



- ◆ ZAM3 Series Moulded Case Circuit Breaker
- ◆ ZAM3L Series Residual Current Circuit Breaker
- ◆ ZAM3E Series Electronic Circuit Breaker



# CATALOGUE

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## The general of ZAM3 series moulded case circuit breaker

- ◆ ZAM3 series moulded case circuit breakers(hereafter simply referred to as circuit breakers) are one of the new type breakers which have been developed using international advanced design and manufacturing technology. The rated insulation voltage of the breakers is 800V. In the circuit of AC50Hz, the rated working voltage 690V or bellow(ZAM3-63 400V)and the rated working current up to 800A, the breakers are suitable for infrequent turn-on or turn-off and infrequent motor starting-up. The breakers have overload, short-circuit and under-voltage protection performances so as to protect the circuit and the power equipment from damage.
- ◆ According to the rated ultimate short-circuit breaking ability(Icu), the breakers are classified into three kinds of types C(basic type),L(standard type),M(second high type).Those breakers have the advantages such as small size, high breaking ability, short arc, anti vibration.
- ◆ The breakers could be installed vertically (upright) or horizontally (transverse).
- ◆ The breakers has disconnecting function, its corresponding symbol is shown as “ ”.
- ◆ The breakers comply with the demands of the following standards: GB14048.2.



## Application conditions for operation and installation

- ◆ Ambient temperature :  $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$ .
- ◆ Elevation of installation site:  $\leq 2000\text{m}$ .
- ◆ Relative humidity: not exceeding 50% at the maximum ambient temperature of  $+40^{\circ}\text{C}$ . With the lower temperature, higher humidity would be permitted. E.g. when the relative humidity is 90% at the ambient temperature of  $20^{\circ}\text{C}$  , special measures should be taken to solve the dews on the surface, which would appear due to the temperature change.
- ◆ Pollution protection: 3 grade.
- ◆ Breakers pass the GB/T2423.10 which can tolerate the mechanical vibration(frequency:  $2\text{Hz}\sim 13.2\text{Hz}$ , displacement:  $\pm 1$  and frequency:  $13.2\text{Hz}\sim 125\text{Hz}$ , acceleration :  $\pm 0.7\text{g}$ ).
- ◆ Installing categories: III for the main circuits; II for auxiliary circuit and control circuit without connecting with the main circuit.
- ◆ Breakers can be used in electromagnetic environment A.
- ◆ Humid and tropical type (TH) breakers pass the GB/T2423.4, which can tolerate the Influence of damp air, salt mist, oil mist and mould.
- ◆ Breakers should be installed in the place without any explosive medium, conductive dust and can not corrode metal and destroy the insulation.
- ◆ The place would not be invade by rain and snow.
- ◆ Storage condition: Ambient temperature is  $-40^{\circ}\text{C}\sim+70^{\circ}\text{C}$ .

## Main technical-performance index

### ZAM3 series moulded case circuit breaker main technical-performance index

Frame current Inm(A)	63			125			250			400			630			800		
	ZAM3-63L	ZAM3-63M	ZAM3-125C	ZAM3-125L	ZAM3-125M	ZAM3-250C	ZAM3-250L	ZAM3-250M	ZAM3-400C	ZAM3-400L	ZAM3-400M	ZAM3-630L	ZAM3-630M	ZAM3-800L	ZAM3-800M			
Pole number	3/4			3/4			3/4			3/4			3/4			3/4		
Rated current In(A)	10/16/20/25/32/40/50/63/80/100/125			10/16/20/25/32/40/50/63/80/100/125			125/125/140/160/180/200/225/250			225/250/315/350/400			400/500/630			400/500/630/700/800		
Rated insulation voltage Ui(V)	AC800			AC800			AC800			AC800			AC800			AC800		
Rated impulse voltage Uimp(V)	8000			8000			8000			8000			8000			8000		
Rated working voltage Ue(V) 50Hz/60Hz	AC400			AC400 AC690			AC400 AC690			AC400			AC400 AC690			AC400 AC690		
Arc-over distance(mm)	*50(0) <sup>2)</sup>			*50(0) <sup>2)</sup>			*50(0) <sup>2)</sup>			*125(0) <sup>2)</sup>			*125(0) <sup>2)</sup>			*125(0) <sup>2)</sup>		
Limiting short-circuit breaking ability Icu(kA)	AC400V	35	50	35	50	70	35	50	70	35	50	70	35	50	70	65	75	
	AC690V				20	20			20			20			20		30	
Operating short-circuit breaking ability Ics(kA)	AC400V	22	35	22	35	50	25	35	50	35	50	50	35	50	50	65	65	
	AC690V				10	10			10			15			15		20	
Utilization category	A			A			A			A			A			A		
Electrical durability (times) <sup>1)</sup>	8000			8000			8000			7500			7500			7500		
Mechanical durability (times) <sup>1)</sup>	Without maintenance	20000			20000			20000			12500			12500			12500	
	Maintenance	40000			40000			40000			20000			20000			20000	
Outline dimensions (mm)	Width (3/4 poles)	75/125			92/122			107/142			150/198			182			210/280	
	Length	130			150			165			257			270			280	
	Height	60			92			73			106.5			110			115.5	

Note:

- 1) For GB14048.1, the term "durability" expresses the expectancy of the number of operating cycles which can be performed by the equipment before repair or replacement of parts.
- 2) Can be zero arcing by installing arc cover of 4mm(ZAM3-63L/M, ZAM3-125C), 6.2mm(ZAM3-125L/M), 8mm(ZAM3-250C), 7.5mm(ZAM3-250L/M), 9.3mm(ZAM3-400C/L/M, ZAM3-630C/L/M), 9.5mm(ZAM3-800L/M).

## Protection feature

(-)Application: power distribution

The release of ZAM3 breakers can be divided into following modes:

—Code3: thermodynamic+electromagnetic release, e.g. ZAM3-63M/3300;

—Code2: only electromagnetic release, e.g. ZAM3-63M/3200.

◆ Code3: thermodynamic+electromagnetic release

Protection	Frame grade	Rated current $I_n$ (A)	Operating feature
Overload protection	whole series	10 ~ 800	$I^2t$ operating 1.05 $I_n$ (cold state) , 1h not operating( $I_n \leq 63A$ ) 1.3 $I_n$ (hot state) , $\leq 1h$ operating( $I_n \leq 63A$ ) 1.05 $I_n$ (cold state) , 2h not operating( $I_n > 63A$ ) 1.3 $I_n$ (hot state) , $\leq 2h$ operating( $I_n > 63A$ )
Overload alarm non tripping	125 ~ 800	10 ~ 800	

Protection	Frame grade	Rated current $I_n$ (A)	Short-circuit protection current $I_r$ (A)	Operating time	
Short-circuit protection	63	10 ~ 25	300	Instantaneous operating	
		32 ~ 63	10 $I_n$		
	125C	10 ~ 25	300		
		32 ~ 125	10 $I_n$		
	125L/M	10 ~ 125	10 $I_n$		
	250	125 ~ 140	10 $I_n$		(5 $I_n$ available, Specify when ordering)
		160 ~ 250	10 $I_n$		
	400	225 ~ 400	10 $I_n$		
630	400 ~ 630	10 $I_n$			
800	400 ~ 800	10 $I_n$			
Allowable error			$\pm 20\%$		

Protection	Frame grade	Rated current $I_n$ (A)	Neutral pole overload protect current(A) neutral pole short-circuit protect current(A)	
Neutral pole protection (four poles breakers)	Type C/type D	63	$I_n, I_r$	
		125	$I_n, I_r$	
			80/125	63,630
		250	125 ~ 200	125,1250
			225/250	125,1250
	400	225 ~ 315	225,2250	
		350/400	250,2500	
		630	400,4000	
	800	400/500	400,4000	
		630 ~ 800	500,5000	
Type A/type B	Whole series	10 ~ 800	No protection	

## Protection feature

◆ Code2: only electromagnetic release

Protection		Frame grade	Rated current In(A)	Short-circuit protection current Ir(A)	Operating feature	
Short-circuit protection	63		10 ~ 25	300	Instantaneous operating	
			32 ~ 63	10In		
	125C		10 ~ 25	300		
			32 ~ 125	10In		
	125L/M		10 ~ 125	10In		
	250		125 ~ 140	10In		
			160 ~ 250	10In		(5In available, Specify when ordering)
	400		225 ~ 400	10In		
	630		400 ~ 630	10In		
800		630 ~ 800	10In			
Allowable error				±20%		
Neutral pole protection (Four poles breakers)	Type C/type D	63	10 ~ 25	300	10In available, specify when ordering	
			32 ~ 63	10In		
		125C	10 ~ 25	300		
			32 ~ 63	10In		
			80/125	630(10In available, specify when ordering)		
		125L/M	10 ~ 63	10In		
			80/125	630		
		250	125 ~ 200	1250		
			225~250	1250		
	400	225 ~ 315	2250			
		350/400	2500			
	630	400 ~ 630	4000			
	800	400/500	4000			
630 ~ 800		5000				
Type A/type B	Whole series	10 ~ 800	No protection			

## Protection feature

(三)Application: motor protection

The release of ZAM3 breakers can be divided into following modes:

—Code3: thermodynamic+electromagnetic release, e.g. ZAM3-63M/33002;

—Code2: only electromagnetic release, e.g. ZAM3-63M/32002.

◆ Code3: thermodynamic+electromagnetic release

Protection	Frame grade	Rated current In(A)	Operating feature
Overload protection	Whole series	10 ~ 630	$I^2t$ operating 1.0In(cold state) , no operating in 2h 1.2In(hot state) , operating in 2h 1.5In(hot state) , $\leq 2\text{min}$ (ZAM3-63L/M、ZAM3-125C) $\leq 4\text{min}$ (ZAM3-125L/M) $\leq 8\text{min}$ (ZAM3-250、400、630、800 In $\leq 630\text{A}$ ) 7.2In(cold state) , 0.5S<Tp $\leq 5\text{s}$ (ZAM3-63L/M、ZAM3-125C) 4S<Tp $\leq 10\text{s}$ (ZAM3-125L/M) 6S<Tp $\leq 20\text{s}$ (ZAM3-250、400、630、800 In $\leq 630\text{A}$ ) Release grade , 5(ZAM3-63L/M、ZAM3-125C) 10(ZAM3-125L/M) 20(ZAM3-250、400、630、800 In $\leq 630\text{A}$ )
Overload alarm without tripping	125 ~ 800	10 ~ 630	

Protection	Frame grade	Rated current In(A)	Operating feature	Operating time
Short-circuit protection	63	10 ~ 25	300	Instantaneous operating
		32 ~ 63	12In	
	125C	10 ~ 25	300	
		32 ~ 125	12In	
	125L/M	10 ~ 125	12In	
	250	125 ~ 250	12In	
	400	225 ~ 400	12In	
	630	400 ~ 630	12In	
800	400 ~ 630	12In		
Allowable error			$\pm 20\%$	

Protection	Frame grade	Rated current In(A)	Neutral pole overload protect current(A), neutral pole short-circuit protect current(A)	
Neutral pole protection (four poles breakers)	Type C/type D	63	10 ~ 63	In,Ir
		125	10 ~ 63	In,Ir
			80/125	63,756
		250	125 ~ 200	125,1200
			225/250	125,1500
		400	225 ~ 315	225,2700
			350/400	250,3000
		630	400 ~ 630	400,4800
			800	400/500
		630		500,6000
Type A/type B	Whole series	10 ~ 630	No protection	

## Protection feature

◆ Code2: only electromagnetic release

Protection		Frame grade	Rated current In(A)	Short-circuit protect current Ir(A)	Operating feature
Short-circuit protection	63		10 ~ 25	300	Instantaneous opening
			32 ~ 63	12In	
	125C		10 ~ 25	300	
			32 ~ 125	12In	
	125L/M		10 ~ 125	12In	
	250		125 ~ 250	12In	
	400		225 ~ 400	12In	
	630		400 ~ 630	12In	
800		400 ~ 630	12In		
Allowable error				±20%	
Neutral pole protection (four poles breakers)	Type C/type D	63	10 ~ 25	300	12In available, specify when ordering
			32 ~ 63	12In	
		125C	10 ~ 25	300	
			32 ~ 63	12In	
		125L/M	10 ~ 63	12In	
			80/125	756	
	250	125 ~ 200	1200		
		225/250	1500		
	400	225 ~ 315	2700		
		350/400	3000		
	630	400 ~ 630	4800		
	800	400/500	4800		
		630	6000		
Type A/type B	Whole series	10 ~ 630	No protection		

Note : 80A、125A of ZAM3-125C do not have electromagnetic release product for motor protection.

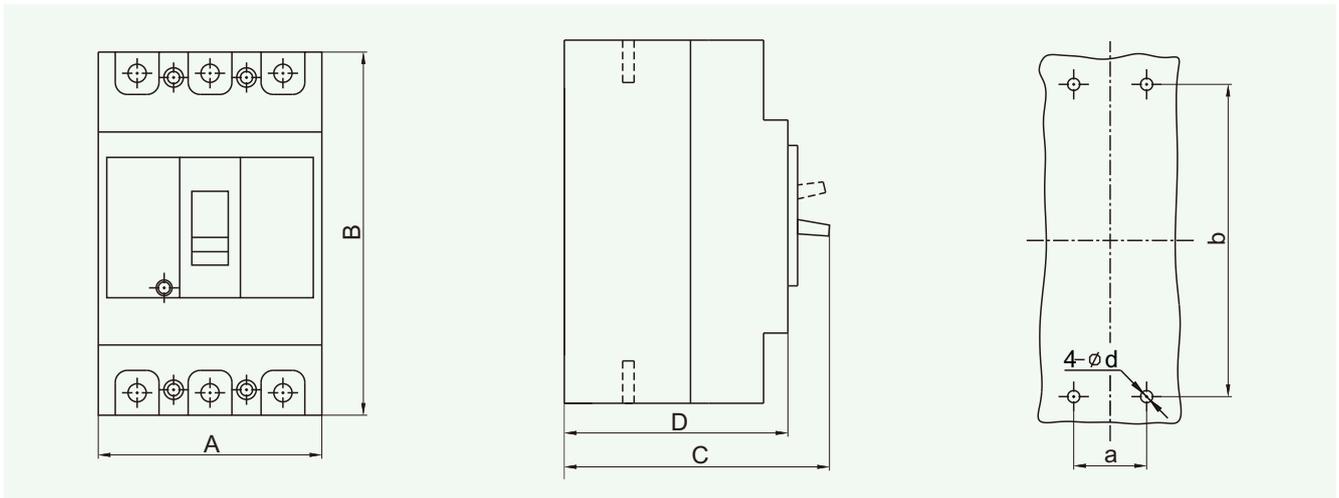
## The inner accessories code

Alarm contact   
  Auxiliary contact   
 ● Shunt release   
 ○ Under-voltage release   
 → Lead direction   
 Handle

Left mounting    
 Right mounting

Code	Accessories name	ZAM3-63	ZAM3-125C	ZAM3-125L/M	ZAM3-250C	ZAM3-250L/M	ZAM3-400/630/800
		3poles/4poles	3poles/4poles	3poles/4poles	3poles	3poles/4poles	3poles/4poles
00	No accessory						
08	Alarm contact	← □ □ □	← □ □ □	← □ □ □	← □ □ □	← □ □ □	← □ □ □
10	Shunt release	□ □ □ ● →	□ □ □ ● →	● □ □ □	● □ □ □	● □ □ □	□ □ □ ● →
20	Auxiliary contact(1N01NC)	← ■ □ □	← ■ □ □	← ■ □ □	← ■ □ □	← ■ □ □	
	Auxiliary contact(2N02NC)						← ■ □ □
02	Auxiliary contact(2N02NC)	← ■ □ □	← ■ □ □	← ■ □ □		← ■ □ □	
30	Undervoltage release						
40	Shunt release, auxiliary contact (1N01NC)	← ■ □ □ ● →	← ■ □ □ ● →	● □ □ ■	● □ □ ■	● □ □ ■	
	Shunt release, auxiliary contact (2N02NC)						← ■ □ □ ● →
12	Shunt release, auxiliary contact (2N02NC)	← ■ □ □ ● →	← ■ □ □ ● →	● □ □ ■	● □ □ ■	● □ □ ■	
50	Shunt release , undervoltage release						
60	Two group of auxiliary contact (2N02NC)	← ■ □ □ ■	← ■ □ □ ■	← ■ □ □ ■	← ■ □ □ ■	← ■ □ □ ■	
	Two group of auxiliary contact (4N04NC)						← ■ □ □ ■
22	Two group of auxiliary contact (3N03NC)	← ■ □ □ ■	← ■ □ □ ■	← ■ □ □ ■		← ■ □ □ ■	
23	Two group of auxiliary contact (4N04NC)	← ■ □ □ ■	← ■ □ □ ■	← ■ □ □ ■		← ■ □ □ ■	
70	Undervoltage release, alarm contact (1N01NC)						
	Undervoltage release, alarm contact (2N02NC)						
32	Undervoltage release, alarm contact (2N02NC)						
18	Shunt release, alarm contact	← □ □ □ ● →	← □ □ □ ● →	● □ □ □	● □ □ □	● □ □ □	← □ □ □ ● →
28	Auxiliary contact (1N01NC) alarm contact	← ■ □ □ □	← ■ □ □ □	← ■ □ □ □	← ■ □ □ □	← ■ □ □ □	
	Auxiliary contact (2N02NC) alarm contact						← ■ □ □ □
38	Undervoltage release, alarm contact						
48	Shunt release, auxiliary contact (1N01NC) alarm contact	← ■ □ □ □ ● →	← ■ □ □ □ ● →	● □ □ ■ □	● □ □ ■ □	● □ □ ■ □	
	Shunt release, auxiliary contact (2N02NC) alarm contact						← ■ □ □ □ ● →
68	Two group of auxiliary contact (2N02NC) alarm contact	← ■ □ □ ■ □	← ■ □ □ ■ □	← ■ □ □ ■ □	← ■ □ □ ■ □	← ■ □ □ ■ □	
	Two group of auxiliary contact (4N04NC) alarm contact						← ■ □ □ ■ □
05	Two group of auxiliary contact (3N03NC) alarm contact	← ■ □ □ ■ □	← ■ □ □ ■ □	← ■ □ □ ■ □		← ■ □ □ ■ □	
78	Undervoltage release, auxiliary contact (1N01NC) alarm contact						
	Undervoltage release, auxiliary contact (2N02NC) alarm contact						

## Outline dimensions and mounting dimensions



### ◆ Outline dimensions and mounting dimensions (mm)

Type	Pole number	outline dimensions				mounting dimensions		
		A	B	C	D	a	b	$\phi d$
ZAM3-63L/M	3	75	130	81	60	25	111	3.5
	4	125				50		
ZAM3-125C	3	75	130	81	60	25	111	3.5
	4	125				50		
ZAM3-125L/M	3	92	150	110	92	30	129	4.5
	4	122				60		
ZAM3-250C	3	107	165	95	73	35	126	4.5
	4	142				70		
ZAM3-250L/M	3	107	165	110	90	35	126	4.5
	4	142				70		
ZAM3-400C/L/M	3	150	257	146.5	106.5	44	194	7
	4	198				94		
ZAM3-630C/L/M	3	182	270	150	110	58	200	7
	4	240				116		
ZAM3-800L/M	3	210	280	155	115.5	70	243	7
	4	280				140		

