HONGFA GROUP

HONGFA

MOLDED CASE CIRCUIT BREAKER

UEM5 series

INTRODUCTION

Hongfa, (Shanghai Stock Exchange: 600885), founded in 1984, has been adhering to the enterprise spirit of “persevere for progress, strive for excellence”, and has built a complete industry system with complete categories and supporting facilities. At present, Hongfa has more than 30 subsidiaries and has established three districts of R & D and production bases. Its products cover various categories, such as medium and low voltage products, relays, high and low voltage switchgear, capacitors, precision parts and automation equipment.

Xiamen Hongfa Electrical Safety & Controls Co., Ltd. is a wholly-owned subsidiary of Hongfa, which specializes in R & D, design and manufacture medium and low voltage products. Its distribution apparatus, terminal apparatus, control apparatus and other products are widely used in real estate, electric power, new energy, industry, HVAC, transportation, information and other fields.

In the United States, Europe, Southeast Asia and other regions, Hongfa has established localized marketing and service networks with global market operation and technical service. Relying on professional and rigorous technical support, fast response and all-round service, safe and reliable product quality and high cost performance, Hongfa has reached business cooperation relationship with many global top 500 enterprises and other well-known enterprises, such as Enel, GE, Honeywell, Carrier, Trane, Johnson Controls, Danfoss, State Grid, China Southern Power Grid, CRRC, China Mobile, China Unicom, etc.

Sunban Industrial Park

Donglin Industrial Park

Haicang Industrial Park

Zhongjiang Industrial Park

Zhangzhou Industrial Park

Zhoushan Industrial Park

Xi'an Factory

In terms of technology R & D and manufacturing, taking the national enterprise technology center as the platform, Hongfa has set up postdoctoral research workstation, academician and expert workstation. Now it has developed into a leading scientific research and production base in the industry. From product development, mold manufacturing, parts manufacturing, automated product assembly and online testing, Hongfa has successfully built an integrated whole industry chain of medium and low voltage products. In terms of product testing, Hongfa testing center has passed the certification of VDE, UL, CNAS and other international organizations, and has complete testing and analysis equipment for low-voltage products, such as 50kA ultimate short circuit test, 8kA electrical life test, 80kA characteristic test, mechanical simulation and testing system, electro-magnetic simulation and testing system.

Hongfa always adheres to the policy of "focused on the market, winning through quality", and has a completed quality assurance system. Its products have passed UL / CUL, VDE, CQC, CCC and other international safety certification. In the process of quality management, Hongfa actively implements the advanced quality concept, constantly improves the quality management system, continuously promotes the product process quality control and testing, strengthens the supply chain management, and is committed to providing each customer with high-quality products and creating greater value.

Advanced technology and strict quality control have created Hongfa's brand strength. Hongfa is willing to work hand in hand with global customers to share the convenience and well-being brought by science and technology.

CONTENT

Content List

UEM5 Series
Molded Case Circuit Breaker

CONTENT

Content List

UEM5 Direct Current Series Molded Case Circuit Breaker

NOTE:
The contents and data in this catalogue are not binding. We reserve the right to modify the contents of this document on the basis of technical development of the products, without prior notice. The real order requirements and technical agreements shall prevail.

Product Overview

Scope of application

The UEM5 series molded case circuit breakers (hereinafter referred to as: the circuit breakers) are suitable for use in AC 50Hz circuit, having rated current from 16A to 800A, rated insulation voltage of 800V and rated operational voltage of 400V and below. They have the functions of overload, short circuit and undervoltage protection. The UEM5L series also has residual current protection function to protect people from electric shock and to prevent fire caused by insulation damage. Under normal circumstances, the circuit breakers can be used for infrequent switching of circuits and infrequent starting of motors.

The circuit breakers can be equipped with undervoltage release, shunt release, auxiliary contact, alarm contact, motorized operating mechanism, manual operating mechanism and other accessories. They are suitable for isolation. The corresponding symbol is  ".

Product features

- The base and cover, which is made of USA IDI company's thermosetting material, have high strength and insulation quality, in order to ensure the breaker's performance reliability.

- The operating mechanism is advanced in design with fast breaking speed and small tripping force. The use of a "two-step tripping system" reduces the size of the circuit breaker and improves the performance of withstand voltage and short-circuit breaking capacity.

- The contact system adopts the principle of electromagnetic repulsion. Once there is a fault current, the electric repulsion force will make the moving and fixed contacts rapidly break, lock the moving contacts and increase the open distance to avoid the arc reburning using the Hongfa unique patent technology, so as to achieve current limiting and improve the breaking capacity.

- The circuit breakers of the same frame size but with different breaking capacity such as M and H type, share absolutely identical overall and installation dimensions, which can extremely improve the interchangeability.

- The design of cassette-type accessories (including shunt release, under-voltage release, auxiliary and alarm contact) ensures the flexibility of control function. The user can install them without opening the cover, and no adjustment is needed. The high safety operation has been achieved thanks to insulation box design principle.

- The UEM5L series MCCB with residual current protection has reliable low-voltage protection, which ensures that residual current protection works normally even with the line voltage low to 50V. The residual current sens itivity of the products is adjustable, and the operating time with time delay or not is adjustable.

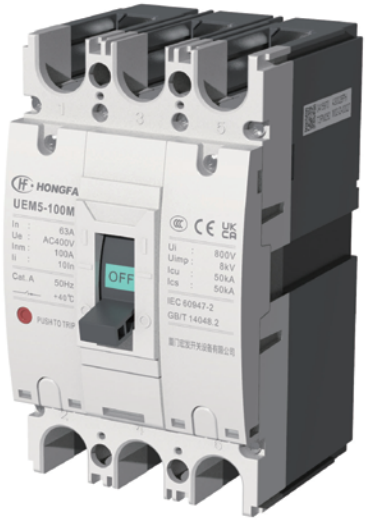
- The rated insulation voltage for the whole series is up to 800V, and rated impulse withstand voltage is up to 8000V, which realize high reliability and safety.

- The advanced alloy material for moving contacts has been used to ensure high mechanical and electrical endurance.

Certificates of compliance

CB	**CB**	IEC 60947-2
CCC	**CCC**	GB/T 14048.2
UKCA	**UKCA**	BS EN 60947-2
CE	**CE**	EN 60947-2

Appearance



Standard operating environment and installation conditions

Operating temperatur

- The UEM5 series MCCB is designed to work in the environment temperature starting from -25°C to +70°C. Storage environment temperature is -40°C to +70°C.

- The reference working temperature of the thermoelement with thermal magnetic overcurrent release is +40°C.

- Due to the temperature characteristics of bimetal, it needs to reduce its thermal tripping value between +40°C to +70°C.

- When the temperature is below +40°C, the thermal tripping value can be somewhat increased.

- The performance of microprocessor-based over-current release does not fluctuate due to the change of temperature. However, when the temperature is higher than +40°C, the rated continuous current will be reduced due to some changes in the copper parts (dynamic and static contacts and connec tion terminals) flowing through the circuit breaker, and the maximum setting value of overload protec tion function needs to be reduced.

- When the temperature is higher than +70°C, the performance of the circuit breaker cannot be guaran teed.

- In order to ensure the continuity of operation of electrical equipment, it is necessary to consider if the temperature is suitable for all the equipment to work properly and not only to consider the operating temperature of the circuit breaker. Adopt strong ventilation when and where necessary.

Standard operating environment and installation conditions

Operating altitude

- The performance of the circuit breakers will not be affected whenever altitude remains within 2000m.

- When the altitude is higher than 2000 meters, the composition, insulation, cooling and air pressure of the atmosphere will change with the increase of altitude. At this time, the performance of the circuit breaker will be reduced. It is mainly man ifested in some main parameters, such as the maximum operational voltage, rated operational current and dielectric strength.

Altitude (m)	2000	3000	4000
Rated operating voltage (V)	690	600	500
Rated operating current at 40°C (A)	1xIn	0.95xIn	0.90xIn
Dielectric strength (V)	3000	2500	2100

Pollution degree

Pollution degree of the circuit breakers: 3
Pollution degree of accessories installed in the circuit breakers: 2

Installation category

Installation category of the main circuit: 3
Installation category of auxiliary circuit and control circuit: 2

Installation condition

The circuit breaker can be installed vertically or horizontally. The connection is upper incoming and bottom outgoing, and the external magnetic filed should not exceed 5 times the geomagnetic field in the installation site in any direction.

Technical parameters

Product code

UE	M	5	L	-	100	M	/	80	-	3	3	00	0	1	A	V	-P1	H	LSIP

Manufacturer code
UE: HESC

Product code
M: Molded case circuit breaker

Design series number
5: Series 5

Protection release type
Omitted: thermal and magnetic protection
L: thermal, magnetic and residual current protection
Z1: Intelligent electronic overcurrent protection

Frame size
See selection table

Rated breaking capacity
L: Standard type M: Medium breaking capacity
H: High breaking capacity

Rated current (if Z1, setting current)
See selection table

Number of poles
3: 3P; 4: 4P

Release code
2: magnetic 3: thermal+magnetic

Internal accessory
00: No accessory; 08: Alarm contact; 10: Shunt release;
18: Alarm contact + shunt release; 20: Auxiliary contact;
28: Alarm contact + auxiliary contact; 30: Undervoltage release;
38: Alarm contact + undervoltage release; 40: Auxiliary contact + shunt release;
48: Alarm contact + auxiliary contact + shunt release;
50: Shunt release + undervoltage release; 70: Auxiliary contact + undervoltage release;
78: Alarm contact + auxiliary contact + undervoltage release

Internal accessory voltage
0: No voltage; 1: AC220V; 2: AC380V; 3: DC24V; 4: DC110V; 5: DC220V

Application type code
1: For power distribution; 2: For motor protection

N-pole protection function
Omitted: 3-pole product without N pole
A: N-pole without protection and always connected;
B: N-pole without protection and opening and closing together with L poles;
C: N-pole with over current protection and opening and closing together with L poles;
D: N-pole with over current protection and always connected

Residual current protection release type
Omitted: Non-residual current protection products
V: AC type current Δt = 0.1/0.3/0.5 (100/250 frame; Δt = 0.2/0.5/1.0 (400/630/800 frame)
W: AC type current Δt = 0.2/0.4/1.0 (100/250 frame; Δt = 0.1/0.3/0.4 (400/630/800 frame)
VA: A type current Δt = 0.1/0.3/0.5 (100/250 frame; Δt = 0.2/0.5/1.0 (400/630/800 frame)
WA: A type current Δt = 0.2/0.4/1.0 (100/250 frame; Δt = 0.1/0.3/0.4 (400/630/800 frame)
Note: The standard type is VA unless otherwise stated.

Operating type
Omitted: Operated by handle directly
PX: Operated by motorized operating mechanism P1: CD2 AC220V; P2: CD2 AC380V; P3: CD2 DC24V; P4: CD2 DC110V;P5: CD2 DC220V;
ZX: Operated by rotary operating mechanism Z1: SC1-F; Z2: SC1-Y

Connection type
Omitted: Front connection (without connection board); Q: Front connection (with connection board);
H: Rear connection; RQ: Plug-in type front connection; RH: Plug in type rear connection;
CQ: Withdrawable type front connection; CHH: Withdrawable type rear connection horizontal terminal;
CHV: Withdrawable type rear connection vertical terminal

Protection function (only applicable to electronic over current release type)
LSIP: overload long time delay + short circuit short time delay + short circuit instantaneous + pre-alarm protection

Example:
UEM5Z1-250M/250-434011B-P1LSIP: UEM5Z1 series electronic MCCB, 250A frame size, M type breaking capacity, 250A setting current, 4P,thermal + electromagnetic protection, auxiliary contact + AC220V shunt release, for power distribution use, the N-pole without protection and opening and closing together with L poles, CD2 AC220V motorized mechanism, LSIP type protection
The modular design can be used for free combination of thermo-magnetic, electronic and residual current protection, so as to form UEM5 circuit breakers, UEM5L residual current protective circuit breakers and UEM5Z1 electronic circuit breakers. Meanwhile, UEM5Z1 electronic circuit breakers can be equipped with communication interface. It is a new generation of intelligent circuit breaker with multiple modules and function options

Main technical parameters

Selection table

UEM5 series MCCB		UEM5						UEM5Z1						UEM5L				
Frame size		100	160	250	400	630	800	100	160	250	400	630	800	100	250	400	630	800
Rated ultimate short circuit breaking capacity Icu (AC400V)	L	35	35	35	50	35	50											
	M	50	50	50	65	50	65	50	50	50	65	50	65	50	50	65	50	65
	H	70	70	70	85	70	85	70	70	70	85	70	85	70	70	85	70	85
Rated current (In)	16	√												√				
	20	√												√				
	25	√												√				
	32	√												√				
	40	√						√						√				
	50	√												√				
	63	√												√				
	80	√												√				
	100	√	√	√				√						√	√			
	125		√	√											√			
	140		√	√											√			
	160		√	√					√						√			
	180			√											√			
	200			√											√			
	225			√	√										√	√		
	250			√	√					√					√	√		
	315				√											√		
	350				√											√		
	400				√	√	√				√					√	√	√
	500					√	√										√	√
	630					√	√					√					√	√
	700						√											√
	800						√						√					√
Number of poles		3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P

Accessory code

SHT1	- 100	R	Y	/ 3	AC220V

Accessory type code
See selection table

Frame size
100: 100A; 160:160A； **250: 250A; 400: 400A; 630: 630A: 800: 800A**

Installation position
Omitted: Position is not limited
L: On the left,
R: On the right

Connection type
Omitted: No connection type difference
Y: Lead-wire type
D: Terminal type

Number of poles
Omitted: No pole difference
3: For 3P;
4: For 4P

Operational voltage
Omitted: No operational voltage requirement
AC220V, AC380V, DC24V, DC110V, DC220V

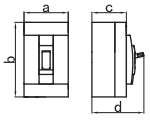
Example:
- SHT1-250RY/AC220V: Shunt release for 250A frame, installed on the right side, lead-wire type, operational voltage AC220V
- CD2-400/AC220V: motorized operating mechanism for 400A frame, without plug-in connection, operational voltage AC220 to 240V.
- The types of accessories are shown in tables 7.3 and 7.4.

Accessory type table

Internal accessory type			**External accessory type**		
Undervoltage release	UVT1		Motorized operating mechanism	CD2	
Shunt release	SHT1				
Auxiliary contact	AX1	1 Auxiliary contact	Manual operating mechanism	SC1-Y	Central, round
	AX2	2 Auxiliary contact			
Alarm contact	AL1	1 Alarm contact		SC1-F	Central, square
	AL2	2 Alarm contact			
Auxiliary + alarm contact	AXAL1	1 auxiliary + 1 alarm	Front conection	BJT3	
			Rear conection	BJT2	
			Plug-in conection	BJT1	
			Withdrawble connection	CH2	

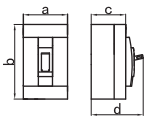
Main technical parameters

Table 1 - Main technical parameters (UEM5 series circuit breaker)

Frame size (A)		100			160			250		
Breaking capacity		L	M	H	L	M	H	L	M	H
Rated current In(A)		16 20 25 32 40 50 63 80 100			100 125 140 160			100 125 140 160 180 200 225 250		
Number of poles		3/4			3/4			3/4		
Rated insulation voltage Ui (V)		800			800			800		
Rated operational voltage Ue (V)		AC400			AC400			AC400		
Rated impulse withstand voltage Uimp (V)		8000			8000			8000		
Arcing distance (mm)		≤50			≤50			≤50		
Utilization category		A			A			A		
Pollution degree		3			3			3		
Rated ultimate short circuit breaking capacity Icu (kA)	AC400V	35	50	70	35	50	70	35	50	70
Rated service short circuit breaking capacity Ics(kA)	AC400V	25	50	50	25	50	50	25	50	50
Outline dimension (mm) 	a (3P/4P)	90 / 120			90 / 120			105 / 140		
	b	155			155			165		
	c	62	76		62	76		61	85	
	d	91	105		91	105		94	118	
Service endurance *	Mechanical endurance (cycles)	8500			7000			7000		
	Electrical endurance (cycles)	1500			1000			1000		
Connection method	Front connection	•			•			•		
	Rear connection	•			•			•		
	Plug-in connection	•			•			•		
	Withdrawable type	/			/			/		
Accessory	Shunt release	•			•			•		
	Undervoltage release	•			•			•		
	Auxliary contact	•			•			•		
	Alarm contact	•			•			•		
	Motorized operating mechanism	•			•			•		
	Rotary operating mechanism	•			•			•		
Protection function		Overload, short circuit								
Over current tripping		Thermal magnetic type								
Weight (kg)		L:1.3 / 1.9			L:1.3 / 1.9			L:1.5 / 2.1		
		M, H:1.6 / 2.5			M, H:1.6 / 2.5			M, H: 2.0 / 2.9		

Note: According to EN60947-2, the term "endurance" refers to the expected number of operating cycles that an electrical appliance can complete before repairing or replacing components.

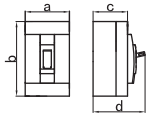
Table 1 - Main technical parameters (UEM5 series circuit breaker)

Frame size (A)		400			630			800		
Breaking capacity		L	M	H	L	M	H	L	M	H
Rated current I_n (A)		225 250 315 350 400			400 500 630			400 500 630 700 800		
Number of poles		3 / 4			3 / 4			3 / 4		
Rated insulation voltage U_i(V)		800			800			800		
Rated operational voltage U_e(V)		AC400			AC400			AC400		
Rated impulse withstand voltage U_{imp}(V)		8000			8000			8000		
Arcing distance (mm)		≤50			≤50			≤50		
Utilization category		A			A			A		
Pollution degree		3			3			3		
Rated ultimate short circuit breaking capacity I_{cu}(kA)	AC400V	50	65	85	35	50	70	50	65	85
Rated service short circuit breaking capacity I_{cs}(kA)	AC400V	35	50	65	35	50	70	35	50	65
Outline dimensions (mm) 	a (3P/4P)	140 / 184			140 / 184			210 / 280		
	b	257			257			275		
	c	97			97			104		
	d	154			154			158		
Service endurance**	Mechanical endurance (cycles)	4000			4000			2500		
	Electrical endurance (cycles)	1000			1000			500		
Connection method	Front connection	•			•			•		
	Rear connection	•			•			•		
	Plug-in connection	•			•			•		
	Withdrawable type	•			•			•		
Accessory	Shunt release	•			•			•		
	Undervoltage release	•			•			•		
	Auxliary contact	•			•			•		
	Alarm contact	•			•			•		
	Motorized operating mechanism	•			•			•		
	Rotary operating mechanism	•			•			•		
Protection function		Overload, short circuit								
Over current tripping release		Thermal magnetic type								
Weight (kg)		6.2 / 8			7.5 / 9.6			9.7 / 12.8		

Note: According to EN60947-2, the term "endurance " refers to the expected number of operating cycles that an electrical appliance can complete before repairing or replacing components.

Main technical parameters

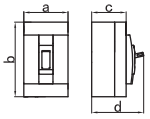
Table 2 - Main technical parameters (UEM5L series circuit breaker)

Frame size (A)			100		250		400		630		800	
Breaking capacity			M	H	M	H	M	H	M	H	M	H
Rated current I_n (A)			16 20 25 32 40 50 63 80 100		100 125 140 160 180 200 225 250		225 250 315 350 400		400 500 630		400 500 630 700 800	
Number of poles			3 / 4		3 / 4		3 / 4		3 / 4		3 / 4	
Non-time delay type	Rated residual current sensitivity $I_{\triangle n}$(mA)		30/100/300/500 adjustable				100/300/500/1000 adjustable					
	$5I_{\triangle n}$ max. opening time (s)		0.04				0.04					
Time delay type	Rated residual current sensitivity $I_{\triangle n}$(mA)		100/300/500 adjustable				100/300/500/1000 adjustable					
	$I_{\triangle n}$max. opening time (s)		V:0.6, 1.0, 2.0/W:0.8, 1.5, 2.5 VA:0.6, 1.0, 2.0/WA:0.8, 1.5, 2.5				V:0.8, 2.0, 2.5/W:0.6, 1.0, 1.5 VA:0.8, 2.0, 2.5/WA:0.6, 1.0, 1.5					
	$2I_{\triangle n}$ ultimate non-driven time ΔT (s)		V:0.1, 0.3, 0.5 / W:0.2, 0.4, 1.0 VA:0.1, 0.3, 0.5 / WA:0.2, 0.4, 1.0				V:0.2, 0.5, 1.0/W:0.1, 0.3, 0.4 VA:0.2, 0.5, 1.0/WA:0.1, 0.3, 0.4					
Residual current indication			Button		Button		Button		Button		Button	
Rated insulation voltage U_i(V)			800		800		800		800		800	
Rated operational voltage U_e(V)			AC400		AC400		AC400		AC400		AC400	
Rated impulse withstand voltage U_{imp}(V)			8000		8000		8000		8000		8000	
Arcing distance (mm)			≤50		≤50		≤50		≤50		≤50	
Utilization category			A		A		A		A		A	
Pollution degree			3		3		3		3		3	
Rated ultimate short circuit breaking capacity I_{cu}(kA)		AC400V	50	70	50	70	65	85	50	70	65	85
Rated service short circuit breaking capacity I_{cs}(kA)		AC400V	35	50	35	50	50	65	50	70	50	65
Outline dimension (mm) 	a (3P/4P)		90 / 120		105 / 140		140 / 184		140 / 184		210 / 280	
	b		155		165		257		257		275	
	c		76		85		97		97		104	
	d		106		118		154		154		158	
Service endurance *	Mechanical endurance (cycles)		8500		7000		4000		4000		2500	
	Electrical endurance (cycles)		1500		1000		1000		1000		500	
Connection method	Front connection		•		•		•		•		•	
	Rear connection		•		•		•		•		•	
	Plug-in connection		•		•		•		•		•	
	Withdrawable type		/		/		•		•		•	
Accessory	Shunt release		•		•		•		•		•	
	Undervoltage release		•		•		•		•		•	
	Auxliary contact		•		•		•		•		•	
	Alarm contact		•		•		•		•		•	
	Motorized operating mechanism		•		•		•		•		•	
	Rotary operating mechanism		•		•		•		•		•	
Protection function			Overload, short circuit residual current protection									
Over current tripping release			Thermal magnetic type									
Operational Characteristics			AC/A									

Warning: three-pole is not recommended for residual current protection type. Three-pole is only used in special occasions where there is no N-phase and grounding; 630A and 800A is not suitable for motor protection.

Note: according to EN60947-2, the term "endurance" refers to the expected number of operating cycles that an electrical appliance can complete before repairing or replacing components.

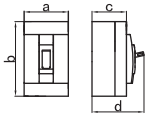
Table 3 - Main technical parameters (UEM5Z1 series)

Frame size (A)			100		160		250		400	
Breaking capacity			M	H	M	H	M	H	M	H
Setting current I_r(A)			16、18、20、22、25、28、32、35、40 adjustable（In=40A） 40、45、50、55、63、70、80、90、100 adjustable（In=100A）		63、70、80、90、100、110、125、140、160 adjustable		100、125、140、160、180、200、225、250 adjustable		160、180、200、225、250、275、315、350、400 adjustable	
Number of poles			3 / 4		3 / 4		3 / 4		3 / 4	
Rated insulation voltage U_i(V)			1000		1000		1000		1000	
Rated operational voltage U_e(V)			AC400		AC400		AC400		AC400	
Rated impulse withstand voltage U_{imp}(V)			8000		8000		8000		8000	
Arcing distance (mm)			≤50		≤50		≤50		≤50	
Utilization category			A		A		A		B	
Pollution degree			3		3		3		3	
Rated ultimate short circuit breaking capacity I_{cu}(kA)		AC400V	50	70	50	70	50	70	65	85
Rated service short circuit breaking capacity I_{cs}(kA)		AC400V	50	50	50	50	50	50	50	65
Rated short time withstand current I_{cw}(kA/1s)			—		—		—		5	
Outline dimension (mm) 	a (3P/4P)		90 / 120		90 / 120		105 / 140		140/184	
	b		155		155		165		257	
	c		78		78		91		97	
	d		105		105		118		154	
Service endurance*	Mechanical endurance (cycles)		8500		7000		7000		4000	
	Electrical endurance (cycles)		1500		1000		1000		1000	
Connection method	Front connection		•		•		•		•	
	Rear connection		•		•		•		•	
	Plug-in connection		•		•		•		•	
	Withdrawable type		/		/		/		•	
Accessory	Shunt release		•		•		•		•	
	Undervoltage release		•		•		•		•	
	Auxliary contact		•		•		•		•	
	Alarm contact		•		•		•		•	
	Motorized operating mechanism		•		•		•		•	
	Rotary operating mechanism		•		•		•		•	
Protection function			Over current, short circuit short time delay, short circuit instantaneous							
Over current tripping release			Electronic, adjustable							
Weight （kg）			1.6 / 2.5		1.6 / 2.5		2.0 / 2.9		5.7 / 7.5	

* Note: according to EN60947-2, the term "endurance" refers to the expected number of operating cycles that an electrical appliance can complete before repairing or replacing components.

Main technical parameters

Table 3 - Main technical parameters (UEM5Z1 series)

Frame size (A)			630		800	
Breaking capacity			M	H	M	H
Setting current I_r (A)			250、275、315、350、400、450、500、550、630 adjustable		315、350、400、450、500、550、630、700、800 adjustable	
Number of poles			3/4		3/4	
Rated insulation voltage U_i(V)			1000		1000	
Rated operational voltage U_e(V)			AC 400		AC 400	
Rated impulse withstand voltage U_{imp}(V)			8000		8000	
Arcing distance (mm)			≤50		≤50	
Utilization category			B		B	
Pollution degree			3		3	
Rated ultimate short circuit breaking capacity I_{cu}(kA)		AC400V	50	70	65	85
Rated service short circuit breaking capacity I_{cs}(kA)		AC400V	50	70	50	65
Rated short time withstand current I_{cw}(kA/1s)			8		10	
Outline dimension (mm) 	a (3P/4P)		140/184		210/280	
	b		257		275	
	c		97		104	
	d		154		158	
Service endurance*	Mechanical endurance (cycles)		4000		2500	
	Electrical endurance (cycles)		1000		500	
Connection method	Front connection		•		•	
	Rear connection		•		•	
	Plug-in connection		•		•	
	Withdrawable type		•		•	
Accessory	Shunt release		•		•	
	Undervoltage release		•		•	
	Auxliary contact		•		•	
	Alarm contact		•		•	
	Motorized operating mechanism		•		•	
	Rotary operating mechanism		•		•	
Protection function			Over current, short circuit short time delay, short circuit instantaneous			
Over current tripping release			Electronic, adjustable			
Weight (kg)			7.3/9.5		9.5/12.5	

* Note: according to EN60947-2, the term "endurance" refers to the expected number of operating cycles that an electrical appliance can complete before repairing or replacing components.

Accessories code

● Alarm contact ■ Shunt release
○ Auxiliary contact □ Undervoltage release

Code	Accessory	Pole	Type: UEM5-100 UEM5-250 UEM5Z1-100 UEM5Z1-250	Type: UEM5L-100 UEM5L-250	Type: UEM5-100 UEM5-250 UEM5L-100 UEM5L-250 UEM5Z1-100 UEM5Z1-250	Type: UEM5-400 UEM5-630 UEM5-800 UEM5Z1-400 UEM5Z1-630 UEM5Z1-800	Type: UEM5L-400 UEM5L-630 UEM5L-800	Type: UEM5-400 UEM5-630 UEM5-800 UEM5L-400 UEM5L-630 UEM5L-800 UEM5Z1-400 UEM5Z1-630 UEM5Z1-800
			3	3	4	3	3	4
00	No accessory		—	—	—	—	—	—
08	Alarm contact		●	●	●	●	●	●
20	Auxiliary contact		○	○	○	○	○	○
10	Shunt release		■	■	■	■	■	■
30	Undervoltage release		□	—	□	□	□	□
28	Alarm contact Auxiliary contact		○	● ○	● ○	● ○	● ○	● ○
18	Alarm contact Shunt release		● ■	—	● ■	● ■	—	● ■
38	Alarm contact Undervoltage release		● □	—	● □	● □	—	● □
48	Alarm contact Auxiliary contact Shunt release		● ○ ■	—	● ○ ■	● ○ ■	—	● ○ ■
78	Alarm contact Auxiliary contact Undervoltage release		● ○ □	—	● ○ □	● ○ □	—	● ○ □
40	Auxiliary contact Shunt release		○ ■	—	○ ■	○ ■	—	○ ■
50	Shunt release Undervoltage release		■ □	—	■ □	■ □	—	■ □
70	Auxiliary contact Undervoltage release		○ □	—	○ □	○ □	—	○ □

Note:
- When the accessories are installed on the right side of a four pole circuit breaker, only type B or C type structure can be selected for N pole.
- The standard auxiliary contact is one 1NO+1NC. If other specifications are required, it should be specified.

Main technical parameters

Protection characteristics

Inversed time-delay over current operating characteristics of UEM5 and UEM5L circuit breakers

- Operating characteristics for power distribution protection MCCB

Power distribution protection MCCB type UEM5 and UEM5L operating characteristics (reference temperature +40°C)

Test current	Settting current	Conventional time		Initial state
		$I_n \leq 63A$	$I_n > 63A$	
Conventional non tripping current	1.05	≥ 1h	≥ 2h	Cold state
Conventional tripping current	1.30	< 1h	< 2h	Hot state
Return characteristic current	3.0	Returnable time		Cold state
		5s	8s	

- Operating characteristics for motor protection MCCB

Motor protection MCCB type UEM5 and UEM5L (reference temperature +40°C)

Test current	Settting current	Conventional time		Initial state
		$I_n \leq 225A$	$I_n > 225A$	
Conventional non tripping current	1.0	≥ 2h		Cold state
Conventional tripping current	1.2	≤ 2h		Hot state
	1.5	≤ 4min	≤ 8min	Hot state
	7.2	4s< T ≤ 10s	6s < T ≤ 20s	Cold state

Breaking characteristics of over current release under short circuit condition

Over-current release breaking characteristics for UEM5 and UEM5L circuit breakers under short circuit condition are as follows

- The setting value of short circuit protection current for power distribution protection circuit breaker is $10I_n$
- The setting value of short circuit protection current for motor protection circuit breaker is $12I_n$

The above setting value of short-circuit protection current has an accuracy of ± 20%

UEM5L operating characteristics

Working principle of circuit breaker with residual current protection:
When the residual current or electric shock occurs in the protected circuit (the circuit connected downstream of the residual current circuit breaker), as long as the residual current or electric shock current I△nreaches the residual current sensitivity value, the secondary winding of zero sequence current transformer will send a voltage signal, which will make the residual current release operate and quickly disconnect the fault circuit through IC circuit detection, amplification and output. The time delayed residual current circuit breaker disconnects the fault circuit after a certain delay time according to the set requirements so as to play the role of residual current or personal electric shock protection.

Warning: The circuit breaker can not protect human body from electric shock caused by touching two phase lines of the protected circuit at the same time.

Operating time table of residual current protection for UEM5L series circuit breaker:

	$2I_{\Delta n}$ Ultimate non-driven time	**Residual current**	**$I_{\Delta n}$**	**$2I_{\Delta n}$**	**$5I_{\Delta n}$**	**$10I_{\Delta n}$**
Non-time delay type	—	Max. opening time (s)	0.3	0.15	0.04	0.04
Time delay type	0.1s	Max. opening time (s)	0.6	0.5	0.4	0.4
	0.2s		0.8	0.7	0.5	0.5
	0.3s		1	0.8	0.6	0.6
	0.4s		1.5	1.0	0.8	0.8
	0.5s		2.0	1.5	1.0	1.0
	1.0s		2.5	2.0	2.0	2.0

Standard factory setting value of UEM5L series circuit breaker:

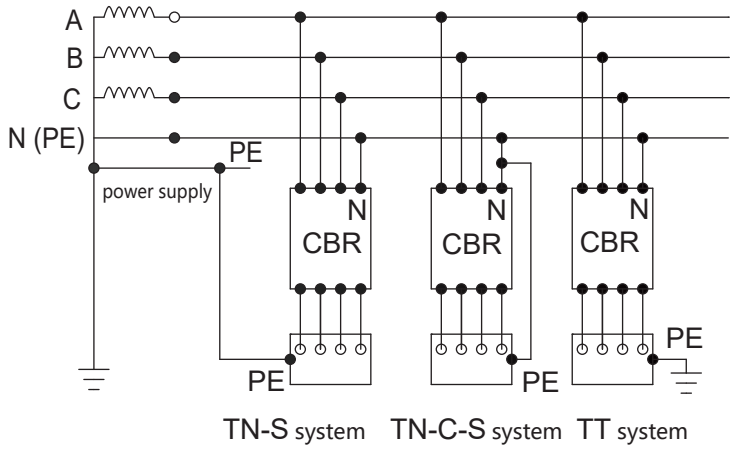
Type	**Rated residual current sensitivity value**	**$I_{\Delta n}$Max. opening time**	
		Non-time delay type	Time delay type
UEM5L-100	100mA	0.3s	—
UEM5L-250	100mA	0.3s	—
UEM5L-400	300mA	—	V/VA: 2s; W/WA: 1.0s
UEM5L-630	300mA	—	V/VA: 2s; W/WA: 1.0s
UEM5L-800	500mA	—	V/VA: 2.5s; W/WA: 1.5s

Matters needing attention in using residual current circuit breaker

- In order to ensure the protection of portable electrical appliances and sockets installed at the end of line, a non delay type with $I_{\triangle n}$ of 30mA shall be used.
- The rated residual operating current (I△n) of the circuit breaker for comprehensive distribution in non terminal protection may be selected according to one thousandth of the operational current of the line, and its breaking time is preferentially selected as delay type.
- A four-pole circuit breaker should be used for three-phase four wire load circuit.

Main technical parameters

Wiring precautions:



-The circuit breaker is suitable for TT, TN-C-S and TN-S systems with neutral line grounded. Under the above conditions, PEN line or PE line is absolutely not allowed to be connected to N pole on the load side of circuit breaker, so as to avoid misoperation or misoperation.

- For TN-C system (non isolating used), residual current circuit breaker with N-pole always connected can be installed, since PEN common line cannot be disconnected, PE line of load shell should be connected to the incoming line end of residual current circuit breaker, so as to avoid residual current offset in zero sequence transformer in case of leakage fault, resulting in residual current circuit breaker refusing to detect residual current. In order to protect the overload of N line, N-pole residual current circuit breaker with over-current release can be selected

- The residual current circuit breaker is usually not installed in IT system, because the neutral point of the system is not grounded, the residual current is small when the fault occurs, and the residual current circuit breaker does not operate. However, in some places, due to poor insulation or long wiring, the distributed capacitance in the network is large. In this case, residual current circuit breaker should be installed.

- Each adjacent circuit with residual current protection shall have its own dedicated zero line, which cannot be shared

The power of electronic circuit of UEM5L series circuit breaker is supplied by three-phase (380V) of A, B and C no matter it is a three or four- pole circuit breaker.
Load imbalance does not affect the normal operation of residual current circuit breaker.
To check whether the circuit breaker operates, you can press the test button. But the button is not a tool specially used for breaking operation, so it is not suitable to operate frequently and the pressing time shall not be more than 1 second, so as to prevent the test resistance from burning out.
If the newly installed circuit breaker is found to be "mistakenly tripped", the outgoing terminal of the circuit breaker shall be checked for repeated grounding or wrong wiring.

UEM5Z1 Electronic protection type

Protection type

- LSIP function description: overload long time delay + short circuit short time delay + short circuit instantaneous + pre-alarm protection

Specific description

Protection type is LSIP:

Three types of protection (six values can be adjusted)

Overload (long time delay) protection (the current and time are adjustable)

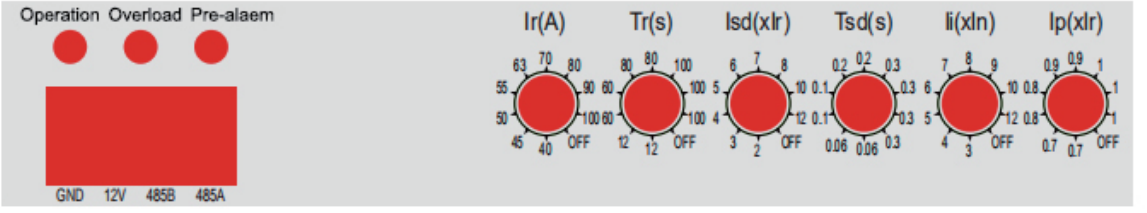
Short circuit short time delay protection (the current and time are adjustable)

Short circuit instantaneous protection (the current is adjustable)

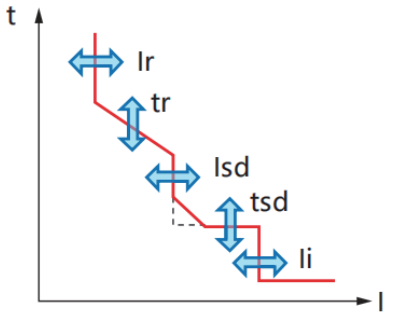
Pre-alarm protection (the current is adjustable)

Product Specifications	Specific protection range:						
	In（A）	Overload (long time delay) protection：Ir（A）	Overload long time delay protection: Tr（s）	Short circuit short time delay protection: Isd（s）	Short time delay protection: Tsd（s）	Short circuit instantaneous protection: Ii（xIn）	Pre-alarm protection: Ip（xIr）
UEM5Z1-100	40	Ir=16、18、20、22、25、28、32、35、40	12、60、80、100、OFF	2、3、4、5、6、7、8、9、10、12、OFF	0.06、0.1、0.2、0.3	3、4、5、6、7、8、9、10、12、OFF	0.7、0.8、0.9、1.0、OFF
UEM5Z1-100	100	Ir=40、45、50、55、63、70、80、90、100					
UEM5Z1-160	160	Ir=63、70、80、90、100、110、125、140、160					
UEM5Z1-250	250	Ir=100、110、125、140、160、180、200、225、250					
UEM5Z1-400	400	Ir=160、180、200、225、250、275、315、350、400					
UEM5Z1-630	630	Ir=250、275、315、350、400、450、500、550、630					
UEM5Z1-800	800	Ir=315、350、400、450、500、550、630、700、800					

- Sign diagram



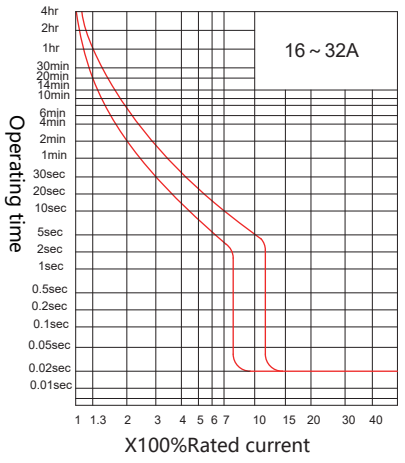
- Protection curve

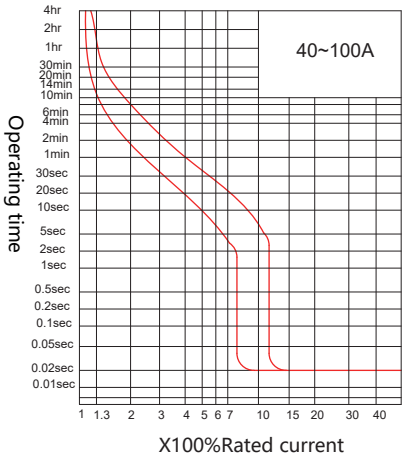


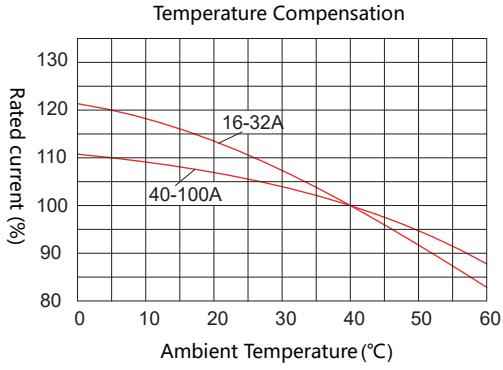
Tripping Curves

Operating characteristics curves and temperature compensation curves

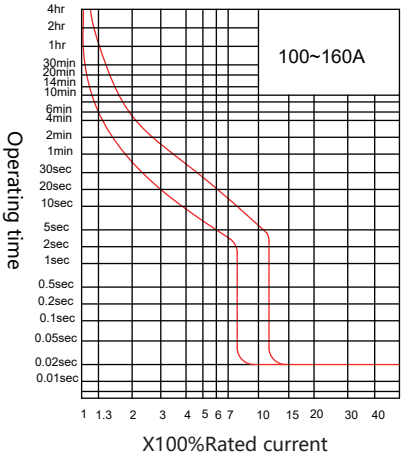
UEM5-100L, M, H； UEM5L-100M, H

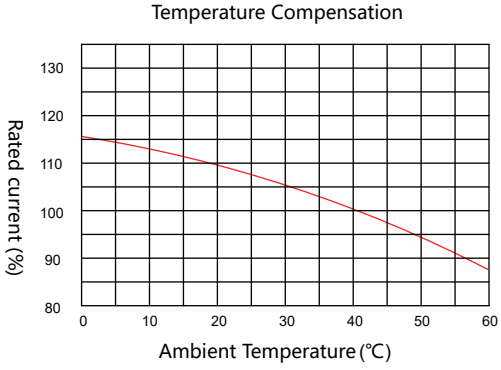




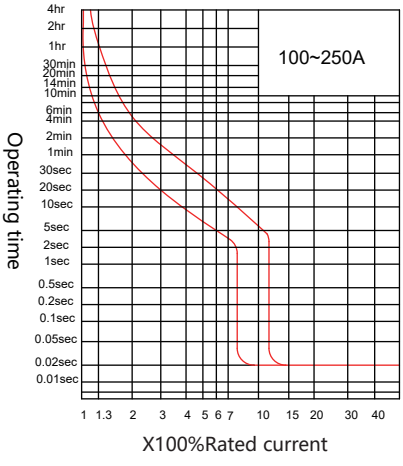


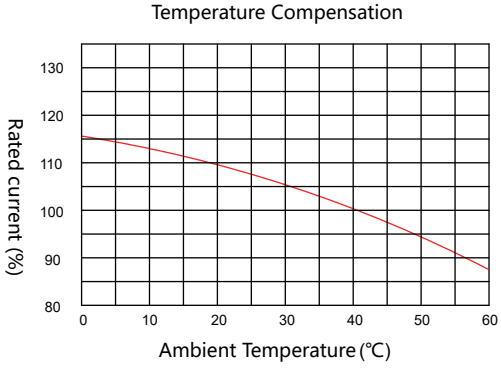
UEM5-160L, M, H



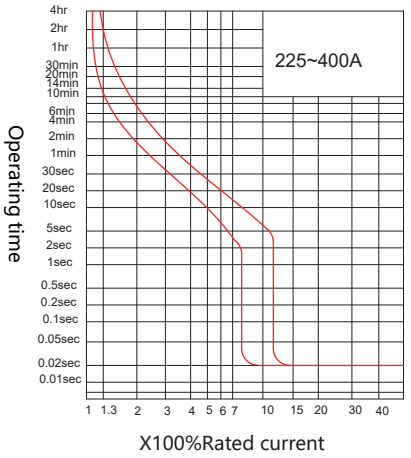


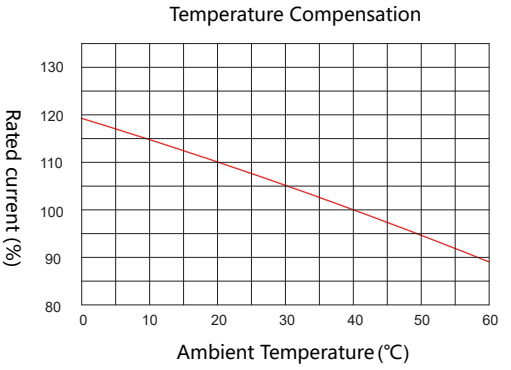
UEM5-250L,M,H;UEM5L-250M,H



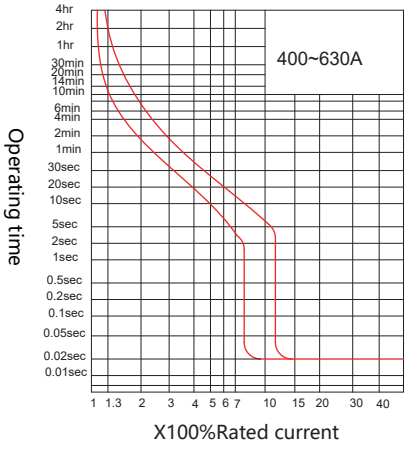


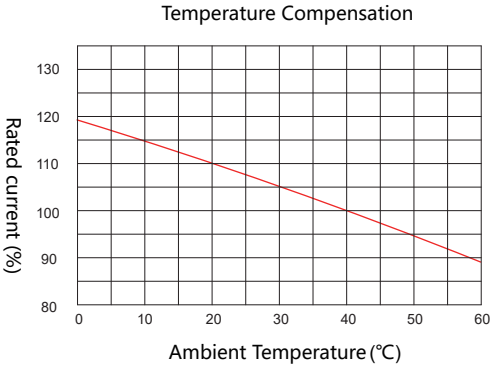
UEM5-400L, M, H； UEM5L-400M, H



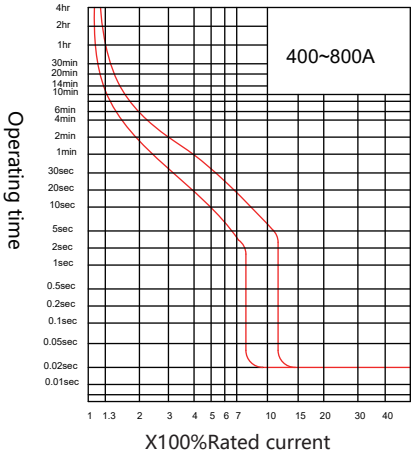


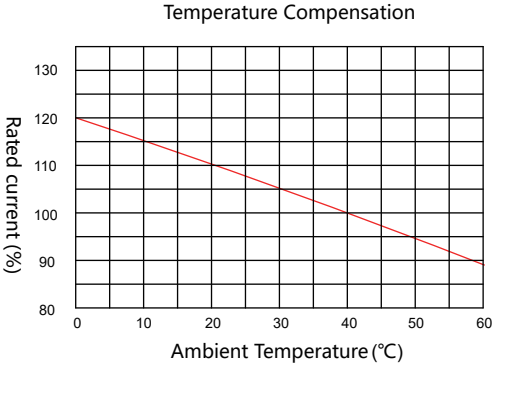
UEM5-630L, M, H； UEM5L-630M, H





UEM5-800L, M, H； UEM5L-800M, H





Main technical parameters

Wiring cablespecification

Table for cross-sectional area for wiring cable and corresponding rated current

Rated current (A)	16 20	25	32	40 50	63	80	100	125 140	160	180 200 225	250	315 350	400
Cross-sectional area of wire (mm^2)	2.5	4	6	10	16	25	35	50	70	95	120	185	240

Rated current (A)	**Cable**		**Copper bar**	
	Number	**Cross-sectional area**	**Number**	**Dimension (mm×mm)**
500	2	150	2	30x5
630	2	185	2	40x5
700 800	2	240	2	50x5

Note:
If copper bar connection is selected, the copper bar can not be directly connected with the circuit breaker body, and the attachment of wiring bar in front of the board needs to be purchased.

Deratingfactor

Derating factor for ambient temperature

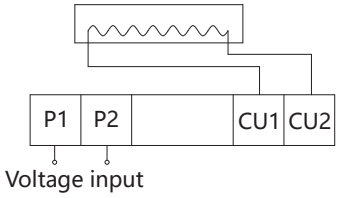
Type	40°C	45°C	50°C	55°C	60°C	65°C	70°C
UEM5-100	$1I_n$	0.975 I_n	0.946 I_n	0.927 I_n	0.885 I_n	0.861 I_n	0.839 I_n
UEM5-160	$1I_n$	0.975 I_n	0.946 I_n	0.927 I_n	0.885 I_n	0.861 I_n	0.839 I_n
UEM5-250	$1I_n$	0.974 I_n	0.948 I_n	0.921 I_n	0.878 I_n	0.862 I_n	0.835 I_n
UEM5-400	$1I_n$	0.976 I_n	0.945 I_n	0.926 I_n	0.883 I_n	0.865 I_n	0.828 I_n
UEM5-630	$1I_n$	0.976 I_n	0.945 I_n	0.926 I_n	0.883 I_n	0.865 I_n	0.828 I_n
UEM5-800	$1I_n$	0.976 I_n	0.945 I_n	0.926 I_n	0.883 I_n	0.865 I_n	0.828 I_n
UEM5Z1-100	$1I_n$	$1I_n$	$1I_n$	0.96 I_n	0.94 I_n	0.91 I_n	0.89 I_n
UEM5Z1-160	$1I_n$	$1I_n$	$1I_n$	0.96 I_n	0.94 I_n	0.91 I_n	0.89 I_n
UEM5Z1-250	$1I_n$	$1I_n$	$1I_n$	0.95 I_n	0.93 I_n	0.9 I_n	0.87 I_n
UEM5Z1-400	$1I_n$	$1I_n$	$1I_n$	0.96 I_n	0.94 I_n	0.92 I_n	0.9 I_n
UEM5Z1-630	$1I_n$	$1I_n$	$1I_n$	0.96 I_n	0.94 I_n	0.92 I_n	0.9 I_n
UEM5Z1-800	$1I_n$	$1I_n$	$1I_n$	0.96 I_n	0.94 I_n	0.92 I_n	0.9 I_n
UEM5L-100	$1I_n$	0.975 I_n	0.946 I_n	0.927 I_n	0.885 I_n	0.861 I_n	0.839 I_n
UEM5L-250	$1I_n$	0.974 I_n	0.948 I_n	0.921 I_n	0.878 I_n	0.862 I_n	0.835 I_n
UEM5L-400	$1I_n$	0.976 I_n	0.945 I_n	0.926 I_n	0.883 I_n	0.865 I_n	0.828 I_n
UEM5L-630	$1I_n$	0.976 I_n	0.945 I_n	0.926 I_n	0.883 I_n	0.865 I_n	0.828 I_n
UEM5L-800	$1I_n$	0.976 I_n	0.945 I_n	0.926 I_n	0.883 I_n	0.865 I_n	0.828 I_n

Note:
- In relation to UEM5 and UEM5L MCCB the derating factor is measured under each rated current;
- In relation to UEM5Z1 MCCB, the derating factor is measured under the max rated current for each frame rating.

Accessories and functions

Internal circuit breaker accessories

Under-voltage release (UVT1)

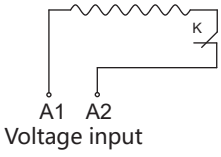
Appearance	Wiring Diagram
	

- Under-voltage release is used for under voltage protection of circuit and electrical power unit.
- Rated operational voltage: AC 220V or 380V, 50Hz.
- Under-voltage release can make circuit breaker releasing reliably when power voltage drops to 35%~ 70% of rated voltage.
- Under-voltage release will prevent the circuit breaker switching on when power voltage is lower than 35% of rated voltage.
- Under-voltage release can guarantee the normal operation of circuit breaker when power voltage is 85%~110% of rated voltage.

Note: under-voltage release must be energized at the rated voltage first, then circuit breaker can operate from “trip” position to “off reset” position and then switch on, otherwise, it will damage the circuit breaker.

Shunt release (SHT1)

- Shunt release is used for remote tripping control of the circuit breaker.
- Rated operational voltage: AC 220V or 380V, 50Hz/60Hz: DC 24V, 110V or 220V.
- Shunt release can make circuit breaker release reliably when the applied voltage is 70%~110% of rated control voltage of shunt release

Appearance	Wiring Diagram
	

Note: The power should meet the requirement of min. 50W when the user adopts DC 24V shunt release.

Auxiliary contact (AX1, AX2), alarm contact (AL1)

- Auxiliary contact is used for remote indication of circuit breaker status, for example to indicate switching on and off of the circuit breaker.

- Alarm contact is used as alarm function when overload, short circuit and “trip-free” caused by undervoltage fault, happen in lines and equipment.

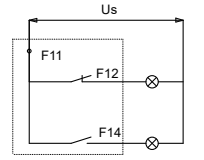
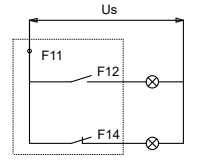
- Rated operational voltage: AC 220V or 380V ,50Hz; DC 220V.

Auxiliary and alarm contact technical parameters

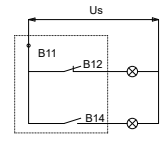
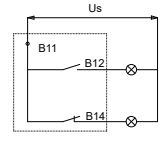
Type	Frame Rating	Conventional Thermal Current I_{th}(A)	Rated Operational Current I_e(A)	
			AC380V	DC220V
Auxiliary contact	≤ 250A	3	0.30	0.15
	≥ 400A	3	0.40	0.15
Alarm contact	100A ~ 800A	3	0.30	0.15

Minimum switching capacity：24Vd.c，0.1A

Auxiliary contact wiring diagram

Status of Circuit Breaker	Status of Auxiliary Contact		One Auxiliary Contact Wiring
The handle in “ON” position	One auxiliary contact:	F12, F14 — F11	 Circuit breaker in "open" "free trip" position
	Two auxiliary contacts:	F12, F14 — F11; F24 — F21	
The handle in “OFF” position	One auxiliary contact:	F12 — F11; F14	 Circuit breaker in "on" position
	Two auxiliary contacts:	F12 — F11; F14; F22 — F21; F24	

Alarm contact wiring diagram

Status of Circuit Breaker	Status of Alarm Contact	Wiring
The handle in “ON”and “OFF” position	B12 — B11; B14	 Circuit breaker in "on" "off" position
The handle in “TRIPPER” position	B12; B14 — B11	 Circuit breaker in "free trip" position

Accessories and functions

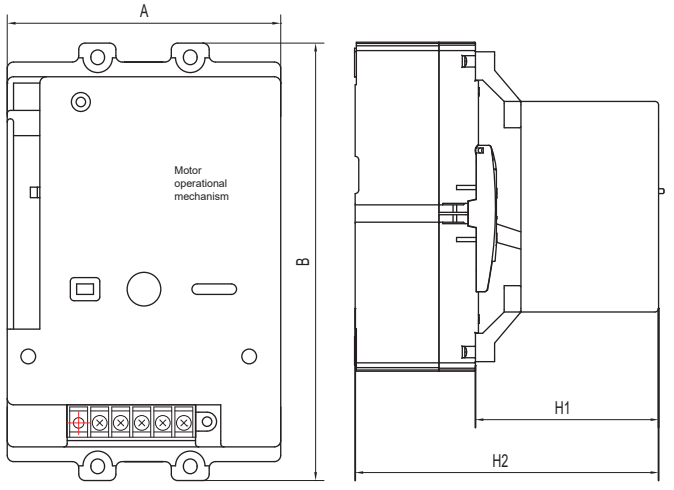
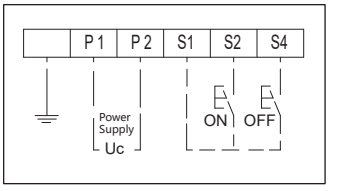
External circuit breaker accessories

Motorized operating mechanism

The motorized operating mechanism once assembled with the circuit breaker enables remote operation of the same.

- CD2 type is suitable to be used with 100A … 800A circuit breaker.Itadopts permanent magnet DC motor drive, switching power supply, has low power consumption, wide voltage range, DC and AC applicable.

Type	Part Number	Applicable Circuit Breaker	Rated Control Voltage (V)	Operating Current	Outline and Installation Dimension (mm)			
					A	B	H1	H2
CD2	CD2-100/UEM5	UEM5-100/160	AC220V/DC220V AC100V/DC110V AC380V DC24V	≤ 2 ≤ 2 ≤ 1 ≤ 6	90	152	90	151
	CD2-250/UEM5	UEM5-250			90	152	90	153
	CD2-400/UEM5	UEM5-400			130	219	151	248
	CD2-630/UEM5	UEM5-630			130	219	151	248
	CD2-800/UEM5	UEM5-800			130	268	153	257

CD2	CD2 / CD2B Outline Dimension and Wiring Diagram
	 Wiring 

Manual operating mechanism

The manual operating mechanism is mounted on the circuit breaker's cover and applicable to the circuit breaker installed in electric control cabinet. It can make the circuit breaker close, reset and open by turning the handle which has fool proof to prevent the handle from fracture caused by misoperation or violent operation.

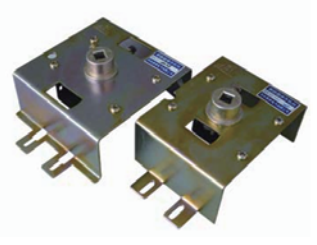
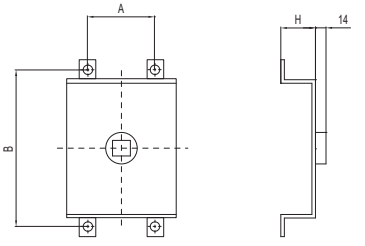
Types of Manual Operating Mechanism:

- SC1 — Central operating mechanism

Two handle types are available for the same mechanism:

- F-square handle (default); Y-round handle

Part Numbers	Applicable Circuit Breaker	Dimension (mm)				
		A	B	C	D	H
SC1-(Y, F)-100/UEM5	UEM5-100/160	30	132	—	—	44.5
SC1-(Y, F)-250/UEM5	UEM5-250	35	126	—	—	45
SC1-(Y, F)-400/UEM5	UEM5-400/630	128	187	—	—	76
SC1-(Y, F)-800/UEM5	UEM5-800	198	242	—	—	76

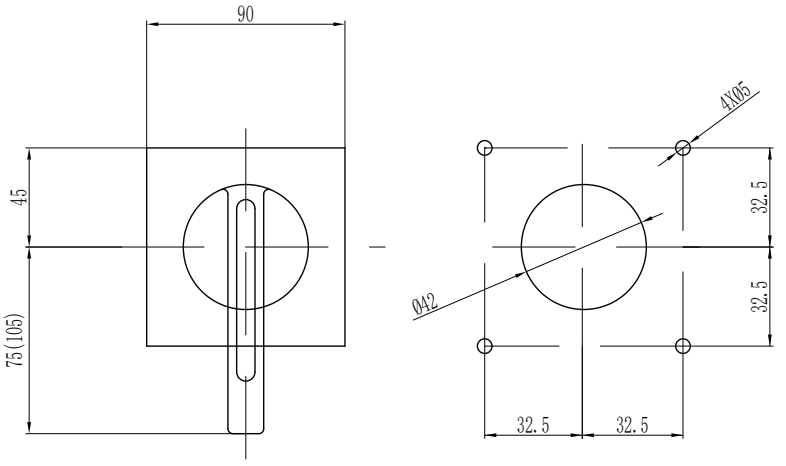
SC1	SC1 Outline Dimention
	

Warning:
The manual operating mechanism must be purchased from Hongfa to ensure the quality and reliability of the product. Otherwise, Hongfa shall be exempted of any responsibility for the unfavorable result caused by other company's product.

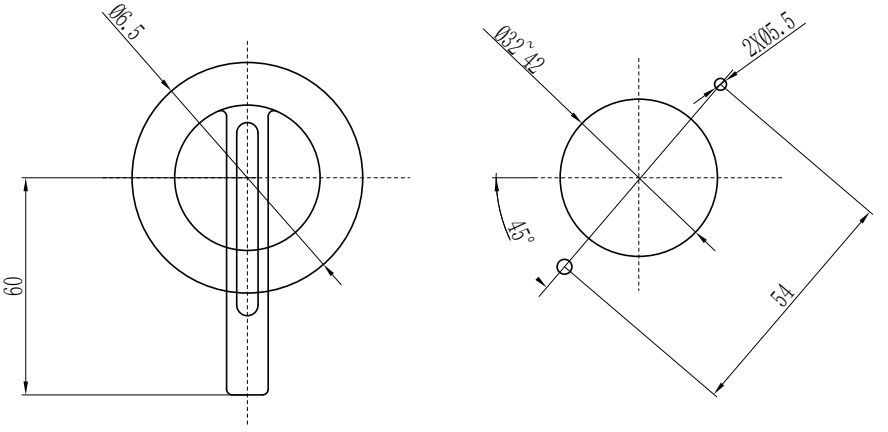
Accessories and functions

External accessories

Mounting dimension of type “F” square handle (unit: mm)



Mounting dimension of type “Y” round handle (unit: mm)



Note:
The short handles are suitable for breakers frame rating 250A or below, and the long handles are used for breakers frame rating 400A or above.
The breakers frame rating 250A or below should be equipped with 8 x 8 square axes. The breakers frame rating 400A or above should be equipped with 10 x 10 square axes. Both square axes are 150mm long.

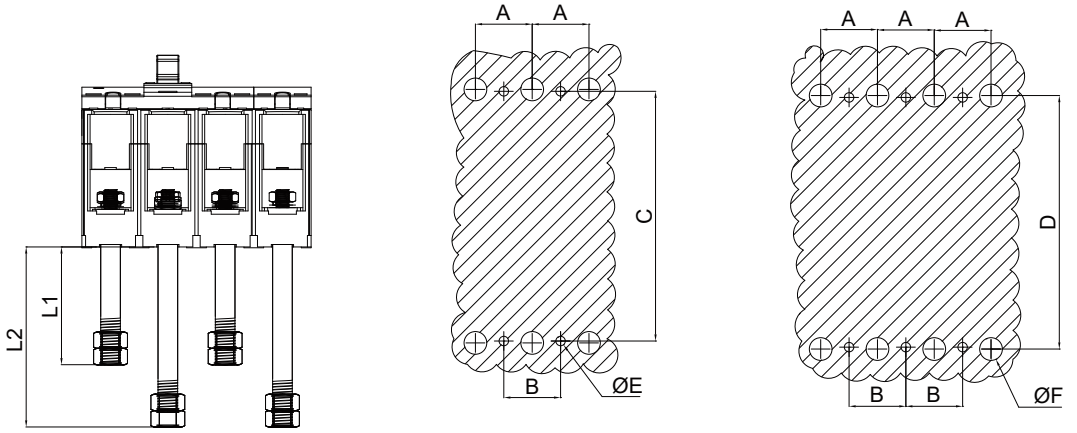
Connection and mechanical dimensions

Rear Wiring (BJT2) installation dimensions

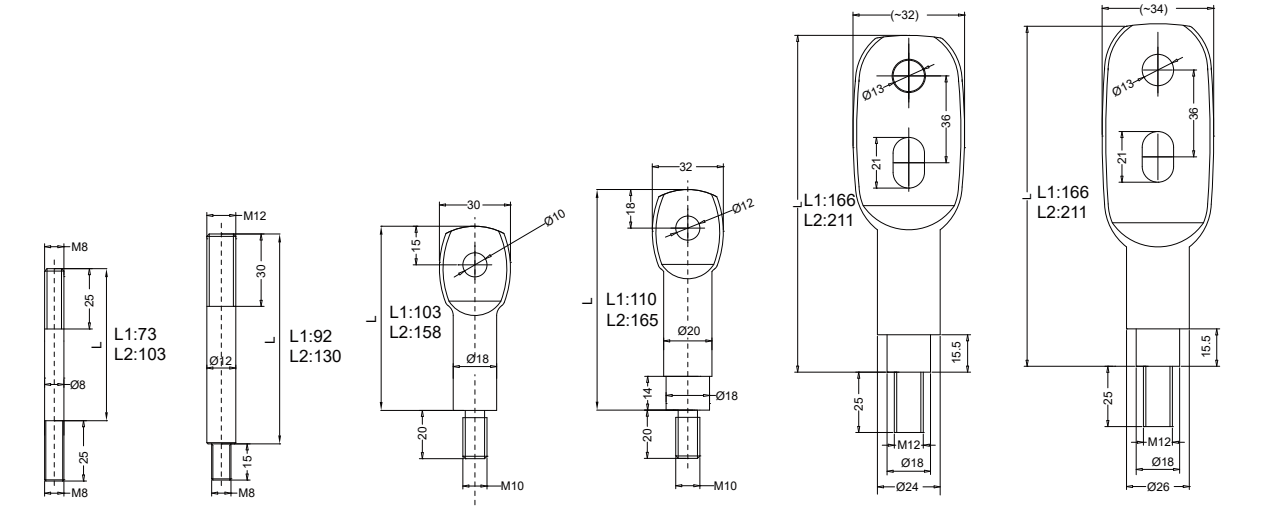
The rear terminal is installed on the wiring terminal of circuit breaker, which is applicable for wiring from the back of panel. Each breaker frame is equipped with a rear terminal wrapped with an insulation sleeve.

Rear-connection Accessory types	Applicable Circuit Breaker	Outline and Installation Dimension (mm)							
		A	B	C	D	ØE	ØF	L1	L2
BJT2-100	100A /160A Frame	30	30	132	134	5	8	73	103
BJT2-250	250A Frame	30	30	126	144	5	12	92	130
BJT2-400	400A Frame	44	44	194	225	7	18	103	158
BJT2-630	630A Frame	44	44	194	225	7	20	110	165
BJT2-800(630)	800A Frame (400-630) A	70	70	243	243	8	24	166	211
BJT2-800(800)	800A Frame (700-800) A	70	70	243	243	8	26	166	211

Outline and installation dimensions:



Rear connector dimensions:



Connection and mechanical dimensions

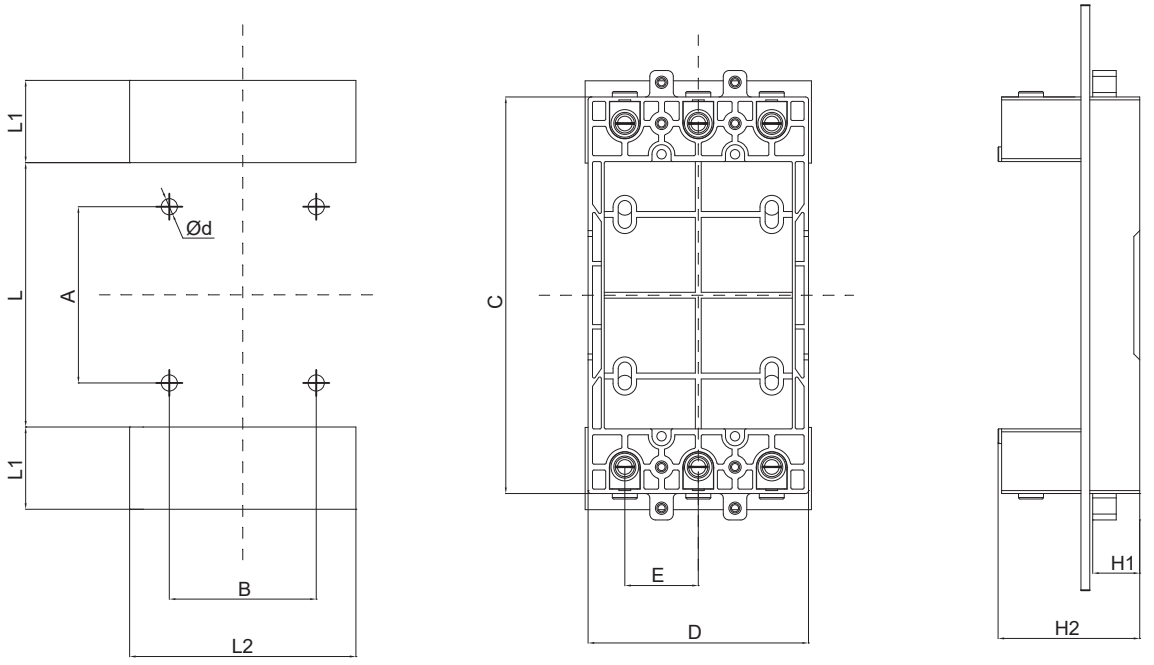
Plug-in connection (BJT1) installation dimensions

The plug-in connector is installed on the wiring terminal of circuit breaker and the plug-in base is mounted in the panel, which makes it applicable for wiring from the back of the panel, ensuring easyinstallation and maintenance.

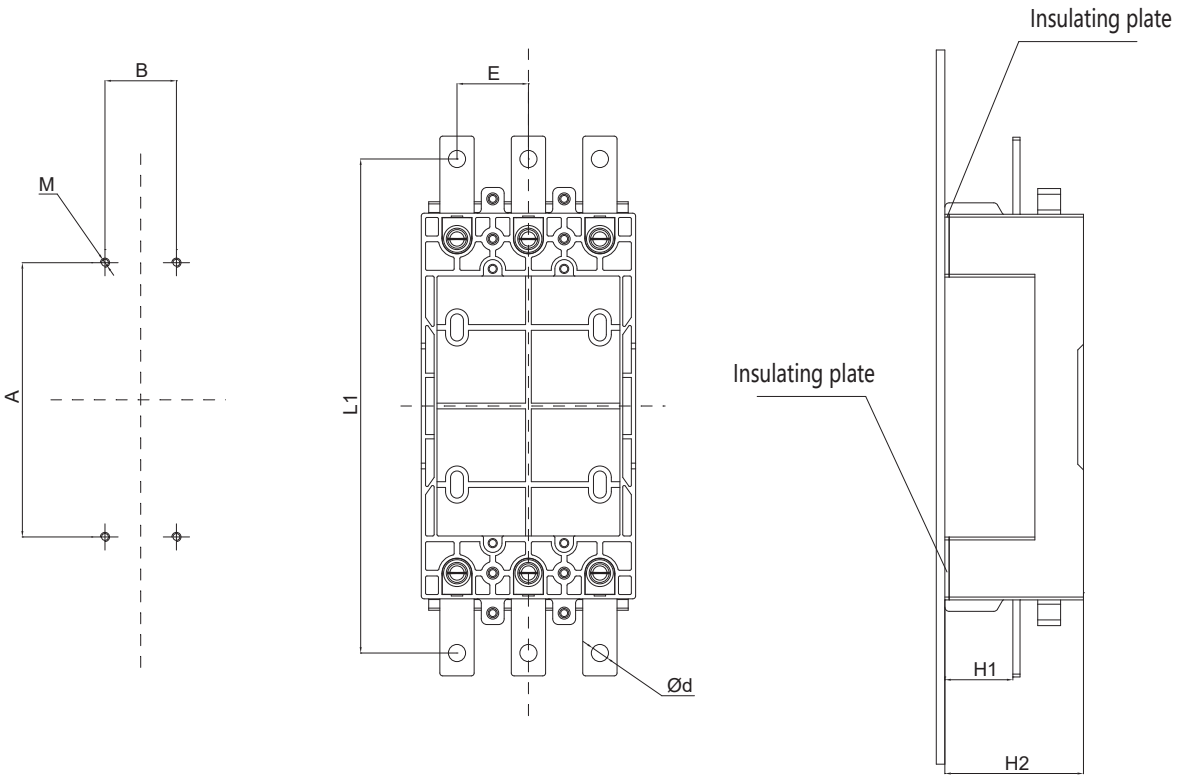
P/N of Plug-in Connection type	Applicable Circuit Breaker	Wiring type	Outline Dimension and Installation Dimension (mm)													
			A	B	L	L1	L2	d	C	D	E	F	G	H1	H2	M
BJT1-100	100/160 Frame	Rear	67	60	90	51	94	6.5	162	90	30	15	13	20	56.2	M6
		Front	112	30		200		M4	162	90	30	15		28	57	6.5
BJT1-250	250 Frame	Rear	74	70	100	55	110	6.5	179	105	35	20	8	27	73.2	M8
		Front	150	35		223		M4	179	105	35	20		32	74	8.5
BJT1-400	400 Frame	Rear	141	88	178	70	135	7	275	132	44	25	10.5	45	85	M10
		Front	244	44		326		M5	275	132	44	25		36	85	10.5
BJT1-630	630 Frame	Rear	141	88	178	70	135	7	275	132	44	25	10.5	45	85	M10
		Front	244	44		326		M5	275	132	44	25		36	85	10.5
BJT1-800	800 Frame	Rear	143	140	181	87	213	7	311	210	70	40	10	50	125	M12
		Front	283	70		363		M6	311	210	70	40		67	125	12.5

Note:
In case of 4 poles, the phase distance of E shall be added for dimensions B, L2 and D.

Plug-in rear wiring installation dimensions:



Warning: Insulating plate is needed front wiring type.



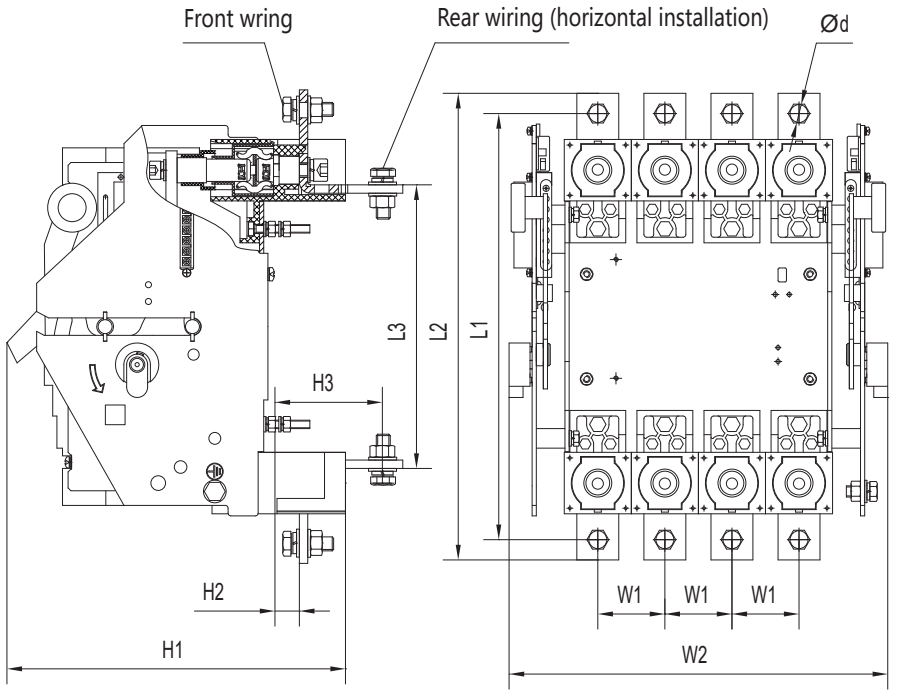
Installation Dimensions for Draw-out Connection

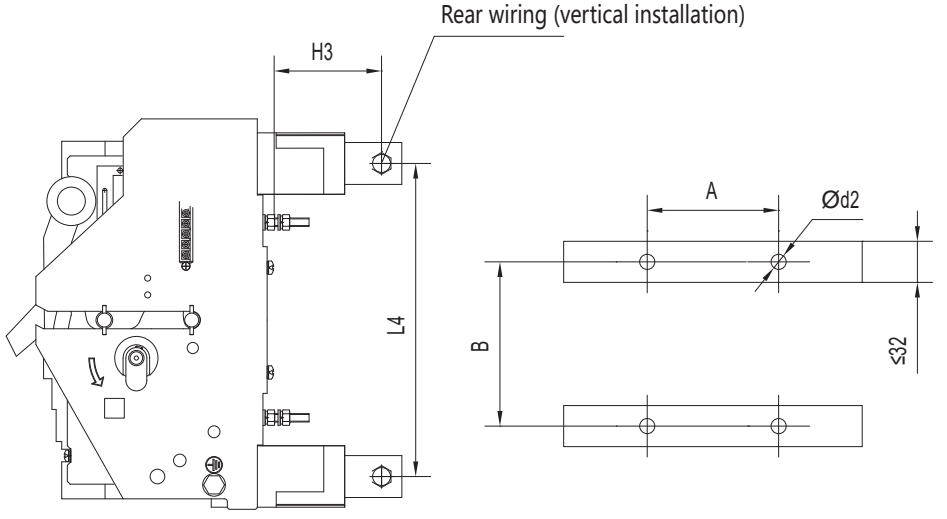
Draw-out type device is easy for maintenance, it is simple to operate and has the possibility to be mounted with mechanical interlock.

P/N of Draw-out Type	Applicable Circuit Breaker	N° of Poles	Outline Dimension and Installation Dimension (mm)											
			L1	L2	L3	H1	H2	H3	W1	W2	Ød	A	B	Ød2
CH2-400	400 Frame	3P	311	340	205	260	17.5	77	44	211	11	88	141	7
		4P	311	340	205	260	17.5	77	44	255	11	132	141	7
CH2-630	630 Frame	3P	311	340	205	260	17.5	77	44	211	11	88	141	7
		4P	311	340	205	260	17.5	77	44	255	11	132	141	7
CH2-800	800 Frame	3P	367	410	241	251	26	73	70	289	13	140	131	7
		4P	367	410	241	251	26	73	70	359	13	210	131	7

Connection and mechanical dimensions

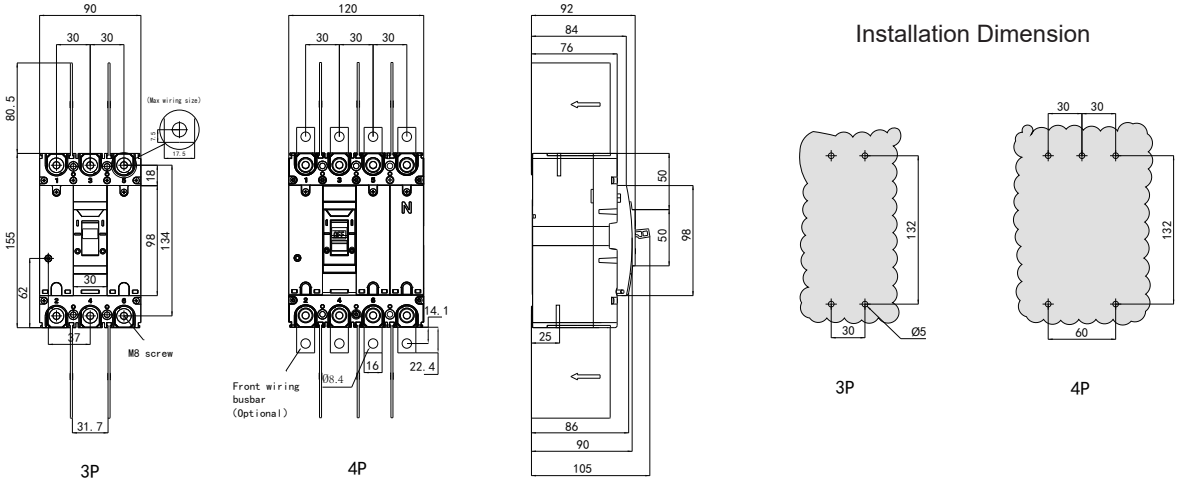
Installation Dimensions for Draw-out Connection





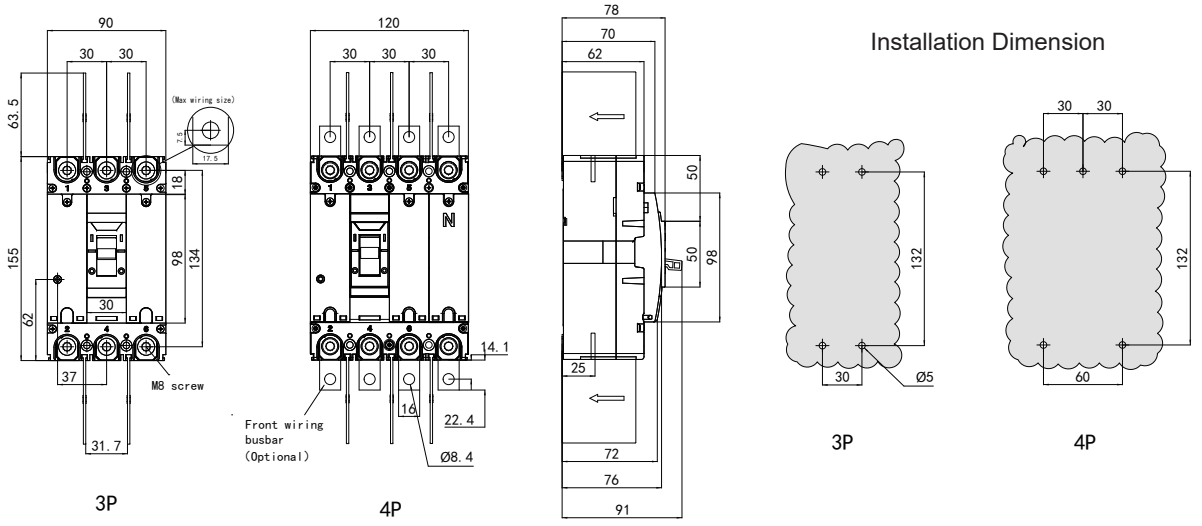
Outline and dimensions

UEM5-100 M, H thermal magnetic type (UEM5L-100 M, H, type with residual current)
UEM5-160 M, H thermal magnetic type



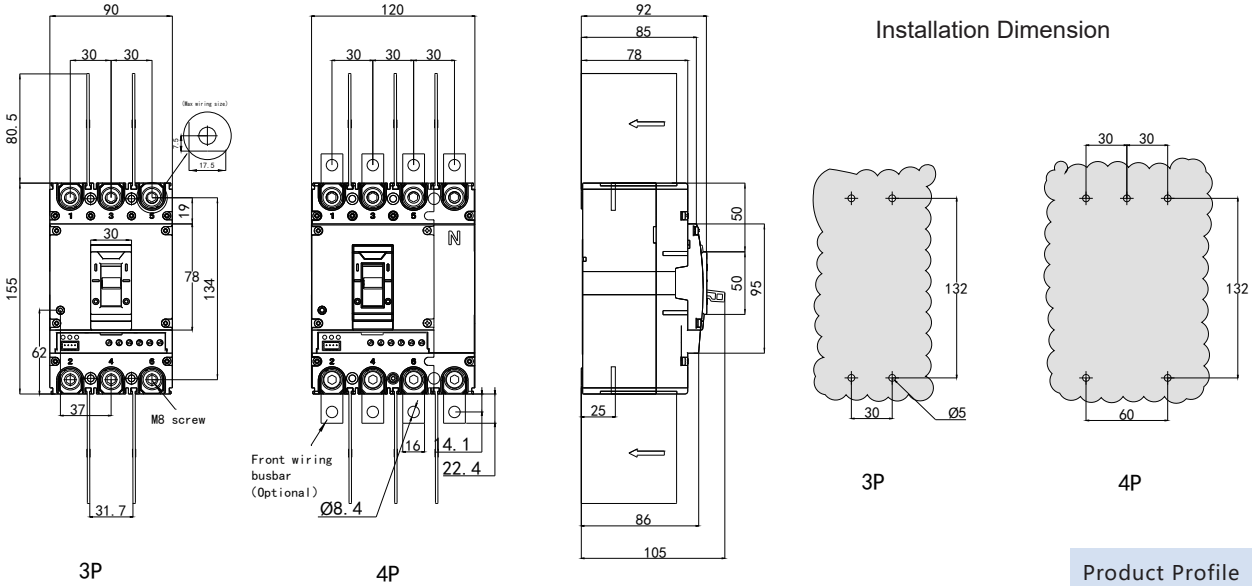
3P 4P 3P 4P

UEM5-100 thermal magnetic L type UEM5-160 thermal magnetic L type



3P 4P 3P 4P

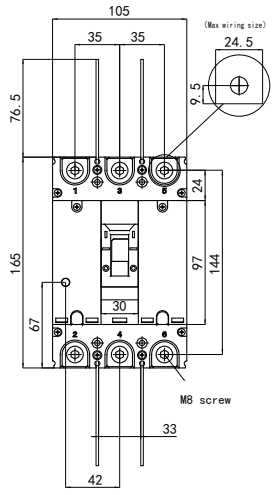
UEM5Z1-100 intelligent M, H type UEM5Z1-160 intelligent M,H type



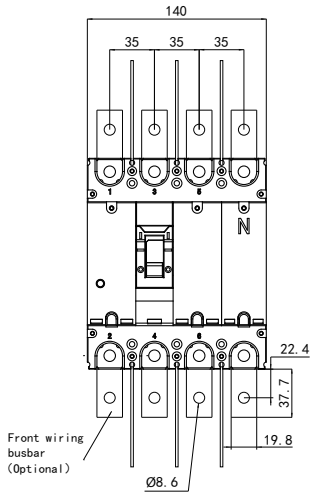
3P 4P 3P 4P

Outline and dimensions

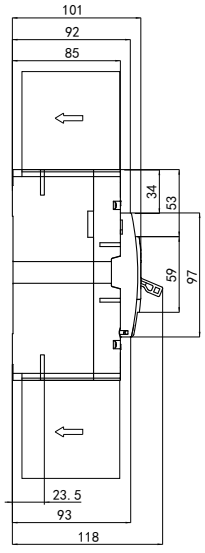
UEM5-250 thermal magnetic M, H type (UEM5L-250 M, H type with residual current protection)



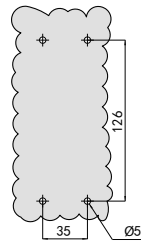
3P



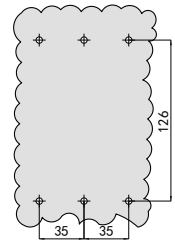
4P



Installation Dimension

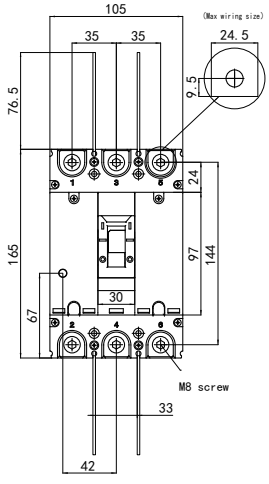


3P

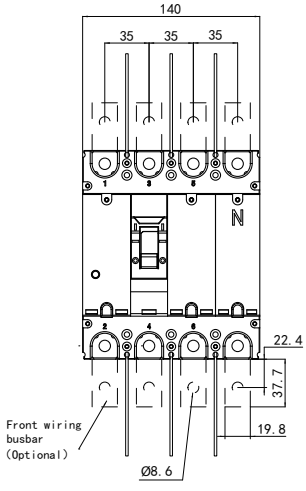


4P

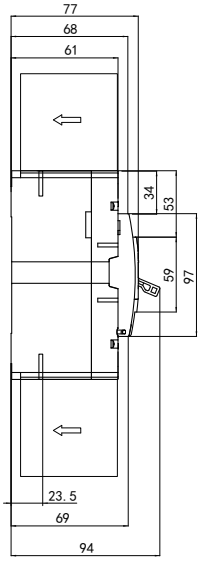
UEM5-250 thermal magnetic L type



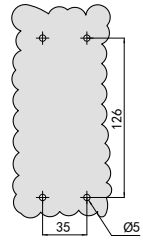
3P



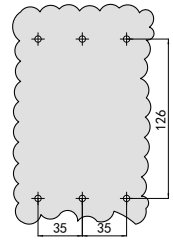
4P



Installation Dimension

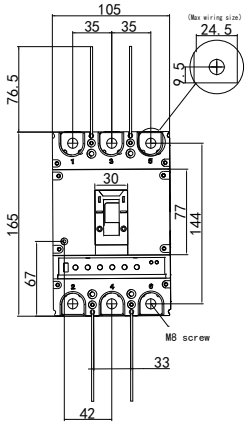


3P

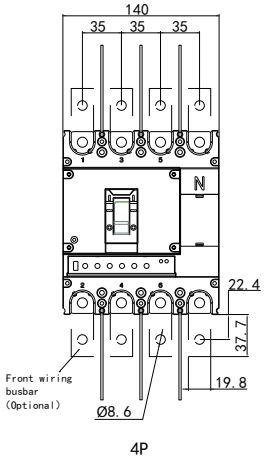


4P

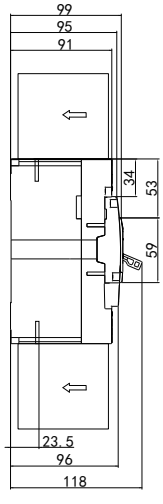
UEM5Z1-250 intelligent M, H type

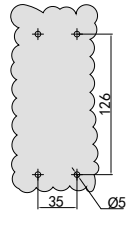


3P



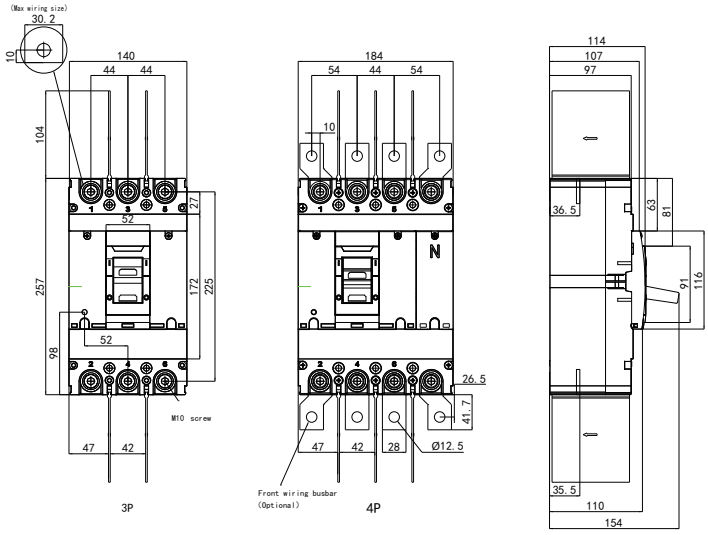
4P



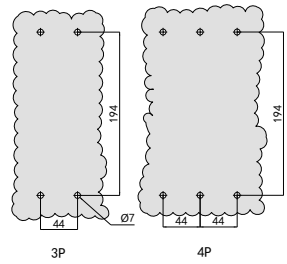


3P/4P

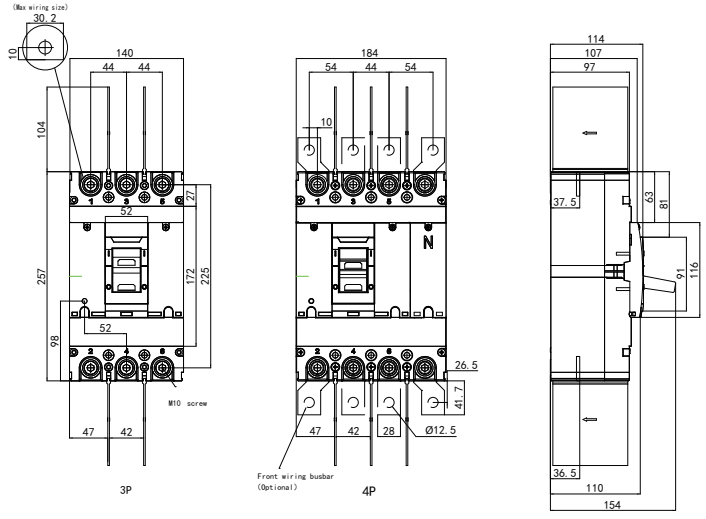
UEM5-400L, M, H type, UEM5L-400M, H type, UEM5Z1-400M, H type



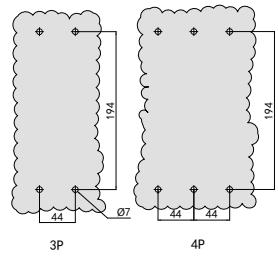
Installation Dimension



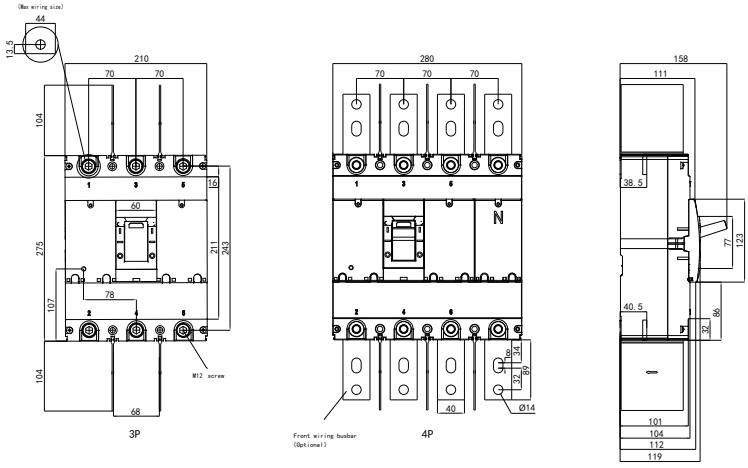
UEM5-630L, M, H type, UEM5L-630M, H type, UEM5Z1-630M, H type



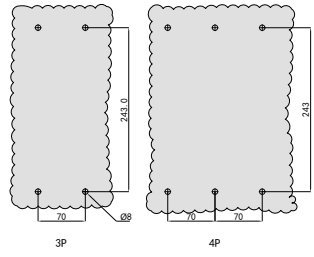
Installation Dimension



UEM5-800L, M, H type, UEM5L-800M, H type, UEM5Z1-800M, H type



Installation Dimension



Ordering instruction

Type and meaning

UE	M	5	L	- 100	M	/ 80	- 3	3	00	0	1	A	V	-P1	H	LSIP

Manufacturer code
UE: HESC

Product code
M: Molded case circuit breaker

Design series number
5: Series 5

Protection release type
Omitted: thermal and magnetic protection
L: thermal, magnetic and residual current protection
Z1: Intelligent electronic overcurrent protection

Frame size
See selection table

Rated breaking capacity
L: Standard type M: Medium breaking capacity
H: High breaking capacity

Rated current (if Z1, setting current)
See selection table

Number of poles
3: 3P; 4: 4P

Release code
2: magnetic 3: thermal+magnetic

Internal accessory
00: No accessory; 08: Alarm contact; 10: Shunt release;
18: Alarm contact + shunt release; 20: Auxiliary contact;
28: Alarm contact + auxiliary contact; 30: Undervoltage release;
38: Alarm contact + undervoltage release; 40: Auxiliary contact + shunt release;
48: Alarm contact + auxiliary contact + shunt release;
50: Shunt release + undervoltage release; 70: Auxiliary contact + undervoltage release;
78: Alarm contact + auxiliary contact + undervoltage release

Internal accessory voltage
0: No voltage; 1: AC220V; 2: AC380V; 3: DC24V; 4: DC110V; 5: DC220V

Application type code
1: For power distribution; 2: For motor protection

N-pole protection function
Omitted: 3-pole product without N pole
A: N-pole without protection and always connected;
B: N-pole without protection and opening and closing together with L poles;
C: N-pole with over current protection and opening and closing together with L poles;
D: N-pole with over current protection and always connected

Residual current protection release type
Omitted: Non-residual current protection products
V: AC type current Δt = 0.1/0.3/0.5 (100/250 frame; Δt = 0.2/0.5/1.0 (400/630/800 frame)
W: AC type current Δt = 0.2/0.4/1.0 (100/250 frame; Δt = 0.1/0.3/0.4 (400/630/800 frame)
VA: A type current Δt = 0.1/0.3/0.5 (100/250 frame; Δt = 0.2/0.5/1.0 (400/630/800 frame)
WA: A type current Δt = 0.2/0.4/1.0 (100/250 frame; Δt = 0.1/0.3/0.4 (400/630/800 frame)
Note: The standard type is VA unless otherwise stated.

Type and meaning (Continued)

Operating type

Omitted: Operated by handle directly

PX: Operated by motorized operating mechanism

P1: CD2 AC220V; P2: CD2 AC380V; P3: CD2 DC24V; P4: CD2 DC110V;P5: CD2 DC220V;

ZX: Operated by rotary operating mechanism

Z1: SC1-F; Z2: SC1-Y

Connection type

Omitted: Front connection (without connection board); Q: Front connection (with connection board);

H: Rear connection; RQ: Plug-in type front connection; RH: Plug in type rear connection;

CQ: Withdrawable type front connection; CHH: Withdrawable type rear connection horizontal terminal;

CHV: Withdrawable type rear connection vertical terminal

Protection function (only applicable to electronic over current release type)

LSIP: overload long time delay + short circuit short time delay + short circuit instantaneous + pre-alarm protection

Example:
UEM5Z1-250M/250-434011B-P1LSIP: UEM5Z1 series electronic MCCB, 250A frame size, M type breaking capacity, 250A setting current, 4P,thermal + electromagnetic protection, auxiliary contact + AC220V shunt release, for power distribution use, the N-pole without protection and opening and closing together with L poles, CD2 AC220V motorized mechanism, LSIP type protection

The modular design can be used for free combination of thermo-magnetic, electronic and residual current protection, so as to form UEM5 circuit breakers, UEM5L residual current protective circuit breakers and UEM5Z1 electronic circuit breakers. Meanwhile, UEM5Z1 electronic circuit breakers can be equipped with communication interface. It is a new generation of intelligent circuit breaker with multiple modules and function options

Ordering instruction

Quick reference table

UEM5 series MCCB		UEM5						UEM5Z1						UEM5L				
Frame size		100	160	250	400	630	800	100	160	250	400	630	800	100	250	400	630	800
Rated ultimate short circuit breaking capacity Icu (AC400V)	L	35	35	35	50	35	50											
	M	50	50	50	65	50	65	50	50	50	65	50	65	50	50	65	50	65
	H	70	70	70	85	70	85	70	70	70	85	70	85	70	70	85	70	85
Rated current (In)	16	√												√				
	20	√												√				
	25	√												√				
	32	√												√				
	40	√						√						√				
	50	√												√				
	63	√												√				
	80	√												√				
	100	√	√	√				√						√	√			
	125		√	√											√			
	140		√	√											√			
	160		√	√					√						√			
	180			√											√			
	200			√											√			
	225			√	√										√	√		
	250			√	√					√					√	√		
	315				√											√		
	350				√											√		
	400				√	√	√				√					√	√	√
	500					√	√										√	√
	630					√	√					√					√	√
	700						√											√
	800						√						√					√
Number of poles		3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P

Type and meaning – accessories

SHT1	-	100	R	Y	/	3	AC220V

Accessory type: See accessory type list

Frame rating: 100; 250; 400; 630; 800

Installation position

No code: No position limit; **L:** Left side; **R:** Right side

Wiring

No code: No wiring limit; **Y:** lead-wire type; **D**: terminal type

Number of poles: No code: no pole differentiation; **3:** 3P; **4:** 4P

Operational voltage

No code: No voltage; **AC220V**; **AC380V**; **DC24V**; **DC110V**; **DC220V**

Example:
- SHT1-250RY/AC220V: Shunt release for frame rating 250A MCCB, installation on the right side, wiring type: lead-wire type, operational voltage AC220V
- CD2-400/AC220V: Motorized operating mechanism for frame rating 400A MCCB, without plug-in connector, operational voltage AC220-240V.
- See table 7.3 and 7.4 for accessory types.

Internal Accessory Type			External Accessory Type		
Under-voltage Release	UVT1		Manual operating mechanism	CD2	
Shunt Release	SHT1				
Auxiliary Contact	AX1	1 Auxiliary	Manual operating mechanism	SC1-Y	Center type, round
	AX2	2 Auxiliary			
Alarm Contact	AL1	1 Alarm		SC1-F	Center type, round
	AL2	2 Alarm			
Auxiliary+Alarm Contact	AXAL1	1 Auxiliary+1 Alarm	Front wiring	BJT3	
			Rear wiring	BJT2	
			Plug-in wiring	BJT1	
			Draw-out wiring	CH2	

Internal accessories

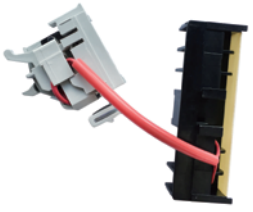
Under-voltage (UV) release UVT1

Description	Type
	
Frame rating 100A/160A UV release AC220-240V	UVT1-100/AC220V
Frame rating 100A/160A UV release AC380-440V	UVT1-100/AC380V
Frame rating 250A UV release AC220-240V	UVT1-250/AC220V
Frame rating 250A UV release AC380-440V	UVT1-250/AC380V
Frame rating 400/630/800A UV release AC220-240V	UVT1-400/AC220V
Frame rating 400/630/800A UV release AC380-440V	UVT1-400/AC380V

Ordering instruction

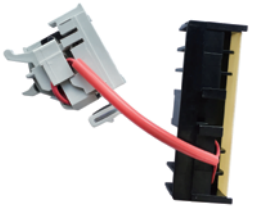
Internal accessories

Shunt release SHT1

	Description	Type
 Lead-wire type	Frame rating 100A/160A shunt release installed on left side AC220-240V lead-wire type	SHT1-100LY/AC220V
	Frame rating 100A/160A shunt release installed on left sideAC380-440V lead-wire type	SHT1-100LY/AC380V
	Frame rating 100A/160A shunt release installed on left side DC24-30V lead-wire type	SHT1-100LY/DC24V
	Frame rating 100A/160A shunt release installed on left side DC110-127V lead-wire type	SHT1-100LY/DC110V
	Frame rating 100A/160A shunt release installed on left side DC220-250V lead-wire type	SHT1-100LY/DC220V
	Frame rating 100A/160A shunt release installed on right side AC220-240V lead-wire type	SHT1-100RY/AC220V
	Frame rating 100A/160A shunt release installed on right side AC380-440V lead-wire type	SHT1-100RY/AC380V
	Frame rating 100A/160A shunt release installed on right side DC24-30V lead-wire type	SHT1-100RY/DC24V
	Frame rating 100A/160A shunt release installed on right side DC110-127V lead-wire type	SHT1-100RY/DC110V
	Frame rating 100A/160A shunt release installed on right side DC220-250V lead-wire type	SHT1-100RY/DC220V
 Terminal type	Frame rating 100A/160A shunt release installed on left side AC220-240V terminal type	SHT1-100LD/AC220V
	Frame rating 100A/160A shunt release installed on left side AC380-440V terminal type	SHT1-100LD/AC380V
	Frame rating 100A/160A shunt release installed on left side DC24-30V terminal type	SHT1-100LD/DC24V
	Frame rating 100A/160A shunt release installed on left side DC110-127V terminal type	SHT1-100LD/DC110V
	Frame rating 100A/160A shunt release installed on left side DC220-250V terminal type	SHT1-100LD/DC220V
	Frame rating 100A/160A shunt release installed on right side AC220-240V terminal type	SHT1-100RD/AC220V
	Frame rating 100A/160A shunt release installed on right side AC380-440V terminal type	SHT1-100RD/AC380V
	Frame rating 100A/160A shunt release installed on right side DC24-30V terminal type	SHT1-100RD/DC24V
	Frame rating 100A/160A shunt release installed on right side DC110-127V terminal type	SHT1-100RD/DC110V
	Frame rating 100A/160A shunt release installed on right side DC220-250V terminal type	SHT1-100RD/DC220V
	Frame rating 250A shunt release installed on left side AC220-240V lead-wire type	SHT1-250LY/AC220V
	Frame rating 250A shunt release installed on left side AC380-440V lead-wire type	SHT1-250LY/AC380V
	Frame rating 250A shunt release installed on left side DC24-30V lead-wire type	SHT1-250LY/DC24V
	Frame rating 250A shunt release installed on left side DC110-127V lead-wire type	SHT1-250LY/DC110V

Internal accessories

Shunt release SHT1

	Description	Type
 Lead-wire type	Frame rating 250A shunt release installed on left side DC220-250V lead-wire type	SHT1-250LY/DC220V
	Frame rating 250A shunt release installed on right side AC220-240V lead-wire type	SHT1-250RY/AC220V
	Frame rating 250A shunt release installed on right side AC380-440V lead-wire type	SHT1-250RY/AC380V
	Frame rating 250A shunt release installed on right side DC24-30V lead-wire type	SHT1-250RY/DC24V
	Frame rating 250A shunt release installed on right side DC110-127V lead-wire type	SHT1-250RY/DC110V
	Frame rating 250A shunt release installed on right side DC220-250V lead-wire type	SHT1-250RY/DC220V
	Frame rating 250A shunt release installed on left side AC220-240V terminal type	SHT1-250LD/AC220V
	Frame rating 250A shunt release installed on left side AC380-440V terminal type	SHT1-250LD/AC380V
	Frame rating 250A shunt release installed on left side DC24-30V terminal type	SHT1-250LD/DC24V
	Frame rating 250A shunt release installed on left side DC110-127V terminal type	SHT1-250LD/DC110V
	Frame rating 250A shunt release installed on left side DC220-250V terminal type	SHT1-250LD/DC220V
	Frame rating 250A shunt release installed on right side AC220-240V terminal type	SHT1-250RD/AC220V
	Frame rating 250A shunt release installed on right side AC380-440Vterminal type	SHT1-250RD/AC380V
 Terminal type	Frame rating 250A shunt release installed on right side DC24-30V terminal type	SHT1-250RD/DC24V
	Frame rating 250A shunt release installed on right side DC110-127V terminal type	SHT1-250RD/DC110V
	Frame rating 250A shunt release installed on right side DC220-250V terminal type	SHT1-250RD/DC220V
	Frame rating 400/630/800A shunt release AC220-240V lead-wire type	SHT1-400Y/AC220V
	Frame rating 400/630/800A shunt release AC380-440V lead-wire type	SHT1-400Y/AC380V
	Frame rating 400/630/800A shunt release DC24-30V lead-wire type	SHT1-400Y/DC24V
	Frame rating 400/630/800A shunt release DC110-127V lead-wire type	SHT1-400Y/DC110V
	Frame rating 400/630/800A shunt release DC220-250V lead-wire type	SHT1-400Y/DC220V
	Frame rating 400/630/800A shunt release AC220-240V terminal type	SHT1-400D/AC220V
	Frame rating 400/630/800A shunt release AC380-440V terminal type	SHT1-400D/AC380V
	Frame rating 400/630/800A shunt release DC24-30V terminal type	SHT1-400D/DC24V
	Frame rating 400/630/800A shunt release DC110-127V terminal type	SHT1-400D/DC110V
	Frame rating 400/630/800A shunt release DC220-250V terminal type	SHT1-400D/DC220V

Ordering instruction

Internal accessories

Auxiliary contacts AX1,AX2		
	Description	**Type**
 Lead-wire type	Frame rating 100A/160A auxiliary contact installed on left side 1NO 1NC lead-wire type	AX1-100LY
	Frame rating 100A/160A auxiliary contact installed on left side 1NO 1NC terminal type	AX1-100LD
	Frame rating 100A/160A auxiliary contact installed on right side 1NO 1NC lead-wire type	AX1-100RY
	Frame rating 100A/160A auxiliary contact installed on right side 1NO 1NC terminal type	AX1-100RD
	Frame rating 100A/160A auxiliary contact installed on left side 2NO 2NC lead-wire type	AX2-100LY
	Frame rating 100A/160A auxiliary contact installed on left side 2NO 2NC terminal type	AX2-100LD
	Frame rating 100A/160A auxiliary contact installed on right side 2NO 2NC lead-wire type	AX2-100RY
	Frame rating 100A/160A auxiliary contact installed on right side 2NO 2NC terminal type	AX2-100RD
	Frame rating 250A auxiliary contact installed on left side 1NO 1NC lead-wire type	AX1-250LY
	Frame rating 250A auxiliary contact installed on left side 1NO 1NC terminal type	AX1-250LD
	Frame rating 250A auxiliary contact installed on right side 1NO 1NC lead-wire type	AX1-250RY
 Terminal type	Frame rating 250A auxiliary contact installed on right side 1NO 1NC terminal type	AX1-250RD
	Frame rating 250A auxiliary contact installed on left side 2NO 2NC lead-wire type	AX2-250LY
	Frame rating 250A auxiliary contact installed on left side 2NO 2NC terminal type	AX2-250LD
	Frame rating 250A auxiliary contact installed on right side 2NO 2NC lead-wire type	AX2-250RY
	Frame rating 250A auxiliary contact installed on right side 2NO 2NC terminal type	AX2-250RD
	Frame rating 400/630/800A auxiliary contact installed on left side 1NO 1NC lead-wire type	AX1-400LY
	Frame rating 400/630/800A auxiliary contact installed on left side 1NO 1NC terminal type	AX1-400LD
	Frame rating 400/630/800A auxiliary contact installed on right side 1NO 1NC lead-wire type	AX1-400RY
	Frame rating 400/630/800A auxiliary contact installed on right side 1NO 1NC terminal type	AX1-400RD
	Frame rating 400/630/800A auxiliary contact installed on left side 2NO 2NC lead-wire type	AX2-400LY
	Frame rating 400/630/800A auxiliary contact installed on left side 2NO 2NC terminal type	AX2-400LD
	Frame rating 400/630/800A auxiliary contact installed on right side 2NO 2NC lead-wire type	AX2-400RY
	Frame rating 400/630/800A auxiliary contact installed on right side 2NO 2NC terminal type	AX2-400RD

Internal accessories

Alarm contact AL1

Description	Type
Frame rating 100A/160A alarm contact lead-wire type	AL1-100Y
Frame rating 100A/160A alarm contact terminal type	AL1-100D
Frame rating 250A alarm contact lead-wire type	AL1-250Y
Frame rating 250A alarm contact terminal type	AL1-250D
Frame rating 400/630/800A alarm contact lead-wire type	AL1-400Y
Frame rating 400/630/800A alarm contact terminal type	AL1-400D

Lead-wire type

Auxiliary alarm contact AXAL1

Description	Type
Frame rating 100A/160A auxiliary alarm contact lead -wire type	AXAL1-100Y
Frame rating 100A/160A auxiliary alarm contact terminal type	AXAL1-100D
Frame rating 250A auxiliary alarm contact lead -wire type	AXAL1-250Y
Frame rating 250A auxiliary alarm contact terminal type	AXAL1-250D
Frame rating 400/630/800A auxiliary alarm contact lead -wire type	AXAL1-400Y
Frame rating 400/630/800A auxiliary alarm contact terminal type	AXAL1-400D

Lead-wire type

Ordering instruction

Circuit breaker external accessories

Motorized Operating Mechanism CD2

	Description	Type
 CD2 CD2	Frame rating 100A/160A motorized operating mechanism without plug-in AC220-240V	CD2-100/AC220V
	Frame rating 100A/160A motorized operating mechanism without plug-in AC380-440V	CD2-100/AC380V
	Frame rating 100A/160A motorized operating mechanism without plug-in DC24-30V	CD2-100/DC24V
	Frame rating 100A/160A motorized operating mechanism without plug-in DC110-127V	CD2-100/DC110V
	Frame rating 100A/160A motorized operating mechanism without plug-in DC220-250V	CD2-100/DC220V
	Frame rating 250A motorized operating mechanism without plug-in AC220-240V	CD2-250/AC220V
	Frame rating 250A motorized operating mechanism without plug-in AC380-440V	CD2-250/AC380V
	Frame rating 250A motorized operating mechanism without plug-in DC24-30V	CD2-250/DC24V
	Frame rating 250A motorized operating mechanism without plug-in DC110-127V	CD2-250/DC110V
	Frame rating 250A motorized operating mechanism without plug-in DC220-250V	CD2-250/DC220V
	Frame rating 400A motorized operating mechanism without plug-in AC220-240V	CD2-400/AC220V
	Frame rating 400A motorized operating mechanism without plug-in AC380-440V	CD2-400/AC380V
	Frame rating 400A motorized operating mechanism without plug-in DC24-30V	CD2-400/DC24V
	Frame rating 400A motorized operating mechanism without plug-in DC110-127V	CD2-400/DC110V
	Frame rating 400A motorized operating mechanism without plug-in DC220-250V	CD2-400/DC220V
	Frame rating 630A motorized operating mechanism without plug-in AC220-240V	CD2-630/AC220V
	Frame rating 630A motorized operating mechanism without plug-in AC380-440V	CD2-630/AC380V
	Frame rating 630A motorized operating mechanism without plug-in DC24-30V	CD2-630/DC24V
	Frame rating 630A motorized operating mechanism without plug-in DC110-127V	CD2-630/DC110V
	Frame rating 630A motorized operating mechanism without plug-in DC220-250V	CD2-630/DC220V
	Frame rating 800A motorized operating mechanism without plug-in AC220-240V	CD2-800/AC220V
	Frame rating 800A motorized operating mechanism without plug-in AC380-440V	CD2-800/AC380V
	Frame rating 800A motorized operating mechanism without plug-in DC24-30V	CD2-800/DC24V
	Frame rating 800A motorized operating mechanism without plug-in DC110-127V	CD2-800/DC110V
	Frame rating 800A motorized operating mechanism without plug-in DC220-250V	CD2-800/DC220V
	Frame rating 100A motorized operating mechanism with plug-in AC220-240V	CD2-100R/AC220V
	Frame rating 100A motorized operating mechanism with plug-in AC380-440V	CD2-100R/AC380V
	Frame rating 100A motorized operating mechanism with plug-in DC24-30V	CD2-100R/DC24V
	Frame rating 100A motorized operating mechanism with plug-in DC110-127V	CD2-100R/DC110V
	Frame rating 100A motorized operating mechanism with plug-in DC220-250V	CD2-100R/DC220V
	Frame rating 250A motorized operating mechanism with plug-in AC220-240V	CD2-250R/AC220V
	Frame rating 250A motorized operating mechanism with plug-in AC380-440V	CD2-250R/AC380V
	Frame rating 250A motorized operating mechanism with plug-in DC24-30V	CD2-250R/DC24V

Circuit breaker external accessories

Motorized Operating Mechanism CD2

	Description	Type
 CD2	Frame rating 250A motorized operating mechanism with plug-in DC110-127V	CD2-250R/DC110V
	Frame rating 250A motorized operating mechanism with plug-in DC220-250V	CD2-250R/DC220V
	Frame rating 400A motorized operating mechanism with plug-in AC220-240V	CD2-400R/AC220V
	Frame rating 400A motorized operating mechanism with plug-in AC380-440V	CD2-400R/AC380V
	Description	**Type**
	Frame rating 400A motorized operating mechanism with plug-in DC24-30V	CD2-400R/DC24V
	Frame rating 400A motorized operating mechanism with plug-in DC110-127V	CD2-400R/DC110V
	Frame rating 400A motorized operating mechanism with plug-in DC220-250V	CD2-400R/DC220V
	Frame rating 630A motorized operating mechanism with plug-in AC220-240V	CD2-630R/AC220V
	Frame rating 630A motorized operating mechanism with plug-in AC380-440V	CD2-630R/AC380V
	Frame rating 630A motorized operating mechanism with plug-in DC24-30V	CD2-630R/DC24V
	Frame rating 630A motorized operating mechanism with plug-in DC110-127V	CD2-630R/DC110V
	Frame rating 630A motorized operating mechanism with plug-in DC220-250V	CD2-630R/DC220V
	Frame rating 800A motorized operating mechanism with plug-in AC220-240V	CD2-800R/AC220V
	Frame rating 800A motorized operating mechanism with plug-in AC380-440V	CD2-800R/AC380V
	Frame rating 800A motorized operating mechanism with plug-in DC24-30V	CD2-800R/DC24V
	Frame rating 800A motorized operating mechanism with plug-in DC110-127V	CD2-800R/DC110V
	Frame rating 800A motorized operating mechanism with plug-in DC220-250V	CD2-800R/DC220V

Manual operating mechanism SC1，SC2

	Description	Type
 SC1	Frame rating 100A/160A manual operating mechanism center type square handle	SC1-F/100
	Frame rating 100A/160A manual operating mechanism center type round handle	SC1-Y/100
	Frame rating 250A manual operating mechanism center type square handle	SC1-F/250
	Frame rating 250A manual operating mechanism center type round handle	SC1-Y/250
	Frame rating 400A manual operating mechanism center type square handle	SC1-F/400
	Frame rating 400A manual operating mechanism center type round handle	SC1-Y/400

Ordering instruction

Circuit breaker external accessories

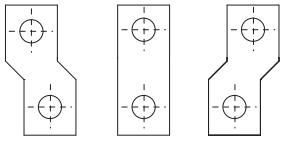
Manual operating mechanism SC1，SC2

Description	Type
Frame rating 630A manual operating mechanism center type square handle	SC1-F/630
Frame rating 630A manual operating mechanism center type round handle	SC1-Y/630
Frame rating 800A manual operating mechanism center type square handle	SC1-F/800
Frame rating 800A manual operating mechanism center type round handle	SC1-Y/800

SC1

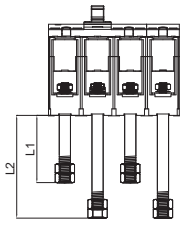
Front Wiring BJT3

Description	3P Type	4P Type
Frame rating 100A/160A front wiring	BJT3-100/3	BJT3-100/4
Frame rating 250A front wiring	BJT3-250/3	BJT3-250/4
Frame rating 400A front wiring	BJT3-400/3	BJT3-400/4
Frame rating 630A front wiring	BJT3-630/3	BJT3-630/4
Frame rating 800A front wiring	BJT3-800/3	BJT3-800/4



Rear connection BJT2

Description	3P Type	4P Type
Frame rating 100A/160A Rear connection	BJT2-100/3	BJT2-100/4
Frame rating 250A Rear connection	BJT2-250/3	BJT2-250/4
Frame rating 400A Rear connection	BJT2-400/3	BJT2-400/4
Frame rating 630A Rear connection	BJT2-630/3	BJT2-630/4
Frame rating 800A (400-630)A Rear connection	BJT2-800（630）/3	BJT2-800（630）/4
Frame rating 800A (700-800)A Rear connection	BJT2-800（800）/3	BJT2-800（800）/4



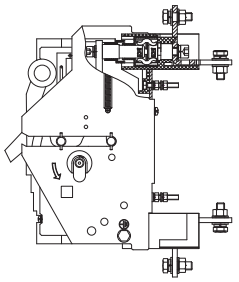
Circuit breaker external accessories

Plug-in connection BJT1

Description	3P Type	4P Type
Frame rating 100A/160A Front connection	BJT1-100F/3	BJT1-100F/4
Frame rating 100A/160A Rear connection	BJT1-100R/3	BJT1-100R/4
Frame rating 250A Front connection	BJT1-250F/3	BJT1-250F/4
Frame rating 250A Rear connection	BJT1-250R/3	BJT1-250R/4
Frame rating 400A Front connection	BJT1-400F/3	BJT1-400F/4
Frame rating 400A Rear connection	BJT1-400R/3	BJT1-400R/4
Frame rating 630A Front connection	BJT1-630F/3	BJT1-630F/4
Frame rating 630A Rear connection	BJT1-630R/3	BJT1-630R/4
Frame rating 800A Front connection	BJT1-800F/3	BJT1-800F/4
Frame rating 800A Rear connection	BJT1-800R/3	BJT1-800R/4

Draw-out connection CH2

Description	3P Type	4P Type
Frame rating 400A Draw-out Front connection	CH2-400F/3	CH2-400F/4
Frame rating 400A Draw-out Rear horizontal connection	CH2-400RH/3	CH2-400RH/4
Frame rating 400A Draw-out Rear vertical connection	CH2-400RV/3	CH2-400RV/4
Frame rating 630A Draw-out Front connection	CH2-630F/3	CH2-630F/4
Frame rating 630A Draw-out Rear horizontal connection	CH2-630RH/3	CH2-630RH/4
Frame rating 630A Draw-out Rear vertical connection	CH2-630RV/3	CH2-630RV/4
Frame rating 800A Draw-out Front connection	CH2-800F/3	CH2-800F/4
Frame rating 800A Draw-out Rear horizontal connection	CH2-800RH/3	CH2-800RH/4
Frame rating 800A Draw-out Rear vertical connection	CH2-800RV/3	CH2-800RV/4



Product Overview

Scope of application

UEM5 series direct current molded case circuit breaker (hereinafter referred to as MCCB) are suitable for use in DC circuits with rated DC voltage of 1500V or below and rated current of 100A … 630A. The MCCB has overload and short circuit protection function preventing that equipment and circuits experience the electrical damage. The MCCB is widely applied in the direct current distribution systems of photovoltaic power generation, electric power, rail transit and electric locomotive, direct-current power supply, etc.

Product features

- The electric arc will be rapidly extinguished due to advanced “magnetic blow-out” technology and special contact design.
- Thanks to advanced "air-blowing" technology and special material used for arc extinguishing chamber, the electric arc will be conducted into the chamber rapidly.
- The direct current is reliably interrupted and higher electrical endurance ensured due to special arc extinguish ing system and cross arrayed arc extinguishing grid.
- Effective use of the arc extinguishing chamber space enlarges the gap between the contacts, which can length en the arc much faster thus turning it off.
- This MCCB can be equipped with shunt release, auxiliary contact, alarm contact, motorized operating and manual operating mechanism.
- The design of cassette-type accessories ensures fast and reliable accessory installation.
- The positive and negative electrodes of the incoming line terminal are reversible, making the wiring convenient.
- Different wiring method (down in and down out/up in and down out) makes the wiring flexible.

Certificates of compliance

CB	CB	IEC 60947-2
CCC	CCC	GB/T 14048.2
CE	CE	EN 60947-2
TUV	TUV	EN 60947-2
UKCA	UKCA	BS EN 60947-2

Appearance

Standard operating environment and installation conditions

Operating temperatur

- Operating temperature: -40°C … +70°C; storage temperature: -40°C … +70°C
- The temperature for the element of thermal magnetic type release is 40°C
- When the temperature is between 40°C … 70°C, the thermal release value shall be decreased due to the temperature characteristic of the bimetal
- When the temperature is lower than 40°C, the thermal release value may increase
- When the temperature is higher than 70°C, the performance of the MCCB cannot be guaranteed

Standard operating environment and installation conditions

Operating altitude

- The performance of the MCCB will not be affected when altitude is lower than 2000 meters

- When the altitude is rising on the basis of 2000m, the atmospheric composition, cooling performance, insulation performance and pressure change, and derating should be considered. In this condition, the performance of the MCCB, such as the operational current and dielectric strength will decrease.

Altitude (m)	2000	3000	4000
Operational voltage correction coefficient	100%	100%	100%
40°C rated operational current (A)	$1xI_n$	$0.9xI_n$	$0.83xI_n$
Dielectric strength (V)	3000	2500	2000

Pollution degree

The pollution degree is 3, and the pollution degree of internal accessories of circuit breaker is 2

Installation category

The installation category of main circuit is Ⅲ, the auxiliary and control circuits are Ⅱ.

Installation condition

This MCCB can be installed vertically or horizontally, the intensity of external magnetic field of the installation place shall not exceed 5 times geomagnetic field in all directions.

Technical parameters

Type and meaning

UE	M	5	DC	-	250	/	200	-	4	3	00	0	-	P1	H

Manufacturer code:

UE: HESC

Product code: MCCB

Design code

DC: Below 1500VDC

DH: 1500VDC

Frame rating

See quick reference table

Rated current: See quick reference table

Number of poles: 4: 4 poles

Release code
2: Electromagnetic protection
3: Thermal + electromagnetic protection

Internal accessory code:

00: No accessory; 08: Alarm contact; 10: Shunt release;

18: Alarm contact + shunt release; 20: Auxiliary contact;

28: Alarm contact + auxiliary contact;

40: Auxiliary contact + shunt release;

48: Alarm contact + auxiliary contact + shunt release;

Internal accessory voltage

0: No voltage 1: AC220V 2: AC380V 3: DC24V 4: DC110V 5: DC220V

Operation mode: No code: handle;

PX: Motor--P1: CD2 AC220V; P2: CD2 AC380V; P3: CD2 DC24V; P4: CD2 DC110V; P5: CD2 DC220V;

ZX: Rotary handle--Z1: SC1-F; Z2: SC1-Y

Wiring (see part 6 for details):
G type: up in down out
H type: down in down out

Example:
UEM5DC-250/200-43401-P1H: DC MCCB UEM5DC, frame rating 250A, rated current 200A, 4 pole, thermal + electromagnetic protection release, AC220V shunt release + auxiliary contact, AC220V CD2 motor operation, H type wiring.

Technical parameters

Quick Reference Table

Direct Current MCCB		UEM5DC		UEM5DH
Frame Rating		**250**	**630**	**250**
Rated Ultimate Short-Circuit Breaking Capacity I_{cu}(kA)	DC750V	50	50	-
	DC1000V	40	40	-
	DC1200V	10	-	-
	DC1500V	-	-	15
Rated current (I_n) (A)	100	√		√
	125	√		√
	140	√		√
	160	√		√
	180	√		√
	200	√		√
	225	√		√
	250	√	√	√
	315		√	
	350		√	
	400		√	
	500		√	
Poles		4P	4P	4P

Example:

UEM5DC-630 Front and Static Current 630A No G-type Connection

Accessories type and meaning

SHT1	-	250	DC	R	Y	/ AC220V

Accessory type: See accessory type list

Frame rating: 250; 630

DC: Below 1500VDC

DH: 1500VDC

Installation position

No code: No position limit; L: Left side; R: Right side

Wiring

No code: no wiring limit; Y: lead-wire type; D: terminal type

Operational voltage

No code: no voltage requirement; AC220V; AC380V; DC24V; DC110V; DC220V

Example:

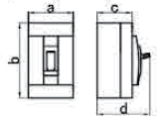
- SHT1-250DCRY/AC220V: Shunt release for frame rating 250A, MCCB for use below 1500VDC, installed on right side, wire-lead type, operational voltage AC220V.
- CD2-630DC/AC220V: Motor for frame rating 630A, MCCB for use below 1500VDC, without plug in connector, operational voltage of AC220-240V.
- For detailed accessory type, see 7.3 and 7.4.

Accessory type table

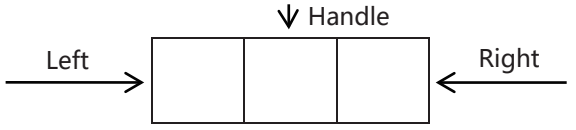
Internal Accessory Type			External Accessory Type		
Auxiliary Contact	AX1	1NO1NC	**Manual operational mechanism**	SC1-Y	Central, round handle
	AX2	2NO2NC			
Alarm Contact	AL1	1 Alarm		SC1-F	Central, square handle
	AL2	2 Alarm			
Auxiliary + Alarm Contact	AXAL1	1NO1NC + 1 Alarm	**Motorized operational mechanism**	CD2	
Shunt Release	SHT1				

Technical parameters

Table 1 - Main technical parameters

Parameter	Product Type		UEM5DC-250	UEM5DC-630	UEM5DH-250
Rated Current I_n (A)			100 125 140 160	250 315 350	100 125 140 160
			180 200 225 250	400 500 630	180 200 225 250
Number of Poles			4	4	4
Rated Insulation Voltage U_i(V)			1500	1500	1500
Rated Operational Voltage U_e(V)			DC750V	DC750V	DC1500V
			DC1000V	DC1000V	
			DC1200V	—	
Rated Impulse Withstand Voltage U_{imp}(V)			8000	8000	12000
Arc-Over Distance (mm)			≤50	≤50	≤50
Utilization Category			A	A	A
Pollution degree			3	3	3
Rated Ultimate Short-Circuit Breaking Capacity I_{cu} (kA)		DC750V	50	50	—
Rated operational short-circuit breaking capacity I_{cs} (kA)			50	50	—
Rated Ultimate Short-Circuit Breaking Capacity Icu (kA)		DC1000V	40	40	—
Rated operational short-circuit breaking capacity Ics (kA)			20	20	—
Rated Ultimate Short-Circuit Breaking Capacity Icu (kA)		DC1200V	10	—	—
Rated operational short-circuit breaking capacity Ics (kA)			7.5	—	—
Rated Ultimate Short-Circuit Breaking Capacity Icu (kA)		DC1500V	—	—	15
Rated Operational Short-Sircuit Breaking Capacity Ics (kA)			—	—	15
Outline Dimension (mm) 		a	140	184	141
		b	165	257	255 (G type) / 205 (H type)
		c	85	97	88
		d	118	155	120
Electrical Endurance* (cycles)			5000	1000	2000
Mechanical Endurance* (cycles)			10000	5000	10000
Accessories	Shunt Release		●	●	●
	Auxiliary Contact		●	●	●
	Alarm Contact		●	●	●
	Manual operational mechanism		●	●	●
	Motorized operational mechanism		●	●	●
Protection Function			Overload and short-circuit	Overload and short circuit	Overload and short circuit
Over Current Release Device			Thermal magnetic type	Thermal magnetic type	Thermal magnetic type
Weight (kg)			2.7	10	3.3

Accessories code



● Alarm contact ■ Shunt release
○ Auxiliary contact

Accessory code	Accessory name	Installation position
00	No accessories	——
08	Alarm contact	● □ □
20	Auxiliary contact	○ □ □
10	Shunt release	□ □ ■
28	Alarm contact Auxiliary contact	● ○ □ □
18	Alarm contact Shunt release	● □ ■
48	Alarm contact Auxiliarycontact Shunt release	● ○ □ ■
40	Auxiliary contact Shunt release	○ □ ■

Note:General configuration of auxiliary contact is 1NO and 1NC, if other specifications are required, please specify when ordering.

Protection characteristic

Over-Current protection inverse time-delay characteristics of UEM5 DC MCCB

- For Power Distribution
  UEM5 DC MCCB protection characteristics for power distribution (basic temperature +40°C)

Test current	Setting current	Conventional time		Initial state
		$I_n \leq 63A$	$I_n > 63A$	
Conventional non-tripping current	1.05	≥ 1h	≥ 2 h	Cold state
Conventional tripping current	1.30	< 1h	< 2h	Hot state

The tripping characteristics of over-current release in short-circuit

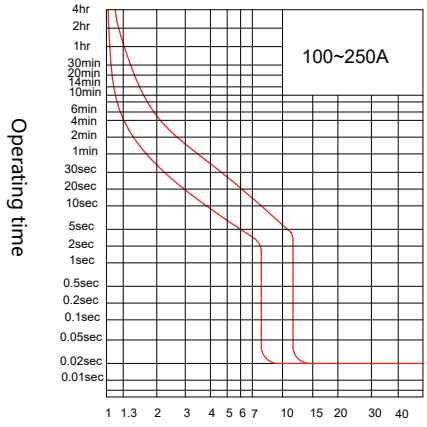
The tripping characteristics of UEM5 DC MCCB over-current release in short-circuit
-The short circuit protection setting current of MCCB is 10In.

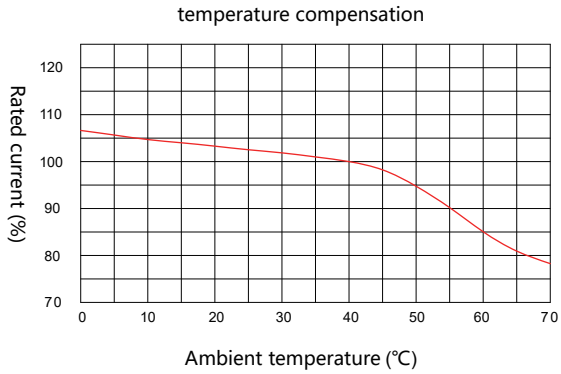
Technical parameters

Tripping curve

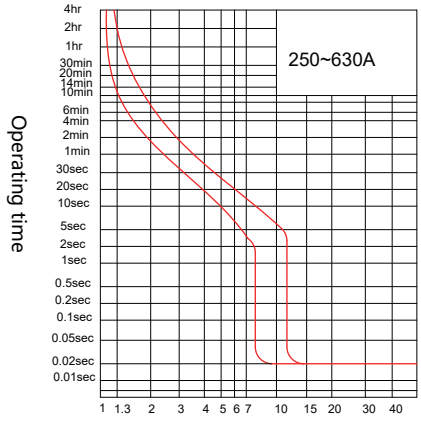
Operating characteristic curves and temperature compensation curves

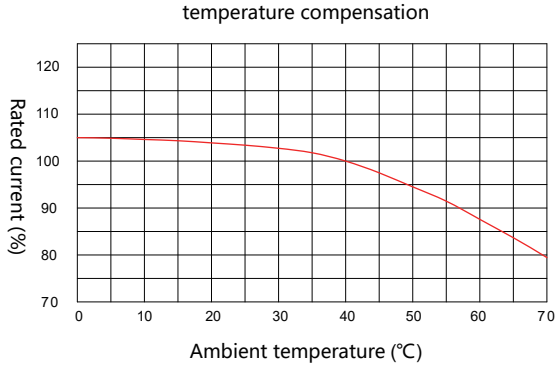
UEM5DC-250



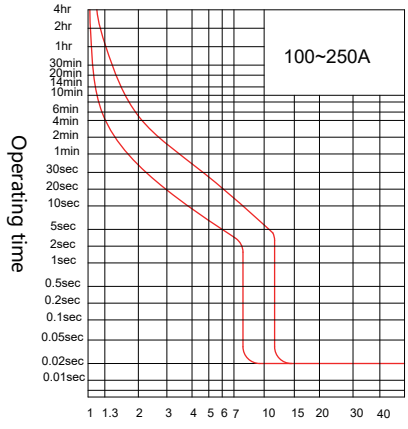


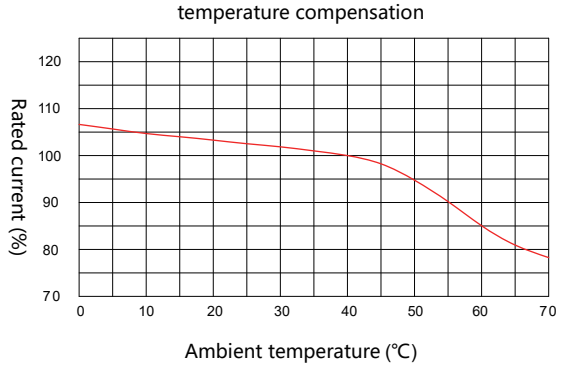
UEM5DC-630





UEM5DH-250





Requirement for wiring cable

Cross-sectional area of wiring cable and corresponding rated current

Rated current (A)	10	16 20	25	32	40 50	63	80	100	125 140	160	180 200 225	250	315 350	400
Cross-sectional area of wire (mm²)	1.5	2.5	4	6	10	16	25	35	50	70	95	120	185	240

Rated current (A)	Cable		Copper bar	
	Qty	Cross-sectional area (mm²)	Qty	Dimension (mm×mm)
500	2	150	2	30x5

Derating Factor

Derating factor for ambient temperature

Type	40°C	45°C	50°C	55°C	60°C	65°C	70°C
UEM5DC-250	$1I_n$	$0.976I_n$	$0.942I_n$	$0.914I_n$	$0.85I_n$	$0.82I_n$	$0.78I_n$
UEM5DC-630	$1I_n$	$0.965I_n$	$0.948I_n$	$0.925I_n$	$0.887I_n$	$0.824I_n$	$0.793I_n$
UEM5DH-250	$1I_n$	$0.976I_n$	$0.942I_n$	$0.914I_n$	$0.85I_n$	$0.82I_n$	$0.78I_n$

Note: The derating factor for UEM5 DC MCCB is measured for each rated current.

Accessories and functions

Circuit breaker internal accessories

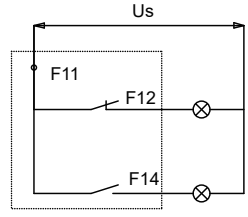
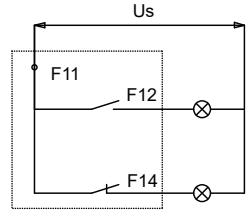
Auxiliary contact (AX1, AX2), alarm contact (AL1)

- Auxiliary contact is used for remote indication of circuit breaker status, for example to indicate switching on and off of the circuit breaker.
- Alarm contact is used as alarm function when overload, short circuit and “trip-free” caused by undervoltage fault happen in lines and equipment.
- Rated operational voltage: AC 50Hz/60Hz 220V or 380V; DC 220V.

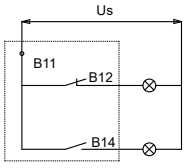
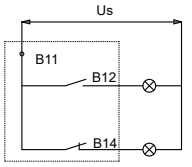
Technical Parameters of Auxiliary Contact and Alarm contact

Type	Frame Rating	Conventional Thermal Current I_{th} (A)	Rated Operational Current I_e (A)	
			AC380V	DC220V
Auxiliary contact	≤ 250A	3	0.30	0.15
	≥ 400A	3	0.40	0.15
Alarm contact	100A... 800A	3	0.30	0.15

Auxiliary contact wiring diagram

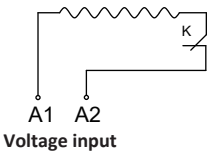
Status of Circuit Breaker	Status of Auxiliary Contact		One Auxiliary Contact Wiring
The handle in “ON” position	One auxiliary contact	F12, F14 — F11	 Circuit breaker in "open" "free trip" position
	Two auxiliary contacts	F12, F14 — F11; F22, F24 — F21	
The handle in “OFF” position	One auxiliary contact	F12, F14 — F11	 Circuit breaker in "on" position
	Two auxiliary contacts	F12, F14 — F11; F22, F24 — F21	

Alarm contact wiring diagram

Circuit Breaker Status	Auxiliary Contact Status	Wiring	
The circuit breaker is in “ON” or “OFF” position	B12 B14 B11	 Circuit breaker in "on" "off" position	 Circuit breaker in "free trip" position
The circuit breaker is in “Free Tripping”position	B12 B14 B11		

Shunt Release（SHT1）

- Shunt release is used for remote tripping control of the circuit breaker.
- Rated operational voltage: AC 50Hz/60Hz, 220V or 380V; DC 24V, 110V or 220V
- Shunt release can make circuit breaker release reliably when the applied voltage is 70% … 110% of rated control voltage of shunt release.

Appearance	Wiring diagram
	 **Voltage input**

Note: The power should meet min. 50W requirement when the user adopts DC24V shunt release

Accessories and functions

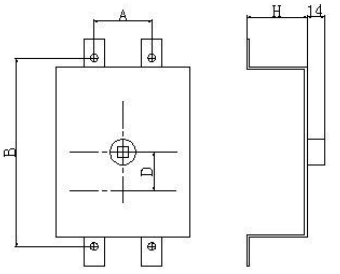
Circuit breaker external accessories

Manual operating mechanism

The manual operating mechanismis mounted on the cover of the circuit breaker and applicable to the circuit breaker installed on electric control cabinet. It can make the circuit breaker close, open and reset by turning the handle and has a guide location function to prevent the handle from fracture caused by misoperation or violent operation.

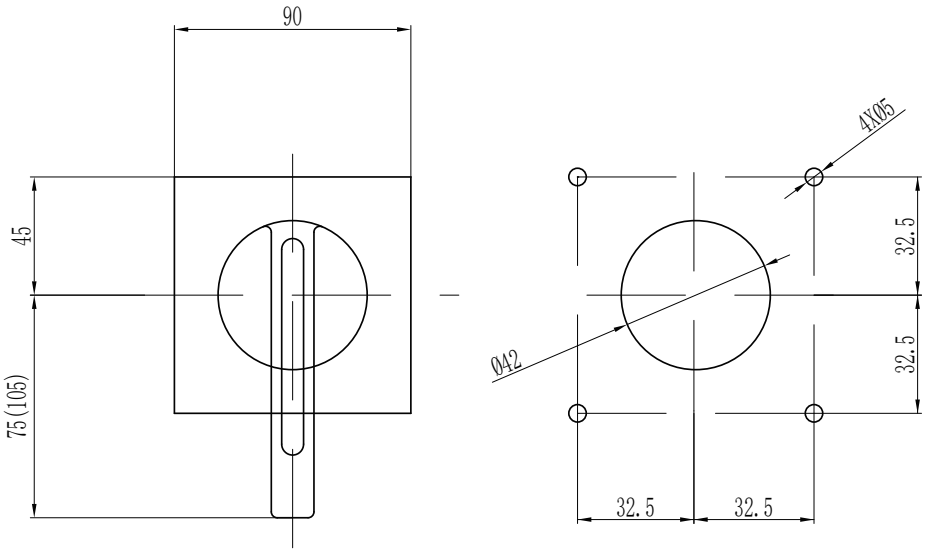
- SC1 — Central operating mechanism
- Two types of handle are available for the central operating mechanism: F-square handle (default); Y-round handle.

Type	Applicable Circuit Breaker	Dimension (mm)			
		A	B	D	H
SC1-(Y, F)-250DC/UEM5	UEM5DC-250	35	126	0	45
SC1-(Y, F)-250DH/UEM5	UEM5DH-250	35	169	25	42
SC1-(Y, F)-630DC/UEM5	UEM5DC-630	128	187	0	76

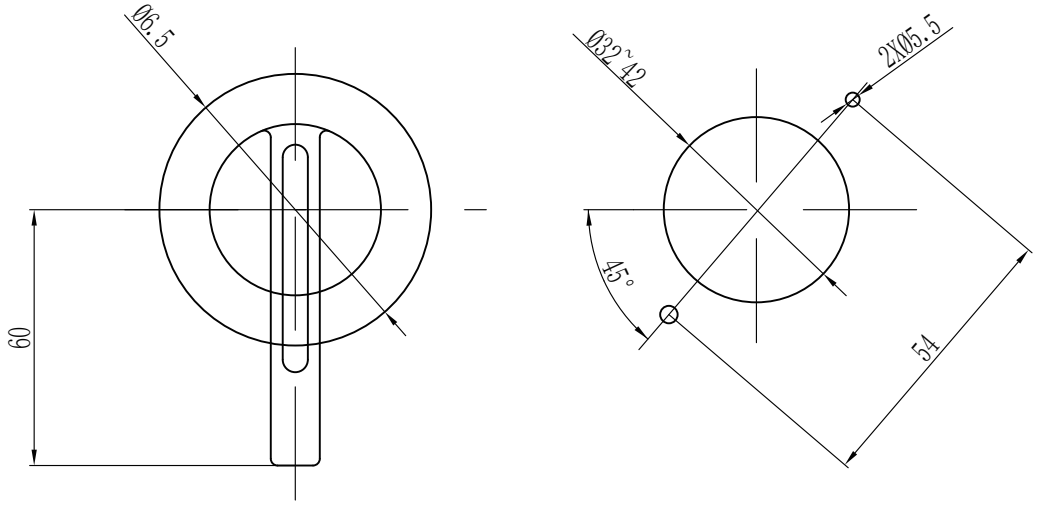
SC1	Outline Dimension of SC1
	 D: The distance from manual rotation center to product center.

Warning:
The manual operating mechanism must be purchased from Hongfa company to ensure the quality and reliability of the product. Otherwise, Hongfa company shall be exempted of any responsibility for the unfavorable result caused by the product other than our company's product.

Mounting Dimension of Type "F" Square Handle (unit: mm)



Mounting Dimension of Type "Y" Round Handle (unit: mm)



Note:
_ The short handles are used for breakers with frame rating 250A or below, and the long handles are used for breakers with frame rating 400A or above.
- The breakers with frame rating 250A or below should be equipped with 8 x 8 square axes. The breakers with frame rating 400A or above should be equipped with 10 x 10 square axes. Both square axes are 150mm long.

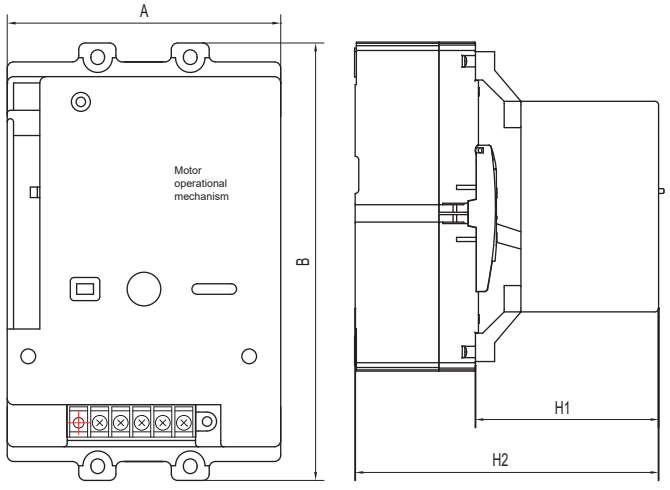
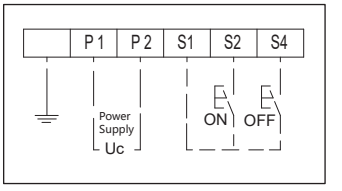
Accessories and functions

Motorized Operating Mechanism

The motorized operating mechanism once assembled with the circuit breaker enables remote operation of the same.

- CD2 type is suitable to be used with 100A … 630A circuit breaker.Itadopts permanent magnet DC motor drive, switching on/off power to supply, has low power consumption, wide voltage range, DC and AC applicable.

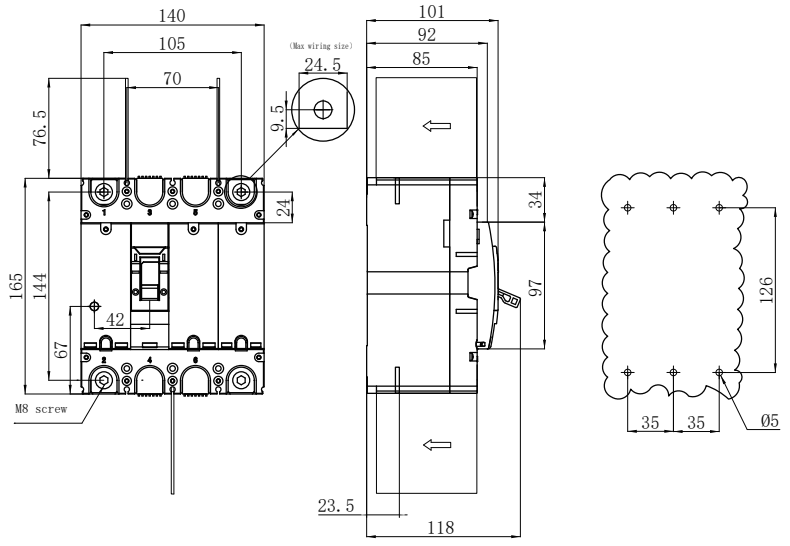
Motorized Operating Mechanism Types	P/N	Circuit Breakers	Rated Control Voltage(V)	Operation current	Outline And Installation Dimension(mm)			
				(A)	A	B	H1	H2
CD2	CD2-250DC/UEM5	UEM5DC-250	AC220V/DC220V AC100V/DC110V AC380V DC24V	≤ 2 ≤ 2 ≤ 1 ≤ 6	90	152	90	153
	CD2-250DH/UEM5	UEM5DH-250			90	177	100	186
	CD2-630DC/UEM5	UEM5DC-630			130	219	151	248

CD2	Outline dimension and wiring of CD2
	  Wiring diagram

Outline and installation dimensions

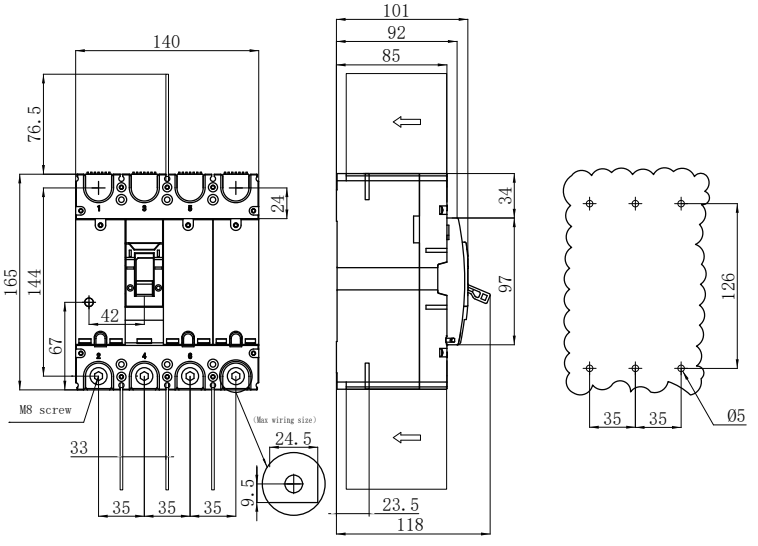
UEM5DC-250 G type (up in and down out) wiring method, outline and installation dimension

Installation dimension



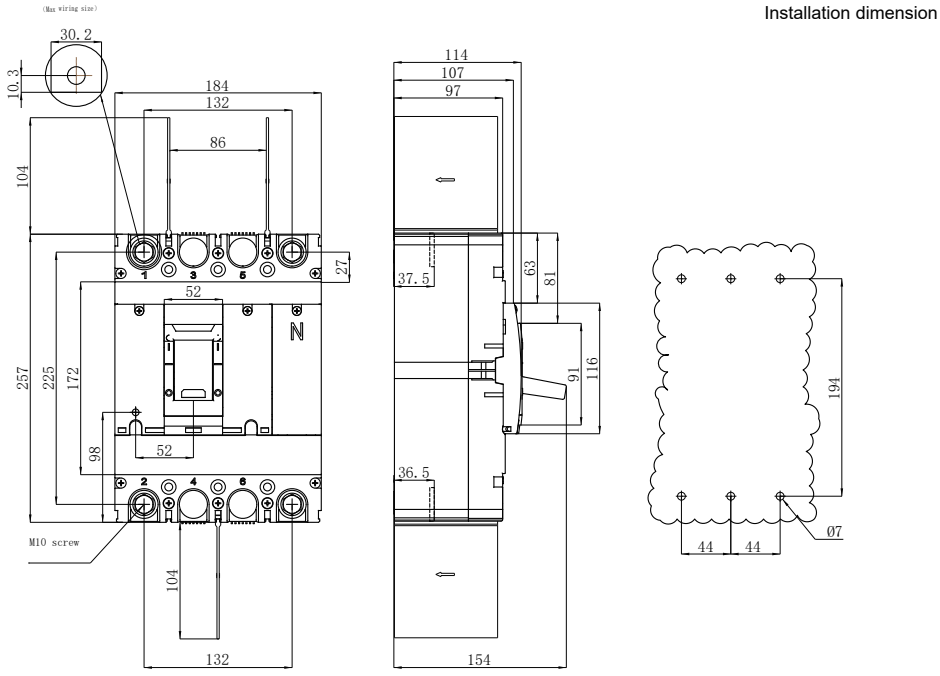
UEM5DC-250 H type (down in and down out) wiring method, outline and installation dimensio

Installation dimension

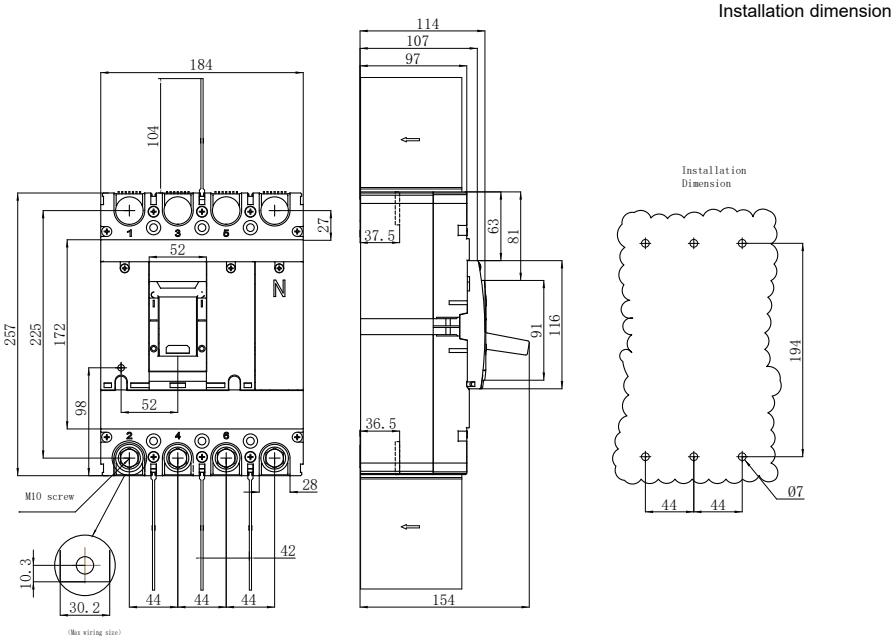


Outline and installation dimensions

UEM5DC-630 G type (up in and down out) wiring method, outline and installation dimension

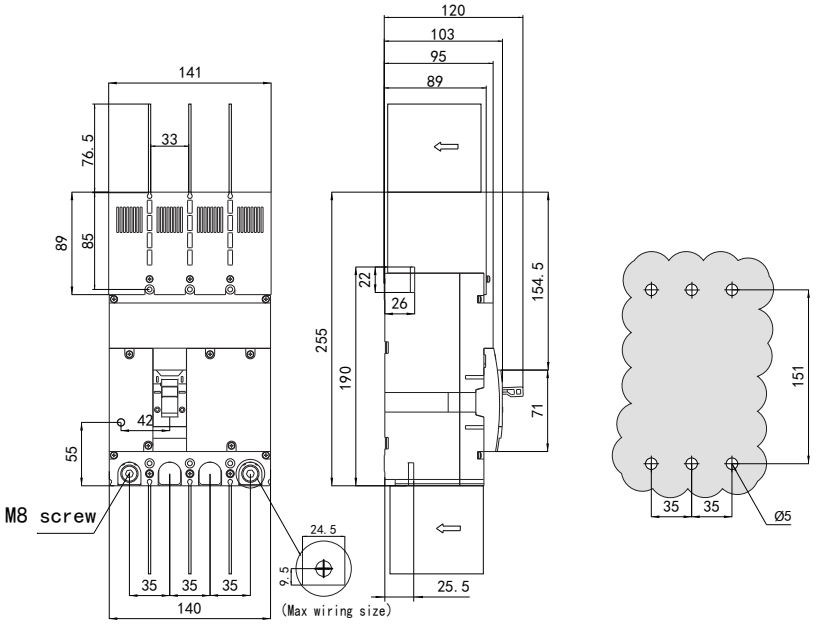


UEM5DC-630 H type (down in and down out) wiring method, outline and installation dimension



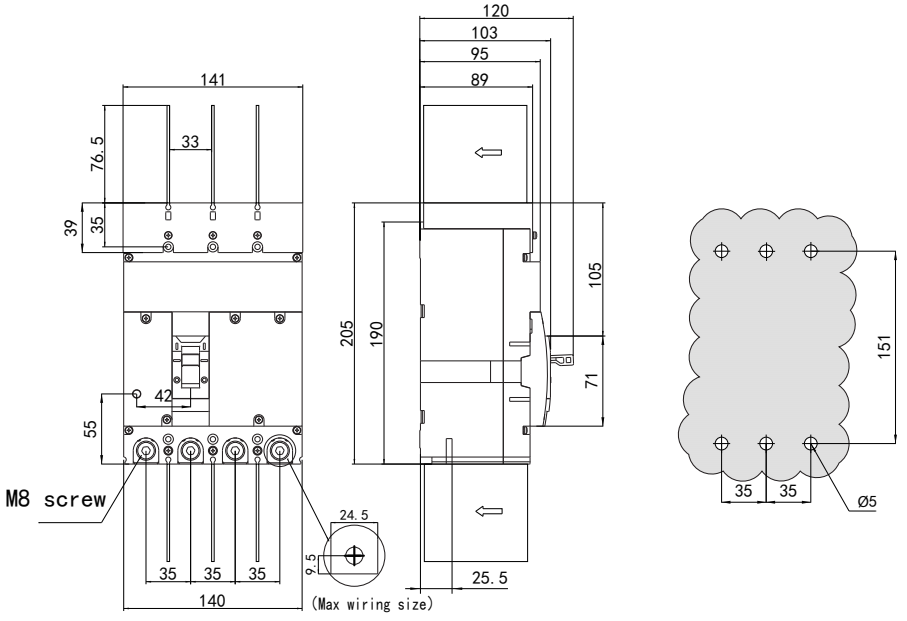
UEM5DH-250 G type (up in and down out) wiring method, outline and installation dimension

Installation dimension



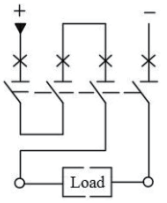
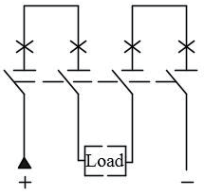
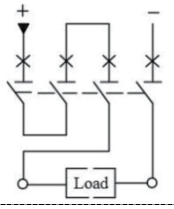
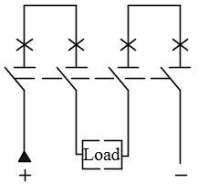
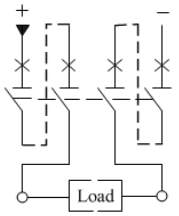
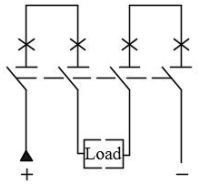
UEM5DH-250 H type (down in and down out) wiring method, outline and installation dimension

Installation dimension



DC system application

DC MCCB wiring method

Wiring method / Product type	G type wiring	H type wiring
UEM5DC-250		
UEM5DC-630		
UEM5DH-250		

Ordering instruction

Type and meaning

UE	M	5	DC	-	250	/	200	-	4	3	00	0	-	P1	H

Manufacturer code: Hongfa

Product code: MCCB

Design code

DC: Below 1500VDC

DH: 1500VDC

Rated frame current

See quick reference table

Rated current: See quick reference table

Number of poles: 4: 4 poles

Release code

2: Electromagnetic protection;

3: Thermal + electromagnetic protection

Internal accessory code

00: No accessory; **08:** Alarm contact; **10:** Shunt release;

18: Alarm contact + shunt release; **20:** Auxiliary contact;

28: Alarm contact + auxiliary contact;

40: Auxiliary contact + shunt release;

48: Alarm contact + auxiliary contact + shunt release;

Internal accessory voltage

0: No voltage; **1:** AC220V; **2:** AC380V; **3:** DC24V; **4:** DC110V; **5:** DC220V

Operation type: No code: handle/lever;

PX: Motorized--**P1:** CD2 AC220V; **P2:** CD2 AC380V; **P3:** CD2 DC24V; **P4:** CD2 DC110V; **P5:** CD2 DC220V;

ZX: Manual operating mechanism; **Z1:** SC1-F; **Z2:** SC1-Y;

Wiring

G: up in down out

H: down in down out

Part number selection example:
UEM5DC-250/200-43401-P1H: DC type MCCB UEM5DC, frame rating 250A, rated current 200A, 4 pole, thermal + electromagnetic protection release, AC220V shunt release + auxiliary contact, CD2 AC220V motorized operating mechanism, H type wiring method.

Ordering instruction

Quick Reference Table

DC type MCCB		UEM5DC		UEM5DH
Frame Rating		**250**	**630**	**250**
Rated Ultimate Short-Circuit Breaking Capacity I_{cu}(kA)	U_e: DC750V	50	50	-
	U_e: DC1000V	40	40	-
	U_e: DC1200V	10	-	-
	U_e: DC1500V	-	-	15
Rated Current I_n (A)	100	√	-	√
	125	√	-	√
	140	√	-	√
	160	√	-	√
	180	√	-	√
	200	√	-	√
	225	√	-	√
	250	√	√	√
	315	-	√	-
	350	-	√	-
	400	-	√	-
	500	-	√	-
Number of poles		4P	4P	4P

Type and Meaning-Accessories

SHT1	-250	DC	R	Y	/AC220V

Accessory type: See accessory type list

Frame rating:250; 630

DC: Below 1500VDC

DH: 1500VDC

Installation position

No code: No position limit; **L:** Left side mounted; **R:** Right side mounted

Wiring

No code: No wiring limit; **Y:** Lead-wire type; **D:** Terminal type

Operational voltage

No code: No voltage limit; AC220V; AC380V; DC24V; DC110V; DC220V

Accessories type example:

- SHT1-250DCRY/AC220V: Shunt release for frame rating 250A DC MCCB, right side mounting, lead-wire type and operational voltage AC220V.
- CD2-630DC/AC220V: Motorized operating mechanism for frame rating 630A DC MCCB, without plug in connector, operational voltage AC220-240V.
- For more details about accessory type please check chapter 7.3 and 7.4.

Accessories type list:

<table>
<tr><th colspan="3">Internal accessories</th><th colspan="3">External accessories</th></tr>
<tr><td rowspan="2">Auxiliary contacts</td><td>AX1</td><td>1NC1NO</td><td rowspan="3">Manual operating mechanism</td><td rowspan="2">SC1-Y</td><td rowspan="2">Round lever</td></tr>
<tr><td>AX2</td><td>2NC2NO</td></tr>
<tr><td rowspan="2">Alarm contacts</td><td>AL1</td><td>1 alarm</td><td rowspan="2">SC1-F</td><td rowspan="2">Square lever</td></tr>
<tr><td>AL2</td><td>2 alarm</td></tr>
<tr><td>Auxiliary alarm contacts</td><td>AXAL1</td><td>1NO1NC+1Alarm</td><td rowspan="2">Motorized operating mechanism</td><td colspan="2" rowspan="2">CD2</td></tr>
<tr><td>Shunt release</td><td colspan="2">SHT1</td></tr>
</table>

Ordering instruction

Internal accessories

Auxiliary Contacts AX1, AX2

	Description	Type
 Lead-wire type	Frame rating DC/DH 250A auxiliary contacts, 1NO1NC, left side mounted, lead-wire type	AX1-250DCLY
	Frame rating DC/DH 250A auxiliary contacts, 1NO1NC, left side mounted, terminal type	AX1-250DCLD
	Frame rating DC/DH 250A auxiliary contacts, 1NO1NC, right side mounted, lead-wire type	AX1-250DCRY
	Frame rating DC/DH 250A auxiliary contacts, 1NO1NC, right side mounted, terminal type	AX1-250DCRD
	Frame rating DC/DH 250A auxiliary contacts, 2NO2NC, left side mounted, lead-wire type	AX2-250DCLY
	Frame rating DC/DH 250A auxiliary contacts, 2NO2NC, left side mounted, terminal type	AX2-250DCLD
	Frame rating DC/DH 250A auxiliary contacts, 2NO2NC, right side mounted, lead-wire type	AX2-250DCRY
	Frame rating DC/DH 250A auxiliary contacts, 2NO2NC, right side mounted, terminal type	AX2-250DCRD
 Terminal type	Frame rating DC 630A auxiliary contacts, 1NO1NC, left side mounted, lead-wire type	AX1-630DCLY
	Frame rating DC 630A auxiliary contacts, 1NO1NC, left side mounted, terminal type	AX1-630DCLD
	Frame rating DC 630A auxiliary contacts, 1NO1NC, right side mounted, lead-wire type	AX1-630DCRY
	Frame rating DC 630A auxiliary contacts, 1NO1NC, right side mounted, terminal type	AX1-630DCRD
	Frame rating DC 630A auxiliary contacts, 2NO2NC, left side mounted, lead-wire type	AX2-630DCLY
	Frame rating DC 630A auxiliary contacts, 2NO2NC, left side mounted, terminal type	AX2-630DCLD
	Frame rating DC 630A auxiliary contacts, 2NO2NC, right side mounted, lead-wire type	AX2-630DCRY
	Frame rating DC 630A auxiliary contacts, 2NO2NC, right side mounted, terminal type	AX2-630DCRD

Alarm Contacts AL1

	Description	Type
 Lead-wire type	Frame rating DC/DH 250A alarm contacts lead-wire type	AL1-250DCY
	Frame rating DC/DH 250A alarm contacts terminal type	AL1-250DCD
	Frame rating DC 630A alarm contacts lead-wire type	AL1-630DCY
	Frame rating DC 630A alarm contacts terminal type	AL1-630DCD

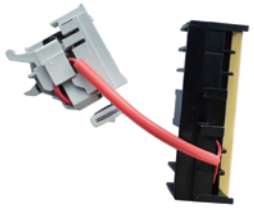
Auxiliary Alarm Contacts AXAL1

	Description	Type
 Lead-wire type	Frame rating DC/DH 250A auxiliary alarm contacts lead-wire type	AXAL1-250DCY
	Frame rating DC/DH 250A auxiliary alarm contacts terminal type	AXAL1-250DCD
	Frame rating DC 630A auxiliary alarm contacts lead-wire type	AXAL1-630DCY
	Frame rating DC 630A auxiliary alarm contacts terminal type	AXAL1-630DCD

Internal accessories

Shunt Release SHT1

Lead-wire type

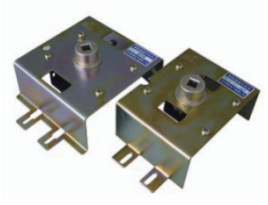


Terminal type

Description	Type
Frame rating DC/DH 250A shunt release lead-wire type, left side mounted, AC220-240V	SHT1-250DCLY/AC220V
Frame rating DC/DH 250A shunt release lead-wire type, left side mounted, AC380-440V	SHT1-250DCLY/AC380V
Frame rating DC/DH 250A shunt release lead-wire type, left side mounted, DC24-30V	SHT1-250DCLY/DC24V
Frame rating DC/DH 250A shunt release lead-wire type, left side mounted, DC110-127V	SHT1-250DCLY/DC110V
Frame rating DC/DH 250A shunt release lead-wire type, left side mounted, DC220-250V	SHT1-250DCLY/DC220V
Frame rating DC/DH 250A shunt release lead-wire type, right side mounted, AC220-240V	SHT1-250DCRY/AC220V
Frame rating DC/DH 250A shunt release lead-wire type, right side mounted, AC380-440V	SHT1-250DCRY/AC380V
Frame rating DC/DH 250A shunt release lead-wire type, right side mounted, DC24-30V	SHT1-250DCRY/DC24V
Frame rating DC/DH 250A shunt release lead-wire type, right side mounted, DC110-127V	SHT1-250DCRY/DC110V
Frame rating DC/DH 250A shunt release lead-wire type, right side mounted, DC220-250V	SHT1-250DCRY/DC220V
Frame rating DC/DH 250A shunt release terminal type, left side mounted, AC220-240V	SHT1-250DCLD/AC220V
Frame rating DC/DH 250A shunt release terminal type, left side mounted, AC380-440V	SHT1-250DCLD/AC380V
Frame rating DC/DH 250A shunt release terminal type, left side mounted, DC24-30V	SHT1-250DCLD/DC24V
Frame rating DC/DH 250A shunt release terminal type, left side mounted, DC110-127V	SHT1-250DCLD/DC110V
Frame rating DC/DH 250A shunt release terminal type, left side mounted, DC220-250V	SHT1-250DCLD/DC220V
Frame rating DC/DH 250A shunt release terminal type, right side mounted, AC220-240V	SHT1-250DCRD/AC220V
Frame rating DC/DH 250A shunt release terminal type, right side mounted, AC380-440V	SHT1-250DCRD/AC380V
Frame rating DC/DH 250A shunt release terminal type, right side mounted, DC24-30V	SHT1-250DCRD/DC24V
Frame rating DC/DH 250A shunt release terminal type, right side mounted, DC110-127V	SHT1-250DCRD/DC110V
Frame rating DC/DH 250A shunt release terminal type, right side mounted, DC220-250V	SHT1-250DCRD/DC220V
Frame rating DC 630A shunt release lead-wire type AC220-240V	SHT1-630DCY/AC220V
Frame rating DC 630A shunt release lead-wire type AC380-440V	SHT1-630DCY/AC380V
Frame rating DC 630A shunt release lead-wire type DC24-30V	SHT1-630DCY/DC24V
Frame rating DC 630A shunt release lead-wire type DC110-127V	SHT1-630DCY/DC110V
Frame rating DC 630A shunt release lead-wire type DC220-250V	SHT1-630DCY/DC220V
Frame rating DC 630A shunt release terminal type AC220-240V	SHT1-630DCD/AC220V
Frame rating DC 630A shunt release terminal type AC380-440V	SHT1-630DCD/AC380V
Frame rating DC 630A shunt release terminal type DC24-30V	SHT1-630DCD/DC24V
Frame rating DC 630A shunt release terminal type DC110-127V	SHT1-630DCD/DC110V
Frame rating DC 630A shunt release terminal type DC220-250V	SHT1-630DCD/DC220V

External accessories

Manual Operating Mechanism SC1

	Description	Type
 SC1	Frame rating DC 250A manual operating mechanism	SC1-F/250DC
	Frame rating DC 250A manual operating mechanism	SC1-Y/250DC
	Frame rating DH 250A manual operating mechanism	SC1-F/250DH
	Frame rating DH 250A manual operating mechanism	SC1-Y/250DH
	Frame rating DC 630A manual operating mechanism	SC1-F/630DC
	Frame rating DC 630A manual operating mechanism	SC1-Y/630DC

Motorized Operating Mechanism CD2

	Description	Type
 CD2	Frame rating DC 250A motorized operating mechanism without plug-in AC220-240V	CD2-250DC/AC220V
	Frame rating DC 250A motorized operating mechanism without plug-in AC380-440V	CD2-250DC/AC380V
	Frame rating DC 250A motorized operating mechanism without plug-in DC24-30V	CD2-250DC/DC24V
	Frame rating DC 250A motorized operating mechanism without plug-in DC110-127V	CD2-250DC/DC110V
	Frame rating DC 250A motorized operating mechanism without plug-in DC220-250V	CD2-250DC/DC220V
	Frame rating DH 250A motorized operating mechanism without plug-in AC220-240V	CD2-250DH/AC220V
	Frame rating DH 250A motorized operating mechanism without plug-in AC380-440V	CD2-250DH/AC380V
	Frame rating DH 250A motorized operating mechanism without plug-in DC24-30V	CD2-250DH/DC24V
	Frame rating DH 250A motorized operating mechanism without plug-in DC110-127V	CD2-250DH/DC110V
	Frame rating DH 250A motorized operating mechanism without plug-in DC220-250V	CD2-250DH/DC220V
	Frame rating DC 630A motorized operating mechanism without plug-in AC220-240V	CD2-630DC/AC220V
	Frame rating DC 630A motorized operating mechanism without plug-in AC380-440V	CD2-630DC/AC380V
	Frame rating DC 630A motorized operating mechanism without plug-in DC24-30V	CD2-630DC/DC24V
	Frame rating DC 630A motorized operating mechanism without plug-in DC110-127V	CD2-630DC/DC110V
	Frame rating DC 630A motorized operating mechanism without plug-in DC220-250V	CD2-630DC/DC220V

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