

Product Overview

■ Products

CDM6Z DC moulded case circuit breaker for rated operating voltage DC250V, DC500V, DC750V, DC1000V, rated current 63A ~ 630A DC circuit, can be widely used in photovoltaic power generation, charging pile, power plant, power supply, rail transportation, and DC environments such as communications, used to distribute power and protect lines and power supply equipment from overloads, short circuits and other faults.



■ Standards

- GB/T 14048.1 Low-voltage switchgear and controlgear Part 1: General provisions
- GB/T 14048.2 Low-voltage switchgear and controlgear Part 2: Circuit breakers
- IEC 60947-1 Low Voltage Switchgear and Controlgear-Part 1: General Rules
- IEC 60947-2 Low Voltage Switchgear and Controlgear-Part 2: Circuit-breakers

■ Applicable environments

- Operating temperature: -5°C ~ 40°C
- Storage temperature: -40°C to 70°C
- Altitude: ≤ 2000 m
- Pollution level: Level 3
- Protection class: IP20
- Resistance to humidity and heat: dry cold, dry heat, humidity and heat

Product Selection

Product range	Shell frame current	Breaking capacity	Rated current	Number of poles	Rated voltage	Serial terminal	Optional accessories	Accessory voltage	Mode of operation
CDM6Z	250	F	250	4	D10	C	08		
	125 250 400 630	125: S:10kA(3P) S:15kA(2P) N:35kA(2P) 250: F:20kA(4P) N:35kA(3P) H:50kA(2P/3P) R:65kA(2P) 400: F:20kA(4P) H:50kA(2P/3P) R:65kA(2P/3P) 630: F:20kA(4P) H:50kA(2P/3P) R:65kA(2P/3P)	063:63A 080:80A 100:100A 125:125A 160:160A 200:200A 225:225A 250:250A 315:315A 350:350A 400:400A 500:500A 630:630A	2:2P 3:3P 4:4P	D02: DC250V(2P) D05: DC500V(3P) D07: DC750V(4P) D10: DC1000V(4P)	Null : without serial row C: with tandem row	Null : No attachment 08: Alarm 10: Distribution 20: Auxiliary 40: Dividend + Auxiliary 60: Two sets of aids 18: Diversion + Alarm 28: Auxiliary Newspapers 48: Dividend + Auxiliary Report 68: Auxiliary + Auxiliary Press	Null : No accessories AC400V AC230V DC110V DC220V DC24V	Null : Handle operation Motor mechanism AC230V Motor mechanism AC400V Motor mechanism DC110V Motor mechanism DC220V Electrical operating mechanism DC24V Round direct hand manipulation Square direct hand manipulation Round extension handle Square extension handle

Note:

1. 125AF is available in 250V (2P), 500V (3P)
2. 250AF Available in 250V(2P), 500V(3P), 750V(4P), 1000V(4P)
3. 400AF available in 250V(2P), 500V(3P), 750V(4P), 1000V(4P)
4. 630AF available in 250V(2P), 500V(3P), 750V(4P), 1000V(4P)
5. Note: The breaking capacity should be matched with the number of poles
6. 2P products without crosstalk row

■ Explanation of the type of accessories sold separately

CDM6Z	Shell frame current	Accessories
	125	H1
	↓	↓
125A		AL1: Alarm release (with lead)
250A		AL2: Left shunt release (with lead)
400A		MXL1: Left shunt releasereleasereleaserelease (with lead)
630A		MXL2: Left shunt striker (with terminals)
		MX1: Right shunt release (with lead)
		MX2: Right shunt release (with terminals)
		OF11K1B: Auxiliary contact 1 open 1 closed (with lead)
		OF21K1B: Auxiliary contact 1 open 1 closed (with terminal)
		OF12K2B: Auxiliary contact 2 open 2 closed (with lead)
		OF22K2B: Auxiliary contact 2 open 2 closed (with terminals)
		OFAL1: Auxiliary alarm (with lead)
		OFAL2: Auxiliary alarm (with terminal)
		H1: Direct round handle
		H2: Direct square handle
		HL1: Round extended turning handle
		HL2: Square extended turning handle
		HL1250: Round extended swivel handle (250mm)
		HL2250: Square extended swivel handle (250mm)
		IB: Interphase partition
		C3P: 3P series connection row
		C4P: 4P series connection row
		P: Electrically operated mechanism
		Z: Terminal cover

Remarks.

1. Extension terminals, also called accessory boards, or wiring copper busbar
2. AL/MX/OF are available in two types with terminals and with leads
3. MX shunt voltage type: DC24V, DC110V (customized), DC220V (customized), AC230V, AC400V
4. Only the 250 frame has a terminal cover

Technical Parameters

model		CDM6Z-125			CDM6Z-250					
Frame grade		125			250					
Rated current In (A)		63、80、100、125			100、125、160、200、225、250					
Rated insulation voltage Ue (V)		1000			1000					
Rated impulse withstand voltage Uimp (kV)		8			8					
Rated voltage Ue (V)		DC250V		DC500V	DC250V		DC500V		DC750V	DC1000V
Number of poles (2P/3P/4P)		2		3	2		3		4	
Breaking capacity		S	N	S	H	R	N	H	F	
Rated ultimate short-circuit breaking capacity Icu (kA)		15	35	10	50	65	35	50	20	
Rated operating short-circuit breaking capacity Ics (kA)		15	35	10	50	65	35	50	20	
Mechanical life	Maintenance available	25000			25000					
	Maintenance free	20000			20000					
Electrical life		8000			8000					
Mounting method	Fixed front-panel	●			●					
Isolation function		●			●					
Selective categories		A			A					
Certification		CCC、CE			CCC、CE					
Flying arc distance (mm)		< 50			< 50					
Optional accessories	Shunt release	●			●					
	Auxiliary contact (1 open 1 closed)	●			●					
	Auxiliary contacts (2 open 2 closed)	●			●					
	Alarm contacts	●			●					
	Auxiliary alarm contacts	●			●					
	Round direct hand manipulation	●			●					
	Square direct hand manipulation	●			●					
	Round Extension Hand Exercise	●			●					
	Square Extension Hand Exercise	●			●					
	AC operation	●			●					
	DC electric operation	●			●					
	Interphase dividers	●			●					
	Tandem row (3P/4P)	●(3P only)			●					
Dimensions	Long L	150			165				165	
	Width W	92			107				142	
	High H	93.5			94				94	

CDM6Z-400					CDM6Z-630						CDM6Z-800		
400					630						800		
250、315、350、400					400、500、630						600、700、800		
1000					1000						1000		
8					8						8		
DC250V		DC500V		DC750V	DC1000V	DC250V		DC500V		DC750V	DC1000V	DC250V	
2		3		4		2		3		4		2	
H	R	H	R	F		H	R	H	R	F		H	R
50	65	50	65	20		50	65	50	65	20		50	65
50	65	50	65	20		50	65	50	65	20		50	65
20000					15000						10000		
15000					10000						8000		
8000					6500						5000		
●					●						●		
●					●						●		
A					A						B		
CCC、CE					CCC、CE						CCC、CE		
< 100					< 100						< 100		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●						●		
●					●								

■ Explanation of the derating table

Temperature-compensated correction of the rated current at the time of calibration is required when the ambient temperature is not +40°C

Table of temperature compensation correction factors

Maximum rated current for shell and frame classes	Temperature °C	Rated current correction factor														
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
125AF In* coefficient		1.21	1.19	1.16	1.13	1.11	1.08	1.05	1.03	1	1	1	0.96	0.91	0.85	0.78
250AF In* coefficient		1.3	1.1	1.09	1.08	1.06	1.05	1.03	1.02	1	1	1	0.95	0.93	0.91	0.88
400AF In* coefficient		1.2	1.17	1.14	1.11	1.09	1.07	1.05	1.02	1	1	1	0.93	0.91	0.89	0.85
630AF In* coefficient		1.2	1.17	1.14	1.12	1.09	1.07	1.05	1.02	1	1	1	0.92	0.9	0.89	0.83

Altitude derating factor

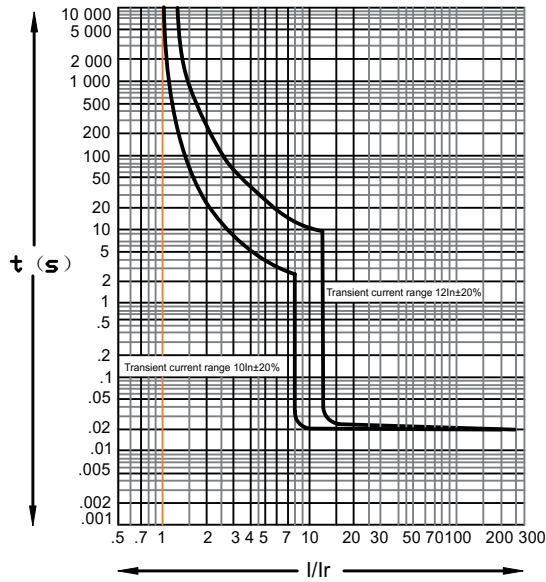
Altitudes below 2000 m have no effect on the performance of the circuit breaker. Above this altitude, a reduction in air insulation characteristics and cooling capacity must be taken into account; the correction factors given in the following table are for installations at altitudes above 2000 m.

Altitude (m)	2000	2500	3000	3500	4000	4500	5000
Insulation voltage U_i (V)	1000	910	910	830	830	770	770
Surge withstand voltage U_{imp} (kV)	8	7	7	6.5	6.5	6	6
Max. operating voltage U_e (V)	1000	830	830	750	720	720	550
Thermal rating at 40°C environment I_n (A)	$1I_n$	$0.98I_n$	$0.94I_n$	$0.92I_n$	$0.88I_n$	$0.86I_n$	$0.85I_n$

■ Trip curve

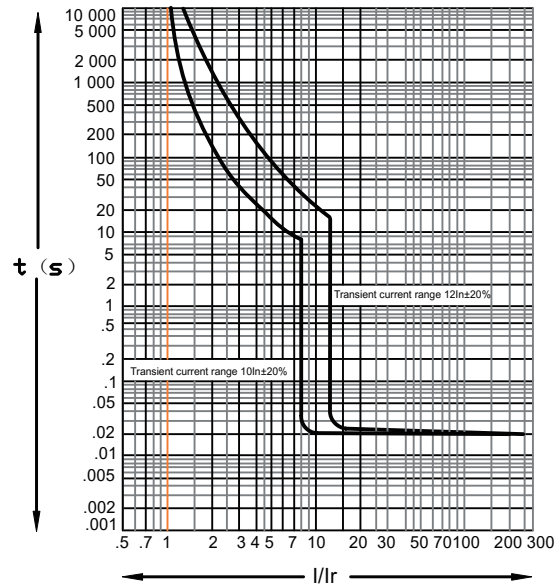
CDM6Z-125

CDM6Z-125 Black for distribution protection



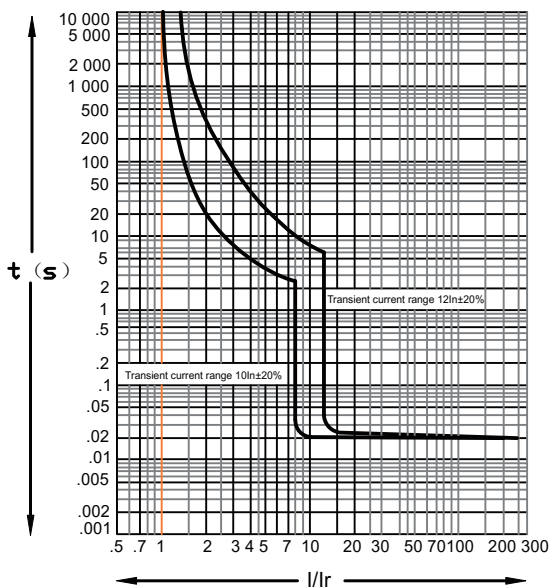
CDM6Z-250

CDM6Z-250 Black for distribution protection



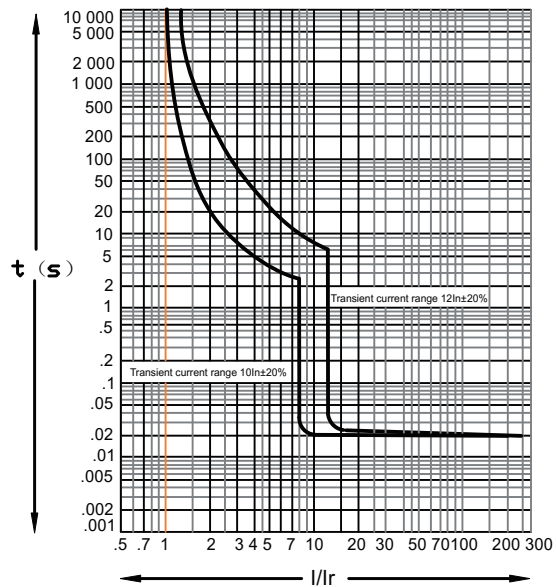
CDM6Z-400

CDM6Z-400 Black for distribution protection



CDM6Z-630

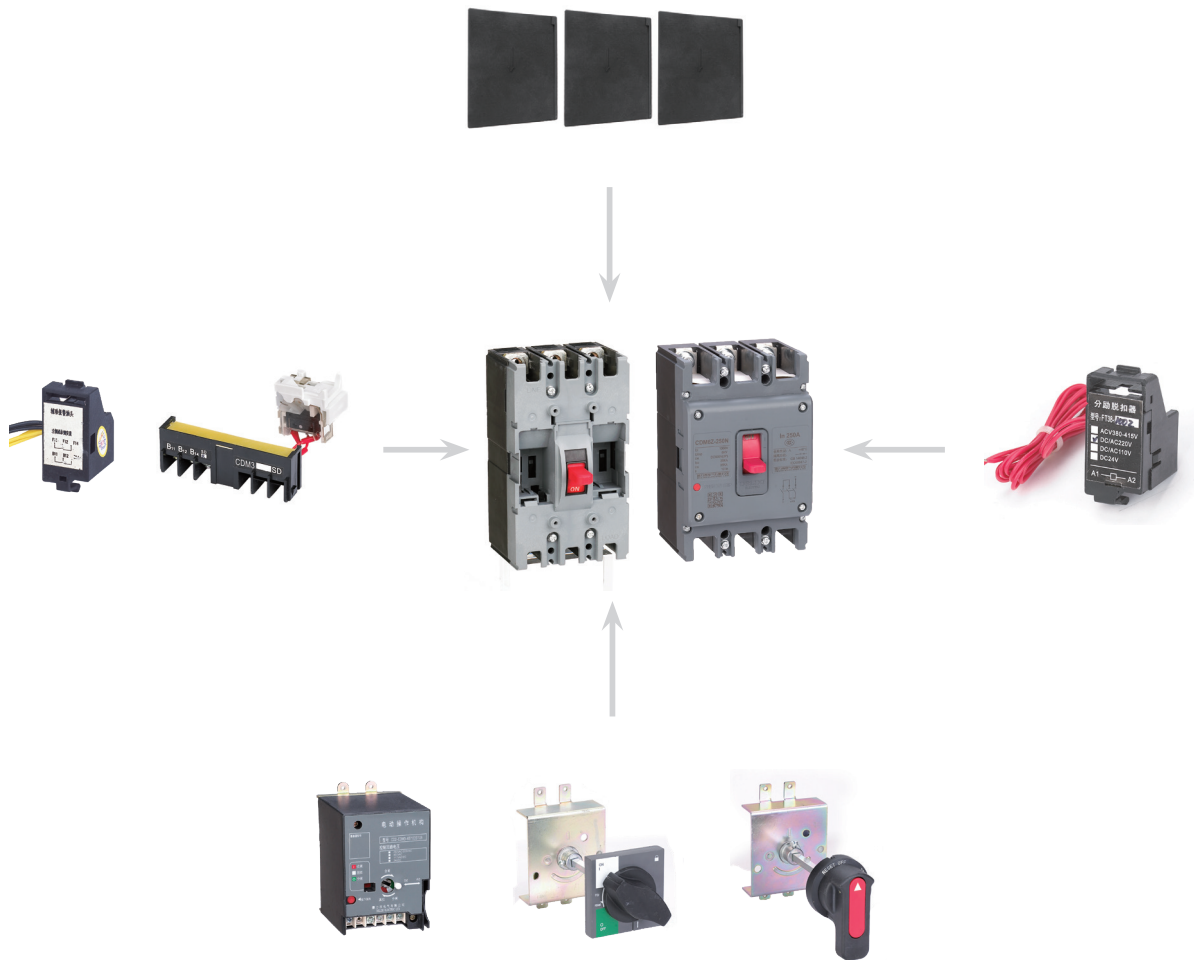
CDM6Z-630 Black for distribution protection



Accessories

- Electrical accessories: shunt striker, auxiliary contact, alarm contact, auxiliary alarm integral
- Operating accessories: hand-operated mechanism, motor mechanism
- Mounting accessories: fixing front-panel attachment
- Other accessories: phase partition, terminal covers, extension terminals, serial terminal

Exploded view of annexes



1	Auxiliary contacts	5	Motor mechanism
2	Alarm contacts	6	Square Hand mechanism
3	Shunt release	7	Circular Hand mechanism
4	Phase partition		

■ Accessory installation cross-reference table

□ Alarm contacts

■ Auxiliary contacts

● Shunt release



Accessory code	Name of accessory	Model number				
Duplex		CDM6Z-125	CDM6Z-250	CDM6Z-400	CDM6Z-630	CDM6Z-800
08	Alarm contacts	□ □ □	□ □ □	□ □ □	□ □ □	□ □ □
10	Shunt release	□ □ □	□ □ □	□ □ □	□ □ □	□ □ □
20	Auxiliary contacts	■ □ □	■ □ □	■ □ □	■ □ □	■ □ □
40	Shunt + Auxiliary	■ □ □	■ □ □	■ □ □	■ □ □	■ □ □
60	Two sets of auxiliary contacts	■ ■ □ □	■ ■ □ □	■ ■ □ □	■ ■ □ □	■ ■ □ □
18	Shunt + Alarm	□ □ □	□ □ □	□ □ □	□ □ □	□ □ □
28	Auxiliary + Alarm	□ ■ □ □	□ ■ □ □	□ ■ □ □	□ ■ □ □	□ ■ □ □
48	Shunt + Auxiliary + Alarm	□ ■ □ □	□ ■ □ □	□ ■ □ □	□ ■ □ □	□ ■ □ □
68	Auxiliary alarm + Auxiliary	□ ■ □ ■	□ ■ □ ■	□ ■ □ ■	□ ■ □ ■	□ ■ □ ■

■ Electrical accessories

Aux. contact / Alarm contact

Aux. contact: It is an accessory connected in the auxiliary circuit of the switching device to indicate the power-on (ON) or power-off (OFF or Trip) state of circuit breaker;

Alarm contact: It is an accessory to indicate the non-trip (ON or OFF) or trip (Trip) state of circuit breaker. When the alarm contact indicates that the circuit breaker is in the Trip state, there are five possible failures:

- overload or short circuit failure
- remaining current failure
- artificial test button trip
- shunt release works
- line failure, undervoltage release works

Electrical wiring diagram

Accessory name	ON	OFF/Trip
Aux. contact		
Accessory name	ON	OFF/Trip
Alarm contact		

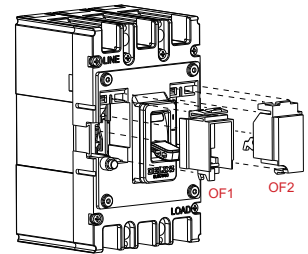
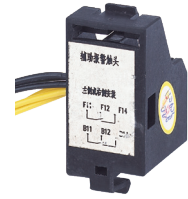
Electrical parameters of aux. alarm contact

Resistive current (A)	3A	
Use category (GB14048.5-1)	AC15	DC13
Operating current 50/60Hz AC400V	0.3A	-
DC220V	-	0.15A

Shunt release

- When the voltage is between 70%-80% of rated control power voltage, the shunt release shall work to trip circuit breaker;
- When circuit breaker trips through the shunt release, local reset is required.

	Shunt coil power (W)		
	AC400V	AC230V	DC24V
CDM6Z-125	91.6	76.1	91.2
CDM6Z-250	112	68.6	85.3
CDM6Z-400	67	62.3	100
CDM6Z-630	68	58.2	100
CDM6Z-800	101	60	98



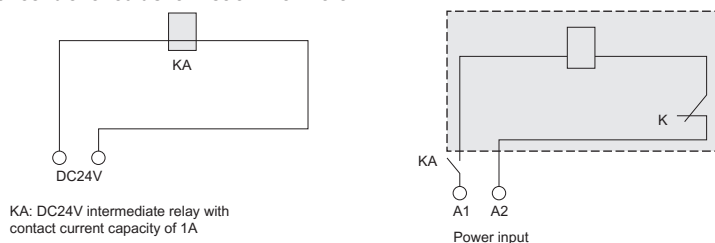
Aux. contact installation diagram



When the rated control voltage of shunt release is DC24V, the maximum length of copper wire shall meet the following requirements:

Rated control power voltage U_c (DC24V)	Wire sectional area	1.5mm ²	2.5mm ²
100% U_c		150m	250m
85% U_c		100m	160m

Note: The continuous energizing time of shunt release shall not exceed 5s, otherwise the shunt release may be burnt. When the rated power control voltage selected is DC24V, the rated current of control circuit shall reach 4.5A~5.5A.



Note: The continuous energizing time of shunt release shall not exceed 5s, otherwise the shunt release may be burnt. When the rated power control voltage selected is DC24V, the rated current of control circuit shall reach 4.5A~5.5A.

■ Operation accessories

Manual operating mechanism

- The circuit breaker is operated by rotating the handle, and the rotary handle that complies with the ergonomic design can ensure the more flexible operation of circuit breaker.
- There are two types of rotary handle operating mechanisms:

Round manual mechanism (round direct manual mechanism, round extended manual mechanism)

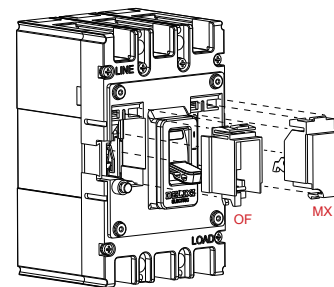
Square manual mechanism (square direct manual mechanism, square extended manual mechanism)

- User visual information / setting:

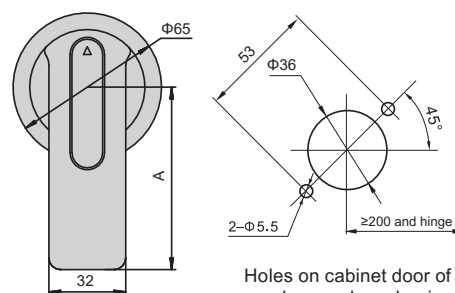
3 position indicators: OFF, ON, TRIP

When the door opens, the circuit breaker cannot be closed; the door cannot be opened when in the ON state; the length of the extended handle can be customized, depending on the distance from the back of circuit breaker to the door.

Round manual mechanism	A	Remarks
CDM6Z-125	65	A size 65 or 95 optional Default: 65
CDM6Z-250	65	
CDM6Z-400/630	95	A size 95 or 125 optional Default: 95



Shunt release installation diagram



Holes on cabinet door of round manual mechanism