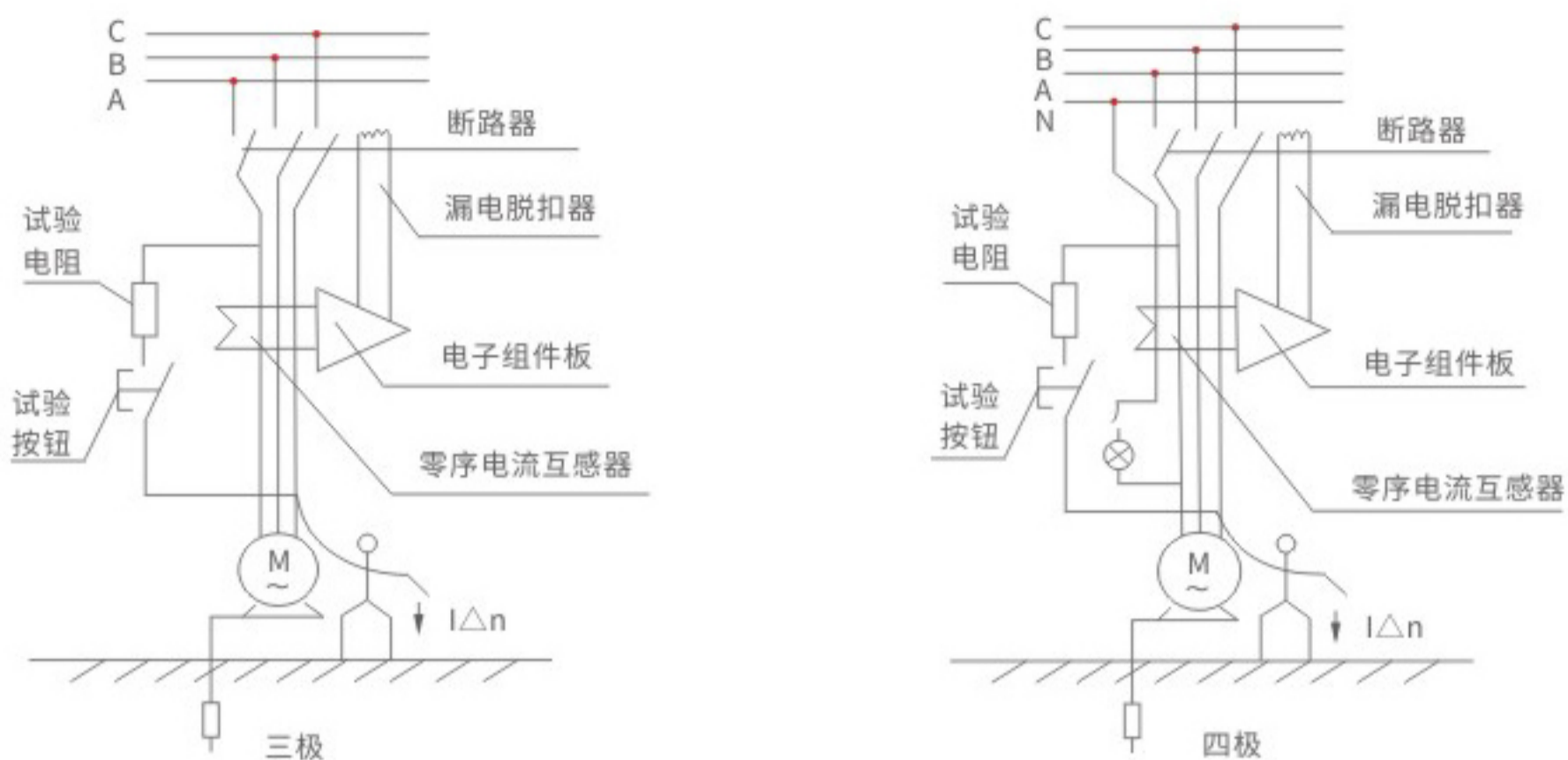


Structure and working principle

◆ Structure

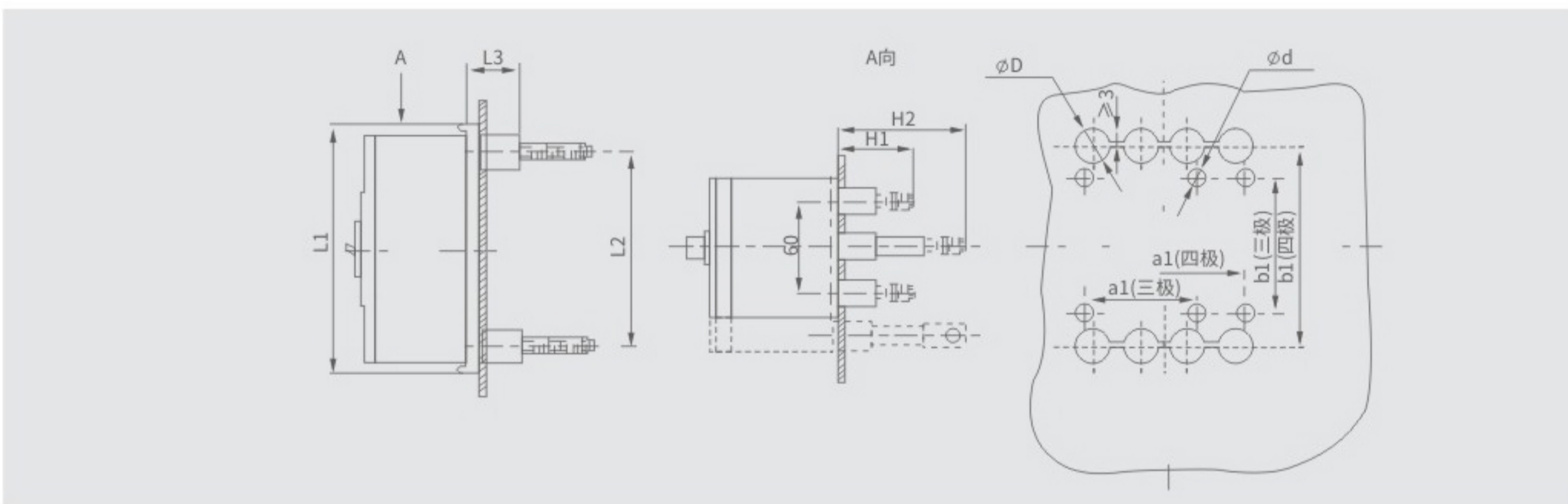
This series of circuit breakers is an electronic current operated residual current protection device. The main components include: (including overcurrent release), zero sequence current transformer, electronic amplification component, leakage release, testing device, all of which are housed in a plastic casing

◆ Working principle When there is leakage or electric shock in the protected circuit, the zero sequence current transformer has a signal output. When the signal output reaches a value, it triggers the thyristor to conduct, which is the action of the leakage release device. This drives the traction rod to disconnect the operating mechanism in a short time, cutting off the power flow and achieving the leakage protection function (the working principle is shown in the figure below)



工作原理图

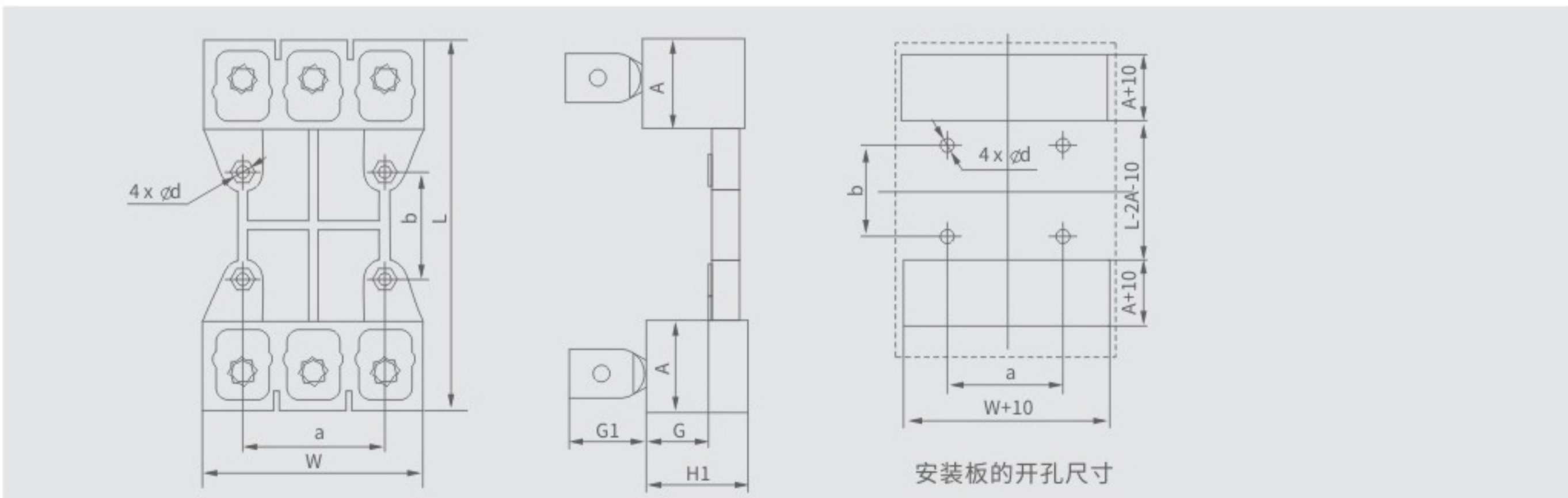
◆断路器板后接线的外形及安装尺寸



断路器板后接线

型号	外形尺寸(mm)					安装尺寸(mm)					
						a1		b1		ΦD	Φd
	L1	L2	L3	H1	H2	三极	四极	三极	四极		
SJKM1LE-125	162	132	35	53	93	72	102	90	132	22	5.5
SJKM1LE-250	173	144	35	55	100	87	122	93	144	24	5.5
SJKM1LE-400	267	224	37	48.5	108.5	124	172	164	224	26	6.5
SJKM1LE-630/800	295	243	37	62	62	178	248	158	243	48	7.0

◆插入式板后接线的外形及安装尺寸

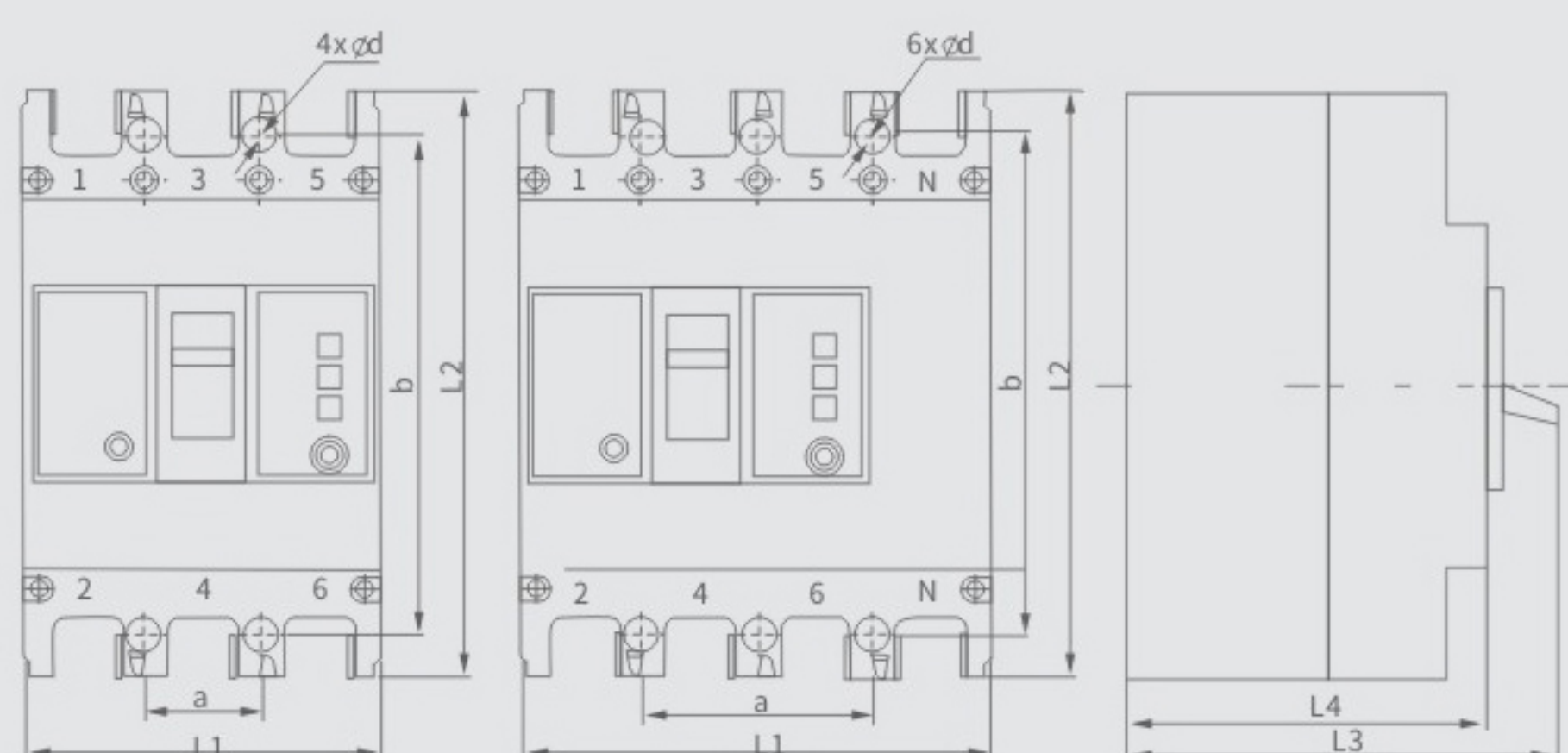


安装板的开孔尺寸

型号	w		L	A	H1	G	G1	a		b	Φd
	三极	四极						三极	四极		
SJKM1LE-125	91	125	168	38	50	33	28	60	90	56	6.5
SJKM1LE-250	107	145	186	46	50	33	37	70	105	54	6.5
SJKM1LE-400	149	200	280	55	60	38	46	60	108	129	8.5
SJKM1LE-630/800	210	280	305	62	87	60	22	90	162	146	11

外形及安装尺寸

◆断路器板前接线的外形及安装尺寸



断路器板前接线

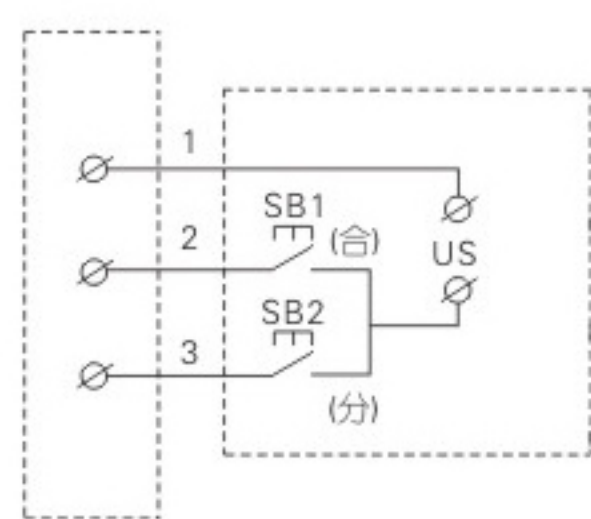
型号	极数	外形尺寸(mm)				安装尺寸(mm)		
		L1	L2	L3	L4	a	b	Φd
SJKM1LE-125	2	65	151	110	75	-	129	2×Φ4.5
	3	93	151	110	92	30	129	4×Φ4.5
	4	123	151	110	92	60	129	6×Φ4.5
SJKM1LE-250	2	75	165	110	90	-	129	2×Φ4.5
	3	107	165	110	90	35	126	4×Φ4.5
	4	142	165	110	90	70	126	6×Φ4.5
SJKM1LE-400	3	154	257	146	106	44	194	4×Φ4.5
	4	198	257	146	106	94	194	6×Φ4.5
SJKM1LE-630 SJKM1LE-800	3	210	280	155	116	70	243	4×Φ7
	4	280	280	155	116	140	243	6×Φ7

外部附件

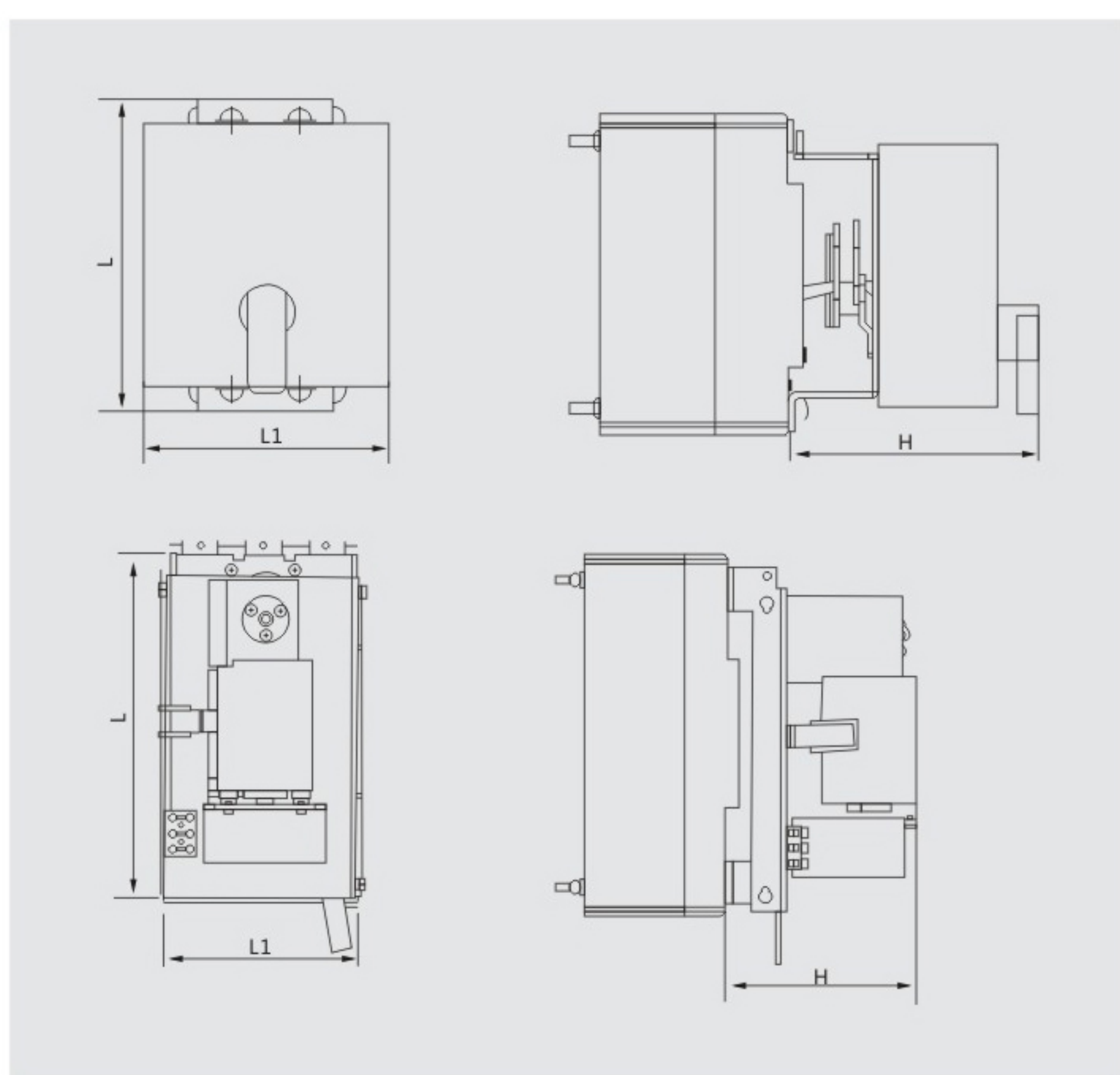
电动操作机构的安装及电气接线：
普通型电动操作机构的外形尺寸见图和表



◇SJKM1LE-400、630、800/1250普通型电动操作机构示意图



普通型电动操作机构接线
(电压: AC230V AC400V)



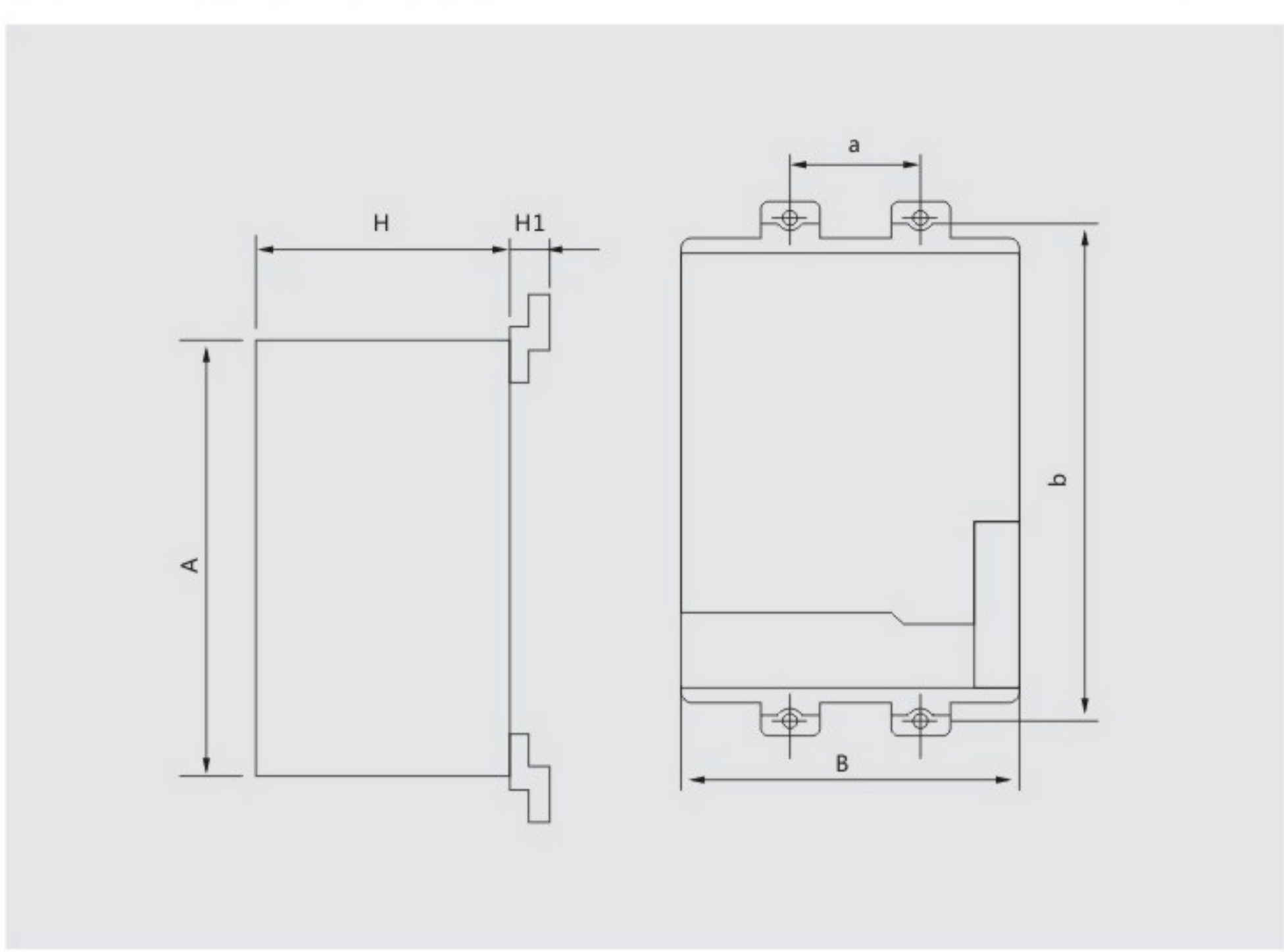
◇普通型电动操作机构的外形尺寸

单位: mm

型号	外形尺寸		
	L	L1	H
SJKM1LE-63	107	76	91
SJKM1LE-125	118	90	103.5
SJKM1LE-250	156	105	101
SJKM1LE-400	254	141	132
SJKM1LE-630	254	140.5	129
SJKM1LE-800	226	132	122
SJKM1LE-1250	354	208	145

◇电子型电动操作机构的外形尺寸见图和表

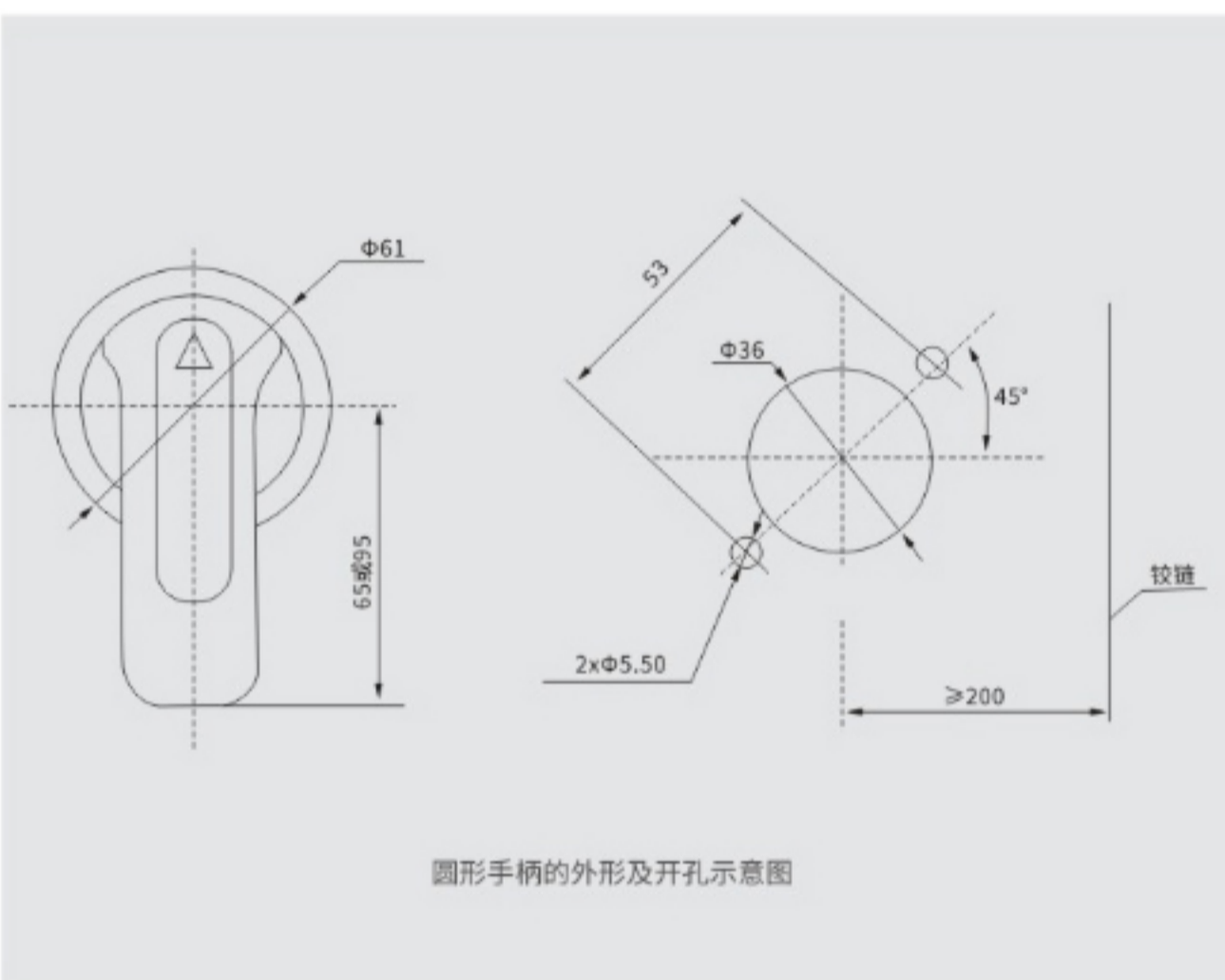
单位: mm



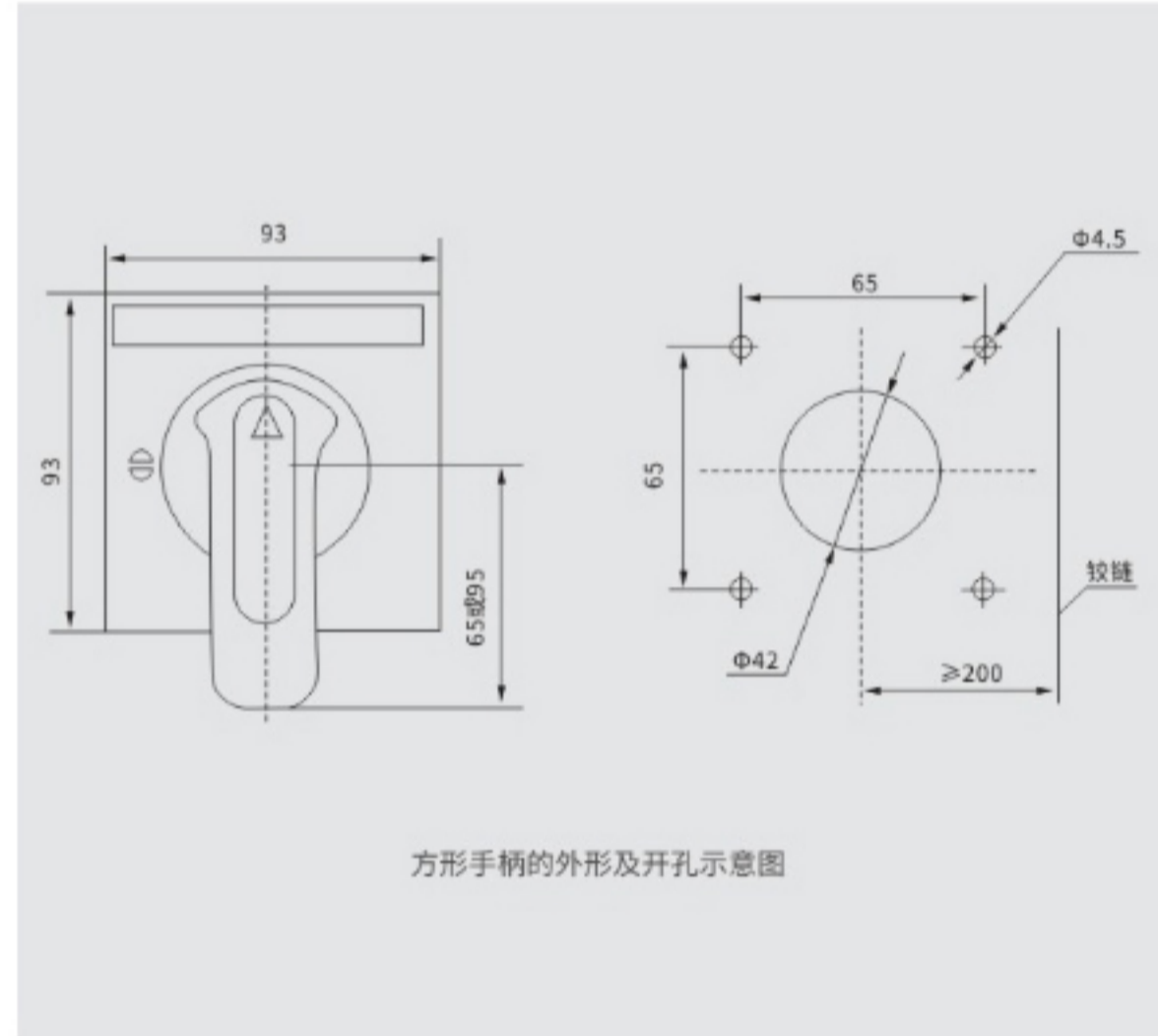
电子型电动操作机构接线图
电压: AC230V AC400V或
DC24V DC110V和DC220V

型号	A	B	H	H1	a	b
SJKM1LE-63	102	74	79	11.5	25	117
SJKM1LE-125	116	90	77	12.5	30	129
SJKM1LE-250	116	90	77	15	35	126
SJKM1LE-400	176	130	115	27	44	194
SJKM1LE-630	176	130	115	27	58	200
SJKM1LE-800	176	130	115	31	70	243

转动手柄操作机构的安装

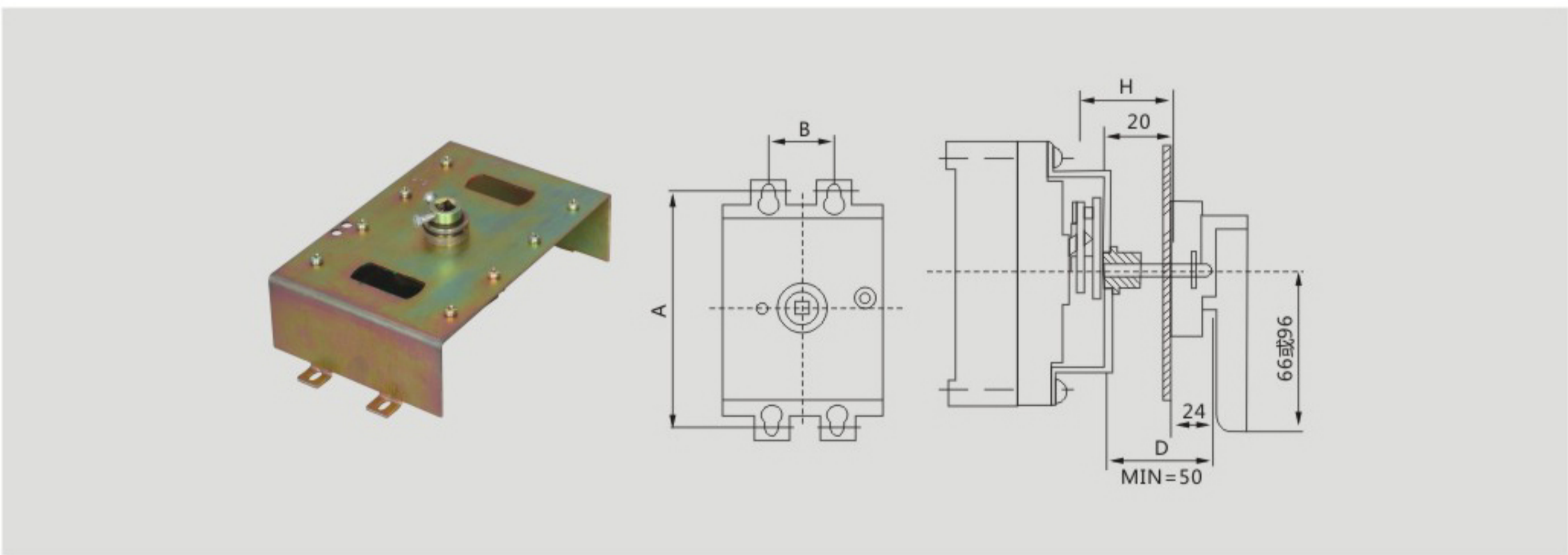


圆形手柄的外形及开孔示意图



方形手柄的外形及开孔示意图

◇ 中心式旋转手柄操作机构的外形及安装示意图

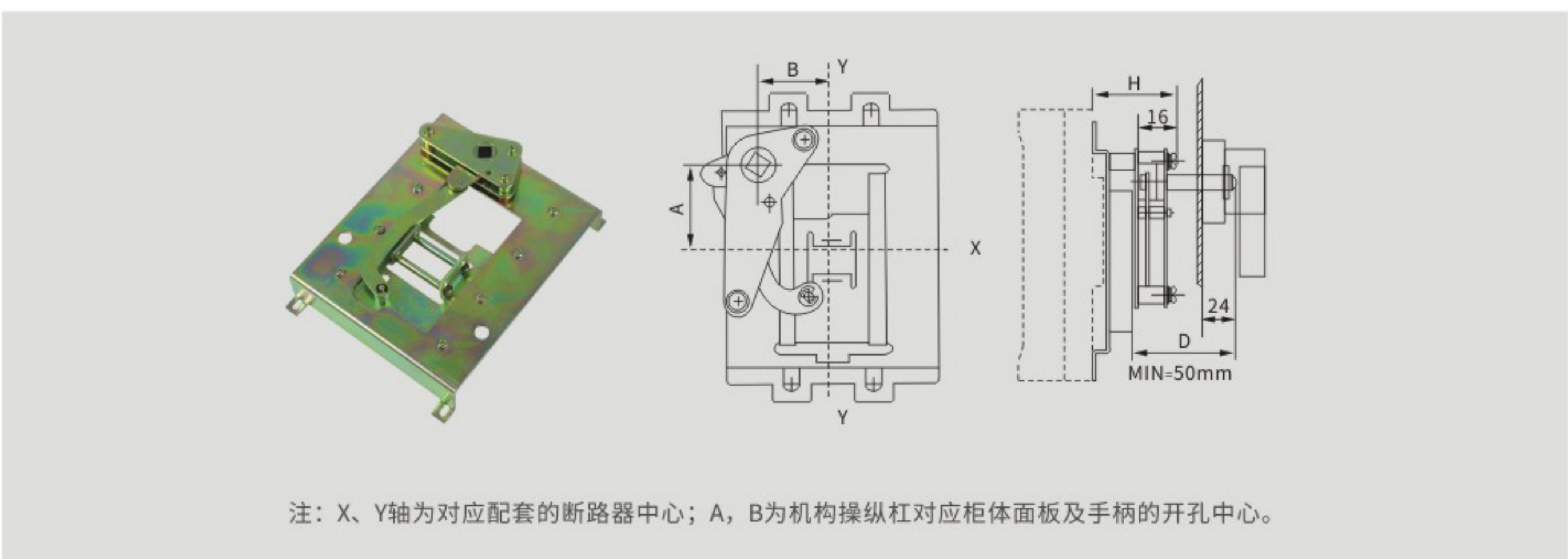


◇ 中心式旋转手柄操作机构的外形及安装尺寸

单位: mm

型号	A	B	H
SJKM1LE-63	117	25	49
SJKM1LE-125	129	30	54
SJKM1LE-250	126	35	54
SJKM1LE-400	215	44	76
SJKM1LE-630	200	58	83
SJKM1LE-800	243	70	76

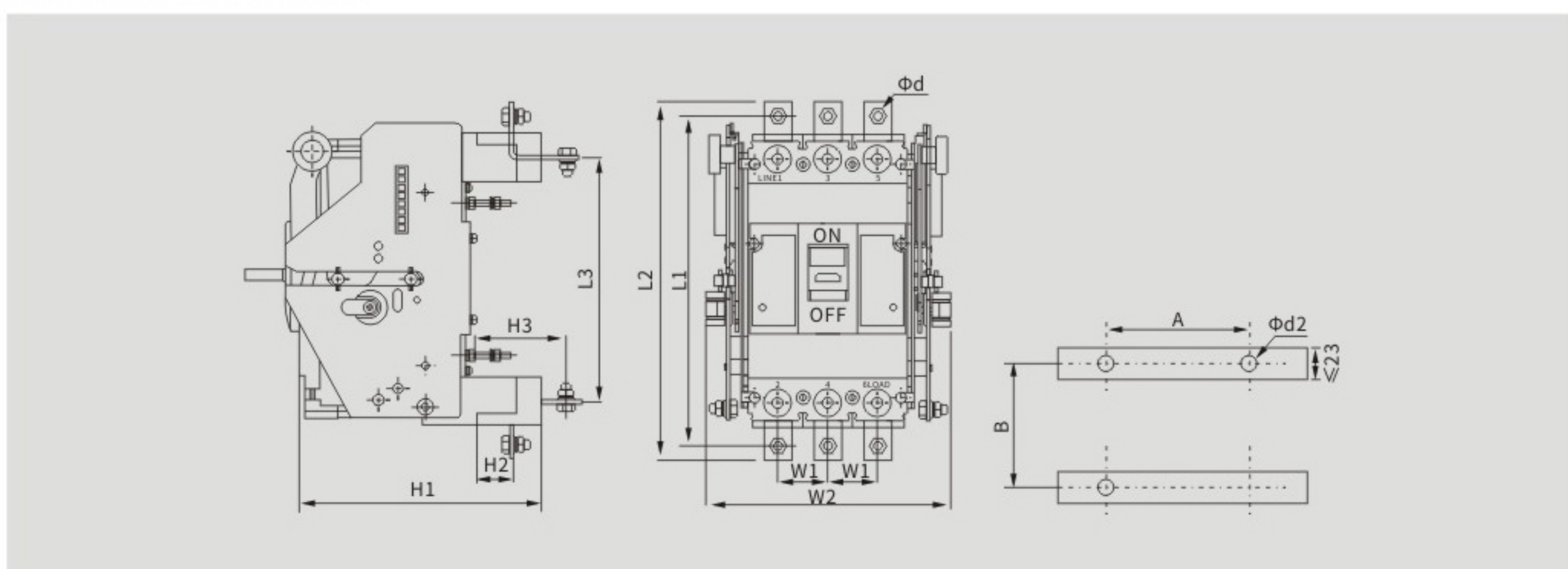
◇ 偏心式旋转手柄操作机构的外形及安装示意图



注: X、Y轴为对应配套的断路器中心; A、B为机构操纵杠对应柜体面板及手柄的开孔中心。

断路器型号	A	B	H
SJKM1LE-125	35	11.5	46
SJKM1LE-250	35	31	48
SJKM1LE-400	65	15	61
SJKM1LE-630	60	15	61
SJKM1LE-800	48	15	66

◇ 抽出式装置的外形及安装示意图



◇ 抽出式装置的外形及安装尺寸

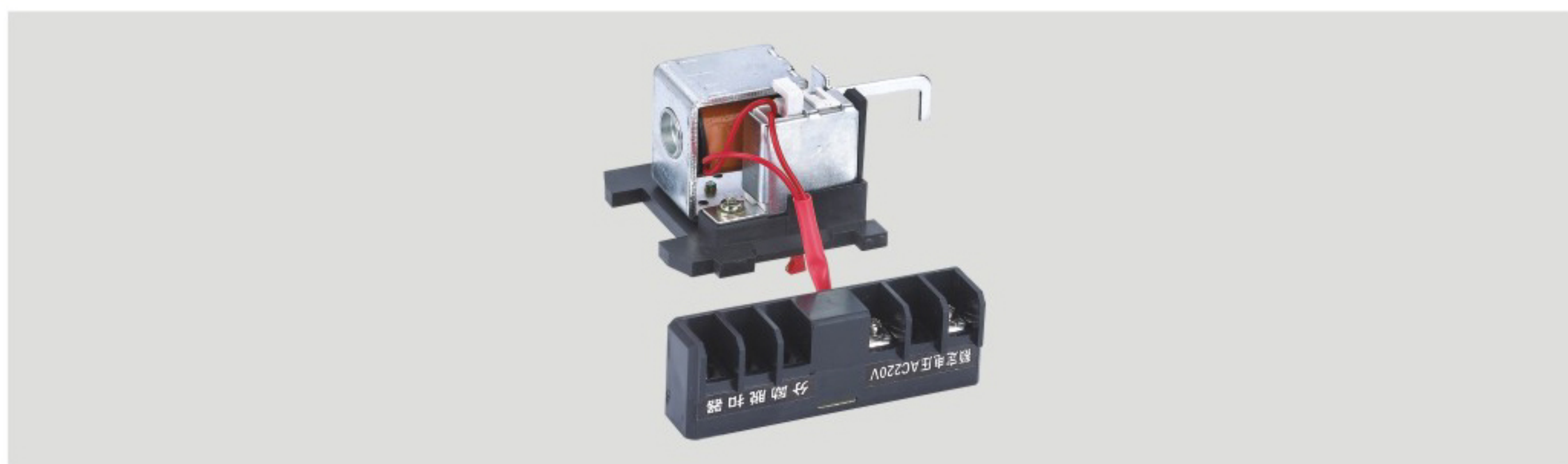
型号	极数	外形尺寸									安装尺寸		
		L1	L2	L3	H1	H2	H3	W1	W2	Φd1	A	B	Φd2
SJKM1LE-400/M	3P	310	339	203	253	17.5	77	48	223	Φ11	96	134	Φ6.5
	4P	310	339	203	253	17.5	77	48	271	Φ11	144	134	Φ6.5
SJKM1LE-630/M	3P	341	381	211	282	17.5	92	58	253	Φ13	116	140	Φ6.5
	4P	341	381	211	282	17.5	92	58	311	Φ13	174	140	Φ6.5
SJKM1LE-800/M	3P	367	410	241	238	26	73	70	289	Φ13	140	131	Φ6.5
	4P	367	410	241	238	26	73	70	359	Φ13	210	131	Φ6.5

内部附件



◇ 欠电压脱扣器

额定工作电压 Ue V	AC 230V AC400V
动作电压 V	(0.35~0.7)Ue
可靠合闸电压 V	(0.85~1.1)Ue



◇ 分励脱扣器

额定控制电源电压 Us V	AC230 AC400V DC24V DC110 DC220V
动作电压 V	(0.7~1.1) US



◇ 辅助、报警触头

约定发热电压 Ith	3A
额定工作电流	AC400V, 0.4A DC220V, 0.15A

Ordering Notice

When placing an order, the user must specify the following:

◇ Model, name, and number of poles of the circuit breaker

Rated current of circuit breaker

The accessory name, specification, and combination code of the circuit breaker; When using undervoltage release and shunt release, the voltage value of the working voltage (or control power supply voltage) should be indicated; When using an electric operating mechanism, it should be indicated as a regular or electronic type

◇ Purpose: for power distribution (not specified as delivery for power distribution), for motor protection (indicated by 2)

◇ Wiring method: pre board wiring (not specified for delivery according to pre board wiring), pre board wiring. Insertion type

Quantity

For example: SJKM1LE-125, standard type L, three pole, with a rated current of 100A for the release, equipped with a shunt release with a voltage of AC 400V and alarm contacts, for power distribution, pre board wiring, a total of 20 units