



Molded Case Circuit Breaker JDA-3Z-125/ 250/ 400/ 630/ 800



1. Application Scope and Purpose

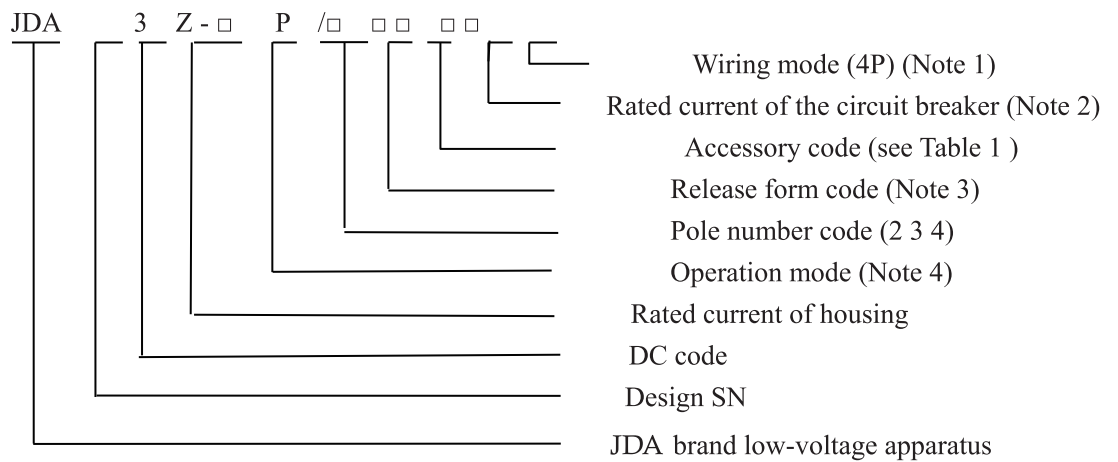
The JDA-3Z series of molded case DC circuit breakers (referred to as circuit breakers) apply to the DC system with the rated working DC voltage less than 1000V, and the rated working current to 800A. The circuit breaker features the overload, short circuit and undervoltage protection functions. It can protect lines and power equipment from damage caused due to undervoltage and overcurrent. It is widely used in power generation, power transmission, new energy, communication, construction and other fields.

2. Picture of the Product



2P in Series

3. Specification and Model Description



Note 1: Wiring mode of the 4P product: J1, J2, J3, free wiring (see the DC1000V Wiring Diagram)

Note 2: The rated current is: 125A, 250A, 315A, 400A, 630A, 800A

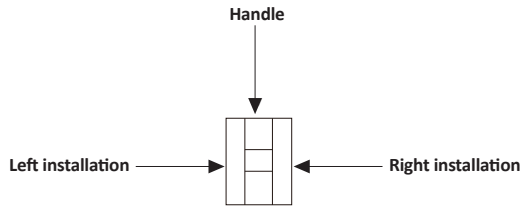
Note 3: Release form code; 125A, 250A, 315A, 400A, 630A, 800A



- 0: Tripper (none)
- 2: Instantaneous tripper only
- 3: Complex tripper

Note 4: No code is available for the direct handle-operated mode; P: Motor-operated; Z: Rotation handle-operated

Table 1: Comparison Table of Accessory Code:



Legend :

- Single auxiliary contact
- Dual-auxiliary contact
- Alarm contact
- Shunt release
- Under-voltage release
- (Single auxiliary & alarm) contact

Accessory code	Accessory name	Installation position		Model																	
				2			3			4			2			3			4		
				2	3	4	2	3	4	2	3	4	2	3	4	2	3	4			
00	None	---																			
10	Shunt release																				
20	Dual-auxiliary contact																				
21	Single auxiliary contact																				
30	Under-voltage release																				
40	Shunt release, dual-auxiliary contact																				
41	Shunt release, single-auxiliary contact																				
50	Shunt release, under-voltage release																				
60	Two sets of dual auxiliary contacts																				
61	Two sets of single auxiliary contacts																				
62	Dual-auxiliary contact, single auxiliary contact																				
70	Under-voltage release, dual-auxiliary contact																				
71	Under-voltage release, single auxiliary contact																				
08	Alarm contact																				
18	Shunt release, alarm contact																				
28	Dual-auxiliary contact, alarm contact																				
38	Under-voltage release, alarm contact																---				
48	Shunt release, single auxiliary / alarm contact																				
58	Single auxiliary / alarm contact																				
68	Dual-auxiliary contact, single auxiliary / alarm contact																				
78	Under-voltage release, single auxiliary / alarm contact																---				

4. Main Technical Parameters

1) Electrical characteristics

- ▲ Rated insulation voltage U_i : 1000V
- ▲ Rated working voltage U_e : DC500V (2P in series), DC 750V (3P in series), DC 1000V (4P in series)
- ▲ Rated current of housing I_{nm} : 400A
- ▲ Rated limit short-circuit breaking current I_{cu} : DC750V, DC1000V: 40 KA; DC500V: 35kA
- ▲ Rated operating short-circuit breaking current I_{cs} : DC750V, DC1000V: 40 KA; DC500V: 35kA
- ▲ Rated working current of the auxiliary contact: AC400V, 0.3A
- ▲ The conventional thermal current of the auxiliary contact: 3A

2) Operating performance

- ▲ With electricity: 1,000 times
- ▲ Without electricity: 5,000 times

3) Wiring mode

2P Normal Wiring

3P free wiring, 3Pmixed wiring, J1-type wiring, J2-type wiring, J3-type wiring, 4P free wiring;

4) Connection capacity:

Rated current A	225	250	315/350	400
Wire cross-section area mm^2	95	120	185	240

Tightening torque value of terminal/mounting screw

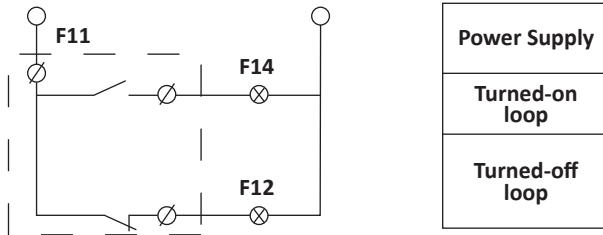
SN	Frame size rated current	Thread diameter	Torque value
1	JDA-3Z-400	M10	20
		M6	6

5) Auxiliary contact

① Auxiliary contact and its combination

Breaker in position "OPEN" or "FREE TRIP"	Double auxiliary contacts	F14 _____ F11 F12 _____ F21	F24 _____ F21 F22 _____
	Single auxiliary contact	F14 _____ F11 F12 _____	
Breaker in position "CLOSED"	From "CLOSED" to "OPEN" ; From "OPEN" to "CLOSE".		

② Wiring diagram of the auxiliary contact



③ Current parameters of the auxiliary contact

Frame Size	Conventional Thermal Current I _{th}	Rated Current at AC 400V
100-800	3A	0.30A

④ Electrical life of the auxiliary contact

Utilisation Category	Making			Breaking			Times	Operating Frequency (times/h)	Duration under Current
	I/I _e	U/U _e	COSφ	I/I _e	U/U _e	COSφ			
AC-15	10	1	0.3	1	1	0.3	6050	360	≥0.05s
DC-13	1	1	6P _e	1	1	6P _e			≥T0.95

⑤ Making and breaking capacity of the auxiliary contact

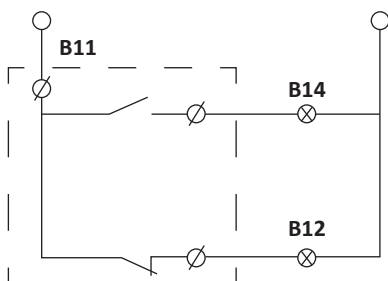
Utilisation Category	Making			Breaking			Times	Operating Frequency (times/h)	Duration under Current
	I/I _e	U/U _e	COSφ	I/I _e	U/U _e	COSφ			
AC-15	10	1.1	0.3	1.0	1.1	0.3	10	120	≥0.05s
DC-13	1.1	1.1	6P _e	1.1	1.1	6P _e			≥T0.95

6) Alarm contact

① Alarm contact and its combination

Alarm Contact and Its Combination	Alarm contact U _e =220V, I _{th} =3A
Breaker in the position "OPEN", "CLOSED"	
Breaker in the position "FREE TRIP"	

② Wiring diagram of the alarm contact



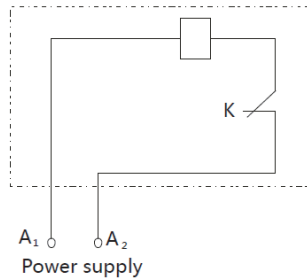
During normal on-off of the circuit breaker, the contact won't act and only change its original status after free tripping (or fault trip) with the normally-open state changed to be closed and normally-closed state changed to be open. After the circuit breaker is tripper, the contact will be restored to the original position.

③ Alarm contact parameters

$U_e=220V, I_{th}=3A$

7) Shunt tripper

① Wiring diagram of the shunt release



② Control voltage of the shunt release:

AC 50HZ 230V 400V
DC 24V 220V

With the rated control voltage within 70%-110%, the shunt release should make the reliable tripping under all the operation conditions.

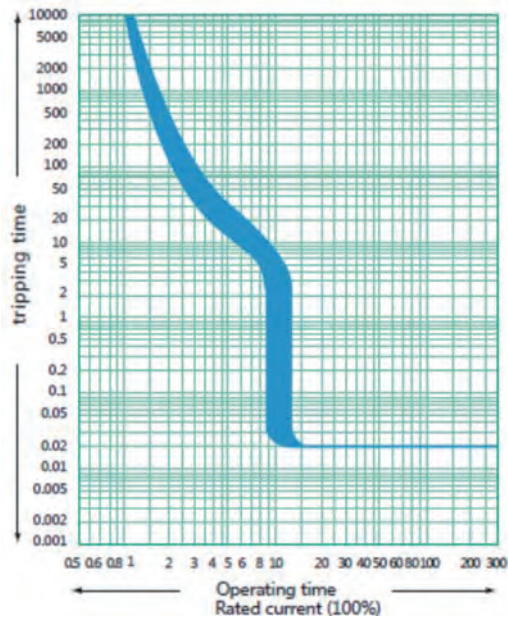
③ Instantaneous acting current and power consumption of the shunt release

Type	Instantaneous current (A)				Power consumption (W)			
	AC 400V	AC 230V	DC 220V	DC 24V	AC 400V	AC 230V	DC 220V	DC 24V
NDM3Z-125	0.288	0.425	0.341	4	96.8	73	90.7	91.2
NDM3Z-250	0.313	0.412	0.341	3.87	112	68.8	90.7	85.3
NDM3Z-400	0.197	0.325	0.4	3.87	67	62.3	94.4	100
NDM3Z-630	0.199	0.314	0.4	3.87	68	58.2	94.4	100
NDM3Z-800	0.196	0.320	0.4	3.87	68	59.4	94.4	100

5. Normal Working Environment

- ▲ Altitude: $\leq 2000m$ (if the altitude is higher than 2000m, consider reducing the capacity, as shown in the Attached Sheet of Derating Factor).
- ▲ Ambient temperature: $-30^{\circ}C \sim +70^{\circ}C$ (if the temperature is higher than $50^{\circ}C$, consider reducing the capacity, as shown in the Attached Sheet of Derating Factor; negotiate with the factory in case the temperature is lower than $-25^{\circ}C$).
- ▲ The relative humidity at an ambient temperature of $+40^{\circ}C$ should not exceed 50%. A higher relative humidity is allowed at a lower temperature. For example, the relative humidity at $20^{\circ}C$ can reach 90%. For frost due to temperature change, the corresponding measures should be taken.
- ▲ Pollution level: 3.
- ▲ The product can withstand the effects of wet air, salt mist and oil mist.
- ▲ The maximum gradient is 22.5° .
- ▲ 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.
- ▲ In case of harsh service conditions than then above description, please contact with manufacturer.

6. Tripping Characteristics



JDA3Z-400 Time/Current Characteristic Curve

7. Derating Factor Table

1) Derating factor of the ambient temperature for the circuit breaker

	Derating coefficient (In)						
	+40°C	+45°C	+50°C	+55°C	+60°C	+65°C	+70°C
JDA-3Z-125	1	1	1	0.96	0.91	0.85	0.78
JDA-3Z-250	1	1	1	0.95	0.93	0.91	0.88
JDA-3Z-400	1	1	1	0.93	0.91	0.89	0.85
JDA-3Z-600	1	1	1	0.92	0.9	0.89	0.83
JDA-3Z-800	1	1	1	0.92	0.89	0.85	0.8

Note 1: The above derating factors are measured at the frame current

Note 2: Reduced capacity isn't considered at **45°C and 50°C**; during order, indicate

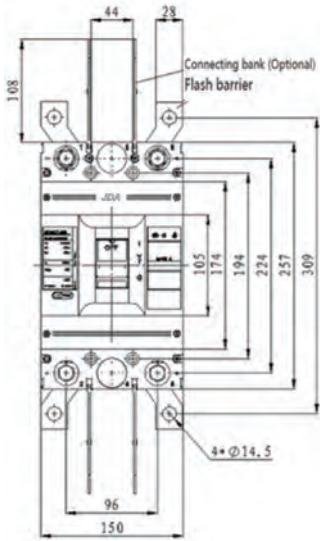
2) Derating factor of the altitude for the circuit breaker

Altitude (m)	2000	3000	4000	5000
Rated power frequency withstand voltage	U	U	U	U
Max. working voltage	Ue	Ue	Ue	Ue
Rated working current	In	0.97In	0.93In	0.89In

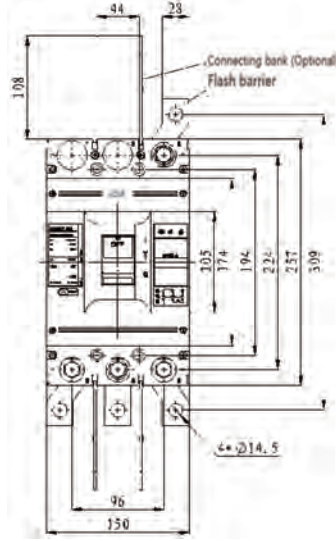
8. Outline, Installation Dimensions and Wiring Diagram

1) Outline and installation dimensions

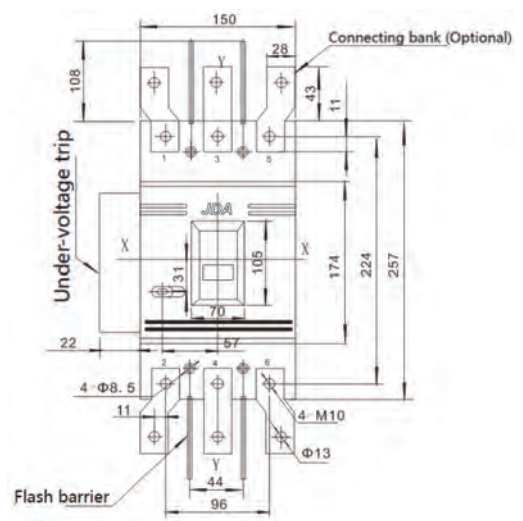
2P



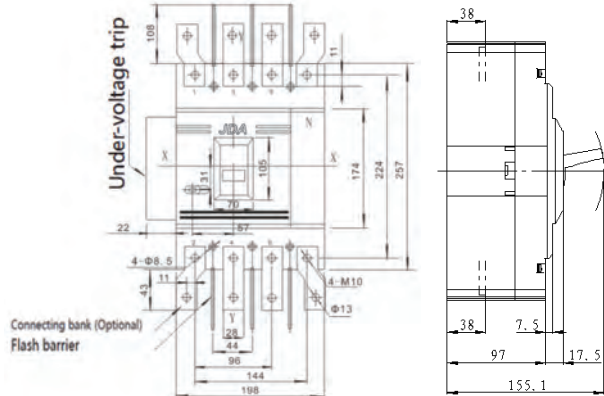
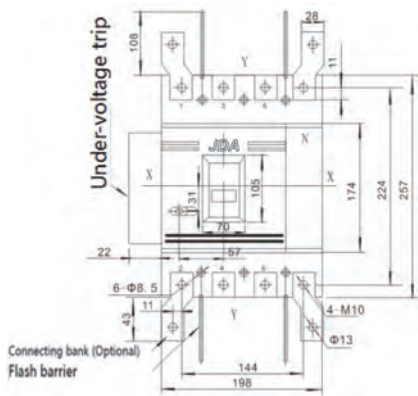
3P



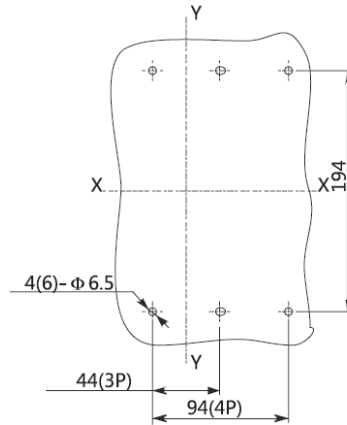
3P Free Wiring



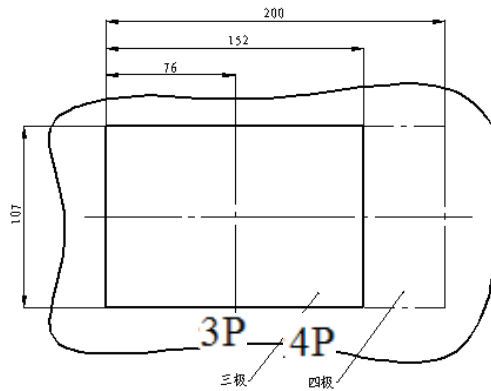
4P Normal Installation Dimension Diagram4P Free Wiring



Dimensions of the Front-plate Connection Mounting Plate Hole (Interchangeable for 2P and 3P)



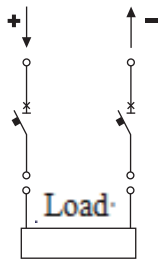
Dimensions of Cabinet Door Panel Hole



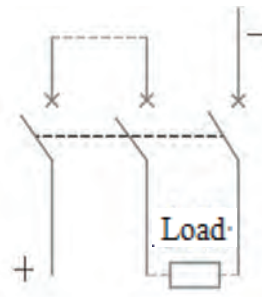
1) Product wiring diagram

Product wiring diagram

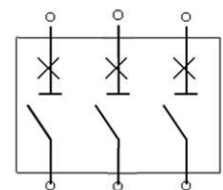
2P Wiring Diagram



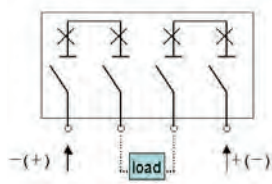
3P Wiring Diagram



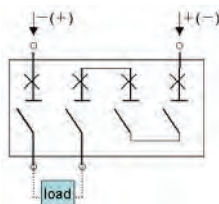
3P Free Wiring



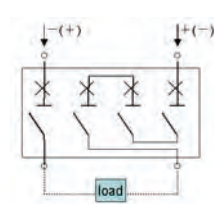
DC1000V Wiring Diagram



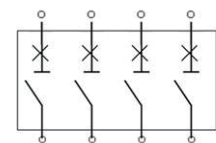
J1-type



J2-type



J3-type



4P Free Wiring

9. Installation Mode

The product can be installed horizontally or vertically

10. Packaging and Storage

Minimum packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse with the ambient temperature of $-35^{\circ}\text{C}\sim 75^{\circ}\text{C}$ and the corresponding relative humidity below 80% without acidic, alkali or other corrosive gas in the surrounding air. Under the conditions above, the storage period shall be no more than 36 months since the manufacturing date.

11. List of Accessories and Installation

SN	Name	Specification	Quantity/Set (2P)	Quantity/Set (3P)	Quantity/Set (4P)
1	Cross small pan-head screws	M6X70	4	4	6
2.	Plain washer	6	4	4	6
3	Spring washer	6	4	4	6
4	Hexagon nut	M6	4	4	6
5	Phase partition	—	4	3 or 4 (free wiring)	4 or 6 (free wiring)
6	JDA3Z-400 plug	—	6	6	8

Precautions

- ▲ Various characteristics and accessories of the circuit breaker are set in the factory, which shall not be adjusted randomly;
- ▲ The circuit breaker handle can be located in three positions, indicating three states: on, off and free tripping. When the handle is in the free tripping position, pull the handle in the off direction when the circuit breaker is connected and on.
- ▲ Make sure to add a phase partition for product use.