

TM1Z塑料外壳式直流断路器 TM1Z DC Moulded Case Circuit Breaker

TM1Z系列塑料外壳式直流断路器(以下简称断路器), 是本公司采用国际先进设计、制造技术研制、开发的新型断路器之一。其额定绝缘电压为1000V, 适用于额定工作电压至DC1000V及以下, 额定工作电流至800A及以下的直流电网电路中, 用来分配电能和保护线路及电源设备免受过载、短路等故障的危害。

TM1Z series DC moulded case circuit breaker (hereafter referred to as breakers) are one of the new type breakers which have been developed by the company using international advanced design and manufacturing technology. The rated insulation voltage of the breakers is 1000V, suitable for the DC grid with rated working voltage up to 1000V, and rated working current up to 800A DC power grid. The breakers have overload, short-circuit and under voltage protection devices, so as to protect the circuit and the power equipment against damage.



产品符合:

IEC 60947-1 及 GB/T 14048.1 总则
IEC 60947-2 及 GB 14048.2 低压断路器
获得CCC, CB认证

Products comply with:

IEC 60947-1 and GB/T 14048.1 General requirements
IEC 60947-2 and GB 14048.2 Low-voltage circuit breaker
Access to CCC, CB certifications



适用工作环境 Application Environment Conditions

- 海拔高度2000m及以下;
 - 周围介质温度不高于+40℃和不低于-5℃;
 - 能耐受潮湿空气的影响;
 - 能耐受盐雾、油雾的影响;
 - 能耐受霉菌的影响;
 - 最大倾斜度为 ± 22.5° ;
 - 在受到船舶正常振动时能可靠工作;
 - 在受到地震情况下(4g)能可靠工作;
 - 在无爆炸危险的介质中,且介质为不足以腐蚀金属和破坏绝缘的气体与导电尘埃的地方;
 - 在没有雨雪侵袭的地方。
- Elevation ≤ 2000m
 - Ambient temperature: -5℃ ~ +40℃
 - Breakers can tolerate the influence of moisture in the air.
 - Breakers can tolerate the influence of salt fog and oil fog.
 - Breakers can tolerate the influence of mycete.
 - The gradient ≤ ± 22.5°
 - Be working reliably under the condition of normal vibration on ship.
 - Be working reliably when earthquake (4g) occurring.
 - There must be not any explosive medium, and there must be not any gas which would corrode metal or any con-ducting dust which would destroy the insulation.
 - The place would not be invaded by rain and snow.

保护特性 Protection Feature

- 断路器热动型脱扣器具有反时限特性;电磁脱扣器为瞬时动作,配电特性见表一,电动机保护特性见表二
- The thermodynamic release of a circuit breaker provides the feature of inverse time-delay, while the magnetic release features of instantaneous operation as shown on table 1(distribution circuit breaker) and table 2(motor protection circuit breaker)

表一 Table 1

脱扣器 额定电流(A) Rated current of release (A)	热动型脱扣器(环境温度陆用+40℃) Thermodynamic release (ambient temp. +40℃ for land)		电磁脱扣器 动作电流(A) Electromagnetic release action current (A)
	1.05In(冷态)不动作时间(h) 1.05In(Cold state) not acting time	1.30In(热态)动作时间(h) 1.30In(Heat state) acting time	
10 ≤ In ≤ 63	≥ 1	< 1	10In ± 20%
63 ≤ In ≤ 250	≥ 2	< 2	
225 ≤ In ≤ 800	≥ 2	< 2	5In ± 20% 10In ± 20%

表二 Table 2

脱扣器 额定电流(A) Rated current of release (A)	1.05In(冷态) 不动作时间(h) 1.05In(Cold state) not acting time	1.20In(热态) 动作时间(h) 1.20In(Heat state) acting time	1.5In(冷态) 动作时间 1.5In(Cold state) acting time	7.2In(热态) 动作时间 7.2In(Heat state) acting time	电磁脱扣器 动作电流(A) Electromagnetic release action current (A)
10 ≤ In ≤ 250	≥ 2	≤ 2	4min	4s < TP ≤ 10s	12In ± 20%
225 ≤ In ≤ 800			8min	6s < TP ≤ 20s	

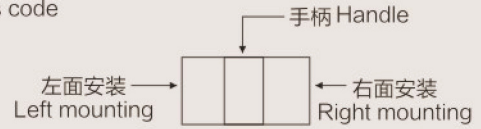


脱扣器方式及附件代号 Release Pattern and Accessories Code

脱扣器方式及附件代号见表三

Table 2 for release pattern and accessories code

- 报警触头 Alarm contact
- 辅助触头 Auxiliary contact
- 分励脱扣器 Shunt release
- 引线方向 Lead direction



两段式

表三 Table 3

代号 Accessories code	附件名称 Accessories name	极数 Pole number	TM1Z-125		TM1Z-250		TM1Z-400 TM1Z-630		TM1Z-800	
			2	3	4	2	3	4	2	3
208,308	报警触头 Alarm contact		← □	← □	← □	← □	← □	← □	← □	← □
210,310	分励脱扣器 Shunt release		← ●	← ●	← ●	← ●	← ●	← ●	← ●	← ●
220,320	辅助触头 Auxiliary contact		← ■	← ■	← ■	← ■	← ■	← ■	← ■	← ■
240,340	分励脱扣器、辅助触头 Shunt release、Auxiliary contact		← ● ■	← ● ■	← ● ■	← ● ■	← ● ■	← ● ■	← ● ■	← ● ■
260,360	二组辅助触头 Two group of auxiliary contact		← ■ ■	← ■ ■	← ■ ■	← ■ ■	← ■ ■	← ■ ■	← ■ ■	← ■ ■
218,318	分励脱扣器、报警触头 Shunt release、Alarm contact		← ● □	← ● □	← ● □	← ● □	← ● □	← ● □	← ● □	← ● □
228,328	辅助触头、报警触头 Auxiliary contact、Alarm contact		← ■ □	← ■ □	← ■ □	← ■ □	← ■ □	← ■ □	← ■ □	← ■ □
248,348	分励脱扣器、辅助触头、报警触头 Shunt release、Auxiliary contact、Alarm contact		← ● ■ □	← ● ■ □	← ● ■ □	← ● ■ □	← ● ■ □	← ● ■ □	← ● ■ □	← ● ■ □
268,368	二组辅助触头、报警触头 Two group of auxiliary contact、Alarm contact		← ■ ■ □	← ■ ■ □	← ■ ■ □	← ■ ■ □	← ■ ■ □	← ■ ■ □	← ■ ■ □	← ■ ■ □

注:

- ◎ 200: 表示仅有电磁脱扣器的断路器本体; 300: 表示带有热-电磁脱扣器的断路器本体;
- ◎ 对TM1Z-125、250四极断路器无218、318、248、348;
- ◎ 对TM1Z-400、TM1Z-630及TM1Z-800其中248、348规格中辅助触头为一对触头(即一常开、一常闭), 268、368规格中的辅助触头为三对触头(即三常开、三常闭)

Note:

- ◎ 200: breaker only has electromagnetic release pattern; 300: breaker has thermo-electromagnetic release pattern.
- ◎ For TM1Z-125, 250 four-pole types circuit breakers, has no following accessories code: 218,318,248,348
- ◎ For TM1Z -400, TM1Z -630 and TM1Z -800, codes 248 348 only have one pair of auxiliary contacts (a normal opened, a normal closed), but 268、368 have three pairs of auxiliary contacts(three normally-opened, three normally-closed)



断路器主要技术性能指标

Main Technical Performance Parameters of the Breaker

◎ TM1Z塑料外壳式直流断路器主要性能指标

Main technical performance parameters of the TM1Z DC moulded case circuit breaker

表四 Table 4

型号 Type	TM1Z-125L	TM1Z-125M	TM1Z-250L	TM1Z-250M	TM1Z-400	TM1Z-630	TM1Z-800
额定电流 Rated current(A)	16,20,25,32,40, 50,63,80,100,125A		100,125,140,160, 180,200,225,250A		225,250,315, 350,400	400,500,630	630,700,800
极数 Pole numbers	2P,3P,4P		2P,3P,4P		3P,4P	3P,4P	3P,4P
直流工作电压 DC working voltage	2P:DC500V		3P:DC750V		4P:DC1000V		
Icu	6kA	15kA	6kA	15kA	6kA	6kA	6kA
Ics	6kA	20kA	6kA	20kA	6kA	6kA	6kA
短路瞬时脱扣器 动作电流值 Action current value of instantaneous short circuit release	10In		10In		5In/10In	5In/10In	5In/10In
飞弧距离(mm) Arc-over distance(mm)	50		50		100	100	150

注：用户订货必须注明工作电压。

Note:When ordering, the working voltage of the breaker must be written clearly.

◎ 连接导线的截面积与相适应的额定电流见表五

Table 5 for the cross-sectional area of wiring cable and corresponding rated current

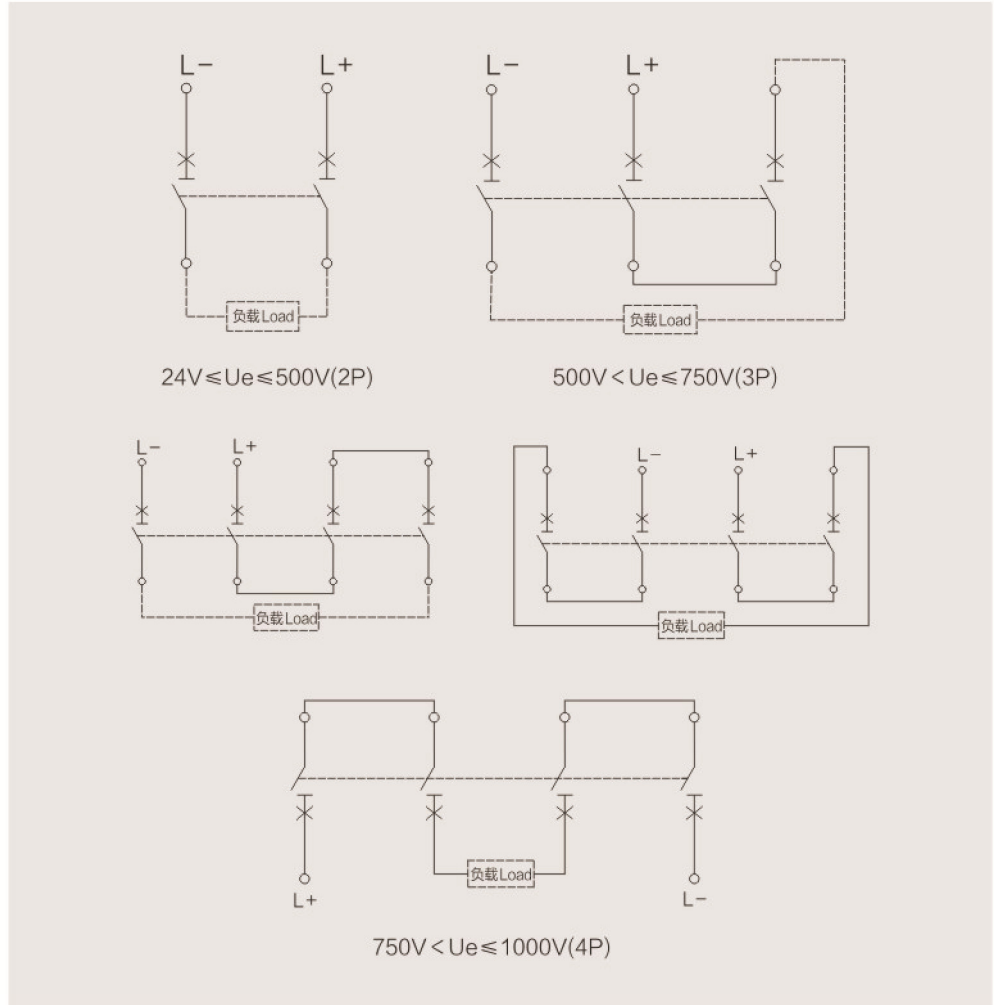
表五 Table 5

额定电流(A) Rated current(A)	10	16 20	25	32	40 50	63	80	100	125 140	160	180 200,225	250	315 350	400
导线截面积 Wire cross- sectional area (mm ²)	1.5	2.5	4	6	10	16	25	35	50	70	95	120	185	240

额定电流(A) Rated current(A)	电缆 Cable		铜排 Copper bar	
	截面积(mm ²) Cross-sectional area	数量 Number	尺寸(mm × mm) Dimensions	数量 Number
500	150	2	30 × 5	2
630, 700	185	2	40 × 5	2
800	200	2	40 × 5	2



直流断路器选型及接线 DC Circuit Breaker Choosing Model and Wiring



注: L+电源正极, L-电源负极

Note: L+ power positive pole, L- power negative pole

降容系数 Capacity-reducing factor

◎ 环境温度变化的降容系数见表六

Capacity-reducing factor for ambient temperature change see following Table 6

表六 Table 6

型号 Type	环境温度 Temp.	+40℃	+45℃	+50℃	+55℃	+60℃
	系数 Factor	降容系数 Capacity-reducing actor	降容系数 Capacity-reducing actor	降容系数 Capacity-reducing actor	降容系数 Capacity-reducing actor	降容系数 Capacity-reducing actor
TM1Z-125		1In	0.95In	0.89In	0.84In	0.76In
TM1Z-250		1In	0.96In	0.91In	0.87In	0.82In
TM1Z-400		1In	0.94In	0.87In	0.81In	0.73In
TM1Z-630		1In	0.93In	0.88In	0.83In	0.76In
TM1Z-800		1In	0.88In	0.83In	0.79In	0.76In

注: 以上降容系数均在电流值等于壳架等级电流下测得

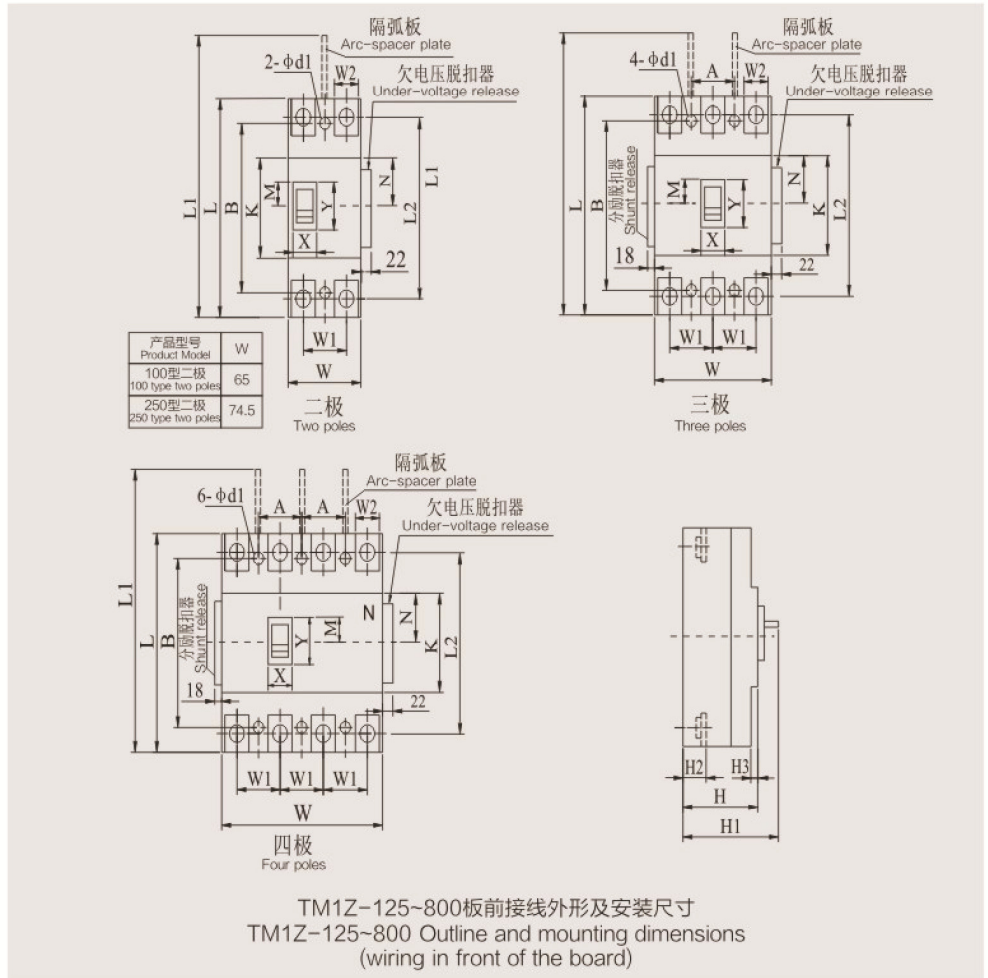
Note: Above capacity-reducing factor are all achieved with rated frame current travelling through.



外形及安装尺寸 Outline and Mounting Dimensions

◎ TM1Z-125、250外形及安装尺寸(板前接线)(见表七)

Outline and mounting dimensions of TM1Z-125、TM1Z-250(wiring in front of the board) shown in table 7



表七 Table 7 mm

型号 Type	板前接线外形尺寸 Outline dimensions of wiring in front of the board														安装尺寸 Mounting dimensions							
	W		L	H	H1	H2	H3	W1	L1	L2	W2	K	N	M		X		Y		A	B	Φd
	3P	4P												3P	4P	3P	4P					
TM1Z-125	92	122	150	86	104	24	7.5	30	200	132	17	89	43	32	27	27	23	67	51	30	129	4
TM1Z-225	107	142	165	103	127	24	6	35	230	144	24	102	51	39	27	27	23	80	54	35	126	5
TM1Z-400	150	198	257	107	155	38	5	48	357	224	31	128	64.5	48	48	66	66	90	90	44	194	7
TM1Z-630	182	240	270	114	160	43	3.5	58	370	234	41	138	69	45	42.5	69	67	96	90	58	200	7
TM1Z-800	210	280	280	117	160	42	5	70	380	243	44	136	65.5	48	48	67	67	82	82	70	243	7.5

订货须知 Ordering Notice

- ◎ 产品型号和名称:
TM1Z-125(L)塑壳式直流断路器;
- ◎ 额定电流, 如80A;
- ◎ 额定电压, 如DC500V
- ◎ 订货数量, 如100台;
- ◎ 订货举例:
TM1Z-125(L)/80A DC500V, 100台。
- ◎ Product model number and name, e.g:
TM1Z-125(L) DC moulded case breaker.
- ◎ Rated current, e.g:80A
- ◎ Rated voltage, e.g:DC500V
- ◎ Ordering number, e.g:100 sets
- ◎ Ordering example:
TM1Z-125(L) /80A DC500V, 100sets