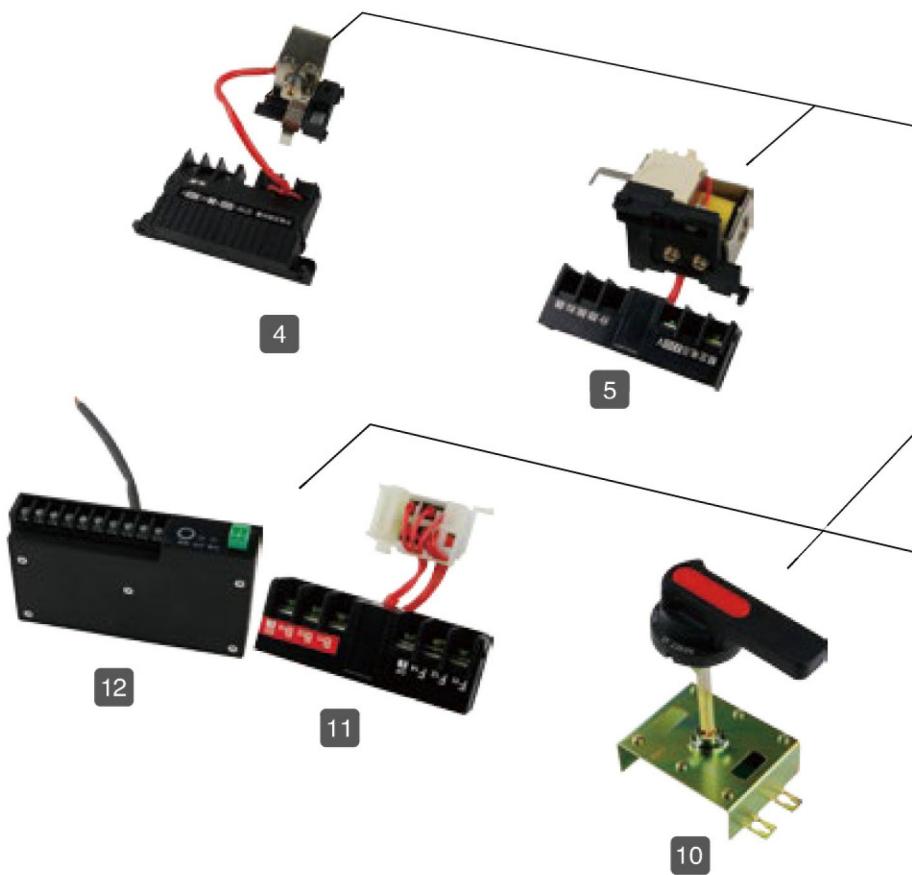


**iALM1E Electronic Molded Case Circuit Breaker**

- |    |  |
|----|--|
| 1  | Switch body  |
| 2  | Arc chute (standard)                               |
| 3  | plug-in type (optional)                            |
| 4  | Undervoltage release (optional)                    |
| 5  | Shunt release (optional)                           |
| 6  | Alarm contact (optional)                           |
| 7  | Auxiliary contact (optional)                       |
| 8  | Front-panel wiring transition board (optional)     |
| 9  | Electric operating mechanism (optional)            |
| 10 | Rotary handle operating mechanism (optional)       |
| 11 | Auxiliary, alarm contact (optional)                |
| 12 | Communication, shunt, alarm accessories (optional) |





## iALM1E Electronic Molded Case Circuit Breaker



### Product overview

iALM1E series electronic moulded case circuit breaker (hereinafter referred to as circuit breaker) is one of the new circuit breakers developed by our company with international advanced technology. It has the characteristics of four segment selective protection, high breaking, small and compact structure, etc.

The circuit breaker is classified into M type (higher breaking type) and H type (high breaking type) according to rated limit short-circuit breaking capacity (Icu). It is an ideal product for power distribution and motor protection. Its rated insulation voltage is 1000V, which is applicable to the AC 50/60Hz circuit with rated working voltage of 690V and below, and setting current from 12.5A to 800A for infrequent line conversion and infrequent motor startup.

A module with communication function can be added to the circuit breaker, so that the original circuit breaker can be easily upgraded to a communication type circuit breaker.

The circuit breaker has the functions of overload long time delay, short circuit short time delay, short circuit instantaneous and grounding protection. The product can be equipped with undervoltage, shunt, auxiliary, alarm, communication and other accessories.

This series of circuit breakers can be installed vertically (i.e. upright) or horizontally (i.e. transversely).

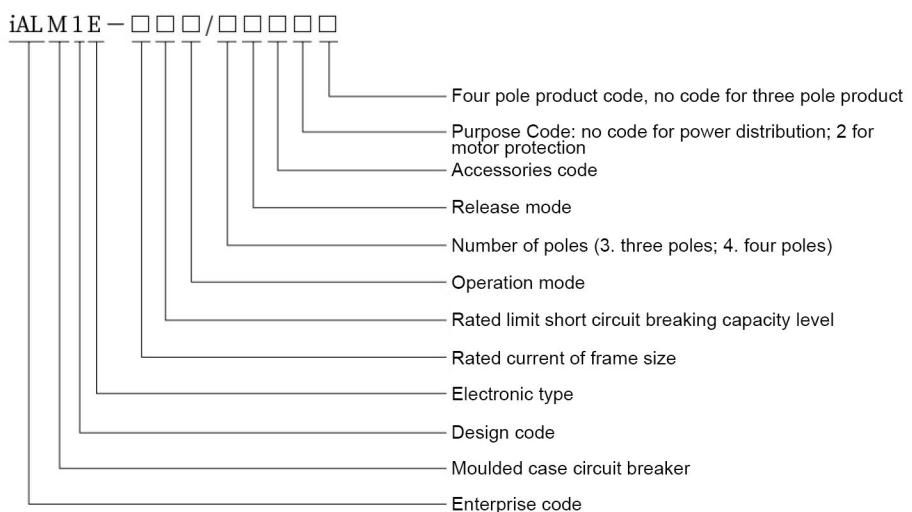
With isolation function, the corresponding symbol is: . Note: 3P+N has no isolation function. It has a unique "overload alarm without tripping" function to ensure the continuity of power supply.

The circuit breaker complies with series standards:

IEC/EN 60947-1 and GB/T 14048.1 Low-voltage switchgear and controlgear-Part 1: General rules.

IEC/EN 60947-2 and GB/T 14048.2 Low voltage switchgear and controlgear Part 2: Circuit breakers.

### Product naming rules



Note: \* there is no code for distribution protection, and the motor protection code is represented by 2.

\*\*There is no code for manual direct operation, electric operation is represented by P, and rotary handle operation is represented by Z.

## iALM1E Electronic Molded Case Circuit Breaker

Table 1

Code	Instruction	Example
A	The N-pole is not equipped with overcurrent tripping element, and the N-pole is always connected and is not closed or open together with other three poles	3N300A
B	The N-pole is not equipped with overcurrent tripping element, and N pole is closed and open together with other three poles (N-pole is closed first and then open)	4300B
C	The N-pole is equipped with an overcurrent tripping element, and the N-pole is closed and open together with the other three poles (the N-pole is closed first and then open)	4300C
D	The N-pole is equipped with an overcurrent tripping element, and the N-pole is always connected and is not closed or open together with other three poles	3N300D

### Normal working conditions and installation conditions

- ◆ Ambient air temperature is -5°C to +40°C;
  - ◆ The relative humidity of the air at the installation site shall not exceed 50% when the maximum temperature is +40°C at lower temperatures, there can be higher relative humidity, such as 90% at 20°C. Special measures shall be taken for occasional condensation due to temperature change;
  - ◆ The pollution level is level 3;
  - ◆ The circuit breaker should pass GB/T2423.10, the test requires that it can withstand mechanical vibration with frequency of 2Hz~13.2Hz, displacement of ± 1mm, frequency of 13.2Hz~100Hz and acceleration of ±0.7g;
  - ◆ The installation category of the main circuit of the circuit breaker is II, and the installation category of other auxiliary circuits and control circuits is II;
  - ◆ The circuit breaker is suitable for electromagnetic environment B;
  - ◆ The circuit breaker shall be installed in a place without explosion hazard, conductive dust, sufficient corrosion to metal and damage to insulation;
  - ◆ The circuit breaker shall be installed in a place free from rain and snow;
  - ◆ Operating conditions:
    - ◇ The circuit breaker should pass the test requirements of GB/T 2423.1 and GB/T 2423.2, and the ambient air temperature can be as low as -30°C and as high as +70°C (capacity reduction is adopted beyond +40°C, see the technical data in this sample for details);
    - ◇ The characteristics are not affected when the altitude is up to 2000m (the capacity is reduced when it is more than 2000m, see the technical data in this sample for details);
    - ◇ Storage conditions: ambient air temperature is -40°C ~ +75°C.
  - ◆ The protection level of the product body is IP20
  - ◆ Cabinet door installation
- Equipped with toggle handle: the protection level is IP40
- Equipped with rotary handle: the protection level is IP50
- Equipped with electrical operating mechanism: the protection level is IP40

## iALM1E Electronic Molded Case Circuit Breaker

### Release type and accessory code

#### Release type and accessory code



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

Table 2

	Accessory code	Accessory installation and lead mode					
Accessory name	Electronic release	iALM1E-125/160		iALM1E-250/320		iALM1E-400 iALM1E-630 iALM1E-800	
No accessories	00	□□□	□□□	□□□	□□□	□□□	□□□
Alarm contact	08	●□□	□□●	●□□	□□●	●□□	□□●
Shunt release	10	■□□		■□□		■□□	□□■
Auxiliary contact	20	○□□	□□○	○□□	□□○	○□□	□□○
Undervoltage release	30			▲□□		▲□□	□□▲
Shunt release, auxiliary contact	40	■□○		■□○		■□○	○□■
Shunt release, undervoltage release	50					■□▲	▲□■
Two sets of auxiliary contacts	60	8□□	□□8	8□□	□□8	8□□	□□8
Auxiliary contact, undervoltage release	70			▲□○		▲□○	○□▲
Shunt release, alarm contact	18	■□●		■□●			●□■
Auxiliary contact, alarm contact	28	○□□	□□○	○□□	□□○	○□□	
Undervoltage release, alarm contact	38				▲□●	●□▲	
Shunt release, auxiliary contact, alarm contact	48		■□○		■□○	○□■	
Two sets of auxiliary contacts, alarm contacts	68	●□○	○□●	●□○	○□●	●□○	
Undervoltage release, auxiliary contact, alarm contact	78				▲□●	●□▲	

Note: the 800 moulded case product has no right alarm accessories

A group of auxiliary contacts below 400 type includes one normally open and one normally closed contact, and a group of auxiliary contacts above 400 type includes two normally open and two normally closed.

## iALM1E Electronic Molded Case Circuit Breaker

### Product parameters

◆ See Table 3 and table 4 for product parameters

Table 3

Basic information					
Rated current of frame size	125			250	
Number of poles	3P、3P+N、4P			3P、3P+N、4P	
Frequency (Hz)	50/60			50/60	
Rated working voltage Ue (V)	380/400 /415/660/690			380/400 /415/660/690	
Rated insulation voltage Ui (V)	1000			1000	
Rated impulse withstand voltage Uimp (kV)	8			8	
Rated working current In (A)	32AF:12.5-32 63AF:25-63 125AF:50-125			250AF:100-250	
Breaking capacity level	M	H		M	H
Rated limit short circuit breaking capacity Icu (kA)	AC400V AC690V	50 10	65 20	50 10	65 20
Rated service short-circuit breaking capacity Ics (kA)	AC400V AC690V	35 10	55 10	35 10	55 10
Rated short-time withstand current Icw (kA/1s)	AC400V			5	5
Isolation capability	Provided (3P, 4P)			Provided (3P, 4P)	
Usage category	Type A			Type A	
Arc distance (mm)	$\leq 50$			$\leq 50$	
Mechanical life (times)	Maintenance free With maintenance	20000 40000		20000 40000	
Electrical life (times)	10000			10000	

Table 4

Basic information					
Rated current of frame size	400			630	
Number of poles	3P、3P+N、4P			3P、3P+N、4P	
Frequency (Hz)	50/60			50/60	
Rated working voltage Ue (V)	380/400/415 660/690			380/400/415 660/690	
Rated insulation voltage Ui (V)	1000			1000	
Rated impulse withstand voltage Uimp (kV)	8			8	
Rated working current In (A)	400AF:160-400			630AF:250-630	
Breaking capacity level	M	H	M	H	M
Rated limit short circuit breaking capacity Icu(kA)	AC415V AC690V	85 20	100 30	85 20	100 30
Rated service short-circuit breaking capacity Ics(kA)	AC415V AC690V	65 20	70 20	65 20	70 20
Rated short-time withstand current Icw (kA/1s)	AC415V	8	6	10(Bulk)	10(Bulk)
Isolation capability	Provided(3P, 4P)			Provided(3P, 4P)	
Usage category	Type B			Type B	
Arc distance	$\leq 100$			$\leq 100$	
Mechanical life (times)	Maintenance free With maintenance	10000 20000		10000 20000	
Electrical life (times)	8000			8000	

## iALM1E Electronic Molded Case Circuit Breaker

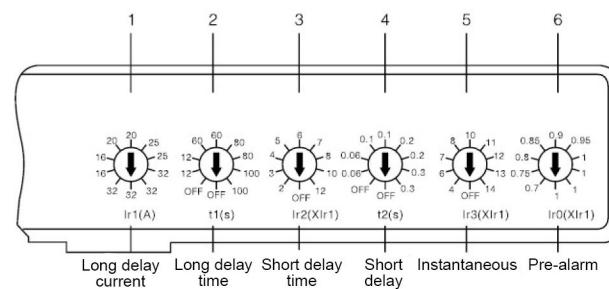
### ◆ Overload pre-alarm

Table 5

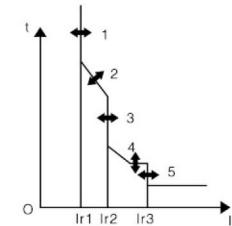
Electronic release	Rated current of frame size Inm (A)	Rated current In (A)	Current setting value of adjustable overload pre-alarm protection release $I_p$ (A)	Tripping characteristics/time
Overload pre-alarm	Full-series	32-800	$I_p = (0.7-0.75-0.8-0.85-0.9-0.95-1) \times I_R + OFF$	/

### Electronic release

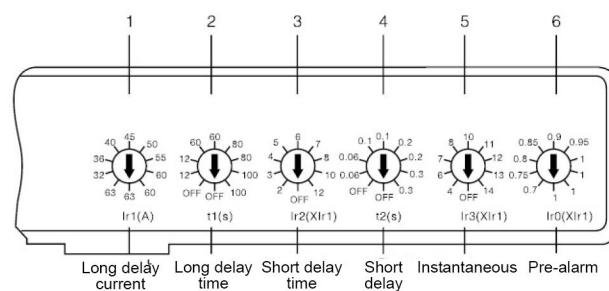
iALM1E-125 type, In=32A electronic release



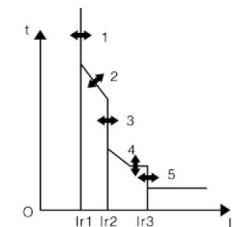
Protection characteristic curve of electronic release



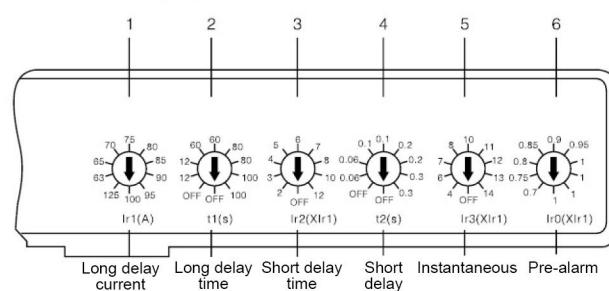
iALM1E-125 type, In=63A electronic release



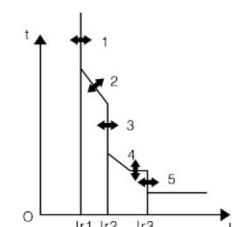
Protection characteristic curve of electronic release



iALM1E-125 type, In=100A electronic release

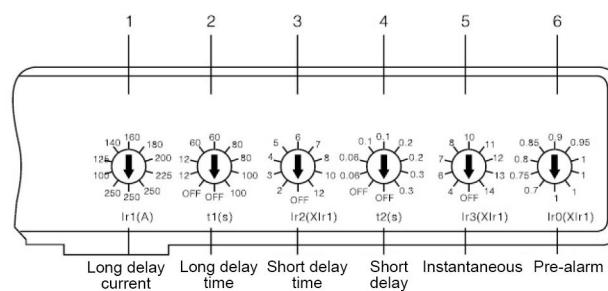


Protection characteristic curve of electronic release

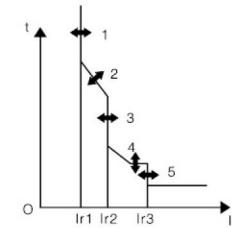


## iALM1E Electronic Molded Case Circuit Breaker

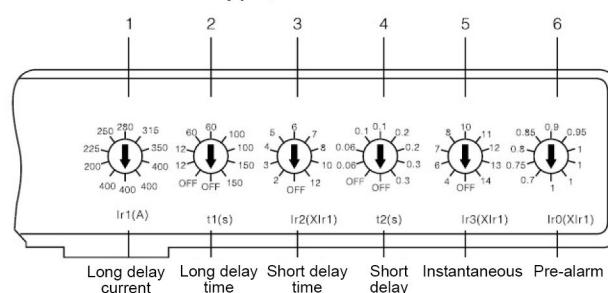
iALM1E-250 type, In= 250A electronic release



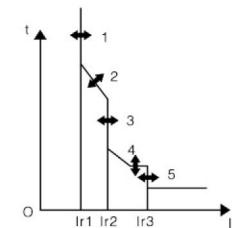
Protection characteristic curve of electronic release



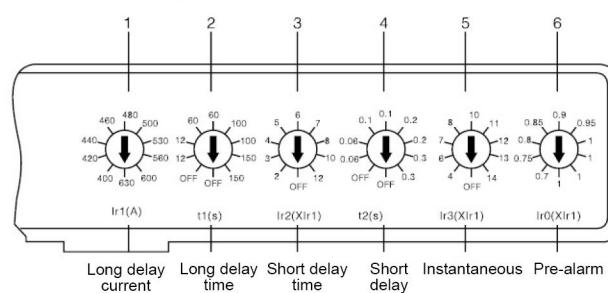
iALM1E-400-400 type, In=400A electronic release



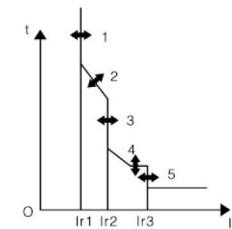
Protection characteristic curve of electronic release



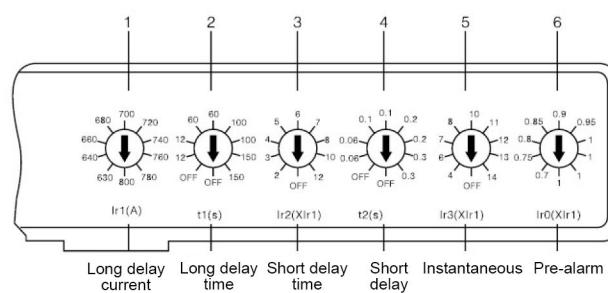
iALM1E-630 type, In=630A electronic release



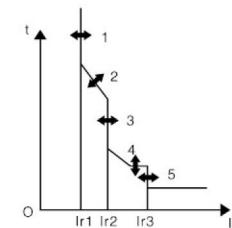
Protection characteristic curve of electronic release



iALM1E-800 type, In=800A electronic release



Protection characteristic curve of electronic release



## iALM1E Electronic Molded Case Circuit Breaker

### Technical data

◆ Reference cross-sectional area of connecting wires with different rated currents

Table 6

Rated current $I_{n(A)}$	32	63	125	160	250	320	400
Conductor cross-sectional area( $\text{mm}^2$ )	6	16	50	70	120	185	240

Table 7

Rated current $I_{n(A)}$	Cable		Copper bar	
	Sectional area( $\text{mm}^2$ )	Qty.	Size ( $\text{mm} \times \text{mm}$ )	Qty.
630	185	2	40×5	2
800	240	2	50×5	2

◆ Power loss

Table 8

Product model	Power-on current (A)	Total power loss of three pole/four pole (W)		
		Front-panel/back-panel wiring	Plug in front-panel wiring	Plug in type back-panel wiring
iALM1E-125	125	12	12	12.2
iALM1E-250	250	50	75	86
iALM1E-400	400	58	87	90
iALM1E-630	630	110	120	130
iALM1E-800	800	115.2	125	140

◆ Derating coefficient at different temperatures

Table 9

Product model	Power-on current (A)	Ambient temperature						
		-35°C	-30°C	-25°C	-20°C	-15°C	-10°C	-5°C
iALM1E-125	125	1.45In	1.4In	1.35In	1.3In	1.2In	1.18In	1.15In
iALM1E-250	250	1.45In	1.4In	1.35In	1.3In	1.25In	1.2In	1.18In
iALM1E-400	400	1.65In	1.6In	1.55In	1.44In	1.42In	1.4In	1.35In
iALM1E-630	630	1.4In	1.35In	1.31In	1.3In	1.25In	1.2In	1.18In
iALM1E-800	800	1.35In	1.34In	1.32In	1.31In	1.3In	1.25In	1.23In

Table 10

Product model	Power-on current (A)	Ambient temperature						
		0°C	45°C	50°C	55°C	60°C	65°C	70°C
iALM1E-125	125	1.15In	0.95In	0.94In	0.93In	0.92In	0.91In	0.89In
iALM1E-250	250	1.15In	0.95In	0.94In	0.89In	0.85In	0.81In	0.78In
iALM1E-400	400	1.3In	0.95In	0.94In	0.89In	0.85In	0.81In	0.78In
iALM1E-630	630	1.13In	0.95In	0.94In	0.92In	0.9In	0.87In	0.86In
iALM1E-800	800	1.18In	0.95In	0.94In	0.85In	0.82In	0.8In	0.78In

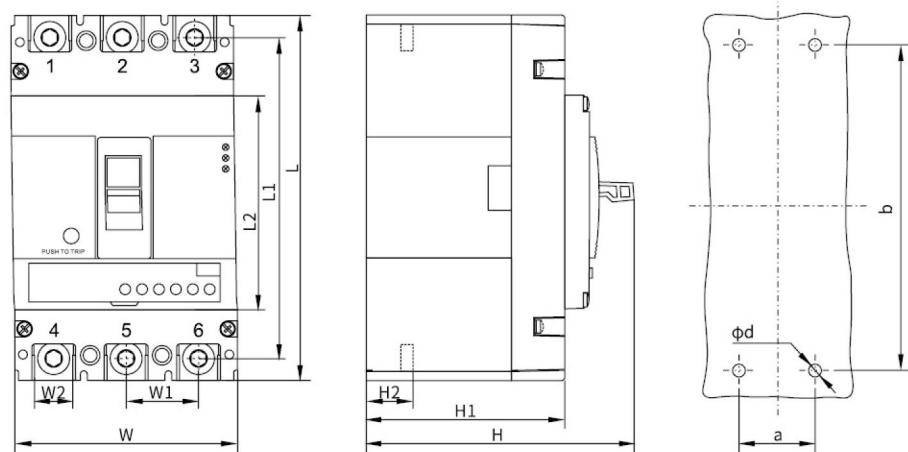
(1) Derating factor 1in of all moulded case circuit breakers at 40°C;

(2) For iALM1E circuit breaker, the derating factor is measured under the maximum rated current of each moulded case.

## iALM1E Electronic Molded Case Circuit Breaker

### Outline and installation dimensions

◆ Overall dimension and installation dimension of the product

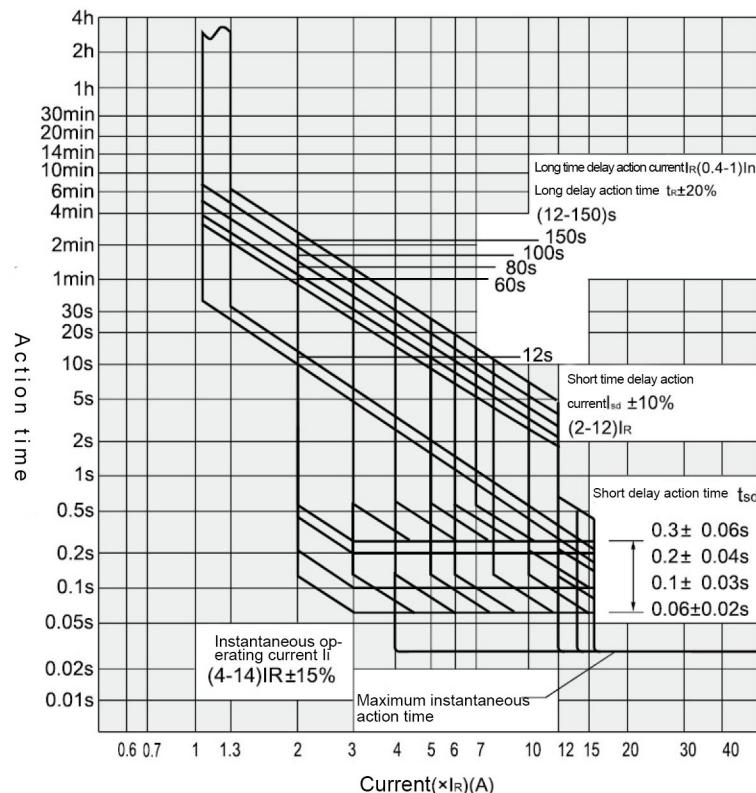


(Unit:mm)

Product model	Number of poles	Overall dimension									Mounting dimensions		
		L	L1	L2	W	W1	W2	H	H1	H2	a	b	φd
M1E-125	3	150	130	88.5	92	30.5	18	114	81	28	30	129	4.5
	4	150	130	88.5	123	30.5	18	114	81	29	60	129	4.5
M1E-250	3	165	142	101.5	107	35	23	113	85	23	35	126	4.5
	4	165	142	101.5	142	35	23	113	85	23	70	126	4.5
M1E-400	3	258	225	175	150	48.5	33	150	98	Upper40 Lower38	44	194	7
	4	258	225	175	198	48.5	33	150	98		94	194	7
M1E-630	3	270	235	185	182	58	43.5	155	103.5	44	58	200	7
	4	270	235	185		58	43.5	155	103.5	44		200	7
M1E-800	3	280	243	205	210	70.5	45	162	103.5	Upper40 Lower42	70	242	7
	4	280	243	205	282	70.5	45	162	103.5	Upper40 Lower46	140	242	7

## iALM1E Electronic Molded Case Circuit Breaker

### Protection characteristic curve of circuit breaker



### Factory parameter setting of intelligent controller for circuit breaker

Factory parameter setting value

Table 12

	Protection type	Distribution protection		Motor protection
4	Overload long delay	Setting current $I_R$ (A)		In
5	Delayed $t_R$ (s)	60/64(iALM1E-1250)		100/96(iALM1E-1250)
6	Short circuit short delay	Setting current $I_{sd}$ (A)		8 ( $XI_R$ )
7	Delayed $t_{sd}$ (s)			10 ( $XI_R$ )
8	Short circuit transient	Setting current $I_i$ (A)	Imm $\leq 630A$ Imm $\geq 800A$	0.3 12 ( $XI_R$ ) 10 ( $XI_R$ ) 14 ( $XI_R$ )
9 (pre-alarm standard provision; others optional)	Pre-alarm Setting current $I_P$ (A)	0.9 ( $XI_R$ )		
	Grounding protection Setting current $I_g$ (A)	Close		
	Neutral protection Setting current $I_{RN}$ (A)	Close		

## iALM1E Electronic Moulded Case Circuit Breaker

### Ordering instructions

---

The user must specify the following items when ordering:

- a) Model, name and number of poles of circuit breaker.
- b) Rated current of circuit breaker.
- c) Name, specification and combination code of accessories of circuit breaker (working voltage value shall be indicated for shunt release and undervoltage release)
- d) Purpose: for power distribution (delivery as power distribution use if not indicated), for motor protection (represented by 2).
- e) Quantity.

For example: iALM1E-250, 3P, 50kA breaking capacity, rated current 250A, with shunt release, its voltage is AC400V, external terminals, totally 20 sets. It shall be written as: iALM1E-250M/3310, 250A AC400V, external terminal, 20 sets.

Special requirements for circuit breaker can be determined through consultation with the manufacturer.

### Quick selection example

---

The user must specify the following items when ordering:

- a) Model, name and number of poles of circuit breaker.
- b) Rated current of circuit breaker.
- c) Name, specification and combination code of accessories of circuit breaker (working voltage value shall be indicated for shunt release and undervoltage release)
- d) Purpose: for power distribution (delivery as power distribution use if not indicated), for motor protection (represented by 2).
- e) Quantity.

c) iALM1E-125H/3300E1 125A:

That is to order a set of iALM1E series electronic circuit breaker of 125A frame size, 85kA (high breaking type), three pole, three knob controller with rated current of 125A, for distribution protection.

Note: if you need special customized products, please consult our company first.

## iALM1E Electronic Molded Case Circuit Breaker

### Description of selection table of iALM1E series electronic molded case circuit breaker

iALM1E	125	M	Z	/	4	3	00	2	B	II	E1	125	AC230V	B	Plateau	Application occasion																					
Product model															Controller code	Accessory voltage	Installation mode	Controller code	Alarm module	N-pole code	Purpose	Internal accessories	Tripping mode	Number of poles	Operation mode	Breaking capacity	Frame size current	M: Higher breaking	H: High breaking	Z: Rotary handle operation	3N: 3P+N	4P	P: Motor operation	800: 800A	630: 630A	800: 630A	800A: 800A
iALM1E electronic moulded case circuit breaker																A: The three protective poles and the zero line are not disconnected with other poles	Default distribution protection	Default overload alarm trip	Default pre-alarm controller	II : The three protective poles and the zero line are not disconnected with other poles	E1 : Overload alarm without trip	E1 : three-knob controller	160: 63A 125A 160A	125: 32A 63A 125A	AC380/400V AC220/230V DC220V DC110V DC24V	125: general application	Default fixed type front-panel	Plateau Damp heat Environment protection Salt fog Low temperature	C: Plug in type back-panel	F: Plug in type back-panel							
																B: The three protective poles and zero line are disconnected with other poles	2: Motor protection	2: Electronic type	3:3P	40: 400A	63: 630A	18: shunt + alarm 28: auxiliary + alarm 36: under-voltage + alarm 70: under-voltage + alarm 48: shunt + alarm + auxiliary	18: shunt + alarm 28: auxiliary + alarm 36: under-voltage + alarm 70: under-voltage + alarm 48: shunt + alarm + auxiliary	160: 63A 125A 160A	125: 32A 63A 125A	AC380/400V AC220/230V DC220V DC110V DC24V	B: Fixed type back-panel	Plateau Damp heat Environment protection Salt fog Low temperature	C: Plug in type back-panel	F: Plug in type back-panel							
																C: The four protective poles and zero line are disconnected with other poles	2: Motor protection	2: Electronic type	3:3P	40: 400A	63: 630A	18: shunt + alarm 28: auxiliary + alarm 36: under-voltage + alarm 70: under-voltage + alarm 48: shunt + alarm + auxiliary	18: shunt + alarm 28: auxiliary + alarm 36: under-voltage + alarm 70: under-voltage + alarm 48: shunt + alarm + auxiliary	160: 63A 125A 160A	125: 32A 63A 125A	AC380/400V AC220/230V DC220V DC110V DC24V	E3: grounded controller	250: 250A	400: 400A	E4: neutral protection controller	630: 630A	800: 630A	800A: 800A				
																D: The four protective poles and the zero line are not disconnected with other poles	2: Motor protection	2: Electronic type	3:3P	40: 400A	63: 630A	18: shunt + alarm 28: auxiliary + alarm 36: under-voltage + alarm 70: under-voltage + alarm 48: shunt + alarm + auxiliary	18: shunt + alarm 28: auxiliary + alarm 36: under-voltage + alarm 70: under-voltage + alarm 48: shunt + alarm + auxiliary	160: 63A 125A 160A	125: 32A 63A 125A	AC380/400V AC220/230V DC220V DC110V DC24V	E3: grounded controller	250: 250A	400: 400A	E4: neutral protection controller	630: 630A	800: 630A	800A: 800A				

Note: accessories of undervoltage release are not provided temporarily. Please contact local sales personnel when purchasing