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XKWA1

智能型万能式断路器



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产品介绍 PRODUCT INTRODUCTION

XKW1系列智能型万能式断路器是无锡新宏泰电器科技股份有限公司推出的新一代断路器,该断路器设计先进,操作简便。具有全智能、高分断、高可靠性、无飞弧、带隔离等特点,适用于交流50Hz,额定工作电压AC690V/AC400V、额定电流200A-6300A的配电网络中,用来分配电能和保护线路及电源设备免受过电流、欠电压、单相接地等故障的危害,同时也可用作隔离开关使用。额定工作电流1000A及以下的断路器,亦可用与交流50Hz、AC400V网络中作为电动机的过载、短路、欠电压及接地故障保护,在正常条件下还可作为电动机的不频繁启动之用。该断路器具有智能保护功能、计算机通讯接口,保护功能完善,避免不必要的停电,提高供电可靠性。

XKW1 series of intelligent air circuit breakers is a new generation of circuit breakers introduced by XiaMen LRONGXK Electrical Technology Co., Ltd. with advanced design and easy operation.It is suitable for AC distribution system with AC 50Hz, rated insulation voltage AC800V, rated working voltage AC690V / AC400V, rated current 200A-6300A. It is used in the distribution network with full intelligent, high breaking, high reliability, no arcing, with isolation. Distribution of power and protection of lines and power equipment from overcurrent, under voltage, single-phase ground fault and other hazards, but also can be used as a disconnecter.Rated current of 1000A and below the circuit breaker, can also be used with AC 50Hz, AC400V network as the motor overload, short circuit, under voltage and ground fault protection, under normal conditions can also be used as infrequent stant of motor.The circuit breaker has intelligent protection function, computer communication interface, protection function is perfect, to avoid unnecessary power failure, improve power supply reliability.

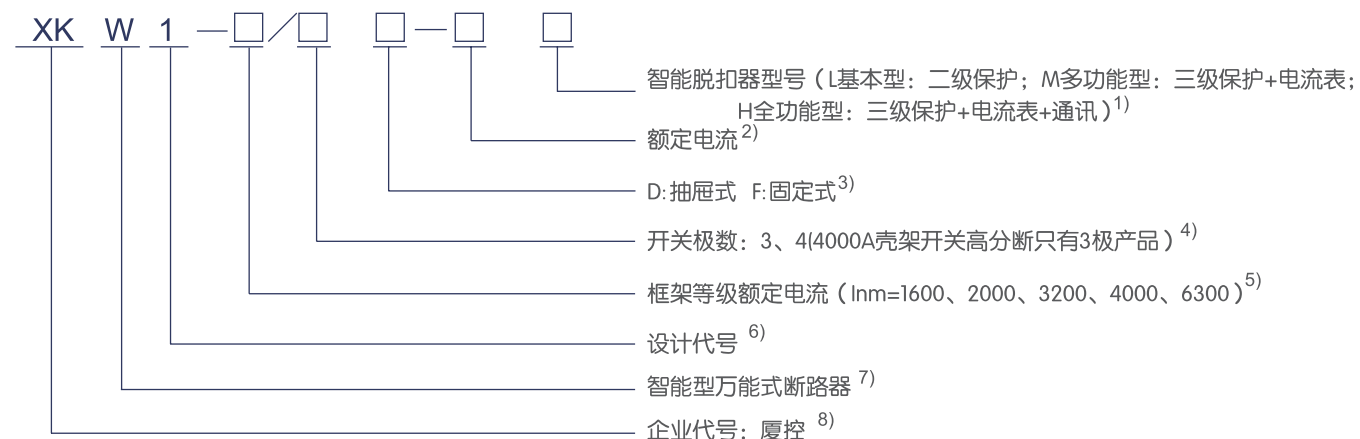
产品特点 Product characteristics

- 短路分断能力高,零飞弧距离;
- 采用微处理技术的智能控制器,具有完善的智能化保护功能,通讯接口可连接计算机等外部设备进行远距离监控;
- 模块化结构设计,安装维护方便;
- 体积小,重量轻,绝缘强度高,运行分断安全可靠。

- High short-circuit breaking ability and zero flashover distance;
- Of complete intelligence protection functions by using intelligent controller of micro-processing technique;Communication interface can be connected to external equipment such as computer, etc for long-distance monitoring;
- Convenient installation and maintenance by modular structural design;
- Small volume, light weight, high insulation strength, safe and reliable operation breaking;

符合标准 Performance standard

- GB/T 14048.1《低压开关设备和控制设备 第1部分: 总则》
- GB/T 14048.2《低压开关设备和控制设备 第2部分: 断路器》
- GB / T 14048. 1 Low-voltage switchgear and controlgear - Part 1: General rules
- GB / T 14048. 2 Low-voltage switchgear and controlgear - Part 2: Circuit-breakers

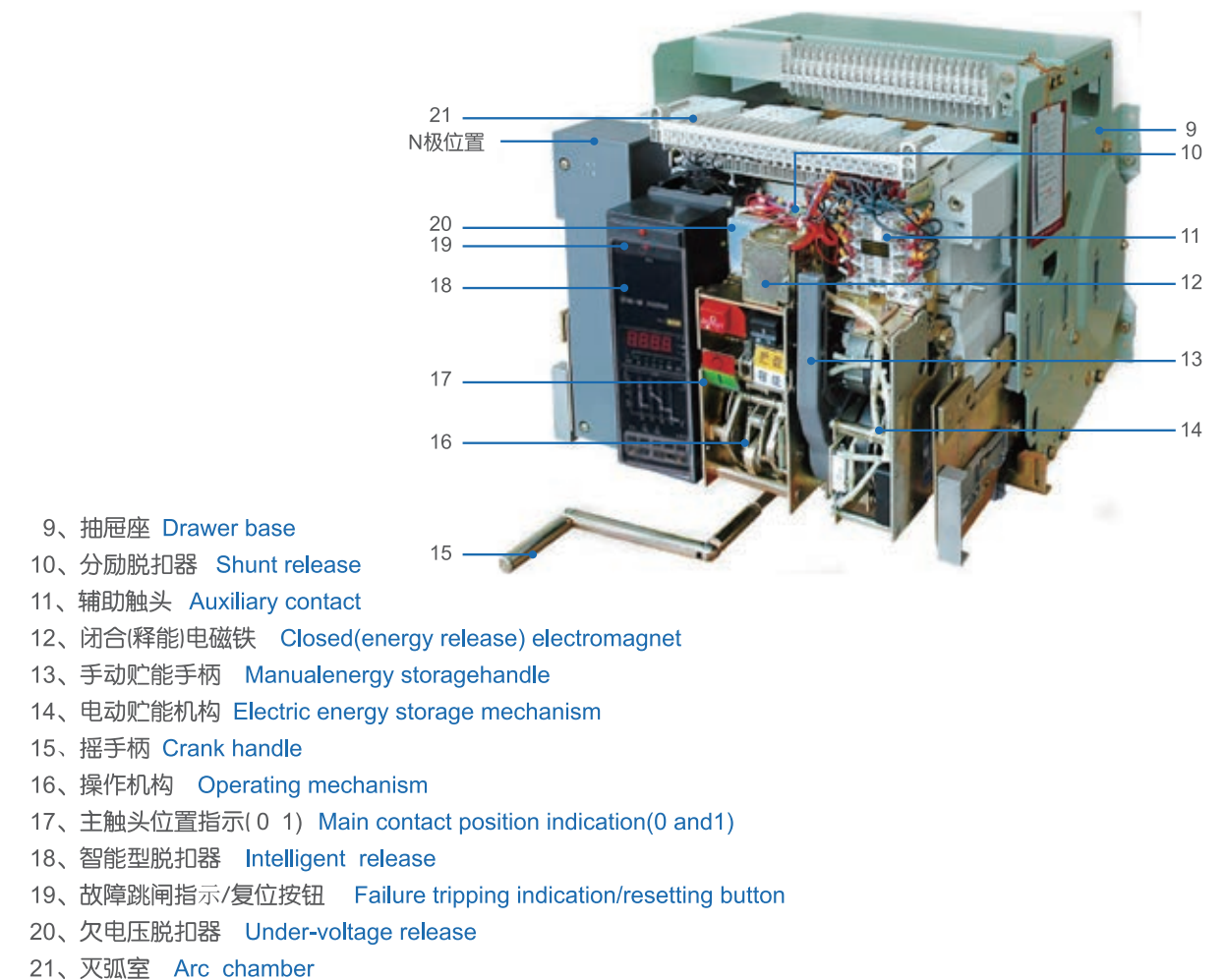
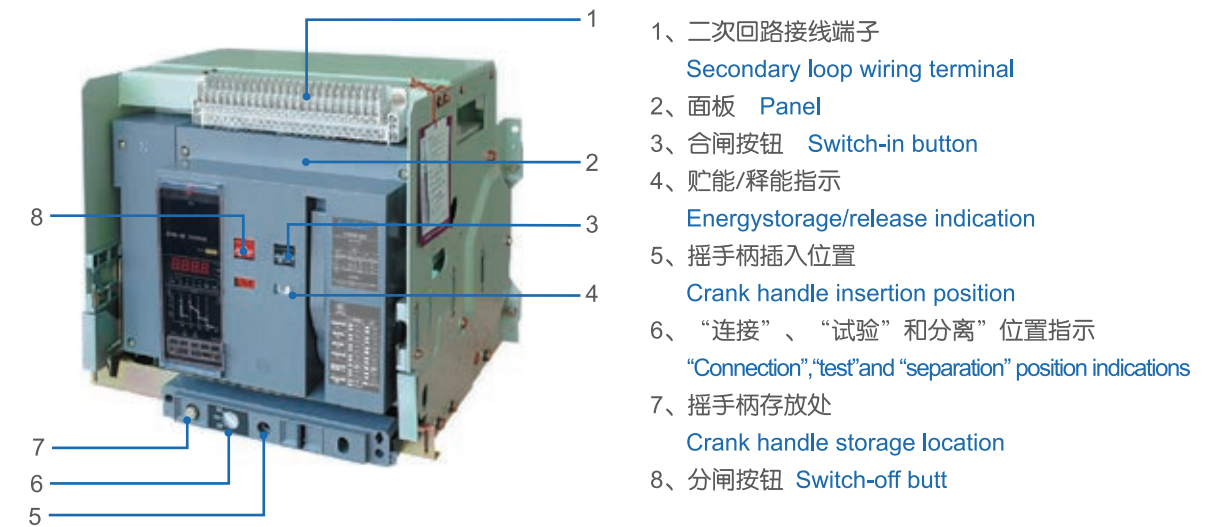


- 1) Intelligent release model(L basic type: secondary protection; M multifunctional type: tertiary protection + ammeter; H full function type: tertiary protection + ammeter + communication)
- 2) Rated current 3) D:Drawer F: Fixed 4) Switching poles: 3, 4(4000A shell rack switch high break only 3 pole product)
- 5) Frame rated current(Inm = 1600, 2000, 3200, 4000, 6300) 6) Design code
- 7) Intelligent air circuit breakers 8) Enterprise code: XIAMEN LRONGXK ELECTRICAL CO.,LTD.

正常工作条件

Normal operation conditions

- 周围空气温度
-5°C~+40°C, 24小时的平均值不超过+35°C。
- 安装地点
海拔不超过2000m。
- 大气条件
大气相对湿度在最高温度+40°C时不超50%,在较低温度下 允许有较高的相对湿度,例如 20°C时达90%,对由于温度变化偶尔产生的凝露应采取特殊的措施。
- 污染等级
3级
- 安装类别
断路器主电路、欠电压脱扣器线圈、电源变压器初级线圈的安装类别为IV,其余辅助电路、控制电路为III。
- 使用类别
为A类(非选择性保护)、B类(选择性保护)及AC-3 (直接操作电动机)。
- 安装条件
断路器应按安装使用说明书的要求进行安装。断路器的垂直倾斜度不超过5°C。
- Ambient air temperature
-5°C to +40°C, the average of 24 hours does not exceed +35°C.
- Installation Location
Altitude of not more than 2000m.
- Atmospheric conditions
The relative humidity of the atmosphere is not more than 50% at the maximum temperature of + 40°C, allowing a higher relative humidity at a lower temperature, for example 90% at 20°C, and special measures shall be taken for the occasional condensation due to temperature changes .
- Pollution level
Grade3
- Installation category
circuit breaker main circuit, undervoltage stripper coil, power transformer primary coil installation categoryIV, the rest of the auxiliary circuit, the control circuit forIII.
- Use category
Class A (non-selective protection), Class B (selective protection) and AC-3 (direct operation of the motor).
- Installation conditions
The circuit breaker should be installed in the absence of explosion hazard and no conductive dust, not enough to corrode the metal and damage the insulation, the installation of the vertical tilt of not more than 5°C.

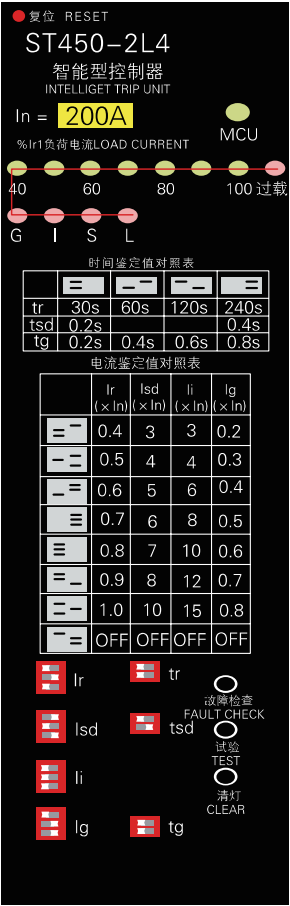
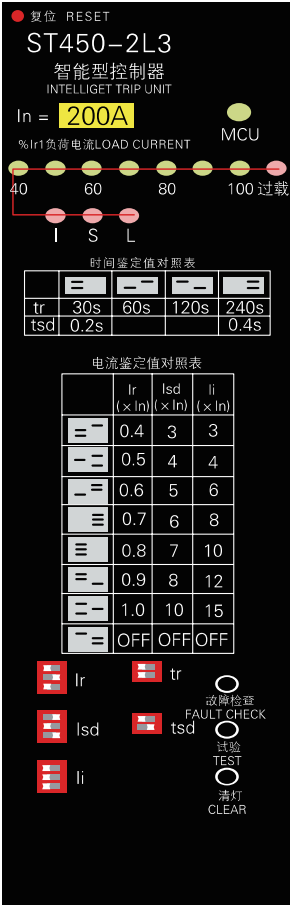


主要技术参数Main technical parameters

型号 Model		XKW1 - 1600	XKW1 - 2000H	XKW1-3200H	XKW1-4000H	XKW1-4000	XKW1-6300
壳架等级额定电流(A) Frame size rated current (A)		1600	2000	3200	4000		6300
额定电流 Rated current		200A,400A,630A,800A,1000A,1250A,1600A	630A,800A,1000A,1250A,1600A,2000A	2000A,2500A,3200A	4000A		4000A,5000A,6300A
额定工作电压 AC50/60Hz Rated operating voltage		AC400V	AC400/690V				
极数 Pole number		3,4	3,4	3,4	3	4	3,4
额定绝缘电压(AC) Ui(V) Rated insulation voltage Ui(V)							
额定极限短路分断能力I _{cu} (kA) Rated ultimate short-circuit breaking capacity	400V	65	80	100	100	100	120
	690V	/	50	65	65	75	80
额定运行短路分断能力I _{cs} (kA) Rated service short-circuit breaking capacity	400V	50	65	80	80	80	100
	690V	/	40	65	65	65	65
额定短时耐受电流I _{cw} (kA/1s) Rated short-time withstand current	400V	50	65	65	65	80	100
	690V	/	40	50	50	65	65
全分断时间 Full-breaking time		10~25ms	15~29ms				
闭合时间 Closing time		70ms	70ms				
机械寿命(次) Mechanical durability (times)	免维护 Non-maintenance	15000	10000	10000	10000		5000
	有维护 Maintenance	30000	30000	20000	20000		5000
通电寿命(次) Electrical durability (times)	AC400	6500	6500	3000	1500		1000
	AC690	/					
额定冲击耐受电压(kV) Rated shock withstand voltage		12					
重量 Weight	抽屉式三极/四极 Draw-out type 3-pole/4-pole	43kg/56kg	68kg/81kg	93kg/120kg	120kg/215kg		230kg/240kg
	固定式三极/四极 Fixed style 3-pole/4-pole	21kg/29kg	37kg/45kg	66kg/83kg	116kg/135kg		
分励脱扣器额定电压 Rated voltage of shunt release		AC230V AC400V DC110V DC220V					
欠电压脱扣器额定电压 Rated voltage of under-voltage release		AC230V AC400V					
欠电压延时脱扣器延时时间 Delay of under-voltage delay release		1S、3S、5S					
电动操作机构额定电压 Rated voltage of Motor driven operating mechanism		AC230V AC400V DC110V DC220V					
闭合电磁铁额定电压 Rated voltage of closing electromagnet		AC230V AC400V DC110V DC220V					
智能型控制器类型 Selecting the intelligent controller	2L3	√					
	2L4	√					
	L3		√				
	L4		√				
	M		√				
	2M		√				
	2H		√				
	3M	√	√				
	3H	√	√				

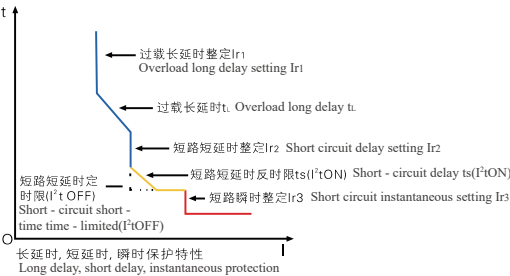
L型（2L3、2L4）智能型控制器（XKW1-1600断路器专用）

L type (2L3, 2L4) intelligent controller (XKW1-1600 circuit breaker dedicated)



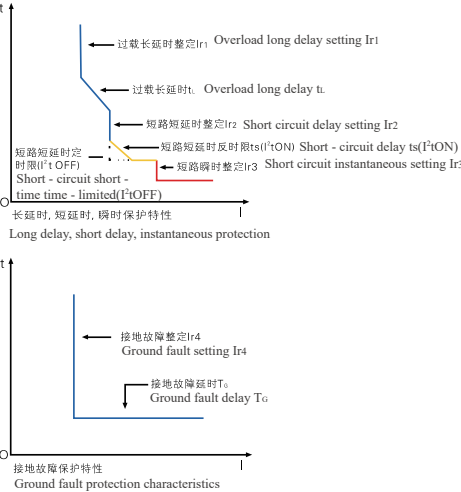
2L3型：具有过载长延时、短路短延时，短路瞬时三段保护功能，电流灯柱显示，拨盘设定。

2L3 type: with overload long delay, short circuit short delay, short circuit instantaneous three sections of protection, current lamp post display, dial settings.



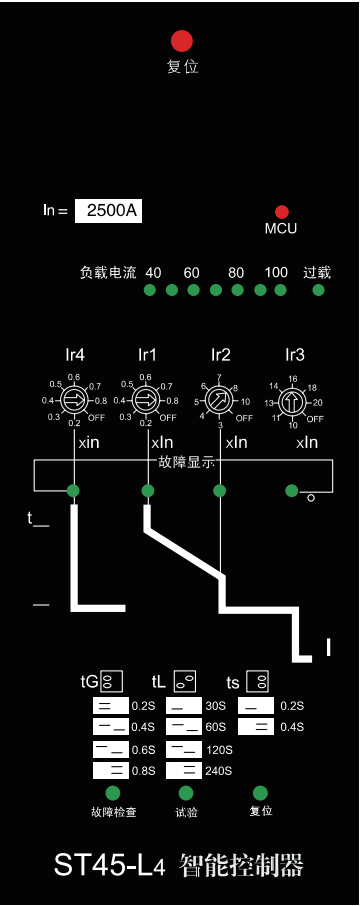
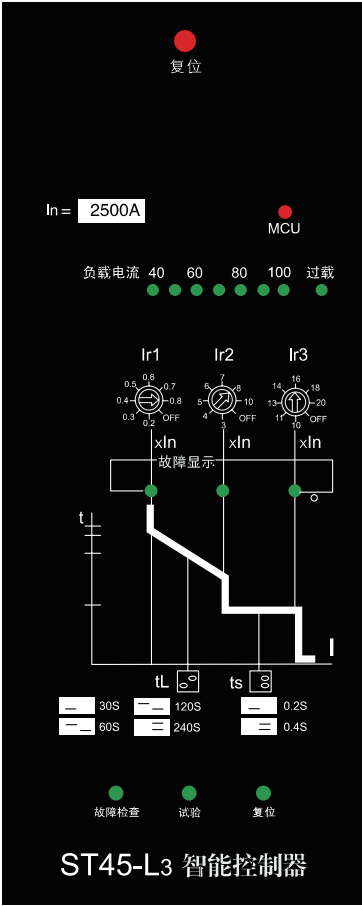
2L4型：具有过载长延时、短路短延时，短路瞬时，接地故障四段保护功能，电流灯柱显示，拨盘设定。

2L4 type: with overload long delay, short circuit short delay, short circuit instantaneous, ground fault four protection function, current lamp post display, dial settings.



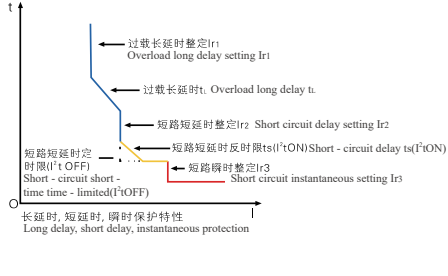
L型(L3、L4)智能型控制器(XKW1-2000~6300 断路器专用)

L type (L3, L4) intelligent controller (XKW1-2000 ~ 6300 circuit breaker dedicated)



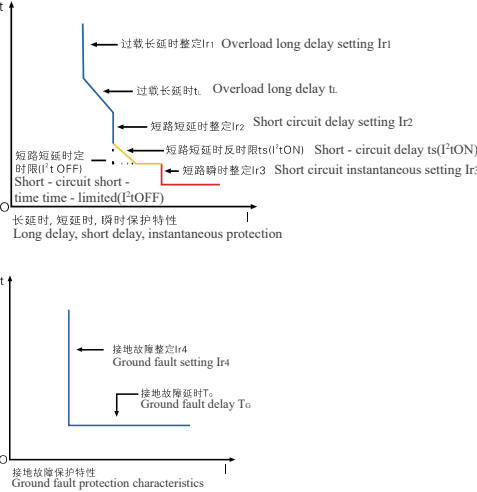
L3型：具有过载长延时、短路短延时，短路瞬时、三段保护功能，电流灯柱显示，拨盘设定。

L3 type: with overload long delay, short circuit short delay, short circuit instantaneous, three sections of protection, current lamp post display, dial settings.



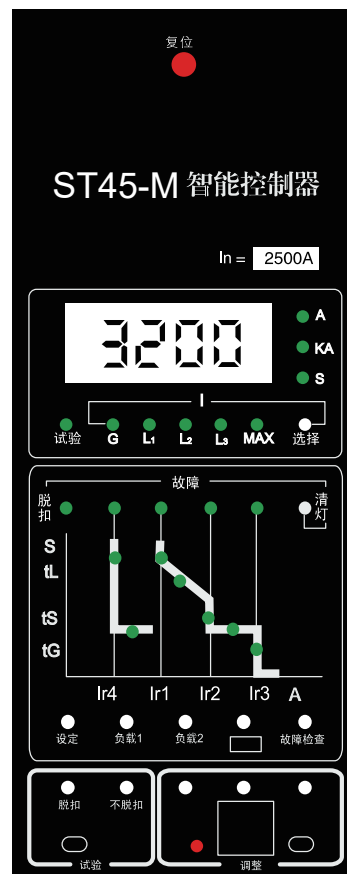
L4型：具有过载长延时、短路短延时，短路瞬时，接地故障四段保护功能，电流灯柱显示，拨盘设定。

L4 type: with overload long delay, short circuit short delay, short circuit instantaneous, ground fault four protection function, current lamp post display, dial settings.



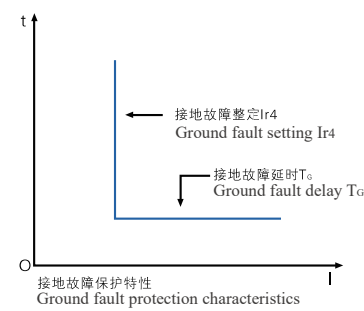
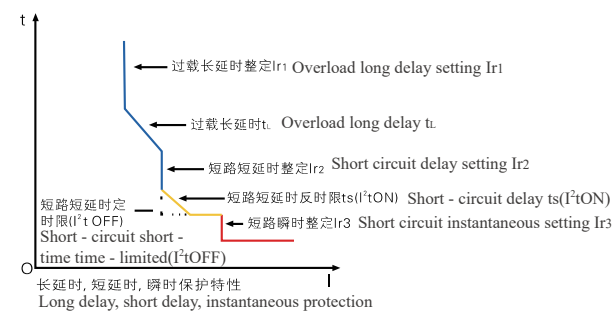
M 智能型控制器 (XKW1-2000~6300 断路器专用)

M intelligent controller (XKW1-2000 ~ 6300 circuit breaker dedicated)



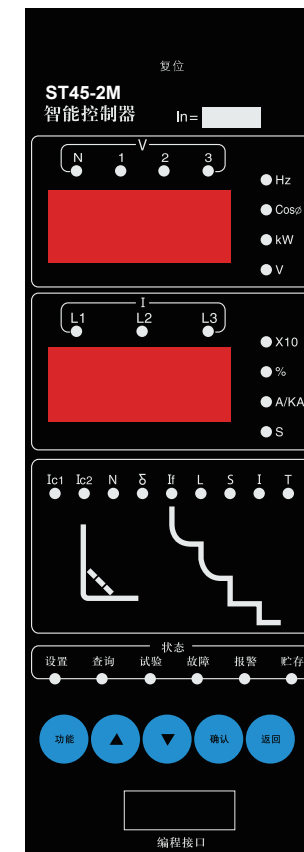
M型：具有过载长延时、短路短延时、短路瞬时、接地故障四段保护功能，LED发光二极管数据显示。

M-type: with overload long delay, short circuit short delay, short circuit instantaneous, ground fault four protection function, LED light-emitting diode data display.



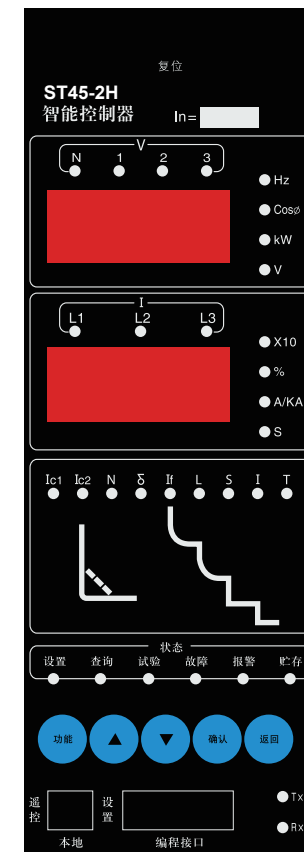
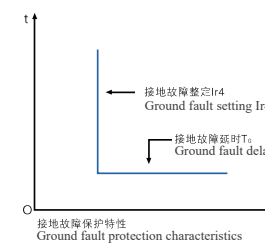
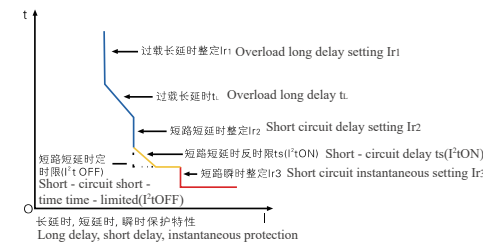
2M / 2H 智能型控制器 (XKW1-2000~6300断路器专用)

M/2H intelligent controller (XKW1-2000 ~ 6300 circuit breaker dedicated)



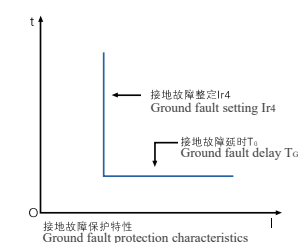
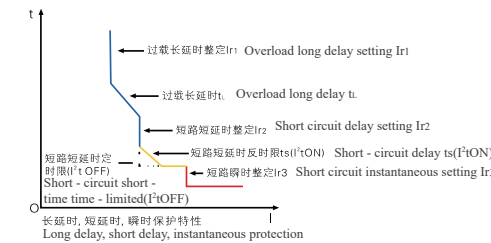
2M型：具有过载长延时、短路短延时、短路瞬时、接地故障四段保护功能，LED发光二极管数据显示。

2M-type: with overload long delay, short circuit short delay, short circuit instantaneous, ground fault four protection function, LED light-emitting diode data display.



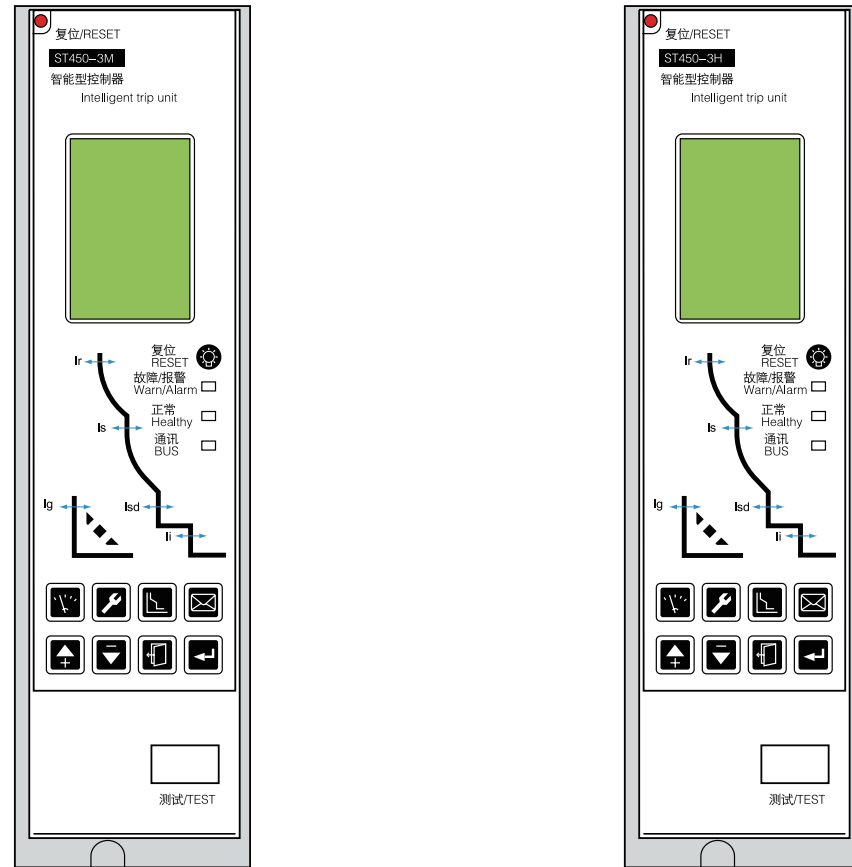
2H型：除了具有2M型所有功能外，增加了通讯功能。

2H-type: In addition to all features with 2M, the addition of communication.



3M / 3H 型智能型控制器

3M / 3H intelligent controller

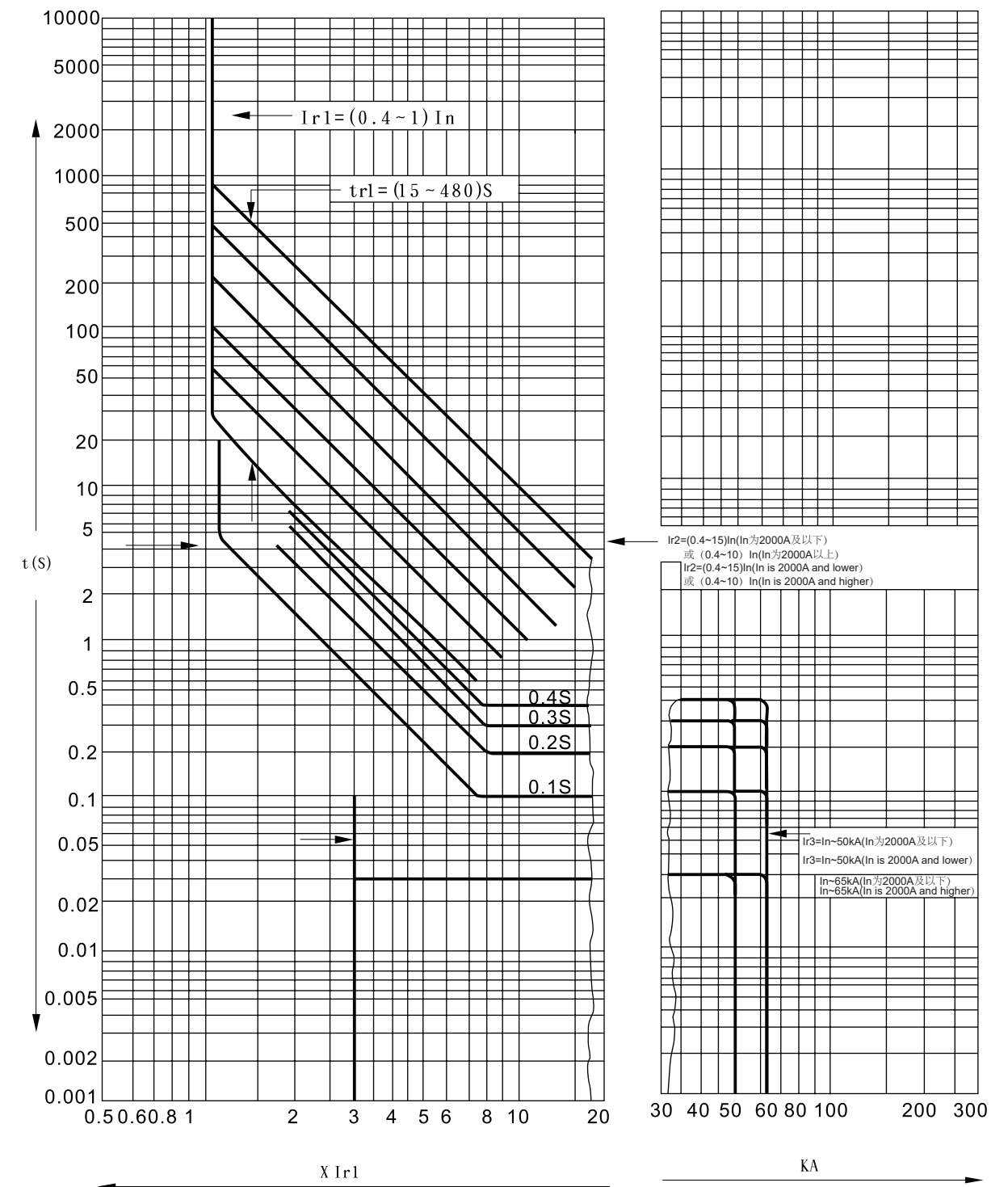
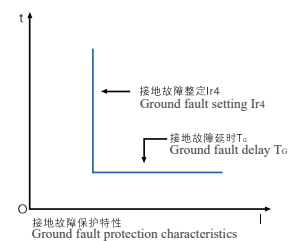
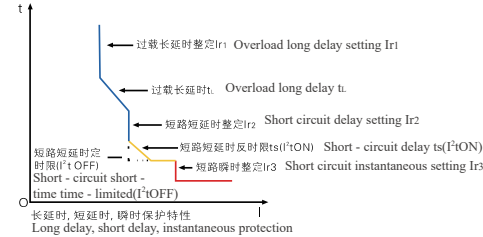
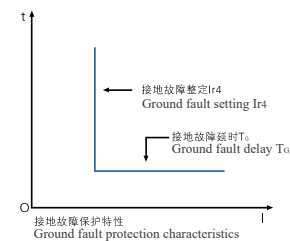
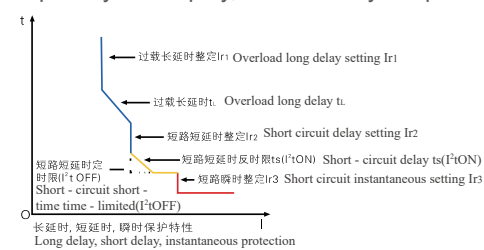


3M型：具有过载长延时、短路短延时、短路瞬时、接地故障四段保护功能，过载长延时特性可提供多种曲线匹配功能，LCD液晶显示，并有多种选配功能。

3M type: with overload long delay, short circuit short delay, short circuit instantaneous, ground fault four protection function, overload long delay feature can provide a variety of curve matching function, LCD liquid crystal display, and a variety of optional features.

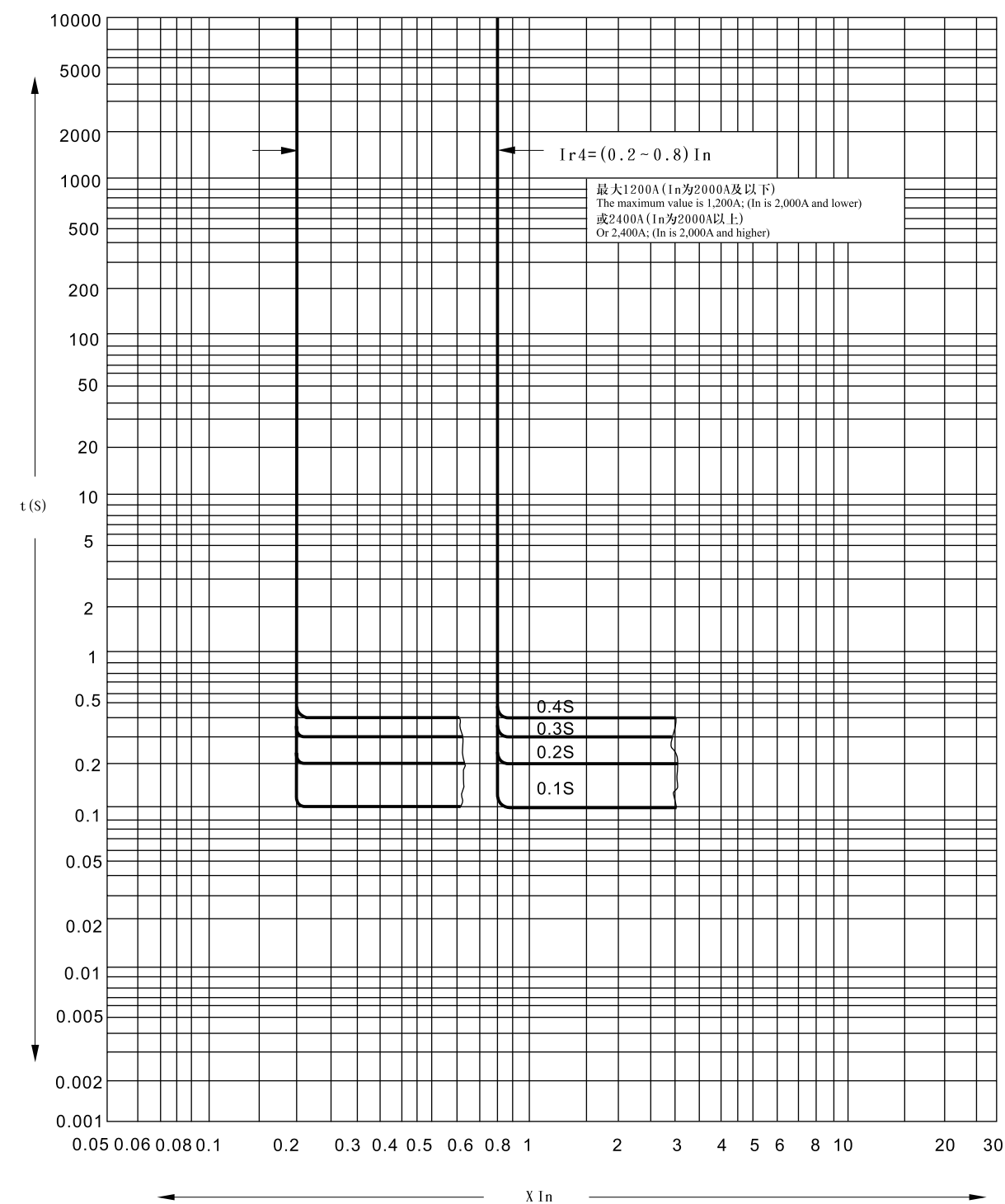
3H型：除了具有3M的所有功能外，增加了通讯功能。

3H type: In addition to all the features of 3M, the addition of communication.

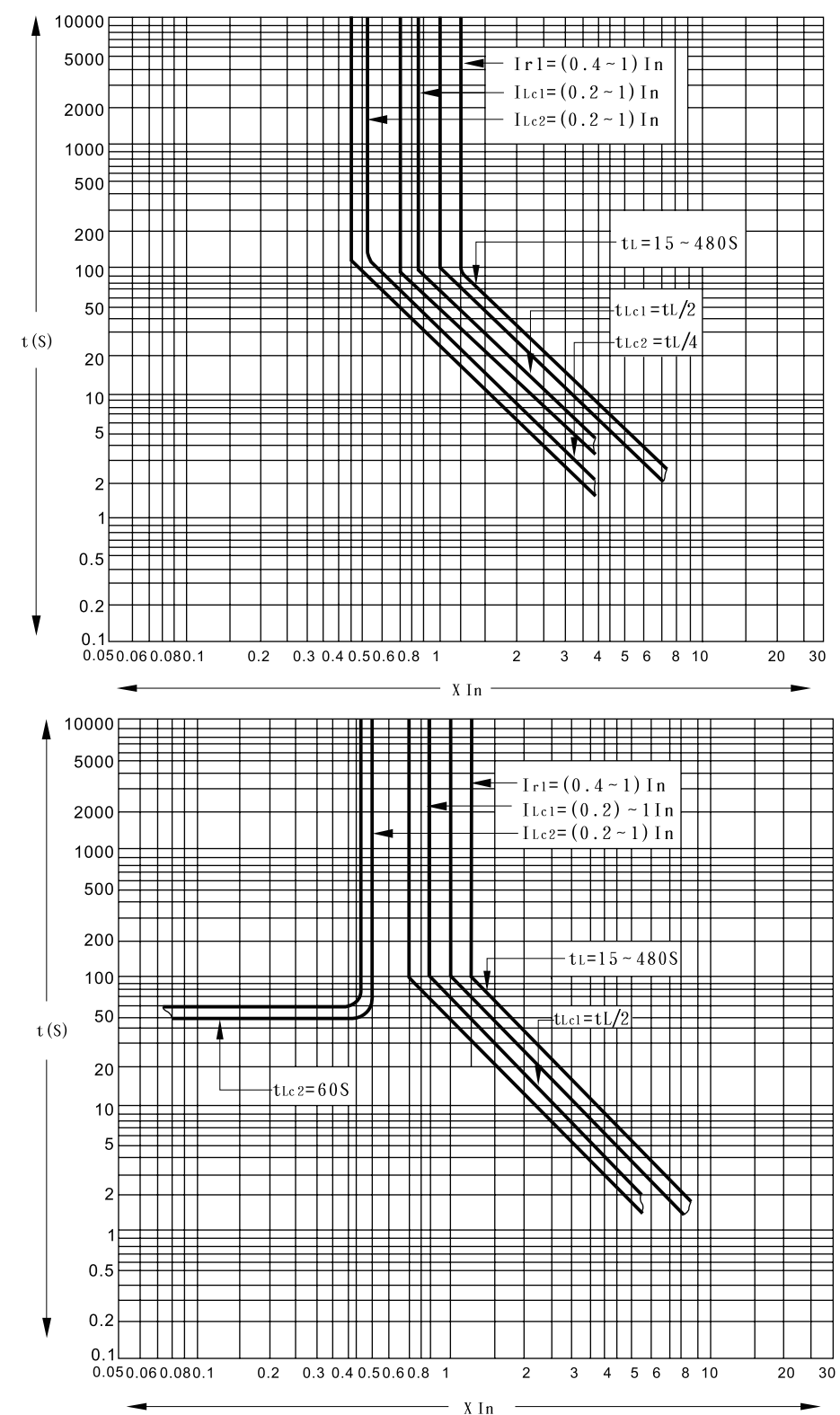


过电流控制器保护特性

Protection characteristics of over-current controller



接地故障保护动作特性 Grounding failure protection operation characteristics



负载监控功能 Load monitoring function

ST系列智能控制器选型表

ST series intelligent controller selection table

断路器壳架规格 Circuit breaker housing specifications		XKW1-1600				XKW1-2000~6300						
脱扣器型号 Release model		2L3	2L4	3M	3H	L3	L4	M	2M	2H	3M	3H
功能描述 Functional description												
保护功能 Protective function	过载长延时保护 Overload long delay protection	■	■	■	■	■	■	■	■	■	■	■
	短路短延时保护 Short circuit short delay protection	■	■	■	■	■	■	■	■	■	■	■
	短路瞬时保护 Short circuit instantaneous protection	■	■	■	■	■	■	■	■	■	■	■
	接地故障保护(矢量和T) Ground fault protection (vector and T)	—	■	■	■	—	■	■	■	■	■	■
	中性极保护 Neutral pole protection	■	■	■	■	■	■	■	■	■	■	■
	热记忆 Thermal memory	■	■	■	■	■	■	■	■	■	■	■
	故障跳闸指示 Fault trip indication	■	■	■	■	■	■	■	■	■	■	■
	电流不平衡保护 Current unbalance protection	—	—	■	■	—	—	—	—	—	■	■
	需要电流保护 Requires current protection	—	—	□	□	—	—	—	—	—	□	□
	断相保护 Disconnection protection	—	—	■	■	—	—	—	—	—	■	■
	欠电压保护 Undervoltage protection	—	—	□	□	—	—	—	□	□	□	□
	过电压保护 Overvoltage protection	—	—	□	□	—	—	—	□	□	□	□
	相序保护 Phase sequence protection	—	—	□	□	—	—	—	—	—	□	□
	欠频保护 Under frequency protection	—	—	□	□	—	—	—	—	—	□	□
	过频保护 Over frequency protection	—	—	□	□	—	—	—	—	—	□	□
	逆功率保护 Reverse power protection	—	—	□	□	—	—	—	—	—	□	□
	MCR功能 MCR function	□	□	□	□	□	□	□	□	□	□	□
	HSISC超越跳闸功能 HSISC overrun function	○	○	●	●	○	○	○	○	○	●	●
	区域选择性联锁 Regional selective interlocking	—	—	□	□	—	—	—	—	—	□	□
	负载监控 Load monitoring	—	—	□	□	—	—	□	□	□	□	□
	过载预报警 Overload pre-alarm	—	—	□	□	—	—	□	□	□	□	□
测量功能 Test function	电流：三相电流、中性极电流、接地电流 Current: three-phase current, neutral current, ground current	—	—	■	■	—	—	■	■	■	■	■
	电压：线电压、相电压、平均电压、电压不平衡度 Voltage: line voltage, phase voltage, average voltage, voltage unbalance	—	—	□	□	—	—	□	□	□	□	□
	功率 power	—	—	□	□	—	—	□	□	□	□	□
	频率 frequency	—	—	□	□	—	—	□	□	□	□	□
	电能：有功电能、无功电能、视在电能 Electricity: active energy, reactive energy, apparent power	—	—	□	□	—	—	□	□	□	□	□
	相序保护 Phase sequence protection	—	—	□	□	—	—	—	—	—	□	□
	需要值：需要电流、需要功率 Requires value: requires current, requires power	—	—	□	□	—	—	—	—	—	□	□
	谐波分析Harmonic analysis	—	—	□	□	—	—	—	—	—	□	□
	波形显示Waveform display	—	—	□	□	—	—	—	—	—	□	□

断路器壳架规格 Circuit breaker housing specifications			XKW1-1600				XKW1-2000~6300						
脱扣器型号 Release model			2L3	2L4	3M	3H	L3	L4	M	2M	2H	3M	3H
功能描述 Functional description													
维护功能 Maintenance function	断路器维护 Circuit breaker maintenance	试验脱扣 Test tripping	■	■	■	■	■	■	■	■	■	■	■
		触头磨损指示 Contact wear indication	—	—	■	■	—	—	—	—	—	■	■
		带电操作次数 Number of charged operations	—	—	■	■	—	—	—	—	—	■	■
		自诊断功能Self-diagnostic function	■	■	■	■	■	■	■	■	■	■	■
		波形显示Self-diagnostic function	—	—	■	■	—	—	—	—	—	■	■
	历史记录 history record	故障电流值Fault current value	—	—	■	■	—	—	■	■	■	■	■
		报警记录10次（液晶屏显示所有可记录参数） Alarm record 10 times (LCD display all recordable parameters)	—	—	■	■	—	—	—	—	—	■	■
		历史故障记录1次（故障类型） History fault record 1 (fault type)	■	■	—	—	■	■	■	■	■	—	—
		历史故障记录10次（液晶屏显示所有可记录参数） History fault record 10 times (LCD display all recordable parameters)	—	—	■	■	—	—	—	—	—	■	■
		时钟功能 Clock function	—	—	■	■	—	—	—	—	—	■	■
其他other	通讯功能 Communication function	支持Modbus通讯协议 Supports Modbus communication protocol	—	—	—	■	—	—	—	—	■	—	■

注：■表示已配置，□表示可附加配置若有用户要求我公司可以提供发电机电能用智能型万能式断路器

Note: ■ indicates that it is configured, and □ indicates that it can be attached .If the user asked me to provide the company can provide intelligent universal protection circuit breaker

ST 系列智能控制器特性

ST series intelligent controller characteristics

- 过载长延时保护
Overload long delay protection
 - 短路短延时保护
Short circuit short delay protection
 - 短路瞬时保护
Short circuit instantaneous protection
 - 单相接地保护
Single phase ground protection
 - 实验功能
Experimental function
 - 故障记录功能
Fault record function
- 自诊断功能
Self-diagnostic function
 - 热记忆功能
Thermal memory function
 - MCR接通分断功能（增选功能）
MCR turns on break function (optional function)
 - 信号报警功能（增选功能）
Signal alarm function (optional function)
 - 超越跳闸功能
Beyond the trip function

ST型智能型控制器特性

ST-Type Intelligent controller features

2L3 , 2L4 , L3 , L4												M				2M、2H								3M、3H																	
过载长延时保护 Overload long delay protection																																									
整定电流I _r (A) Set current		0.4~1.0I _n +OFF(配电保护)/1.25I _n (发电机保护) 0.4 ~ 1.0I _n + OFF (power distribution protection) /1.25I _n (generator protection)																																							
动作特性 Action characteristics		≤1.05I _r >2h 不动作 No-operating				<1.05I _r >2h 不动作 No-operating						≤1.05I _r 1>2h 不动作 No-operating								≤1.05I _r >2h No-operating																					
		>1.2I _r <1h 动作 Operating				>1.2I _r <1h 动作 Operating						>1.20I _r 1<1h 动作 Operating								>1.2I _r <1h 动作 Operating																					
最大反时限延时(S) T = $\frac{(1.5 I_r)^2}{I^2}$ × t _r Maximum inverse time delay	t _r	30	60	120	240	15	30	60	120	240	480	15	30	60	120	240	360	480	15	30	60	120	240	360	480	600	720	840	960												
	1.5I _r 动作时间(S) Operating period	30	60	120	240	15	30	60	120	240	480	15	30	60	120	240	360	480	15	30	60	120	240	360	480	600	720	840	960												
	2.0I _r 动作时间(S) Operating period	16.9	33.8	67.5	135	8.4	16.9	33.8	67.5	135	270	8.4	16.9	33.8	67.5	135	202.5	270	8.4	16.9	33.8	67.5	135	202.5	270	337.5	405	472.5	540												
	7.2I _r 动作时间(S) Operating period	1.3	2.6	5.2	10	0.65	1.3	2.6	5.2	10	20.8	0.65	1.3	2.6	5.2	10	15.6	20.8	0.65	1.3	2.6	5.2	10	15.6	20.8	26	31.3	36.5	41.7												
精度 Accuracy		±10%										±10%										±10%																			
热记忆 Thermal memory		30min, 断电可清除 Power off can be cleared										30min、OFF										30min, 断电可清除 Power off can be cleared										瞬时Instantaneous、10min、20min、30min、45min、60min、120min、180min, 断电可清除 Power off can be cleared									
短路短延时保护 Short circuit short delay protection																																									
额定电流 I _{rd} (A) Rated current		OFF+3~10I _r										OFF+1.5~15I _r										OFF+3~10I _r										OFF+1.5~15I _r									
动作特性 Action characteristics		≤0.9I _{sd} 不动作 No-operating										≤0.95I _r 不动作 No-operating										≤0.95I _r 2 不动作 No-operating										<0.9I _{sd} 不动作 No-operating									
		>1.1I _{sd} 动作 Operating										>1.1I _r 动作 Operating										>1.1I _r 2 动作 Operating										>1.1I _{sd} 动作 Operating									
I ² T(ON) 延时时间(S) Set current		/										$I>8I_r$ 0.1~0.4S,I≤8I _r T = $\frac{(8I_r)^2}{I^2}$ × t _s																													
I ² T(OFF) 延时时间(S)		0.2		0.4								0.1~0.4S										0.1~0.4S										0.1~4S									
短路瞬时保护 Short circuit instantaneous protection																																									
整定电流I(A) Set current		XKW1 -1600		2L3,2L4,OFF,3I _n ,4I _n ,8I _n ,10I _n ,12I _n ,15I _n								XKW1-2000		1.0I _n ~50KA+OFF		XKW1-2000				OFF+1.0I _n ~50KA						OFF+1.0~20I _n															
		XKW1 -2000		L3,L4,OFF,10I _n ,11I _n ,12I _n ,14I _n ,16I _n ,20I _n								XKW1 -3200/4000		1.0I _n ~75KA+OFF		XKW1-3200/4000				OFF+1.0I _n ~ 75KA																					
		XKW1 -3200~6300		L3,L4,OFF,7I _n ,8I _n ,9I _n ,10I _n ,11I _n ,12I _n ,14I _n								XKW1-6300		1.0I _n ~100KA+OFF		XKW1-6300				OFF+1.0I _n ~100KA																					
动作特性 Action characteristics		≤0.85I _i 不动作 No-action										≤0.85I _i 不动作 No-operating										≤0.85I _r 3 不动作 No-operating										<0.85I _i 不动作 No-operating									
		>1.15I _i 动作 Action										>1.15I _i 动作 Operating										>1.15I _r 3 动作 Operating										>1.15I _i 动作 Operating									
动作时间 Operating period		<30ms										15s, 30s, 60s, 120s, 240s, 480s, OFF										<100ms										<40ms									
中性线保护 Neutral protection																																									
无中性线保护 No neutral protection																																✓									
半中性保护 Semi-neutral protection		✓										✓										✓										✓									
全中性保护 Full neutral protection		✓										✓										✓										✓									
1.6倍中性线保护 1.6 times neutral protection																																✓									
双倍中性线保护 Double neutral protection																																✓									
接地保护 Phase ground protection																																									
整定电流I _g (A) Set current		OFF、0.2I _n 、0.3I _n 、0.4I _n 、0.5I _n 、0.6I _n 、0.7I _n 、0.8I _n (OFF位置只报警,不跳闸,整定电流量最小为100A) OFF position only alarm, no trip, set the minimum current of 100A										0.2~1.0I _n +OFF, 最小为100A, 整定步长: ≤2A 0.2 ~ 1.0I _n + OFF, the minimum is 100A, the tuning step: ≤ 2A										OFF+0.2~1.0I _n										OFF+0.2~1.0I _n									
反时限剪切系数 Inverse time shear coefficient		/										/										/										1.5~6,+OFF									
定时限延时 Timing delay		/										/										/										故障电流≥Cr或OFF时为定时限保护 0.1~1S Fault current ≥Cr or OFF when the fixed time limit protection									
反时限延时 Inverse time delay		/										/										/										故障电流<Cr时为反时限保护 T _g +Cr+I _g 故障电流I Fault current <Cr or OFF when the fixed time limit protection									
动作特性 Action characteristics		<0.8I _g 不动作 No-action										≤0.8I _g 不动作 No-operating										<0.8I _g 不动作 No-operating										<0.8I _g 不动作 No-operating									
		≥1.0I _g 动作 Action										>1.0I _g 延时动作 Delay action										≥1.0I _g 延时动作 Delay action																			
T _g		0.2	0.3	0.4	0.8	/						/						/						/																	
动作时间精度 Action time accuracy		±10%										±10%										/										≥1.0I _g 动作 Operating									
保护方式 Protection mode		T型 type (3PT , 4PT , 3P+N)										/										/										±10%									
漏电保护 Leakage Protection																																									
整定电流I _{Δn} (A) Set current		/										/										0.5~30.0																			
延时时间T _{Δn} (S) Delay time		/	/	/								/										瞬时Instantaneous、0.06、0.08、0.170.25、0.33、0.42、0.5、0.58、0.67、0.75、0.83																			
执行方式 Implementation mode		/	/	/								/										脱扣/关闭 Trip / off																			
动作特性 Action characteristics		/	/	/								/										<0.8I _{Δn} 不动作 No-Operating ; ≥1.0I _{Δn} 动作 Operating																			
动作时间(S) Operating period		/	/	/								/										整定时间 Set time		0.06	0.08	0.17	0.25	0.33	0.42	0.5	0.58	0.67	0.75	0.83	瞬时Instantaneous						
																						故障电流倍数 Fault current multiple		最大断开时间S Maximum break time																	
																						1I _{Δn}		0.38	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	0.04						
																						2I _{Δn}		0.18	0.25	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5	0.04						
5I _{Δn} 10I _{Δn}		0.072	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	0.04																												

保护功能

Protection function

- 过载长延时保护 Overload long delay protection
- 短路短延时保护 Short circuit short delay protection
- 短路瞬时保护 Short circuit instantaneous protection
- MCR及HSISC保护 MCR and HSISC protection
- 电流不平衡（断相）保劳
Current imbalance (broken phase) security
- 接地保护 Ground protection
- 接地报警 Ground alarm
- 中性相保护 Neutral phase protection

维护功能

Maintenance function

- 八次故障记录 Eight fault records
- 八次报警记录 Eight Alarm record
- 八次变位记录 Eight Change record
- 电流历史峰值 Current history peak
- 触头当量 Contact equivalent
- 操作次数 Number of operations
- 时钟功能 Clock function
- 自诊断功能 Self-diagnostic function

人机界面

HMI

- 负载监控功能 Load monitoring function
- 中文图形液晶显示 Chinese graphic liquid crystal display
- LED状态指示 LED Status indication
- 键盘操作 Keyboard operation

通讯功能

Communication function

- H型控制器通讯协议可根据需要选择
H-type controller communication protocol can be selected according to need

测量功能

Measurement function

- 四相电流及接地电流测量
Four - phase current and ground current measurement
- 热容量测量 Heat capacity measurement

增选功能

Additional fuction

D	U	UD	P	PD	H	HD
	电压测量 Voltage measurement	电压测量 Voltage measurement	电压测量 Voltage measurement	电压测量 Voltage measurement	电压测量 Voltage measurement	电压测量 Voltage measurement
	频率测量 frequency measurement	频率测量 frequency measurement	频率测量 frequency measurement	频率测量 frequency measurement	频率测量 frequency measurement	频率测量 frequency measurement
	电压不平衡测量 Voltage unbalance measurement	电压不平衡测量 Voltage unbalance measurement	电压不平衡测量 Voltage unbalance measurement	电压不平衡测量 Voltage unbalance measurement	电压不平衡测量 Voltage unbalance measurement	电压不平衡测量 Voltage unbalance measurement
	相序检测 Phase sequence detection	相序检测 Phase sequence detection	相序检测 Phase sequence detection	相序检测 Phase sequence detection	相序检测 Phase sequence detection	相序检测 Phase sequence detection
			功率测量 power measurement	功率测量 power measurement	功率测量 power measurement	功率测量 power measurement
			功率因素测量 power-factor measurement	功率因素测量 power-factor measurement	功率因素测量 power-factor measurement	功率因素测量 power-factor measurement
			电能测量 electric energy measurement	电能测量 electric energy measurement	电能测量 electric energy measurement	电能测量 electric energy measurement
需要值测量 (电流) Requires value measurement (current)		需要值测量 (电流) Requires value measurement (current)		需要值测量 (电流、功率) Requires value measurement (current、power)		需要值测量 (电流、功率) Requires value measurement (current、power)
	过压保护 Over-voltage protection	过压保护 Over-voltage protection	过压保护 Over-voltage protection	过压保护 Over-voltage protection	谐波测量 过压保护 Harmonic measurement Over-voltage protection	谐波测量 过压保护 Harmonic measurement Over-voltage protection
	欠压保护 Under-voltage protection	欠压保护 Under-voltage protection	欠压保护 Under-voltage protection	欠压保护 Under-voltage protection	欠压保护 Under-voltage protection	欠压保护 Under-voltage protection
	电压不平衡保护 Voltage unbalance measurement	电压不平衡保护 Voltage unbalance measurement	电压不平衡保护 Voltage unbalance measurement	电压不平衡保护 Voltage unbalance measurement	电压不平衡保护 Voltage unbalance measurement	电压不平衡保护 Voltage unbalance measurement
	过频保护 Over frequency protection	过频保护 Over frequency protection	过频保护 Over frequency protection	过频保护 Over frequency protection	过频保护 Over frequency protection	过频保护 Over frequency protection
	欠频保护 Under-frequency protection	欠频保护 Under-frequency protection	欠频保护 Under-frequency protection	欠频保护 Under-frequency protection	欠频保护 Under-frequency protection	欠频保护 Under-frequency protection
	相序保护 Phase sequence protection	相序保护 Phase sequence protection	相序保护 Phase sequence protection	相序保护 Phase sequence protection	相序保护 Phase sequence protection	相序保护 Phase sequence protection
			逆功率保护 Reverse power protection	逆功率保护 Reverse power protection	逆功率保护 Reverse power protection	逆功率保护 Reverse power protection
需要值保护 Need value protection		需要值保护 Need value protection		需要值保护 Need value protection		需要值保护 Need value protection

注：
仅3M、3H型控制器可选

Note:
Only 3M, 3H type controller is optional

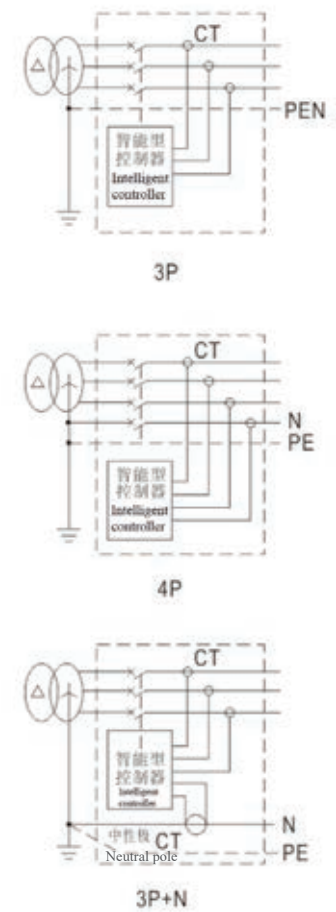
接地保护

Ground protection

对于单相金属性接地故障保护有两种保护方式剩余电流（差值）型(T)和地电流型(W)，T型检测零序电流即取四相或三相电流矢量和进行保护，并可实现区域连锁，W型是通过特殊的外部互感器直接检测接地电缆上的电流可对断路器的上下接地故障同时进行保护，互感器和断路器的最大距离不超过10米。

For the single-phase metal ground fault protection, there are two kinds of protection methods Residual current (difference) type (T) and ground current (W), T-type detection of zero sequence current that is four-phase or three-phase current vector and protection, And can achieve regional chain, W-type is a special external transformer directly through the detection of the current on the grounding cable circuit breaker on the ground fault can be protected at the same time, the maximum distance between the transformer and the circuit breaker is not more than 10 meters.

差值型 (T) Difference type

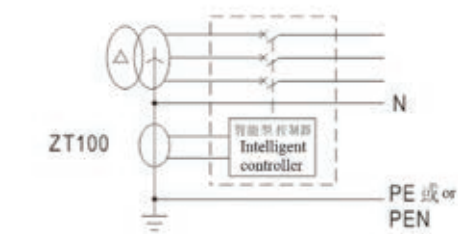


TN-C、TN-C-S、TN-S 配电系统中选用三极断路器不附加外接中性线 N 电流互感器
TN-C、TN-C-S、TN-S Power supply system selection of three-pole circuit breaker does not add an external neutral line N current transformer

TN-S 配电系统中选用四极断路器
接地故障信号取三相电流及 N 相电流矢量和
TN-S Power supply system selection of three-pole circuit breaker does not add an external neutral line N current transformer

TN-S 配电系统中选用三极断路器
外援中性线 N 电流互感器作接地故障保护用
接地故障保护信号取三相电流及 N 相电流的矢量
Power supply system selection of three-pole circuit breaker
Foreign Neutral Line N Current Transformer for Ground Fault Protection
Ground fault protection signal to take three-phase current and N-phase current vector

地电流型 (W) Ground current type



ZT-100:外加的特殊互感器，此互感器和断路器额定电流对应，每种额定电流对应一种互感器
ZT-100: Plus a special transformer, the transformer and the rated current of the circuit breaker, each rated current corresponds to a transformer

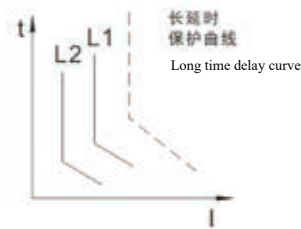
负载监控功能

Load monitoring function

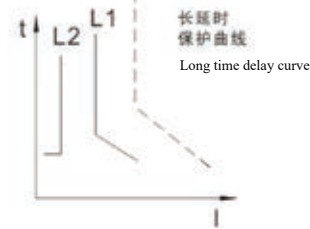
负载监控可用于预报警，亦可用于控制支路负载，保证主系统供电
方式一：可独立控制两路负载，当运行参数超过整定值时，相应负载监控延时动作，控制分断两路支路负载，保证主系统供电。
方式二：一般用于控制同一支路负载，当运行参数超过启动值，延时动作分断支路负载，若分断后运行参数低于返回值，并经延时设定时间后，接通已分断的负载，恢复系统供电。

Load monitoring can be used for pre-alarm, can also be used to control the tributary load to ensure that the main system power supply
Mode 1: can independently control the two load, when the operating parameters over the set value, the corresponding load monitoring delay action, control the two branches of the load to ensure that the main system power supply.
Mode 2: generally used to control the same branch load, when the operating parameters exceed the start value, delay action branch branch load, if the break after the operating parameters below the return value, and after the delay set time, connected to the broken load, Restore system power supply

方式一 Mode 1



方式二 Mode 2



MCR 接通分断能力

Load monitoring function

MCR保护对断路器的接通能力进行保护,防止断路器接通超过接通极限能力的电流导致开关损坏,保护在分闸及断路器合闸瞬间(100ms内)起作用。

MCR protection of the circuit breaker to protect the ability to prevent the circuit breaker connected to the power beyond the limit of the current lead to damage to the switch, protection in the circuit breaker and circuit breaker closing instant (100ms) role.

HSISC 越跳闸功能

HSISC protection

HSISC保护对断路器的极限承载能力进行保护,防止开关承载超过极限分断能力的电流,在合闸100ms后起作用。

HSISC protection protects the ultimate load carrying capacity of the circuit breaker to prevent the switch from carrying the current beyond the limit breaking capacity, after the closing 100ms

中性线保护

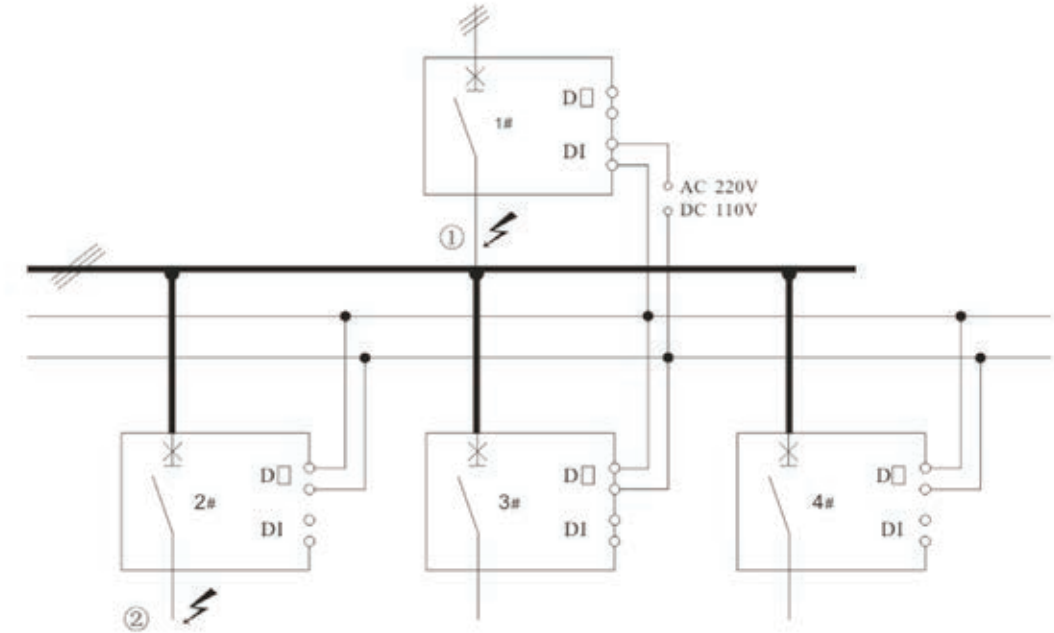
Neutral line protection

实际应用中中性相所用的电缆及电流特性和其它三相有很大差别,当中性线较细时,可采用半定值方式保护,当中性线和其它相一样时,可采用全定值进行保护;当电网中的谐波比较重时采用双倍定值或1.6倍值进行保护

In the practical application, the cable and current characteristics used in the neutral phase are very different from those of the other three phases. When the neutral line is fine, it can be protected by semi-definite way. When the neutral line and other phases are the same, To protect; when the harmonic in the grid is relatively heavy when the double value or 1.6 times the value of protection

区域选择性联锁

Regional selective interlocking



区域选择性联锁包括短路联锁和接地联锁。在两台或多台有上下级关联断路器的同一电力回路中:

- 1、当短路或接地故障发生的位置在下级断路器(2#-4#断路器)的出线侧(如位置②)时,下级断路器瞬时跳闸,并向上级断路器发出区域联锁跳闸信号,上级断路器(1#断路器)收到区域联锁跳闸信号,按短路或接地保护设定进行延时。若上级断路器延时过程中故障电流被消除,则保护返回,上级断路器不动作;若下级断路器跳闸后故障电流仍未消除;则上级断路器按短路或接地保护设定动作;切除故障线路。
- 2、当短路或接地故障发生的位置在上级断路器(1#断路器)与下级断路器(2#-4#断路器)之间(如位置①)时,上级断路器未收到区域联锁信号,因而瞬时跳闸,快速切除故障线路。

Regional selective interlocking include short circuit interlock and ground interlock. In two or more of the same power circuit with upper and lower associated circuit breakers:

- 1, when the short circuit or ground fault occurred in the lower-level circuit breaker (2 # - 4 # circuit breaker) outlet side (such as position ②), the lower class breaker instantaneous trip, and to the higher-level circuit breaker issued a regional interlocking jump signal , The upper circuit breaker (1 # circuit breaker) received the regional interlock trip signal, according to short circuit or ground protection settings for delay. If the fault current is removed during the delay of the upper circuit breaker, the protection returns and the upper circuit breaker does not operate. If the fault current is still removed after the lower circuit breaker trips, the upper circuit breaker is set by short circuit or grounding protection line.
- 2, when the short circuit or ground fault occurred in the location of the higher circuit breaker (1 # circuit breaker) and the lower circuit breaker (2 # - 4 # circuit breaker) (such as position ①), the higher circuit breaker did not receive the regional interlock signal, which instantaneous trip, quickly cut off the fault line.



相间隔板 Phase separator

相间隔板用来加强母排间的绝缘

The phase separator is used to strengthen the insulation between the busbars

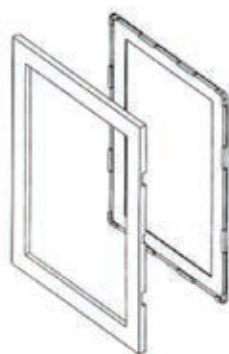


(用于固定式)
(for Fixed)

连接板（用于固定式） Connection plate (for fixed)

固定式断路器使用相间隔板时过渡链接作用

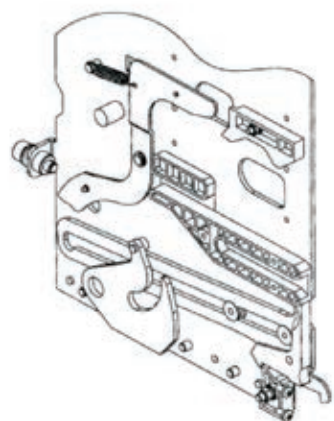
Fixed circuit breakers use phase-separated plates when transitional links are used



门框 Door frame

安装在配电柜小室门上。可提高断路器防护等级（达到IP40）

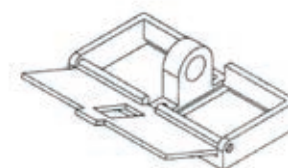
Be installed on the cabinet door. Can improve the circuit breaker protection level (up to IP40)



断路器进退位置联锁 Circuit breaker advance and retreat position interlock

断路器本体只能在分闸状态下，才能摇进抽屉座。

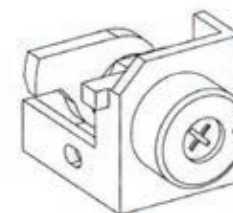
The circuit breaker body can only be in the opening state, to shake into the drawer seat.



按钮闭锁装置 Button latching device

锁定分、合闸按钮、防止非操作人员误操作（采用挂锁，用户自备）

Closing button to prevent non-operator misuse (using padlock, user-owned)



分闸位置锁 Opening position lock

将断路器锁定于分闸位置，不允许合闸操作。此锁为钥匙锁，钥匙只能在锁已经锁定时才能拔出。

Lock the circuit breaker in the opening position, does not allow closing operation. This lock is the key lock, the key can only be locked when the lock has been pulled out.

可提供用户实行方案为：

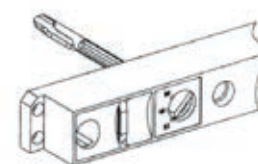
Can provide users to implement the program as follows:

对于一台断路器配一把锁（可作为断路器锁定用，防止非法操作）。对于两台具有“分闸位置锁”的同系列断路器采用两锁一钥匙，即两台断路器上的“分闸位置锁”可由一把钥匙打开。可进行互锁（可作为电网的转换使用，保证A电网供电时，B电网断或B电网供电时，A电网断电）。

对于三台具有“分闸位置锁”的同系断路器采用三锁二钥匙，即三台断路器上的“分闸位置锁”可由两把钥匙打开（保证三台断路器总有两台断路器处于可接通状态，用于两路进线一路母联电路）。

For a circuit breaker with a lock (can be used as a circuit breaker lock to prevent illegal operation). For the two series with a "opening lock" of the same series of circuit breakers using two locks a key, that is, two circuit breakers on the "opening position lock" can be opened by a key. Can be interlocked (can be used as a conversion of the power grid to ensure that A power supply, B power outage or B power supply, A power failure).

For the three with the "opening lock" of the same circuit breaker with three locks two keys, that is, three circuit breakers on the "opening lock" can be opened by two keys (to ensure that three circuit breakers always have two circuit breakers In the state can be connected for two-way line bus circuit).



分离位置锁定 Separate position lock

断路器处于“分离”位置时，可抽出锁杆来挂锁（挂锁用户自备）。

锁定后可使断路器无法摇至“试验”或“连接”位置。

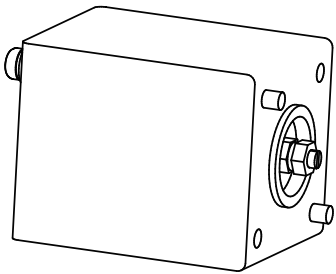
使用断开位置锁定时，摇杆不允许插入摇动位置上。

When the circuit breaker is in the "disengaged" position, the lock lever can be pulled out to padlock (padlock user-owned).

After locking, the circuit breaker cannot be swung to the "test" or "connected" position.

When the break position is used, the joystick is not allowed to be inserted into the rocking position.

分励脱扣器、欠电压脱扣器、闭合电
磁铁的工作电压及所需功率



Shunt release, undervoltage release, closed solenoid operating voltage
and required power

所需功率 The required power	额定工作电压(V) Rated operating voltage	交流Exchange (VA)		直流DC (W)	
		220V	380V	110V	220V
项目 Project					
分励脱扣器 Shunt release		300	300	130	100
欠电压脱扣器 Undervoltage release		6	6	-	-
闭合电磁铁 Closed electromagnet		300	300	130	100

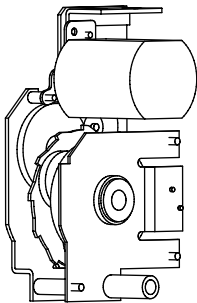
类别 Category		欠电压延时脱扣器 Undervoltage delay release	欠电压瞬时脱扣器 Undervoltage instantaneous release
脱扣器动作时间(S) Release operating voltage value		延时delayed 0.3、0.6、1、3、5	瞬时Instantaneous
脱扣器动作 电压值 Release operating voltage value	35~70%Ue	能使断路器断开Can break the circuit breaker	
	≤35%Ue	断路器不能闭合The circuit breaker cannot be closed	
	≥85%Ue~110%Ue	断路器能可靠闭合 The circuit breaker can be reliably closed	
在1/2延时时间内，当电源电压恢复到85%Ue时 During the 1/2 delay time, when the supply voltage returns to 85% Ue		断路器不断开 The circuit breaker is not open	—

注：分励脱扣器的可靠动作电压范围为70%~110%，闭合电磁铁为85%~110%，欠电压延时脱扣器延时时间准确度为±10%。

Note: The reliable operating voltage range of the shunt release is 70% ~ 110%, the closed electromagnet is 85% ~ 110%, and the undervoltage delay release delay time accuracy is ± 10%.

电动贮能机构及所需功率

Electric energy storage mechanism and required power

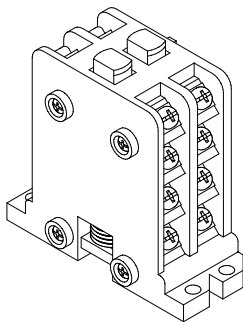


所需功率 The required power	额定工作电压(V) Rated operating voltage	交流Exchange (VA)		直流DC (W)	
		220V	380V	110V	220V
项目 Project					
XKW1-1600		75W	75W	75W	75W
XKW1-2000		85W	85W	85W	85W
XKW1-3200		110W	110W	110W	110W
XKW1-4000 XKW1-6300		150W	150W	150W	150W

断路器辅助触头的额定值和性能

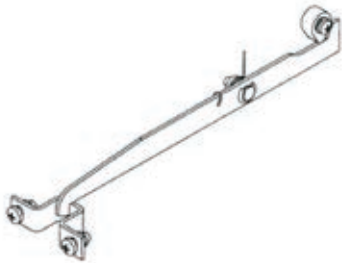
Breaker auxiliary contact rating and performance

电流种类 Current type	使用类别 Use category	额定电压 Ue Rated voltage	约定发热电流 Ith Conventional heating current	额定控制容量 Rated control capacity	辅助触头基本形式 Auxiliary contact basic form	辅助触头的通电操作性能 Auxiliary operation of the auxiliary contact performance	辅助触头非正常条件下的接通分断能力 The auxiliary breaking capacity of the auxiliary contact under abnormal conditions			
							U/Ue	I/Ie	Cosφ或T0.95	操作循环次数 Number of operations cycles
AC	AC-15	220V 380V	6A	300VA	连接成四对转换触头引出 Connected into four pairs of conversion contacts	与断路器操作性能总次数相等And the total number of operating performance of the circuit breaker equal	1.1	1.1	0.3	10
DC	DC-13	220V		60W			1.1	1.1	300ms	



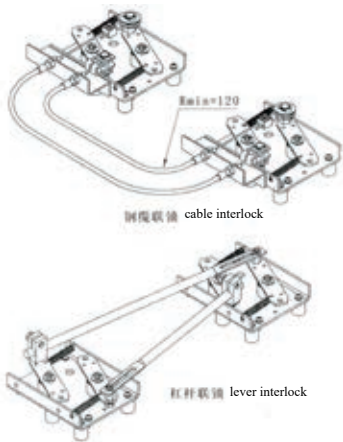
注：辅助触头可以采用四常开四常闭的形式引出，作为特殊规格生产、需由用户特定订货。我公司将同时提供特殊的二次接线图。带H型脱扣器的断路器无特殊规格。

Note: auxiliary contact can be used four normally open four normally closed, as a special specification of production, subject to the user specific orders. Our company will also provide special secondary wiring diagram. Circuit breakers with H-type release No special specifications.



门联锁 Door interlocking

可避免断路器在“接通”位置上柜体小室门打开。门联锁位置可选装在左侧或右侧。
It is possible to prevent the circuit breaker from opening in the cabinet door in the "on" position. The door interlock position is optional on the left or right side.

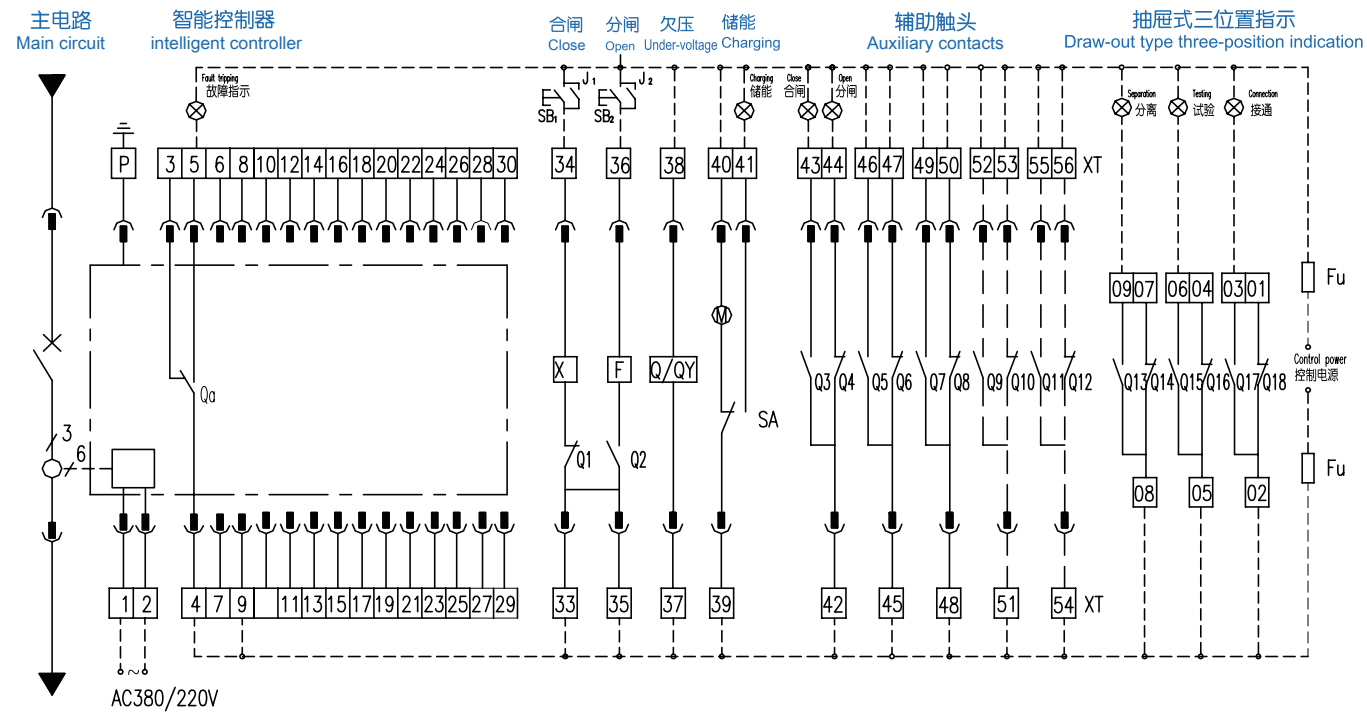


两台断路器机械联锁
Two circuit breakers mechanical interlocking

联锁分钢缆联锁和杠杆联锁
钢缆联锁最远距离不超过1.8m。缆绳的弯曲半径不小于120mm。
钢缆联锁适用于水平或垂直安装的两台断路器之间。
杠杆联锁最远距离不超过0.9m。
杠杆联锁必须在同一开关柜内的两台或三台上下安置的断路器之间进行。
Interlocking cable interlocking and lever interlocking
Cable interlocking the maximum distance is not more than 1.8m. The bending radius of the cable is not less than 120mm.
The cable interlock is suitable for horizontal or vertical installation between two circuit breakers.
Leverage of the maximum distance is not more than 0.9m.
The lever interlock must be carried out between two or three circuit breakers placed in the same switchgear.

XKW1-1600

2L3/2L4 型控制器 帶公共接线端子辅助触点 (三组转换/五组转换)
2L3/2L4 Control unit Auxiliary contact of public wiring terminal (3NO-C/5NO-C)



符号含义 Symbol defition

缩写 Abbreviation	代表含义 Meaning	缩写 Abbreviation	代表含义 Meaning
SB1	合闸按钮 Closing button	X	合闸电磁铁 Closed electromagnet
SB2	分闸按钮 Shunt button	F	分励脱扣器 Shunt release
J1	遥控器合闸继电器 Remote closing relay	Q	欠压脱扣器 Under-voltage release
J2	遥控分闸继电器 Remote opening relay	QY	欠压延时脱扣器 Under-voltage delay release
⊗	指示灯 Indicator lamp	Ⓜ	储能电机 Charging motor
Qa	故障指示触点 Fault tripping indication	SA	储能电机行程开关 Motor limit switch
		Q3 ~ Q8	三组转换指示触点 3NO-C Auxiliary contact
		Q3 ~ Q12	五组转换指示触点 5NO-C Auxiliary contact
XT	接线端子 Wiring terminal	Q13 ~ Q18	位置指示触点 Position Indication contact

接线端子号含义 Wiring terminal number definition		
1、2	控制器工作电源 ^①	Power supply for Control unit
3、4、5	故障指示触点	Fault tripping indication
P	保护接地线(仅适用于固定式)	Ground protection line (For fixed type only)
25、26	外接电流互感器(选配功能) ^②	External current Transformer (Selection function)

注:

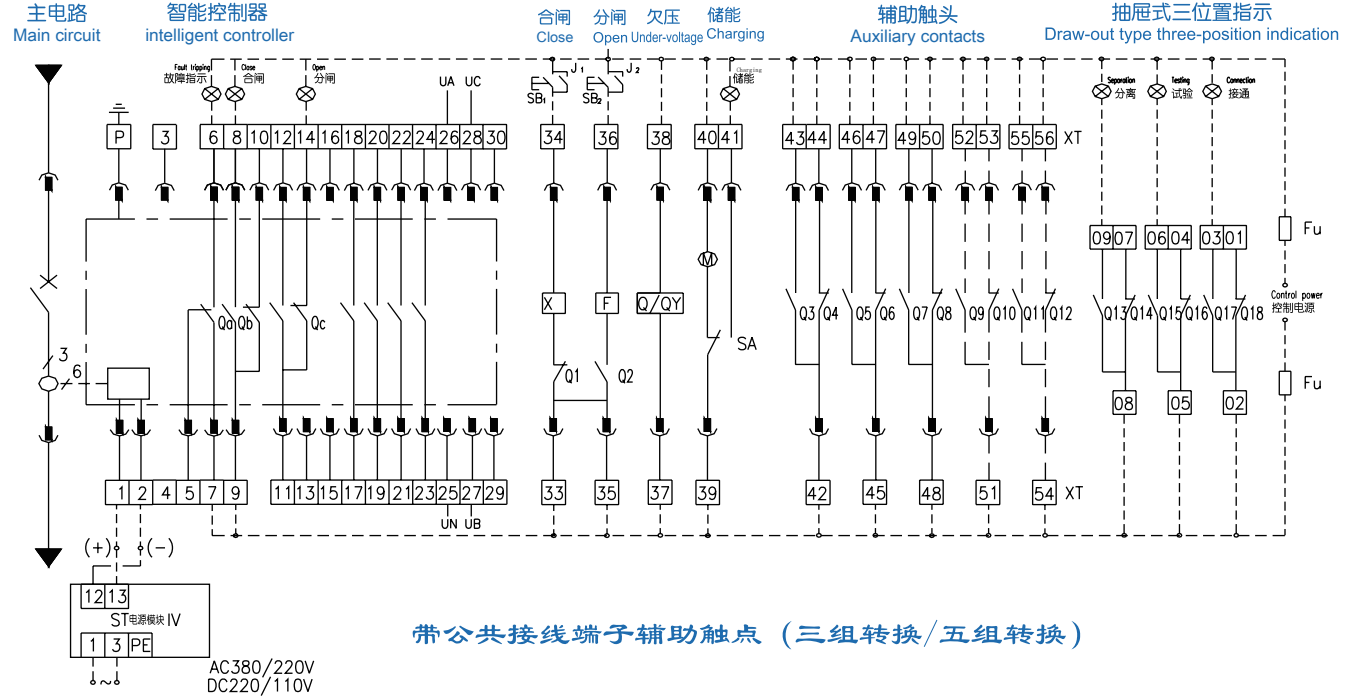
- 1.当工作电源为DC时,需经外接直流电源模块转换后方可接入控制单元;
- 2.仅适用于3P+N情况。

Note:



- 1.If the working voltage is DC,the control unit can be connected after transformation through an external DC power supply module;
- 2.Applicable to 3P + N only.

XKW1-1600

3M/3H 型控制器 帶公共接线端子辅助触点 (三组转换/五组转换)
3M/3H Control unit Auxiliary contact of public wiring terminal (3NO-C/5NO-C)



符号含义 Symbol defition

缩写 Abbreviation	代表含义 Meaning	缩写 Abbreviation	代表含义 Meaning
SB1	合闸按钮 Closing button	X	合闸电磁铁 Closed electromagnet
SB2	分闸按钮 Shunt button	F	分励脱扣器 Shunt release
J1	遥控器合闸继电器 Remote closing relay	Q	欠压脱扣器 Under-voltage release
J2	遥控分闸继电器 Remote opening relay	QY	欠压延时脱扣器 Under-voltage delay release
	指示灯 Indicator lamp		储能电机 Charging motor
Qa	故障指示触点 Fault tripping indication	SA	储能电机行程开关 Motor limit switch
Qb	合闸指示触点 Close tripping indication	Q3 ~ Q8	三组转换指示触点 3NO-C auxiliary contact
Qc	分闸指示触点 Open tripping indication	Q3 ~ Q12	五组转换指示触点 5NO-C auxiliary contact
XT	接线端子 Wiring terminal	Q13 ~ Q18	位置指示触点 Position indication contact

接线端子号含义 Wiring terminal number definition		
1、2	控制器工作电源,需经 ST电源模块转换后, 再接入断路器的1,2号端子	Power supply for Control unit,after the ST power supply module is converted, and access terminals 1 and 2 of the circuit breaker.
6、7	故障指示触点	Fault tripping indication
8、9	合闸指示触点	Close indication
11、14	分闸指示触点	Open indication
13、15、16	通讯线, 13为屏蔽线, 15为A, 16为B (选配功能)	Line of communication, 13 for shielding layer, 15 to connect A, 16 to connect B (Selection function)
17 ~ 24	可编程程输出触点 (选配功能)	Programmable output (Selection function)
P	保护接地线(仅适用于固定式)	Ground protection line (For fixed type only)
25 ~ 28	电压采样输入 (选配功能)	Voltage sampling input (Selection function)
29、30	外接电流互感器(选配功能) ⁽¹⁾	External current Transformer (Selection function)

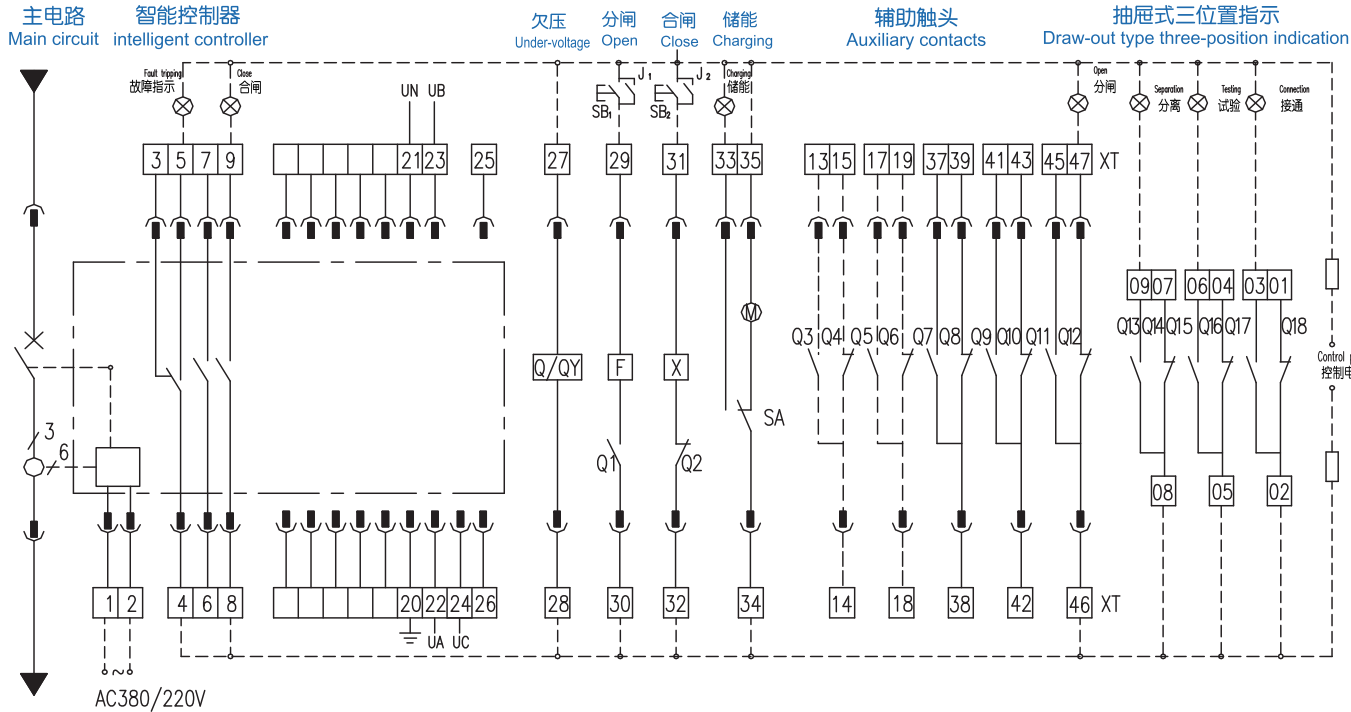
注：
1.仅适用于3P+N情况

Note:
1.Applicable to 3P + N only

XKW1-2000, 3200, 4000, 6300

L3/L4、M 型控制器 带公共接线端子辅助触点（三组转换/五组转换）

L3/L4、M Control unit Auxiliary contact of public wiring terminal（3NO-C/5NO-C）



符号含义 Symbol definition

缩写 Abbreviation	代表含义 Meaning	缩写 Abbreviation	代表含义 Meaning
SB1	分闸按钮 Shunt button	X	合闸电磁铁 Closed electromagnet
SB2	合闸按钮 Closing button	F	分励脱扣器 Shunt release
J1	遥控分闸继电器 Remote opening relay	Q	欠压脱扣器 Under-voltage release
J2	遥控合闸继电器 Remote closing relay	QY	欠压延时脱扣器 Under-voltage delay release
⊗	指示灯 Indicator lamp	Ⓜ	储能电机 Charging motor
XT	接线端子 Wiring terminal	SA	储能电机行程开关 Motor limit switch
		Q3 ~ Q12	五组转换指示触点 5NO-C Auxiliary contact
		Q7 ~ Q12	三组转换指示触点 3NO-C Auxiliary contact
		Q13 ~ Q18	位置指示触点 Position Indication contact

接线端子号含义 Wiring terminal number definition		
1、2	控制器工作电源 ^①	Power supply for Control unit
3、4、5	故障指示触点	Fault tripping indication
20	保护接地线	Ground protection line
21 ~ 24	电压采样输入（M型控制器选配功能）	Voltage sampling input（M-type controller selection function）
25、26	外接电流互感器(选配功能) ^②	External current Transformer（Selection function）

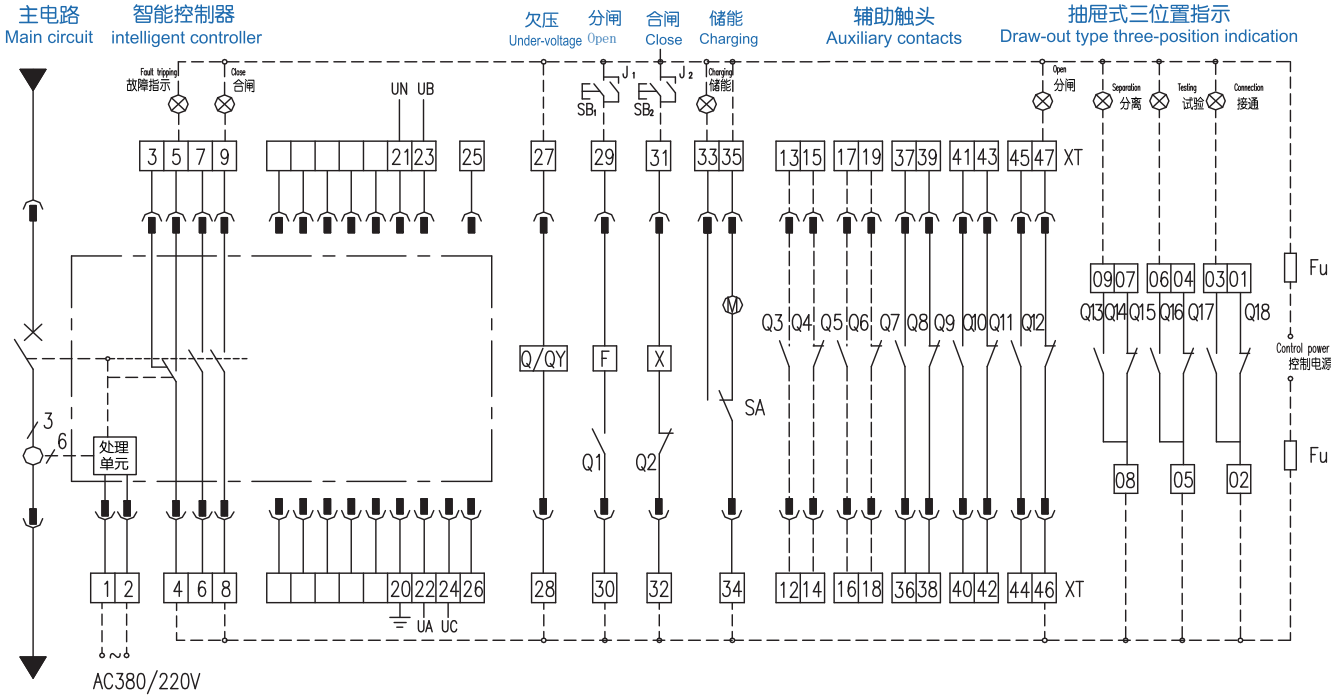
注：
1.当工作电源为DC时，需经外接直流电源模块转换后方可接入控制单元
2.仅适用于3P+N情况

Note:
1.If the working voltage is DC, the control unit can be connected after transformation through an external DC power supply module
2.Applyccble to 3P+n Only

XKW1-2000, 3200, 4000, 6300

L3/L4、M 型控制器 带独立接线端子辅助触点（三开三闭/五开五闭）

L3/L4、M Control unit Auxiliary contact of individual wiring terminal（3NO+3NC/5NO+5NC）



符号含义 Symbol definition

缩写 Abbreviation	代表含义 Meaning	缩写 Abbreviation	代表含义 Meaning
SB1	分闸按钮 Shunt button	X	合闸电磁铁 Closed electromagnet
SB2	合闸按钮 Closing button	F	分励脱扣器 Shunt release
J1	遥控分闸继电器 Remote opening relay	Q	欠压脱扣器 Under-voltage release
J2	遥控合闸继电器 Remote closing relay	QY	欠压延时脱扣器 Under-voltage delay release
⊗	指示灯 Indicator lamp	Ⓜ	储能电机 Charging motor
XT	接线端子 Wiring terminal	SA	储能电机行程开关 Motor limit switch
		Q3 ~ Q12	五开五闭辅助触点 5NO+5NC Auxiliary contact
		Q7 ~ Q12	三开三闭辅助触点 3NO+3NC Auxiliary contact
		Q13 ~ Q18	位置指示触点 Position Indication contact

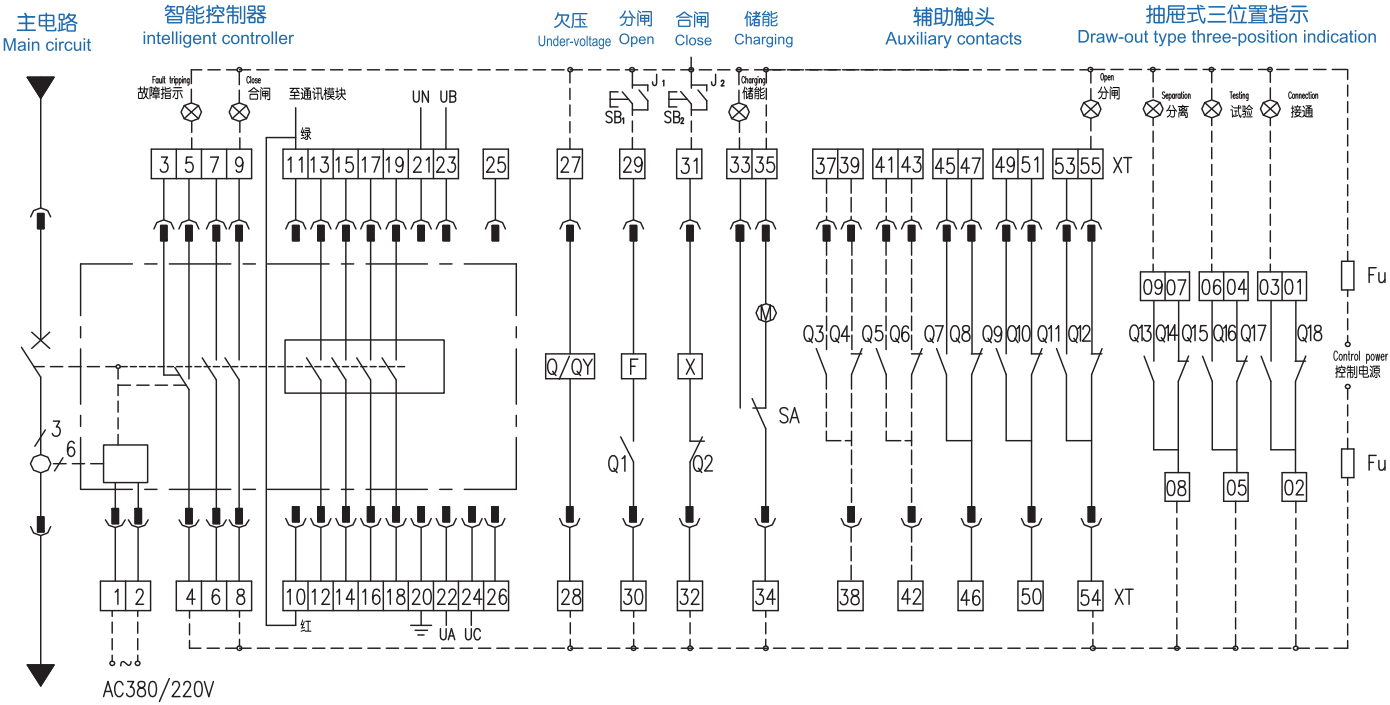
接线端子号含义 Wiring terminal number definition		
1、2	控制器工作电源 ^①	Power supply for Control unit
3、4、5	故障指示触点	Fault tripping indication
20	保护接地线	Ground protection line
21 ~ 24	电压采样输入（M型控制器选配功能）	Voltage sampling input（M-type controller selection function）
25、26	外接电流互感器(选配功能) ^②	External current Transformer（Selection function）

注：
1.当工作电源为DC时，需经外接直流电源模块转换后方可接入控制单元
2.仅适用于3P+N情况

Note:
1.If the working voltage is DC, the control unit can be connected after transformation through an external DC power supply module
2.Applyccble to 3P+n Only

XKW1-2000, 3200, 4000, 6300

2M/2H、3M/3H型控制器 带公共接线端子辅助触点（三组转换/五组转换）
2M/2H、3M/3H Control unit Auxiliary contact of public wiring terminal (3NO-C/5NO-C)



符号含义 Symbol defintion

缩写 Abbreviation	代表含义 Meaning	缩写 Abbreviation	代表含义 Meaning
SB1	分闸按钮 Shunt button	X	合闸电磁铁 Closed electromagnet
SB2	合闸按钮 Closing button	F	分励脱扣器 Shunt release
J1	遥控分闸继电器 Remote opening relay	Q	欠压脱扣器 Under-voltage release
J2	遥控合闸继电器 Remote closing relay	QY	欠压延时脱扣器 Under-voltage delay release
⊗	指示灯 Indicator lamp	Ⓜ	储能电机 Charging motor
XT	接线端子 Wiring terminal	SA	储能电机行程开关 Motor limit switch
		Q3 ~ Q12	五组转换指示触点 5NO-C Auxiliary contact
		Q7 ~ Q12	三组转换指示触点 3NO-C Auxiliary contact
		Q13 ~ Q18	位置指示触点 Position Indication contact

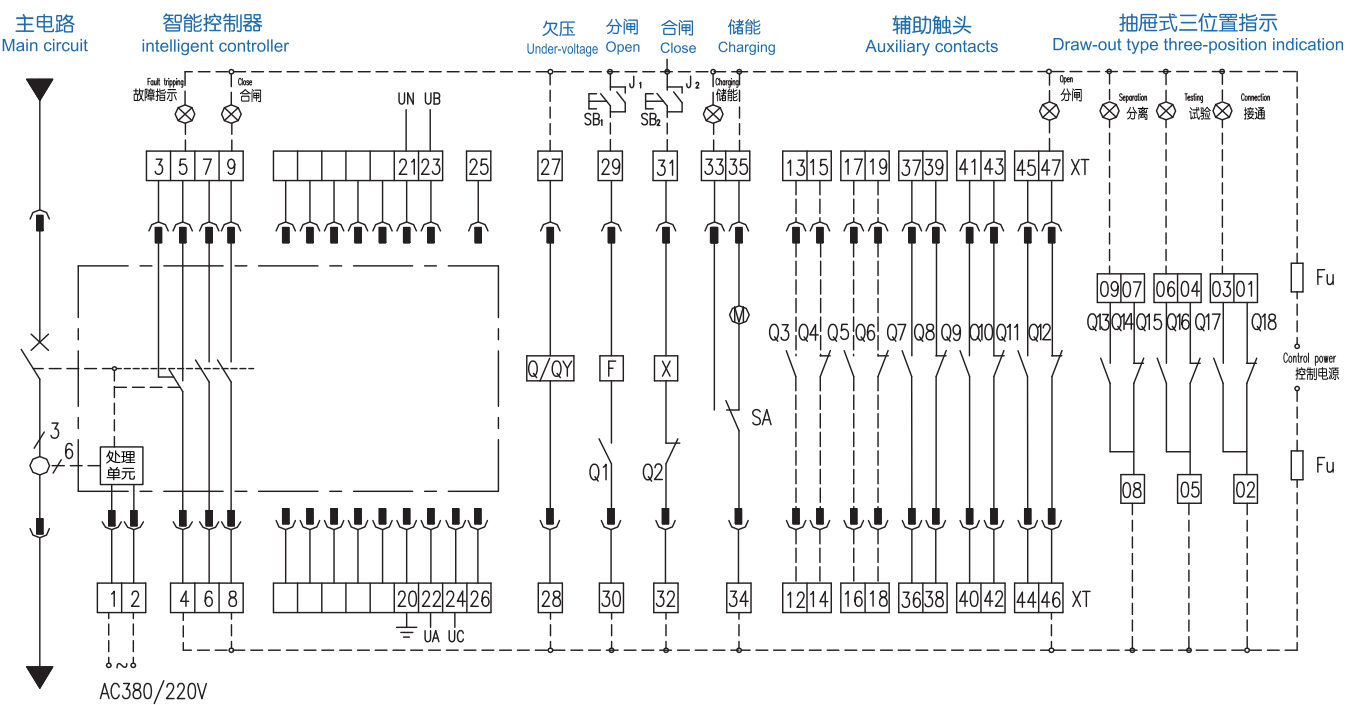
接线端子号含义 Wiring terminal number definition		
1、2	控制器工作电源 ^[1]	Power supply for Control unit
4、5	故障指示触点	Fault tripping indication
8、9	合闸指示触点	Close indication
10、11	通讯线，10为A，11为B(选配功能)	Line of communication, 10 to connect A, 11 to connect B (Selection function)
12 ~ 19	可编程输出触点(选配功能)	Programmable output (Selection function)
20	保护接地线	Ground protection line
21 ~ 24	电压采样输入（选配功能）	Voltage sampling input (selection function)
25~26	外接电流互感器(选配功能) ^[2]	External current Transformer (Selection function)

注：
1.当工作电源为DC时，需经外接直流电源模块转换后方可接入控制单元
2.仅适用于3P+N情况

Note:
1.If the working voltage is DC, the control unit can be connected after transformation through an external DC power supply module
.Applyccble to 3P+n Only

XKW1-2000, 3200, 4000, 6300

2M/2H、3M/3H型控制器 带独立接线端子辅助触点（三开三闭/五开五闭）
2M/2H、3M/3H Control unit Auxiliary contact of individual wiring terminal (3NO+3NC/5NO+5NC)



符号含义 Symbol defintion

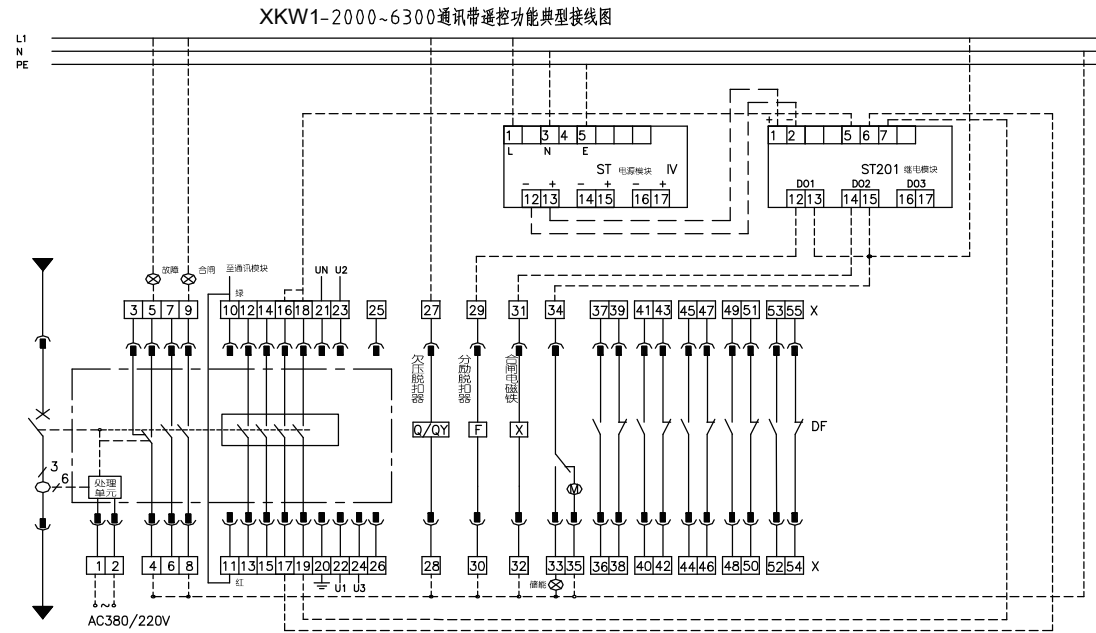
缩写 Abbreviation	代表含义 Meaning	缩写 Abbreviation	代表含义 Meaning
SB1	分闸按钮 Shunt button	X	合闸电磁铁 Closed electromagnet
SB2	合闸按钮 Closing button	F	分励脱扣器 Shunt release
J1	遥控分闸继电器 Remote opening relay	Q	欠压脱扣器 Under-voltage release
J2	遥控合闸继电器 Remote closing relay	QY	欠压延时脱扣器 Under-voltage delay release
⊗	指示灯 Indicator lamp	Ⓜ	储能电机 Charging motor
XT	接线端子 Wiring terminal	SA	储能电机行程开关 Motor limit switch
		Q3 ~ Q12	五开五闭辅助触点 5NO+5NC Auxiliary contact
		Q7 ~ Q12	三开三闭辅助触点 3NO+3NC Auxiliary contact
		Q13 ~ Q18	位置指示触点 Position Indication contact

接线端子号含义 Wiring terminal number definition		
1、2	控制器工作电源 ^[1]	Power supply for Control unit
4、5	故障指示触点	Fault tripping indication
8、9	合闸指示触点	Close indication
10、11	通讯线，10为A，11为B(选配功能)	Line of communication, 10 to connect A, 11 to connect B (Selection function)
12 ~ 19	可编程输出触点(选配功能)	Programmable output (Selection function)
20	保护接地线	Ground protection line
21 ~ 24	电压采样输入（选配功能）	Voltage sampling input (selection function)
25~26	外接电流互感器(选配功能) ^[2]	External current Transformer (Selection function)

注：
1.当工作电源为DC时，需经外接直流电源模块转换后方可接入控制单元
2.仅适用于3P+N情况

Note:
1.If the working voltage is DC, the control unit can be connected after transformation through an external DC power supply module
2.Applyccble to 3P+n Only

XKW1-2000, 3200, 4000, 6300通讯带遥控功能典型接线图



缩写 Abbreviation	代表含义 Meaning	缩写 Abbreviation	代表含义 Meaning
SB1	分励按钮(用户自备) Shunt button (provided by user)	UR	欠压脱扣器或欠压延时脱扣器 Under-voltage release or under-voltage delay release
SB2	分压按钮(用户自备) Under-voltage button (provided by user)	SR	分励脱扣器 Shunt release
SB3	合闸按钮(用户自备) Switch-in button (provided by user)	Y	合闸电磁铁 Switch-in electromagnet
SB4	储能按钮(用户自备) Energy storage button (provided by user)	X	接线端子 Wiring terminal
J1	继电器(用户自备,可做远距分闸用) Relay (provided by user for long-distance switch-in)	FU	熔断器 Fuse
	故障,合闸,储能 储能断开信号KJ(用户自备,自接) Failure, switch-in and energy storage cuto* signal lamp (provided and connected by user)	SA	电机微动开关 Motor toggle switch
M	储能电机 Energy storage motor	DF	辅助触头 Auxiliary contact

+ :

Note:

- “抽屉式三位置指示”为用户选配装置;
- M, UR, SR和Y的控制电源电压不同时,可分别接不同电源(按订货规格选择),SR和Y的控制电源电压需一致(SR和Y属于短时工作制元件,通电时间不可超过4秒)
-表示用户自接电源线;
- 当主回路电流小于0.4In时,必备端子1, 2电源,当辅助电源为直流电时,1#为正端, 2#为负端。

- 1.,Draw-out type three-position indication- is user's optional 2.device;
Connect M, UR, SR and Y control power voltage to different power supplies respectively (according to ordering dimensions); SR and Y control power voltage shall be consistent.(Power supply period cannot exceed 4s when SR and Y belong to 3.short-term operating system elements)
4. refers to power wires connected by user;
Be sure to provide terminal 1 and 2 power when main loop current is less than 0.4In. 1# is positive end and 2# is negative end for DC auxiliary power.

XKQW series automatic power supply switch system

安全告知

Safety notice

在安装、操作、运行、维护、检查之前,请务必认真阅读本说明书,并按照说明书上的内容准确安装、使用本产品。

Before installing, operating, operating, maintaining, checking, please read this manual carefully and follow the instructions on the contents of the installation and use of this product.

概述

Overview

XKQW系列双电源系统,主要由两台万能式断路器、机械联锁及双电源自动切换控制器等组成,适用于额定频率50/60Hz、额定工作电压400V的两路电源(常用电源和备用电源或发电机)电网中,确保用户可靠供电。XKQW系列双电源系统适用于商场、医院、银行、化工、消防、冶金等不允许断电的重要场所。
本产品符合标准:GB 14048.2和GB/T 14048.11。

XKQW series of dual power supply system, mainly by the two universal circuit breakers, mechanical interlock and dual power supply automatic switching controller and other components for the rated frequency 50 / 60HZ, rated voltage 400V two power (common power and standby power Or generators) to ensure reliable supply of electricity to the user.

产品型号及含义

Product model and meaning

XK QW R -- □

- 产品设计代号(附件) Product design code (Annex)
- 附件类别: 双电源系统 Accessories Category: Dual power supply system
- 功能代号: R:自投自复(电网-电网)
R: automatic charge and automatic recovery(Power grid- Power grid)
S:自投不自复(电网-电网)
S: automatic charge and artificial recovery (Power grid- Power grid)
F:自投自复(电网-发电机,或常用-发电)
F: automatic charge and automatic recovery(Power grid - engine,)
- 适配断路器壳架等级电流的前两位:
The top two of the rated current of the adapter circuit breaker:
XKW1系列: 16-1600A; 20-2000A; 32-3200A; 40-4000A; 63-6300A
XKW5系列: 16-1600A; 25-2000A; 40-3200A; 50-4000A; 63-6300A; 80-8000A

正常工作条件

Normal operation installation conditions

- 周围空气温度
a)上限值不超过 + 40℃;
b) 下限值不低于 - 5℃;
C) 24h的平均值不超过 + 35℃。
注: 上限值超过 + 40℃或下限值低于 - 5℃(例如 - 25℃, 该要求是按GB 725.1对于户外的低压成套开关设备和控制设备提出的)的工作条件, 用户应与制造厂协商。
- 安装地点
海拔不超过2000m
- 大气条件
湿度
最高温度为+40℃时, 空气相对湿度不超过50%; 在较低的温度下可

- Ambient air temperature
a)The upper limit does not exceed +40℃;
b)The lower limit of not less than -5℃
c)The average of 24 h does not exceed + 35℃.
Note: If the upper limit exceeds +40℃ or the lower limit is less than -5℃(eg -25℃, which is based on GB 725.1 for working outdoors for low voltage switchgear and control equipment), the user should Consultation of the manufacturer.
- Elevation
The installation site does not exceed 2000 m above sea level.
- Atmospheric conditions
Humidity
The maximum temperature of +40℃, the air relative humidity of not more than 50%;At a lower temperature can allow a higher humidity;Such as 90% at +20℃.Special measures should be taken for occasional condensation due to temperature changes.

以允许有较高的湿度；例如+20℃时达90%。对由于温度变化偶尔产生的凝露应采取特殊措施。
注：特殊产品（如湿热带型），用户应与制造厂协商。

- **污染等级**
双电源系统的污染等级为3级（有导电性污染，或由于凝露使干燥的非导电性污染变为导电性的）
- **安装类别（过电压类别）**
双电源系统的过电压类别为Ⅳ级。
- **电磁干扰**
适用于环境A
- **安装条件**

双电源系统的两台万能式断路器在相邻的两个配电柜中进行水平安装，两台断路器左侧板之间的最大距离不超过2m，两台断路器之间的机械联锁应选择钢缆联锁方式实现。
双电源系统的两台万能式断路器在一个配电柜中进行上下安装，两台断路器安装平面之间的最大距离不超过0.9m，两台断路器之间的机械联锁可选择钢缆联锁方式或杠杆联锁方式实现。
双电源自动切换控制器为面板安装，通过专用连接电缆与断路器连接，专用电缆长度为3m。

Note: special products (such as hot and humid type), the user should consult with the manufacturer.

- **Pollution level**
The dual power system has a pollution rating of 3 (conductive contamination, or condensation due to dry nonconductive contamination).
- **Installation category (overvoltage category)**
The overvoltage category of the dual power supply system is Class IV.
- **Electromagnetic interference**
Applicable to environment A.
- **Installation conditions**
Dual power system of two universal circuit breaker in the adjacent two power distribution cabinet in the horizontal installation, the two left side of the circuit breaker between the maximum distance of not more than 2m, two circuit breaker between the mechanical interlock Should be selected to achieve interlocking cable.

Dual power system of two universal circuit breaker in a distribution cabinet for up and down installation, the two circuit breaker installation plane between the maximum distance of not more than 0.9m, between the two circuit breaker mechanical interlock can choose cable Interlocking or leveraged interlocking.

Dual power automatic switching controller for the panel installation, through a dedicated connection cable and circuit breaker connection, dedicated cable length of 3m.

结构与性能要求 Structural and performance requirements

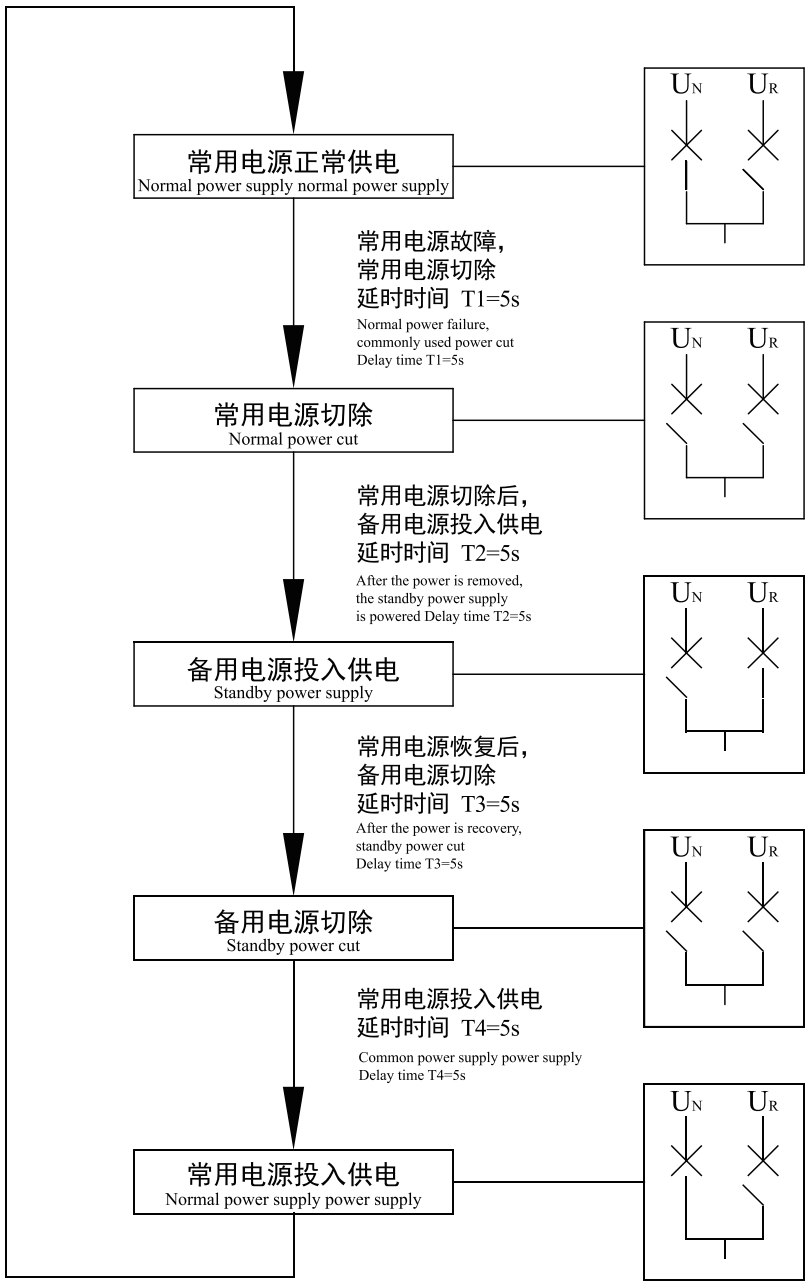
- 电器级别：CB级
 - 使用类别：主电路的使用类别为AC-33B，电动机负载或混合负载。
 - 额定工作电压：AC230V
 - 额定频率：50/60Hz
 - 欠电压转换值：80%Ue，包括缺相
 - 过电压转换值：115%Ue
- Electrical level: CB level
 - Use category: The use of the main circuit category AC-33B, motor load or mixed load.
 - Rated operating voltage: AC230V
 - Rated frequency: 50 / 60Hz
 - Under-voltage conversion value: 80% Ue, including phase loss
 - Overvoltage conversion value: 115% Ue

自动转换控制器特性 Characteristics of the automatic controllers

型号 model	额定控制电源 电压Us(V) Rated control supply voltage	转换断开延时 时间T1(S) Conversion off delay time	转换接通延时 时间T2(S) Conversion on delay time	返回断开延时 时间T3(S) Return off delay time	返回接通延时 时间T4(S) Return on delay time	发电机启动延 时时间T5(S) Generator start delay time	发电机停机延 时时间T6(S) Generator downtime delay time
R型type S型type	230V	5	5	5	5		
F型type	230V	0~60	50	0~60	5	5	0

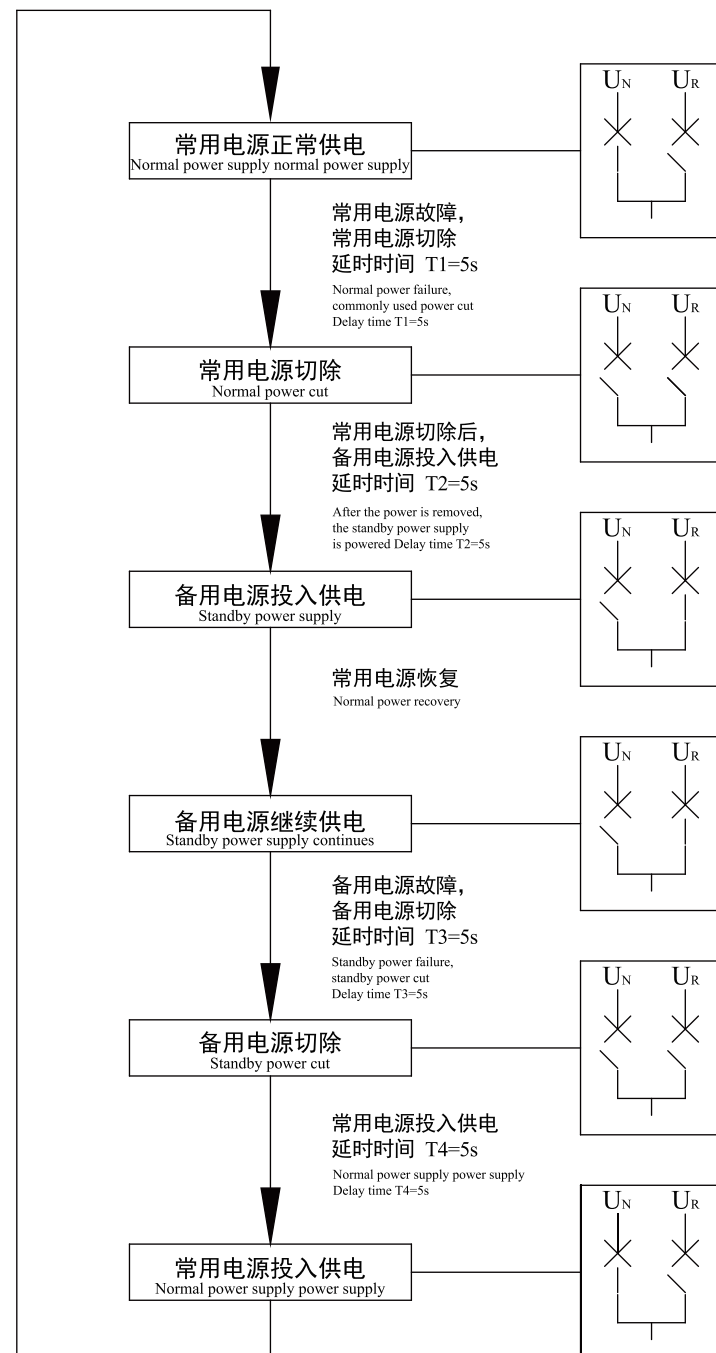
电网-电网 自投自复 状态转换逻辑图 (R型)

Grid - grid automatic charge and automatic recovery state transition logic diagram (S-type)



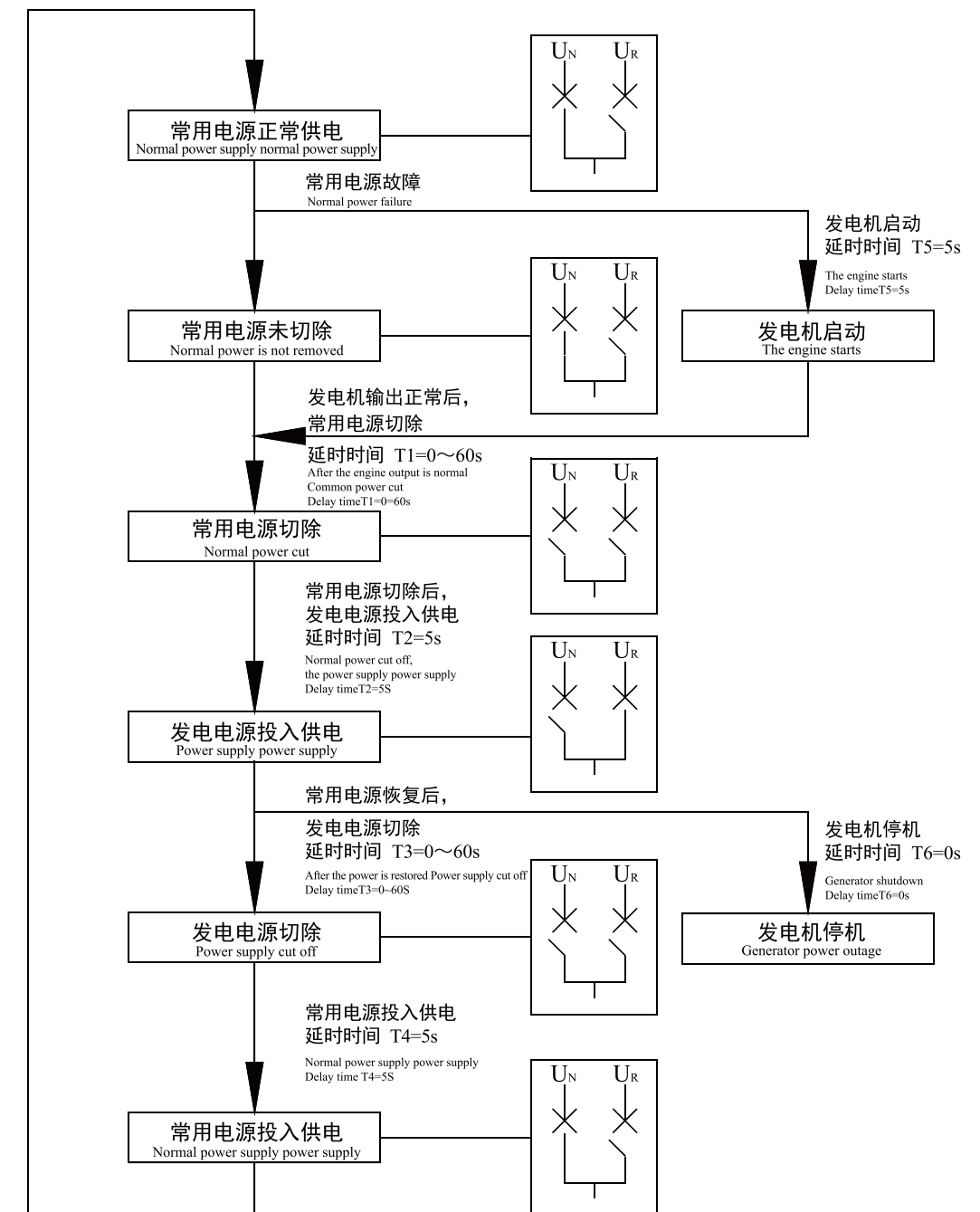
电网-电网 自投不自复 状态转换逻辑图 (S型)

Grid - grid automatic charge and artificial recovery state transition logic diagram (S-type)

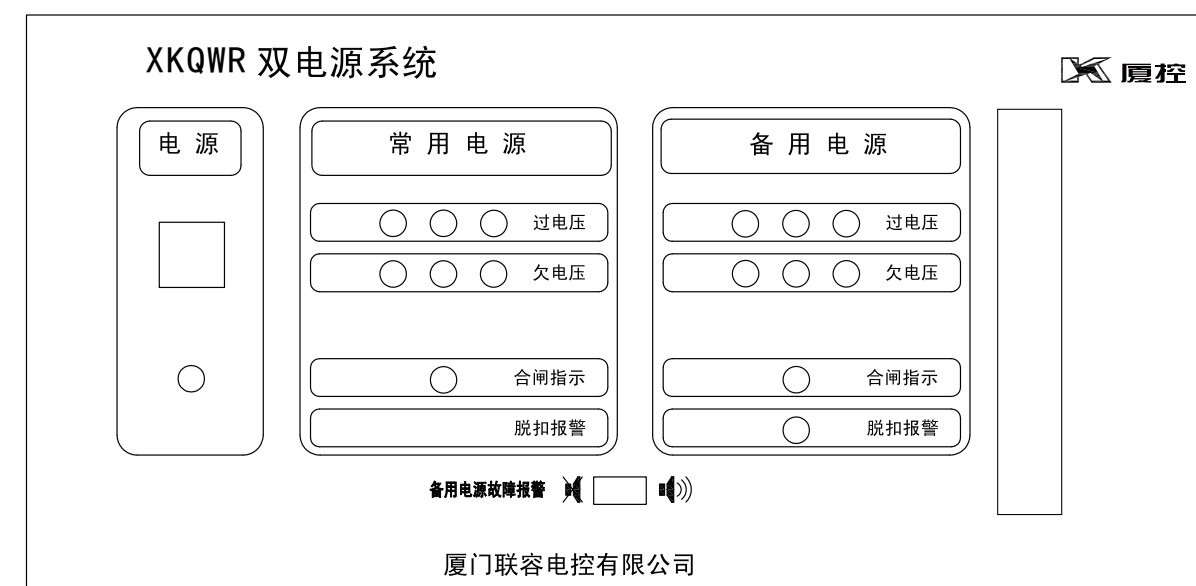


电网-发电机 自投自复 状态转换逻辑图 (F型)

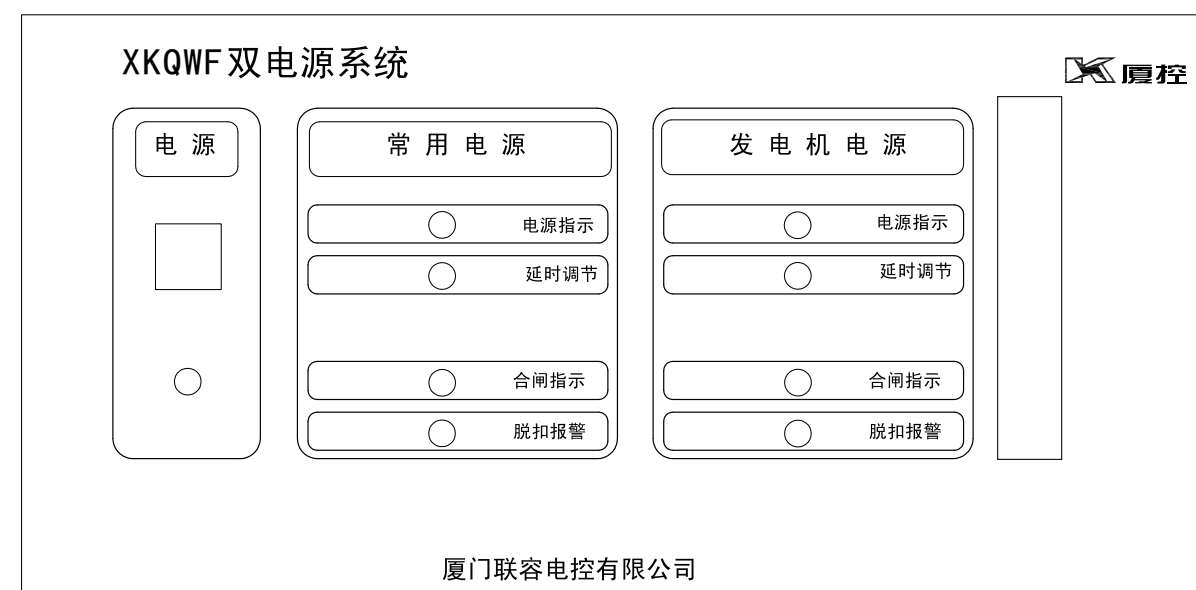
Grid - generator automatic charge and automatic recovery state transition logic diagram (F-type)



R/S型（电网-电网）控制器面板说明：
R / S (Grid-Grid) Controller Panel Description:



F型（电网-发电机）控制器面板说明：
F (Grid-Generator) Controller Panel Description:



按键功能说明

Key function description

双电源控制系统的自投自复及自投不自复控制器通过显示面板上的键可以设定四种状态：“自动控制”、“常用电源”、“备用电源”、“断电再扣”。

- 自动控制：此按钮处于按下位置时，为自动工作状态，系统根据两路电源电压是否正常，自动进行切换，具体状态转换见逻辑图。
- 常用电源：常用电源正常时常用断路器应切换至合闸位置，常用电源故障下按此键无效。
- 备用电源：备用电源正常时备用断路器应切换至合闸位置，备用电源故障下按此键无效。

断电再扣：

- 1.当两路电源均需停止供电时，按下断电再扣按钮。
- 2.当断路器因负载发生短路或过载等情况进行保护跳闸后应首先对负载电路进行检修，检修完毕后按下断路器智能控制器的“复位”按钮对断路器脱扣装置进行复位。此时双电源控制器仍处于脱扣保护状态，需按下“断电再扣”键，待脱扣报警灯熄灭后完成复位。只有当双电源控制器复位完毕后，用户才可以按其它按键对双电源转换装置进行操作。

- 在双电源控制器正常运行过程中，不能对断路器面板上的合闸与分闸按钮进行操作，只能通过双电源控制器面板上的“断电再扣”、“常用电源”、“备用电源”和“自动控制”按钮进行控制，否则将会导致双电源控制器误动作，引起断路器内部元件损坏。

Dual power control system from the self-resetting and no-self-resetting the controller through the display panel keys can be set to four states: "automatic control", "common power", "standby power", "power supply and then deduction".

- Automatic control: this button is in the press position, for the automatic working state, the system according to the two power supply voltage is normal, automatically switch, the specific state transition see logic diagram.
- Commonly used power supply: Commonly used power supply circuit breaker should be switched to the common position, under normal power failure, press this button is invalid.
- Standby power supply: standby power supply standby circuit breaker should be switched to the closing position, standby power failure press this button is invalid.

Power off again buckle:

1. When both power supplies are required to stop power supply, press the power button again.
2. When the circuit breaker due to load short circuit or overload, etc. after the protection of the trip after the first load circuit should be repaired, after repair, press the circuit breaker intelligent controller "reset" button on the circuit breaker trip device reset. At this point the dual power controller is still in the trip protection state, need to press the "power button", to be off after the alarm lights off to complete the reset. Only when the dual power supply controller is reset, the user can press the other button to operate the dual power conversion device.

- In the normal operation of the dual power controller, the closing and opening buttons on the circuit breaker panel can not be operated, only through the "power supply and then deduction", "common power" on the dual power controller panel, "Standby power" and "automatic control" button to control, otherwise it will lead to dual power controller malfunction, causing damage to the internal components of the circuit breaker.

控制器背后接线端子“+”、“-”应接12V直流电源（如蓄电池）的正负极，以保证双电源控制器在电网停电而发电机尚未发电时能正常工作。F1-F2（常闭）、F1-F4（常开）均为容量为10A/250V的无源触点，可作为发电机组的启动、停止信号输出。

当电网电压低于80%额定电压时，经固定5S延时后控制器发出发电指令。当发电电压达到90%额定电压以上时，经转换断开延时（出厂整定20S）后断开常用电源，常用电源断开后，经固定5S转换接通延时后接通发电电源。

当电网电压恢复正常（达到90%额定电压以上）时，经返回断开延时（出厂整定20S）后断开发电电源，同时发出发电机停机信号。发电电源断开后，经固定5S返回接通延时后接通常用电源，恢复到电网电源供电。具体可参照6.3 常用-发电电源间的自投自复（F型）逻辑图。

The controller behind the terminal "+", "-" should be connected to 12V DC power supply (such as battery) positive and negative, to ensure that the dual power controller in the power grid and the generator has not yet power to work properly.F1-F2 (normally closed), F1-F4 (normally open) are capacity of 10A / 250V passive contacts, can be used as a generator set to start, stop the signal output.

When the grid voltage is less than 80% of the rated voltage, after a fixed 5S delay controller issued power generation instructions.When the power generation voltage reaches 90% of the rated voltage or more, the conversion disconnect delay (factory setting 20S) after disconnecting the common power supply, the common power is turned off, after a fixed 5S conversion delay connected to the power supply.

When the grid voltage returns to normal (up to 90% of rated voltage or more), the return off delay (factory setting 20S) after disconnecting the power supply, while starting the generator shutdown signal.Power supply is disconnected, the fixed 5S return after the delay connected to the usual power supply, return to the grid power supply.For details, refer to 6.3 Self-resetting (F-type) logic diagrams commonly used in power generation.

双电源自动转换开关工作原理 电网-电网 双电源自动切换开关

Dual power automatic switching controller works Grid - grid dual power automatic switching controller

双电源控制系统的自投自复及自投不自复系统通过显示面板上的键可以设定四种状态：

“自动控制”、“常用电源”、“备用电源”、“断电再扣”

自动控制 此按钮处于按下位置时，为自动工作状态，系统根据两路电源电压是否正常，自动进行切换，具体状态转换见逻辑图。

常用电源 则断路器进入常用电源供电工作方式。在此方式下常用电源断路器应合闸，当常用电源发生异常时，自动转换开关控制器只报警不转换。

备用电源 则断路器进入备用电源供电工作方式。在此方式下备用电源断路器应合闸，当备用电源发生异常时，自动转换开关控制器只报警不转换。

断电再扣 当两路电源均需要停止供电时，按下断电再扣按钮。当负载出现故障断路器进行保护跳闸后或线路检修时，均需要按下断电再扣按钮，

Dual power supply control system from the self-resetting and self-resetting system through the display panel keys can be set to four states: "automatic control", "common power", "standby power" " power supply and then deduction "

Automatic control

This button is in the press position, for the automatic working state, the system according to the two power supply voltage is normal, automatically switch, the specific state transition see logic diagram.

Common power supply

The circuit breaker into the common power supply work. In this way commonly used power circuit breaker should close, when the common power supply error occurs, the automatic transfer switch controller only alarm does not change.

Backup power

Then the circuit breaker into the standby power supply work. In this way, the

让自动控制器停止自动转换，以免发生危险。

在双电源自动控制器正常运行过程中，不能对断路器面板上的合闸与分闸按钮进行操作，只能通过自动控制器面板上的“断电再扣”、“常用电源”、“备用电源”和“自动控制”按钮进行控制，否则将会导致双电源自动控制器误动作，引起断路器内部元件损坏。

backup power circuit breaker should be closed. When the standby power supply is abnormal, the automatic transfer switch controller will only switch the alarm.

Power off again buckle

When the two power supply need to stop power supply, press the power button and then button.

When the load faults circuit breaker protection trip or line maintenance, you need to press the power button and then let the automatic controller to stop automatic conversion, so as to avoid danger.

During the normal operation of the dual power supply automatic controller, the closing and closing buttons on the circuit breaker panel cannot be operated, only through the "power off and then deduction", "common power", " Power "and" automatic control "button to control, otherwise it will lead to dual power supply automatic controller malfunction, causing damage to the internal components of the circuit breaker.

电网-发电机双电源自动切换开关

Grid - generator dual power automatic switching controller

系统操作原理同电网-电网自投自复型，只是备用电源采用发电机电源。控制器上的接线端子“+”、“-”应接12V直流电源（如蓄电池）以保证控制器在电网停电而发电机尚未发电时能正常工作。如不接 12V 直流电源，系统仍可工作。但在电网停电而发电机尚未发电阶段，控制停止工作，无发电信号发出（用户须用其他方法启动发电机），发电机发电后，控制器重新工作，经发电延时发出发电信号，同时断开常用电源端断路器，接通备用电源端断路器，切换到发电电网。

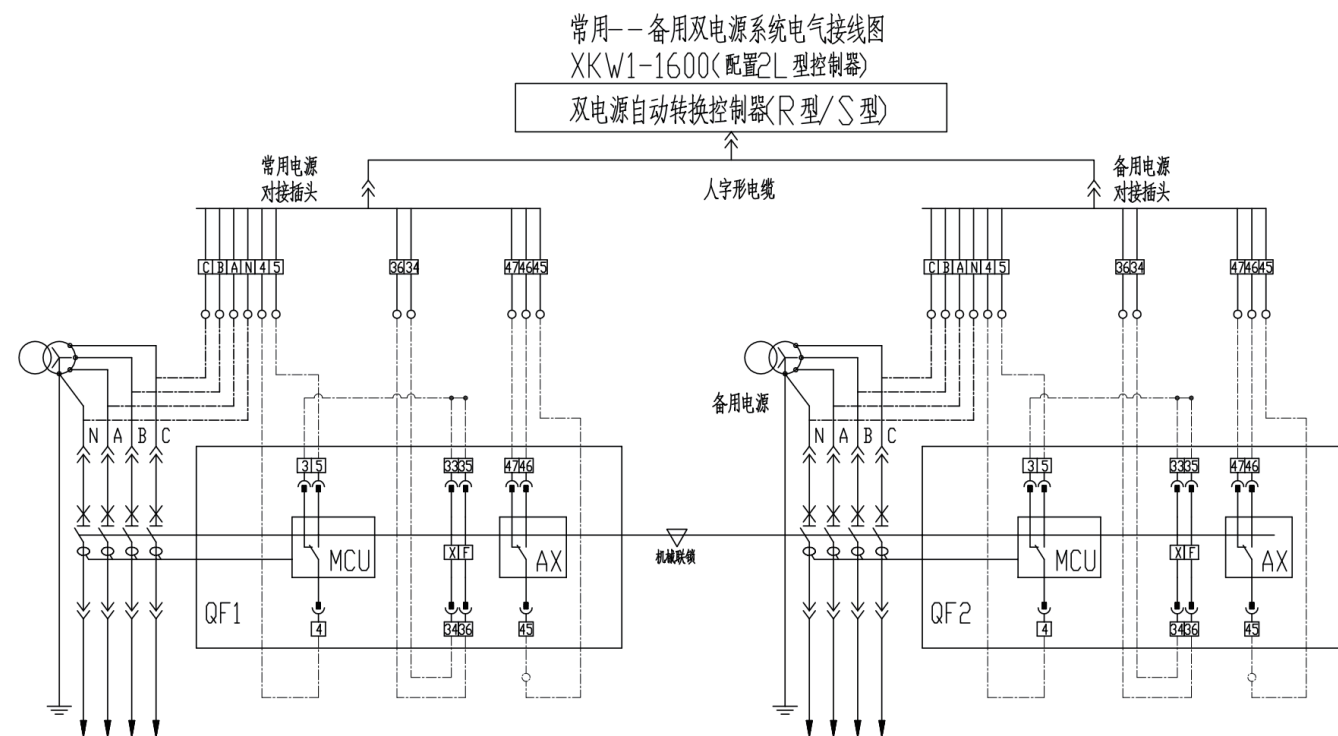
电网一发电机双电源自动切换开关是在电网电压低于 80% 额定电压时，经发电指令延时发出发电指令。当发电电压达到90%额定电压以上时（出厂整定在20S）后接通发电机电源。当电网电压恢复正常（达到90%额定电压以上）时，经返回断开接通延时（出厂整定在20S）后断开发电电源恢复到电网电源供电。

System operation principle with the grid - the grid since the vote from the complex, but the standby power supply generator power.

The terminals on the controller "+", "-" should be connected to 12V DC power supply (such as battery) to ensure that the controller in the power grid and the generator has not yet power to work properly.If you do not connect 12V DC power supply, the system can still work. But the power grid power failure and the generator has not yet power stage, control to stop working, no power signal issued (the user must use other methods to start the generator), the generator power generation, the controller to work again, issued by the power generation delay signal, Open the main power supply circuit breaker, turn on the standby power supply circuit breaker, switch to the power grid.

Power grid - generator dual power automatic switch is the power grid voltage is less than 80% of the rated voltage, the power generation instructions issued by the delay power generation instructions. When the power generation voltage reaches 90% above the rated voltage (factory set at 20S) after the generator power.When the grid voltage returns to normal (up to 90% of rated voltage or more), the return disconnection delay (factory set at 20S) and then turn off the power supply to the grid power supply.

XKW1-1600 (配置 2L 智能控制器)
XKW1-1600 (of 2L intelligent controller)



说明:

- 图中虚线部分用户自接
- 接线图为回路无电,断路器断开且处于连接位置,操作机构已储能。
- 双电源系统中的万能式断路器必须为电动操作方式的断路器,且断路器的分励脱扣扣器,闭合电磁铁及电动操作机构的控制电源电压只能交流 220V
- 双电源系统中的断路器配置H型智能控制器时,不能使用远 程分闸和远程合闸功能
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符号含义:

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X:合闸电磁铁
F:分励脱扣器
AX:辅助开关

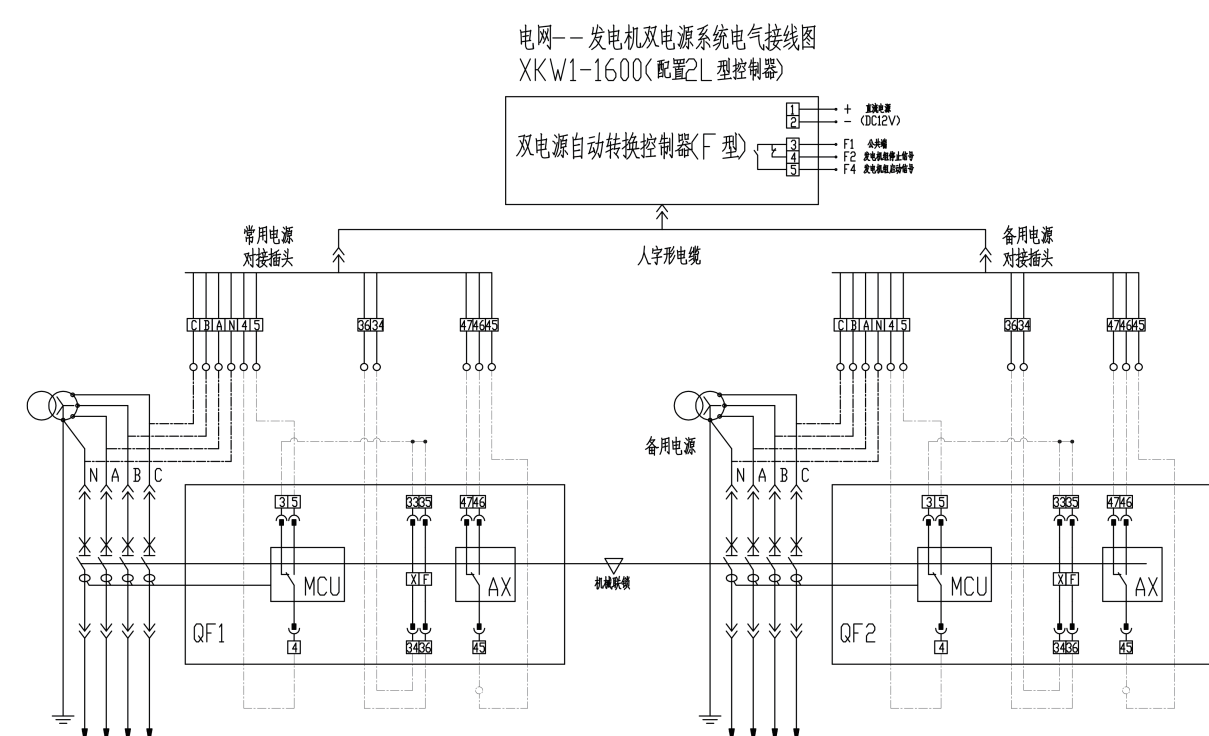
Description:

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Symbolic meaning:

QF1: Common power supply circuit breaker
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MCU: Intelligent controller (circuit breaker body)
X: Close the electromagnet
F: Trip release
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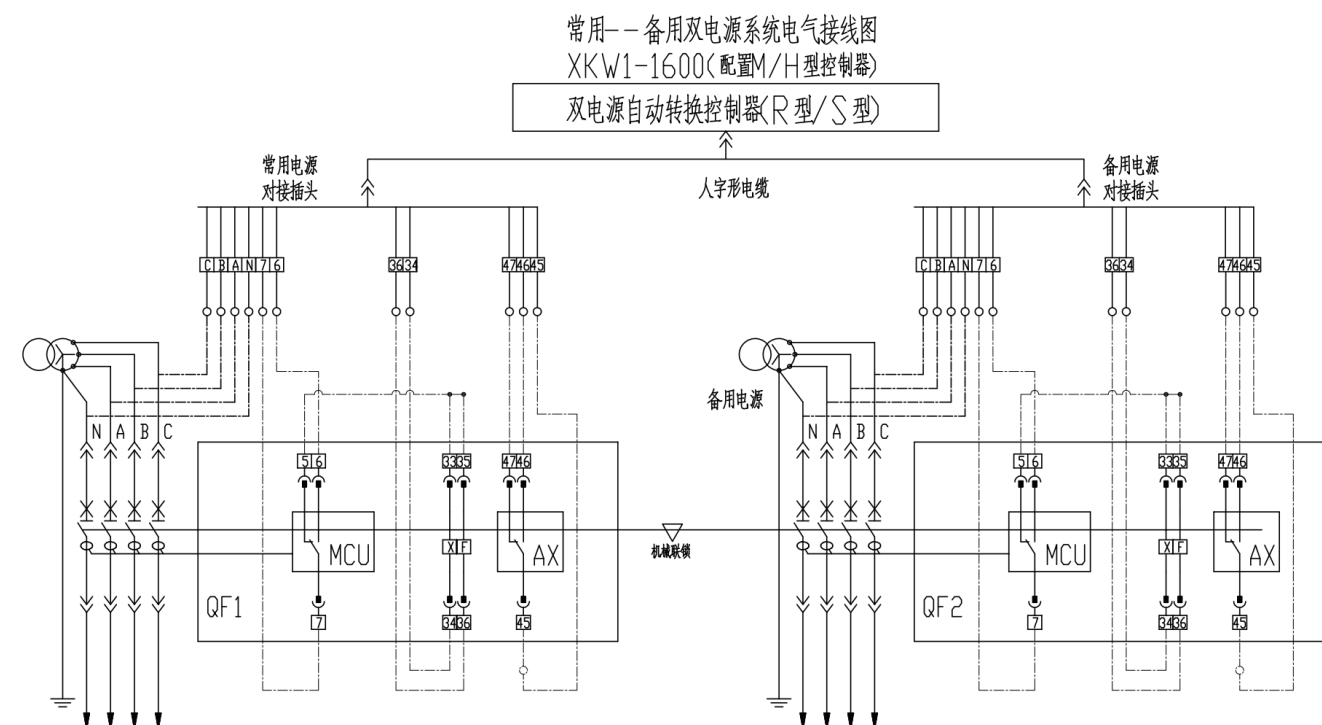
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XKW1-1600 (配置 M/H 智能控制器)
XKW1-1600 (of M/H intelligent controller)



说明:

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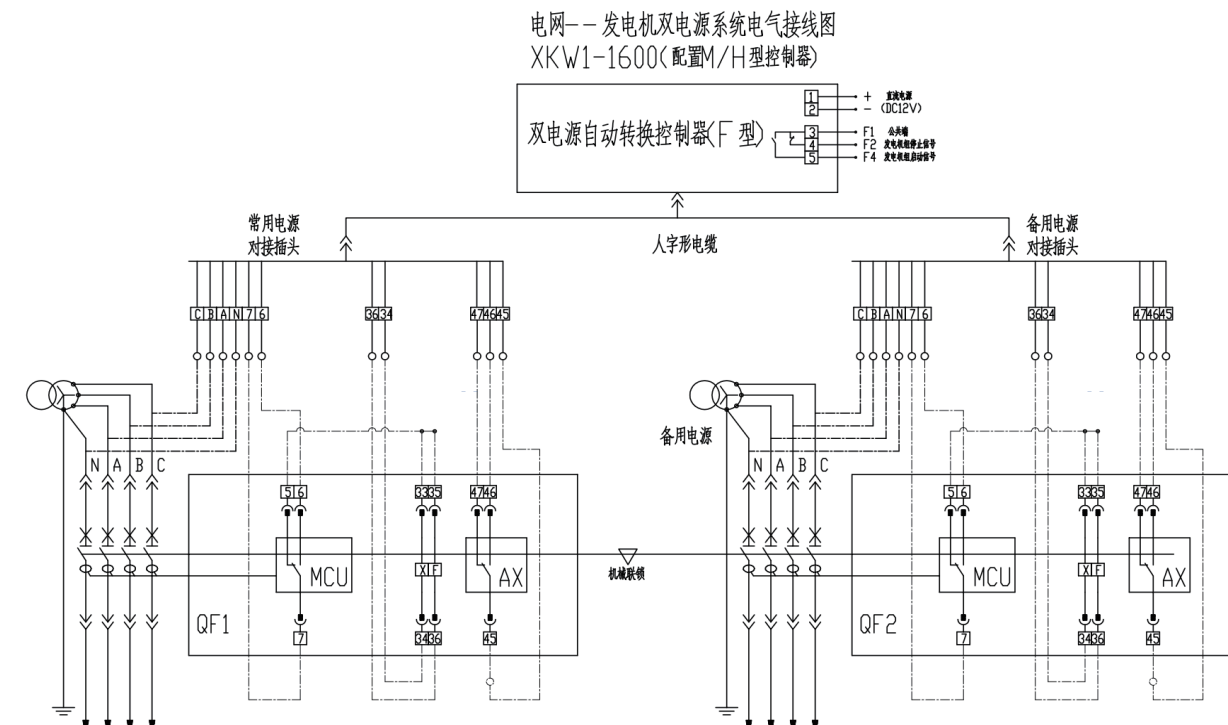
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XKW1-1600 (配置 M/H 智能控制器)
XKW1-1600 (of M/H intelligent controller)



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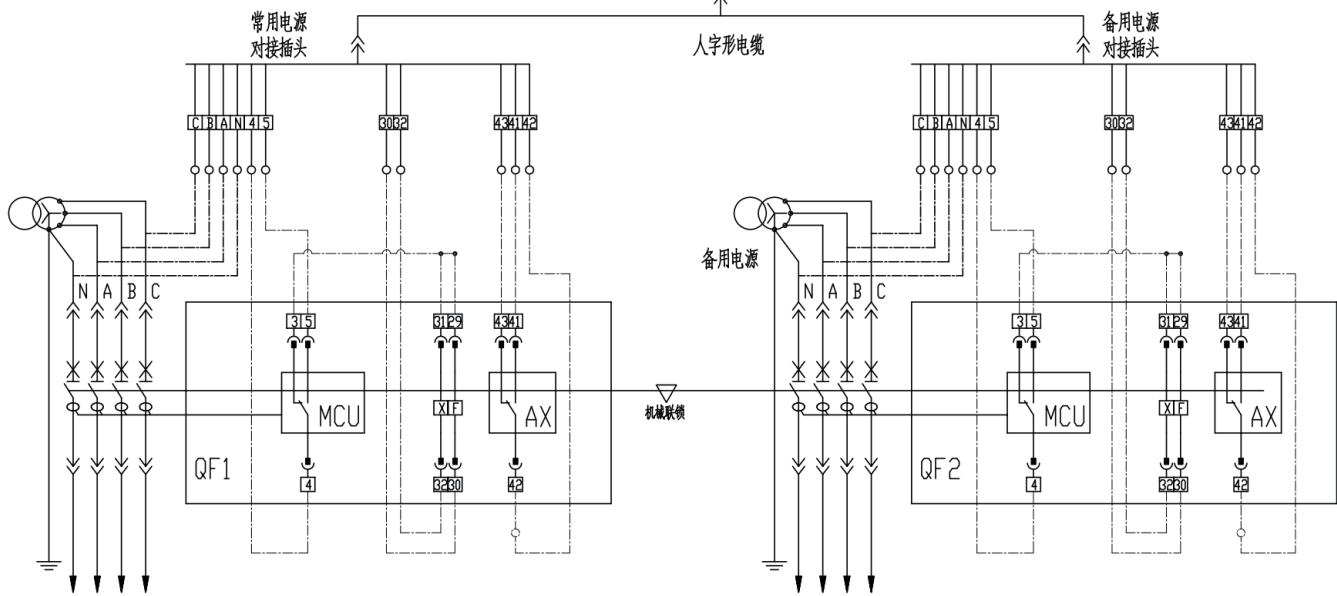
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MCU: Intelligent controller (circuit breaker body)
X: Close the electromagnet
F: Trip release
AX: Auxiliary switch

XKW1-2000 及以上断路器
XKW1-2000 and above circuit breaker

常用--备用双电源系统电气接线图
XKW1-2000/3200/4000/6300

双电源自动转换控制器(R型/S型)



说明:

- 图中虚线部分用户自接
- 接线图为回路无电,断路器 断开且处于连接位置,操作机构已储能。
- 双电源系统中的万能式断路器必须为电动操作方式的断路器,且断路器的分励脱扣器,闭合电磁 铁及电动操作机构的控制电源电压只能交流 220V
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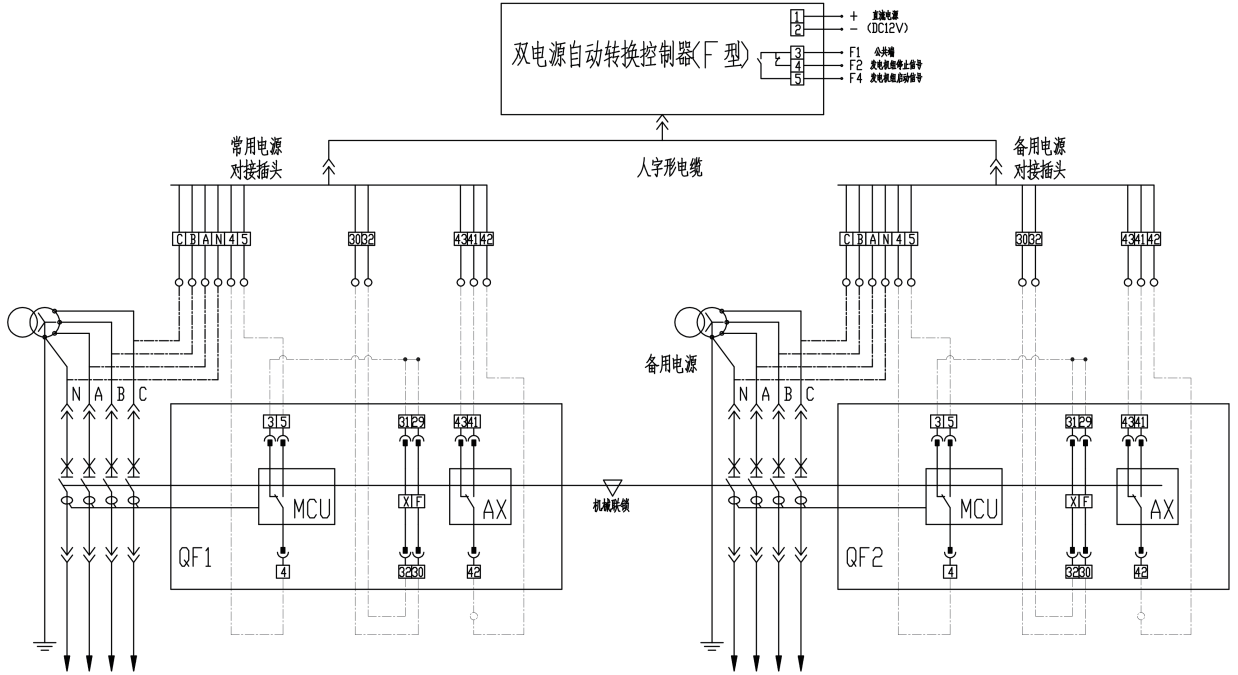
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QF1: Common power supply circuit breaker
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XKW1-2000 及以上断路器
XKW1-2000 and above circuit breaker

电网--发电机双电源系统电气接线图
XKW1-2000/3200/4000/6300

双电源自动转换控制器(F型)



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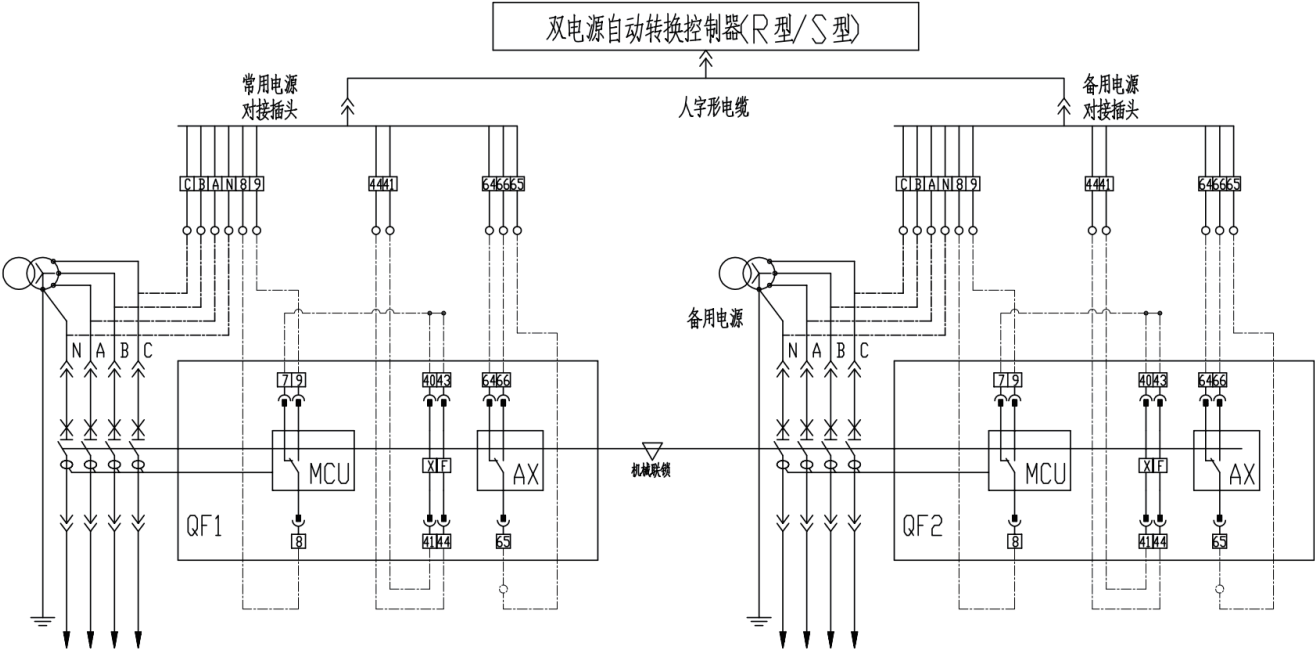
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XKW5-1600 断路器
XKW5-1600 circuit breaker

常用—备用双电源系统电气接线图
XKW5-1600



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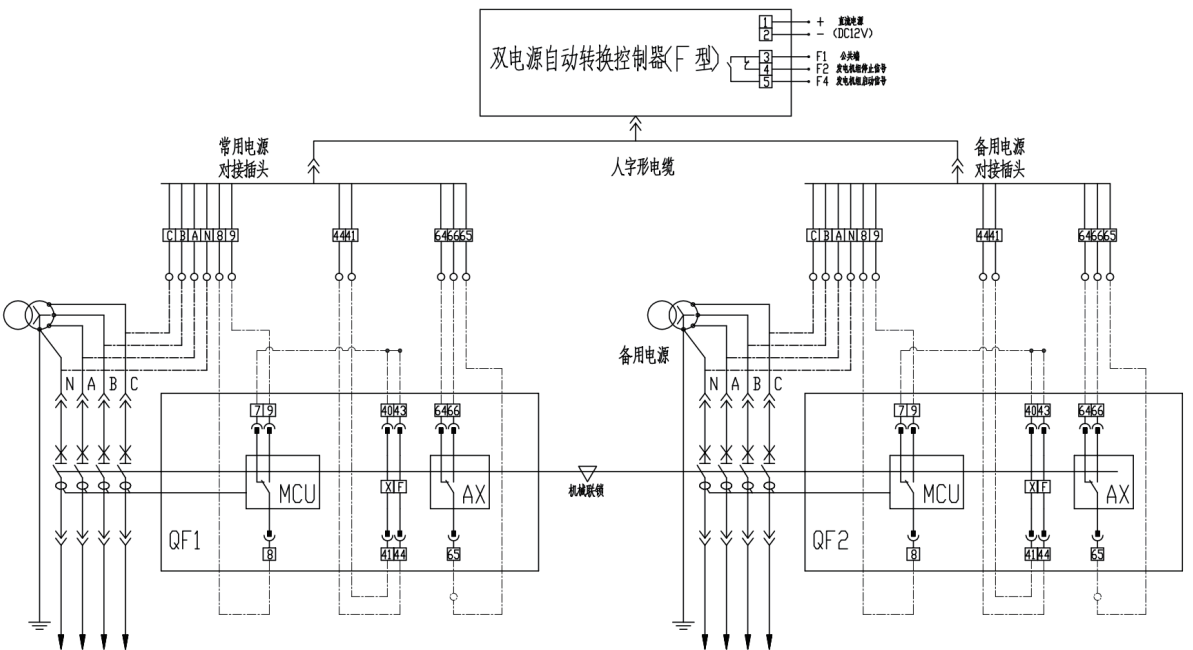
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XKW5-1600 断路器
XKW5-1600 circuit breaker

电网—发电机双电源系统电气接线图
XKW5-1600



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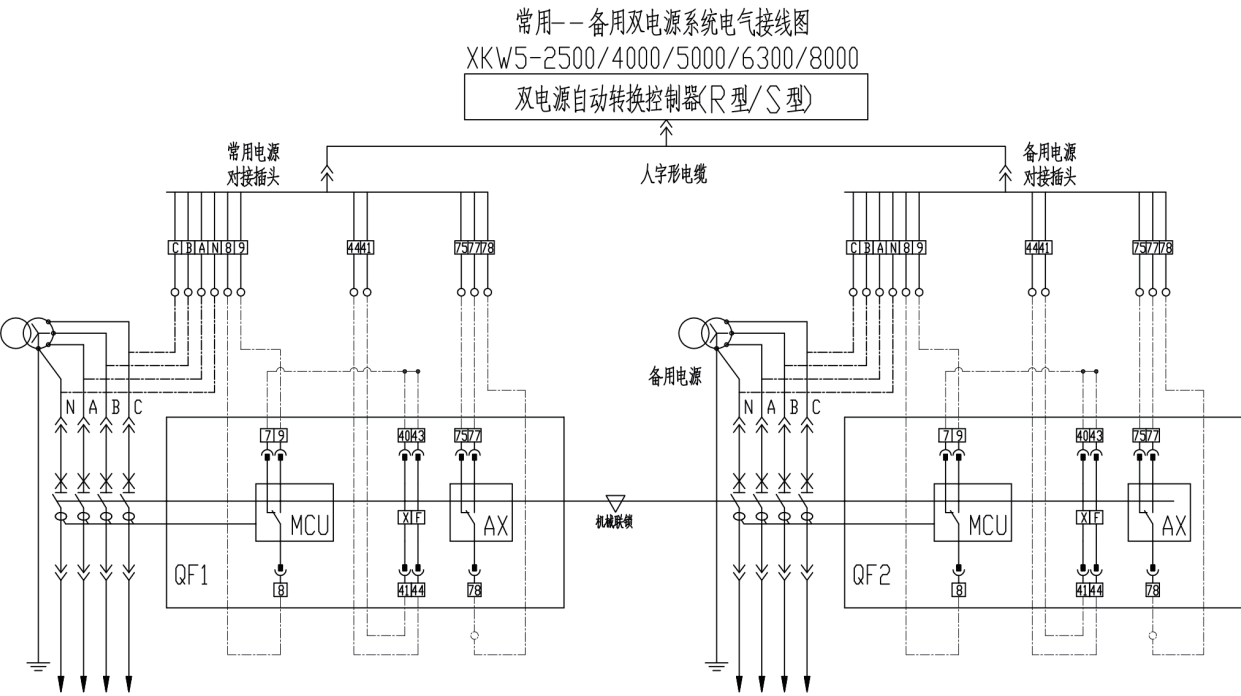
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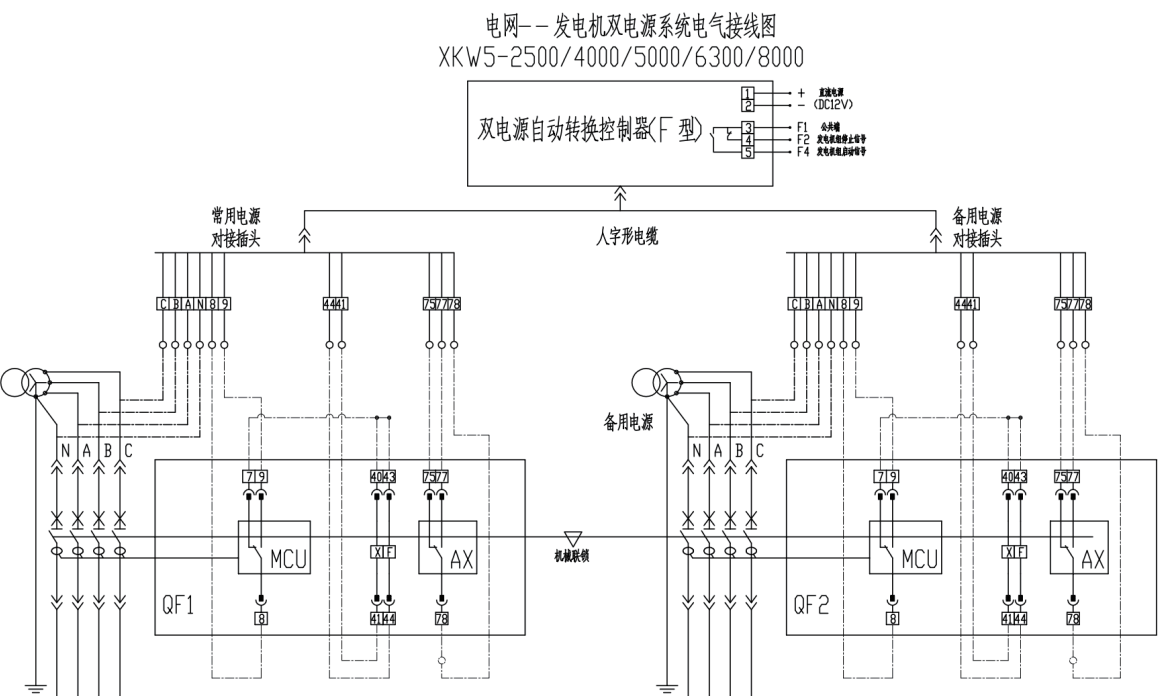
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AX:辅助开关

- Description:
- Standby power docking plug
 - The wiring diagram shows no circuit,The circuit breaker is disconnected and is in the connection position,The operating mechanism has been stored
 - Dual-power system in the universal circuit breaker must be electric operation of the circuit breaker, and the circuit breaker of the tripod release, closed solenoid and electric operating mechanism of the control power can only exchange 220V
 - Circuit breakers in dual-supply systems When configuring H-type intelligent controllers, remote disconnection and remote switching
 - The auxiliary switch of the circuit breaker configuration in the dual power supply system can only be used for four groups of switching contacts or six sets of switching contacts

Symbolic meaning:
QF1: Common power supply circuit breaker
QF2: Standby power supply circuit breaker
MCU: Intelligent controller (circuit breaker body)
X: Close the electromagnet
F: Trip release
AX: Auxiliary switch

XKW5-2000 及以上断路器
XKW5-2000 and above circuit breaker



- 说明:
- 图中虚线部分用户自接
 - 接线图为回路无电,断路器断开且处于连接位置,操作机构已储能.
 - 双电源系统中的万能式断路器必须为电动操作方式的断路器,且断路器的分励脱扣器,闭合电磁铁及电动操作机构的控制电源电压只能交流 220V
 - 双电源系统中的断路器配置H型智能控制器时,不能 使用远程分闸和远程合闸功能
 - 双电源系统中的断路器配置的辅助开关只能为四组转换触头或六组转换触头

符号含义:
QF1:常用电源端断路器
QF2:备用电源端断路器
MCU:智能控制器(断路器本体上)
X:合闸电磁铁
F:分励脱扣器
AX:辅助开关

- Description:
- Standby power docking plug
 - The wiring diagram shows no circuit,The circuit breaker is disconnected and is in the connection position,The operating mechanism has been stored
 - Dual-power system in the universal circuit breaker must be electric operation of the circuit breaker, and the circuit breaker of the tripod release, closed solenoid and electric operating mechanism of the control power can only exchange 220V
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Symbolic meaning:
QF1: Common power supply circuit breaker
QF2: Standby power supply circuit breaker
MCU: Intelligent controller (circuit breaker body)
X: Close the electromagnet
F: Trip release
AX: Auxiliary switch

用户订货时请注明 XKW1 的具体型号，包括：

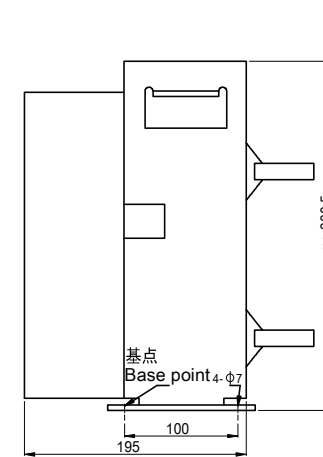
- 断路器的型号：如XKW1。
XKW1框架断路器的订货要求按断路器的使用说明书。
- 断路器的额定电流In和壳架等级额定电流Imm。
- 断路器极数(3极或4极)。安装方式：固定式或抽屉式。
- 双电源自动控制器的功能代号：R、S、F
R电网对电网，自投自复型
S电网对电网，自投不自复型
F电网对电网，自投自复型
- XKW1 万能式断路器必须为电动操作方式的断路器，且断路器的分励脱扣器、闭合电磁铁的控制电源电压只能为：交流220V。
- 特殊要求：
 - 1、订购XKW1 双电源控制器，需要与断路器一起订购，不能单独购买 XKW1 双电源控制器与常规产品相配套使用，原因是控制回路接线比较复杂，常常因为接错线而无法使用，甚至引起双电源控制器损坏；
 - 2、订购 XKW1双电源控制器的断路器，必须同时订购钢缆机械连锁；
 - 3、配欠压瞬时脱扣器时，辅助触头为4组转换触头，双电源自动控制器用1组转换触头，用户实际实用只有3组转换触头；配欠压延时脱扣器时，辅助触头为3组转换触头，双电源自动控制器用1组转换触头，用户实际实用只有2组转换触头。
- XKW1双电源自动控制器专用电缆长2m，两台断路器之间的连线长2m，如须加长或有特殊要求的，请在订货时说明。
- 带双电源自动控制器的断路器，绝对禁止带钥匙锁，否则将会导致断路器内部元件损坏。
- 带双电源自动控制器的断路器，不能再带分合状态门联锁。
- 当带双电源自动控制器的断路器配置H型智能控制器时。远程遥控断路器进行合闸、分闸功能不能使用。
- 双电源自动控制器已经有欠压和过压保护功能，建议断路器不要选用欠压脱扣器。

Please specify the specific model of **XKW1** when ordering.

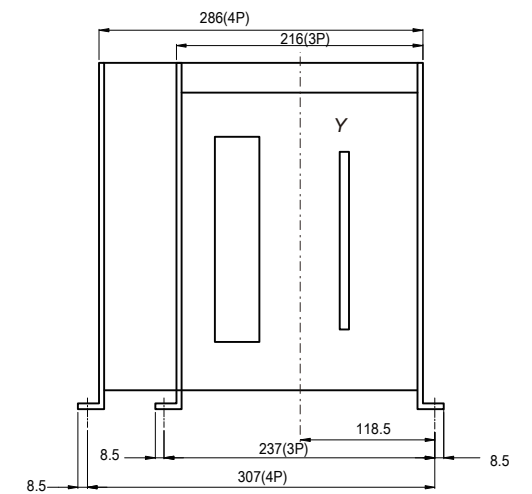
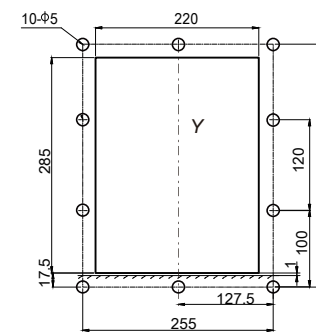
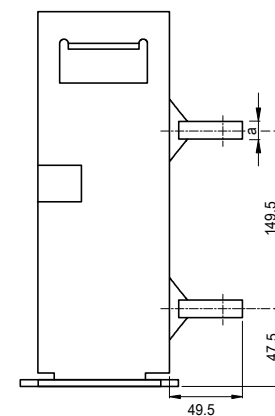
- Circuit breaker model: such as XKW1. XKW1 frame circuit breaker order requirements by the circuit breaker manual.
- Rated current of circuit breaker In and frame rating rated current Imm.
- The number of circuit breakers (3 or 4 poles). Installation: fixed or Draw-out type.
- Dual power supply automatic controller function code: R, S, F
Grid on the grid, Automatic charge and automatic recovery
Power grid on the grid, Automatic charge and no-automatic recovery
Grid on the grid, Automatic charge and automatic recovery
- XKW1 universal circuit breaker must be electric operation of the circuit breaker, and the circuit breaker shunt release, closed solenoid control power supply voltage can only: AC 220V.
- Special requirements:
 1. Order XKW1 dual power controller, you need to order with the circuit breaker, cannot be purchased separately XKW1 dual power controller and supporting the use of conventional products, The reason is that the control circuit wiring is more complex, often because of the wrong line cannot be used, and even cause damage to the dual power controller;
 2. Order XKW1 or XKW1 dual power controller circuit breaker, you must also order the cable machinery chain;
 3. With the undervoltage instantaneous release, the auxiliary contact for the four groups of switch contacts, dual power supply with a set of automatic control switch contacts, the user actually practical only three groups of switch contacts;
- XKW1 dual power automatic controller dedicated cable length 2m, two circuit breakers between the length of 2m, such as to be lengthened or have special requirements, please specify when ordering.
- With dual power supply automatic controller circuit breaker, absolutely prohibited with a key lock, otherwise it will lead to damage to the internal components of the circuit breaker.
- With dual power supply automatic controller circuit breaker, absolutely prohibited with a key lock, otherwise it will lead to damage to the internal components of the circuit breaker.
- When a dual-power automatic controller with a circuit breaker is configured with an H-type intelligent controller. Remote remote control circuit breaker to close, opening function can not be used.
- Dual power automatic controller has undervoltage and overvoltage protection, it is recommended not to use the circuit breaker undervoltage release

XKW1-1600 (三极、四极) —— 固定式

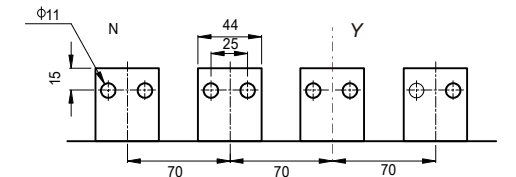
3-pole, 4-pole Fixed style



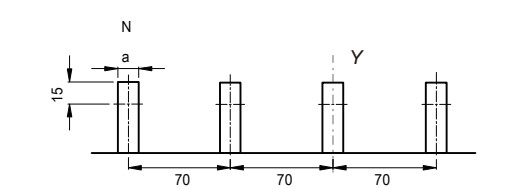
水平接线
Horizontal wiring



水平接线
Horizontal wiring



垂直接线
Vertical wiring

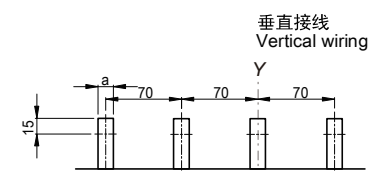
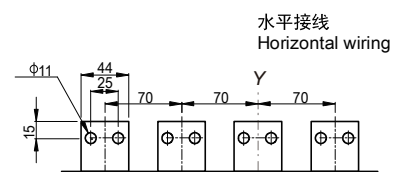
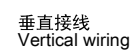
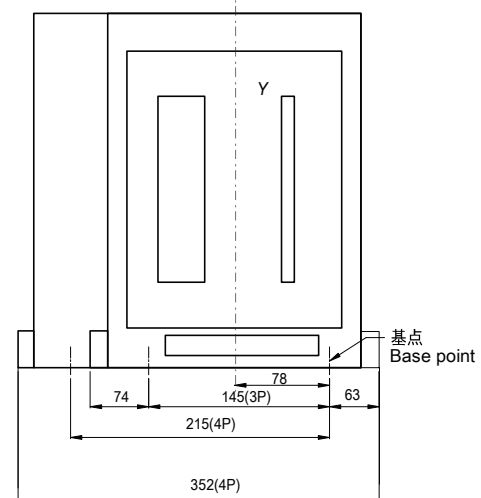
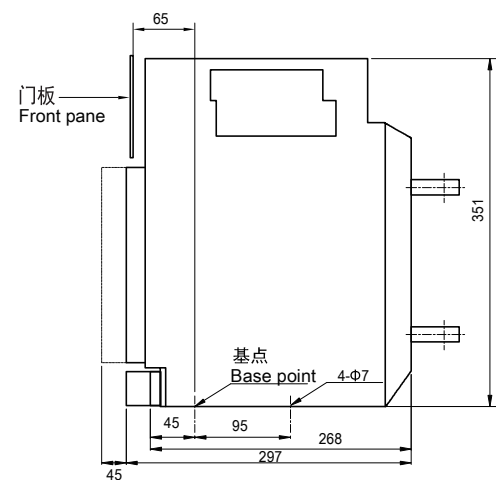


In A	a mm
200~1000	8
1250~1600	15

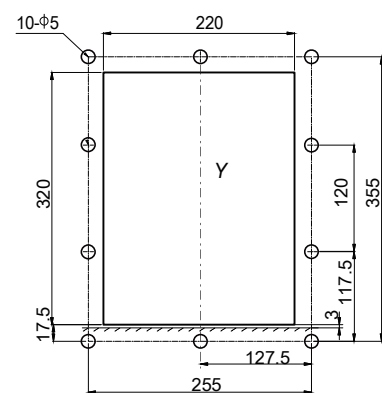
Y: 断路器面罩中心线 Circuit breaker mask center line

///: 断路器安装底面 The circuit breaker is installed on the ground

XKW1-1600 (三极、四极) — 抽屉式 3-pole, 4-pole Draw-out type



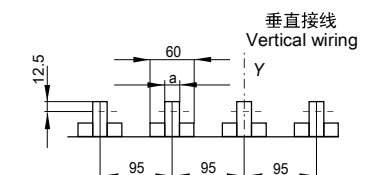
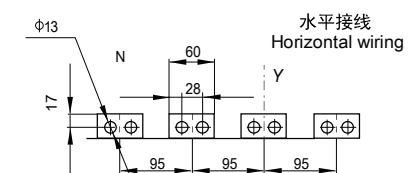
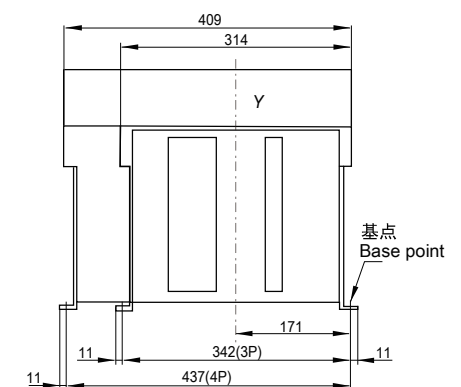
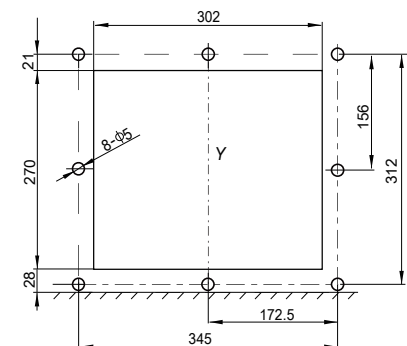
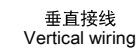
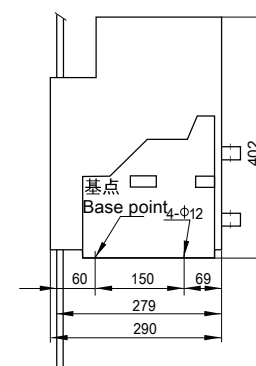
ln A	a mm
200~1000	8
1250~1600	15



Y: 断路器面罩中心线 Circuit breaker mask center line

——: 断路器安装底面 The circuit breaker is installed on the ground

XKW1-2000 (三极、四极) 一固定式 3-pole, 4-pole Fixed style

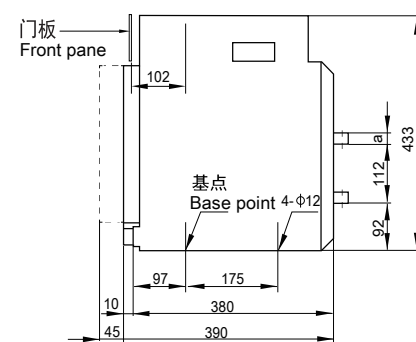


ln A	a mm
630~800	10
1000~1600	15
2000	20

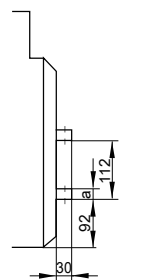
Y: 断路器面罩中心线 Circuit breaker mask center line

—: 断路器安装底面 The circuit breaker is installed on the ground

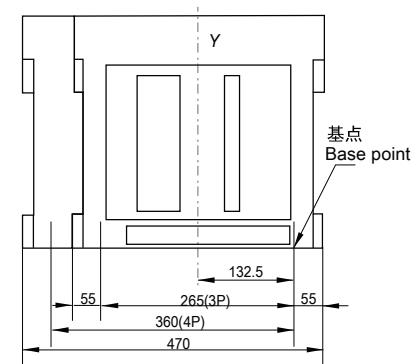
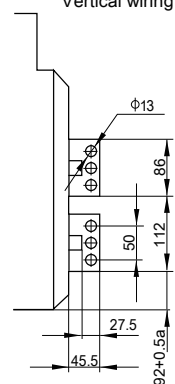
XKW1-2000 (三极、四极) 一抽屉式 3-pole, 4-pole Draw-out type



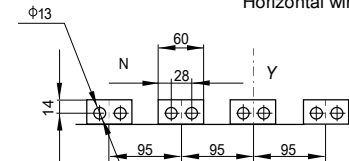
水平接线
Horizontal wiring



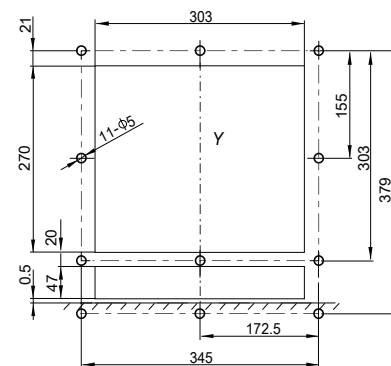
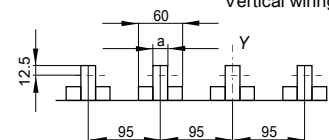
垂直接线
Vertical wiring



水平接线
Horizontal wiring



垂直接线
Vertical wiring

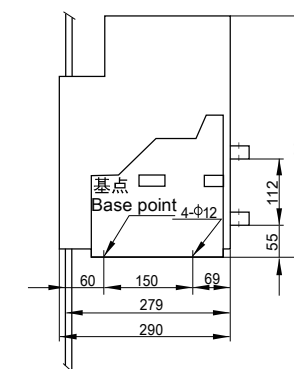


Y:断路器面罩中心线 Circuit breaker mask center line

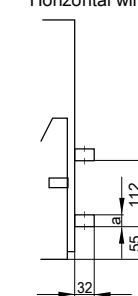
---:断路器安装底面 The circuit breaker is installed on the ground

In A	a mm
630~800	10
1000~1600	15
2000	20

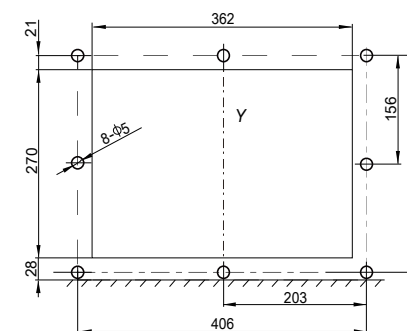
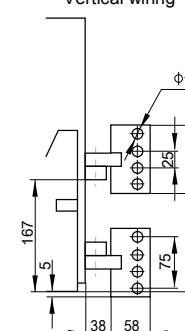
XKW1-3200 (三极、四极) 一固定式 3-pole, 4-pole Fixed style



水平接线
Horizontal wiring

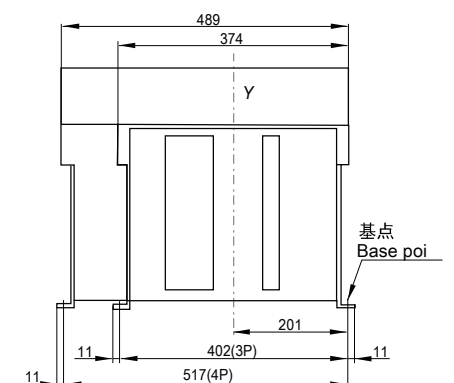


垂直接线
Vertical wiring

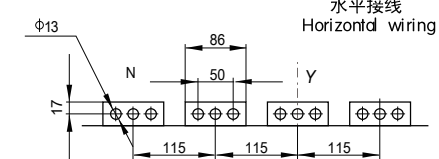


Y:断路器面罩中心线 Circuit breaker mask center line

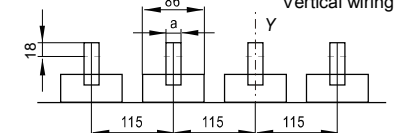
---:断路器安装底面 The circuit breaker is installed on the ground



水平接线
Horizontal wiring

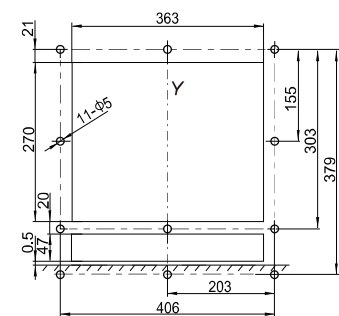
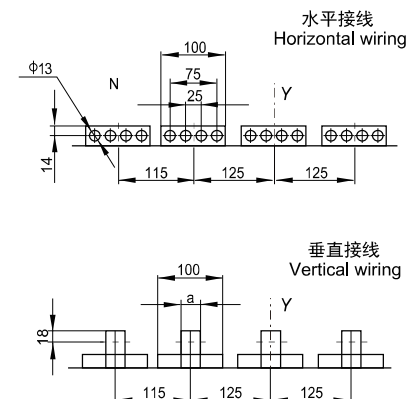
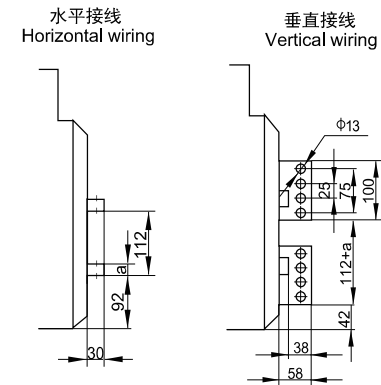


垂直接线
Vertical wiring



In A	a mm
2000~2500	20
3200	30

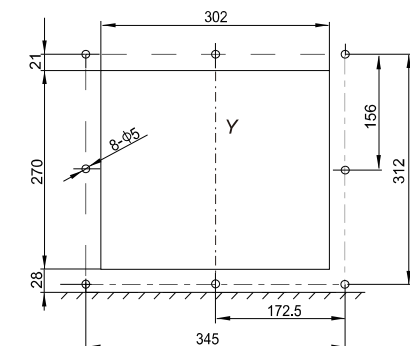
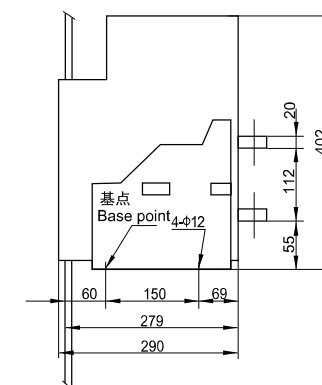
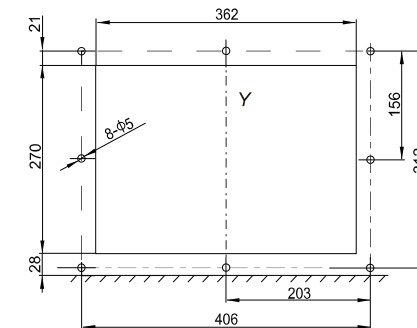
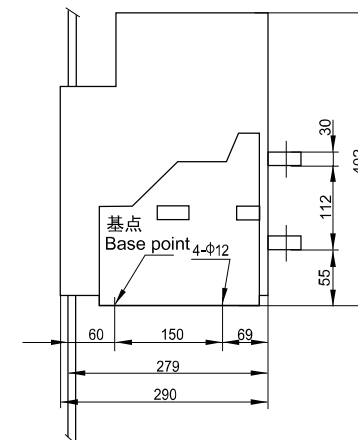
XKW1-3200 (三极、四极) 一抽屉式 3-pole, 4-pole Draw-out type



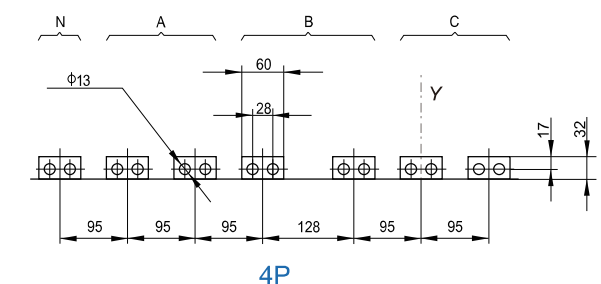
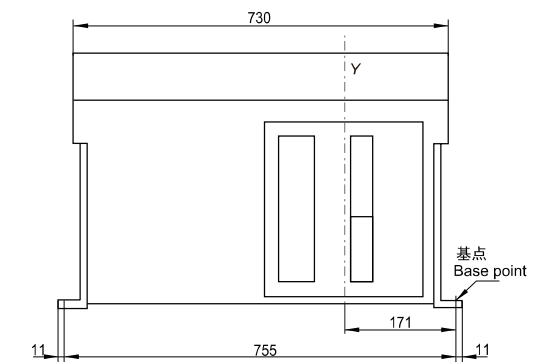
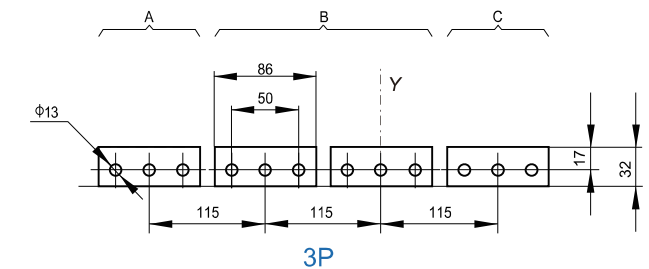
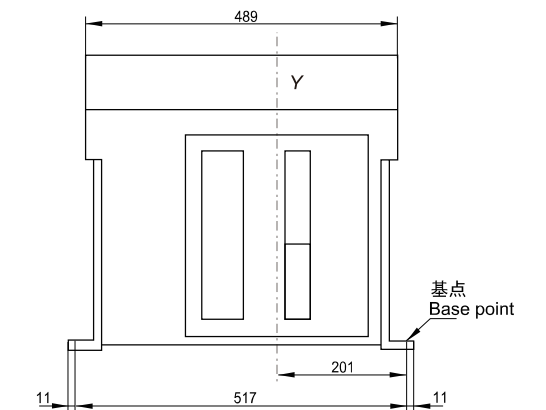
Y: 断路器面罩中心线 Circuit breaker mask center line
 ---: 断路器安装底面 The circuit breaker is installed on the ground

In A	a mm
2000~2500	20
3200	30

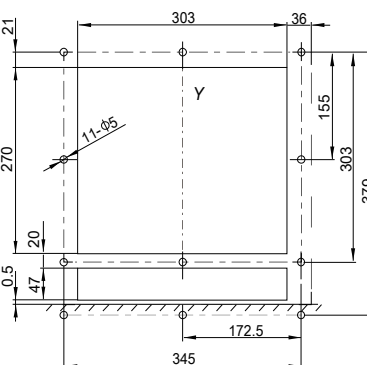
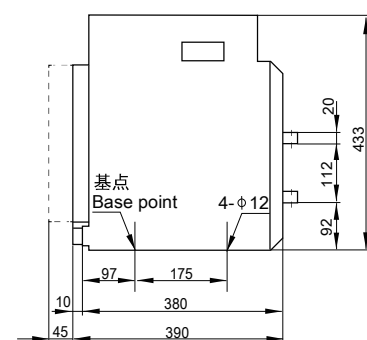
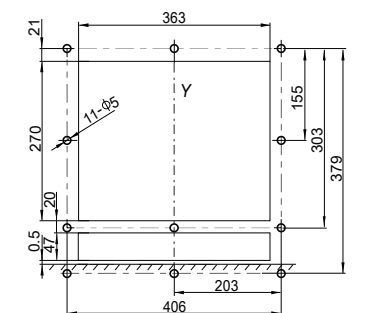
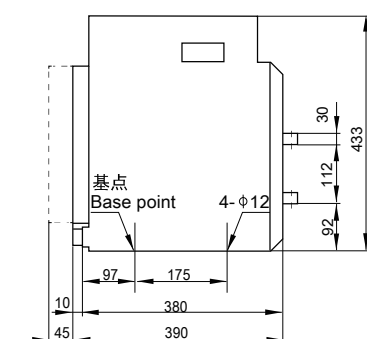
XKW1-4000 (三极、四极) 一固定式 3-pole, 4-pole Fixed style



Y: 断路器面罩中心线 Circuit breaker mask center line
 ---: 断路器安装底面 The circuit breaker is installed on the ground

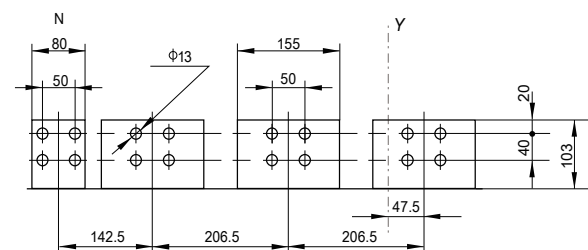
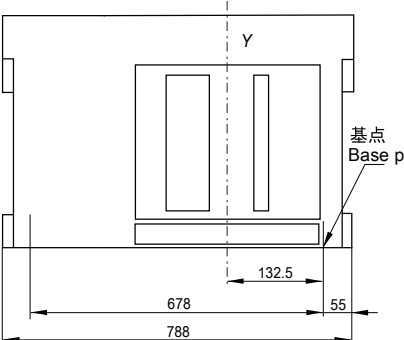
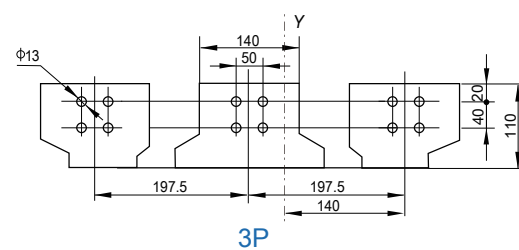
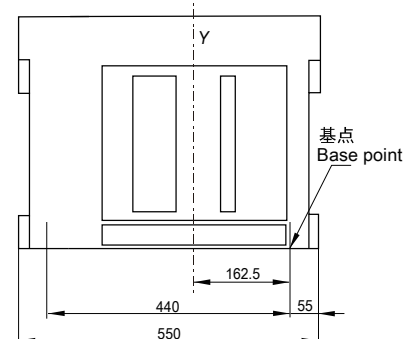


XKW1- 4000 (三极、四极) 一抽屉式 3-pole, 4-pole Draw-out type

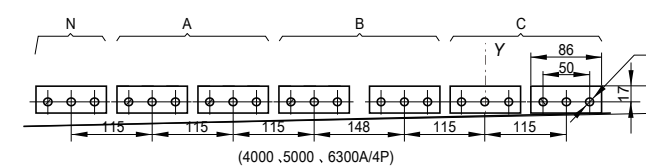
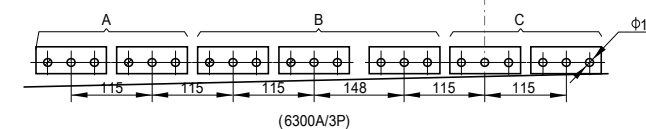
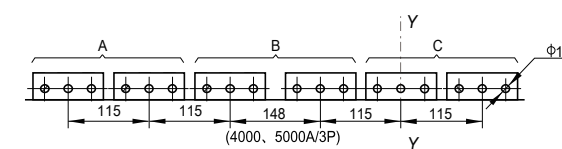
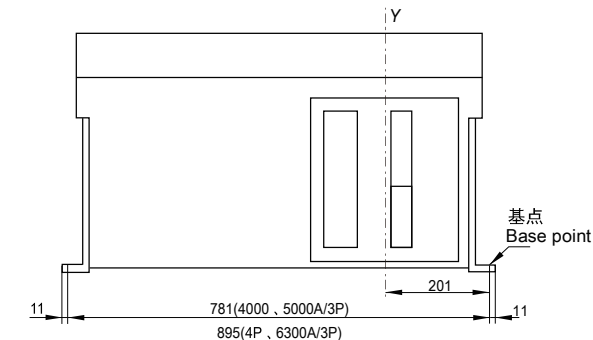
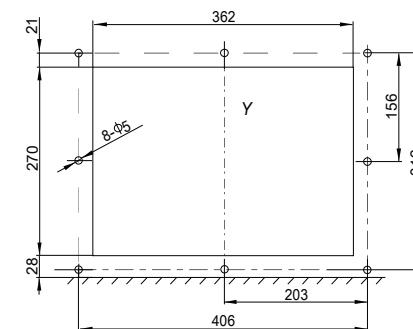
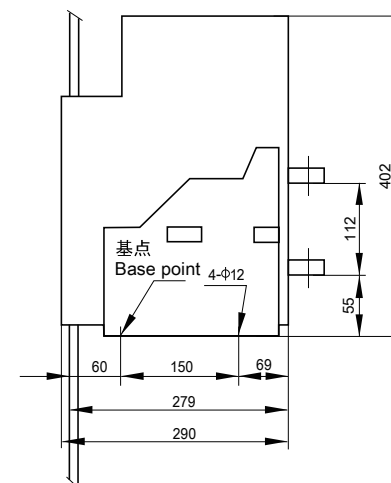


Y: 断路器面罩中心线 Circuit breaker mask center line

---: 断路器安装底面 The circuit breaker is installed on the ground



XKW1-4000~6300 (三极、四极) 固定式 3-pole, 4-pole Fixed style



In A	a mm
4000	20
5000 ~ 6300	30

Y: 断路器面罩中心线 Circuit breaker mask center line

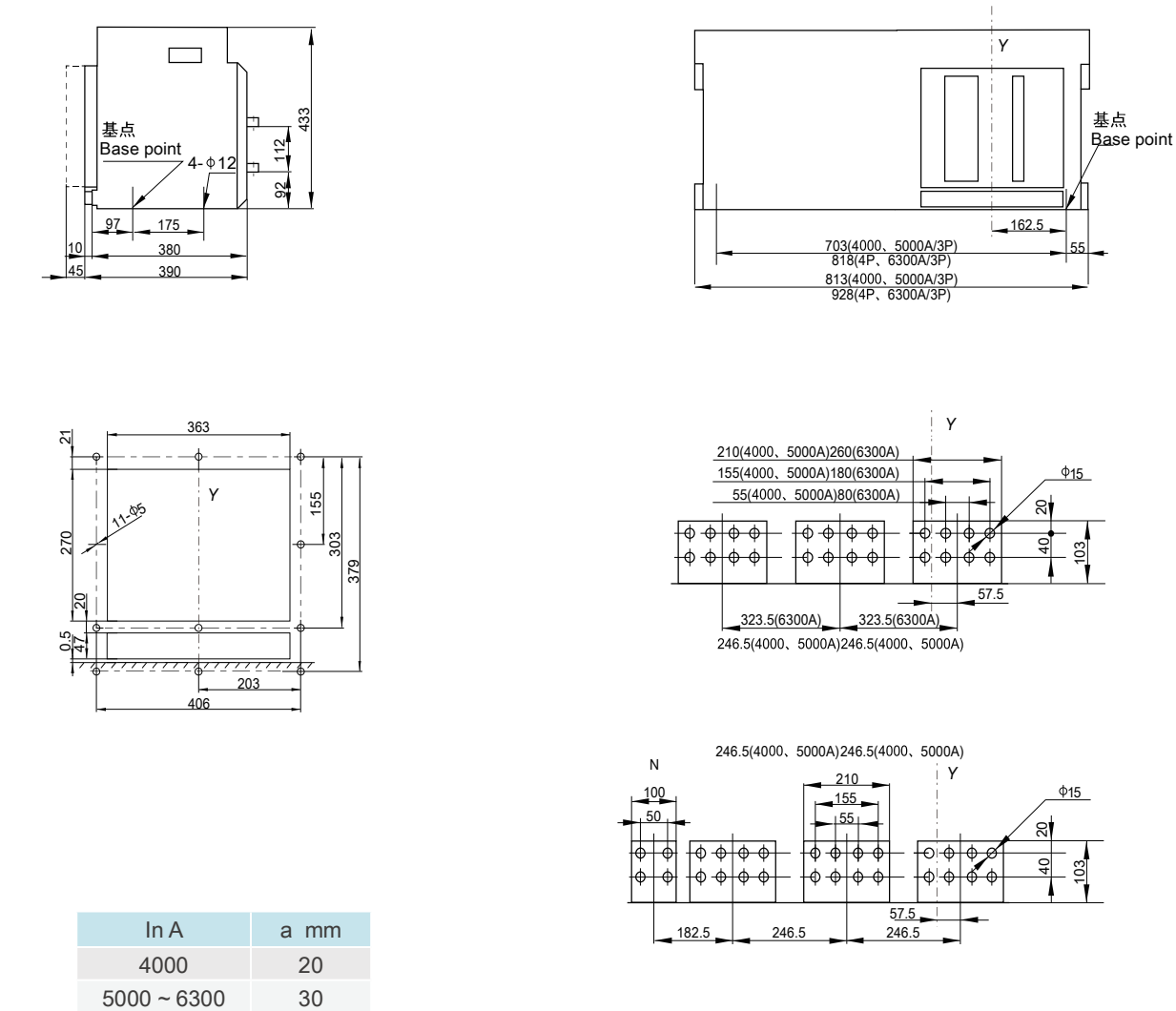
---: 断路器安装底面 The circuit breaker is installed on the ground

安装尺寸

Mounting dimensions

XKW1-4000~6300 (三极、四极) –抽屜式

3-pole,4-pole Draw-out



Y:断路器面罩中心线 Circuit breaker mask center line
—:断路器安装底面 The circuit breaker is installed on the ground

用户连接铜排

Copper bar onnected by user

根据IEC60947-1、GB/T 14048.1标准, 建议在使用XKW1系列智能型万能式断路器时外连接铜排的最小尺寸

Suggested minimum dimensions of external connecting copper bar are as follows when using XKW1 series of intelligent multi-purpose circuit breakers according to IEC60947-1 and GB/T 14048.1 standards:

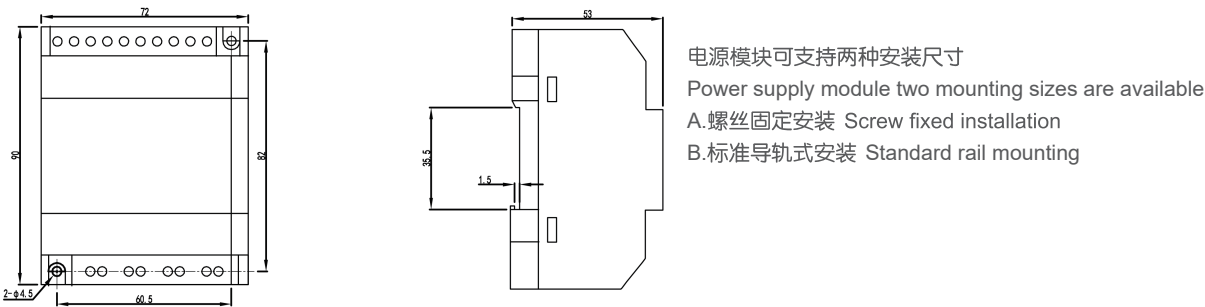
Inm	XKW1-1600							XKW1-2000							XKW1-3200				XKW1-4000			XKW1-6300		
In(A)	200	400	630	800	1000	1250	1600	630	800	1000	1250	1600	2000	2000	2500	2900	3200	3200	3600	4000	4000	5000	6300	
厚度(mm) Thickness	5	5	5	5	5	5	5	5	5	5	5	10	10	5	5	10	10	10	10	10	10	10	10	
宽度(mm) Width	50	50	50	50	50	50	50	50	60	60	60	60	80	100	100	100	100	100	100	100	100	100	100	
根数 Quantity of copper bar	1	1	2	2	3	3	4	2	2	2	3	2	2	3	4	4	4	5	5	5	6	6	6	

注: 当用户有特殊订货要求XKW1-2000/200A时, 宜采用每极 1 根 50x5 铜排, 特殊订货要求 XKW1-2000/400A 时, 宜采用每极2根50x5铜排。

Note: It is suggested to use 1 50*5 copper bar for every pole when user has special ordering requirements of XKW1 ~2000/200A. It is suggested to use 2 50*5 copper bar for every pole when user has special ordering requirements of XKW1~2000/400A.

电源模块安装尺寸

Power module installation dimensions

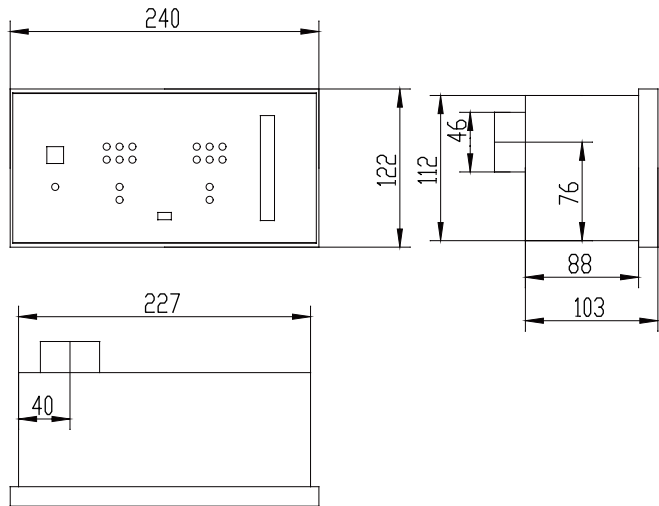


双电源控制器及互感器安装尺寸

Dual power supply controller and transformer mounting dimensions

双电源自动转换控制器外形尺寸 R/S/F

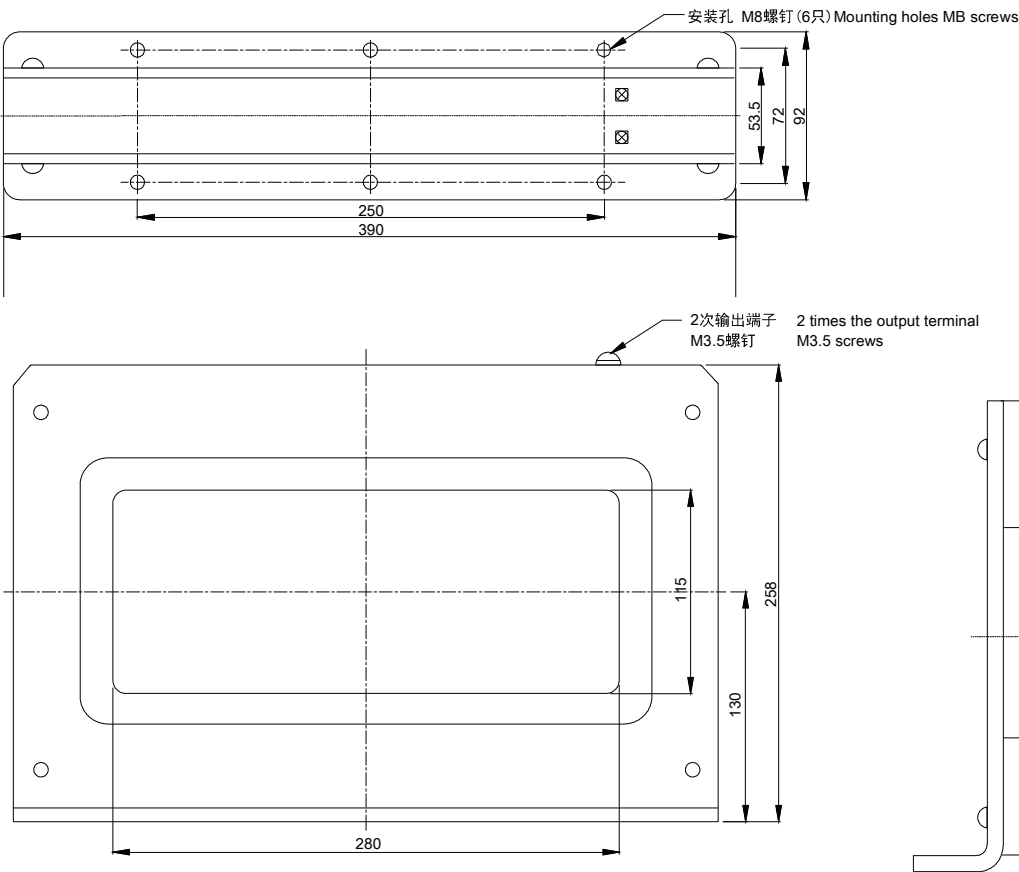
Dual power automatic conversion controller outline dimension R/S/F



ZCT1 漏电互感器安装尺寸 Leakage transformer installation size

当接地保护方式为漏电型（E）时，外加的特殊矩形互感器。安装尺寸如下图

When the ground protection mode for the leakage type (E), the addition of special rectangular transformer. The installation dimensions are shown below



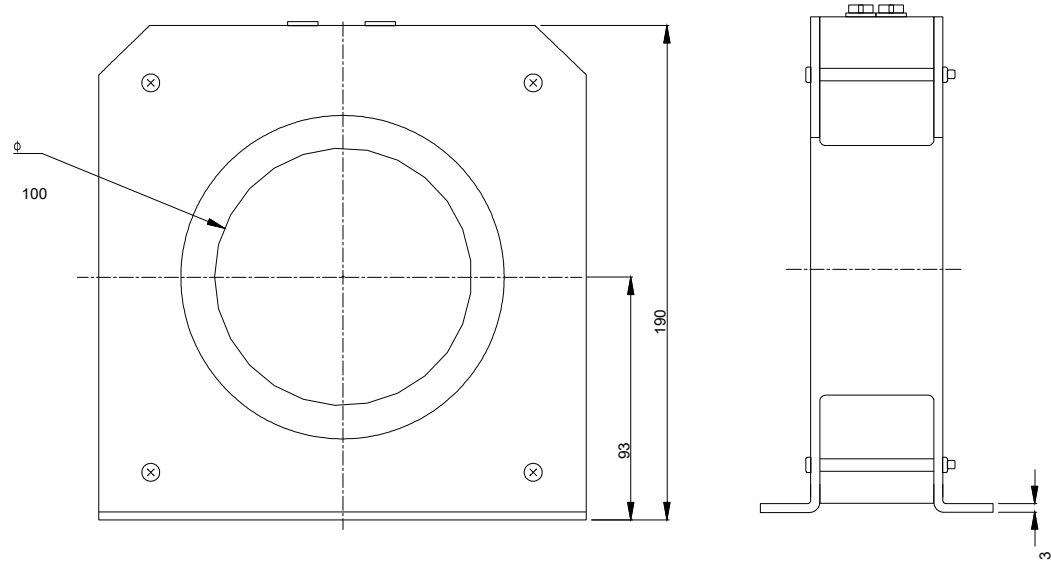
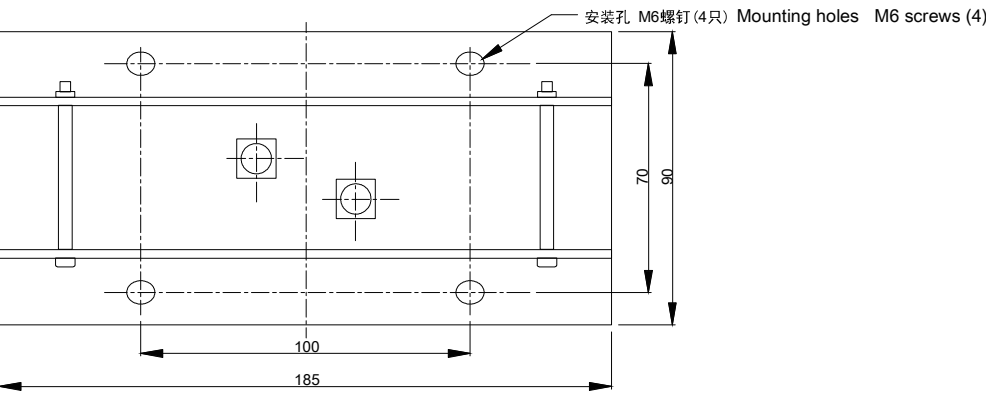
接地互感器安装尺寸

Grounding Transformer Installation Size

ZCT100 接地互感器安装尺寸 Grounding transformer installation size

当接地方式电流型（W）时外加的特殊互感器。安装尺寸如下图

When the ground mode current type (W) plus the special transformer. The installation dimensions are shown below



海拔降容系数&温度降容系数

Altitude capacitance reduction coefficient & temperature capacitance reduction coefficient

XKW1框架断路器海拔降容系数					
海拔 (m)	2000	3000	4000	5000	
工频耐压 (V)	3500	3150	2500	2000	
绝缘电压 (V)	1000	900	700	600	
最大额定工作电压 (V)	690	590	520	460	
工作电流修正系数	In=1600	1	0.93	0.88	0.82
	In=2000	1	0.93	0.88	0.82
	In=3200	1	0.93	0.88	0.82
	In=4000	1	0.93	0.88	0.82
	In=6300	1	0.93	0.88	0.82

XKW1框架断路器温度降容系数					
壳架	壳架电流	+40℃	+50℃	+60℃	
1600	1600	1	0.92	0.83	
2500	2000	1	0.91	0.82	
3200	3200	1	0.9	0.8	
4000/3P	4000	1	0.9	0.8	
4000/4P	4000	1	0.92	0.83	
6300	6300	1	0.92	0.83	

(请根据需要在口内打“√”,或填上数字)

用户单位:

合同编号:

订货数量:

订货日期:

断路器规格型号	
壳架电流	<input type="checkbox"/> 1600 <input type="checkbox"/> 2000 <input type="checkbox"/> 3200 <input type="checkbox"/> 4000 <input type="checkbox"/> 6300
额定电流	_____ A
极数	<input type="checkbox"/> 3P <input type="checkbox"/> 4P
安装方式	<input type="checkbox"/> 抽屉式 <input type="checkbox"/> 固定式
智能控制器	
工作电压	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
规格型号 *	<input type="checkbox"/> 2L3 <input type="checkbox"/> 2L4 <input type="checkbox"/> L3 <input type="checkbox"/> L4 <input type="checkbox"/> M <input type="checkbox"/> 2M <input type="checkbox"/> 2H <input type="checkbox"/> 3M <input type="checkbox"/> 3H
保护整定	长延时 = _____ A t= _____ s 短延时 = _____ A t= _____ s 瞬时 = _____ A 接地 = _____ A t= _____ s
增选功能	<input type="checkbox"/> MCR <input type="checkbox"/> HSISC <input type="checkbox"/> 负载监控 <input type="checkbox"/> 过载预警 <input type="checkbox"/> 区域选择性联锁 <input type="checkbox"/> D <input type="checkbox"/> U <input type="checkbox"/> DU <input type="checkbox"/> P <input type="checkbox"/> PD <input type="checkbox"/> H <input type="checkbox"/> HD
附件	<input type="checkbox"/> ST 直流电源模块 <input type="checkbox"/> ST201 继电器模块 <input type="checkbox"/> ZT100 互感器 (W) <input type="checkbox"/> 外接 N 极互感器 (3P+N) <input type="checkbox"/> ZCT1 互感器 (漏电)

辅助触点	
	<input type="checkbox"/> 3 组转换 <input type="checkbox"/> 5 组转换 <input type="checkbox"/> 3开3闭 <input type="checkbox"/> 5开5闭
远程操作	
电动储能	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
闭合电磁铁	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
分励脱扣器	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
欠压脱扣器	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V
欠压延时 (s)	<input type="checkbox"/> 0.3 <input type="checkbox"/> 0.5 <input type="checkbox"/> 1 <input type="checkbox"/> 3 <input type="checkbox"/> 5
其他附件	
分闸锁	<input type="checkbox"/> 1锁1钥匙 <input type="checkbox"/> 2锁1钥匙 <input type="checkbox"/> 3锁2钥匙 <input type="checkbox"/> 5锁3钥匙
抽架位置锁	<input type="checkbox"/> 钥匙锁
按钮锁	<input type="checkbox"/>
三位置指示触点	<input type="checkbox"/> 抽屉式
门联锁	<input type="checkbox"/> 抽屉式
机械联锁	<input type="checkbox"/> 两台钢缆 <input type="checkbox"/> 两台杠杆
双电源控制器	<input type="checkbox"/> R 自投自复 (电网 – 电网) <input type="checkbox"/> S 自投不自复 (电网 – 电网) <input type="checkbox"/> F 自投自复 (电网 – 发电机)
门框	<input type="checkbox"/>
相间隔板	<input type="checkbox"/>

备注:

- 注:
- 1.当控制器工作电压为DC时，必选ST直流电源模块

2.当选择H型控制器，且需要遥控合分闸操作时，必选ST直流电源模块+ST201继电器模块

3.当选择ZCT1互感器(漏电)时，取样点的主回路母排需根据互感器内部尺寸做特殊处理

4.1600壳架辅助触点仅可选3组转换或5组转换

5.当选择双电源控制器时，辅助触点仅可选3组转换或5组转换，且必选一种机械联锁(钢缆式或杠杆式)

6.控制器规格型号选型请参考样本P7~P11页说明

7.如客户有其他特殊需求，请与我司联系

(Tick "√" or ! ll in number in the corresponding position)

User unit6

Contract No6

Quantity6

Date6

Model	
Maximum operating current	<input type="checkbox"/> 1600 <input type="checkbox"/> 2000 <input type="checkbox"/> 3200 <input type="checkbox"/> 4000 <input type="checkbox"/> 6300
Rated current	_____ A
Poles	<input type="checkbox"/> 3P <input type="checkbox"/> 4P
Type	<input type="checkbox"/> Draw-out <input type="checkbox"/> Fixed
Control unit	
Operating voltage	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
Type*	<input type="checkbox"/> 2L3 <input type="checkbox"/> 2L4 <input type="checkbox"/> L3 <input type="checkbox"/> L4 <input type="checkbox"/> M <input type="checkbox"/> 2M <input type="checkbox"/> 2H <input type="checkbox"/> 3M <input type="checkbox"/> 3H
Set	Long-delay= _____ A t= _____ s Short-delay= _____ A t= _____ s Instantaneous= _____ A Grounding = _____ A t= _____ s
Optional functions	<input type="checkbox"/> MCR <input type="checkbox"/> HSISC <input type="checkbox"/> Load monitoring <input type="checkbox"/> Overload pre-alarming <input type="checkbox"/> Zone selectivity interlocking <input type="checkbox"/> D <input type="checkbox"/> U <input type="checkbox"/> DU <input type="checkbox"/> P <input type="checkbox"/> PD <input type="checkbox"/> H <input type="checkbox"/> HD
Accessories	<input type="checkbox"/> ST DC power supply module <input type="checkbox"/> ST201 Relay module <input type="checkbox"/> ZT100Transformer(W) <input type="checkbox"/> External N-pole Transformer(3P+N) <input type="checkbox"/> ZCT1 Transformer(Leakage)

Auxiliary contact	
	<input type="checkbox"/> 3NO-C <input type="checkbox"/> 5NO-C <input type="checkbox"/> 3NO+3NC <input type="checkbox"/> 5NO+5NC
Remote operation	
Charging motor	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
Closing coil	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
Shunt release	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V
Under-voltage release	<input type="checkbox"/> AC380V <input type="checkbox"/> AC220V
Under-voltage delay(s)	<input type="checkbox"/> 0.3 <input type="checkbox"/> 0.5 <input type="checkbox"/> 1 <input type="checkbox"/> 3 <input type="checkbox"/> 5
Other accesories	
OFF opening position lock	<input type="checkbox"/> 1lock+1key <input type="checkbox"/> 2lock+1key <input type="checkbox"/> 3lock+2key <input type="checkbox"/> 5lock+3key
Position lock	<input type="checkbox"/> Key lock
Button lock	<input type="checkbox"/>
3-position indication contact	<input type="checkbox"/> Draw-out
Door interlocking	<input type="checkbox"/> Draw-out
Mechanical interlock	<input type="checkbox"/> Cables <input type="checkbox"/> Levers
ATS control unit	<input type="checkbox"/> R automatic charge and automatic recovery (Grid - Grid) <input type="checkbox"/> S automatic charge and arti cial recovery (Grid - Grid) <input type="checkbox"/> F automatic charge and automatic recovery (Grid - Generator)
Door frame	<input type="checkbox"/>
Interphase partition	<input type="checkbox"/>

Remark6

- Note:
- 1.If the working voltage is DC8 Required ST DC power supply module

2.ST DC power supply module + ST 201 relay module must be selected when H type controller is selected and remote control closing operation is required

3.When selecting ZCT1 Transformer(leakage), the main return bus of the sampling point needs special treatment according to the internal size of the transformer

4.1600 Shell Auxiliary Contact Only 3NO-C or 5 NO-C are Optional

5. When selecting ATS control uint8 uxiliary Contact Only 3NO-C or 5 NO-C are Optional8 And must choose a mechanical interlock(cable or lever type)

6.Control uint Selection Please refer to Sample P7 ~ P11 Page

7.If you have any other special needs, please contact us