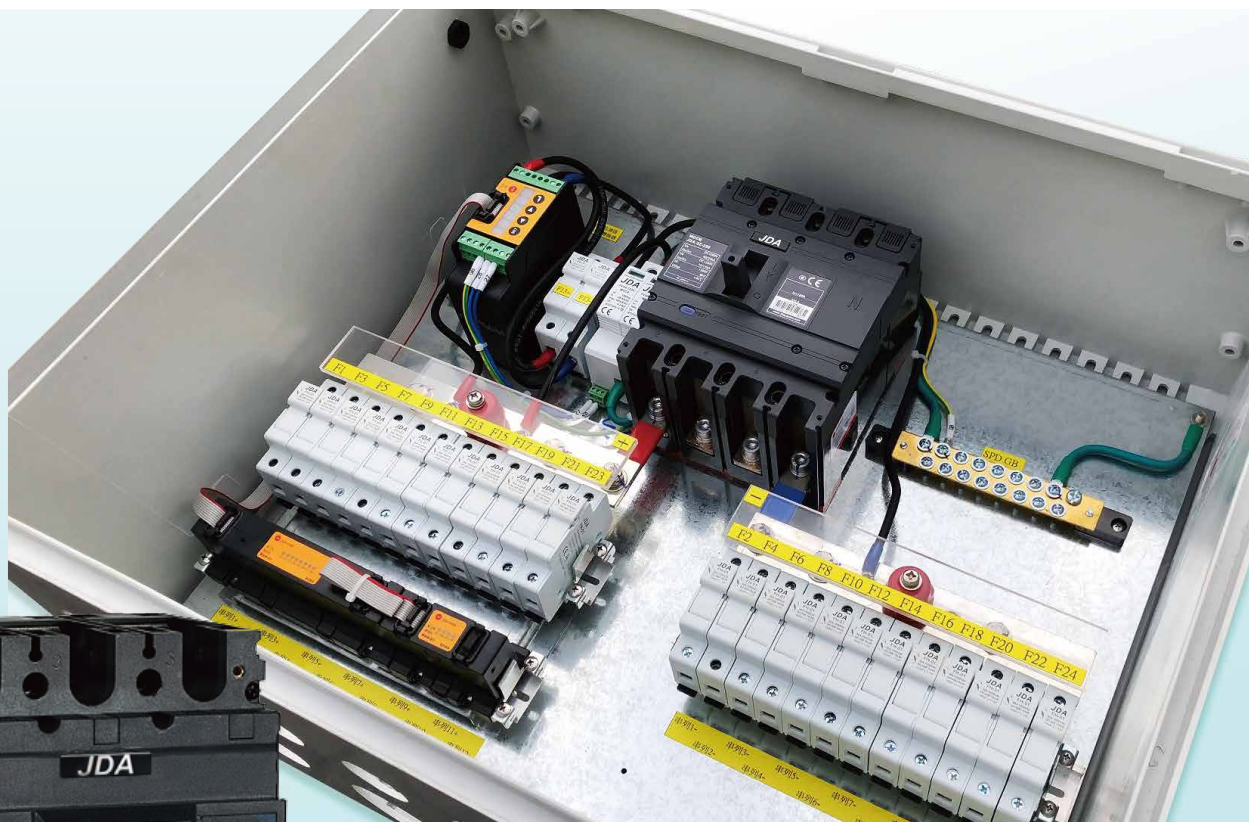




# Molded Case Circuit Breaker JDA-5Z-400/630 DC SWITCH



note: subject to change without any notice, JDA pay no responsibility



### 1. Applicable scope and purpose

The JDA-5Z-400/630 series of molded case circuit breakers (referred to as circuit breakers) have a rated insulation voltage of 1200V and apply to circuits with the rated working voltage of DC750V (3P in series), DC1000V (4P in series) and DC1200V (4P in series) and DC1500V (JDA-5Z-400 4P in series) as well as the rated working current 250A, 320A, 400A(JDA-5Z-400) and 400A,500A,630A (JDA-5Z-630). The circuit breakers are used for distributing power while protect the overload, short circuit and under-voltage (with a under-voltage release) of lines and power units.

The circuit breaker has an isolating function with the corresponding symbol of ; 

Comply with standards: IEC60947-2

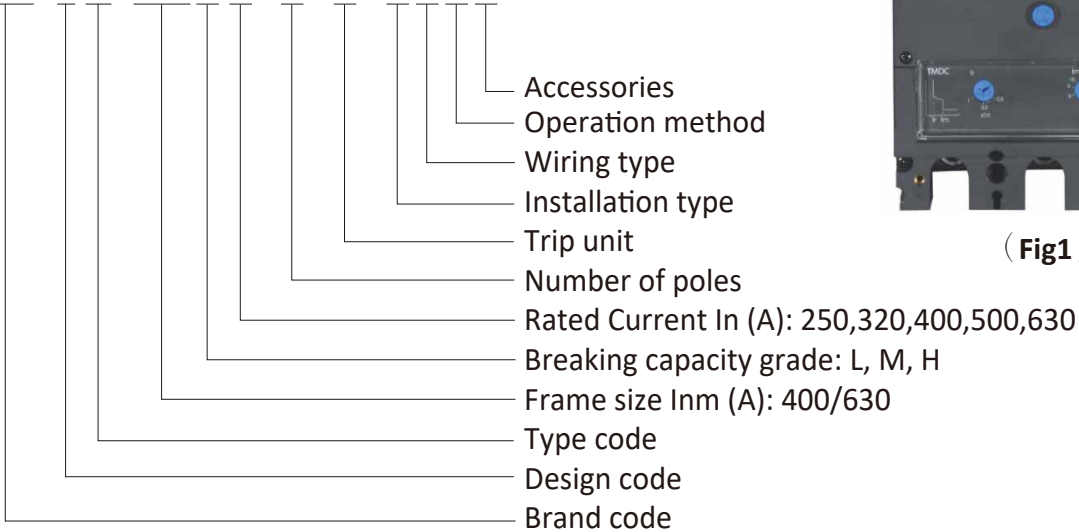
### 2. Picture of the product ( Fig1 )



( Fig1 )

### 3. Specification and model description

JDA - 5 □ - 400 □ □ / □ / □ / □ □ □ □



- a) Number of poles
  - 3: 3 poles;
  - 4: 4 poles;
- b) Release code: TMDR (DC thermo magnetic distribution release) [thermo-adjustable (0.8 0.9 1. 0) In, magnet adjustable (5 6 7 8 9 10) In];
- c) Installation mode: fixed type: no code; plug in type: "P"; drawout: "W"
- d) Wiring mode: front connection: no code; front extended connection: "EC"; rear screw connection: "R".
- e) Operation mode: direct handle operated: no code; rotation handle operated: "R"; motor operated: "M"



Table 1

Accessory code	Accessory name	Installation position
		3P/4P
00	None	—————
08	Alarm contact	
10	Shunt release	
30	Under-voltage release	
21	Single auxiliary contact	
61	Two sets of single auxiliary contacts	
23	Three sets of single auxiliary contacts	
18	Shunt release, alarm contact	
38	Under-voltage release, alarm contact	
22	Single auxiliary contact, alarm contact	
88	Two sets of single auxiliary contacts, alarm contact	
26	Three sets of single auxiliary contacts, alarm contact	
42	Shunt release, single auxiliary contact, alarm contact	
44	Shunt release, two sets of single auxiliary contacts, alarm contact	
46	Shunt release, three sets of single auxiliary contacts, alarm contact	
75	Under-voltage release, single auxiliary contact, alarm contact	
77	Under-voltage release, two sets of single auxiliary contacts, alarm contact	
81	Under-voltage release, three sets of single auxiliary contacts, alarm contact	
41	Shunt release, single auxiliary contact	
11	Shunt release, two sets of single auxiliary contacts	
12	Shunt release, three sets of single auxiliary contacts	



Table 1

71	Under-voltage release, single auxiliary contact	
72	Under-voltage release, two sets of single auxiliary contacts	
73	Under-voltage release, three sets of single auxiliary contacts	
50	Shunt release, Under-voltage release	
31	Alarm contact, Shunt release, Under-voltage release	
51	Shunt release, Under-voltage release, Single auxiliary contact	
52	Shunt release, Under-voltage release, two sets of single auxiliary contacts	
53	Shunt release, Under-voltage release, three sets of single auxiliary contacts	
98	Two sets of single alarm contact	
63	Two sets of single alarm contact, single auxiliary contact	
64	Two sets of single alarm contact, two sets of single auxiliary contacts	
65	Two sets of single alarm contact, three sets of single auxiliary contacts	
37	Two sets of single alarm contact, Shunt release, Under voltage release	
39	Two sets of single alarm contact, Shunt release, Under voltage release, single auxiliary contact	
55	Two sets of single alarm contact, Shunt release, Under voltage release, two sets of single auxiliary contacts	
56	Two sets of single alarm contact, Shunt release, Under voltage release, three sets of single auxiliary contacts	
32	Alarm contact, Shunt release, Under voltage release, single auxiliary contact	
33	Alarm contact, Shunt release, Under voltage release, two sets of single auxiliary contacts	
34	Alarm contact, Shunt release, Under voltage release, three three sets of single auxiliary contacts	



#### 4. Main technical parameters table 2

Table 2

Frame current $I_{nm}(A)$	400	630
Rated current $I_n (A)$	250 、 320 、 400	400 、 500 、 630 、 550
Rated voltage $U_e (V)$	DC750 、 DC1000 、 DC1200 、 DC1500 (JDA-5Z-400 ONLY)	
Rated impulse withstand voltage $U_{imp}$	8kV	
Rated insulation voltage $U_i$	1500V	1200V

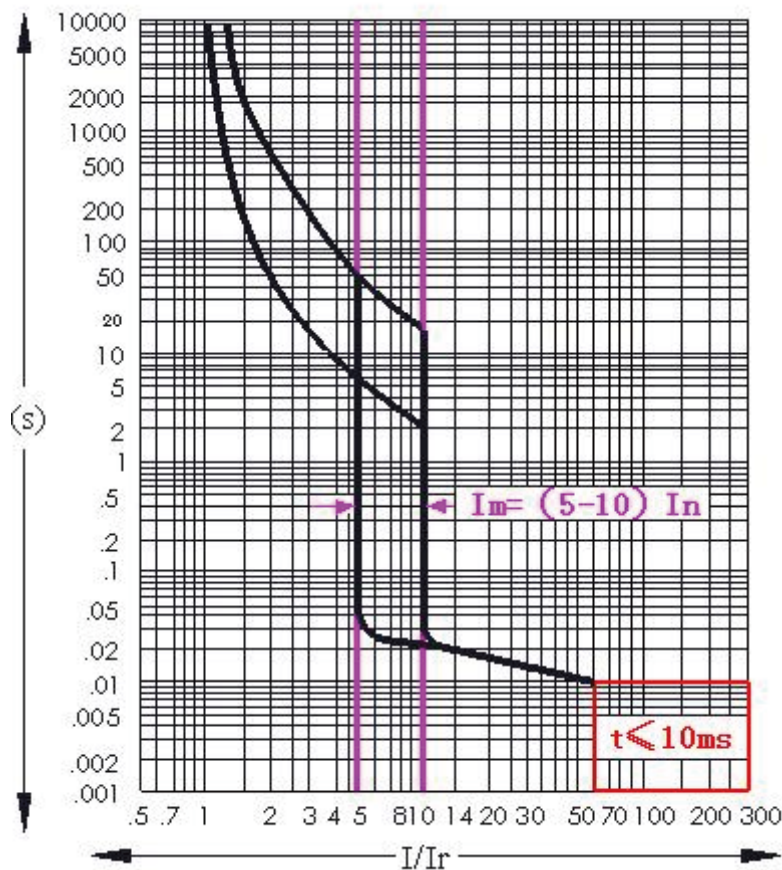
Power frequency withstand voltage (1min)		4000V		
Rated ultimate breaking capacity $I_{cu} (kA)$	Code	L	M	H
	DC750V (3Pin series)	50	85	100
	DC1000V (4P in series)	50	85	100
	DC1200V (4P in series)	/	/	50
	DC1500V (JDA-5Z-400 4P in series)	/	/	20
Rated running breaking capacity $I_{cs}(kA)$		$I_{cs}=100\%I_{cu}$		
Life	Mechanical life	2000 times		
	Electrical life	DC750V (3Pin series)	3000 times	3000 times
		DC1000V (4P in series)	3000 times	3000 times
		DC1200V (4P in series 2000)	2000 times	2000 times
DC1500V (JDA-5Z-400 4P in series)		1500 times	/	

#### 5. Normal working environment

- Elevation 2000m
- Ambient air temperature: 35 °C~+70 °C; the average value within 24 hours doesn't exceed +35°C ;
- Class of pollution: 3 ;
- Installation category: main circuit and under voltage release: installation category III ; auxiliary circuit and control circuit: installation category II ;
- The product can be disposed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust ;
- The product should be installed free from snow and rain.

**6. Tripping characteristics**

6.1 Tripping characteristics curve under normal environment (ambient air temperature: 40 °C) Fig 2



( Fig2 )

6.2 The tripping characteristics should be corrected due to small changes when the ambient air temperature varies (table 3)



Table 3

Ambient air	Correction factor	
	JDA-5Z-400	JDA-5Z-630
-35°C	1.50	1.34
-35°C	1.45	1.30
-25°C	1.40	1.26
-20°C	1.36	1.23
-15°C	1.32	1.20
-10°C	1.28	1.17
-5°C	1.24	1.14
0°C	1.20	1.12
5°C	1.17	1.10
10°C	1.14	1.08
15°C	1.11	1.06
20°C	1.08	1.04
25°C	1.06	1.03
30°C	1.04	1.02
35°C	1.02	1.01
40°C	1.0	1.0
45°C	0.97	0.96
50°C	0.94	0.92
55°C	0.91	0.88
60°C	0.87	0.84
65°C	0.83	0.80
70°C	0.78	0.75

6.3 The tripping characteristics should be corrected due to small changes by considering the air insulation characteristics and cooling capacity with the ambient temperature of +40°C and the altitude above 2,000m

Table 4

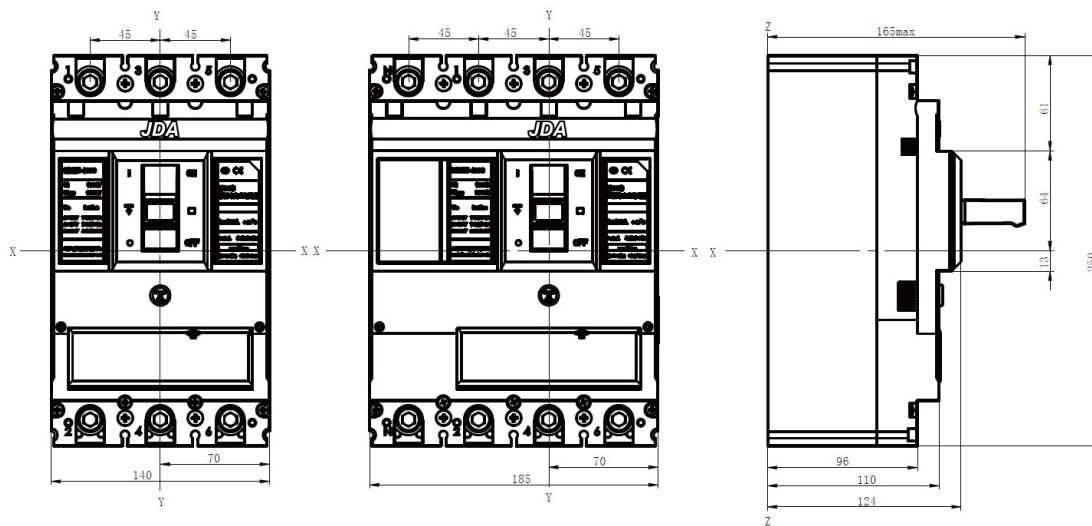
Altitude (m)	2000	3000	4000	5000
Power frequency withstand voltage (v)	4000	3000	2500	2000
Average insulation class (v)	1Ui	0.9Ui	0.8Ui	0.7Ui
Maximum working voltage (v)	1Ue	0.85Ue	0.75Ue	0.65Ue
Average working current (+40°C)	1In	0.94In	0.88In	0.81In



## 7. Outline and installation dimensions

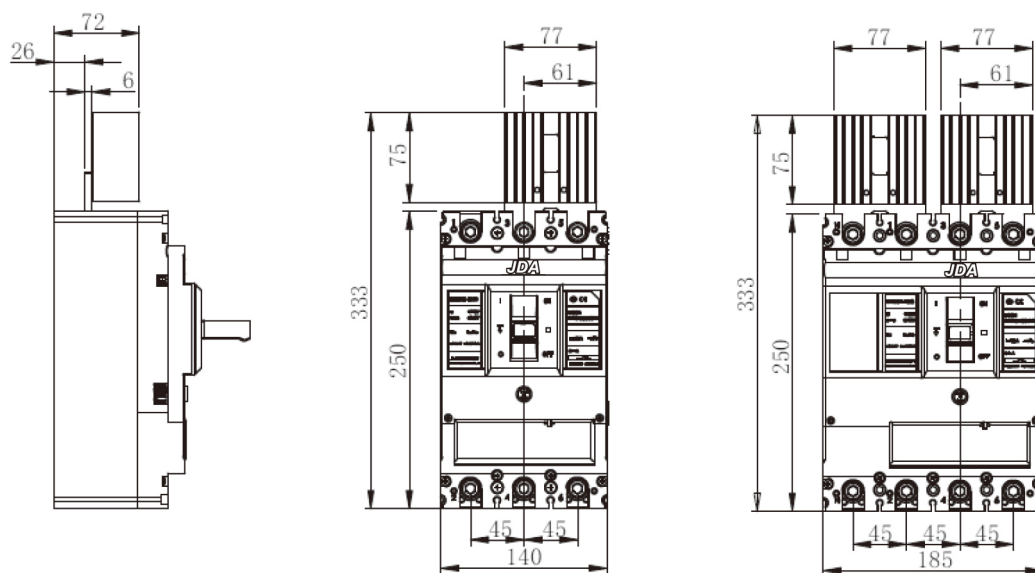
### 7.1 External dimensions of products

#### 7.1.1 External dimensions of front plate connection products (fig 3)



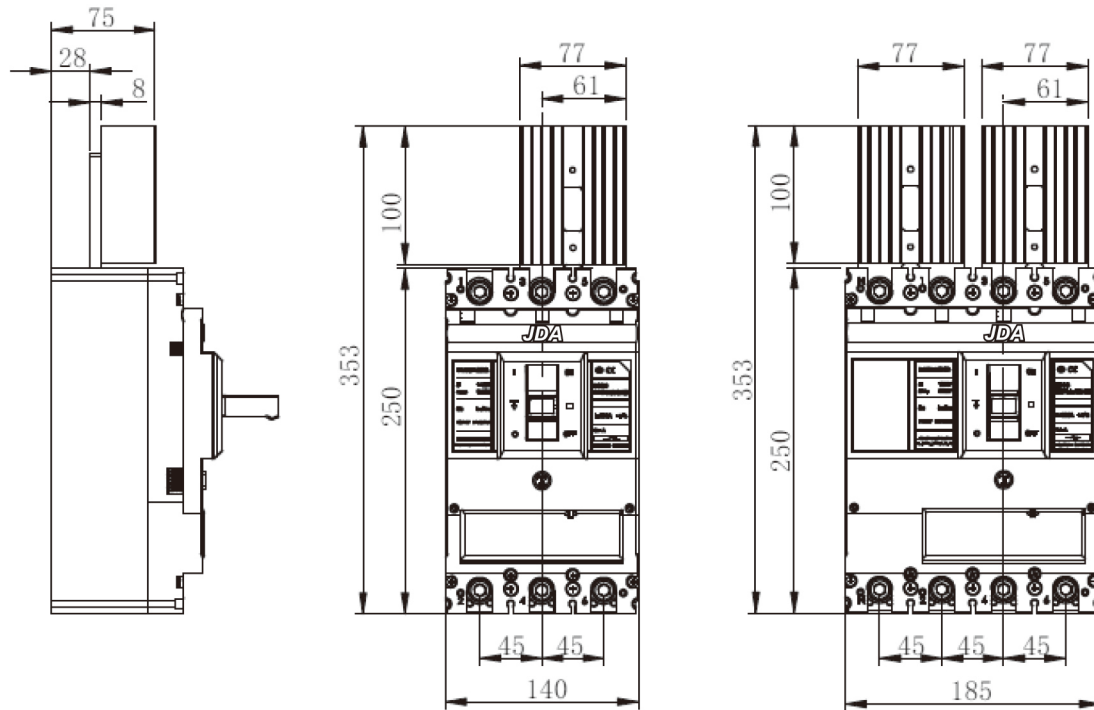
( Fig3 )

#### 7.1.2 External dimensions of DC products installed with a "Short bus bar with a radiator" (fig 4)



JDA-5Z-400



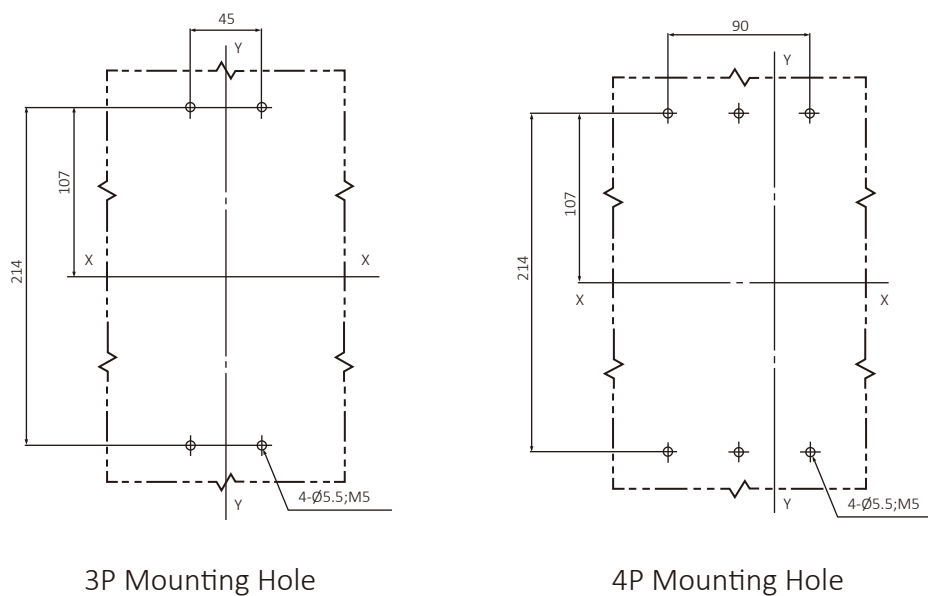


JDA-5Z-630

( Fig4 )

7.2 Product installation dimensions

Installed on the baseplate (fig5)



3P Mounting Hole

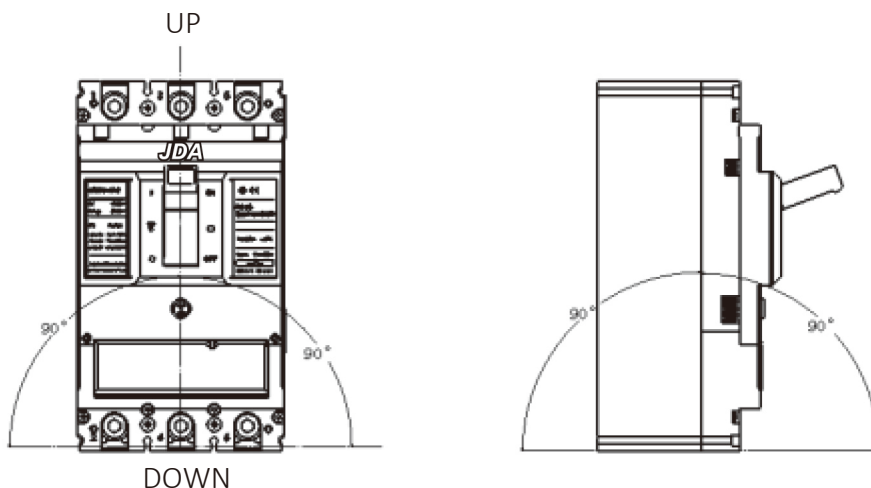
4P Mounting Hole

( Fig5 )



**8. Installation mode**

The product allowable installation mode is shown as the figure below. (fig6)



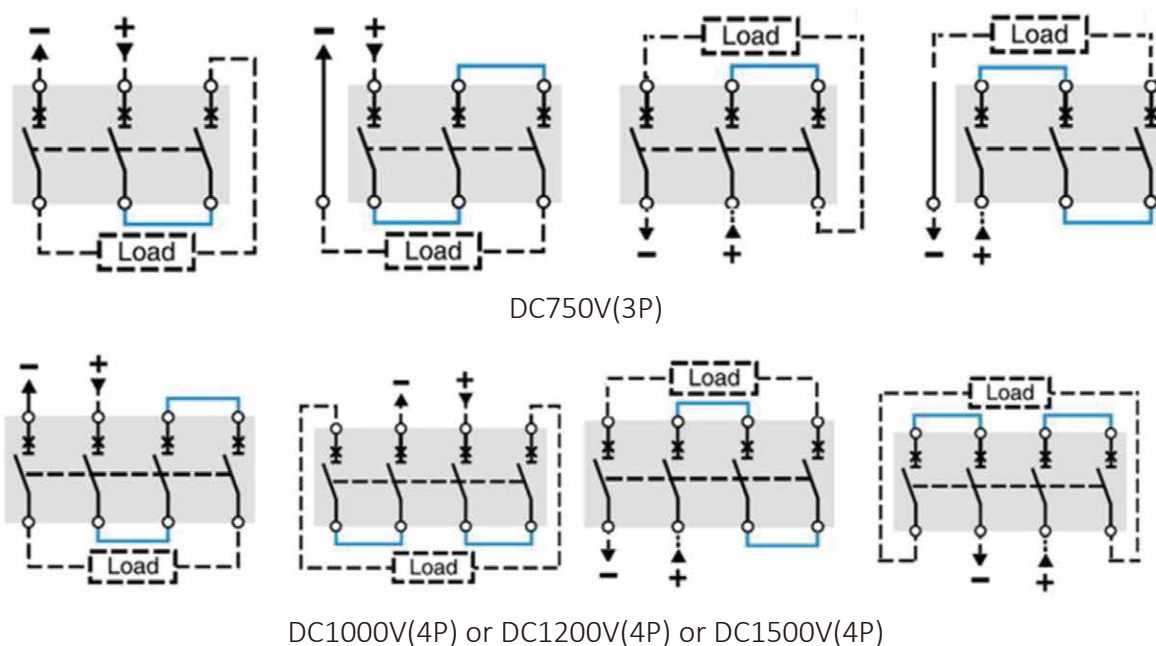
( Fig6 )

**9. Reference section of the connecting wire (table 5)**

Current Rating (A)	250	320	400	500	630
Wire cross-section area (mm <sup>2</sup> )	120	185	240	2x150	2x185
Copper busbar (quantity × size)	/	/	/	2x30mmx5mm	2x40mmx5mm

Tightening torque value of the terminal screw M10: Tightening torque 20N.m

**10. Connection capacity ( fig7 )**



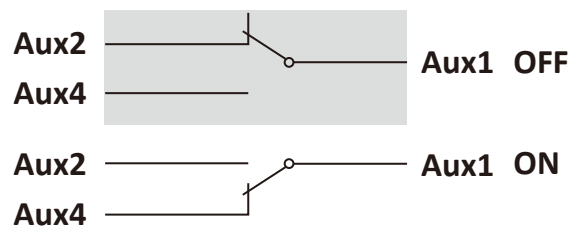
( Fig7 )



### 11. Operation instructions for accessories

11.1 Rated parameters of the auxiliary contact (Table 6 . fig 8 )

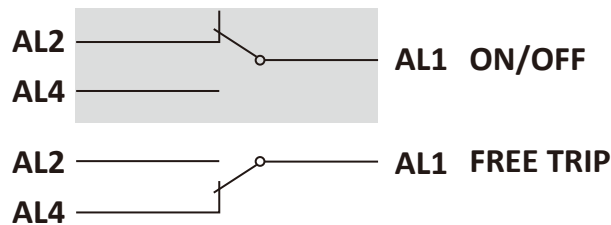
Accessory name	Accessory spec	voltage(V)/ Conventional thermal current (lth)		
		AC250V/10A	AC400V/3A	DC220V/0.2A
Aux contacts	Aux1/M5-160			



( Fig8 )

11.2 Rated parameters of the alarm contact (Table7 . fig 9 )

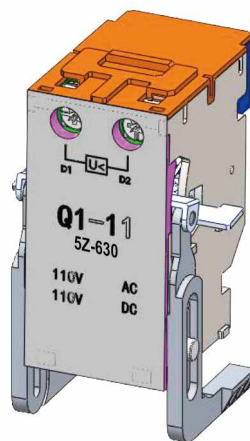
Accessory name	Accessory spec	voltage(V)/ Conventional thermal current (lth)	
		AC250V/3A	DC220V/0.2A
Alarm contacts	AL1-11/M5-16		



( Fig9 )

11.3 Undervoltage release & Shunt Release

11.3.1 Product picture (fig 10)



( Fig10 )



11.3.2 Specification and model description (Table 8)

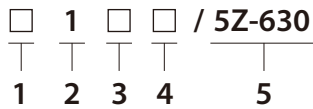


Table 8

Num	description	
1	Function code	ST : shunt release ; UT : undervoltage release ;
2	Design code	1
3	Voltage spec	Shunt Release : 02:24V; 04:48V; 11:110V; 23:230V; Undervoltage release : 11:110V; 23:230V; 38:380V;
4	Voltage category	D : direct-current; A : alternating current; T: general;
5	Product spec	JDA-5Z-630

11.3.3 Main technical parameters

Table 9

Product code	shunt release				undervoltage release		
	ST1-02D/5Z-63	ST1-04D/5Z-630	ST1-11T/5Z-630	ST1-23T/5Z-630	UT-11T/5Z-630	UT-22T/5Z-630	UT-38A/5Z-630
Product spec	DC 24V	DC 48V	AC/DC 110V	AC230V/DC250V	AC/DC 110V	AC230V/DC250V	AC 400V
Rated voltage	11W	11W	25W	52W	--	--	--
Transient power	--	--	--	--	0.4W	1.8W	2.3W
Maintain power							

Undervoltage release (table 9 、 fig 11)

When voltage reduce to 35%~70% range of rated voltage, UVT trips; when voltage is lower than 35% of rated voltage, UVT prevents the breaker from closing; when voltage is higher than 85% of rated voltage, the breaker reliably closes.



( Fig11 )

shunt Release (table 9 、 fig 1 2)

The control voltage of Shunt release should be in the range 70%~110% rated control voltage, and that can make the breaker reliably trip.

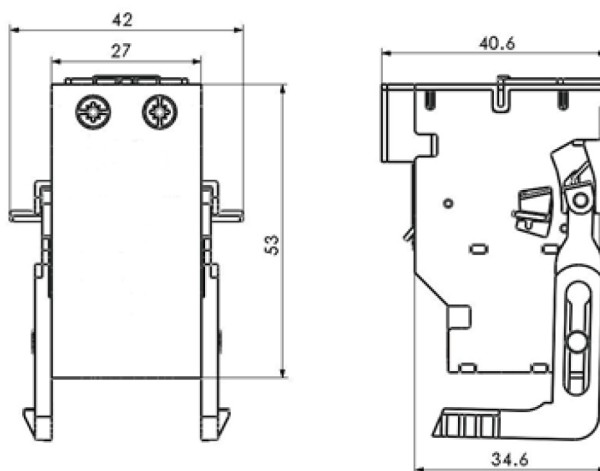


( Fig12 )

11.3.4 Standard Working Condition

- a) Elevation :  $\leq 2000\text{m}$  ;
- b) Ambient temperature :  $-35^{\circ}\text{C}\sim+70^{\circ}\text{C}$ ;
- c) Pollution level 3 ;
- d) Storage :  $-40^{\circ}\text{C}\sim+75^{\circ}\text{C}$ ;

11.3.5 Outline and installation dimensions (fig 13)





11.4 external accessories

11.4.1 Specification and model description

plug-in type & drawout type :

1    / 5Z-630  
 | | | |  
 1 2 3 4 5

Num	description	
1	Function code	PI : plug in type; DT: drawout type;
2	Design code	1
3	Connecting position	FC : front connection;; RC: rear connection
4	Connecting condition	1 : horizontal connection; 2 : vertical connection
5	Product spec	JDA-5Z-630

rear connection :

1 / 5Z-630  
 | |  
 1 2 3

Num	description	
1	Function code	RC : rear connection;
2	Design code	1
3	Connecting position	JDA-5Z-630

motor operation :

1 -  / 5Z-630  
 | | |  
 1 2 3 4

Num	description	
1	Function code	DC : motor operation;
2	Design code	1
3	Voltage spec	02:24V; 11:110V; 22:220V; 38:400V
4	Product spec	JDA-5Z-630



handle operation :

□ 1 - □ / 5Z-630  
 1 2 3 4

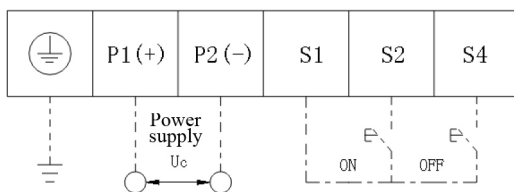
Num	description	
1	Function code	HD : handle operation
2	Design code	1
3	handle category	Cl : circular; SQ: square ( high protection )
4	Product spec	JDA-5Z-630

11.4.2 Main technical parameters

motor operation :

rated control circuit voltage (V)	work current	motor power	connecting capability	signal keep time
DC24V	6A	35W	10~22AWG	100ms+
AC110/DC110	0.8A			
AC230/DC220	0.8A			

connect mode



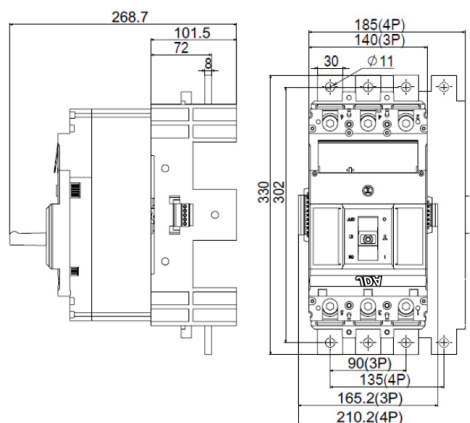
11.4.3 Normal working environment

- a) Elevation : ≤2000m;
- b) Ambient air temperature : -35°C~+ 70°C;
- c) Class of pollution 3;
- d) storage environment : -40°C~+75°C;

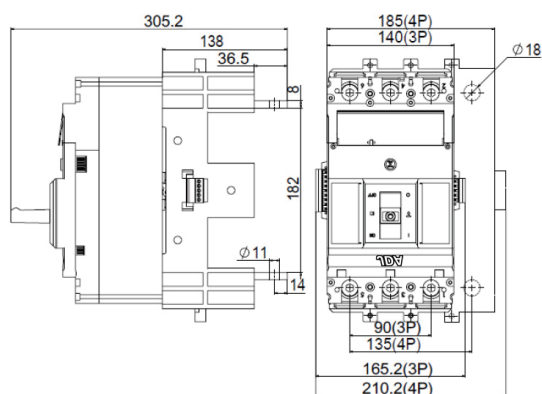
11.4.4 Outline and installation dimensions

plug-in type

1) front horizontal connection

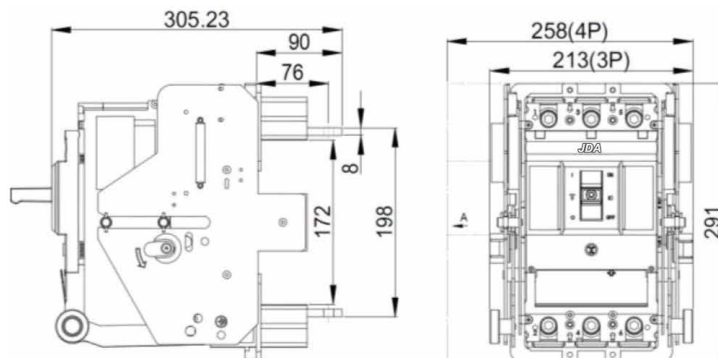


2) rear horizontal connection



drawout type

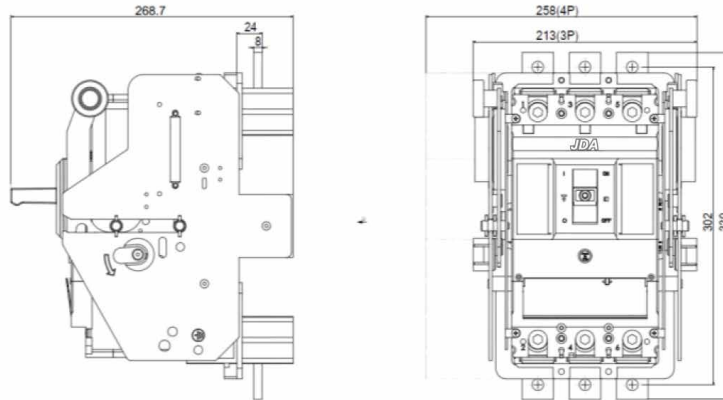
1) front horizontal connection



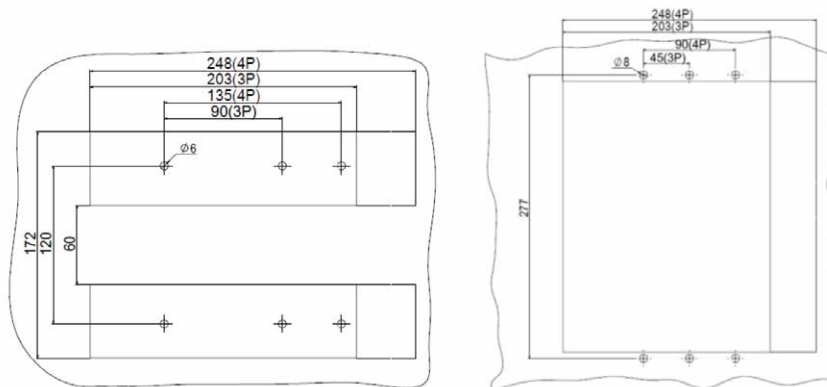




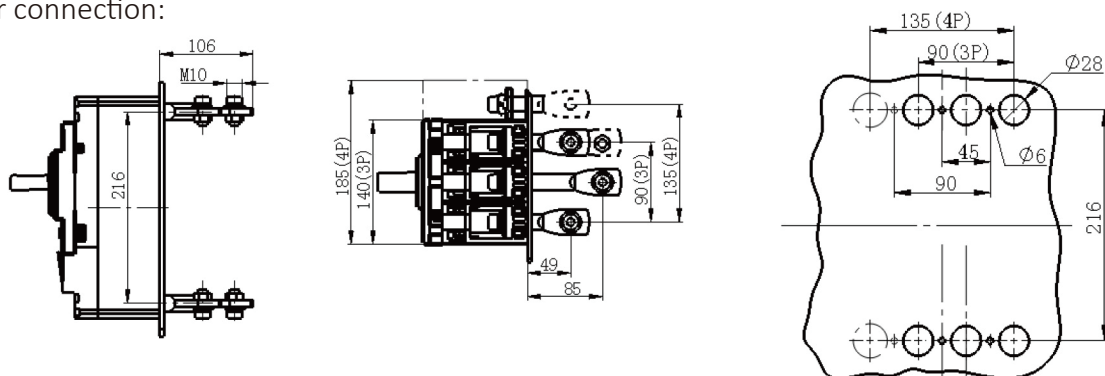
2) rear horizontal connection



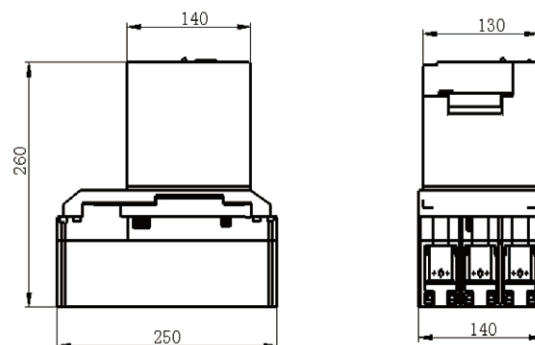
3) Product installation dimensions



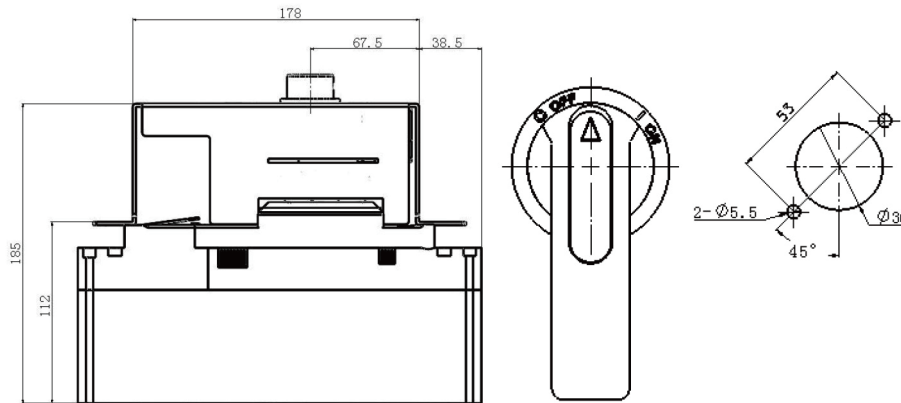
Rear connection:



motor operation:



handle operation



**12. Packaging and storage**

Minimum packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse without acidic, alkali or other corrosive gas in the surrounding air. Users shall obey the storage and use conditions. In case of product damage or abnormal use due to manufacturing quality issues within 18 months from the date of factory delivery, the factory shall be responsible for free maintenance or replacement.

**13. List of product accessories (table 10)**

**Table 10**

SN	Name	Specifications	Quantity/Set	
			3P	4P
1	Cross small pan-head screw(s)	M5× 110	4	4
2	Plain washer	5	4	4
3	Spring washer	5	4	4
4	Hexagon nut(s)	M5	4	4
5	Partition	-	4	6


**14. Precautions**

- 1) The performance parameters of this specification are suitable for normal conditions. For special requirements, put the equipment into use after consulting the company with formal confirmation and re adjusting parameters by the company.
- 2) The circuit breaker, tripping unit or other accessories can only be installed and maintained by the trained or qualified professionals;
- 3) Ensure that the power supply is off before installing or removing any device;



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