



UEM5 series Molded Case Circuit Breakers (MCCB for short below) are applicable to the electrical network under the condition of AC50Hz, rated current 10A - 800A, rated insulation voltage 800V and rated working voltage 690V or below. MCCB has overload, short-circuit and under-voltage protection functions, among which the UEM5L series residual current circuit breakers can be used to protect human body and equipment from electric shock and residual current, as well as to prevent from fire danger due to earth-fault current which is caused by equipment insulation damage. Normally, the circuit breakers also take the role of infrequent turn-on or turn-off and infrequent motor starting-up.

The circuit breaker can be equipped with the accessories, such as under voltage release, shunt release, auxiliary contact, alarm contact, electric operating mechanism, manual operating mechanism, etc

Conforming Standards:

- IEC 60947-2 Low voltage switchgear and control gear Part 2: Low voltage breaker
- GB 14048.2 Low voltage switchgear and control gear Part 2: Low voltage breaker

Features

- The casing like base and cover, which is made of the USA IDI company’s thermosetting material, has high quality in strength and insulation, so as to ensure the breakers’ performance reliably. .
- Advanced design of operation mechanism, rapid breaking and slight tripping force. Adopting the “Double-way breaking system”, not only reducing the circuit breaker’s cubage, but greatly improving the short circuit breaking capacity as well.
- The contact system adopts the principle of electromagnetic repulsion. Once there is fault current, the electromagnetic repulsion can separate the moving and stationary contacts rapidly, and increases the spacing, so as to achieve current limiting and improve the breaking capacity.
- The circuit breakers of the same rated current frame and different breaking capacity share the absolutely identical dimensions of outline and installation, which can extremely improve the interchangeability.
- The design of cassette-type accessories (including shunt release, under-voltage release, auxiliary contact and alarm contact) insures the flexibility of control function. The user can install them without opening the cover, and need not any adjustment. Since adopting design of the insulation box, the operation security has been improved.
- The UEM5L series residual MCCB have reliable low-voltage protection, which have insured the residual current protection to work normally even with the line voltage low to 50V. For one product, not only the residual operating current can be adjusted, but operating time’s non-delay and delay can be adjustable as well, furthermore, we can open or close the residual current protection based on customers’ requirements, which have improved the operation flexibility.

- The rated insulation voltage up to 800V, rated impulse withstands voltage up to 8000V, which can meet the application requirement of switch cabinet.

- Using the world's most advanced alloy material for movement contacts to ensure high mechanical life and electrical life.

- The full range of products has six invention patents, twelve utility model patents and three appearance patents, which make products novelty, aesthetics, reliability, and security.

- Working temperature

UEM5 series MCCB can work in the environment from -25°C to $+70^{\circ}\text{C}$, the storage environment temperature is -40°C to $+70^{\circ}\text{C}$.

Due to the temperature characteristics of bi-metal, it needs to reduce its heat tripping value between $+40$ to $+70^{\circ}\text{C}$.

The performance of the intelligent over-current release does not fluctuate due to the change of temperature,

but when the temperature is higher than $+40^{\circ}\text{C}$, because the current in the circuit breaker flows through the

copper parts (movable and fixed contact and connection terminals) will cause some rated continuous current

reducing, the maximum set value of overload protection function need to decrease.

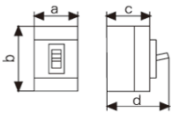
Type and Meaning

	U	E	M	5	L	-	100	MW	/	80	3	3	00	2	A	M	P	H	LSIP
Manufacturer code: Hongfa																			
Product code: Molded Case Circuit Breaker																			
Design serial number																			
No code: thermal & magnetic																			
L: Thermal & magnetic, with residual current protection;																			
Z1: Electronic/intelligent over-current release																			
Rated frame current: See table 1																			
Short circuit breaking capacity:																			
L: Standard																			
M: Relatively high breaking;																			
H: High breaking																			
R: Current limit																			
MW: zero arc																			
Rated current: see table 1																			
Number of poles: 3: 3 poles; 4: 4 poles																			
Release code: 2: Electromagnetic protection; 3: Thermodynamic + electromagnetic protection																			
Accessory code:																			
00: No accessory; 08: Alarm contact; 10: Shunt release; 18: Alarm contact + shunt release;																			
20: Auxiliary contact; 28: Alarm contact + auxiliary contact; 30: Under voltage release;																			
38: Alarm contact + Under voltage release; 40: Auxiliary contact + shunt release;																			
48: Alarm contact + auxiliary contact + shunt release;																			
50: Shunt release + under voltage release; 70: Auxiliary contact + under voltage release;																			
78: Alarm contact + auxiliary contact + under voltage release																			
Application code: No code: power distribution protection; 2: motor protection																			
N-pole protection function: A: N-pole without protection and connected all along;																			
B: N-pole without protection and act with other three poles;																			
C: N-pole with over current protection and act with other three poles;																			
D: N-pole with over current protection and connected all along; No code: of 3 poles product.																			
Extended Function Code: No code: regular product; N: with overdue tripping function																			
M: with function of leakage alarm but no tripping																			
Operation pattern: No code: handle; P: motor; Z: rotary handle																			
Wiring method: No code: front fix (without connection board); Q: front fix (with connection board); H: back fix;																			
RQ: plug in front fix; CQ: draw out front fix; RH: plug in back fix; CH: draw up back fix																			
Protection Type: (Only applicable to electronic/intelligent over current release)																			
LI: overload long delay+ short circuit instantaneous protection																			
LSI: overload long delay +short circuit short delay+ short circuit instantaneous protection																			
LSIP: overload long delay + overload long delay + short circuit instantaneous +pre-alarm protection																			
LSIG: overload long delay + overload long delay + short circuit instantaneous +ground fault protection																			
LSIT: overload long delay + overload long delay + short circuit instantaneous + pre-alarm protection +communication																			
LCD: intelligent LCD control																			
LI-J: overload long delay alarm no release+ short circuit instantaneous protection																			

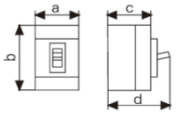
With a modular design, we can organically combine thermal & magnetic, electronic and residual current operated protection, to form UEM5 molded case circuit breaker, UEM5L residual current circuit breaker, UEM5Z1 electronic molded case circuit breaker.

Table 1-Main Technical Parameters

(UEM5 series MCCB)

Rated frame current (A)		63		100					225				250				
Breaking capacity		L	M	L	M	H	R	MW	L	M	H	R	L	M	H	R	MW
Rated current In (A)		10 20 32 50	16 25 40 63	16 20 25 32 40 50 63 80 100					100 125 140 160 180 200 225				100 125 140 160 180 200 225 250				
Number of poles		3 / 4		3 / 4					3	3 / 4			3 / 4				
Rated insulation voltage Ui (V)		AC800		AC800					AC800				AC800				
Rated working voltage Ue (V)		AC400		AC 400	AC 400	500 690	AC400		AC400				AC400	AC 400	500 690	AC400	
Rated impulse withstand voltage Uimp (V)		8000		8000					8000				8000				
Arc-over distance (mm)		≤50		≤50				0	≤50				≤50				0
Use category		A		A					A				A				
Pollution grade		3		3					3				3				
Rated ultimate short-circuit breaking capacity Icu (kA)	AC400V	35	50	35	50	70	85	50	35	50	70	85	35	50	70	85	50
Rated service short-circuit breaking capacity Ics (kA)		20	35	25	50	50	65	50	25	35	50	65	25	50	50	65	50
Rated ultimate short-circuit breaking capacity Icu (kA)	AC500V	—	—	—	40	—	—	—	—	—	—	—	—	—	40	—	—
Rated service short-circuit breaking capacity Ics (kA)		—	—	—	40	—	—	—	—	—	—	—	—	—	40	—	—
Rated ultimate short-circuit breaking capacity Icu (kA)	AC690V	—	—	—	20	—	—	—	—	—	—	—	—	—	20	—	—
Rated service short-circuit breaking capacity Ics (kA)		—	—	—	10	—	—	—	—	—	—	—	—	—	10	—	—
Outline dimension (mm)		a		90 / 120					105 / 140				105 / 140				
		b		155					165				165				
		c		61	62	76			61	85			61	85			
		d		90	91	105			94	118			94	118			
Electrical life (cycles)		AC400V	8000	8000					8000				8000				
		AC500V	—	3000					—				2000				
		AC690V	—	1500					—				1000				
Mechanical life (cycles)	Maintenance	20000		20000					20000				20000				
	Non-maintenance	40000		40000					40000				40000				
Wiring method	Front fix	•		•					•				•				
	Back fix	•		•					•				•				
	Plug in	•		•					•				•				
Accessories	Shunt release	•		•					•				•				
	Under voltage release	•		•					•				•				
	Auxiliary contact	•		•					•				•				
	Alarm contact	•		•					•				•				
	Motor driven	•		•					•				•				

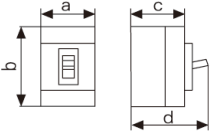
	Turning handle	●	●	●	●
	Draw out	/	/	/	/
Protection	Over load and short circuit protection				
Over current release device	Thermal magnetic				
Weight (kg)	1.1 / 2.0	L:1.3 / 1.9 M、H、R、MW: 1.6 / 2.5		L:1.5 M、H、R: 2.0 / 2.9	L:1.5 / 2.1 M、H、R、MW: 2.0 / 2.9

Rated frame current (A)		400					630					800				
Breaking capacity		L	M	H	R	MW	L	M	H	R	MW	L	M	H	R	MW
Rated current In (A)		225 250 315 350 400					400 500					400 500 630 700 800				
Number of poles		3 / 4					3 / 4					3 / 4				
Rated insulation voltage Ui (V)		AC800					AC800					AC800				
Rated working voltage Ue (V)		AC400	AC 400 500 690	AC400			AC 400	AC 400 690	AC 400 500	AC 400	AC 400 690	AC400	AC 400 500 690	AC400		
Rated impulse withstand voltage Uimp (V)		8000					8000					8000				
Arc-over distance (mm)		≤50			0		≤50			0		≤50			0	
Use category		A					A					A				
Pollution grade		3					3					3				
Rated ultimate short-circuit breaking capacity Icu (kA)	AC400V	50	65	85	100	65	35	50	70	100	50	50	65	85	100	65
Rated service short-circuit breaking capacity Ics (kA)		35	50	65	75	50	35	50	70	75	50	35	50	65	75	50
Rated ultimate short-circuit breaking capacity Icu (kA)	AC500V	—	—	50	—	—	—	—	50	—	—	—	—	50	—	—
Rated service short-circuit breaking capacity Ics (kA)		—	—	50	—	—	—	—	50	—	—	—	—	50	—	—
Rated ultimate short-circuit breaking capacity Icu (kA)	AC690V	—	—	20	—	—	—	20	—	—	20	—	—	20	—	—
Rated service short-circuit breaking capacity Ics (kA)		—	—	15	—	—	—	15	—	—	15	—	—	15	—	—
Outline dimension (mm)	a	140 / 184					140 / 184					210 / 280				
	b	257					257					275				
	c	97					97					104				
	d	154					154					158				
	Electrical life (cycles)	AC400V	7500					7500					7500			
	AC500V	2000					2000					1000				
	AC690V	1000					1000					500				
Mechanical life (cycles)	Maintenanc e	10000					10000					10000				
	Non-mainte nance	20000					20000					20000				
Wiring method	Front fix	●					●					●				
	Back fix	●					●					●				
	Plug in	●					●					●				
Accessories	Shunt release	●					●					●				
	Under voltage release	●					●					●				
	Auxiliary contact	●					●					●				

	Alarm contact	●	●	●
	Motor driven	●	●	●
	Turning handle	●	●	●
	Draw out	●	●	●
Protection	Over load and short circuit protection			
Over current release device	Thermal magnetic			
Weight (kg)	6.2 / 8	7.5 / 9.6	9.7 / 12.8	

Table 1-Main Technical Parameters

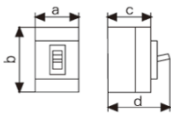
(UEM5L series MCCB)

Rated frame current (A)		100			250			400			630			800					
Breaking capacity		M	H	R	M	H	R	M	H	R	M	H	R	M	H	R			
Rated current I _n (A)		16	20	25	100	125	140	225	250	315	400 500			400	500	630			
		32	40	50	160	180	200	350	400					700	800				
		63	80	100	225	250													
Number of poles		3 / 4			3 / 4			3 / 4			3 / 4			3 / 4					
Non delay	Rated residual operation current I _Δ (mA)	30/100/300 adjustable						100/300/500 adjustable						300/500/1000 adjustable					
	5I _{Δn} Max. release time (s)	0.04			0.04			0.04			0.04			0.04					
Delay	Rated residual operation current I _Δ (mA)	30/100/300/500 adjustable						100/300/500 adjustable						300/500/1000 adjustable					
	I _{Δn} Max. release time (s)	0.6、1			0.6、1			0.8、2、2.5			0.8、2、2.5			0.8、2、2.5					
	2I _{Δn} limit non-actuating time Δt (s)	0.1、0.3、0.5 / 0.2、0.4、1						0.2、0.5、1			0.2、0.5、1			0.2、0.5、1					
Residual current indication button		Button			Button			Button			Button			Button					
Rated insulation voltage U _i (V)		AC800			AC800			AC800			AC800			AC800					
Rated working voltage U _e (V)		AC400			AC400			AC400			AC400			AC400					
Rated impulse withstand voltage U _{imp} (V)		8000			8000			8000			8000			8000					
Arc-over distance (mm)		≤50			≤50			≤50			≤50			≤50					
Use category		A			A			A			A			A					
Pollution grade		3			3			3			3			3					
Rated ultimate short-circuit breaking capacity I _{cu} (kA)		AC400V			50	70	85	50	70	85	65	85	100	50	70	100	65	85	100
Rated service short-circuit breaking capacity I _{cs} (kA)					35	50	65	35	50	65	50	65	75	50	70	75	50	65	75
Dimension (mm)		a			105 / 140			140 / 184			140 / 184			210 / 280					
		b			165			257			257			275					
		c			85			97			97			104					
		d			118			154			154			158					
Electrical life (cycles)		AC400V			8000			8000			7500			7500					
Mechanical life (cycles)	Maintenance	20000			20000			10000			10000			10000					
	Non-maintenance	40000			40000			20000			20000			20000					
Wiring method	Front fix	●			●			●			●			●					
	Back fix	●			●			●			●			●					
	Plug in	●			●			●			●			●					
Accessories	Shunt release	●			●			●			●			●					
	Under voltage release	●			●			●			●			●					
	Auxiliary contact	●			●			●			●			●					
	Alarm contact	●			●			●			●			●					

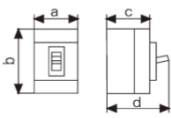
	Motor driven	●	●	●	●	●
	Turning handle	●	●	●	●	●
	Draw out	/	/	●	●	●
Protection	Over load, short circuit and residual current protection					
Over current release	Thermal magnetic					
Operating characteristic	AC/A	AC/A	AC	AC	AC	AC

Warning: 3 pole residual current is not recommended, because 3 pole residual current is only used when the lower level has no N pole and grounding.

Table 1-Main technical parameters (UEM5Z1 series MCCB)

Rated frame current (A)		100				225			250			
Breaking capacity		M	H	R	MW	M	H	R	M	H	R	MW
Rated current I _r (A)		16 20 25 32 40 adjustable 40 50 63 80 100				100 125 140 160 180 200 225 adjustable			100 125 140 160 180 200 225 250 adjustable			
Number of poles		3 / 4				3 / 4			3 / 4			
Rated insulation voltage U _i (V)		AC800				AC800			AC800			
Rated working voltage U _e (V)		AC 400	AC 400 500 690	AC400		AC400			AC 400	AC 400 500 690	AC400	
Rated impulse withstand voltage U _{imp} (V)		8000				8000			8000			
Arc-over distance (mm)		≤50			0	≤50			≤50		0	
Use category		A				A			A			
Pollution grade		3				3			3			
Rated ultimate short-circuit breaking capacity I _{cu} (kA)	AC	50	70	85	50	50	70	85	50	70	85	50
Rated service short-circuit breaking capacity I _{cs} (kA)	400V	50	50	65	50	35	50	65	50	50	65	50
Rated ultimate short-circuit breaking capacity I _{cu} (kA)	AC	—	40	—	—	—			—	40	—	—
Rated service short-circuit breaking capacity I _{cs} (kA)	500V	—	40	—	—	—			—	40	—	—
Rated ultimate short-circuit breaking capacity I _{cu} (kA)	AC	—	20	—	—	—			—	20	—	—
Rated service short-circuit breaking capacity I _{cs} (kA)	690V	—	10	—	—	—			—	10	—	—
Rated short time withstand current I _{cw} (kA/1s)		—				—			—			
Outline dimension (mm) 	a	90 / 120				105 / 140			105 / 140			
	b	155				165			165			
	c	78				91			91			
	d	105				118			118			
Electrical life (cycles)	AC400V	8000				8000			8000			
	AC500V	3000				—			2000			
	AC690V	1500				—			1000			
Mechanical life (cycles)	Maintenance	20000				20000			20000			
	Non-maintenance	40000				40000			40000			
Wiring method	Front fix	●				●			●			
	Back fix	●				●			●			
	Plug in	●				●			●			
Accessories	Shunt release	●				●			●			
	Under voltage release	●				●			●			

	Auxiliary contact	●	●	●
	Alarm contact	●	●	●
	Motor driven	●	●	●
	Turning handle	●	●	●
	draw out	/	/	/
Protection	Over load, short circuit short delay and short circuit instantaneous protection			
Over current release device	Electronic adjustable			
Weight (kg)	1.6 / 2.5	2.0 / 2.9	2.0 / 2.9	

Rated frame current (A)		400				630				800				1250
Breaking capacity		M	H	R	MW	M	H	R	MW	M	H	R	MW	M
Rated current I _r (A)		200 350	225 400	250 adjustable	315	250 400	315 500	350 adjustable		400 700	500 800	630 adjustable		800 900 950 1000 1050 1100 1250
Number of poles		3 / 4				3 / 4				3 / 4				3
Rated insulation voltage U _i (V)		AC800				AC800				AC800				AC800
Rated working voltage U _e (V)		AC 40 0	AC 400 500 690	AC400		AC 400 690	AC 400 500	AC 400	AC 400 690	AC400	AC 400 500 690	AC400		AC400
Rated impulse withstand voltage U _{imp} (V)		8000				8000				8000				8000
Arc-over distance (mm)		≤50		0		≤50		0		≤50		0	≤100	
Use category		B				B				B				B
Pollution grade		3				3				3				3
Rated ultimate short-circuit breaking capacity I _{cu} (kA)	AC400V	65	85	100	65	50	70	100	50	65	85	100	65	80
Rated service short-circuit breaking capacity I _{cs} (kA)		50	65	75	50	50	70	75	50	50	65	75	50	50
Rated ultimate short-circuit breaking capacity I _{cu} (kA)	AC500V	—	50	—	—	—	50	—	—	—	50	—	—	—
Rated service short-circuit breaking capacity I _{cs} (kA)		—	50	—	—	—	50	—	—	—	50	—	—	—
Rated ultimate short-circuit breaking capacity I _{cu} (kA)	AC690V	—	20	—	—	20	—	—	20	—	20	—	—	—
Rated service short-circuit breaking capacity I _{cs} (kA)		—	15	—	—	15	—	—	15	—	15	—	—	—
Rated short time withstand current I _{cw} (kA/1s)		5				8				10				15
Dimension (mm) 	a	140/184				140/184				210/280				210.5
	b	257				257				275				340.5
	c	97				97				104				139
	d	154				154				158				192
Electrical life (cycles)	AC400V	7500				7500				7500				500
	AC500V	2000				2000				1000				—
	AC690V	1000				1000				500				—
Mechanical life (cycles)	Maintenance	10000				10000				10000				2500
	Non-maintenance	20000				20000				20000				—
Wiring method	Front fix	●				●				●				●
	Back fix	●				●				●				/

	Plug in	●	●	●	/
Accessories	Shunt release	●	●	●	●
	Under voltage release	●	●	●	●
	Auxiliary contact	●	●	●	●
	Alarm contact	●	●	●	●
	Motor driven	●	●	●	●
	Turning handle	●	●	●	/
	Draw out	●	●	●	/
Protection	Over load, short circuit short delay and short circuit instantaneous protection				
Over current release device	Electronic adjustable				
Weight (kg)	5.7 / 7.5	7.3 / 9.5	9.5 / 12.5	13	