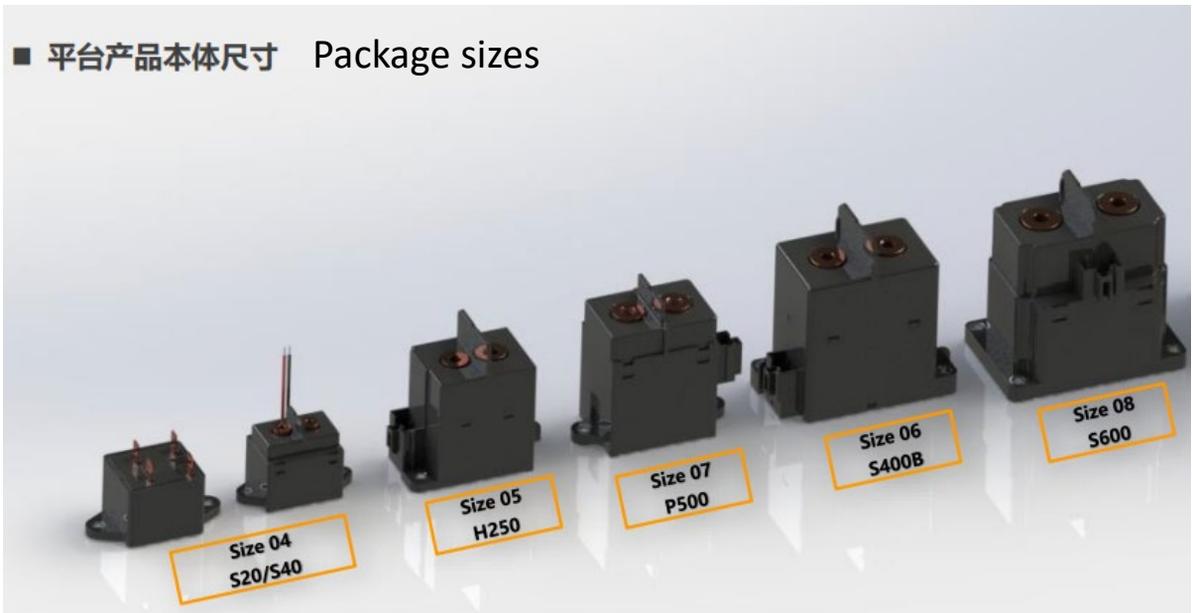


High Voltage DC Contactors - Quick Selection Manual V2.2

HVDC product roadmap



■ 平台产品本体尺寸 Package sizes



产品型号 Model		CHPV-S20/E		CHPV-SH20/E		CHPV-S40/E		CHEV-H250/E-S		
产品图片 Photo										
安规认证 Compliance		UL/TUV		UL/TUV		UL/TUV		UL/TUV/CCC		
Contact parameters	主触点形式 Main contact form	1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		
	辅助触点形式 Auxiliary contact form	/		/		/		1组常开 (无极性) SPST-NO Bi-directional load		
	额定电压 Rated voltage	1000VDC		1000VDC		1000VDC		1000VDC		
	额定电流 Rated current	20A		20A		40A		250A		
	接触电阻 Contact resistance	≤4.5mΩ		≤4.5mΩ		≤3mΩ		≤0.3 mΩ		
	电流耐受 Current withstand	30A, 1h		30A, 1h		60A, 1h		350A: 8min		
		200A, 0.6s		200A, 0.6s		400A, 0.6s		2000A, 1s		
	最大分断电流 maximum breaking current	200A (1000VDC) 1 time次		200A (1000VDC) 1 time次		400A (450VDC) 1 time次		2000A (1000VDC) 1time		
	最大切换功率 Maximum switching power	20KW (1000VDC)		20KW (1000VDC)		40KW (1000VDC) 60KW (1500VDC)		250kW (1000VDC)		
	最大切换电压 Maximum switching voltage	1000VDC		1000VDC		1500VDC		1000VDC		
	dielectric strength	Between contacts and coils	3000VAC 1min		3000VAC 1min		3000VAC 1min		4000VAC 1min	
		Between contacts	4000VAC 1min		4000VAC 1min		4000VAC 1min		4000VAC 1min	
	insulation resistance	Between contacts and coils	> 1000 MΩ (at 1000 VDC)		> 1000 MΩ (at 1000 VDC)		> 1000 MΩ (at 1000 VDC)		> 1000 MΩ (at 1000 VDC)	
Between contacts										
吸合时间 operation time	≤15ms		≤15ms		≤15ms		≤30ms			
释放时间 release time	≤5ms		≤5ms		≤5ms		≤10ms			
Coil parameters	额定电压 rated voltage	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	
	吸合电压 operation voltage	≤9VDC	≤18VDC	≤9VDC	≤18VDC	≤9VDC	≤18VDC	≤9VDC	≤18VDC	
	释放电压 release voltage	≥1VDC	≥2VDC	≥1VDC	≥2VDC	≥1VDC	≥2VDC	≥1VDC	≥2VDC	
	额定功率 rated power	2.6W		2.6W		2.6W		6W		
Life	机械寿命 mechanical life	2×10 ⁵ times		2×10 ⁵ times		2×10 ⁵ times		5×10 ⁵ times		
	电气寿命 Electrical life	Switching: 7.5×10 ⁴ (450VDC,20A) Switching: 1×10 ⁴ times (1000VDC,20A)		Switching: 7.5×10 ⁴ (450VDC,20A) Switching: 1×10 ⁴ times (1000VDC,20A)		Switching: 2×10 ⁴ (450VDC,40A) Switching: 1000times (1000VDC,40A)		Switching: 1000times (1000VDC,250A)		
Impact	强度 strength	147m/s ²		147m/s ²		147m/s ²		147 m/s ²		
	稳定性 stability	98m/s ²		98m/s ²		98m/s ²		98m/s ²		
振动 vibration		10HZ~500HZ, 49m/s ²		10HZ~500HZ, 49m/s ²		10HZ~500HZ, 49m/s ²		10HZ~500HZ,49m/s ²		
Environment	温度 temperature	-40°C~85°C		-40°C~85°C		-40°C~85°C		-40°C~85°C		
	湿度 humidity	5%RH~95%RH		5%RH~95%RH		5%RH~95%RH		5%RH~95%RH		
Install ation	负载端 Load end	QC terminal 引出端		QC terminal 引出端		M4螺丝 screw		M6x12 Combination screw		
	Fixed end of relay	M5螺丝 screw		M5螺丝 screw		M4螺丝 screw		M5螺丝 screw		
产品重量 weight		~139g		~139g		~125g		~450g		
本体尺寸size		size04		size04		size04		size05		

产品型号 model		CHPV-S400B/E	CHPV-S450B/E	CHEV-P500/E	CHPV-S600/E	
产品图片 photo						
安规认证 Compliance		UL/TUV	UL/TUV/CCC	UL/TUV	UL/TUV/CCC	
Contact parameters	主触点形式 Main contact form	1组常开 (无极性) SPST-NO-DM Bi-directional load	1组常开 (无极性) SPST-NO-DM Bi-directional load	1组常开 (无极性) SPST-NO-DM Bi-directional load	1组常开 (无极性) SPST-NO-DM Bi-directional load	
	辅助触点形式 Auxiliary contact form	1组常开 (无极性) SPST-NO Bi-directional load	1组常开 (无极性) SPST-NO Bi-directional load	/	1组常开 (无极性) SPST-NO Bi-directional load	
	额定电压 Rated voltage	1000VDC	1000VDC	1000VDC	1000VDC	
	额定电流 Rated current	400A	450A	500A	600A	
	接触电阻 Contact resistance	0.3mΩ	0.3 m Ω	≤0.3 mΩ	≤0.3 m Ω	
	电流耐受 Current withstand	500A / 2000s	500A: 2000s	700A: 1min	700A: 2000s	
		2000A, 1s	2000A, 1s	2000A: 1s	2000A: 1s	
	最大分断电流 maximum breaking current	2000A (1000VDC) 1time	2000A (1000VDC) 1time	2000A (450VDC) 1time	2000A (1000VDC) 1time	
	最大切换功率 Maximum switching power	400kW (1000VDC)	450KW (1000VDC)	500kW (1000VDC)	600kW (1000VDC)	
	最大切换电压 Maximum switching voltage	1000VDC	1000VDC	1000VDC	1000VDC	
	介电强度 dielectric strength	Between contacts and coils	4000 VAC 1min	4000 VAC 1min	4000VAC 1min	4000 VAC 1min
		Between contacts	4000 VAC 1min	4000 VAC 1min	4000VAC 1min	4000 VAC 1min
	绝缘电阻 insulation resistance	Between contacts and coils	> 1000 MΩ (at 1000 VDC)	> 1000 MΩ (at 1000 VDC)	> 1000 MΩ (at 1000 VDC)	> 1000 MΩ (at 1000 VDC)
		Between contacts				
	吸合时间 operation time	≤50ms	<50ms	≤35ms	<50ms	
释放时间 release time	≤15ms	<15ms	≤15ms	<30ms		
Coil parameters	额定电压 rated voltage	12VDC 24VDC	12VDC 24VDC	12VDC 24VDC	12VDC 24VDC	
	吸合电压 operation voltage	≤9VDC ≤18VDC	≤9VDC ≤18VDC	≤9VDC ≤18VDC	≤9VDC ≤18VDC	
	释放电压 release voltage	≥1.2VDC ≥2.4VDC	≥1.2VDC ≥2.4VDC	≥1VDC ≥2VDC	≥1.2VDC ≥2.4VDC	
	额定功率 rated power	Starting 55W Maintenance 6W	Starting 55W Maintenance 6W	6W	Starting 50W Maintenance 8W	
Life	机械寿命 mechanical life	2×10 ⁵ times	2×10 ⁵ times	1×10 ⁶ times	5×10 ⁵ times	
	电气寿命 Electrical life (阻性负载) (resistive load)	Switching: 6000times (1500VDC,100A) Breaking: 1000times (1500VDC,350A)	Switching: 6000times (1500VDC,100A) Breaking: 1000times (1500VDC,350A)	Switching: 6000times (1000VDC,200A) Switching: 100times (1000VDC,500A) Breaking: 1000times (1000VDC,500A)	Breaking: 1000times (1000VDC,600A) Breaking: 3000times (50VDC,600A)	
Impact	强度 strength	147m/s ²	147m/s ²	490m/s ²	147m/s ²	
	稳定性 stability	98m/s ²	98m/s ²	Non incentive: 98m/s ² incentive: 196m/s ²	98m/s ²	
振动 vibration		10~500Hz, 49m/s ²	10~500Hz, 49m/s ²	10~500Hz, 49m/s ²	10~500Hz, 49m/s ²	
Environment	温度 temperature	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	
	湿度 humidity	5%RH~95%RH	5%RH~95%RH	5%RH~95RH	5%RH~95%RH	
Installation	负载端 Load end	M6x18组合螺丝 Combination screw	M6x18组合螺丝 Combination screw	M8 Combination screw	M10 Combination screw	
	继电器固定端 Fixed end of relay	M6 screw	M6 screw	M6 screw	M6 screw	
产品重量 weight		~900g	~910g	~600g	~900g	
本体尺寸Size		Size 06	Size 06	Size 07	Size 08	

产品型号 Model		CHPV-S20/F		CHPV-SH20/F		CHPV-S40/F		CHPV-S250/F		
产品图片 Photo										
安规认证 Compliance		UL/TUV		UL/TUV进行中		UL/TUV		UL/TUV		
Contact parameters	主触点形式 Main contact form	1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		
	辅助触点形式 Auxiliary contact form	/		/		/		1组常开 (无极性) SPST-NO Bi-directional load		
	额定电压 Rated voltage	1500VDC		1500VDC/1000VDC		1500VDC		1500VDC		
	额定电流 Rated current	20A		20A		40A		250A		
	接触电阻 Contact resistance	≤4.5mΩ		≤4.5mΩ		≤3mΩ		0.3mΩ		
	电流耐受 Current withstand	30A, 1h		30A, 1h		60A, 1h		450A / 20min		
		200A, 0.6s		200A, 0.6s		400A, 0.6s		1000A / 1.8min		
	最大分断电流 maximum breaking current	200A (1000VDC) 1 time		200A (1000VDC) 1 time		400A (450VDC) 1 time		2000A (1000VDC)		
	最大切换功率 Maximum switching power	30KW (1500VDC)		30KW (1500VDC)		40KW (1000VDC) 60KW (1500VDC)		375kW (1500VDC)		
	最大切换电压 Maximum switching voltage	1500VDC		1500VDC		1500VDC		1500VDC		
	dielectric strength	Between contacts and coils	3000VAC 1min		3000VAC 1min		3000VAC 1min		4000 VAC 1min	
		Between contacts	4000VAC 1min		4000VAC 1min		4000VAC 1min		4000 VAC 1min	
	insulation resistance	Between contacts and coils	>1000 MΩ (at 1000 VDC)		>1000 MΩ (at 1000 VDC)		>1000 MΩ (at 1000 VDC)		>1000 MΩ (at 1000 VDC)	
		Between contacts								
吸合时间 operation time	≤15ms		≤15ms		≤15ms		≤50ms			
释放时间 release time	≤5ms		≤5ms		≤5ms		≤15ms			
Coil parameters	额定电压 rated voltage	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	
	吸合电压 operation voltage	≤9VDC	≤18VDC	≤9VDC	≤18VDC	≤9VDC	≤18VDC	≤9VDC	≤18VDC	
	释放电压 release voltage	≥1VDC	≥2VDC	≥1VDC	≥2VDC	≥1VDC	≥2VDC	≥1.2VDC	≥2.4VDC	
	额定功率 rated power	2.6W		2.6W		2.6W		starting55W maintenance6W		
Life	机械寿命 mechanical life	2×10 ⁵ times		2×10 ⁵ times		2×10 ⁵ times		2×10 ⁵ times		
	电气寿命 Electrical life	Switching: 7.5×10 ⁴ (450VDC,20A) Switching: 6000times (1500VDC,20A)		Switching: 7.5×10 ⁴ (450VDC,20A) Switching: 6000times (1500VDC,20A)		Switching: 2×10 ⁴ (450VDC,40A) Switching: 1000times (1000VDC,40A)		Switching: 30 (1500VDC,250A) breaking: 800times (1500VDC,250A)		
Impact	强度 strength	147m/s ²		147m/s ²		147m/s ²		147m/s ²		
	稳定性 stability	98m/s ²		98m/s ²		98m/s ²		98m/s ²		
振动 vibration		10HZ~500HZ, 49m/s ²		10HZ~500HZ, 49m/s ²		10HZ~500HZ, 49m/s ²		10~500HZ, 49m/s ²		
Environment	温度 temperature	-40°C~85°C		-40°C~85°C		-40°C~85°C		-40°C~85°C		
	湿度 humidity	5%RH~95%RH		5%RH~95%RH		5%RH~95%RH		5%RH~95%RH		
Installation	负载端 Load end	QC terminal 引出端		QC terminal 引出端		M4螺丝 screw		M8组合螺钉 Combination screw		
	Fixed end of relay	M5螺丝 screw		M5螺丝 screw		M4螺丝 screw		M5螺钉 screw		
产品重量 weight		~139g		~139g		~125g		~810g		
本体尺寸		Size 04		Size 04		Size 04		Size 06		

产品型号 Model		CHPV-S350B/F		CHPV-S400F		CHPV-S400B/F		CHPV-S450B/F		
产品图片 Photo										
安规认证 Compliance		UL/TUV		UL/TUV		UL/TUV		UL/TUV		
Contact parameters	主触点形式 Main contact form	1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		1组常开 (无极性) SPST-NO-DM Bi-directional load		
	辅助触点形式 Auxiliary contact form	1组常开 (无极性) SPST-NO Bi-directional load		1组常开 (无极性) SPST-NO Bi-directional load		1组常开 (无极性) SPST-NO Bi-directional load		1组常开 (无极性) SPST-NO Bi-directional load		
	额定电压 Rated voltage	1500VDC		1500VDC		1500VDC		1500VDC		
	额定电流 Rated current	350A		400A		400A		450A		
	接触电阻 Contact resistance	0.3mΩ		0.3mΩ		0.3mΩ		0.3mΩ		
	电流耐受 Current withstand	400A / 10min		500A / 2000s		500A / 2000s		500A / 2000s		
		2000A / 1s		2000A / 1s		2000A / 1s		2000A / 1s		
	最大分断电流 maximum breaking current	2000A (1000VDC)		2000A (1000VDC)		2000A (1000VDC)		2000A (1000VDC)		
	最大切换功率 Maximum switching power	525kW (1500VDC)		525kW (1500VDC)		525kW (1500VDC)		675kW (1500VDC)		
	最大切换电压 Maximum switching voltage	1500VDC		1500VDC		1500VDC		1500VDC		
	dielectric strength	Between contacts and coils	4000 VAC 1min		4000 VAC 1min		4000 VAC 1min		4000 VAC 1min	
		Between contacts	4000 VAC 1min		4000 VAC 1min		4000 VAC 1min		4000 VAC 1min	
	insulation resistance	Between contacts and coils	>1000 MΩ (at 1000 VDC)		>1000 MΩ (at 1000 VDC)		>1000 MΩ (at 1000 VDC)		>1000 MΩ (at 1500 VDC)	
		Between contacts								
吸合时间 operation time	≤50ms		≤50ms		≤50ms		≤50ms			
释放时间 release time	≤15ms		≤15ms		≤15ms		≤15ms			
Coil parameters	额定电压 rated voltage	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	
	吸合电压 operation voltage	≤9VDC	≤18VDC	≤9VDC	≤18VDC	≤9VDC	≤18VDC	≤9VDC	≤18VDC	
	释放电压 release voltage	≥1.2VDC	≥2.4VDC	≥1.2VDC	≥2.4VDC	≥1.2VDC	≥2.4VDC	≥1.2VDC	≥2.4VDC	
	额定功率 rated power	Starting 55W Maintenance 6W		Starting 55W Maintenance 6W		Starting 55W Maintenance 6W		Starting 55W Maintenance 6W		
Life	机械寿命 mechanical life	2× 10 ⁵ times		2× 10 ⁵ times		2× 10 ⁵ times		2× 10 ⁵ times		
	电气寿命 Electrical life	breaking: 1000 times (1000VDC,350A) breaking: 300 times (1500VDC,350A)		breaking: 10 times (1500VDC,300A) breaking: 1000 times (1000VDC,400A)		breaking: 10 times (1500VDC,300A) breaking: 1000 times (1000VDC,400A)		breaking: 10 times (1500VDC,300A) breaking: 1000 times (1000VDC,450A)		
Impact	强度 strength	147m/s ²		147m/s ²		147m/s ²		147m/s ²		
	稳定性 stability	98m/s ²		98m/s ²		98m/s ²		98m/s ²		
振动 vibration		10~500Hz, 49m/s ²		10~500Hz, 49m/s ²		10~500Hz, 49m/s ²		10~500Hz, 49m/s ²		
Environment	温度 temperature	-40°C~85°C		-40°C~85°C		-40°C~85°C		5%RH~95%RH		
	湿度 humidity	5%RH~95%RH		5%RH~95%RH		5%RH~95%RH		5%RH~95%RH		
Installation	负载端 Load end	M6x18组合螺丝 Combination screw		M6x18组合螺丝 Combination screw		M6x18组合螺丝 Combination screw		M6x18组合螺丝 Combination screw		
	Fixed end of relay	M6螺丝 screw		M6螺丝 screw		M6螺丝 screw		M6螺丝 screw		
产品重量 weight		~810g		~900g		~900g		~910g		
本体尺寸		Size 06		Size 08		Size 06		Size 06		

Precautions for the use of high-voltage DC relays

1. The environment during use, storage and transportation

1.1 When using, storing and transporting, please avoid direct sunlight, and maintain normal temperature, humidity and pressure, and the recommended storage environment is:

A) Temperature: 0°C~40°C B) Humidity: 5%~85%RH

1.2 In a high humidity environment, when the ambient temperature changes sharply, condensation may occur inside the relay, resulting in the deterioration of the relay insulation, coil disconnection, rust and other phenomena. So please pay attention. A typical example of this environment is on a ship that carries out sea transport.

1.3 Low temperature environment below 0°C . Please be careful that plastic embrittlement may be caused by prolonged storage in a low temperature and low humidity environment. In a low temperature environment below 0°C, be aware of icing. For non-hermetic products, icing can cause malfunctions such as delayed operation or obstruction of movement.

1.4 The contact of CHEV, CHPV series products is in the sealed cavity, the cavity is filled with gas, the leakage rate of the gas and the temperature of the cavity (ambient temperature and the temperature rise generated by the power of the contact) is proportional to the relationship, please ensure that the ambient temperature is within -40 °C ~ +85 °C.

1.5 Avoid using relays near strong magnetic fields (around transformers, magnets) and near heat-generating objects.

1.6 For single-coil products, in order to suppress the reverse electromotive force of the relay coil, it is recommended to install a nonlinear resistor (variable resistor is recommended. Maximum energy tolerance: 1J or more; Voltage: 1.5~2 times of rated voltage). Please note that the use of diodes will greatly increase the release time of the relay, which will definitely lead to a decrease in the cut-off performance.

2. Safety precautions

Please note that when the relay is working normally, there is a risk of electric shock if touched by hand. Please note that when installing, maintaining and troubleshooting relays (including connection parts such as end stations and sockets), please cut off the power supply first. Please note that when connecting the load lead-out, you should refer to the wiring diagram on the product manual before connecting it correctly. If the connection is wrong, it may cause unforeseen misoperation, abnormal heating, fire, etc.

3. Application precautions

3.1 Products with polarity must be used correctly in accordance with the label on the surface of the product. When the load connection is polarized in reverse, the promised electrical characteristics cannot be guaranteed. The polarity of each series of products is described in Table 1.

Table 1

Model	Load	Coil	Auxiliary contacts (Y/N)	Model	Load	Coil	Auxiliary contacts (Y/N)
CHPV-S350B	☆	★	Y	CHPV-S20	☆	☆	N
CHEV-H250	☆	☆	selectable	CHPV-S40	☆	☆	N
CHEV-P500	☆	☆	N	CHPV-S250	☆	★	Y
				CHPV-S350	☆	★	Y
				CHPV-S400	☆	★	Y
				CHPV-S400B	☆	★	Y
				CHPV-S600	☆	★	Y

★:Indicates that there is polarity, and the connection must be connected according to the polarity identification

☆:Indicates non-polarity

Precautions for the use of high-voltage DC relays

3.4 DC relay is a high-voltage DC switching device, which may fail when the number of life and load capacity specified in the manual are exceeded, and a protection circuit that can cut off the load in an emergency should be adopted. As a product with limited life, relays should be replaced in time to ensure safety.

3.5 When installing, ensure that the main power cord is close to the lead end of the relay, and then tighten in the order of flat washer, spring washer, nut, or use the self-locking nut directly. Incorrect connection sequence can cause severe overheating and cause the insulation of the connecting cable to melt.

3.6 The screw locking torque of each part of the relay should be controlled within the range specified in Table 2. Loose screws may cause abnormal heat when energized and cause fire, and may cause damage to the sealed cavity and thread damage when it exceeds the range.

Table 2

Screw	Torque
M4	1.8N·m~2.7N·m
M5	3N·m~4N·m
M6	6N·m~8N·m
M8	9N·m~11N·m
M10	13.5N·m~16.5N·m

3.7 Please avoid adhering foreign objects such as grease on the outlet end of the relay, and use the connecting wires corresponding to the specifications in Table 3, otherwise it may cause abnormal heating at the load end.

Table 3

Current	Wire	Current	Wire
10A	More than 1.5mm ²	150A	More than 50mm ²
20A	More than 2.5mm ²	200A	More than 95mm ²
40A	More than 10mm ²	250A	More than 120mm ²
60A	More than 16mm ²	300A	More than 185mm ²
80A	More than 25mm ²	400A	More than 240mm ²
100A	More than 35mm ²	600A	More than 2x185mm ²

4. Other precautions

4.1 The operation and use above the specification should be avoided, including but not limited to the over-specification use of coil rating, main contact rating and electrical life. In order to avoid abnormal heating phenomena, smoke, fire and other accidents.

4.2 The above only lists the common precautions of current common DC relay products, if you have any questions, please contact the company for more technical support.

4.3 For the description of these precautions and various models of product parameters, there is no prior notice; When Churod and the customer have detailed specifications (such as technical specifications) recognized by both parties, the instructions and requirements related to the product should be implemented according to the detailed specifications.