

CDM1L Residual current operated circuit breaker



Selection guide

Name	Frame Current	Breaking capacity	Current	Poles	accessory code	Residual current	Breaking time	Usage	installation method
L	100	L	100	3	310	KY	03	M	FR
	100:100AF 225:225AF 400:400AF 800:800AF	L: L Type M: M Type	16: 16A ... 800:800A	3:3P A:4P A type B:4P B type C:4P C type D:4P D type	Refer to the accessory list	KY:30/100/500mA KT:100/300/500mA KF:300/500/1000mA SI:customed residual current KS:30/100/300mA	default; Non delay 01:delay 0.1s 02:delay 0.2s 03:delay 0.3s 04:delay 0.4s 05:delay 0.5s 06:delay 0.6s 10:delay 1s 20: delay 2s	default : Power distribution protection M: motor protection	default : Fixed Front FR: Fixed Rear PR: Plug-in Rear

accessory code		accessory name	accessory specification
Instantaneous trip	Compound trip	↓	↓
200	-	no accessory	AC380:380V AC
208	308	alarm contact	DC24:24V DC
210	310	shunt release	AC220:220V AC
220	320	Auxiliary contact (1 NO and 1 NC)	
228	328	Auxiliary contact+alarm contact	
240	340	shunt release+Auxiliary contact	

customed residual current	can choose any of the following options to form an adjustable residual current
CDM1L-100	30,100,300,500
CDM1L-225	30,100,300,500
CDM1L-400	100,300,500
CDM1L-800	300,500,1000

Note: When there is 30mA gear, there is no delay function

Delay type maximum breaking time
0.1s, 0.2s, 0.3s, 0.4s, 0.5s, 0.6s, 1s, 2s

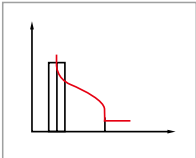
retail accessory

Name	Frame current	Accessory code
CDM1L	100	H1
	100: 100A 225: 225A 400: 400A 800: 800A	H1: Direct round manual operation H2: Direct square manual operation

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Product Features

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Provide overload and short circuit protection, or only short circuit protection



Provide residual current protection, with adjustable protection action current and customizable action time



The entire product series has isolation function, and the handle is near the OFF position



Provide various accessories to meet more protection functions

Meet the needs of different customers

Rated current 16A~800A, breaking capacity L, M type, protection poles : 3 or 4

frame current poles breaking type	100		225		400		800	
	3P	4P	3P	4P	3P	4P	3P	4P
L	■	■	■	■				
M	■	■	■	■	■	■	■	■

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technical parameter

Circuit Breaker （IEC60947-2/GB/T14048.2）								
shell frame current In	100		225		400		800	
Whether applicable to motor protection	■		■		■			
Rated insulation voltage（V）	AC800V		AC800V		AC800V		AC800V	
rated impulse withstand voltage(KV)	8		8		8		8	
rated working voltage	AC400V		AC400V		AC400V		AC400V	
breaking capacity type	L	M	L	M	L	M	L	M
poles	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4
mate short -circuit breaking capacity Icu （AC400V KA）	35	50	35	50	50	70	50	70
ating short -circuit breaking capacity Ics （AC400V KA）	22	35	22	35	30	40	30	40
l short -circuit connecting （breaking） capacity I△m KA	25%Icu		25%Icu		25%Icu		25%Icu	
rated default residual action current mA	30/100/500		100/300/500		100/300/500		300/500/1000	
rated default residual non action current mA	1/2n		1/2n		1/2n		1/2n	
General breaking time s	0.2							
ultimate no driving time s	0.1s, 0.2s, 0.3s, 0.4s, 0.5s							
optional rated residual action current I△nt mA	30mA, 100mA, 300mA, 500mA, 1000mA any three -gear combination （noted : 100AF,225AF no1000mA ;400AF no 30mA;800AF no 30mA and100mA）							
Mechanical life	8500		7000		4000		2500	
Electrical life	1500		1000		1000		500	
Arc distance	50mm		50mm		100mm		100mm	
release/rated current								
Thermomagnetic fixation/ rated current	10/16/20/25/32/40/50/63/80/100		100/125/140/160/180/200/225		200/225/250/315/350/400		400/500/630/700/800	
accessory								
shunt	■	■	■	■	■	■	■	■
auxiliary	■	■	■	■	■	■	■	■
alarm	■	■	■	■	■	■	■	■
Leakage alarm module	Leakage alarm action	■	■	■	■	■	■	■
		Leakage alarm no action	■	■	■	■	■	■
Extend rotation handle	■	■	■	■	■	■	■	■
Electrical operating mechanism	■	■	■	■	■	■	■	■
Installation connection								
fixed front connection	■	■	■	■	■	■	■	■
fixed rear connection	■	■	■	■	■	■	■	■
plug in rear connection	■	■	■	■	■	■	■	■
certification	CCC							

noted : 4P has 4 types

Type A N pole does not install the overload current tripping component, and the N pole is always connected, not close or open with other three poles

Type B N pole does not install the overload current tripping component, and the N pole is close and open with other three poles(n pole first close then open)

Type C N pole install the overload current tripping component, and the N pole is close and open with other three poles(n pole first close then open)

Type D N pole install the overload current tripping component, and the N pole is always connected, not close or open with other three poles

CDM1L L type product optional : 4 poles A type

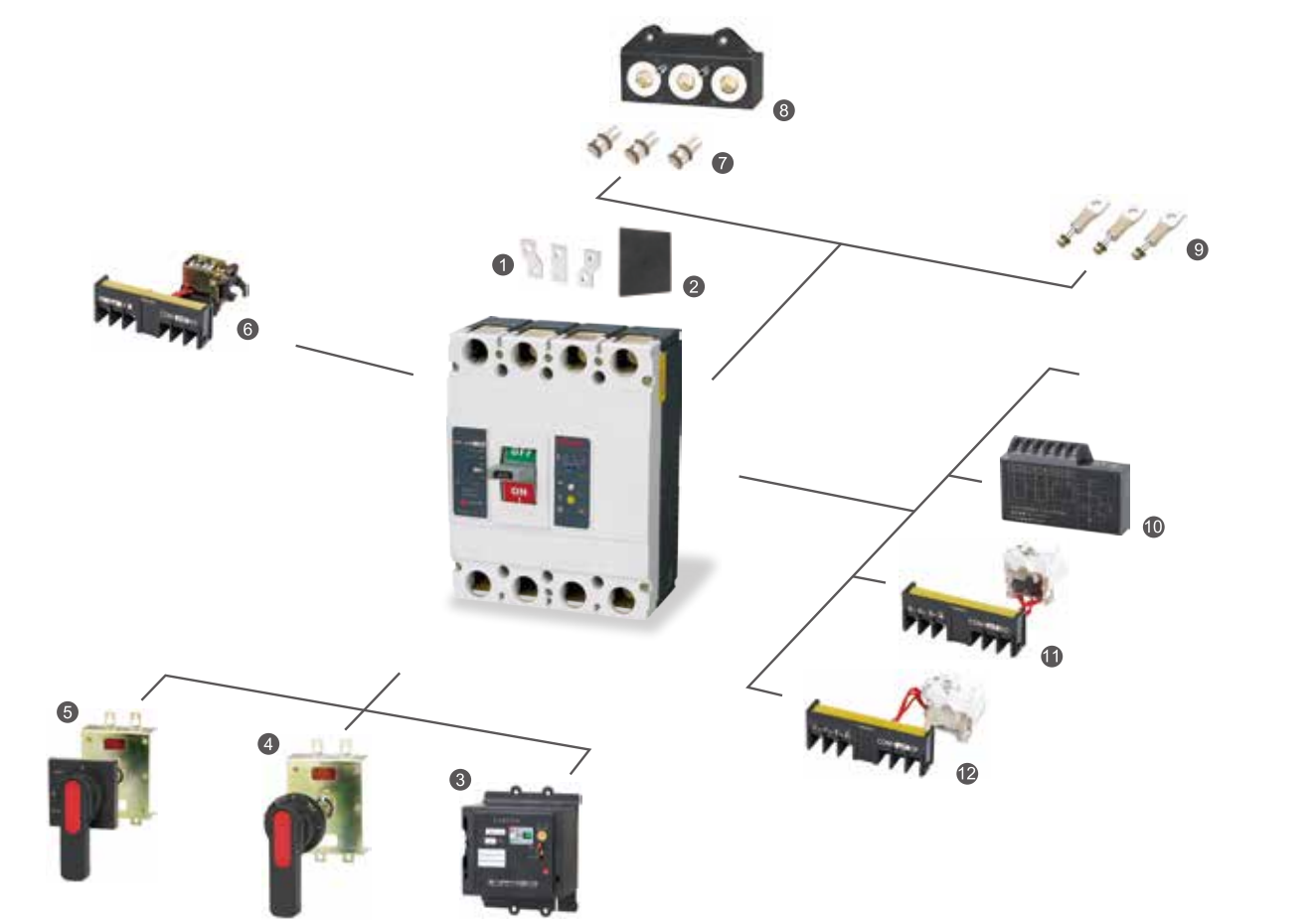
CDM1L M type product optional : 4 poles A type、4 poles B type、4 poles C type、4 poles D type

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Accessory

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Structure diagram



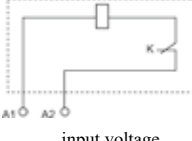
1	Extension terminal	6	Shunt release	11	Alarm contact
2	Interphase partition	7	Plug-in terminal block	12	Auxiliary contact
3	Electric operating mechanism	8	Plug-in rear		
4	Round extension rotating handle	9	Fixed rear		
5	Square extension rotating handle	10	Leakage alarm module		

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Accessory function

shunt release

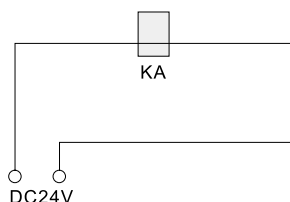
- When the control voltage is bigger than $0.7 \times U_s$, trip the circuit breaker
- After the circuit breaker is tripped through the shunt release, it can be reset locally

shunt release		
Rated control voltage	U_s V	AC230 AC400 DC24 (0.7 ~1.1) U_s
operating voltage	V	
Wiring diagram		
Note : The microswitch connected in series with the coil inside the K-shunt release is a normally closed contact . When the circuit breaker is opened, the contact will automatically open and close when closed.		

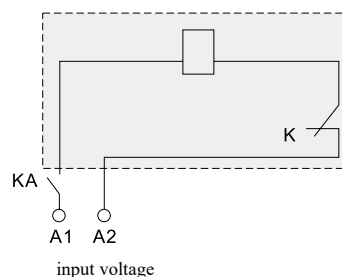
Note: When using the rated control power supply voltage DC 24V specification shunt release, the maximum length of the copper wire (each length of two wires) must meet the conditions in the right table

Note: When the requirements in the above table are not met, it is recommended to use the following diagram for the design of the shunt control circuit

导线面积	1.5mm ²	2.5mm ²
额定控制电源电压 U_s (DC24V)		
100% U_s	150m	250m
85% U_s	100m	160m

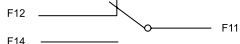
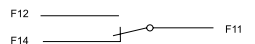


KA: is a DC24V intermediate relay with a contact current capacity of 1A



auxiliary contact

Auxiliary contact: A contact connected to the auxiliary circuit of a switching device and operated mechanically by the switching device

Auxiliary contact	
Conventional thermal current I_{th}	3A
rated working current I_e	$I_{n \leq 225}, 0.26A$ $I_{n \geq 400}, 0.30A$
wiring diagram	
 The state of the circuit breaker in the "open" position	 The state of the circuit breaker in the "close" position

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Alarm contact

■ Alarm contact: An auxiliary contact connected to a circuit breaker that only acts when the circuit breaker is tripped

Alarm contact	
Conventional thermal current Ith	3A
rated working current Ie	In≤225, 0.26A In≥400, 0.30A
wiring diagram	B12 B14 B11 B 14 B11 B11 The state of the circuit breaker in the "open" "close" position The state of the circuit breaker during free tripping (alarm)



Auxiliary contacts, alarm contacts

Maximum rated current for shell frame A	≤225	≥400
Conventional thermal current Ith A	3	3
rated working current Ie A	0.26	0.30

Leakage alarm module



Leakage alarm module	
Input voltage	AC: 230V 400V
Wiring diagram	Note: P5-P6: input power; P1-P2、P3-P4: contact capacity AC230, 5A。 The dashed box shows the wiring diagram of the internal accessories of the leakage alarm module. P6 ○ P5 ○ P4 ○ P3 ○ P2 ○ P1 ○

Note: There are two working modes for the leakage alarm module, and users can specify them when ordering according to their needs;

I: When a leakage occurs, the leakage alarm module sends a signal and the circuit breaker trips,

II: When leakage occurs, the leakage alarm module sends a signal, but the circuit breaker does not trip.

(II is to meet the needs of special occasions, users should carefully consider using this function to protect electrical appliances.).

Electric operating mechanism

■ Electric operating mechanism: Provide local and remote control of circuit breakers for closing or opening

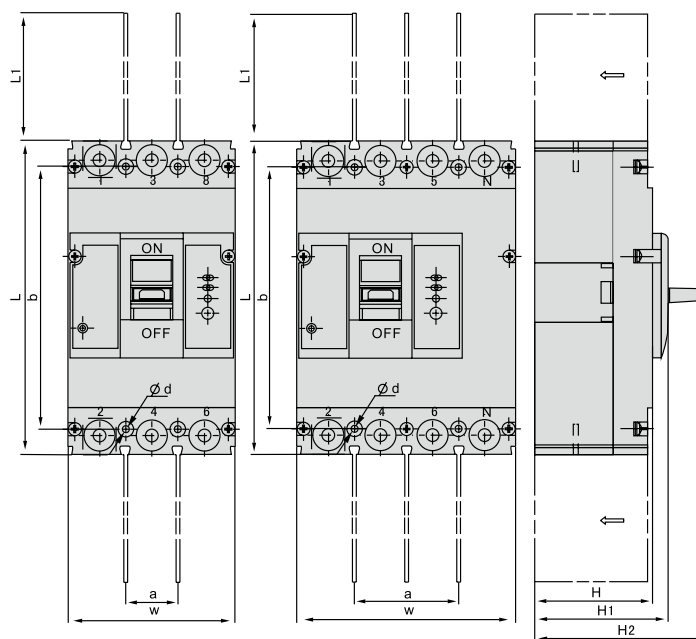


Electric operation module	
input voltage	AC: 230V 400V
wiring diagram	Note: P1 and P2 are external power inputs; SB1 and SB2 are operation buttons (provided by the user). Note: The dashed box represents the wiring diagram of the internal accessories of the motor operating mechanism. power control circuit (M) P1 P2 SB1 SB2

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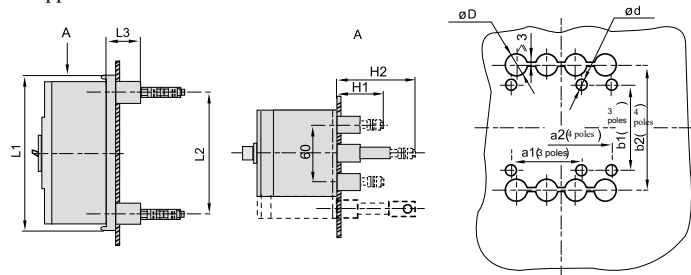
Appearance and installation dimensions(mm)

■ Appearance and installation dimensions Fixed Front



Appearance and installation dimensions Fixed Front										
Type	poles	dimensions						installation dimensions		
		L	L1	W	H	H1	H2	a	b	Ød
CDM1L-100	3	150	50	92	90	98	110	30	129	4.5
	4	150	50	122	90	98	110	60	129	4.5
CDM1L-225	3	165	65	107	90	98	110	35	126	4.5
	4	165	65	142	90	98	110	70	126	4.5
CDM1L-400	3	258	100	150	102	113	146	44	194	6.5
	4	258	100	198	105	113	146	44	194	6.5
CDM1L-800	3	280	100	210	111	119	152	70	243	7
	4	280	100	280	111	119	152	70	243	7

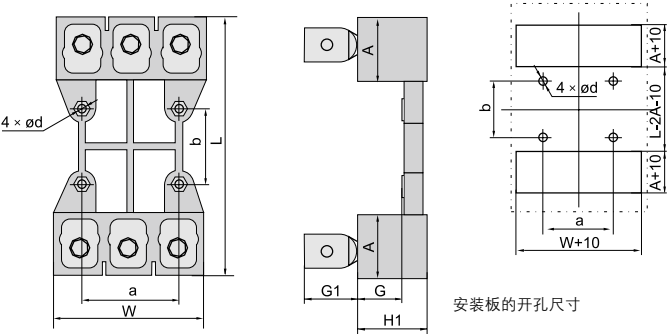
■ Appearance and installation dimensions Fixed Rear



Appearance and installation dimensions Fixed Rear											
Type	dimensions					installation dimensions					
	L1	L2	L3	H1	H2	a1	a1	b1	b2	ΦD	Φd
						3 poles	4 poles	3 poles	4 poles		
CDM1L-100	164	132	35	53	93	72	102	90	132	22	5.5
CDM1L-225	173	144	35	55	100	87	122	93	144	24	5.5
CDM1L-400	267	224	37	48.5	108.5	124	172	164	224	26	6.5
CDM1L-800	295	243	37	62	62	178	248	158	243	48	7.0

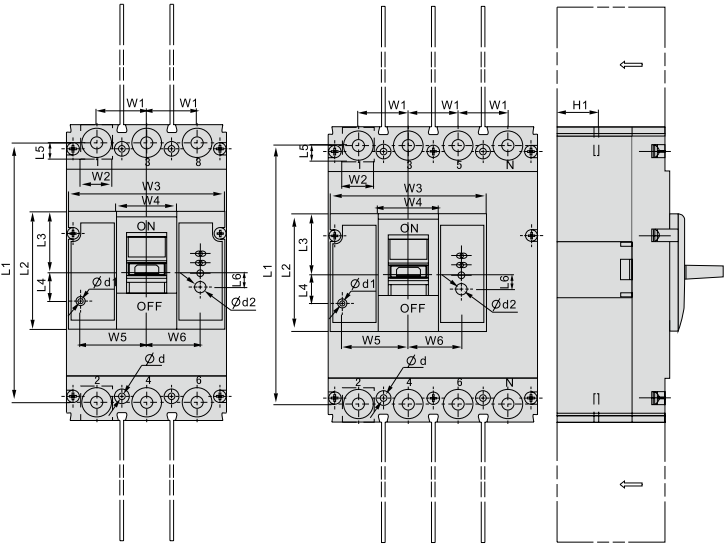
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■ Appearance and installation dimensions Plug-in Rear



Appearance and installation dimensions Plug-in Rear											
Type	W		L	A	H1	G	G1	a		b	Φd
	3 poles	4 poles						3 poles	4 poles		
CDM1L-100	94	125	170	38	50	33	38	60	90	56	Φ5.5
CDM1L-225	110	145	186	46	50	33	40	70	105	54	Φ7
CDM1L-400	152	200	280	50	60	37	48	60	108	129	Φ9
CDM1L- 800	212	282	298	57	100	43	129	140	210	143	Φ9

■ Opening size of distribution cabinet panel



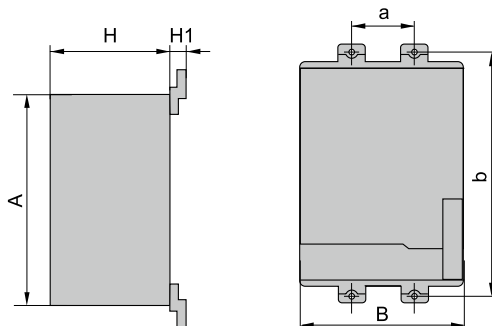
Opening size of distribution cabinet panel																	
Type	poles	Size												Installation size			
		L1	L2	L3	L4	L5	L6	W1	W2	W3	W4	W5	W6	H1	Φd1	Φd2	
CDM1L-100	3	132	50	24	17.5	7.5	19	30	18	88	22	21	32	29	6	7	
	4	132	50	24	17.5	7.5	19	30	18	88	22	21	32	29	6	7	
CDM1L-225	3	145	50	28.5	15	11	15	35	21	101	21.5	42	37.5	23	6.5	6.5	
	4	145	50	28.5	15	11	15	35	21	101	21.5	42	37.5	23	6.5	6.5	
CDM1L-400	3	224	128	61	29.5	14	16.5	48	32	150	65	57	50	38	6.5	7	
	4	224	90	45	29.5	14	16.5	48	32	140	56	57	50	38	6.5	7	
CDM1L-800	3	243	136	60	24.5	15	22	70	43	210	66	53	80	41	6.5	7	
	4	243	90	45	24.5	15	22	70	43	180	63.5	53	80	41	6.5	7	

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Installation and dimensions of external accessories

■ Appearance and installation dimensions of electric operating mechanisms



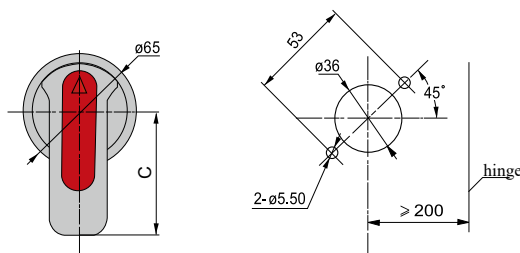
Appearance and installation dimensions of electric operating mechanisms

Type	A	B	H	H1	a	b
CDM1L-100	116	90	77	12.5	30	129
CDM1L-225	116	90	77	15	35	126
CDM1L-400	176	130	115	27	44	215
CDM1L-800	176	130	115	31	70	243



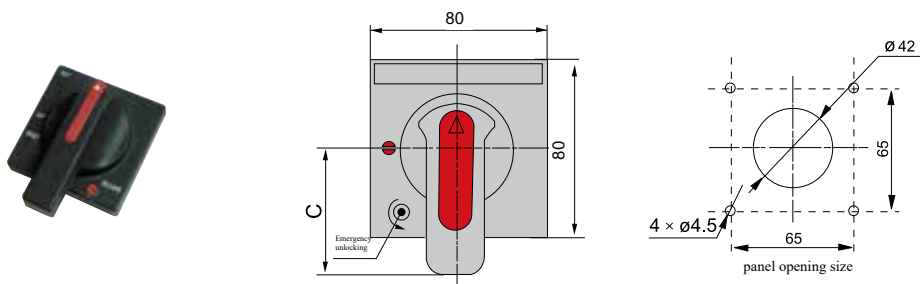
Rotating handle operation module

■ Appearance and Opening Diagram of Round Rotating Handle



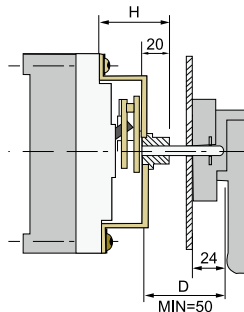
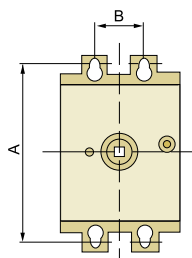
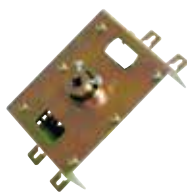
Size C: CDM1-63, 125:65 or 95 optional, default to 65
 CDM1-250:65 or 95 optional, default to 95
 CDM1-400, 630, 800:95 or 125 optional, default to 125

■ Appearance and Opening Diagram of Square Rotating Handle



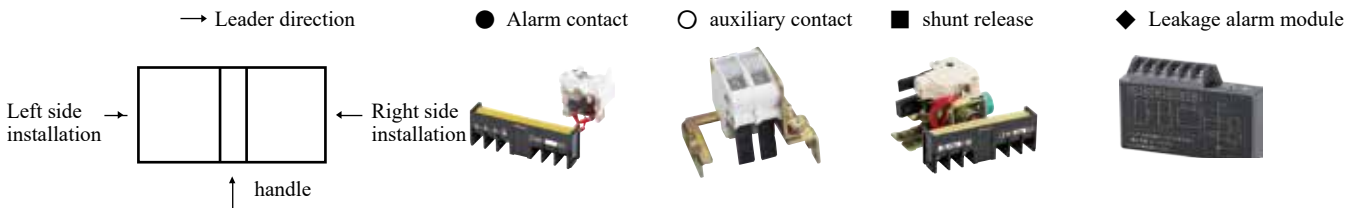
Size C: CDM1-100, 125:65 or 95 optional, default to 65
 CDM1-225:65 or 95 optional, default to 95
 CDM1-400, 800:95 or 125 optional, default to 125

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Installation dimensions of rotating handle				
Type	CDM1L-100	CDM1L-225	CDM1L-400	CDM1L-800
Installation dimensions H	49	55	74	66

Release installation method and accessory code



Accessories code		Accessories Name	Product Type	
electromagnetic release	compound release		CDM1L-□/3□	CDM1L-□/4□
200	300	no accessory		
208	308	Alarm contact		
210	310	shunt release		
220	320	auxiliary contact		
228	328	auxiliary contact Alarm contact		
240	340	shunt release auxiliary contact	no	
I or II	I or II	Leakage alarm module		

Note: 200 represents the circuit breaker body with only an electromagnetic release; 300 represents the circuit breaker body with thermal release and electromagnetic release; 340 only applies to 4-pole products

CDM1L Residual current operated circuit breaker



Tripping curve

Function characteristics

For power distribution

Long delay (reference temperature is +30 °C)

Rated current In A

	In ≤ 63	63 < In ≤ 225	In > 225
conventional no tripping time	current setting: 1.05In start: cold ≥ 1h	≥ 2h	≥ 2h
conventional tripping time	current setting: 1.30In start: hot < 1h	< 2h	< 2h
Returnable time	current setting: 3.00In start: cold 5s	8s	12s

Instantaneous (accuracy of setting value ± 20%) Rated Current In A

	In ≤ 400	400 < In ≤ 630	630 < In ≤ 1250
Current setting value for distribution protection	10In	10In	7In
conventional tripping time s	< 0.2	< 0.2	< 0.2

For motor protection

Long delay (reference temperature is +40 °C)

Rated current In A

	In ≤ 100	100 < In ≤ 400
conventional no tripping time	current setting: 1.00In start: cold ≥ 2h	≥ 2h
conventional tripping time	current setting: 1.20In start: hot < 2h	< 2h
	current setting: 1.50In start: hot ≤ 2min	≤ 4min
Returnable time	current setting: 7.20In start: cold 2s < Tp ≤ 10s	4s < Tp ≤ 10s

Instantaneous (accuracy of setting value ± 20%)

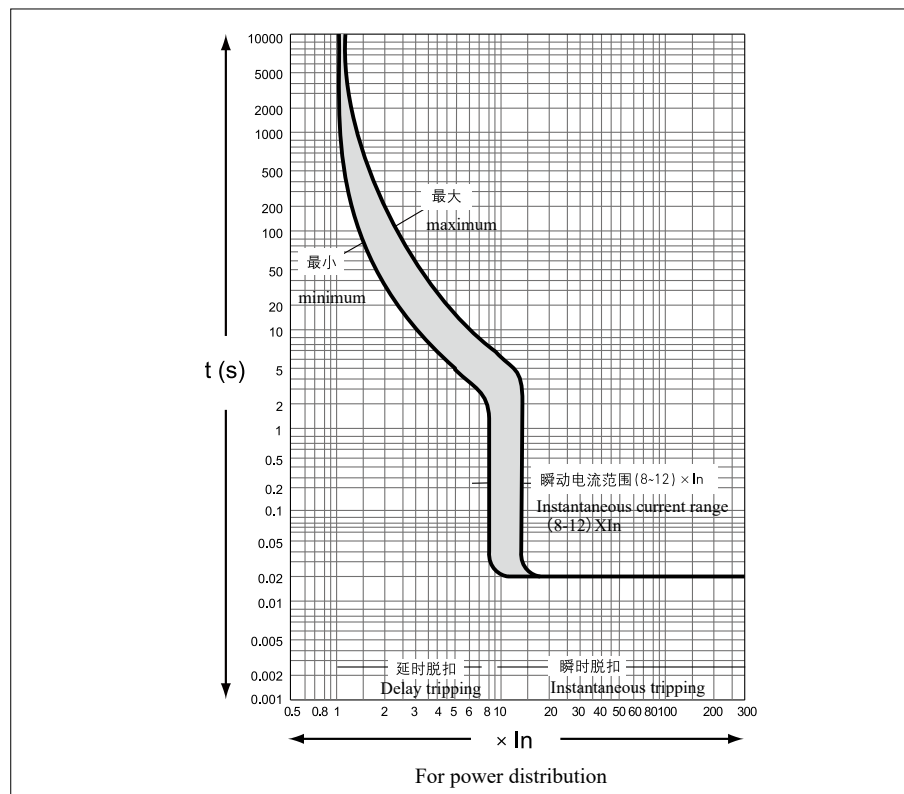
rated In A

Current setting value for protecting the motor

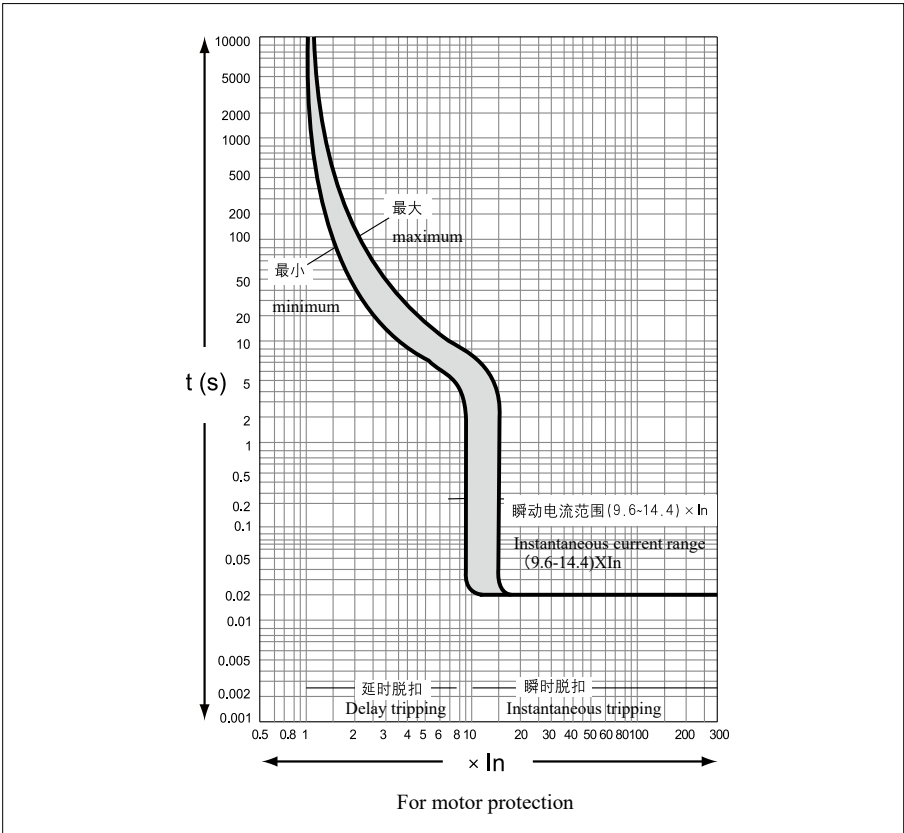
conventional tripping time s

Overcurrent tripping characteristic curve of circuit breaker

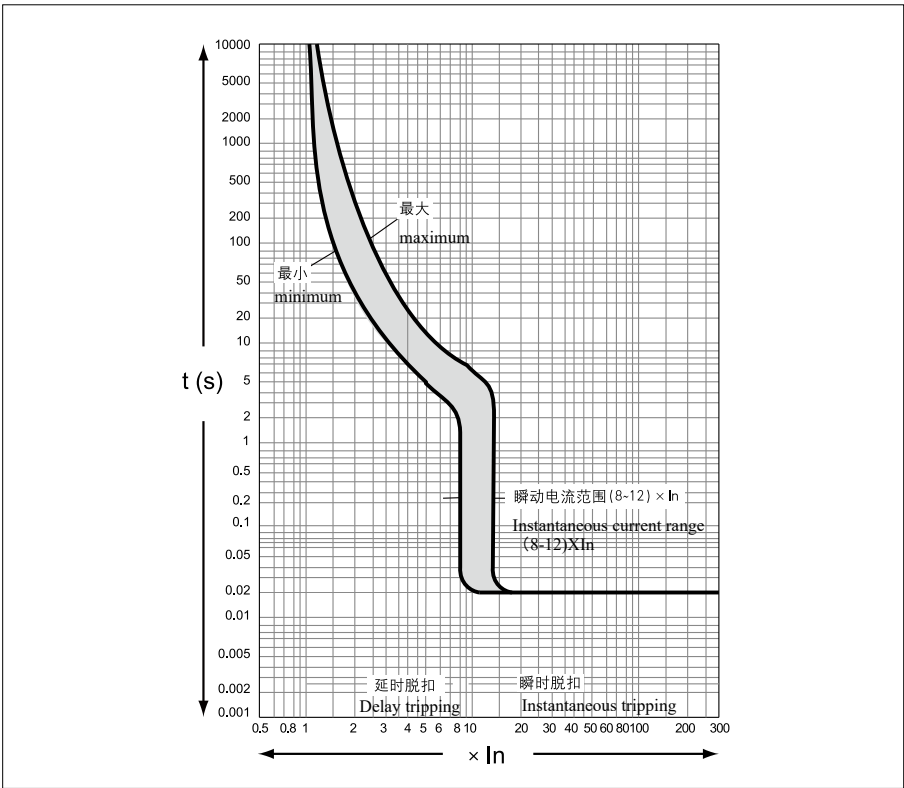
■ CDM1L-100 Time/current characteristic curve (electric)



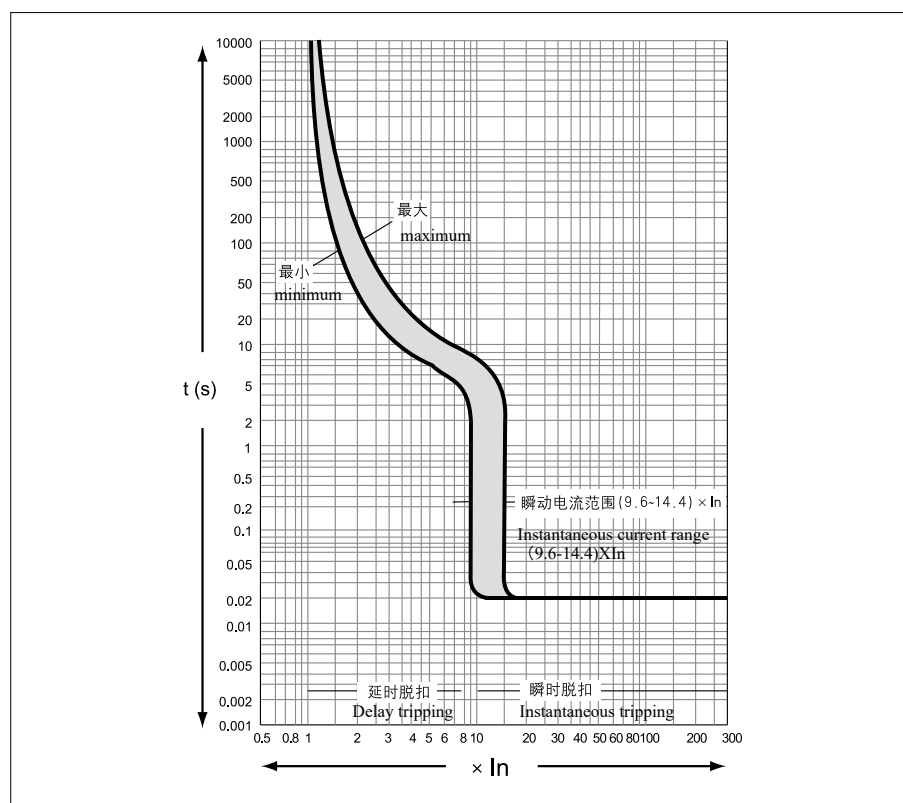
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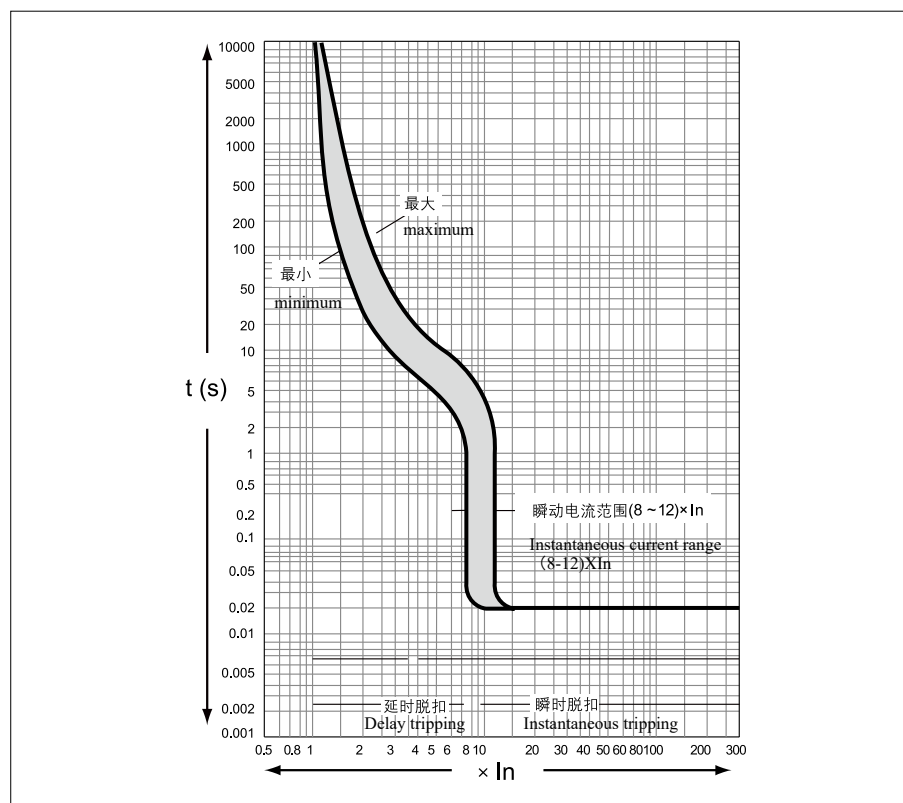
■ CDM1L-225 Time/current characteristic curve (electric)



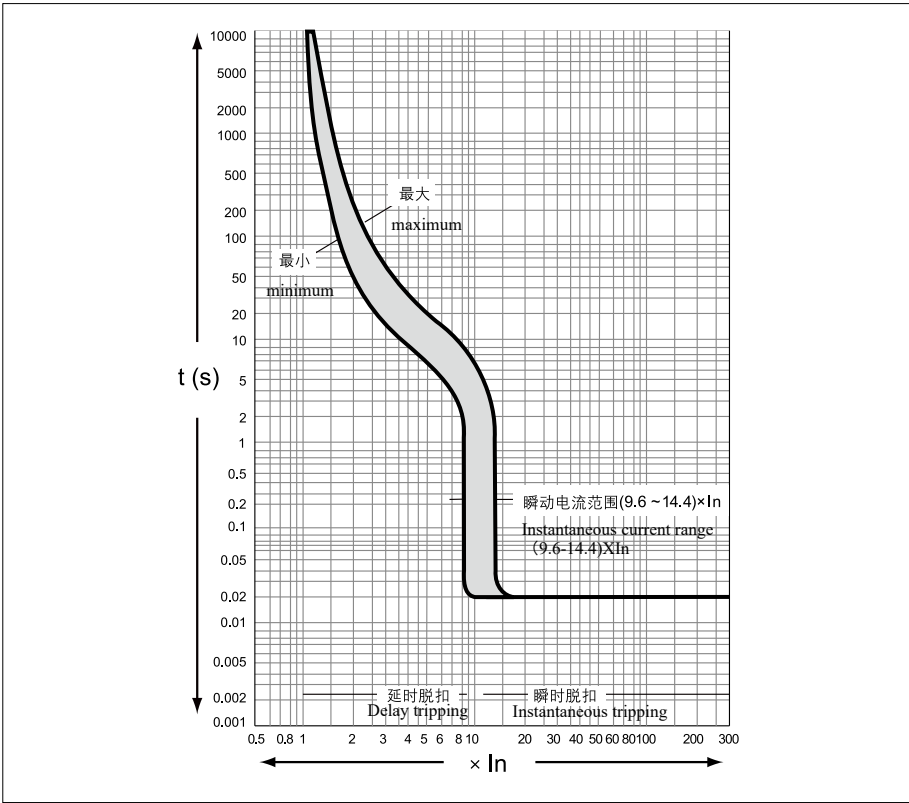
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■ CDM1L-400 Time/current characteristic curve (distribution)



CDM1L Residual current operated circuit breaker



■ CDM1L-800 Time/current characteristic curve (distribution)

