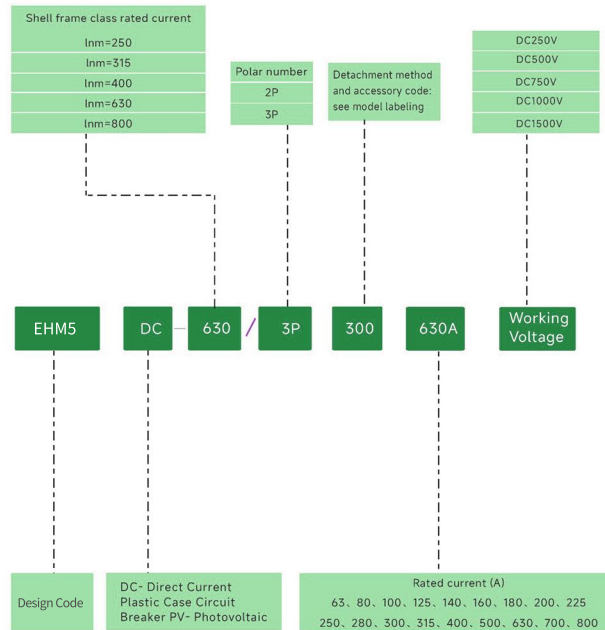




Quick Selection Chart




Scope of application and use

EHM5DC series DC special circuit breaker (hereinafter referred to as circuit breaker) is used in its rated voltage DC250V - DC1500V rated operating current 63A - 800A DC power grid circuit, this circuit breaker has a long time delay overload, short-circuit instantaneous protection function, used to distribute power and protect the line and power supply equipment from overloads, short-circuits, and other fault hazards.

Conforms to the standard:
 GB/T14048.1 «Low-voltage switchgear and controlgear Part 1: General Provisions»
 GB/T14048.2 «Low-voltage switchgear and controlgear Part 2: Circuit Breakers»

Normal operating conditions and installation conditions

- ◆ The altitude of the installation site does not exceed 2000m.
- ◆ Allowable ambient temperature is not higher than +70°C, not lower than -45°C; (over +40°C to reduce the capacity to use, specific must consult with the manufacturer);
- ◆ Atmospheric conditions: such as 90% at 20°C, and taking into account the condensation that occurs on the surface of the product due to temperature change, the relative humidity of the atmosphere does not exceed 50% when the ambient temperature is 40°C, and higher relative humidity is permitted at lower temperatures.
- ◆ Pollution level is class 3.
- ◆ Installation category is Chuán.
- ◆ Installation magnetic field: the magnetic field at the installation position is not more than 5 times of the geomagnetic field in any direction;
- ◆ in a medium with no danger of explosion and without gases and conductive dust in the medium sufficient to corrode the metal and destroy the insulation: in a place where there is no wind or snow erosion.
- ◆ Installation conditions: Horizontal and vertical installation is possible; the installation place should be free from significant shock and vibration; it shall not be installed in flammable and explosive places.
- ◆ Circuit breaker has isolation function, the symbol is 

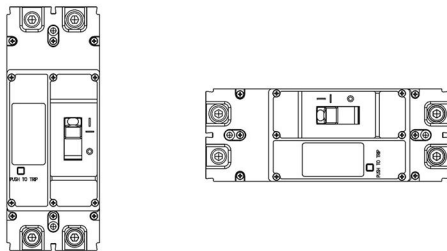
Decoupling Method and Accessory Designator

Tripping method	Type of annex							
	Shunt disconnect	Auxiliary Contacts	Warning contact	Auxiliary contact of shunt release	Alarm contacts for shunt disconnectors	Two sets of auxiliary contacts	Auxiliary Contacts Alarm Contacts	
Electromagnetic release	210	220	208	240	218	260	228	
Compound type	310	320	308	340	318	360	328	
Tripping method	Type of annex							
	Horseshoe Group Auxiliary Contacts Alarm Contacts	Shunt release auxiliary contact alarm contact						
Electromagnetic release	268	248						
Compound type	368	348						

Note:
 1, the first digit of detent mode and internal accessory code 2 indicates electromagnetic (instantaneous) detent, 3 indicates thermal - electromagnetic (compound) detent; the last two digits indicate the internal accessory code, such as no accessory with 00.
 2, EHM5DC-630, EHM5DC-630 248, 348, specifications of the auxiliary contact a pair of contacts (a normally open and normally closed), 268, 368 specifications of the auxiliary contact for the three pairs of contacts (i.e., three normally open and three normally closed).

Installation

This series of circuit breakers are generally mounted vertically, but can also be mounted horizontally (see the following figure)



Cross-sectional area of the connecting conductor and the corresponding rated current

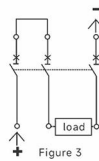
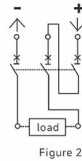
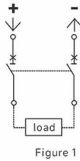
Rated current value(I)	63	80	100	125	160	180, 200, 225	250	280, 300	315, 350	400	
Cross-sectional area of conductor(mm²)	16	25	35	50	70	95	120	185	185	240	
Rated current value (A)	Copper row					Copper row					
	Root number	Cross-sectional area per wire (mm²)					Root number	Cross-sectional area per wire (mm²)			
500	2	150					2	30×5			
630	2	185					2	40×5			
700	2	240					2	50×5			
800	2	240					2	50×5			

Main technical data and performance indicators

Model number		EHM5DC - PV									
Shell frame grade		250		315		400		400V			
Rated current (A)	In	63A, 80A, 100A, 125A, 140A, 160A, 180A, 200A, 225A, 250A		280A, 300A, 315A		250A, 315A, 350A, 400A		250A, 315A, 350A, 400A			
Rated insulation voltage (kV)	Ui	1500V									
Rated impulse withstand voltage (kV)	Uimp	12kV									
typology		DC		PV		DC		PV			
Rated Working Voltage (V)	Ue	2P外形	DC250V, DC500V, DC750V, DC1000V		DC250V, DC500V, DC750V, DC1000V		DC250V, DC500V, DC750V, DC1000V, DC1500V		DC250V, DC500V, DC750V, DC1000V, DC1500V		
		3P外形	DC1000V, DC1250V, DC1500V		DC1000V, DC1500V		DC1000V, DC1500V				
Rated ultimate short circuit breaking capacity (kA)	Icu	2P shape	DC1000V: 15	DC350V, DC500V: 50 DC750V, DC1000V: 25	DC350V, DC500V: 25 DC750V, DC1000V: 15	DC350V, DC500V: 50 DC750V, DC1000V: 25	DC1000V(IP shape): 30 DC500V(IP shape): 25	DC1000V(IP shape): 40 DC500V(IP shape): 30			
		3P shape	DC1500V: 20	DC1000V, DC1250V, DC1500V: 25	DC1000V: 30 DC1500V: 25	DC1000V: 40 DC1500V: 30					
Rated opening time (opening capacity) (kA) Ics		100%Icu									
Wiring Method		2P shape (Figure 1), 3P shape (Figure 2)		2P shape (Figure 1), 3P shape (Figure 3)		2P shape (Figure 1)					
Isolation function		Yes									
Category of use		Cat.		A							
mechanical life		second		20000				15000			
Electrical life		second		1500		1000		800		500	
Arc distance		mm		> 50				> 100			
Overall dimensions		mm		2P shape 3P shape		200×73×135		270×130×156		275×106×149	
base ambient temperature		°C		40				40			

Model		EHMSDC- PV					
Shell frame grade		630		630V		800	
Rated current (A)		400A, 500A, 630A		400A, 500A, 630A		630A, 700A, 800A	
Rated insulation voltage (V)		1500V					
Rated impulse withstand voltage (kV)		12kV					
typology		DC		PV		PV	
Rated Working Voltage (V)		2P shape DC250V, DC500V, DC750V, DC1000V		3P shape DC1000V, DC1250V, DC1500V		DC250V, DC500V, DC750V, DC1000V	
Rated ultimate short circuit breaking capacity (kA)		2P shape DC1000V: 35 DC1500V: 25		3P shape DC1000V: 30 DC1500V: 25		DC250V, DC500V: 25 DC750V, DC1000V: 15	
Rated opening time (ms)		100%Icu					
Wiring Method		2P shape (Figure 1), 3P shape (Figure 2)		2P shape (Figure 1)		2P shape (Figure 1), 3P shape (Figure 3)	
Isolation function		Yes					
Category of use		A					
Mechanical life		second		20000		15000	
Electrical life		second		1500		800 500	
Arc distance		mm		> 100		> 100	
Overall dimensions		mm		270× 130× 156		275 × 106× 149	
base ambient temperature		°C		40		40	

■ Wiring Method



Maintaining Characteristics

Circuit breaker thermally actuated disconnectors with inverse time limit specificity; electromagnetic disconnectors for instantaneous action, the characteristics of the following table

power distribution

Circuit breaker rated current (A)	Thermal actuated disconnectors (ambient temperature +40°C)		Electromagnetic striker operating current(A)
	1.05In (cold) inactivity time (h)	1.3In (thermal) operation time (h)	
63	≤1	≤1	10In±20%
63 < In ≤ 800	≤2	≤2	

Power Loss Table

Model	Energizing current (A)	Three-pole/four-pole total power loss (W)
EHMSDC-250	250A	40
EHMSDC-315	315A	43
EHMSDC-400	400A	115
EHMSDC-400V	630A	105
EHMSDC-630	800A	187
EHMSDC-630V	630A	127
EHMSDC-800	800A	252

Reduction coefficient of rated operating current of thermal actuated disconnectors with ambient temperature change

Circuit Breaker Model	Environmental temperature						
	+40°C	+45°C	+50°C	+55°C	+60°C	+65°C	+70°C
EHMSDC-250	1.0In	1.0In	1.0In	0.95In	0.93In	0.91In	0.88In
EHMSDC-315	1.0In	1.0In	1.0In	0.95In	0.93In	0.91In	0.88In
EHMSDC-400	1.0In	1.0In	1.0In	0.93In	0.91In	0.89In	0.85In
EHMSDC-630	1.0In	1.0In	1.0In	0.92In	0.90In	0.89In	0.83In
EHMSDC-800	1.0In	1.0In	1.0In	0.92In	0.89In	0.85In	0.80In

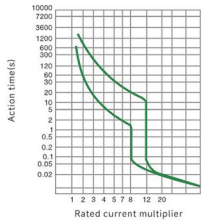
Elevation drop

Altitude exceeding 2000m above the applicable working environment, the electrical performance of the circuit breaker can refer to the following table

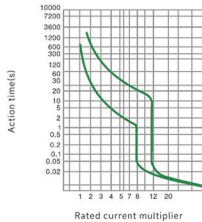
Altitude(M)	2000	2500	3000	3500	4000	4500	5000
Maximum working current coefficient	1	1	0.98	0.95	0.93	0.91	0.89
Maximum working voltage(V)	1	1	1	1	1	1	1
Working frequency withstand voltage	1	1	1	1	1	1	1
Insulation voltage	1	1	1	1	1	1	1

Characteristic curve

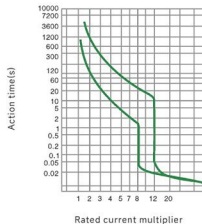
Note: Characteristic curves are measured at cold, three-phase loads.



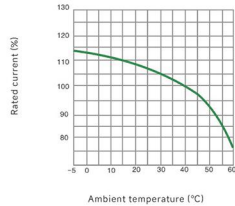
EHM5DC-250, 315 Characteristic curve



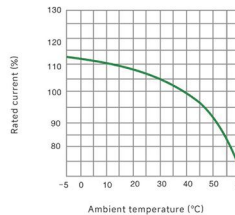
EHM5DC-400 Characteristic curve



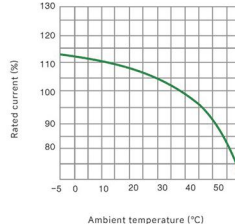
EHM5DC-630, 800 Characteristic curve



EHM5DC-250, 315 Temperature compensation curve



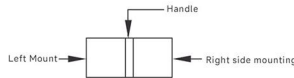
EHM5DC-400 Temperature compensation curve



EHM5DC-630, 800 Temperature compensation curve

Attachment

Circuit breaker internal accessories According to the user's needs, the circuit breaker accessories can be directly led out of the wire (wire length of 50cm, there are special requirements need to be specified,) or add a terminal block



- Alarm Contacts
 - Separate excitation disconnectors
 - Auxiliary contact
- leading-line direction

Decoupling Methods and Accessory Designators	Model	Poles		
		EHM5DC-250, 315	EHM5DC-400V, 630V	EHM5DC-400, 630, 800
208, 308	Alarm contact			
210, 310	Separate excitation disconnectors			
220, 320	Auxiliary contact			
240, 340	Auxiliary contact			
260, 360	Two auxiliary contacts			
218, 318	Alarm contact			
228, 328	Auxiliary contact Alarm contact			
248, 348	Shunt striker Alarm contact Auxiliary contact			
268, 368	Group of auxiliary contacts Alarm contact			

Note:
1, the first digit of detent mode and internal accessory code 2 indicates electromagnetic (instantaneous detent), 3 indicates thermal - electromagnetic (compound) detent; the last two digits indicate the internal accessory code, such as no accessory with 00.

2, EHM5SHU-630, EHM5DC-630 in 248, 348, specifications of the auxiliary contact a pair of contacts (a normally open and a normally closed), 268, 368 specifications of the auxiliary contact for the three pairs of contacts (i.e., three normally open and three normally closed).

Annexes and their functions (internal annexes)

Shunt excitation disconnectors

- ◆ Can be used for long-distance tripping of circuit breaker.

Note: When DC24V shunt disconnector is selected, the power supply power of shunt disconnector terminal must be >50W.



Auxiliary Contacts

- ◆ Used to indicate the opening and closing status of the circuit breaker.
- ◆ One group is normally open and one group is normally closed for Inn 125, 250.
- ◆ One set is normally open and one set is normally closed for Inn 400, 630, 800;

Warning contact

- ◆ It is used to indicate the fault release state of the circuit breaker;
- ◆ Alarm contact does not operate when the circuit breaker is normally opening and closing, but only operates in the state of free release or fault tripping. When the circuit breaker is reclosed, the alarm contact returns to the original state.

Note: All internal accessories except under-voltage disconnectors can be selected as leaded accessories if the mounting dimensions are affected by external terminals.

Auxiliary contact of shunt release

- ◆ Integrated type, space-saving, meet the multi-accessory installation;
- ◆ The performance and parameters of shunt release are the same as those of independent shunt release;
- ◆ Auxiliary contacts are one normally open and one normally closed.

Note: When DC24V shunt release is selected, the power supply of the shunt release terminal must be >50W.

Rated voltage Us	AC230V	AC400V 50Hz
	DC220V	DC110V

Reliable operation range:70%-110%Us

Inn (A)	Ith (A)	Ith (A)	Ith (A)
		AC400V	DC220V
250~800	3	0.3	0.15

Circuit breaker status Auxiliary contact status

In the "open" position	F11 (F21)	F14 (F24)	F12 (F22)
In the "closed" position	F11 (F21)	F14 (F24)	F12 (F22)

Inn (A)	Ith (A)	Ith (A)	Ith (A)
		AC400V	DC220V
250~800	3	0.3	0.15

breaker status Auxiliary contact status

In the "open and close" position	B11	B12	B14
	B11	B12	B14

Rated voltage Us	AC230V	AC400V 50Hz
	DC220V	DC110V

Reliable operation range:70%-110%Us

Inn (A)	Ith (A)	Ith (A)	Ith (A)
		AC400V	DC220V
250~800	3	0.3	0.15

breaker status Auxiliary contact status

In the "open" position	F11 (F21)	F14 (F24)	F12 (F22)
In the "closed" position	F11 (F21)	F14 (F24)	F12 (F22)

Accessories and their functions (external accessories)

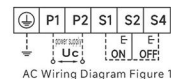
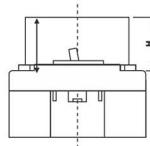


CD2 type motorized electric operating mechanism

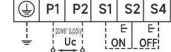
- ◆ Can be used for circuit breaker electric
- ◆ Can be used for EHM5HU, EHM5DC, EHM5PV (250-800) circuit breakers.

Reliable operation range: 85%-110% Us		
Rated voltage Us	AC230V 50Hz	AC400V 50Hz
	DC24V, 110V, 220V	
Shell frame rating current Inn	250-315	400-800
Starting power (W)	14	35
Lifespan (times)	20000	10000
Reliable operation range:85%-110%Us		

Mounting dimensions and wiring diagram for electric actuator (external accessories)



AC Wiring Diagram Figure 1



AC Wiring Diagram Figure 2

Shell frame rating current Inn	250/315	400/2P, 3P	800/2P, 3P
Height H(mm)	98	136	138

Description: P1-P2: external power input. S1, S2: operation buttons (user-provided) Voltage specification: AC50Hz/60Hz 110V, 230VDC24V, 110V, 220V Symbol description: S1, S2 for the operation button (user-provided) X is terminal block, P1, P2 is external power input.

CD2 motor type wiring schematic

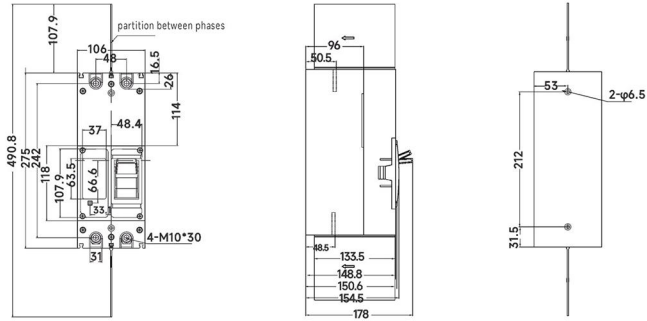
Note: The dashed box shows the wiring diagram of the internal accessories of the circuit breaker.

CT2 type manual operating mechanism

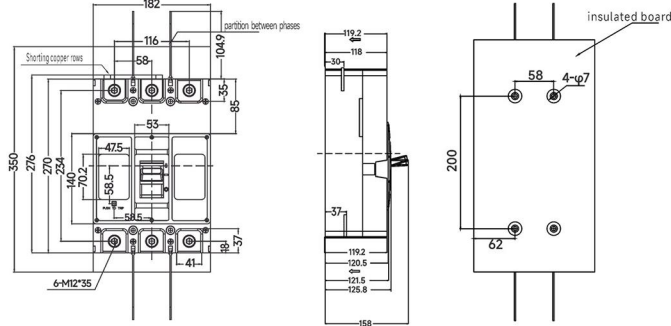
- ◆ For manual opening and closing operations outside the circuit breaker cabinet
- ◆ Available for EHM5HU, EHM5DC, EHM5PV (250 to 800) circuit breakers.



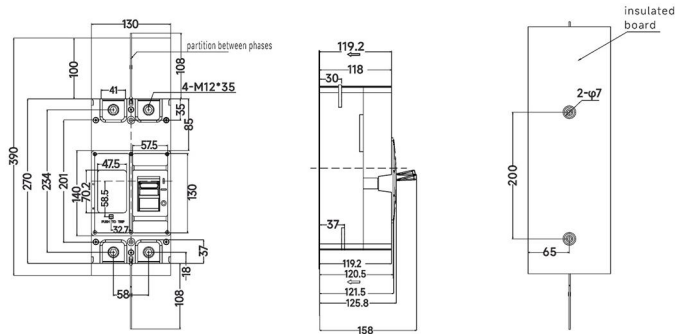
- EHM5DC -400V, 630V wiring installation dimensions in front of the board (2P)
(Note: consult sales before selection, currently not mass production)



- EHM5DC -630, 800 board front wiring mounting dimension drawing (3P)



- EHM5DC -400, 630, 800 board front wiring installation dimensions (2P)



EHM5DC, PV Customer Selection Chart

Model: EHM5 -/-

Series Derivation Code: DC PV

Shell frame grade: 250 315 400 400V 630 630V 800

Poles number: 2: 2 poles 3: 3 poles

Release code: 0: no release 2: instantaneous release only 3: compound release

Accessories: Single auxiliary contact Double auxiliary contact Alarm contact
 Shared excitation detacher Shared excitation auxiliary contact

Auxiliary alarm contact (single accessory: combines auxiliary and alarm functions, auxiliary has only one opening and one closing)

Rated current: 63 80 100 125 140 160 180 200 225 250 280 300
 315 400 500 630 700 800

Wiring method: No: Front panel wiring

Note: 1. 400V, 630V shell frame 2P only;

2.2P products can only be left loaded with one accessory;

3. EHM5DC-400 and above, 3P products into the line end AB short, NLDM5DC-250, 315, 3P products into the line end BC short;

Operation mode: None: Direct handle operation P: Electric operation
Z: Turning handle operation

Rated working voltage: DC250V DC500V DC750V DC1000V DC1500V