

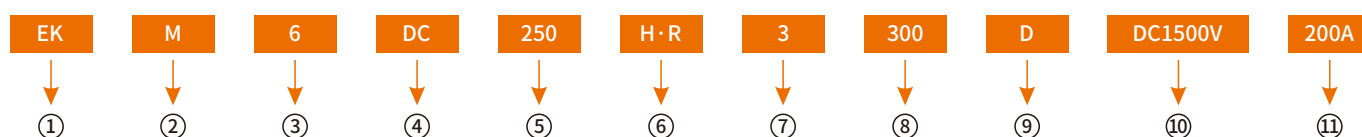
### Function Introduction

Through many years of dedicated research on the actual system operation situation and customer needs of new energy at home and abroad, ETEK Electric has developed the EKM6 DC series DC Molded Circuit Breaker for New Energy.

#### Product Characteristic

- EKM6 DC series Molded Circuit Breaker, The maximum rated voltage is DC 1500V, and the maximum current is 800A.
- EKM6 DC series Molded Circuit Breaker, in the voltage of DC 1500V, the maximum breaking capacity is 50kA, which can ensure reliable short-circuit protection of the system.

### Model Preparation Meaning



Code name	Meaning
①	ETEK
②	Molded Case
③	Design No.
④	DC-DC
⑤	Shell frame gradecurrent 250, 320, 400, 630, 800
⑥	Rated short-circuit breaking capacity rating H: high speed breaker R: current limiting type

Code name	Meaning
⑦	Phase No.
⑧	Stripper mode and attachment code (see Table)
⑨	External accessories D: Auto operation Z: Manual operation
⑩	Rated voltage DC250V, DC500V, DC750V, DC1000V, DC1250V, DC1500V
⑪	Rated current: 63-800A

### Standard

EKM6 DC series DC molded case circuit breaker meet the following standards

- IEC 60947-1 General Provisions
- IEC 60947-2 Circuit Breaker

### Applied Environment

1. The altitude is not higher than 5500m;
2. It is resistant to damp air (three-proof type)<sup>®</sup>
3. It is resistant to the influence of salt fog and oil fog (three-proof type);
4. It is resistant to the influence of mold (three-proof type);
5. In a medium without explosion risk, and the medium is not enough to corrode the metal and destroy the insulation of the gas and conductive dust.

Note: The three-prevention products should be specially customized, please indicate TH.

# EKM6 DC MCCB



DC High Voltage Molded Case Circuit Breaker

Standard\_ IEC60947-1  
IEC60947-2

## Main Technical Parameter

Appearance								
Model		EKM6DC-250, EKM6DC-320			EKM6DC-400			
Rated current of shell frame grade Inm(A)		250, 320			400			
Rated current In(A)		63, 80, 100, 125, 140, 160, 180, 200, 225, 250, 280, 315, 320			225, 250, 315, 350, 400			
Pole Number		2		3	2		3	
Rated working voltage Ue (V)DC		500	1000	1500	250/500	750/1000	1250/1500	1250/1500
Rated insulation voltage Ui (V)		1250		1500	1500			
Rated impulse withstand voltage Uimp (kV)		8		12	12			
Extreme short-circuit breaking capacity Icu (kA)	H Type	50	20	20	70	40	20	20 <sup>①</sup> , 40 <sup>②</sup>
	R Type	/	/	/	85	60	40	40 <sup>①</sup> , 50 <sup>②</sup>
Running short-circuit breaking capacity Ics (kA)		Ics=100%Icu						
Wiring mode		Up incoming and Down outcoming, Down incoming and Up outcoming (2P, 320/3P) Down incoming and Down outcoming, Up incoming and Up outcoming (3P)						
Mechanical life (Total times)		20000			10000			
Electrical life (Total times)		3000	2000	1500	1000	1000	700	500
Insulation feature		Yes						
Standard		IEC 60947-2, GB/T 14048.2						
Allowable ambient temperature		-40°C~+70°C						
Levels of protection		IP20						
Quality certificate		CB, TUV certificate						
With accessories		Auxiliary, alarm, off load, Hand operation, Electric operation						
Arcing distance (mm)		≤50 (Zero arc, with arcing cover)						
Transient Action value		10In						
Overall dimensions LxWxH(mm)	L	180		180	250		250	
	W	76		107	124		182	
	H	126		126	165		165	

Note: ① 2P connection in series



② 3P connection in series

# EKM6 DC MCCB



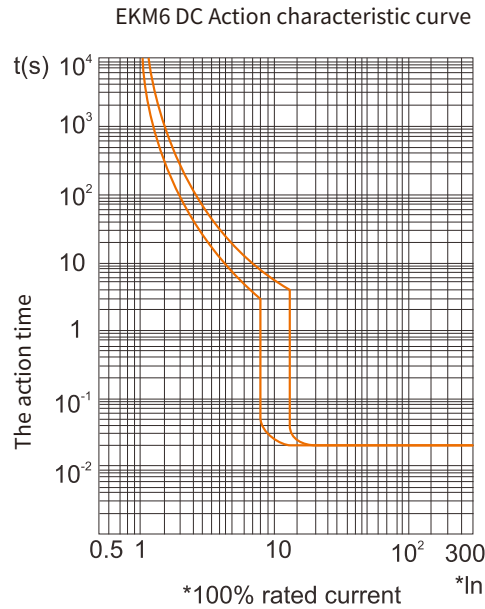
DC High Voltage Molded Case Circuit Breaker

Standard\_ IEC60947-1  
IEC60947-2

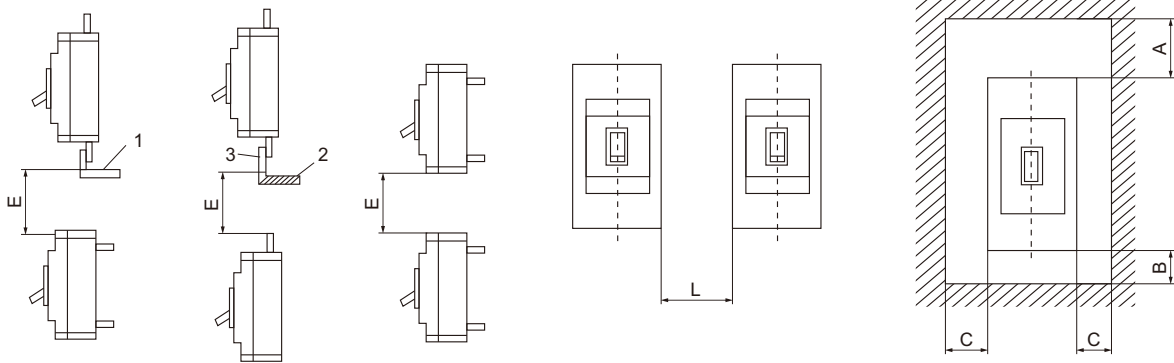
Appearance									
Model		EKM6DC-630				EKM6DC-800			
Rated current of shell frame grade Inm(A)		630				800			
Rated current In(A)		500, 630				700, 800			
Pole Number		2		3		2		3	
Rated working voltage Ue (V)DC		250/500	750/1000	1250/1500	1250/1500	250/500	750/1000	1250/1500	1250/1500
Rated insulation voltage Ui (V)		1500				1500			
Rated impulse withstand voltage Uimp (kV)		12				12			
Extreme short-circuit breaking capacity Icu (kA)	H Type	70	40	20	20 <sup>①</sup> , 40 <sup>②</sup>	70	40	20	20 <sup>①</sup> , 40 <sup>②</sup>
	R Type	85	60	40	40 <sup>①</sup> , 50 <sup>②</sup>	85	60	40	40 <sup>①</sup> , 50 <sup>②</sup>
Running short-circuit breaking capacity Ics (kA)		Ics=100%Icu							
Wiring mode		Up incoming and Down outcoming, Down incoming and Up outcoming (2P, 320/3P) Down incoming and Down outcoming, Up incoming and Up outcoming (3P)							
Mechanical life (Total times)		5000							
Electrical life (Total times)		1000	1000	700	500	1000	1000	700	500
Insolation feature		Yes							
Standard		IEC 60947-2, GB/T 14048.2							
Allowable ambient temperature		-40°C~+70°C							
Levels of protection		IP20							
Quality certificate		CB, TUV certificate							
With accessories		Auxiliary, alarm, off load, Hand operation, Electric operation							
Arcing distance (mm)		≤50 (Zero arc, with arcing cover)							
Transient Action value		10In							
Overall dimensions LxWxH(mm)	L	250		250		250		250	
	W	124		182		124		182	
	H	165		165		165		165	

Note: ① 2P connection in series  
② 3P connection in series

### Action Characteristic Curve of The Circuit Breaker



### Safe Distance During Circuit Breaker Installation

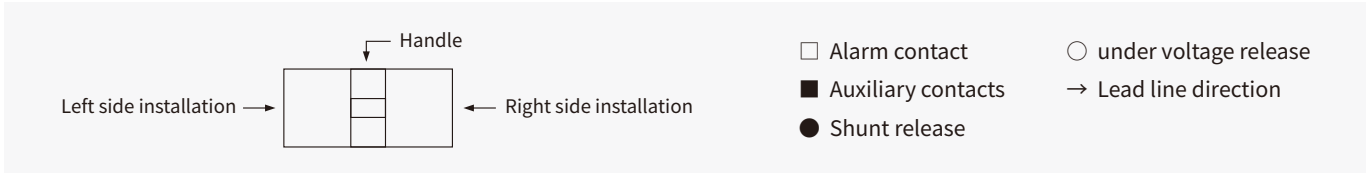


Type	L	A		B	C	E	
		Without zero arcing cover	With zero arcing cover			Without zero arcing cover	With zero arcing cover
EKM6-250	40	50	/	25	25	50	/
EKM6-320		50	65	25	25	50	130
EKM6-400	70	100	65	25	25	100	130
EKM6-630		100	65	25	25	100	130
EKM6-800		100	65	25	25	100	130

In above picture, there is 1. No insulated links 2. Insulated wires 3. Cable terminals

### Release Way and Accessory Code

Types according to tripping type: instantaneous buckle only (electromagnetic buckle: 200);  
hot moving + electromagnetic buckle (composite: 300)



Accessory code	Accessory name	EKM6-250/320	EKM6-(400-800)	EKM6-250/320	EKM6-(400-800)
		3, 4 pole		2, 3 pole	4 pole
200, 300	Without inner accessory	—	—	—	—
208, 308	Alarm Contact	← □	← □	—	← □
210, 310	Shunt release	□   ● →	□   ● →	—	□   ● →
220, 320	Auxiliary contact (1NO1NC)	← ■	—	← ■	—
	Auxiliary contact (2NO2NC)	—	← ■	—	← ■
202, 302	Auxiliary contact (2NO2NC)	← ■	—	—	—
230, 330	Under voltage releas	← ○     →	← ○     →	—	← ○     →
240, 340	Shunt release, Auxiliary contact 1NO1NC	← ■   ● →	—	← ■   ● →	—
	Shunt release, Auxiliary contact (2NO2NC)	—	← ■   ● →	—	← ■   ● →
212, 312	Shunt release, Auxiliary contact (2NO2NC)	← ■   ● →	—	—	—
250, 350	Shunt Release, Under voltage contact	← ○   ● →	← ○   ● →	—	← ○   ● →
260, 360	Group 2 auxiliary contact (2NO2NC)	← ■   ■	—	—	—
	Group 2 auxiliary contact (4NO4NC)	—	← ■   ■	—	← ■   ■
222, 322	Group 2 auxiliary contact (3NO3NC)	← ■   ■	—	—	—
223, 323	Group 2 auxiliary contact (4NO4NC)	← ■   ■	—	—	—
270, 370	Under Voltage Release, Auxiliary contact (1NO1NC)	← ○   ■	—	—	—
	Under Voltage Release, Auxiliary contact (2NO2NC)	—	← ○   ■	—	← ○   ■
232, 332	Under Voltage Release, Auxiliary contact (2NO2NC)	← ○   ■	—	—	—
218, 318	Shunt release Alarm Contact	← □   ● →	← □   ● →	—	← □   ● →
228, 328	Auxiliary contact (1NO1NC), Alarm Contact	← □   ■	—	—	—
	Auxiliary contact (1NO1NC), Alarm Contact	—	← □   ■	—	← □   ■
238, 338	Under voltage releas, Alarm Contact	← ○   □ →	← ○   □ →	—	← ○   □ →
248, 348	Shunt release Auxiliary contact (1NO1NC), Alarm Contact	← □   ● →	—	—	—
	Shunt release Auxiliary contact (2NO2NC), Alarm Contact	—	← □   ● →	—	← □   ● →
268, 368	Group 2 auxiliary contact (2NO2NC), Alarm Contact	← □   ■	—	—	—
	Group 2 auxiliary contact (4NO4NC), Alarm Contact	—	← □   ■	—	← □   ■
205, 305	Group 2 auxiliary contact (3NO3NC), Alarm Contact	← □   ■	—	—	—
278, 378	Group 2 auxiliary contact (1NO1NC), Under voltage releas, Alarm Contact	← ○   □ →	—	—	—
	Group 2 auxiliary contact (2NO2NC), Under voltage releas, Alarm Contact	—	← ○   □ →	—	← ○   □ →

### Auxiliary Contact

#### Auxiliary contact current parameters

Rated current of shell frame class	Agreed heating current	Rated operating current at AC400
$I_{nm} < 250$	3A	0.30A
$I_{nm} > 400$	6A	0.40A

#### Auxiliary contact and its combination

When the circuit breaker is in the "off" position	
When the circuit breaker is in the "on" position	

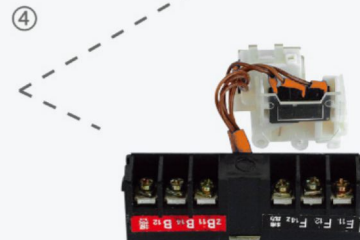
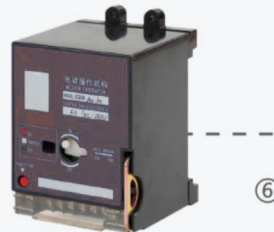
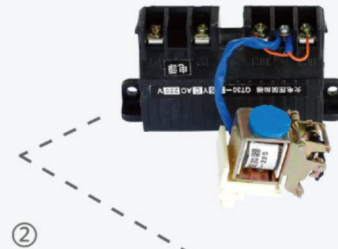
### Alarm Contact

#### Auxiliary contact and its combination

Alarm Contact $U_e=220V, I_{th}=3A$	
When the circuit breaker is the "off" and "on" positions	
When the circuit breaker is in the "free trip" position	

### Product Accessories

1. Ontology
2. Undervoltage release (customer purchase)
3. Shunt release (customer purchase)
4. Alarm contact (customer purchase)
5. Auxiliary contact (customer purchase)
6. Electric operating mechanism (customer purchase)
7. Hand-operated mechanism (customer purchase)
8. Terminal guard (customer purchase)
9. Front wiring board (customer option)
10. Arc partition (standard with the main body)



# EKM6 DC MCCB



DC High Voltage Molded Case Circuit Breaker

Standard\_ IEC60947-1  
IEC60947-2





### Shunt Release

Generally installed in the circuit breaker A phase, and between 70% -110% of the rated control power supply voltage, the distributor shall reliably buckle the circuit breaker under all operating conditions.

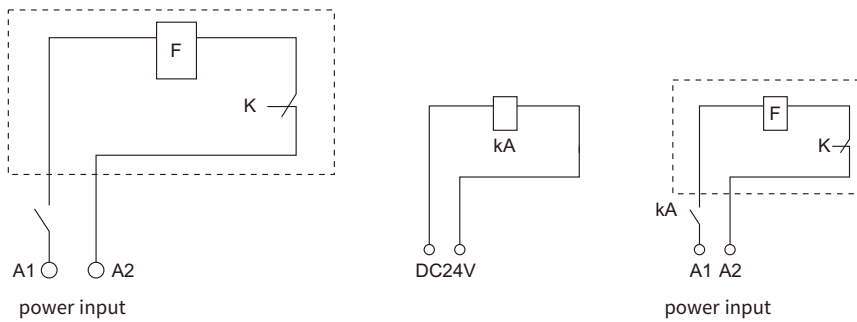
Control voltage: General: DC 24V, 100V, 220V.

Note: when the control circuit power supply is DC24V, it is recommended to use the following figure for the excitation control circuit design.

KA: is a DC24V intermediate relay with a contact current capacity of 1A.

The micro switch in series between the K: tap and the coil is normally closed contact. When the circuit breaker is disconnected, the contact is disconnected by itself and closed when closed.

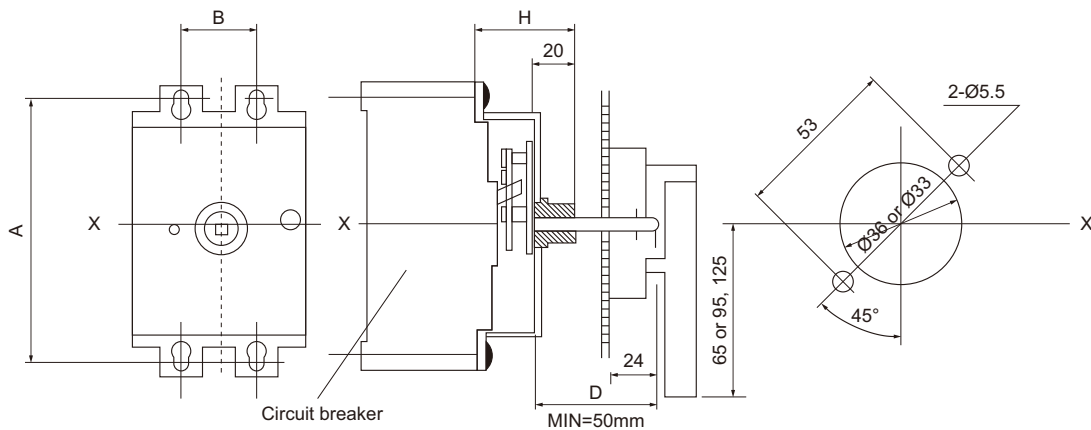
### Wiring diagram of excitation tripping



### Installation Method and Overall Dimension of External Accessories

#### Turning the operating handle mechanism type and specification

Model	installation dimension (mm)				Operator handle relative to circuit breaker center value(mm)
	A	B	H	D	
CZ2-320/EKM6	157	35	55	50-150	0
CZ2-400/EKM6	224	48	78	50-150	±5



# EKM6 DC MCCB

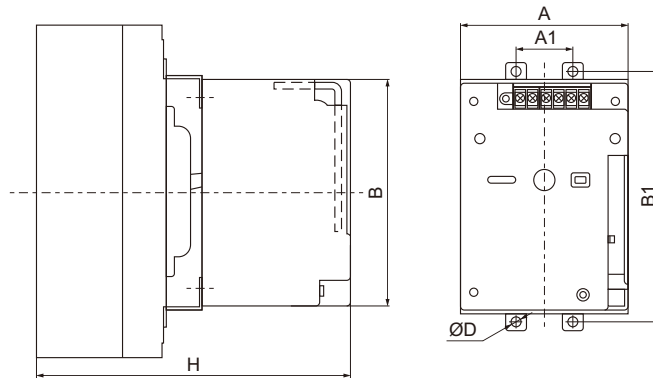
DC High Voltage Molded Case Circuit Breaker

Standard\_ IEC60947-1  
IEC60947-2

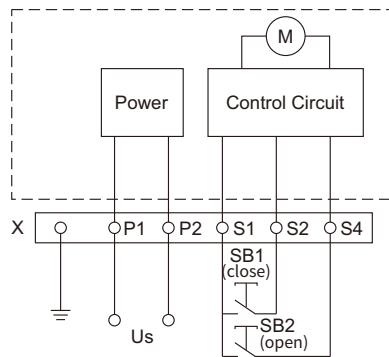
## Model and specification of electric operating mechanism

Model	H	B	B1	A	A1	D
EKM6-320	188.5	116	126	90	35	4.2
EKM6-400	244	176	194	130	48	6.5

## CD2 Outline and installation dimensions schematic diagram



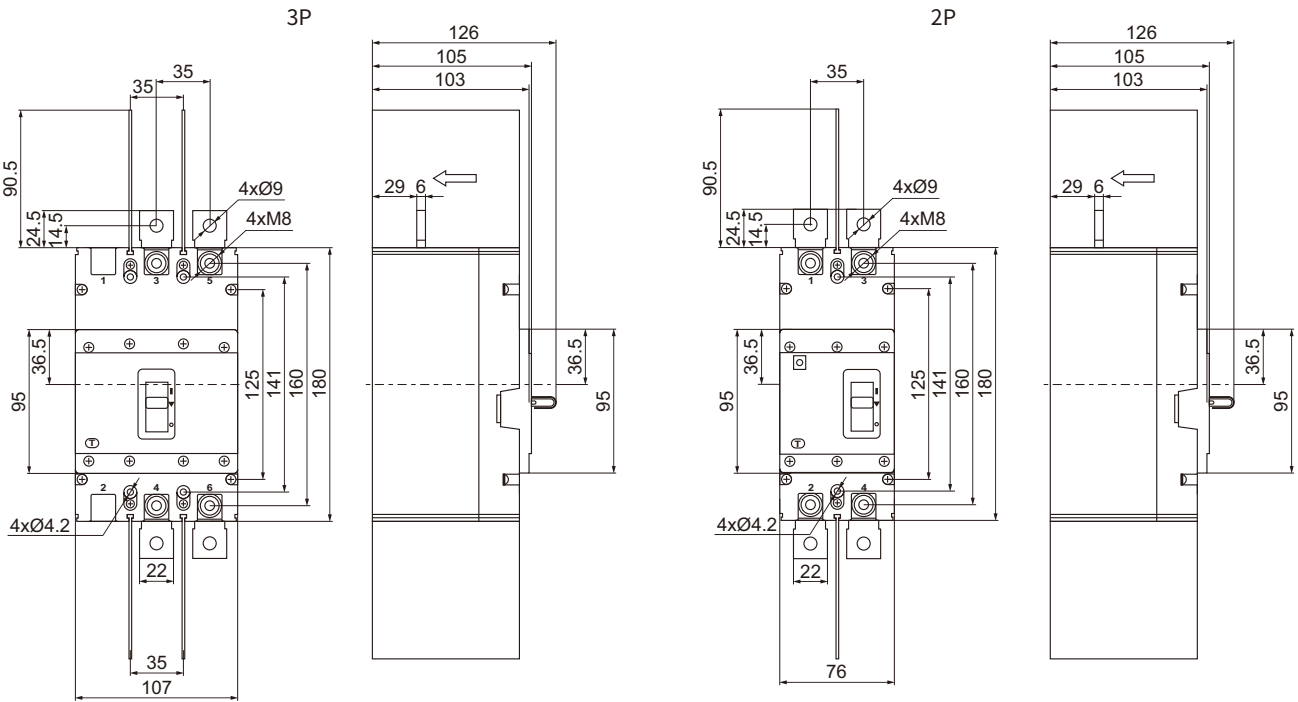
## Electric power operator mechanism wiring diagram



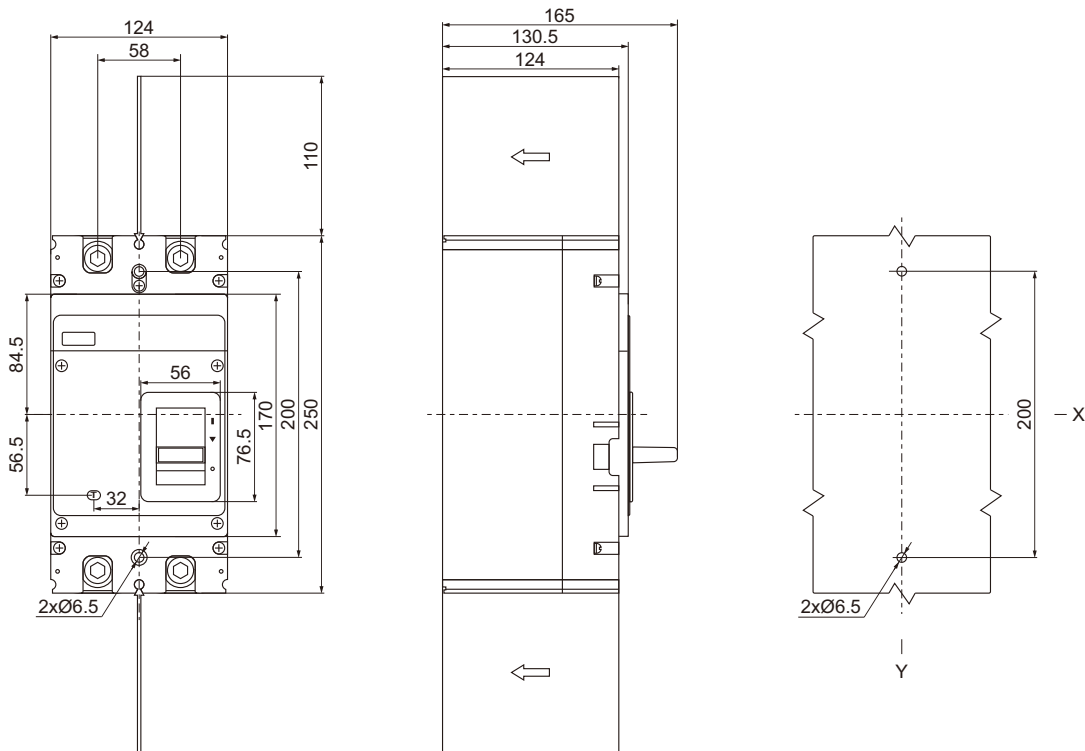
Symbol Description:  
 SB1, SB2 operation button (user-owned)  
 X terminal row  
 P1, P2 Power Supply for External Supply

## Outline and Installation Dimension Method and Its Overall Dimension

EKM6DC-250/320 Outline and installation of hole opening dimensions



EKM6DC-400/630/800 Outline and installation of hole opening dimensions (2P)

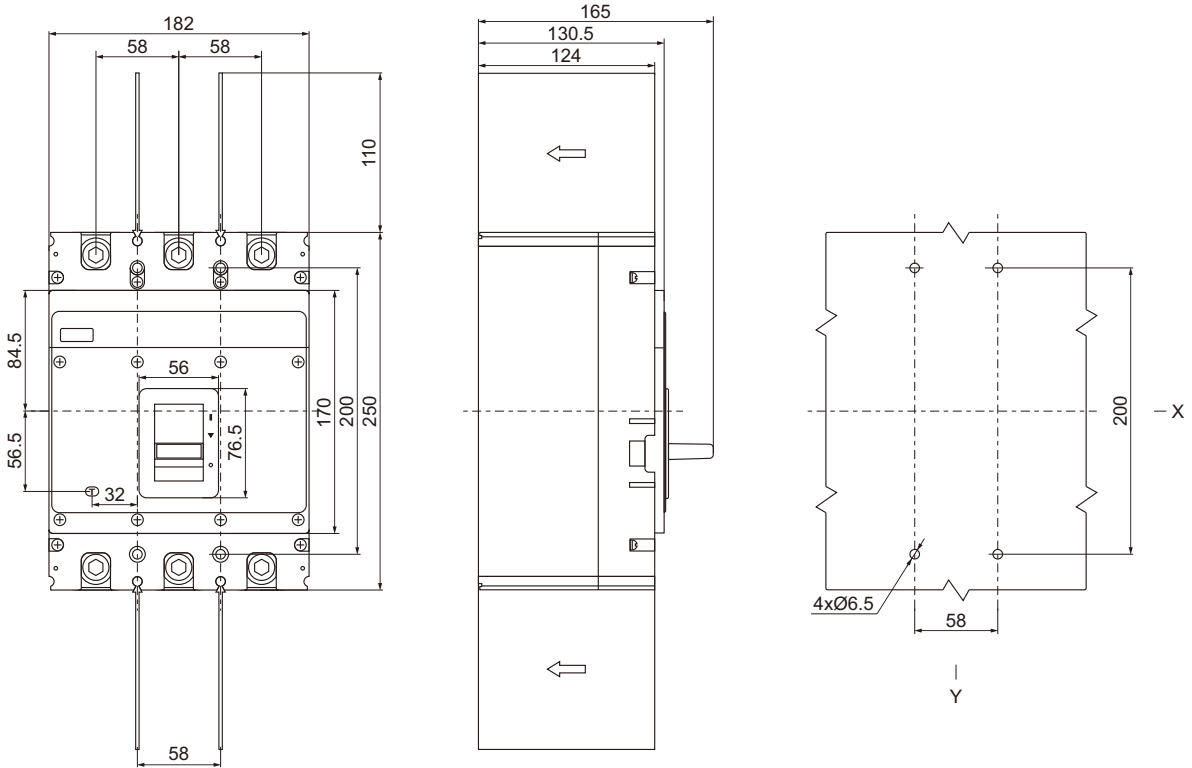


# EKM6 DC MCCB



DC High Voltage Molded Case Circuit Breaker ----- Standard\_ IEC60947-1  
IEC60947-2

## EKM6DC-400/630/800 Outline and installation of hole opening dimensions (3P)



## EKM6 with arc cover installation drawing

Circuit breaker	Arcing cover length: A	Total length: B
EKM6-320	64	245
EKM6-400/630/800	64	314

