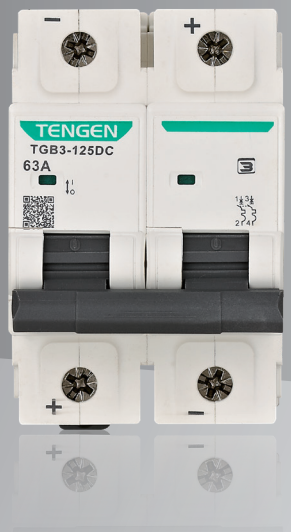


TGB3-125DC

Series DC Circuit Breaker

TGB3-125DC Series DC Circuit Breaker

1 Overview

TGB3-125DC series DC circuit breaker are primarily used in the low-voltage terminal distribution systems in the fields of new energy, communications, and they have overload, short circuit protection, isolation, and DC system protection functions.

The product complies with the following standards: GB/T 14048.2.

2 Working Environmental Conditions

- Altitude: Not exceed 2000m;
- Ambient air temperature: -35°C~+70°C; the mean temperature within 24h does not exceed +40°C;
- Atmospheric conditions: The relative humidity of the air does not exceed 50% at a maximum temperature of +40°C. Higher relative humidity can be allowed at lower temperatures, for example, the relative humidity is 90% at +20°C.

TGB3-125DC Series DC Circuit Breaker

3 Type Designation

TG B 3 - □ □ □ □ □ □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Enterprise code	
②	Circuit breakers	
③	Design No.	
④	Frame current (A)	125
⑤	Breaking capacity	Default: 6kA
⑥	Derived code	DC: DC
⑦	Number of poles	1P, 2P
⑧	Trip characteristics	Type B Type C
⑨	Rated current (A)	63, 80, 100, 125

4 Technical Parameters

Table 1

Model	TGB3-125DC
Standard	GB/T 14048.2
Product certification	CCC
Frame current (A)	125
Number of poles	1P, 2P
Rated current In (A)	63, 80, 100, 125
Rated voltage Ue (V)	DC250V(1P) DC500V(2P)
Rated insulation voltage Ui (V)	690
Rated impulse withstand voltage Uimp (kV)	6
Rated limit short-circuit breaking capacity Icu (kA)	6
Rated operating short-circuit breaking capacity Ics (kA)	6
Trip type	Thermal magnetic trip

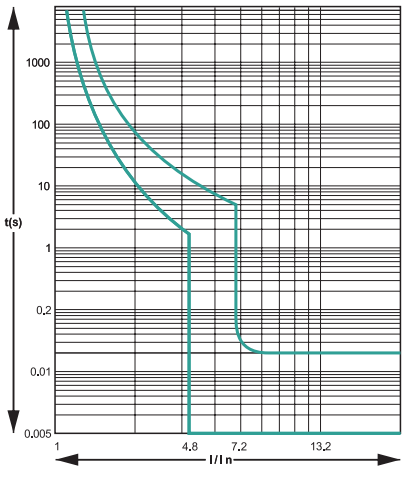
TGB3-125DC Series DC Circuit Breaker

Model	TGB3-125DC
Instantaneous trip characteristics (In)	B: 6±20% C: 11±20%
Pollution degree	3
Protection grade	IP20
Mechanical life	20,000 times
Electrical life	6000 times (In ≤ 100A) 4000 times (In > 100A)
Ambinet temp.	-35°C~+70°C
Altitude of installation site	≤2000m
Max. wiring capacity (mm^2)	50
Max. limit torque (N.m)	3.5
Installation category	Class II, III
Installation method	TH35-7.5 standard rail
Accessories	OF3: Aux. contact SD3: Alarm contact OF + OF3: Dual aux. integrated contact OF + SD3: Aux. and alarm integrated contact MX3: Shunt release MX + OF3: Shunt aux. release MV3: Overvoltage release MN3: Undervoltage release MV + MN3: Overvoltage / Undervoltage release MNs3: Undervoltage release

5 Characteristic Curves

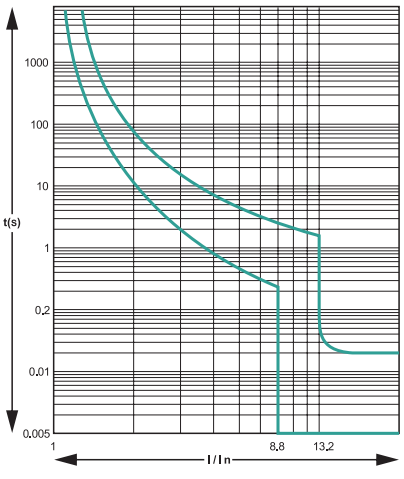
B type curve

Protection against loads with low short circuit current
(e.g. non-inductive or micro-inductive circuits)
Trip characteristics: Instantaneous trip range (6In±20%)



C type curve

Protection against conventional loads and distribution cables
Trip characteristics: Instantaneous trip range (11In±20%)



TGB3-125DC Series DC Circuit Breaker

6 Temperature Correction Factors Table

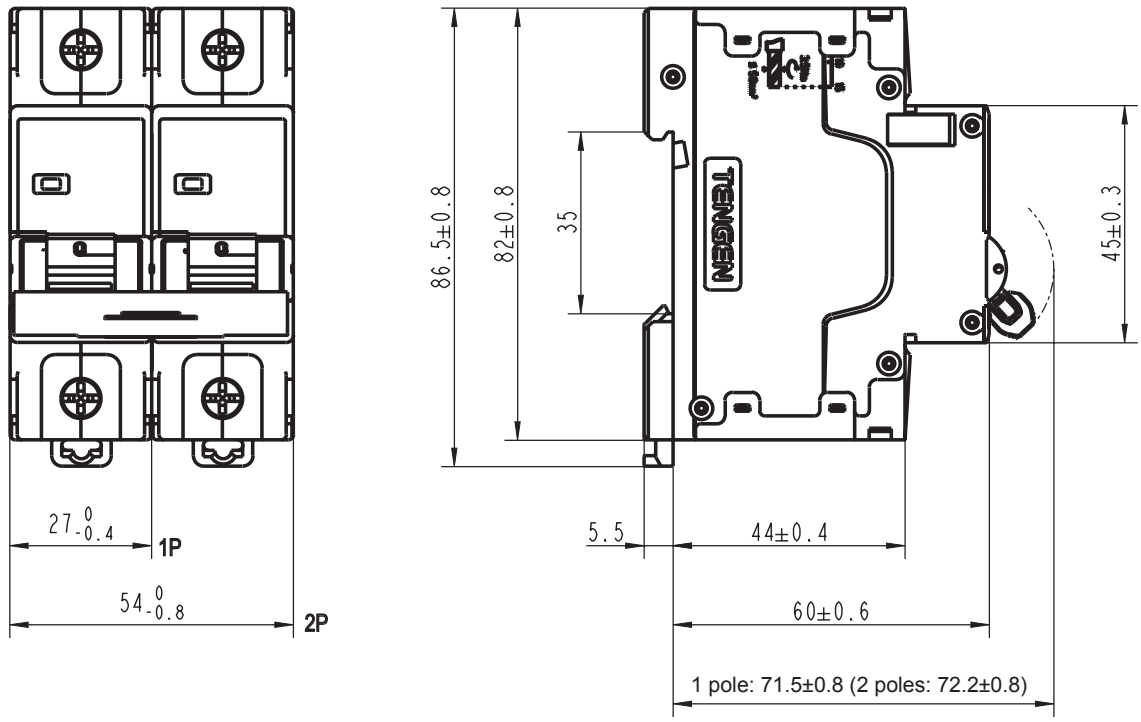
TGB3-125DC Temperature Correction Factors Table

Table 2

Rated current A	Correction current A											
	-35°C	-30°C	-25°C	-20°C	-15°C	-10°C	-5°C	0°C	5°C	10°C	15°C	20°C
63	85.7	84.4	83.5	82	80.6	79.2	77.7	76.2	74.7	73.1	71.5	69.9
80	128	124	120	115	111	107	103	99	96	93	90	88
100	150	146	142	138	133	129	125	121	117	114	111	108
125	185	181	176	171	166.5	162	157.5	153	149	145	141	137

Rated current A	Correction current A									
	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
63	68.2	66.5	64.8	63	60.1	58.2	56.2	54.1	52	49.8
80	86	84	82	80	75.5	72.5	68	64.5	58	52.5
100	106	104	102	100	94	88	82	75	68	58
125	133.5	130	127.5	125	115	105	95	85	75	65

7 Outline and Installation Dimensions



TGB3 Accessories

1 Overview

TGB3 series accessory products are mainly assembled with TGB3 series products, including aux. contact OF3, alarm contact SD3, aux. and alarm integrated contact OF+SD3, OF+OF3 double aux. integrated contact, shunt release MX3, shunt auxiliary release MX+OF3, overvoltage release MV3, undervoltage release MN3, over-undervoltage release MV+MN3, and undervoltage release MNs3 accessories. For specific standards, see Table 1.

Table 1

Accessory model	Standard
OF3/SD3	GB/T 14048.5, IEC/EN 60947-5
OF+SD3/OF+OF3	GB/T 14048.5
MX3/MX+OF3	GB/T 14048.1
MV3/MN3/MNs3/MV+MN3	GB/T 14048.2

2 Purpose and Parameters of Accessories

2.1 OF3 Aux. Contact

● Purpose

Purpose
Located on the left side of the circuit breaker, indicating the ON/OFF state of the circuit breaker.

● Technical Parameters

Table 2

Name & Model	Operating voltage (V)	Rated current (A)	Conventional thermal current (A)	Number of contact pairs	Use category
Aux. contact OF3	AC 415	3	6A	1 (One normally open and one normally closed)	AC12
	AC 240	6			
	DC 130	1			DC12
	DC 48	2			
	DC 24	6			

Note: When the product is in the OFF state, 11 and 12 are connected, and 11 and 14 are disconnected;
When the product is in the ON state, 11 and 12 are disconnected, and 11 and 14 are connected;

TGB3 Accessories

2.2 SD3 Alarm Contact

● Purpose

Located on the left side of the circuit breaker, indicating the Trip fault state of the circuit breaker.

● Technical Parameters

Table 3

Name & Model	Operating voltage (V)	Rated current (A)	Conventional thermal current (A)	Number of contact pairs	Use category
Alarm contact SD3	AC 415	3	6A	1 (One normally open and one normally closed)	AC12
	AC 240	6			
	DC 130	1			DC12
	DC 48	2			
	DC 24	6			

Notes: When the product is in the OFF state, 91 and 92 are connected, and 91 and 94 are disconnected;
When the product is in the ON state, 91 and 92 are connected, and 91 and 94 are disconnected;
When the circuit breaker trips, 91 and 92 are disconnected, and 91 and 94 are connected;

2.3 OF + SD3 Aux. Alarm Integrated Contact

● Purpose

Located on the left side of the circuit breaker, indicating the ON/OFF state and Trip fault state of the circuit breaker.

● Technical Parameters

Table 4

Model	Operating voltage (V)	Rated current (A)	Conventional thermal current (A)	Number of contact pairs	Use category
Aux. Alarm Integrated Contact OF+SD3	AC 415	3	6A	2 (Two normally open and two normally closed)	AC12
	AC 240	6			
	DC 130	1			DC12
	DC 48	2			
	DC 24	6			

TGB3 Accessories

2.4 OF+OF3 Dual Aux. Integrated Contact

● Purpose

Located on the left side of the circuit breaker, indicating the ON/OFF state of the circuit breaker.

● Technical Parameters

Table 5

Model	Operating voltage (V)	Rated current (A)	Conventional thermal current (A)	Number of contact pairs	Use category
Dual Aux. Integrated Contact OF + OF3	AC 415	3	6A	2 (Two normally open and two normally closed)	AC12
	AC 240	6			
	DC 130	1			DC12
	DC 48	2			
	DC 24	6			

2.5 MX3 Shunt Contact

● Purpose

Located on the left side of the circuit breaker to control the trip of the circuit breaker remotely.

● Technical Parameters

Table 6

Model	Min. operating voltage	Max. operating voltage	Operating voltage (V)	Pull-in power (VA)	Use category
Shunt release \MX3	75%Ue	110%Ue	AC 110V-415V	285	AC12
			DC 110-220V	285	DC12
			AC/DC 48V	215	AC12 DC12
			AC/DC 24V	135	
			AC/DC 12V	36	

Note: When DC24V shunt releases are used, the following conditions shall be met: The maximum length of the copper wire shall meet the conditions listed in the table below, and the power at the wiring terminal of the release must meet the minimum 60W requirements.

Table 7

Voltage applied	Specification of external copper wire	
	1.5mm^2	2.5mm^2
100% power voltage	150m	250m

TGB3 Accessories

2.6 MX + OF3 (Active or Passive) Shunt Aux. Release

● Purpose

Located on the left side of the circuit breaker; when obtaining a signal, it can trip the circuit breaker connected and can indicate the ON/OFF state of the circuit breaker.

● Technical Parameters

Table 8

Model	Min. operating voltage	Max. operating voltage	Operating voltage (V)	Pull-in power (VA)	Rated current of indicator contacts (A)	Use category
Shunt Aux. Release MX+OF3	75%Ue	110%Ue	AC 110V-415V	285	1.5	AC12
			AC/DC 48V	215	2	AC12 DC12
			AC/DC 24V	135	6	
			AC/DC 12V	36	6	

Note: When DC24V shunt releases are used, the following conditions shall be met: The maximum length of the copper wire shall meet the conditions listed in the table below, and the power at the wiring terminal of the release must meet the minimum 60W requirements.

Table 9

Voltage applied	Specification of external copper wire	
	1.5mm^2	2.5mm^2
100% power voltage	150m	250m

2.7 MV3 Overvoltage Release

● Purpose

Located on the left side of the circuit breaker to realize the overvoltage protection after assembling with the circuit breaker.

● Technical Parameters

Overvoltage operation value Uo (V): AC280±5%V.

2.8 MN3 Undervoltage Release

● Purpose

Located on the left side of the circuit breaker to realize the undervoltage protection after assembling with the circuit breaker.

● Technical Parameters

Undervoltage operation value Uv (V): AC161±5%V.

TGB3 Accessories

2.9 MV + MN3 (Single–Phase, Three-Phase Four-Wire) Overvoltage / Undervoltage Release

● Purpose

Located on the left side of the circuit breaker for overvoltage and undervoltage protection in the line.

● Technical Parameters

Single–phase, three-phase four-wire overvoltage operation value Uo (V): AC280±5%V;
Single–phase, three-phase four-wire undervoltage operation value Uv (V): AC161±5%V;
Three-phase three-wire overvoltage operation value Uo (V): AC460(1±5%)V;
Three-phase three-wire undervoltage operation value Uv (V): AC300(1±5%)V;
Three-phase three-wire undervoltage operation value Uv (V): AC300(1±5%)V.

2.10 MNs3 Voltage Loss Release

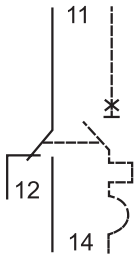
● Purpose

Located on the left side of the circuit breaker for voltage loss protection after assembling with the circuit breaker.

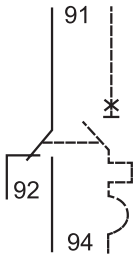
● Technical Parameters

Voltage loss operation value: <80V.

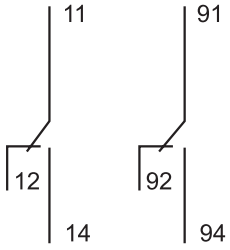
3 Product Wiring Diagram



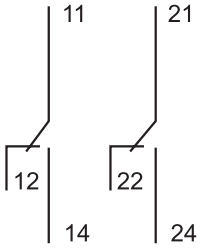
OF3



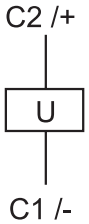
SD3



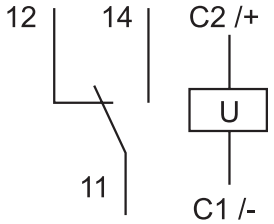
OF+SD3



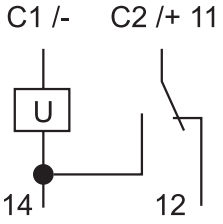
OF+OF3



MX3

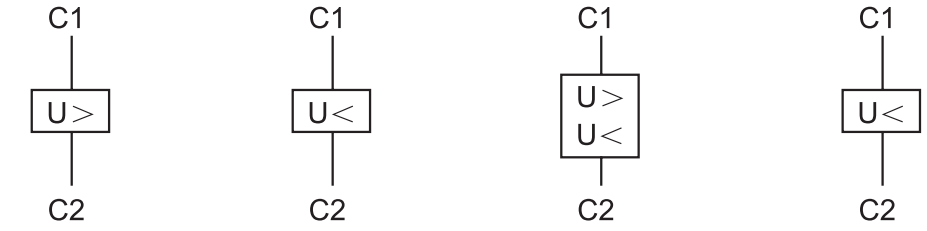


MX + OF3 Passive type



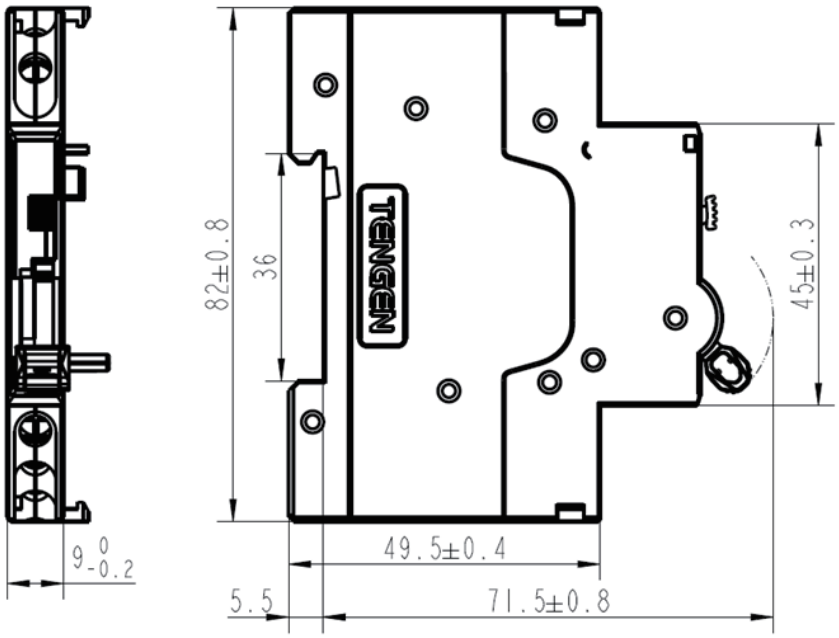
MX + OF3 Active type

TGB3 Accessories



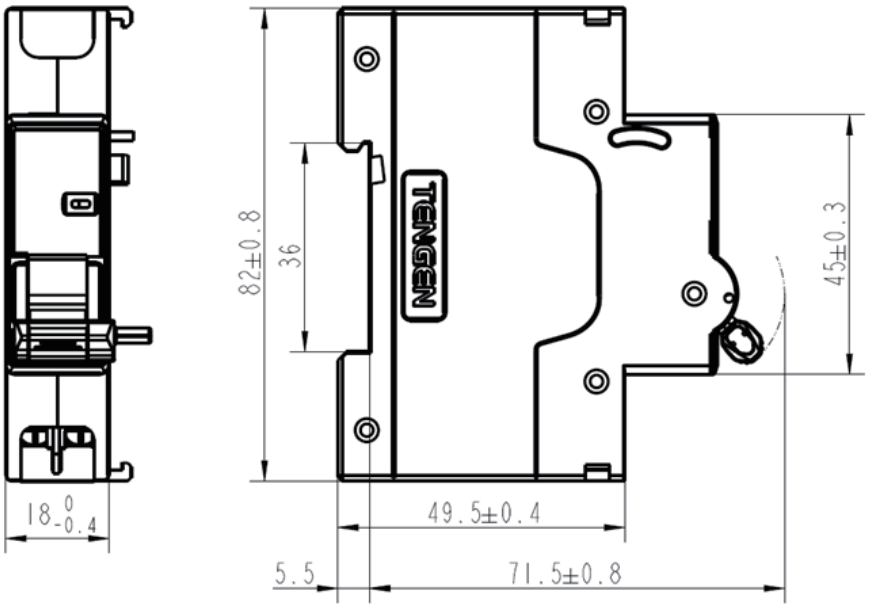
MV3　　MN3　　MV+MN3　　MNs3

4 Outline and Installation Dimensions Diagram



OF3, SD3, OF+SD3, OF+OF3

TGB3 Accessories

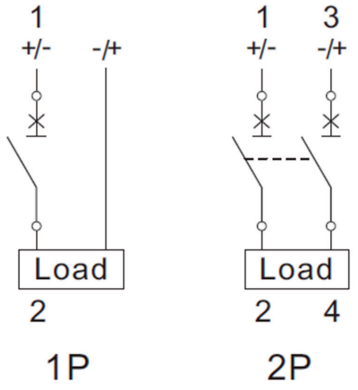


MX3, MX+OF3, MV3, MN3, MV+MN3, MNs3

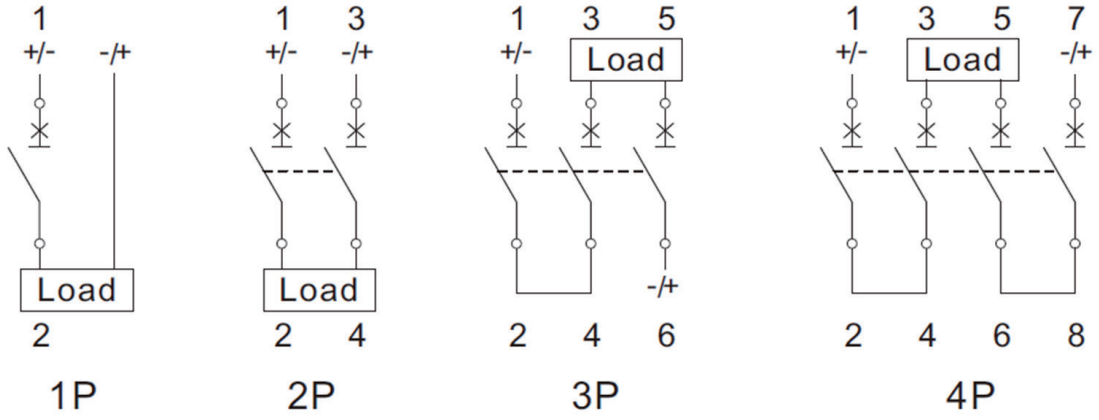
Appendix

DC wiring mode

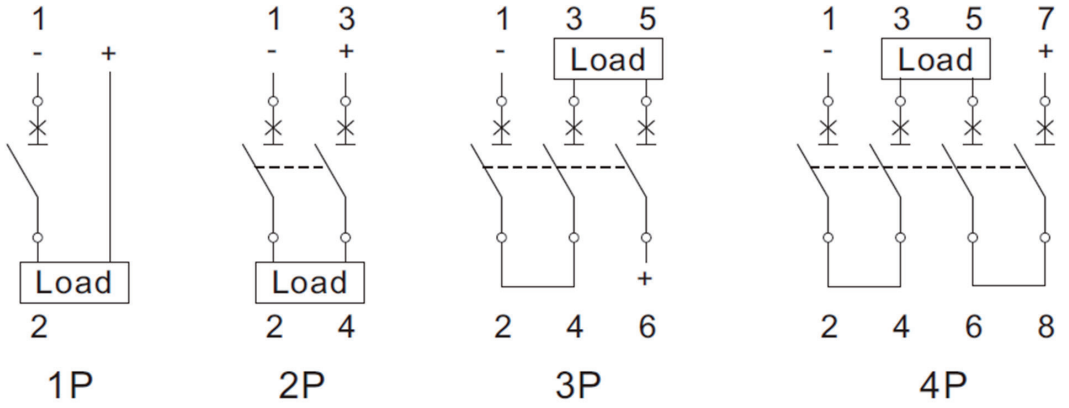
TGB3-63(H)



TGB3Z-63(H)/TGB3-125(H)

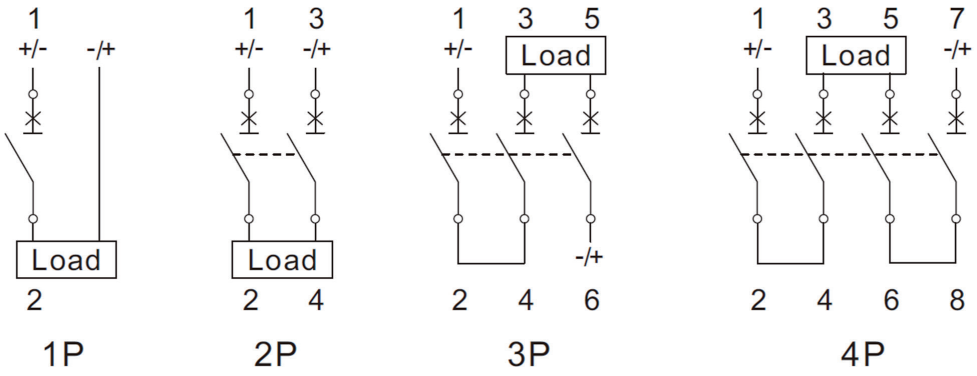


TGB3-63(H)DC

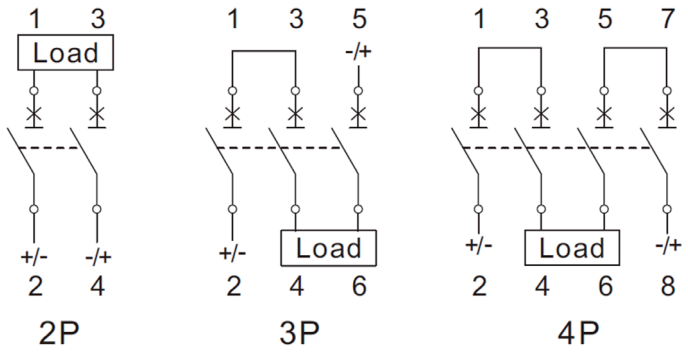


Appendix

TGB3-63HZ



Upper incoming line diagram



Lower incoming line diagram

TGB3-125DC