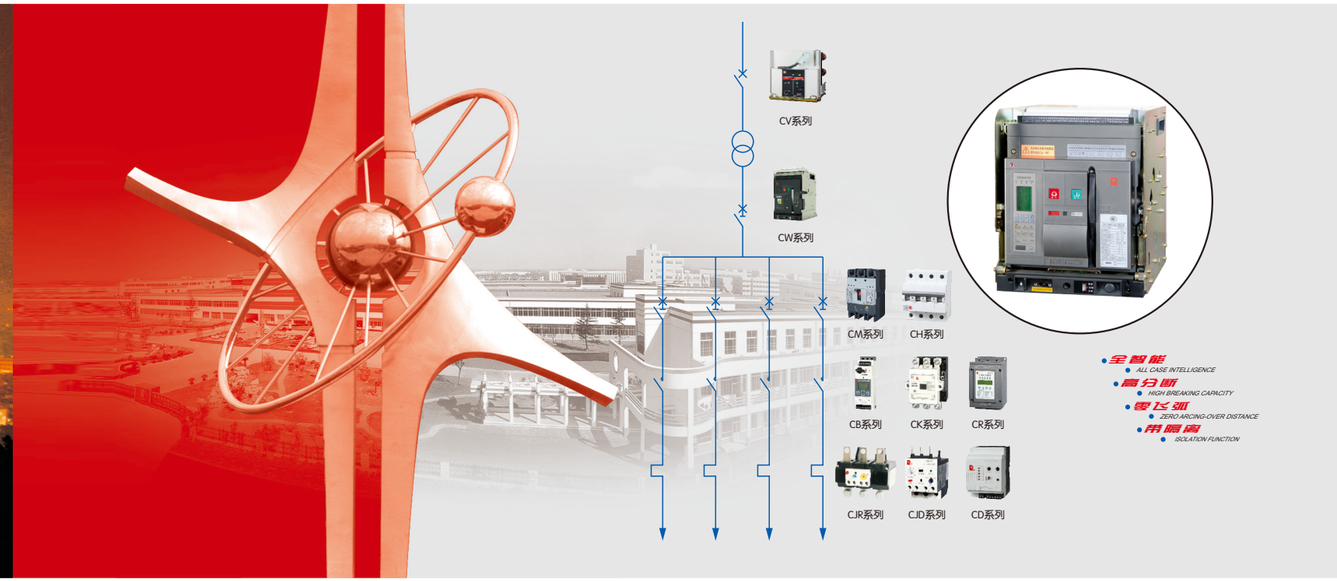
CW 3 系列
智能型万能式断路器
CW 3 SERIES INTELLIGENT AIR CIRCUIT-BREAKERS

常熟开关　持续超越

- 国家创新型试点企业
- 国家重点高新技术企业
- 全国企事业知识产权示范单位
- 全国守合同重信用企业
- 国家科学技术进步二等奖获得者



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2019年版

常熟开关制造有限公司(原常熟开关厂)
CHANGSHU SWITCHGEAR MFG. CO., LTD.（FORMER CHANGSHU SWITCHGEAR PLANT）

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国家科学技术进步奖证书
National Awards for Science andTechnology Cerificate

国家科学技术进步奖证书
National Awards for Science andTechnology Cerificate

中国机械工业百强证书
Top 100 China Machinery Industry Companies

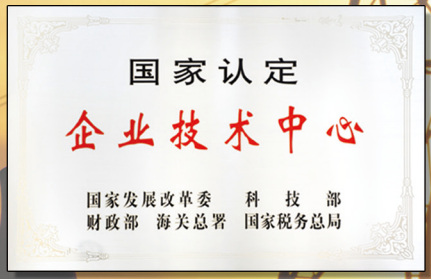
制造业单项冠军产品证书
ACBs award Individual Champion Product in Manufacture Industry

中国合格评定国家认可委员会实验室认可证书
Laboratory Accreditation Certificate rewarded by China National Accreditation Service for Conformity Assessment (CNAS)

高新技术企业证书
High-tech Enterprise Cerificate

国家创新型试点企业
National Innovative Pilot Enterprise

国家级企业管理现代化创新成果
The Innovation Achievement of Management Modernization of National Enterprise



国家认定企业技术中心
National Enterprise Technology Center

博士后技术创新中心
Postdoctoral Technical Innovation Centre

改革开放40周年机械工业杰出产品
Outstanding products of Machinery Industry for the 40th anniversary of Reform and Opening-up Policy

公司简介

Introduction

常熟开关制造有限公司是国有参股的电器研发制造领军企业，注册资本3.8亿，现有员工1700人，专业研发和制造中低压配电电器、工业控制电器、中低压成套装置、光伏逆变器及光伏发电配套电器和智能配电监控系统及配套测控器件。产品广泛应用于电力、机械、矿山、冶金、石化、建筑、船舶、核电和新能源发电等领域。

常熟开关坚持自主创新，持续完善创新平台，不断提升公司的创新能力。2002年起，公司建立“博士后科研工作站”；2010年，公司被国家科技部评为“国家创新型试点企业”；2011年，公司技术中心获国家发展改革委员会、科技部、财政部、海关总署、国家税务总局联合颁发的“国家认定企业技术中心”；2013年，公司获批建立“江苏省智能电网配用电关键技术研究重点实验室”。公司拥有一支300多人的创新团队，所研发的技术和产品先后获得多项省市级以上荣誉，其中“低压保护电器关键技术的研究应用”项目和“开关电器大容量开断关键技术及应用”项目荣获国务院颁发的国家科学技术进步二等奖。

常熟开关坚持质量第一，注重全过程的质量管理，拥有一批先进的智能化、数字化的研发和制造管理系统和设备，公司检测中心获中国合格评定国家认可委员会颁发的认可证书。公司产品以优秀的性能和品质，深受用户好评，多次获得省部级质量奖。公司从1994年起参加的产品质量责任保险，至今无一理赔。

常熟开关致力于为用户提供精品电器产品，为社会、客户创造更高价值，打造一流的民族电器品牌。

Changshu Switchgear MFG. Co., Ltd. (Former Changshu Switchgear Plant), a national-leading enterprise with state-owned equity, registered capital of 0.38 billion RMB and 1700 staffs, professionally researches, develops and manufactures medium and low voltage power distribution electrical appliances, industrial control products, medium and low voltage complete sets of equipments, photovoltaic inverters & power generation equipments and intelligent power distribution monitoring system & supporting devices for observation and control, all of which are widely used in the fields of electric power, machinery, mining, metallurgy, petrochemical, construction, shipbuilding, nuclear power and new energy power generation,etc.

Changshu Switchgear insists on independent innovation, continuously improves the innovation platform and constantly improve the innovation capability. In 2002, the Post-doctoral scientific research workstation was set up. In 2010, an honor of the National Innovative Pilot Enterprise, issued by the National Ministry of Science and Technology, was awarded. In 2011, the National Development and Reform Commission, the Ministry of Science and Technology, the Ministry of Finance, the General Administration of Customs and the State Administration of Taxation jointly recognized the company’s technology center as the National-level Enterprise Technique Center. In 2013, the company was approved to establish the Key laboratory for Research on Key Technology of Intelligent Grid Power Distribution in Jiangsu Province.

The technology and products, developed by the innovation team consist of 300 engineers and technicians, have won a number of provincial and municipal honors, in which “The research and application on key technology of low voltage protection electrical device” and “The key technology and application of large capacity breaking of switching devices” have won the second prize of the National Science and Technology Progress Award.

Changshu Switchgear insists Quality-first and pays great attention on the quality management of the whole process. Advanced intelligent digital systems and equipments have been brought in for R & D and manufacture management. The company’s testing center has been rewarded the accreditation certificate issued by the China National Accreditation Service for Conformity Assessment. The products have won praise from users and also several provincial or ministerial quality awards for the excellent performance and quality. Meanwhile, no claims arise since 1994 when the product quality liability insurance was been covered for all the products.

Changshu Switchgear is committed to providing customers with high-quality electrical products, creating higher value for society and customers and shaping a leading national electrical brand.

常熟开关制造有限公司
为您提供电气系统完整的解决方案

高压真空断路器


CV1-12/CVR1-12系列
高压真空断路器


CV2-12


CV1-24/CV2-24系列
高压真空断路器


CV1-40.5/CV2-40.5系列
高压真空断路器

智能型万能式断路器


CW1系列
智能型万能式断路器


CW2系列
智能型万能式断路器


CW3系列
智能型万能式断路器


CW3X-1600系列
智能型万能式断路器


CW3R系列
智能型万能式断路器


CW3F-2500系列
智能型万能式断路器


CW3V系列
智能型真空万能式断路器

塑料外壳式断路器

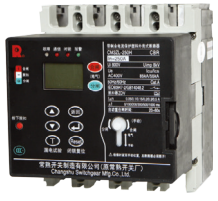

CM3系列
塑料外壳式断路器


CM3E系列
电子式塑壳断路器


CM3L系列
带剩余电流保护塑壳断路器


CM3Z系列
智能型塑壳断路器


CM3ZL系列
带剩余电流保护塑壳断路器


CM3ZL/ZH自动重合闸
带剩余电流保护塑壳断路器


CM5系列
塑料外壳式断路器


CM5Z系列
智能型塑壳断路器


CM5Z-1600
智能型塑壳断路器


CM5L系列
带剩余电流保护塑壳断路器


CM5ZL系列
带剩余电流保护智能型塑壳断路器


CM5X-125塑料外壳式断路器
CM5XL-125带剩余电流保护塑壳断路器

常熟开关制造有限公司
为您提供电气系统完整的解决方案

自动转换开关

CA1/CA1B系列自动转换开关(CB级)

CAP1系列自动转换开关(PC级)

CAP2系列自动转换开关(PC级)

CAP3系列自动转换开关

接触器和过载继电器

CK3/CK3B系列接触器

CJR3/CJR3B系列热过载继电器

CJD3系列电子过载继电器

剩余电流动作继电器

CLJ3 剩余电流动作继电器

电动机软起动器

CR1系列电动机软起动器

CR2系列智能型电动机软起动器

电动机保护器

CD3系列电动机控制保护器

CD4系列电动机控制保护器

控制和保护电器

CB1系列控制和保护开关电器(CPS)

光伏发电用产品

CW3G系列隔离开关（AC，DC）

CW3DC系列直流万能式断路器

CM3DC系列直流塑壳断路器

小型断路器

CH系列小型断路器

电力质量和系统自动化器件

AD128系列信号灯
LA168系列按钮

CI1系列远程智能I/O模块

CN1DP-MP
CN1DP-MD
CN1DP-MC
通信适配器
CN1EG以太网适配器

FDM3
短消息通知模块

FWX1无线温度测量模块

智能化通信低压配电网络监控系列

Riyear-PowerNet配电监控系统

CEPA3智能配电一体机

优秀特色

- 应用广泛，可适用于交流400V、690V，行业首推最大额定电流等级7400A断路器；并且派生产品CW3G隔离开关交直流两用，直流电压可达1000V，满足光伏发电应用，还具备TH型断路器，满足湿热带地区使用要求，并推出针对AC1140V、800V高电压等级HU型断路器
- 获得国际认可的CB证书
- 小体积、高性能，电能监测和保护控制一体化，功能完善
- 倡导断路器新理念，实现额定短时耐受能力Icw=额定运行短路分断能力Ics=额定极限短路分断能力Icu，实现全电流范围选择性保护，提高运行可靠性
  额定极限短路分断能力Icu：400V：65kA～150kA；440V：50kA～120kA；690V：42kA～100kA；800V/1140V：50kA
  额定运行短路分断能力Ics：400V：50kA～150kA；440V：50kA～120kA；690V：42kA～100kA；800V/1140V：50kA
  额定短时耐受电流Icw（1s）：400V：42kA～135kA；440V：42kA～120kA；690V：42kA～100kA；800V/1140V：50kA
- 断路器可选配不同智能控制器，实现更丰富的电力参数检测（如谐波监测、功率和电度显示），测量精度高，可满足监测级要求；多种曲线保护，满足不同应用场合（如发电机保护）；率先推出带剩余电流保护（A型/AC型）的智能控制器
- 导入最先进的断路器状态智能化可视新理念，实现内部温度、附件、本体及抽屉座运行状态的实时监测
- 全模块化设计理念，提供多种模块实现功能的扩展，如辅助触头可扩展至12组（最多），可选装三位置状态监视等
- 主回路接线端子连接方便，可实现水平连接、垂直连接、混合连接，辅助触头数量可选，增配方便
- 可选区域选择性联锁功能，确保各级保护的完全选择性
- 可选Modbus、Profibus、Devicenet、CAN任一协议直接通信输出，方便用户；并可通过本公司的CN1EG以太网适配器联接以太网网络
- 通过配置FDM3短消息通知模块，可实现断路器故障脱扣或报警信息无线监视
- ER控制器增配温度显示功能，可无线接收FWX1-C温度传感器采集的温度信息，实现控制器上的温度显示与通信
- 凭借优越的性能，配装ER控制器的CW3断路器更方便各类电气系统的应用选型，无论是对于标准电气配电应用场合，还是对于新型分布式能源电气配电需要，以及风机并网操作、逆变器并网操作的设备应用需要，都可满足其应用要求，并可节约您的费用
- 配装ER控制器的CW3断路器，满足多电源网络各类特殊的保护要求，如方向性保护、方向性区域选择性保护、自动同期合闸功能、双重参数整定等
- 光伏并网：带光伏并网专用欠电压脱扣器的CW3断路器满足国家电网公司Q/GDW1972、Q/GDW1973标准，实现检有压合闸功能

目 录

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概 述 GENERAL

常熟开关制造有限公司（原常熟开关厂）又全新推出CW家庭新成员CW3系列智能型万能式断路器（以下简称断路器），该断路器是本公司设计人员把丰富的断路器研发经验、成熟的配电技术与人性化设计相结合的新一代产品，断路器可应用于各种低压配电领域，不但可实现对线路的保护，还可实现对电动机（断路器满足GB50055对电动机保护要求）、发电机（断路器满足GB755对发电机保护要求）等设备的保护，因此为用户提供了更安全、更可靠、更全面的低压配电保护方案。

- 断路器额定工作电压 AC50Hz/60Hz 400V、440V、690V、1140V
- 断路器额定电流200～7400A
- 断路器具有三极和四极
- 断路器具有抽屉式和固定式
- 断路器可倒进线连接
- 断路器可选用EN、EA、ER、EP、EQ、EG等智能控制器
- 断路器具有隔离功能，符号为 
- 使用类别B
- 可提供低温至-40℃断路器
- 可提供无过电流保护要求的断路器，符合GB/T14048.2附录L CBI分类Y级
- 断路器符合以下标准：

IEC60947-1及GB/T14048.1-2012 低压开关设备和控制设备 总则

IEC60947-2及GB/T14048.2-2008 低压开关设备和控制设备 断路器

IEC60947-4-1及GB/T14048.4 低压开关设备和控制设备 机电式接触器和电动机起动器

- 断路器获国家强制性产品认证CCC标志

Changshu Switchgear Manufacturing Co., LTD (Former Changshu Switchgear Plant) has developed CW3 Series Intelligent Air Circuit-Breakers (ACB) (hereafter simply referred to as circuit breakers) as the new member of the CW family, which are the new generation of products that combine the rich experience of circuit breakers r&d, the mature distribution technology and human design by our company's designers. Circuit breakers can be used in various low-voltage distribution areas, they can not only achieve the protection of the circuits but also realize the protection of the motors (circuit breakers meet the requirements for motor protection according to GB50055) and the generators (circuit breakers meet the requirements for generator protection according to GB755), thus they provide users with more security, more reliable and more comprehensive programs to protect low-voltage distribution.

- The circuit breakers ' rated operational voltage: AC50Hz/60Hz 400V、440V、690V、1140V.
- The circuit breakers' rated current: 200 ~ 7400A.
- The circuit breakers have three or four poles.
- The circuit breakers have draw-out or fixed type.
- The circuit breakers can be mounted in the adverse direction.
- The circuit breakers can be selected EN、EA、ER、EP、EQ、EG intelligent controller.
- The circuit breakers have isolation function and the symbol are shown as 
- Utilization category B
- Can be provided breaker of temperature down to -40℃
- Can provide circuit-breakers not fulfilling the requirements for overcurrent protection,compliance with GB/T14048.2 annex L class Y of CBI
- The circuit breakers comply with the demands of the following standards:

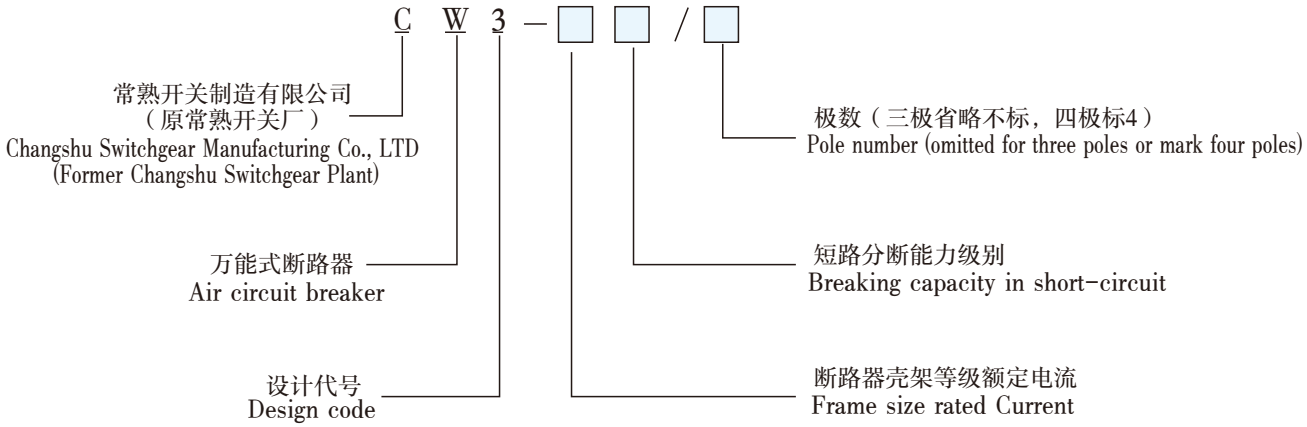
IEC60947-1 and GB/T14048.1-2012 Low-voltage switchgear and controlgear General rules

IEC60947-2 and GB/T14048.2-2008 Low-voltage switchgear and controlgear Circuit-breakers

IEC60947-4-1 and GB/T14048.4 Low-voltage switchgear and controlgear Electro-mechanical contactor and motor starter.

- The circuit breakers have obtained the CCC mark of CQC.

型号含义 TYPE DESIGNATION AND ITS MEANING



正常使用条件和安装条件 NORMAL SERVICE AND MOUNTING CONDITIONS

- 周围空气温度-5℃～+40℃；
- 安装地点的海拔不超过2000m；
- 空气的相对湿度在最高温度为+40℃时不超过50%，在较低温度下可以允许有较高的相对湿度，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的措施；
- 污染等级为3级；
- 断路器通过GB/T2423.10试验要求可耐受频率为2Hz~13.2Hz、位移为±1mm及频率为13.2Hz~100Hz、加速度为±0.7g的机械振动；
- 断路器主电路的安装类别为Ⅳ，其余辅助电路、控制电路安装类别为Ⅲ；
- 断路器适用于电磁环境A；
- 湿热带型（TH型）断路器通过GB/T2423.4、GB/T2423.18试验要求，能耐受潮湿空气、盐雾、油雾、霉菌的影响；
- 断路器安装的垂直倾斜度不超过5°；
- 断路器应安装在无爆炸危险和无导电尘埃、无足以腐蚀金属和破坏绝缘的地方；
- 断路器安装在柜体小室内，且加装门框，防护等级达IP40。
- 可运行条件：

断路器通过GB/T 2423.1和GB/T2423.2的试验要求，周围空气温度可低至-25℃（配EN型智能控制器可至-40℃）、高至+70℃（超过+40℃降容使用，详见本样本中的断路器功耗及降容系数）；

断路器通过GB/T2423.4试验Db（温度+55℃、相对湿度95%）要求；

海拔超过2000m降容使用，详见本样本中的高海拔降容；

- 储存条件：周围空气温度为-25℃~ +70℃。

- Ambient temperature: -5℃ ~ +40℃ ;
- Altitude ≤2000m
- Relative humidity: not exceed 50% at the maximum ambient temperature of +40℃, but higher relative humidity at the lower temperature, for example, 90% at 20℃. Special measures should be taken considering the dews on product surface due to temperature change;
- Pollution protection: 3 grade;
- The breakers are tested by GB/T2423.10,can withstand vibration of frequency range 2Hz~13.2Hz,displacement ±1mm and frequency range 13.2Hz~100Hz,acceleration ± 0.7g.
- Installing categories: IV for the main circuit; III for other auxiliary and control circuits;
- The breaker is suitable in electromagnetic environment A;
- Damp heat type（TH）breakers are tested by GB/T2423.4、GB/T2423.18,can bear the influence of moisture in the air of salt fog and oil fog or mould.
- The vertical gradient isn't more than 5。;
- There must be not any explosive medium, and there must be not any gas which would corrode metal or any conducting dust which would destory the insulation;
- The circuit breaker should be installed in the compartment of switchgear cabinet and doorframe should be fixed additionally. Protection grade up to Ip40.
- Sevice condition:

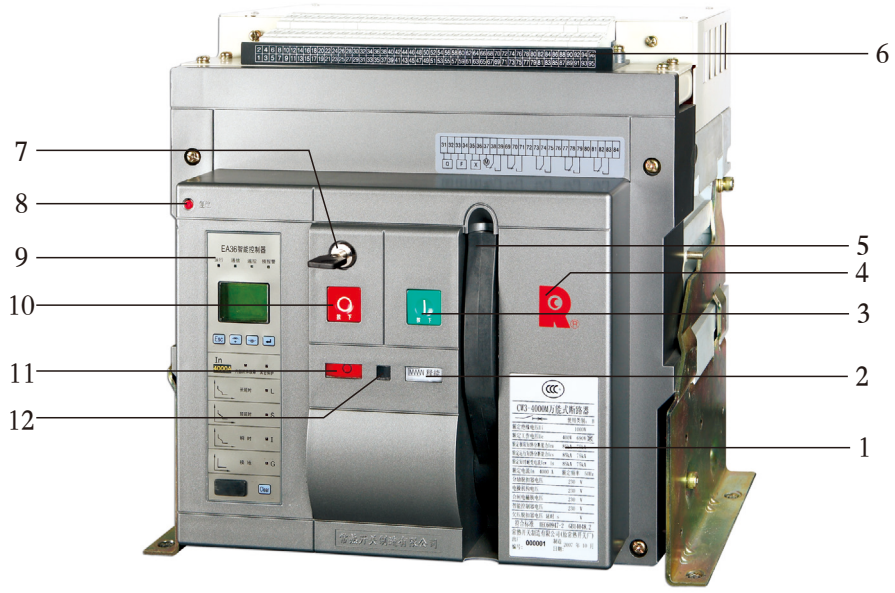
The breakers are tested by GB/T 2423.1 and GB/T2423.2,ambient temperature lower -25℃（-40℃ for EN intelligent controller）、higher +70℃（temperature over +40℃,the breakers are used by reducing capacity;please seeing "power consumption and capacity lowering coefficient"）;

The breakers are tested by GB/T2423.4 test Db（temperature +55℃, relative humidity 95%）;

Elevation over 2000m,the breakers are used by reducing capacity,please seeing "capacity-reducing for high-elevation".

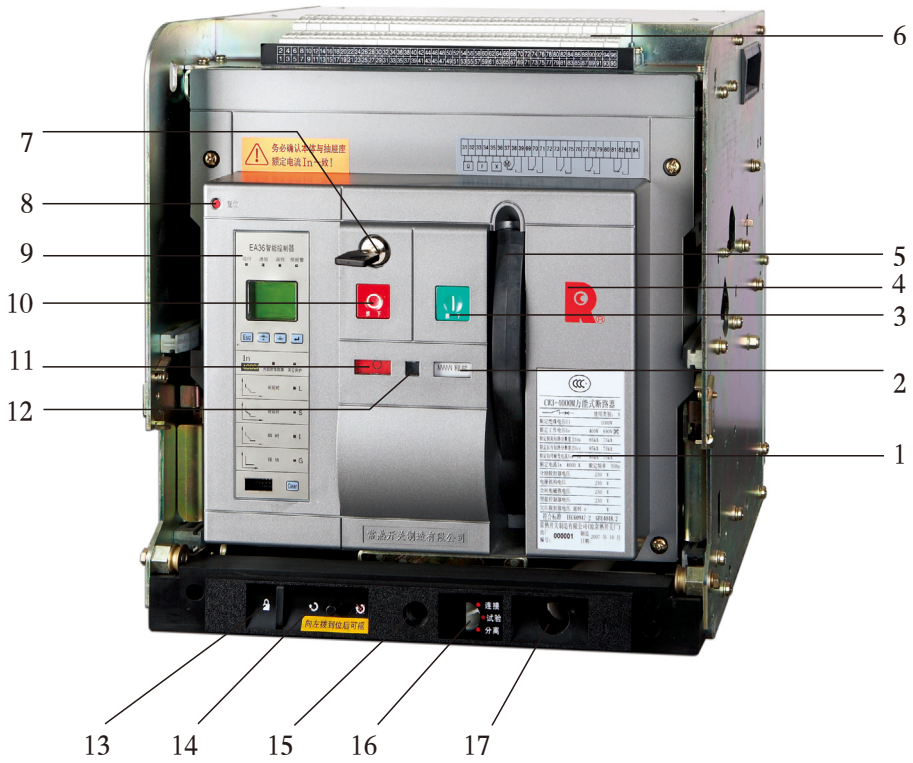
- Storage condiction:ambient temperature -25℃~+70℃.

断路器结构简介 SYNOP OF STRUCTURE



1 铭牌
2 贮能释能指示
3 合闸按钮
4 商标
5 手动贮能手柄
6 二次回路接线端子
7 断路器“分闸”锁定装置
8 脱扣指示和复位按钮
9 智能控制器
10 分闸按钮
11 合闸“I”、分闸“O”指示
12 合闸准备就绪时指示“OK”
13 抽屉式断路器“分离”位置安全挂锁装置
14 抽屉式断路器“分离”、“试验”、“连接”三位置“解锁拨钮”
15 抽屉式断路器摇杆工作孔
16 抽屉式断路器“分离”、“试验”、“连接”三位置指示
17 抽屉式断路器摇杆存放孔

1 Nameplate
2 Indications of charging and discharging
3 Closing button
4 Brand
5 Manual charging handle
6 Terminals of secondary circuit
7 “opening” lock mechanism
8 Trip indication and resetting button
9 Intelligent controller
10 Opening button
11 Indication of closing (“I”) and opening (“O”)
12 Indication of ready-for-close (“OK”)
13 Safety padlock mechanism as the draw-out circuit breaker indicates the position of “separated”
14 "Unlock button" of the three positions ("separated", "test" and "connected") for draw-out circuit breaker
15 Rocker operating hole of the draw-out circuit breaker
16 Indications of the three positions ("separated", "test" and "connected") of the draw-out circuit breaker
17 Rocker storage hole of the draw-out circuit breaker



注：

1“分离”：指示主回路与二次回路均为隔离状态；

“试验”：指示主回路为隔离状态，二次回路为连接状态；

“连接”：指示主回路与二次回路均为连接状态。

2 当断路器本体被摇至“分离”或“试验”或“连接”位置时即可被自动锁定（摇杆不可再摇动），可通过向左拨动“解锁拨钮”解锁。

Note:

1 "Separated": indicates that main circuit and secondary circuit are both in isolation.

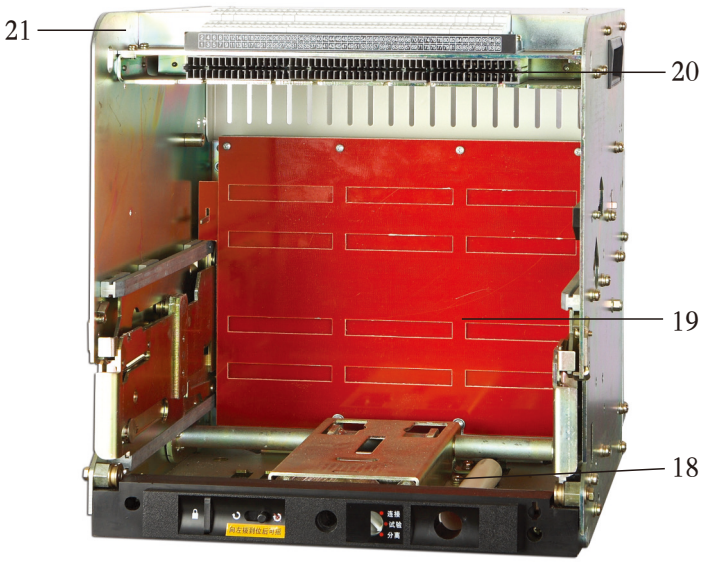
"Test": indicates that main circuit is in isolation and secondary circuit is in connection.

"Connected": indicates that main circuit and secondary circuit are both in connection.

2 The circuit breaker can be automatically locked (rocker can not be turned at this point) when its main part is at the position of "separated", "test" or "connected" by turning the rocker, and can be unlocked by pushing "unlock button" to the left side.

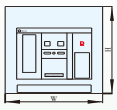
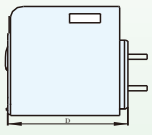
- 抽屉式断路器的抽屉座
- Draw-out socket of draw-out circuit breaker

抽屉式断路器的抽屉座具有隔离主回路母排的挡板，当断路器抽出时起安全保护作用。
The draw-out socket has the hack plate for isolating the copper bar of the main circuit, which takes the role of safety protection when the circuit breaker is draw out.



18 安装孔	18 Installation hole
19 安全挡板	19 Safety back plat
20 二次回路接线端子	20 Wiring terminals of secondary circuit
21 侧板	21 Side plate

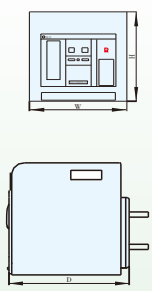
主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation					CW3-1000		
壳架等级额定电流Inm(A) Frame size rated current					1000		
额定电流In(A) Rated current					200、400、630、800、1000		
额定工作电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、440、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				65		
	AC440V				50		
	AC690V				42		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				50		
	AC440V				50		
	AC690V				42		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				143		
	AC440V				105		
	AC690V				88.2		
额定短时耐受电流Icw(kA)(有效值) Rated short-time withstand current(r.m.s value)	AC400V				42/1s		
	AC440V				42/1s		
	AC690V				42/1s		
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命*（次 times） Electrical durability	AC400V				In=200A~630A：15000		
					In=800A~1000A：9000		
	AC690V				In=200A~630A：15000		
					In=800A~1000A：5000		
机械寿命*（次 times） Mechanical durability	免维护 Non-maintenance				15000		
	有维护 Maintenance				30000		
外形尺寸(mm) Outline dimensions  	宽 × 高 × 深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	210	351.5	280
			4P	后置Back set	270	351.5	280
		垂直连接 Vertical	3P	后置Back set			
			4P	后置Back set			
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	235	320	200
			4P	后置Back set	295	320	200
		垂直连接 Vertical	3P	后置Back set			
			4P	后置Back set			

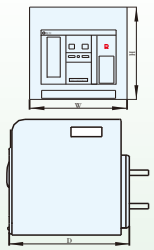
*注：免维护寿命指电器在修理或更换部件前能完成的操作循环次数的期望值。

*Note:non-maintenance durability expresses the expectancy of the number of operating cycles which can be performed by the equipment before repair or replacement parts.

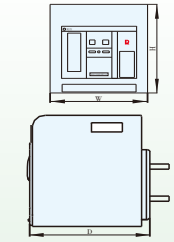
主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation					CW3-1600		
壳架等级额定电流Inm(A) Frame size rated current					1600		
额定电流In(A) Rated current					200、400、630、800、1000、1250、1600		
额定工作电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、440、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				65		
	AC440V				50		
	AC690V				50		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				55		
	AC440V				50		
	AC690V				42		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				143		
	AC440V				105		
	AC690V				105		
额定短时耐受电流Icw(kA)(有效值) Rated short-time withstand current(r.m.s value)	AC400V				55/0.5s,50/1s		
	AC440V				50/0.5s,50/1s		
	AC690V				42/0.5s,42/1s		
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命（次 times） Electrical durability	AC400V				In=200A~630A：15000		
					In=800A~1250A：9000		
					In=1600A：6500		
	AC690V				In=200A~630A：15000		
					In=800A~1250A：5000		
					In=1600A：3000		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				15000		
	有维护 Maintenance				30000		
外形尺寸(mm) Outline dimensions 	宽 × 高 × 深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	248	351.5	297
			4P	后置Back set	318	351.5	297
		垂直连接 Vertical	3P	后置Back set	248	351.5	297
			4P	后置Back set	318	351.5	297
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	259	320	195
			4P	后置Back set	329	320	195
		垂直连接 Vertical	3P	后置Back set	259	320	195
			4P	后置Back set	329	320	195

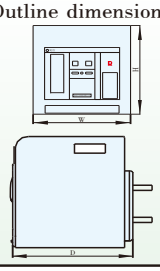
主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation					CW3-2500		
壳架等级额定电流Inm(A) Frame size rated current					2500		
额定电流In(A) Rated current					630、800、1000、1250、1600、2000、2500		
额定工作电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、440、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
短路分断能力级别 Short circuit breaking capacity					M	H	S
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				65	85	100
	AC440V				65	85	100
	AC690V				55	65	85
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				65	85	85
	AC440V				65	85	85
	AC690V				55	65	65
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				143	187	220
	AC440V				143	187	220
	AC690V				121	143	187
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V				65	85	85
	AC440V				65	85	85
	AC690V				55	65	65
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命（次 times） Electrical durability	AC400V				In=630A~1250A：12500		
					In=1600A~2000A：10000		
					In=2500A：8000		
	AC690V				In=630A~1250A：12500		
					In=1600A~2000A：7000		
					In=2500A：6000		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				12500		
	有维护 Maintenance				25000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	347	438	395
			4P	后置Back set	442	438	395
		垂直连接 Vertical	3P	后置Back set	347	438	395
			4P	后置Back set	442	438	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	362	395	290
			4P	后置Back set	457	395	290

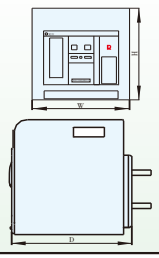
主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation					CW3-3200		
壳架等级额定电流Inm(A) Frame size rated current					3200		
额定电流In(A) Rated current					1000、1250、1600、2000、2500、2900、3200		
额定工作电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、440、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
短路分断能力级别 Short circuit breaking capacity					M	H	
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				85	100	
	AC440V				85	100	
	AC690V				75	85	
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				85	100	
	AC440V				85	100	
	AC690V				75	85	
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				187	220	
	AC440V				187	220	
	AC690V				165	187	
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V				85	100	
	AC440V				85	85	
	AC690V				75	85	
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命（次 times） Electrical durability	AC400V				In=1000A~2500A：10000		
					In=2900A~3200A：8000		
	AC690V				In=1000A~2500A：10000		
					In=2900A~3200A：5000		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				10000		
	有维护 Maintenance				20000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
		垂直连接 Vertical	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	414	395	290
			4P	后置Back set	527	395	290

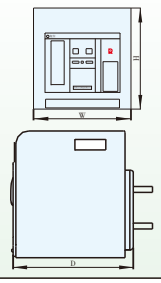
主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation					CW3-4000		
壳架等级额定电流Inm(A) Frame size rated current					4000		
额定电流In(A) Rated current					1000、1250、1600、2000、2500、2900、3200、3600、4000		
额定工作电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、440、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
短路分断能力级别 Short circuit breaking capacity					M	H	
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				85	100	
	AC440V				85	100	
	AC690V				75	85	
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				85	100	
	AC440V				85	100	
	AC690V				75	85	
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				187	220	
	AC440V				187	220	
	AC690V				165	187	
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V				85	100	
	AC440V				85	85	
	AC690V				75	85	
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命（次 times） Electrical durability	AC400V				In=1000A~2500A：10000		
					In=2900A~3600A：8000		
					In=4000A：6000		
	AC690V				In=1000A~2500A：10000		
					In=2900A~3600A：5000		
					In=4000A：3000		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				10000		
	有维护 Maintenance				20000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
		垂直连接 Vertical	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	414	395	290
			4P	后置Back set	527	395	290

主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation				CW3-6300		
壳架等级额定电流Inm(A) Frame size rated current				6300		
额定电流In(A) Rated current				4000、5000、6300		
额定电压Ue(V) Rated operational voltage				AC50Hz/60Hz,400、440、690		
额定绝缘电压Ui(V) Rated insulation voltage				1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage				12		
工频耐受电压U(V) Power-frequency withstand voltage				3500		
极数 Pole number				3、4		
中性极额定电流I_N(A) Rated current of neutral pole				100%In		
短路分断能力级别 Short circuit breaking capacity				M	H	
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V			120	135	
	AC440V			100	120	
	AC690V			85	100	
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V			120	135	
	AC440V			100	120	
	AC690V			85	100	
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V			264	297	
	AC440V			220	264	
	AC690V			187	220	
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V			120	135	
	AC440V			100	120	
	AC690V			85	100	
分断时间（ms） Breaking time				＜30		
闭合时间（ms） Closing time				＜70		
电气寿命（次 times） Electrical durability	AC400V			In=4000A：6000		
				In=5000A：4000		
				In=6300A：2000		
	AC690V			In=4000A：3500		
				In=5000A：2500		
				In=6300A：1500		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance			6500		
	有维护 Maintenance			13000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width × height × depth			W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	754	475.5	395
			4P	后置Back set	980	475.5	395
		垂直连接 Vertical	3P	后置Back set	754	475.5	395
			4P	后置Back set	980	475.5	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	769	395	290
			4P	后置Back set	995	395	290

主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation				CW3-7400		
壳架等级额定电流Inm(A) Frame size rated current				7400		
额定电流In(A) Rated current				4000、5000、6300、7400		
额定电压Ue(V) Rated operational voltage				AC50Hz/60Hz,400、690		
额定绝缘电压Ui(V) Rated insulation voltage				1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage				12		
工频耐受电压U(V) Power-frequency withstand voltage				3500		
极数 Pole number				3、4		
中性极额定电流I_N(A) Rated current of neutral pole				50%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V			150		
	AC690V			100		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V			150		
	AC690V			100		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V			330		
	AC690V			220		
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V			135		
	AC690V			100		
分断时间（ms） Breaking time				＜30		
闭合时间（ms） Closing time				＜70		
电气寿命（次 times） Electrical durability	AC400V			In=4000A~5000A：4000		
				In=6300A：2500		
				In=7400A：1500		
	AC690V			In=4000A~5000A：2500		
				In=6300A：1500		
				In=7400A：1000		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance			5000		
	有维护 Maintenance			10000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width × height × depth			W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	980	475.5	395
			4P	后置Back set	980	475.5	395
		垂直连接 Vertical	3P	后置Back set	980	475.5	395
			4P	后置Back set	980	475.5	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	973	395	290
			4P	后置Back set	973	395	290

（一）智能控制器类型
（1）Selecting the intelligent controller

EN35型 Type EN35	EN36型 Type EN36	EA35型 Type EA35	EA36型 Type EA36
LED显示，参数连续设定，具有电流、电压、电能、频率、功率测量功能	LED显示，参数连续设定，具有电流、电压、电能、频率、功率测量功能	LCD显示，参数连续设定，具有电流测量功能	LCD显示，参数连续设定，具有电流测量功能
With such performances as LED indication,consecutive parameter-setting and measurement function of current,voltage,energy,frequency and power	With such performances as LED indication,consecutive parameter-setting and measurement function of current,voltage,energy,frequency and power	With such performances as LCD indication,consecutive parameter-setting and measurement function of current	with such performances as LCD indication, consecutive parameter-setting and measu- rement function of current.
过载长延时+短路短延时+短路瞬时	过载长延时+短路短延时+短路瞬时+接地故障	过载长延时＋短路短延时＋短路瞬时	过载长延时＋短路短延时＋短路瞬时＋接地故障
Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection
			

ER35型，增强型
Type ER35

LCD显示，参数连续设定，具有电流、电压、功率、频率测量功能，且另可选电能、相序、需用值测量功能及双重参数设定、方向性保护、方向性区域选择性保护、自动同期功能及谐波分析和波形捕捉功能

with such performances as LCD indication and consecutive parameter-setting, adds measurement function of current,voltage, power, frequency, also can selecting measurement function of energy, phase sequence and demand value and two group parameter setting,directionality protection,directionality zone selective,automatic synchrocheck,harmonic analysis and waveform capture.

过载长延时＋短路短延时＋短路瞬时

Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit

ER36型，增强型
Type ER36

LCD显示，参数连续设定，具有电流、电压、功率、频率测量功能，且另可选电能、相序、需用值测量功能及双重参数设定、方向性保护、方向性区域选择性保护、自动同期功能及谐波分析和波形捕捉功能

with such performances as LCD indication and consecutive parameter-setting, adds measurement function of current,voltage, power, frequency, also can selecting measurement function of energy, phase sequence and demand value and two group parameter setting,directionality protection,directionality zone selective,automatic synchrocheck,harmonic analysis and waveform capture.

过载长延时＋短路短延时＋短路瞬时＋接地故障

Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection

EP35型
Type EP35

LCD显示，参数连续设定，具有EA的所有功能且另具有电压、功率、频率、电能、相序、需用值测量功能及附加保护

with such performances as LCD indication and consecutive parameter-setting, adds measurement function of voltage, power, frequency, energy, phase sequence and demand value and attached protection except the functions of EA.

过载长延时＋短路短延时＋短路瞬时

Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit

EP36型
Type EP36

LCD显示，参数连续设定，具有EA的所有功能且另具有电压、功率、频率、电能、相序、需用值测量功能及附加保护

with such performances as LCD indication and consecutive parameter-setting, adds measurement function of voltage, power, frequency, energy, phase sequence and demand value and attached protection except the functions of EA.

过载长延时＋短路短延时＋短路瞬时＋接地故障

Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection

智能控制器 INTELLIGENT CONTROLLER

EQ35型 Type EQ35	EQ36型 Type EQ36	EG35型，发电机保护型 Type EG35 which is the generator protection type	EG36型，发电机保护型 Type EG36 which is the generator protection type
LCD显示，参数连续设定，具有EP的所有功能且另具有谐波分析和波形捕捉功能	LCD显示，参数连续设定，具有EP的所有功能且另具有谐波分析和波形捕捉功能	LCD显示，参数连续设定，具有EQ的所有功能，且另具有过频、欠频、逆功率保护功能	LCD显示，参数连续设定，具有EQ的所有功能，且另具有过频、欠频、逆功率保护功能
with such performances as LCD indication and consecutive parameter-setting, adds harmonic analysis function and harmonic capture function except the functions of EP.	with such performances as LCD indication and consecutive parameter-setting, adds harmonic analysis function and harmonic capture function except the functions of EP.	with such performances as LCD indication and consecutive parameter-setting, adds protection of over-frequency, under-frequency and inverse power except the functions of EQ.	with such performances as LCD indication and consecutive parameter-setting, adds protection of over-frequency, under-frequency and inverse power except the functions of EQ.
过载长延时＋短路短延时＋短路瞬时	过载长延时＋短路短延时＋短路瞬时＋接地故障	过载长延时＋短路短延时＋短路瞬时	过载长延时＋短路短延时＋短路瞬时＋接地故障
Overload long-time delay & short-circuit short-time delay & instantaneous short- circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection

（二）智能控制器功能 （2）Functions of intelligent controller

一般配电回路用智能控制器EN、EA、ER、EP、EQ的功能（√表示基本功能；○表示选择功能；—表示无此功能）

Functions of type EN, EA,ER,EP and EQ intelligent controllers used in general distribution circuits (√ represents fundamental functions; ○ represents selective functions; – represents no such functions)

特性项目 Characteristic project				智能控制器 Intelligent controller				
				EN	EA	ER	EP	EQ
保护 Protection	保护/报警 Protection/alarm	过载长延时保护（热模拟 10 分钟）Overload long-time delay protection (Thermal memory for 10min)		√	√	√	√	√
		短路短延时保护（热模拟5分钟）Short-circuit short-time delay protection (thermal memory for 5min)		√	√	√	√	√
		短路瞬时保护 Instantaneous short-circuit protection		√	√	√	√	√
		接地故障保护（二选一）Earth-fault protection (choose one of the two)	矢量和接地故障保护 Vector and earth-fault protection	○	○	○	○	○
			变压器中心点接地故障保护 Earth-fault protection of the center of transformer	○	○	○	○	○
		中性极保护 Neutral protection		√	√	√	√	√
		过载预报警 Overload pre-alarm		○	○	○	○	○
		电流不平衡保护 Current-unbalance protection		○	○	○	○	○
		断相保护 Open-phase protection		○	○	○	○	○
		需用电流保护 Demand current protection		—	—	○	○	○
		过电压保护 Over-voltage protection		—	—	○	○	○
		低电压保护 Under-voltage protection		—	—	○	○	○
		电压不平衡保护 Voltage-unbalance protection		—	—	○	○	○
		过频保护 Over-frequency protection		—	—	○	—	—
		欠频保护 Under-frequency protection		—	—	○	—	—
		相序保护 Phase sequence protection		—	—	○	○	○
		逆功率保护 Inverse power protection		—	—	○	—	—
		方向性保护 Directionality protection		—	—	○	—	—
		电流卸载（可设置2路）Current shedding (by two ways)		○	○	○	○	○
		区域选择性连锁（ZSI）Zone selective interlocking		○	○	○	○	○
		方向性区域选择性连锁 Directionality zone selective		—	—	○	—	—
		双重参数设定 Two group parameter set		—	—	○	—	—
		MCR 功能 MCR function		√	√	√	√	√
		自动同期功能 Synchrocheck		—	—	○	—	—
		远程复位 Renite reset		○	○	○	○	○
		自动复位 Automatic reset		—	—	○	—	—
测量功能 Measurement	电流：三相电流、中性极电流、接地电流 Current: three-phase current, neutral current, earth 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			○注2	—	√	√	√
	功率：有功功率、无功功率、视在功率、功率因数 Power: active power, reactive power, apparent power, power factor			○注3	—	√	√	√
	频率 Frequency			○	—	○	√	√
	电能：有功电能、无功电能、视在电能 Energy: active energy, reactive energy, apparent energy			○	—	○	√	√
	谐波 Harmonic			—	—	○	—	√
	波形捕捉 Waveform capture			—	—	○	—	√
	相序 Phase sequence			—	—	○	√	√
	需用值：需用电流、需用功率 Demand value: demand current, demand power			—	—	○	√	√
	温度 Temperature			—	—	○	—	—

维护功能 Maintenance function	断路器维护 Breaker maintenance	触头磨损当量 Contact wearing indication	√	√	√	√	√
		智能控制器有电时操作次数 Operation times of intelligent controller on electricity	√ 注4	√	√	√	√
		自诊断功能（存储器故障、处理器超温） Self-diagnosis function (memory fault or processor over-temperature)	√	√	√	√	√
		附件监测（分励、合闸电磁铁、欠压、电机断线） Accessories monitoring (Shunt release, closing electromagnet, under-voltage release and motor disconnected)	○	○	○	○	○
	历史记录 History	历史最大电流（控制器显示） Maximum current (controller indication)	—	√	√	√	√
		需用电流最大值（控制器显示） Maximum demand current value (controller indication)	—	—	○	√	√
		脱扣记录（10次）（控制器显示） Trip records (10) (controller indication)	√ 注1	√ 注1	√	√	√
		报警记录（10次）（控制器显示） Alarm records (10) (controller indication)	—	—	√	√	√
		历史最大、最小电流（通信输出） Maximum and minimum current (communication output)	√	√	√	√	√
		历史最大、最小电压（通信输出） Maximum and minimum voltage (communication output)	—	—	√	√	√
		峰值需用功率（通信输出） Demand power of peak (communication output)	—	—	○	√	√
		功率因数最大、最小值（通信输出） Maximum and minimum power factor (communication output)	—	—	√	√	√
		频率最大、最小值（通信输出） Maximum and minimum frequency (communication output)	—	—	√	√	√
		故障录波（通信输出）记录12个周波 Recording wave when error (communication output)(12 cycles)	—	—	○	—	√
其他 Other	通信功能 Communication function		○	○	○	○	○

注1：EA、EN型智能控制器脱扣记录为1次。注2：EN智能控制器无电压不平衡度测量。注3：EN智能控制器无功率因数测量。注4：EN智能控制器为通信输出。

Note1: Release record for type EA intelligent controller is 1. Note2: Without voltage-unbalance for EN controller.

Note3: Without power factor for EN controller. Note4:Communicative output for EN controller.

用于发电机保护智能控制器EG的功能（√表示基本功能；○表示选择功能）
Functions of type EG intelligent controllers used in generator protection(√ represents fundamental functions; ○ represents selective functions; represents no such functions)

特性项目 Characteristic project			智能控制器 Intelligent controller
			EG
保护/报警 Protection/ alarm	过载长延时保护（热模拟10分钟）Overload long-time delay protection (Thermal memory for 10min)		√
	短路短延时保护（热模拟5分钟）Short-circuit short-time delay protection (Thermal memory for 5min)		√
	短路瞬时保护 Instantaneous short-circuit protection		√
	接地故障保护（矢量和接地故障保护）Earth-fault protection (Vector and earth-fault protection)		○
	中性极保护 Neutral protection		√
	过载预报警 Overload pre-alarm		○
	电流不平衡保护 Current-unbalance protection		○
	断相保护 Open-phase protection		○
	需用电流保护 Demand current protection		○
	过电压保护 Over-voltage protection		○
	低电压保护 Under-voltage protection		○
	电压不平衡保护 Voltage-unbalance protection		○
	过频保护 Over-frequency protection		√
	欠频保护 Under-frequency protection		√
	相序保护 Phase sequence protection		○
	逆功率保护 Inverse power protection		√
	电流卸载（可设置2路） Current shedding (by two ways)		○
	区域选择性连锁（ZSI） Zone selective interlocking		○
	MCR功能 MCR function		√
测量 Measurement	电流：三相电流、中性极电流、接地电流 Current: three-phase current, neutral current, earth 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：有功功率、无功功率、视在功率、功率因数 Power: active power, reactive power, apparent power, power factor		√
	频率 Frequency		√
	电能：有功电能、无功电能、视在电能 Energy: active energy, reactive energy, apparent energy		√
	谐波 Harmonic		√
	波形捕捉 Waveform capture		√
	相序 Phase sequence		√
	需用值：需用电流、需用功率 Demand value: demand current, demand power		√
维护功能 Maintenance function	断路器维护功 能 Breaker maintenance	触头磨损指示 Contact wearing indication	√
		智能型控制器有电时操作次数 Operation times of intelligent controller on electricity	√
		自诊断功能（存储器故障、处理器超温）Self-diagnosis function (memory fault or processor over-temperature)	√
		附件监测（分励、合闸电磁铁、欠压、电机断线）Accessories monitoring (Shunt release, closing electromagnet, under-voltage release and motor disconnected)	○
	历史记录 History	历史最大电流（控制器显示） Maximum current (controller indication)	√
		需用电流最大值（控制器显示）Maximum demand current value (controller indication)	√
		脱扣记录（10次）（控制器显示） Trip records (10) (controller indication)	√
		报警记录（10次）（控制器显示） Alarm records (10) (controller indication)	√
		历史最大、最小电流（通信输出）Maximum and minimum current (communication output)	√
		历史最大、最小电压（通信输出）Maximum and minimum voltage (communication output)	√
		峰值需用功率（通信输出） Demand power of peak (communication output)	√
		功率因数最大、最小值（通信输出）Maximum and minimum power factor (communication output)	√
		频率最大、最小值（通信输出） Maximum and minimum frequency (communication output)	√
		故障录波（通信输出），记录12个周波 Recording wave when error (communication output) (12 cycles)	√
其他 Other	通信功能 Communication function		○

注：与电压相关的测量或保护，须提供电压输入（见本样本接线图）。
Note: Voltage input must be provided for voltage-related measurement or protection.

（三）智能控制器的保护特性及相关曲线
（3）Protection characteristics and related curves of intelligent controller

一般配电回路用智能控制器EN、EA、ER、EP、EQ保护功能及设定值
Protection and settings of type EN, EA, ER, EP, and EQ intelligent controllers used in general distribution circuits.

保护功能 Protection	动作值 Operating value	动作延时 Operating delay	可否关闭 Can off or not	热模拟 Thermal memory	ZSI
■ 过载长延时保护 Overload long-time delay	Ir_1=(0.4~1)In	I^2t：	–	■	

1.05Ir1	2h内不动作						
1.30Ir1	1h内动作						
1.5Ir1,t1	15s	30s	60s	120s	240s	480s	
2.0Ir1	8.4s	16.9s	33.7s	67.5s	135s	270s	
6.0Ir1	0.94s	1.88s	3.75s	7.5s	15s	30s	
7.2Ir1	0.65s	1.30s	2.60s	5.20s	10s	21s	

It（IEC60255-3）：

1.05Ir1	2h内不动作					
1.30Ir1	1h内动作					
1.5Ir1,t1	10s	15s	30s	60s	90s	120s
2.0Ir1	5s	7.5s	15s	30s	45s	60s
6.0Ir1	1s	1.5s	3s	6s	9s	12s
7.2Ir1	0.81s	1.21s	2.42s	4.84s	7.26s	9.68s

I4t（IEC60255-3）：

1.05Ir1	2h内不动作					
1.30Ir1	1h内动作					
1.5Ir1,t1	60s	120s	240s	480s	960s	1440s
2.0Ir1	16.25s	32.5s	65s	130s	260s	390s
6.0Ir1	*	*	0.75s	1.51s	3.01s	4.52s
7.2Ir1	*	*	*	0.73s	1.45s	2.18s

*注：按短延时整定时间t_2动作。
*Note operating by short-time delay t2

注：EN控制器仅有I^2t过载长延时特性
Note:I^2t overload long-time delay characterictic for EN controller.

递变级差 Successive grade 10A
动作允差 Operating tolerance ± 10%

■ 短路短延时保护 Short-circuit short-time delay	Ir_2=(0.4~15)In	在8Ir_1时(At 8Ir_1), t_2=(0.1-0.2-0.3-0.4)s	可OFF May OFF	■	■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 10%	± 10% 注：固有误差最大+20ms Note: Max. inherent tolerance +20ms			

注：I^2t ON，当I≤8Ir_1时，则反时限整定时间对应8Ir1；当I > 8Ir_1时，则按定时限动作。
I^2t OFF，则按定时限动作。

Note: I^2t ON, when I ≤8 Ir_1, set time in inverse time Corresponding 8 Ir_1, when I >8 Ir1, set time in definite time.
I^2t OFF, act in definite time.

■ 瞬时保护 Instantaneous	Inm=1000A，Ir_3=(1~25)kA Inm=1600A，Ir_3=(1.6~35)kA Inm=2500A，Ir_3=(2.5~50)kA Inm=3200A，Ir_3=(3.2~80)kA Inm=4000A，Ir_3=(4~80)kA Inm=6300A，Ir_3=(6.3~100)kA Inm=7400A，Ir_3=(7.4~115)kA		可OFF May OFF
递变级差 Successive grade	50A		
动作允差 Operating tolerance	< 3In: ± 10% ≥3In: ± 15%		

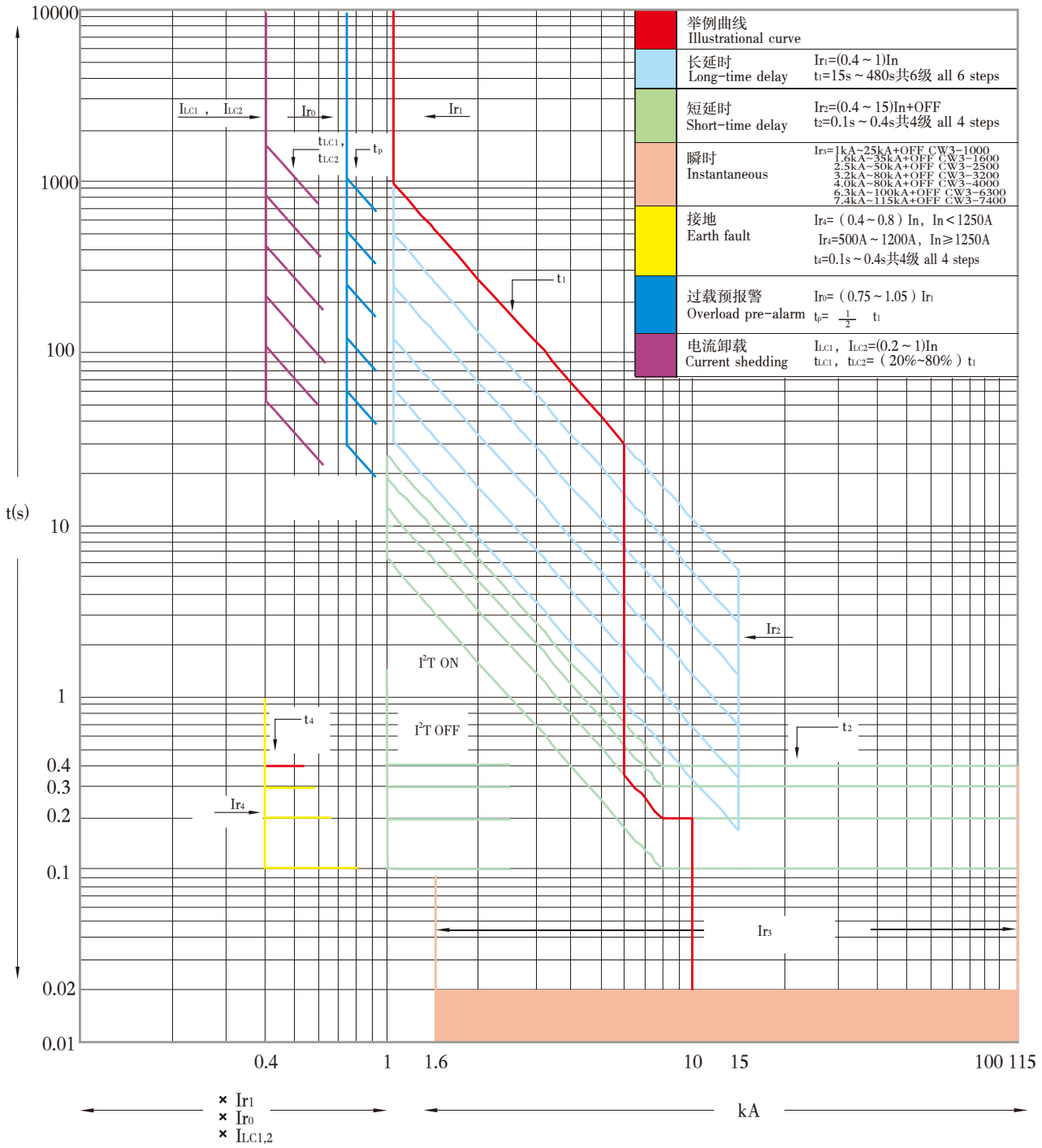
保护功能 Protection	动作值 Operating value	动作延时 Operating delay	可否关闭 Can off or not	热模拟 Thermal memory	ZSI
■ 接地故障保护 Earth-fault	In＜1250A时，I_{r4}=(0.4~0.8)In In≥1250A时，I_{r4}=500A-1200A	t_4=(0.1-0.2-0.3-0.4)s		可OFF May OFF	■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 10%	± 10% 注：固有误差最大+20ms Note: Max. inherent tolerance +20ms			
注：接地故障保护功能OFF后，发生接地故障时，断路器不跳闸只报警。		Note: With earth-fault protection is OFF circuit breaker alarms but not trips when earth-fault happened.			
■ 中性极保护 Neutral protection	三极断路器，I_N=0.5N,N,2N（CW3-6300、7400无2N中性极保护） Three-pole circuit breaker	（Without 2N neutral protection for CW3-6300、7400）		可OFF May OFF	
	注：需外接中性线电流互感器 Note: External neutral current transformer is required. Four-pole circuit breaker.				
	四极断路器，I_N=0.5N,N（CW3-7400无N中性极保护） (Without N neutral protection for CW3-7400)				
■ 过载预报警 Overload pre-alarm	Iro=(0.75-1.05)I_{r1}	tp=1/2t_1		–	
递变级差 Successive grade	0.05I_{r1}				
动作允差 Operating tolerance		± 10%			
■ MCR	In≤1000A时，15In 1000A＜In＜2000A时，12In In≥2000A时，10In				
动作允差 Operating tolerance	± 15%				
■方向性保护 Directionality protection	I_{r5}=(0.4-10) In	t_5F=(0.1-0.2-0.3-0.4)s t_5B=(0.1-0.2-0.3-0.4)s	可OFF May OFF		
递变级差 Successive grade	10A	0.1s			
动作允差 Operating tolerance	± 10%	± 20%			
■自动同期 Automatic synchrocheck	Uw =(0.05～0.2)Un Uy=(0.5～1.1)Un ΔU=(0.02～0.12)Un Δ δ=5° ～20° Δf=0.1 Hz～1Hz	td=0.1s～3s ts=0.1s～30s			
递变级差 Successive grade	Uw :0.01 Un Uy: 0.01 Un ΔU: 0.01 Un Δ δ:1° Δf:0.1 Hz	0.1s			
动作允差 Operating tolerance	± 10%				

保护功能 Protection	动作阈值 Operating threshold	返回阈值 Return threshold	动作延时 Operating delay	返回延时 Return delay	可否关闭 Can off or not
■ 电流不平衡 Current unbalance protection	20%~80%	20%~动作阈值 20%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 断相保护 Open-phase protection	90%~99%	20%~动作阈值 20%~operating threshold	0.1s~3s	10s~360s	■
递变级差 Successive grade	1%	1%	0.1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
			注：固有误差最大+20ms Note：Max. inherent tolerance +20ms		
■ 需用电流保护 Demand current protection	0.4In~1In	0.4In~动作阈值 0.4In~operating threshold	15s~1500s	15s~3000s	■
递变级差 Successive grade	1A	1A	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 低电压保护 Under-voltage protection	50V~690V	动作阈值~690V Operating threshold~690V	EP/EQ：1s~30s ER：0.2s~30s	EP/EQ：1s~100s ER：0.2s~100s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	≥1s：± 5% <1s：+20%	≥1s：± 5% <1s：+20%	
■ 过电压保护 Over-voltage protection	200V~1000V	200V~动作阈值 200V~operating threshold	EP/EQ：1s~5s ER：0.2s~5s	EP/EQ：1s~36s ER：0.2s~36s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	≥1s：± 5% <1s：+20%	≥1s：± 5% <1s：+20%	
■ 电压不平衡保护 Voltage unbalance protection	2%~50%	2%~动作阈值 2%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 逆功率保护 Reverse power protection	20kW~500kW	20kW~动作阈值 20kW~operating threshold	0.2s~20s	1s~360s	■
递变级差 Successive grade	5kW	5kW	0.1s	0.1s	
动作允差 Operating tolerance	± 5%	± 5%	± 10%	± 10%	

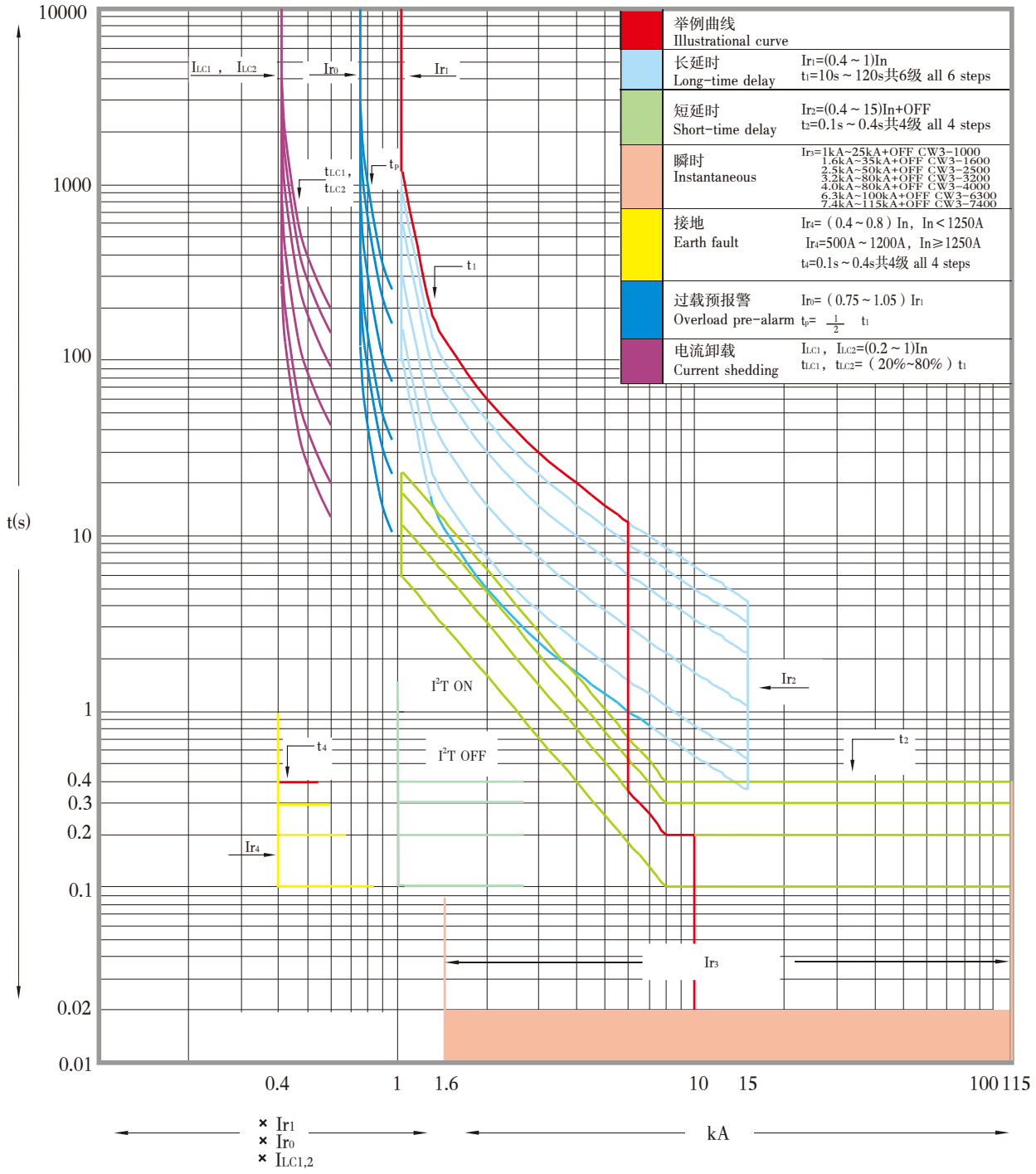
保护功能 Protection	动作阈值 Operating threshold	返回阈值 Return threshold	动作延时 Operating delay	返回延时 Return delay	可否关闭 Can off or not
■ 过频保护 Over-voltage protection	50Hz~65Hz	45Hz~动作阈值 45Hz~operating threshold	0.2s~5s	1s~360s	■
递变级差 Successive grade	ER：0.05Hz	ER：0.05Hz	0.1s	0.1s	
动作允差 Operating tolerance	ER：：±0.05Hz	ER：±0.05Hz	±10%， 动作时间为0.2s、0.3s时±40ms	± 10%	
■ 欠频保护 Over-voltage protection	45Hz~60Hz	动作阈值~ 60Hz Operating threshold ~ 60Hz	0.2s~5s	1s~360s	■
递变级差 Successive grade	ER：0.05Hz	ER：0.05Hz	0.1s	0.1s	
动作允差 Operating tolerance	ER：：±0.05Hz	ER：：±0.05Hz	±10%， 动作时间为0.2s、0.3s时±40ms	± 10%	
■ 相序保护 Phase sequence protection	1,2,3或1,3,2		0.3s		■
动作允差 Operating tolerance			± 10%		
■ 电流卸载 Current shedding	0.2In~1In	0.2In~动作阈值 0.2In~operating threshold	(20%~80%)t_1	10s~600s	■
递变级差 Successive grade	10A	10A	10%t_1	1s	
动作允差 Operating tolerance			± 10%	± 10%	

EN、EA、ER、EP、EQ 智能控制器I^2t时间/电流特性曲线，CW3-1000/CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400

T/I (time/current) curve of I^2t of type EN,EA,ER, EP and EQ intelligent controllers

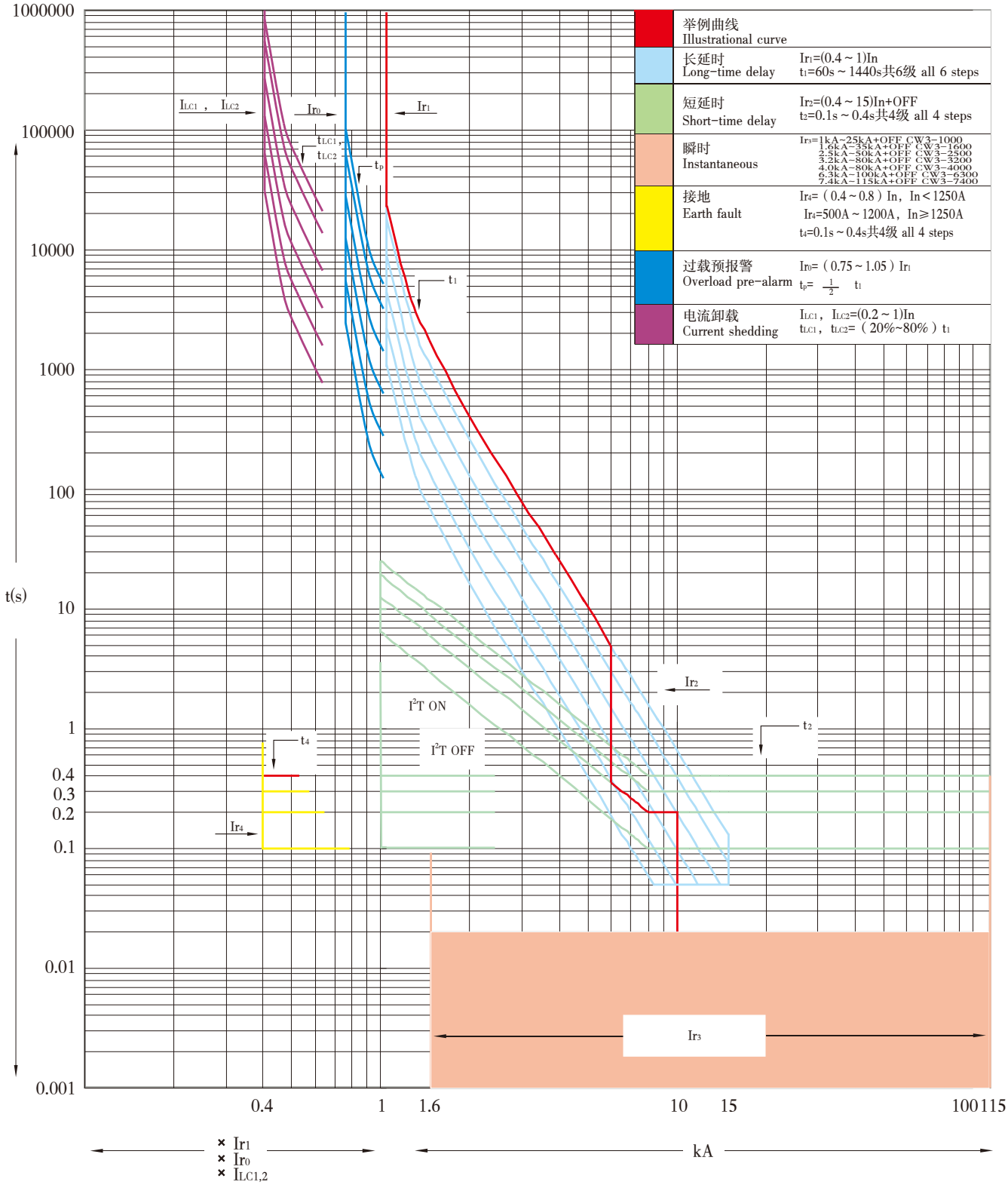


EA、ER、EP、EQ 智能控制器非常反时限It时间/电流特性曲线，CW3-1000/CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400
T/I (time/current) curve of uncommon inverse time It of type EA,ER, EP and EQ intelligent controllers



EA、ER、EP、EQ 智能控制器高压熔丝配合I^4t时间/电流特性曲线，CW3-1000/CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400

T/I (time/current) curve of high-voltage fuse I^4t of type EA,ER, EP and EQ intelligent controllers



EG智能控制器的保护功能及设定值
Protection and settings of type EG intelligent controller

保护功能 Protection	动作值 Operating value	动作延时 Operating delay	可否关闭 Can off or not	热模拟 Thermal memory	ZSI
■ 过载长延时保护 Overload long-time delay	I_{r1}=(0.4~1.15)In	I^2t:	–	■	
递变级差 Successive grade	10A				
动作允差 Operating tolerance		± 10%			
■ 短路短延时保护 Short-circuit short-time delay	I_{r2}=(0.4~5)In	t_2=(0.1-0.2-0.3-0.4)s	可OFF May OFF	■	■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 10%	± 10% 注：固有误差最大+20ms Note: Max. inherent tolerance +20ms			
注：动作特性为定时限 Note: Action characteristic definite.					
■ 瞬时保护 Instantaneous	Inm=1000A，I_{r3}=(1~25)kA Inm=1600A，I_{r3}=(1.6~35)kA Inm=2500A，I_{r3}=(2.5~50)kA Inm=3200A，I_{r3}=(3.2~80)kA Inm=4000A，I_{r3}=(4~80)kA Inm=6300A，I_{r3}=(6.3~100)kA Inm=7400A，I_{r3}=(7.4~115)kA		可OFF May OFF		
递变级差 Successive grade	50A				
动作允差 Operating tolerance	＜3In: ± 10% ≥3In: ± 15%				
■ 接地故障保护 Earth-fault	In＜1250A时，I_{r4}=(0.4~0.8)In In≥1250A时，I_{r4}=500A~1200A	t_4=(0.1-0.2-0.3-0.4)s	可OFF May OFF		■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 10%	± 10% 注：固有误差最大+20ms Note: Max. inherent tolerance +20ms			
注：接地故障保护功能OFF后，发生接地故障时，断路器不跳闸只报警。		Note: With earth-fault protection is OFF circuit breaker alarms but not trips when earth-fault happened.			
■ 中性极保护 Neutral protection	三极断路器，I_N=0.5N,N Three-pole circuit breaker. 注：需外接中性线电流互感器 四极断路器，I_N=0.5N,N（CW3-7400无N中性极保护）	Note: External neutral current transformer is required. Four-pole circuit breaker. (Without N neatral protection for CW3-7400)	可OFF May OFF		
■ 过载预报警 overload pre-alarm	Iro=(0.75-1.05)I_{r1}	tp=1/2t_1	–		
递变级差 Successive grade	0.05I_{r1}				
动作允差 Operating tolerance		± 10%			
■ MCR	In≤1000A时，15In 1000A＜In＜2000A时，12In In≥2000A时，10In				
动作允差 Operating tolerance	± 15%				

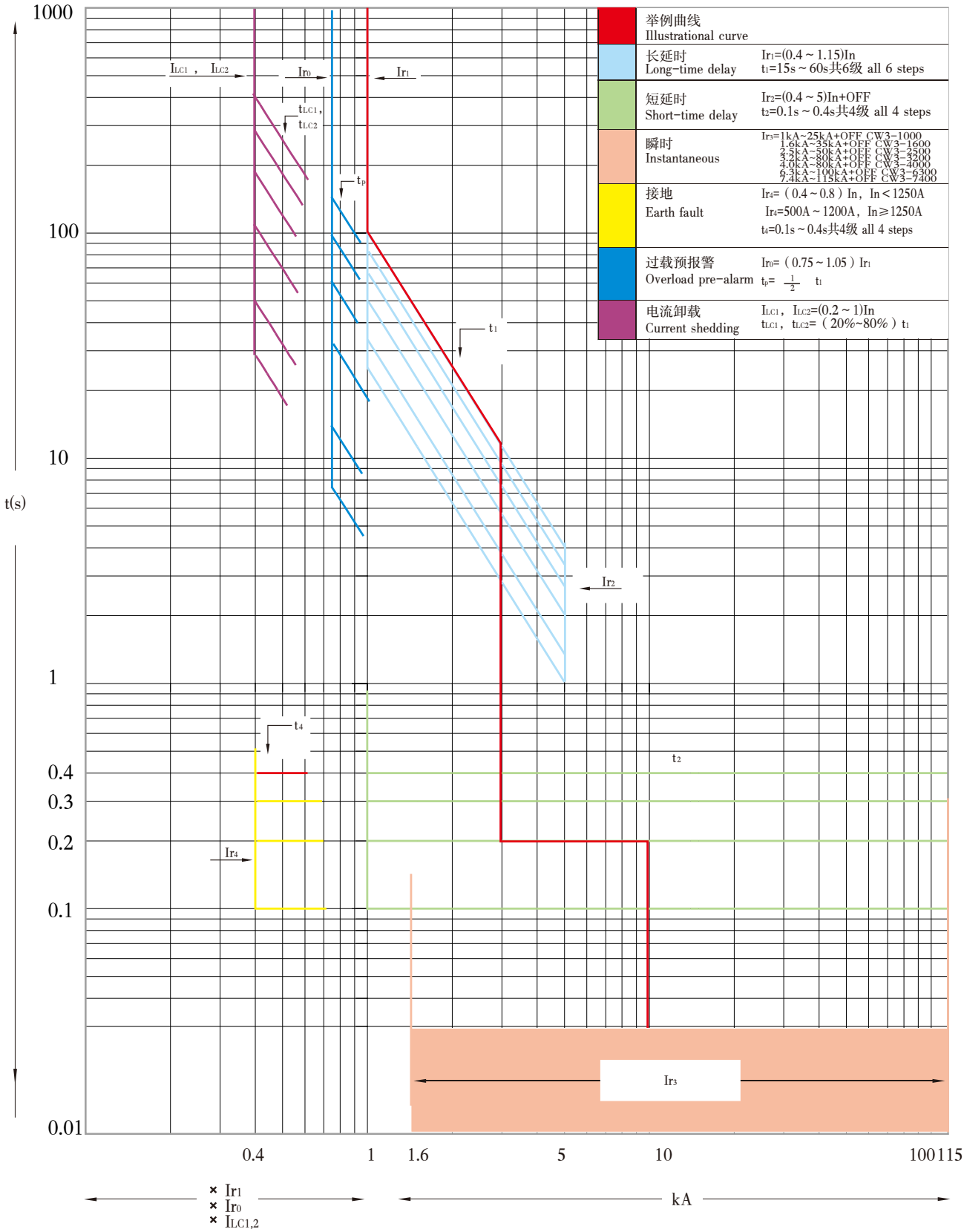
I^2t:	1.0I_{r1}	2h内不动作					
	1.1I_{r1}	20.95s	27.93s	41.9s	55.87s	69.83s	83.8s
	1.3I_{r1}, t1	15s	20s	30s	40s	50s	60s
	2.0I_{r1}	6.34s	8.45s	12.68s	16.9s	21.13s	25.35s

保护功能 Protection	动作阈值 Operating threshold	返回阈值 Return threshold	动作延时 Operating delay	返回延时 Return delay	可否关闭 Can off or not
■ 电流不平衡 Current unbalance protection	20%~80%	20%~动作阈值 20%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 断相保护 Open-phase protection	90%~99%	20%~动作阈值 20%~operating threshold	0.1s~3s	10s~360s	■
递变级差 Successive grade	1%	1%	0.1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
			注：固有误差最大+20ms Note：Max. inherent tolerance +20ms		
■ 需用电流保护 Demand current protection	0.4In~1In	0.4In~动作阈值 0.4In~operating threshold	15s~1500s	15s~3000s	■
递变级差 Successive grade	1A	1A	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 低电压保护 Under-voltage protection	50V~690V	动作阈值~690V Operating threshold~690V	1s~30s	1s~100s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	± 5%	± 5%	
■ 过电压保护 Over-voltage protection	200V~1000V	200V~动作阈值 200V~operating threshold	1s~5s	1s~36s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	± 5%	± 5%	
■ 电压不平衡保护 Voltage unbalance protection	2%~50%	2%~动作阈值 2%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	

保护功能 Protection	动作阈值 Operating threshold	返回阈值 Return threshold	动作延时 Operating delay	返回延时 Return delay	可否关闭 Can off or not
■ 逆功率保护 Inverse power protection	20kW~500kW	20kW~动作阈值 20kW~operating threshold	0.2s~20s	1s~360s	■
递变级差 Successive grade	5kW	5kW	0.1s	0.1s	
动作允差 Operating tolerance	± 5%	± 5%	± 10%	± 10%	
■ 过频保护 Over-frequency protection	50Hz~65Hz	45Hz~动作阈值 45Hz~operating threshold	0.2s~5s	1s~360s	■
递变级差 Successive grade	0.5Hz	0.5Hz	0.1s	0.1s	
动作允差 Operating tolerance	± 0.5Hz	± 0.5Hz	± 10%	± 10%	
■ 欠频保护 Under-frequency protection	45Hz~60Hz	动作阈值~60Hz Operating threshold ~ 60Hz	0.2s~5s	1s~360s	■
递变级差 Successive grade	0.5Hz	0.5Hz	0.1s	0.1s	
动作允差 Operating tolerance	± 0.5Hz	± 0.5Hz	± 10%	± 10%	
■ 相序保护 Phase sequence protection	1,2,3或1,3,2(1, 2, 3 or 1, 3, 2)		0.3s		■
动作允差 Operating tolerance			± 10%		
■ 电流卸载 Current shedding	0.2In~1In	0.2In~动作阈值 0.2In~operating threshold	(20%~80%)t_1	10s~600s	■
递变级差 Successive grade	10A	10A	10%t_1	1s	
动作允差 Operating tolerance			± 10%	± 10%	

EG 智能控制器I^2t时间/电流特性曲线，CW3-1000/CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400

T/I (time/current) curve of I^2t of type EG intelligent controller



（四）智能控制器的显示及测量准确度
（4）Indication and accuracy of intelligent controller

项目 Item		准确度测量范围 Measurement range of accuracy	准确度 Accuracy					
			EN	EA	EP	EQ	EG	ER
电流测量 Current measurement	I_1、I_2、I_3、I_N	(0.2In～1.2In)A	±1.5%	±1.5%	±1.5%	±1.5%	±1.5%	±1.5%
	Ig	(0.2In～2000)A	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%
电流需用值测量 Demand current measurement	$\overline{Ia}$、$\overline{Ib}$、$\overline{Ic}$、$\overline{I_N}$	(0.2In～1.2In)A	—	—	±2.5%	±2.5%	±2.5%	±2.5%
电压测量 Voltage measurement	线电压(U_{12}、U_{23}、U_{31}) 及相电压 Line voltage And phase voltage（U_{1N}、U_{2N}、U_{3N}）、U_{avg}、U_{unbal}	30V～690V	±1%	—	±0.5%	±0.5%	±0.5%	±0.5%
功率测量 Power measurement	P	-9999kW～+9999kW	±2.5%	—	—	—	—	—
	Q S	-9999kvar～+9999kvar -9999kVA～+9999kVA						
		-120MW～+120MW	—	—	±2%	±2%	±2%	±2%
	Q S	-120Mvar～+120Mvar -120MVA～+120MVA						
功率需用值测量 Demand power measurement	$\overline{P}$	-120MW～+120MW	—	—	±2%	±2%	±2%	±2%
	$\overline{Q}$ $\overline{S}$	-120Mvar～+120Mvar -120MVA～+120MVA						
功率因数测量 Power factor measurement	PF	-1～1	—	—	±2%	±2%	±2%	±2%
电能测量 Energy measurement	E.P	-9999MWh～+9999MWh	±2.5%	—	—	—	—	—
	E.Q E.S	-9999Mvarh～+9999Mvarh -9999MVAh～+9999MVAh						
		-10^{10}GWh～$+10^{10}$GWh	—	—	±2%	±2%	±2%	±2%
		-10^{10}Gvarh～$+10^{10}$Gvarh -10^{10}GVAh～$+10^{10}$GVAh						
频率测量 Frequency measurement		45Hz～65Hz	±0.1Hz	—	±0.05Hz	±0.05Hz	±0.05Hz	±0.05Hz
基波及谐波测量 Fundamental and harmonic measurement	基波测量 Fundamental measurement	基波电流I_{1-1}、I_{2-1}、I_{3-1}、I_{N-1} Fundamental current	—	—	—	±1.5%	±1.5%	±1.5%
		基波线电压（U_{12-1}、U_{23-1}、U_{31-1}） 基波相电压（U_{1N-1}、U_{2N-1}、U_{3N-1}） Fundamental line voltage Fundamental phase voltage	30V～690V	—	—	—	±0.5%	±0.5%	±0.5%
		基波功率 Fundamental power Pf Qf Sf	-120MW～+120MW -120Mvar～+120Mvar -120MVA～+120MVA	—	—	—	±2%	±2%	±2%
	谐波测量 Harmonic measurement	谐波电流含有率（HRIh） 谐波电压含有率（HRUh） Harmonic current ratio Harmonic voltage ratio	0～1000%	—	—	—	±5%	±5%	±5%
		电流总谐波畸变率[THDi、thdi] 电压总谐波畸变率[THDu、thdu] Total harmonic distortion of current Total harmonic distortion of voltage	0～1000%	—	—	—	±5%	±5%	±5%

Note: “－” means that the controller does not have the measurement function.
注：—为该类型控制器无此测量功能。

（五）维护功能

● 触头当量磨损能显示断路器主触头当量磨损次数占断路器通电操作循环次数的百分比数值。

● 智能型控制器有电时操作次数

在智能型控制器有电时，记录断路器操作次数的总和。

● 自诊断功能（存储器故障、微处理器超温）

当存储器不能正常存储信息发生故障的时候，智能控制器能发出报警信号。

当微处理器发生故障或局部环境温度超过80℃（允差±5℃）时，智能控制器能立即发出报警信号。

● 附件监测（分励脱扣器、合闸电磁铁、欠电压脱扣器、贮能电机断线）

智能控制器可在线监测分励脱扣器、合闸电磁铁、欠电压脱扣器、贮能电机及剩余电流互感器的线圈是否断线，当发生故障时可通过智能控制器查询具体发生故障的附件。

● 历史记录

智能控制器可显示从运行以来曾出现的历史最大电流、需用电流最大值；在通信时上位机可显示从运行以来曾出现的历史最大最小电流、需用电流最大值、历史最大最小电压、峰值需用功率、功率因数最大最小值、频率最大最小值。

● 故障记忆功能

ER、EP、EQ、EG型智能控制器可显示最近10次报警记录和10次脱扣记录，报警原因、脱扣原因、报警阀值、脱扣阀值、故障时间，EN、EA型智能控制器显示最近1次故障脱扣记录。

● 故障录波功能

当线路发生故障断路器脱扣时，能记录此故障12个周波的波形图。

（5）Maintenance function

● The contact wearing can indicate the percentage of the equivalent to wearing times of main contact to power operation cycles of the circuit breaker.

● Peration times of intelligent controller on electricity

When intelligent controller is on electricity the total operation times of circuit breaker is recorded.

● Self-diagnosis function (against memory error, and microprocessor over-temperature)

Intelligent controller alarms when memory fails to work as normal.

When microprocessor breaks down or the local ambient temperature rises over 80℃ (tolerance is ± 5℃) the intelligent controller sends out alarm signals immediately.

● Accessories monitoring (disconnecting of shunt release, closing electromagnet, under-voltage release or charging energy motor)

Intelligent controller online monitors if the disconnecting of shunt release, closing electromagnet, under-voltage release and charging motor and residual current transformer is disconnected. When error occurs it can be inquired by the intelligent controller that which accessory exactly fails.

● History

Intelligent controller displays the maximum of current and demand current since running. In communication the up-level device displays the maximum and minimum of current, voltage, power factor and frequency, the maximum of demand current and demand power at peak since running.

● Fault-memory function

Type ER、 EP, EQ, and EG intelligent controllers display last 10alarm records and release records, alarm reason, release reason, alarm threshold, release threshold and failure time. Type EN,EA intelligent controller displays last 1 release record.

● Fault-recorder function

12 cycles of waveform are recorded when the circuit breaker trips as a result of faults.

（六）智能控制器功能释义

一、过电流保护功能

过电流保护由相线过电流保护和中性线（N极）过电流保护（四极断路器及三极断路器带外接中性线电流互感器具有中性线过电流保护）组成，相线过电流保护的电流、时间参数一般由制造厂按用户订货要求整定（用户自己也可自行整定），中性线过电流保护的电流、时间参数按比例自动跟踪相线整定值，具体分以下两种情况：

三极断路器＋外接中性线电流互感器

中性线整定电流用户可由菜单设定四种方式：关闭（OFF）、50%In、100%In、200%In。200%In中性线保护（如3次谐波含量高的情况下）时，配电系统的中性线截面应为2倍相线截面。CW3-6300、7400及EG型智能控制器无200%In中性线保护。

四极断路器

中性线整定电流用户可由菜单设定三种方式：关闭（OFF）、50% In、100% In。CW3-7400无100%In中性线保护。

● 过载长延时保护

过载长延时反时限保护，整定电流I_{r1}可调；

过载长延时延时时间t_1可调；

ER/EA/EP/EQ智能控制器过载长延时特性多曲线可调，分别有通用型（I^2t）、非常反时限(It)、高压熔丝配合型(I^4t)，以满足上下级过载保护选择性和匹配需要。EN型智能控制器仅有通用型I^2t。

● 短路短延时保护（可关断-OFF）

短路短延时反时限保护（I^2t ON）,整定电流I_{r2}可调；

短路短延时定时限保护（I^2t OFF），整定电流I_{r2}可调；

短路短延时延时时间t_2可调。

● 短路瞬时保护

短路瞬时（可关断-OFF），整定电流I_{r3}可调

（6）Functions of intelligent controller

1、Over-current protection

The over-current protection is composed of phase and neutral line protection (four-pole circuit breaker and three-pole circuit breaker with current transformer linking externally to neutral N) from over-current. The parameters of current and time of phase line over-current protection can be set by the company in terms of the requirements of users (can be set by customers themselves); the parameters of current and time of neutral line over-current protection can be set by tracking the phase lines automatically in proportion, all these mainly divided into the following two situations:

Three-pole circuit breaker current mutual inductor with the neutral line connected externally

Customers can setup into four types from menu: turn off, 50%In, 100%In, and 200%In. When 200%In neutral line protection (if it has a high triple frequency harmonic) is on, the neutral line cross-section should be double leg of a circuit cross-section in the electrical power distribution system. But to CW3-6300、7400 and type EG intelligent controller there is no 200%In neutral line protection.

Four-pole circuit breaker

Customers can setup into three types from menu: turn off, 50%In and 100%In.To CW3-7400 there is no 100% neutral line protection.

● Overload long-time delay protection

For inverse overload long-time delay protection the setting current I_{r1} can be adjusted.

The delay time t1 of overload long-time delay can be adjusted.

For the overload long-time delay characteristics of the type ER/EA/EP/EQ the curves can be adjusted. There are common type (I^2t), uncommon inverse time type (It) and high-voltage fuse concert type (I^4t) to match higher-up and lower-level' s overload protection needs,I^2t only for EN controller.

● Short-circuit short-time delay protection (can be OFF)

For inverse short-circuit short-time delay protection (I^2t ON) the setting current I_{r2} can be adjusted.

For inverse short-circuit short-time delay protection (I^2t OFF) the setting current I_{r2} can be adjusted.

● Instantaneous short-circuit protection

The setting current I_{r3} of instantaneous short circuit (can be OFF) can be adjusted.

二、接地故障保护（可关断-OFF）

接地故障定时限保护，整定电流Ir_4可调

延时时间t_4可调

接地故障保护方式

1. 矢量和型

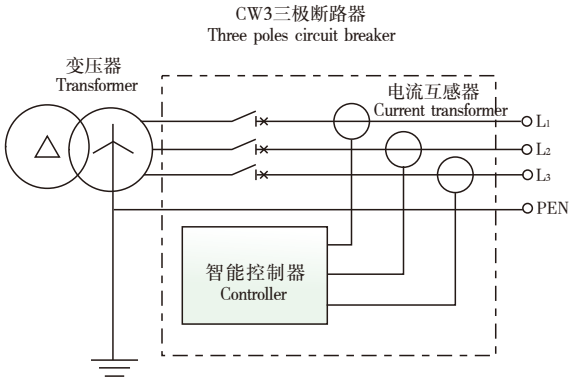
2、Earth-fault protection (can be OFF)

For definite earth-fault protection the setting current Ir_4 can be adjusted.

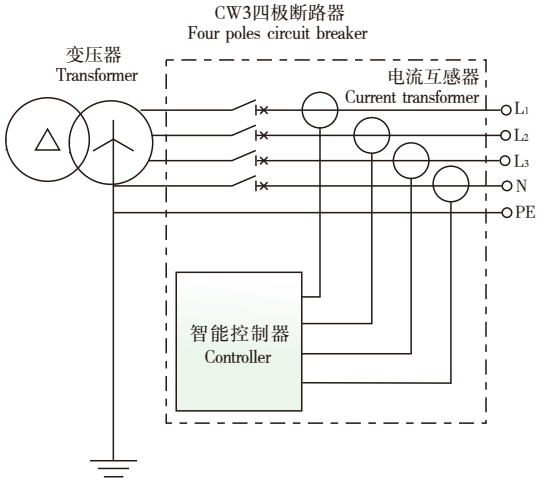
Delay time t_4 can be adjusted.

Protection ways of earth-fault

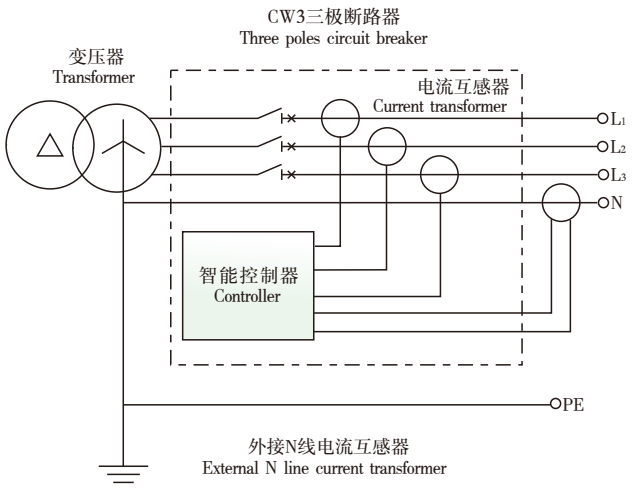
1.Vectorial summation type



例TN-C系统
For example TN-C



例TN-S系统
For example TN-S



例TN-S系统
For example TN-S

● TN-C、TN-C-S、TN-S配电系统中选用CW3三极断路器未接外接中性线N电流互感器

接地故障保护信号只取三相电流的矢量和

保护特性为定时限保护

● CW3 circuit breakers with three poles are used in the power distribution system of TN-C, TN-C-S and TN-S without additional current transformer of neutral line N

The signal of earth-fault protection from the vectorial summation of three poles of current

Characteristic of definite protection

注：当系统不平衡电流超过接地保护值时，会引起断路器误跳闸。

Note: the breaker is trip when imbalance current of distribution system is ground fault setting value.

● TN-S配电系统中选用CW3四极断路器

接地故障保护信号取三相电流及N相电流矢量和

保护特性为定时限保护

● CW3 circuit breakers with four poles are used in the power distribution system of TN-S.

The signal of eath-fault protection from the vectorial summation of three poles of current and N phase current

Characteristic of definite protection

● TN-S配电系统中选用CW3三极断路器

外接中性线N电流互感器作接地故障保护用（接6号、7号二次回路接线端子），互感器安装地点距离断路器最大为2米

接地故障保护信号取三相电流及N相电流的矢量和

保护特性为定时限保护

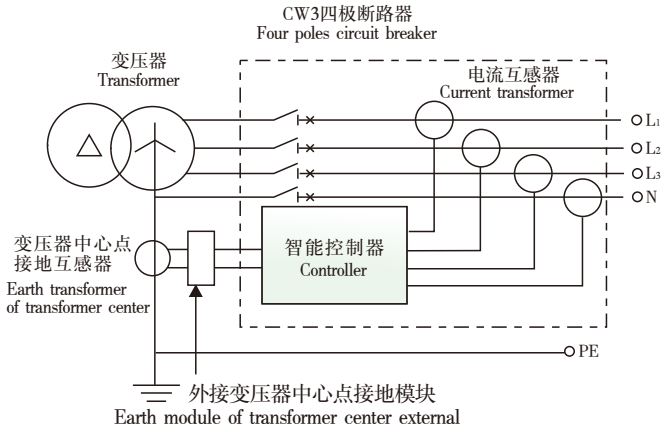
● CW3 circuit breakers with three poles are used in the power distribution system of TN-S.

N line current transformer connected externally, which is installed 2meters at maximum from the circuit breaker, takes the hole of earth-fault protection (in connection with No.6 and No.7 wiring terminals of secondary circuit)

The signal of earth-fault protection from the vectorial summation of three poles of current and N phase current

Characteristic of definite protection

2、变压器中心点接地型
Earth type of transformer center



例TN-S系统
For example TN-S

注：图中电流互感器为有效值采样。
Note:current transformer in diagrams is r.m.s. responsive.

TN-S配电系统中选用变压器中心点接地保护

变压器中心点接地互感器，作接地故障电流采样用

变压器中心点接地互感器距离需选配的外接变压器中心点接地模块可至100m，接地模块至断路器最长2m，接地模块接至端子号为48、50二次回路接线端子

接地故障保护信号直接取自变压器中心点接地线

保护特性为定时限保护

TN-S distribution system selects transformer's center earth type protection.

Earth transformer with transformer's center takes the hole of sampling earth-fault current.

The distance from earth transformer with transformer's center to externally connected transformer's center earth module which needs to select is up to 100m. The distance from earth module which is in connection with No.48 and No.50 wiring terminals of secondary circuit to circuit breaker is up to 2m.

Earth-fault protection signal is from earth line of transformer.

Characteristic of definite protection

三、过载预报警功能

主要用于对重要负荷的监测。智能控制器的一种附加功能，当断路器电流上升并超过预报警电流整定值时发生预报警信号，此时预报警灯闪烁；当超过一定时间(tp)后，预报警灯常亮，并可通过可编程输出模块输出信号；当电流降至设定值以下或过载脱扣后，预报警功能复位。

3、Overload pre-alarm function

It is mainly used for the monitoring of important load. An additional function of intelligent controller is that pre-alarm signal occurs when circuit breaker current rises over the setting value and pre-alarm light flashes at the moment. The pre-alarm light is always on after a period of time (tp) and signal can be output by programmable output module. Pre-alarm function resets when current reduces below the setting value or circuit breaker trips.

四、电流不平衡保护

主要用于对三相电流控制要求较高的场合。当三相电流不平衡度大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后三相电流不平衡度小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

电流不平衡保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

五、断相保护

主要用于发生断相会使设备不正常运行或使设备损坏场合，为电流不平衡的极端情况。当任意一相断电或三相电流不平衡度大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后三相电流不平衡度小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

此断相保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

六、电流需用保护

主要用于工艺过程控制的需要。当某相的需用电流大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后此相的需用电流小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

电流需用保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

七、低电压保护

主要用于低电压会使设备不正常运行或使设备损坏场合。当电路中任一相电压低于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电压大于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

4、Current unbalance protection

It is mainly used in occasions that need high control of three-phase current. The circuit breaker trips or sends out alarm signals when three-phase current disequilibrium reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent three-phase current disequilibrium is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

5、Open-phase protection

It is the extreme case of current imbalance and mainly used in occasions that open-phase makes equipment not run as normal or broken. The circuit breaker trips or sends alarm signals when any one phase is open or three-phase current disequilibrium reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent three-phase current disequilibrium is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

6、Demand current protection

It is mainly used for process control. The circuit breaker trips or sends alarm signals when demand current of some phase reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent demand current of the phase is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

7、Under-voltage protection

It is mainly used in occasions that under-voltage makes equipment not run as normal or broken. The circuit breaker trips or sends alarm signals when the voltage of any one phase is lower than the setting value of action threshold but rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent voltage is less than the setting value of return threshold and rises over the return delay (definite operation).

低电压保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

八、过电压保护

主要对外来的过电压或高压端对地故障引起低压端过电压的保护。当电路中任一相电压大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电压小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

过电压保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

九、电压不平衡保护

主要对由中心点电位漂移引起相间不平衡进行保护。当三相电压不平衡度大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后三相电压不平衡度小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

电压不平衡保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十、逆功率保护

用于发电机保护，当倒送功率时，发电机变为电动机运行，可能使发电机损坏。当功率的流向和设定功率方向相反，且大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电路中的功率小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

逆功率保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十一、过频保护

用于发电机保护。当电路频率大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电路中的频率小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

8、Over-voltage protection

It is mainly used in occasions that there is external over-voltage or the low-voltage side is over-voltage caused by high-voltage side's earth-fault. The circuit breaker trips or sends alarm signals when the voltage of any one phase reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent voltage is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

9、Voltage unbalance protection

It is mainly used in occasions that there is phase unbalance caused by center potential drift. The circuit breaker trips or sends out alarm signals when three-phase voltage disequilibrium reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent three-phase voltage disequilibrium is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

10、Inverse power protection

It is used to protect the generator. The generator turns to a motor that may cause damage to it when the power is inverse. The circuit breaker trips or sends alarm signals when power direction is in contrast with the setting one and reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent circuit power is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

11、Over-frequency protection

It is used to protect the generator. The circuit breaker trips or sends alarm signals when circuit frequency reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent circuit power is less than the setting value of return threshold and rises over the return delay (definite operation).

过频保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十二、欠频保护

用于发电机保护。当电路频率低于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电路中的频率大于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

欠频保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十三、相序保护

用于对相序有要求场合。当检测到相序与动作阈值不同，超过动作延时（定时限动作），断路器跳闸或发出报警信号。如果一相或多相电压不存在时，此功能自动退出。

相序保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十四、电流卸载功能

主要用于需监测主回路电流使主回路不过负荷运行场合。可设置2路卸载输出。当流过断路器电流大于动作阈值整定值，并超过动作延时（反时限动作），断路器发出信号分断次要负载或报警；以后当流过断路器电流小于返回阈值整定值，并超过返回延时（定时限动作），断路器发出信号解除报警。

电流卸载功能可设定开启或关闭。

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

12、Under-frequency protection

It is used to protect the generator. The circuit breaker trips or sends alarm signals when circuit frequency is lower than the setting value of action threshold but rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent circuit power is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

13、Phase sequence protection

It is used in occasions that the phase sequence is required. The circuit breaker trips or sends alarm signals when it detects that phase sequence is different from action threshold and rises over the action delay (definite operation). The function automatically quits when there is no one-phase voltage or multi-phase voltage.

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

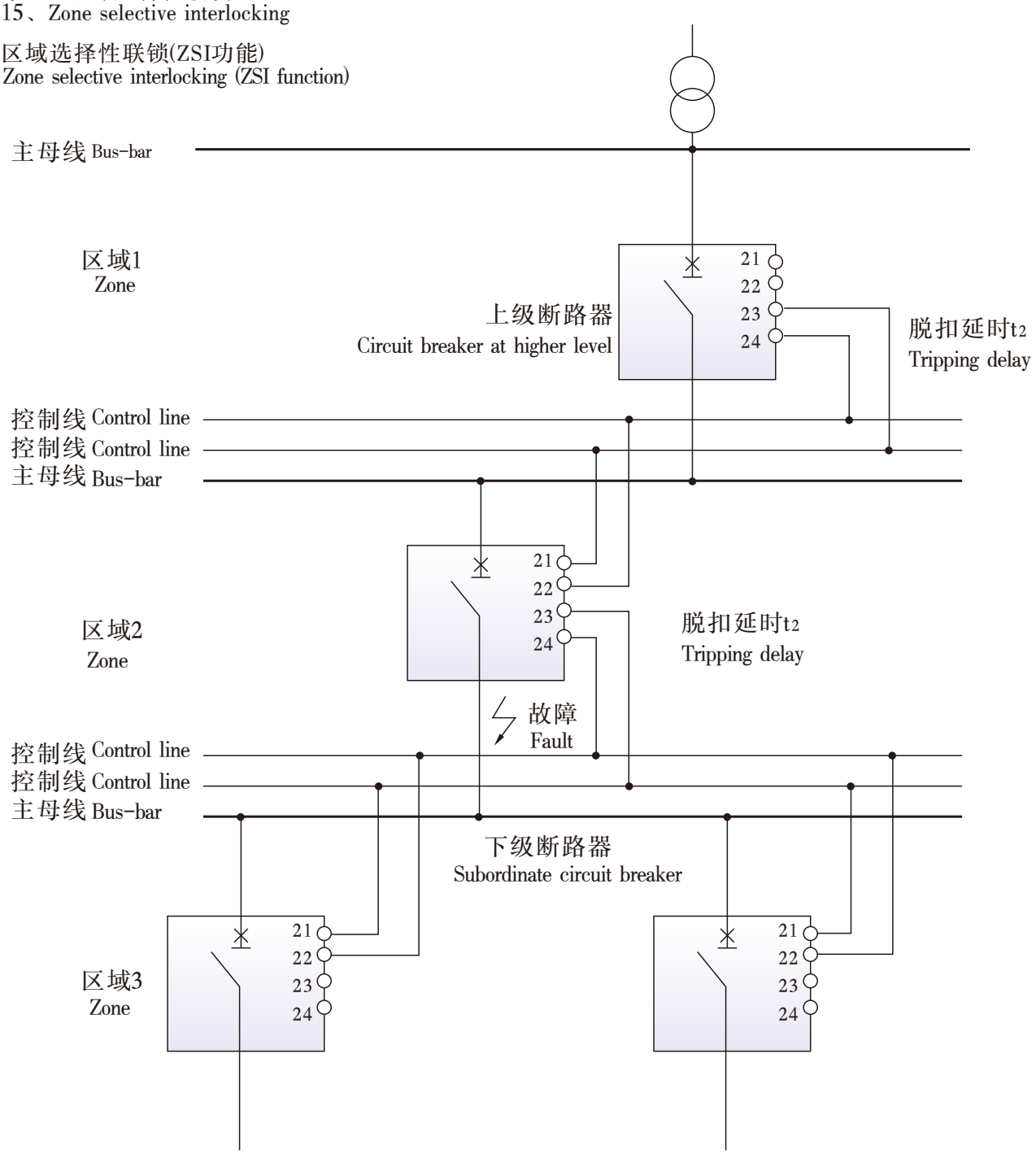
14、Current shedding function

It is used in occasions that the main circuit current is monitored to keep the main circuit not to overload and it can be set to 2 lines shedding output. The circuit breaker alarms or sends alarm signals to trip the subordinate load when require current of some phase reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent required current of the phase is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF.

十五、区域选择性联锁
15、Zone selective interlocking

区域选择性联锁(ZSI功能)
Zone selective interlocking (ZSI function)



注：21,22,23,24为断路器二次回路接线端子。

Note: 21, 22, 23, 24serve as the wiring terminals of secondary circuit.

当多台CW3断路器上下连接在一起时，选择区域选择性联锁(ZSI)功能可确保断路器上下级完全选择性保护，这样减少了故障动作范围，并缩短了断路器的分断时间。此功能适用于断路器短路短延时(I^2t OFF)和接地故障保护。

如上图所示，控制线可联锁多个断路器。

检测到故障的智能控制器（区域2）送一个信号给上级断路器（区域1）并检查下级断路器（区域3）到达的信号。如果有下级断路器送过来的信号，断路器将在脱扣延时期间保持合闸。如果下级没有送过来信号，断路器将瞬时断开，不管脱扣保护是否有延时。

注：末级23，24应短接。

十六、MCR功能

在闭合操作时，如接通电流超过预定值，断路器无任何人为延时断开，且当断路器处于闭合位置时不动作。

十七、双重参数设定

断路器可进行2组（A组、B组）保护参数的预先设定，2组可设定保护参数为所有保护项目。例如A组保护参数保护一容量的变压器电源，B组保护参数保护另一路容量的变压器电源或发电机电源，反之也可。起用另一保护参数由二次回路端子13、14输入信号激活。

十八、方向性保护

可用于离网的分布式电源之间、变压器并联供电系统中。此功能可判断故障时电流流动的方向，当电流方向与设定的参考方向一致时，则动作时间为t_{5F}；当故障电流的流向与参考方向相反，则动作时间为t_{5B}，并且一般$t_{5F} < t_{5B}$，这样可尽快对故障回路进行保护而无故障回路继续运行。

十九、方向性区域选择性联锁

主要用于变压器联络供电，环网供电，离网的分布式电源之间，接入电网的分布式电源与变压器之间。

方向性区域选择性功能启用时，区域选择

When several circuit breakers are linked together up and down zone selective interlocking (ZSI) can ensure fully-selective protection of circuit breakers at higher or lower level so as to reduce the range of action by fault and the breaking time of circuit breakers. This function serves for short circuit short-time delay (I^2t OFF) and earth-fault protection of circuit breakers.

As the sketch shown above, control lines can interlock with pieces of circuit breakers.

After detecting the fault the intelligent controller (zone2) will send out a signal to circuit breakers (zone1) at higher level and check whether the signal of circuit breakers (zone3) at lower level arrives. If circuit breakers at lower level send out a signal, the circuit breaker will be on at the time duration of release delay; if circuit breakers at lower level do not send out a signal, the circuit breaker will break off instantly no matter whether the release has the protection or delay.

Note: The end 23 and 24 should be short-circuited.

16、MCR function

During a closing operation, if making current exceeds a predetermined value, circuit breaker is opened without any intentional time-delay, and which is rendered inoperative when circuit breaker is in the closed position.

17、 dual parameter setting

Two groups (A and B) of protection parameter can be set in advance. Protection parameter can be all protection options. For example, group A is used for protecting the transformer power supply in one load, group B is used for protecting the transformer power supply or generator power supply in another load. Another protection parameter can be activated by secondary circuit terminal 13、14.

18、directional protection

This protection can be used in off-grid distribution power supplies and transformers paralleled in power supply system. This function can detect the current direction when fault occurs, if the current direction has the same direction with set direction, then action time should be t_{5F}; if the current direction has the reversed direction with set direction, then action time should be t_{5B}, and normally $t_{5F} < t_{5B}$. In this way, fault circuit can be protected and normal circuit keeps on running.

19、directional zone-selected-interlock (ZSI)

Mainly used in interlocking transfer power supplies, looped power supplies, off-grid distribution power supplies, distribution power supply in grid and transformers.

性（ZSI）功能必须关闭，通过把各断路器进行合适地连接，可实现各种协调配合。

二次回路端子23为正向输入，26为反向输入，断路器可通过它接收从其它断路器发出的闭锁信号。

二次回路端子21为正向输出，25为反向输出，断路器可通过它向其它断路器发出闭锁信号。

二次回路端子22为输出公共端、24为输入公共端。

没有接到闭锁信号的断路器，将根据故障电流方向立即分断。

接到闭锁信号的断路器，将根据电流方向在“正向”或“反向”时间内分断。

如果短路电流超过设定值Ir_3，断路器将不受接收信号和方向的限制立即分断。

二十、自动同期功能

自动同期功能对断路器两侧的电压值、电压差、频率差、相角差进行检测，当满足设定条件时可实现无压合闸、检同期合闸及准同期合闸的并联运行。二次回路端子15、16输入待并系统的电压。

无压合闸条件：

——带电系统电压值在设定值Uy之上；

——不带电系统电压值在设定值Uw之下；

——在设定值ts时间内电压稳定。

检同期合闸条件：

——两侧的电压值都在设定值Uy之上；

——两侧的电压差在设定值ΔU之内；

——两侧的相角差在设定值Δδ之内；

——在设定值ts时间内两侧的电压稳定。

准同期合闸条件：

——两侧的电压值都在设定值Uy之上；

——两侧的电压差在设定值ΔU之内；

——两侧的相角差在设定值Δδ之内；

——两侧的频率差在设定值Δf之内；

——在设定值ts时间内两侧的电压稳定；

When directional ZSI is on, ZSI must be closed. Different coordination can be achieved by proper connections

Secondary terminal 23 is forward input, 26 is backward input, breaker can receive lock signal from other breakers.

Secondary terminal 21 is forward output, 25 is backward output, breaker can send lock signal to other breakers.

Secondary terminal22 is public output terminal, 24 is public input terminal.

Breaker which haven’t receive the lock signal will disconnect the circuit according to the current direction within time of “forward” or “backward”

If short-circuit value exceed the setting value Ir3, breaker will disconnect the circuit immediately regardless of input signal or direction limitation

20、auto synchronism function

auto synchronism function will check the voltage value、voltage difference、frequency difference and phase angle difference in both sides of breaker, no-voltage closing、check synchronism function、ready to synchronism condition can be operated in parallel when meet the setting conditions. Secondary circuit terminal 15、16 will be input the ready-to-parallel system voltage.

no-voltage closing condition

--Electrified system voltage value above the setting value Uy

--un-electrified system voltage value under the setting value UW

--voltage keeps stable in setting value time ts

Check synchronism function

--voltage value in both sides above the setting value Uy

--voltage difference in two sides under setting value △U

-- phase angle difference in two sides under setting value △δ

-- Voltage in both sides keep stable in setting value time ts

Ready to synchronism condition

--voltage value in both sides above the setting value Uy

--voltage difference in two sides under setting value △U

-- phase angle difference in two sides under setting value △δ

--frequency difference in two sides under setting value △f

-- Voltage in both sides keep stable in setting value time ts

--closing window time setting value

——断路器在合闸窗口时间设定值td之内可完成合闸。

自动合闸—选择SC转换开关在“遥控/自动同期”位置，智能控制器通过对两路输入电源比较并判断当满足上述条件时，控制合闸电磁铁使断路器自动合闸。

手动合闸—选择SC转换开关在“就地/手动同期”位置，当人为判断两路输入电源满足上述条件时，手动控制按钮合闸。

二十一、远程复位

断路器脱扣后，远程复位功能在额定控制电源电压的85%和110%之间应能使断路器复位按钮复位，并可撤除故障脱扣电气输出指示，允许断路器合闸。

二十二、自动复位

断路器脱扣后，不需复位按钮被复位就允许断路器合闸。而断路器复位按钮及故障脱扣

电气输出保持在故障状态直至复位按钮被复位。

二十三、谐波分析功能

测量基波电流、基波线电压、基波相电压、基波功率及3-31次各次奇次谐波电流含有率(HRIh)、谐波电压含有率(HRUh)、谐波电流总畸变率[THDi、thdi]、谐波电压总畸变率[THDu、thdu]。

● 谐波含有率(HR)

周期性交流量中含有的第h次谐波分量的方均根值与基波分量的方均根值之比（用百分数表示）。

第h次谐波电流含有率以HRIh表示。

$$HRI_h = \frac{I_h}{I_{1-1}} \times 100\%$$

注：式中Ih为A相第h次谐波电流（方均根值）；

第h次谐波电压含有率以HRUh表示。

$$HRU_h = \frac{U_h}{U_{12-1}} \times 100\%$$

--breaker will be closed within time setting value td of closing threshold

Auto closing — select the SC switch at “remote/ auto synchronism” position. The intelligent controller will compare the both sides of input power supplies. Breaker will be closed by controlling closing electromagnetic if input power supplies meet the above condition.

Manual closing — select the SC switch at “local/ manual synchronism” position. Push the closing button if operator personally thinks both sides of input power supply meet the above condition.

21、remote reset After breaker tripped, remote reset function will reset the resetting button if the rating control power voltage is between 85% and 110%, fault tripping output will also be removed, and breaker can be closed.

22、auto reset

After breaker tripped, breaker will be closed without reset by reset button. The resetting button and fault release output will keep at fault position until the reset button is reset.

23、Harmonic analysis function

Fundamental current, fundamental line voltage, fundamental phase voltage, fundamental power, odd harmonic current ratio (HRIh) for the third to thirty-first, harmonic voltage ratio (HRUh), total harmonic distortion of current (THDi, thdi) and total harmonic distortion of voltage (THDu, thdu) can be measured.

● Harmonic ratio (HR)

The ratio of RMS of hth harmonic component in the periodical alternating quantum to RMS of fundamental component (express by percent)

Harmonic current ratio of hth expresses HRIh.

$$HRI_h = \frac{I_h}{I_{1-1}} \times 100\%$$

Note: Ih is harmonic current of hth of phase A (RMS).

Harmonic voltage ratio of hth expresses HRUh.

$$HRU_h = \frac{U_h}{U_{12-1}} \times 100\%$$

注：式中Uh为A-B相间第h次谐波线电压。

● 总谐波畸变率(THD、thd)

周期性交流量中的谐波含量与其基波分量的方均根值之比(THD)用百分数表示。

$$THD_i=\frac{\sqrt{\sum_{h=2}^{\infty}I_h^2}}{I_{1-1}}\times 100\%$$

$$THD_u=\frac{\sqrt{\sum_{h=2}^{\infty}U_h^2}}{U_{12-1}}\times 100\%$$

注：式中Ih为A相第h次谐波电流（方均根值）；Uh为A-B相间第h次谐波线电压（方均根值）。

周期性交流量中的谐波含量与该周期性交流量的方均根值之比(thd)(用百分数表示)。

$$thd_i=\frac{\sqrt{\sum_{h=2}^{\infty}I_h^2}}{I_1}\times 100\%$$

$$thd_u=\frac{\sqrt{\sum_{h=2}^{\infty}U_h^2}}{U_{12}}\times 100\%$$

注：式中Ih为A相第h次谐波电流（方均根值）；Uh为A-B相间第h次谐波线电压（方均根值）。

Note: Uh is harmonic line voltage of hth between phase A and phase B.

● Total harmonic distortion (THD, thd)

The ratio of harmonic content in the periodical alternating quantum to RMS of fundamental component (THD) (express by percent)

$$THD_i=\frac{\sqrt{\sum_{h=2}^{\infty}I_h^2}}{I_{1-1}}\times 100\%$$

$$THD_u=\frac{\sqrt{\sum_{h=2}^{\infty}U_h^2}}{U_{12-1}}\times 100\%$$

Note: Ih is harmonic current of hth of phase A (RMS);

Uh is harmonic line voltage of hth between phase A and phase B (RMS).

The ratio of harmonic component in the periodical alternating quantum to RMS of periodical alternating quantum (thd) (express by percent).

$$thd_i=\frac{\sqrt{\sum_{h=2}^{\infty}I_h^2}}{I_1}\times 100\%$$

$$thd_u=\frac{\sqrt{\sum_{h=2}^{\infty}U_h^2}}{U_{12}}\times 100\%$$

Note: Ih is harmonic current of hth of phase A (RMS);

Uh is harmonic line voltage of hth between phase A and phase B (RMS).

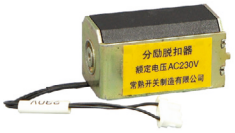
标配附件 Normally deployed accessories

● 分励脱扣器 Shunt release

可远距离操纵使断路器断开 To break the circuit breaker by remote control

特性 Characteristics

CW3-1000



CW3-1600

CW3-2500及以上
CW3-2500 and over

型号 Type	FFT/W216	FFT/W316	FFT/W325
配用断路器 Fitting breaker	CW3-1000	CW3-1600	CW3-2500/3200/4000/6300/7400
额定控制电源电压 Us(V) Rated voltage of control power supply	AC400	AC230	DC220	DC110
瞬时电流 (A) Instantaneous current	0.7	1.3	1.3	2.4
动作电压 (V) Operating voltage	(0.7~1.1)Us			
分闸时间 (ms) Opening time	不大于30No more than 30			

注：根据用户需要，本公司可提供保持型分励脱扣器（当保持型分励脱扣器通电时，断路器无法闭合）。

Note: The manufacture provides shunt release of long-term work type according to users' needs.

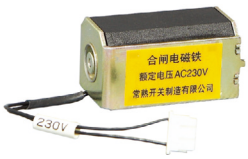
● 合闸电磁铁 Closing electromagnet

贮能结束后，合闸电磁铁能使操作机构的贮能弹簧力瞬间释放，使断路器快速闭合。

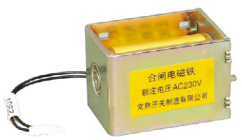
After the circuit breaker ends up its energy storage the closing electromagnet will make the energy storing spring to release its energy instantly so that the circuit breaker is closed quickly.

特性 Characteristics

CW3-1000



CW3-1600



CW3-2500及以上
CW3-2500 and over

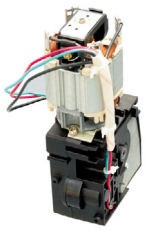
型号 Type	FHD/W216	FHD/W316	FHD/W325
配用断路器 Fitting breaker	CW3-1000	CW3-1600	CW3-2500/3200/4000/6300/7400
额定控制电源电压Us(V) Rated voltage of control power supply	AC400	AC230	DC220	DC110
瞬时电流(A) Instantaneous current	0.7	1.3	1.3	2.4
动作电压(V) Operating voltage	(0.85~1.1)Us			
合闸时间(ms) Closing time	不大于70No more than 70			

● 电动操作机构 Motor driven operating mechanism

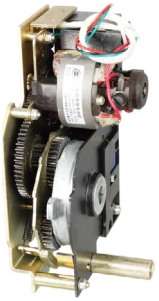
断路器具有电动机贮能及自动再贮能功能；断路器亦可手动贮能

The circuit breaker has the function of motor driven energy storage and automatic energy-restoring. The energy storage can also be done manually.

特性 Characteristics



CW3-1000/
CW3-1600



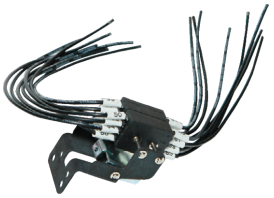
CW3-2500及以上
CW3-2500 and over

型号 Type	FDC/W316	FDC/W325	FDC/W340	FDC/W363
配用断路器 Fitting breaker	CW3-1000/1600	CW3-2500	CW3-3200/4000	CW3-6300/7400
额定控制电源电压Us(V) Rated voltage of control power supply	AC400 / AC230 / DC220 / DC110			
动作电压(V) Operating voltage	(0.85~1.1)Us			
功耗(VA/W)Power Consumption	192			
储能时间 (s)Charging time	不大于5No more than 5			

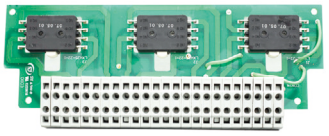
● 辅助开关 Auxiliary switch

额定值 Rated value

型号 Type	FFC/W3104Z	FFC/W3164Z	FFC/W3254Z	FFC/W31044	FFC/W31644	FFC/W32544	FFC/W3106Z	FFC/W3166Z	FFC/W3256Z	FFC/W31066	FFC/W31666	FFC/W32566
型式 Specification	4组转换触头 4 groups of changeover contacts			4常开4常闭 4 pieces of normally-opened contacts (NO) and 4 pieces of normally-closed contacts(NC)			6组转换触头 6 groups of changeover contacts			6常开6常闭 6 pieces of normally-opened contacts(NO) and 6 pieces of normally-closed contacts(NC)		
配用断路器 Fitting breaker	CW3-1000	CW3-1600	CW3-2500 /3200/4000 /6300/7400	CW3-1000	CW3-1600	CW3-2500 /3200/4000 /6300/7400	CW3-1000	CW3-1600	CW3-2500 /3200/4000 /6300/7400	CW3-1000	CW3-1600	CW3-2500 /3200/4000 /6300/7400
额定工作电压 (V) Rated operational voltage / 额定控制容量(VA/W) Rated capacity	AC400 300			AC230 300			DC220 60			DC110 60		
约定发热电流Ith (A) Conventional thermal current	6											



CW3-1000



CW3-1600

● 抽屉式断路器“分离”位置安全挂锁装置

抽屉式断路器处于“分离”位置时，可拔出锁杆来锁定，锁定后断路器将无法摇至“试验”或“连接”位置。

挂锁用户自备，锁杆直径Φ4mm~Φ8mm。

CW3-2500及以上
CW3-2500 and over

Safety padlock mechanism of draw-out circuit breakers at the position of "separated"

When the draw-out circuit breaker indicates the positions of "separated" the locking stick can be locked with padlock after pulling out so that the rocker of the circuit breaker can not be turned to the position of "test" of "connected".

The padlock would be prepared by users, and its rod diameter should be in between Φ4mm to Φ8mm.

“分离”位置安全挂锁装置
Safety padlock mechanism at the position of "separated"

选择附件 Choice of accessories

● 专用电源模块（CW3-1000/1600必配附件）

Special power module (the essential accessory of CW3-1000/1600)

CW3-1000/1600断路器智能控制器电源电压为AC230V、AC400V时，通过该电源模块转换成DC24V电源提供给控制器。当有外接DC24直流电源时，建议采用DC24V电源模块。 注意：输入至CW3-1000/1600二次回路端子1、2电压必须为DC24V。

此模块卡装于成套柜内35mm标准导轨上。

When the power voltage of CW3-1000/1600 circuit breaker's intelligent controller is AC230V or AC400V, it can be transformed into DC24V by this power module for power supply of the intelligent controller. DC24V power supply is recommended when there is external DC24V power supply. Note: The input voltage to 1 and 2 terminals of the secondary circuit must be DC24V.

The module is installed by getting stuck into the standard guide way with 35mm in width inside the switchgear cabinet.

特性 Characteristics

型号 Type	FDY/W316
配用断路器 Fitting breaker	CW3-1000/1600
输入电压(V) Input voltage	AC400/230 ±15%，DC24 ±15%
输出电压(V) Output voltage	DC24 ±0.5
输出电流(A) Output current	0.2

● 直流电源模块 DC power supply module

当智能控制器外接二次回路电源为直流220V、110V时，须通过该模块转换成直流24V电源提供给智能控制器。

When power supply of the secondary circuit is DC220V or DC110V it should be transformed into DC24V by this module for power supply of the intelligent controller.

特性 Characteristics

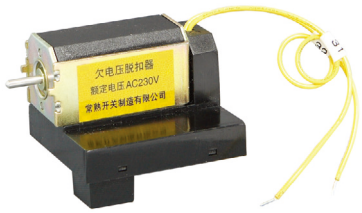
型号 Type	FDY/WT
配用断路器 Fitting breaker	CW3-1000/1600/2500/3200/4000/6300/7400
输入电压(V) Input voltage	DC220 DC110 ±15%
输出电压(V) Output voltage	DC24 ±0.5
输出电流(A) Output current	0.5

● 电压转换模块Voltage changover module

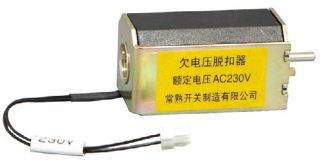
当具有电压显示功能并且输入电压大于AC400V时需配备此模块，模块输入端A、B、C、N接至主回路，输出端A’、B’、C’、N’接断路器二次接线端子17、18、19、20。

When there has voltage display function and the input voltage is higher than AC400V,there should have this module;the module input terminals A、B、C、N connect to the main circuit and the output terminal A'、B'、C'、N' connect to the circuit breaker's secondary circui connection terminals 17、18、19、20.

型号 Type	配用断路器 Fitting breaker
FDZ/WT	CW3-1000/1600/2500/3200/4000/6300/7400



CW3-1000（FQT/W）



CW3-1600（FQT/W）

● 欠电压脱扣器 under-voltage release

欠电压脱扣器由脱扣器线圈和控制单元组成，并按动作时间分为瞬时动作和延时动作两种；

AC230V、400V欠电压延时脱扣器延时时间常规分0.5s、1s 、2 s、3s 四种，3s 以上直至9 s作特殊规格处理，由用户与工厂协商解决，延时准确度0.5s时 ±30%，其他时间准确度 ±10%；

光伏并网专用AC220V、380V欠电压脱扣器（FQTPV/W）满足国家电网公司Q/GDW1972《分布式光伏并网专用低压断路器技术规范》和Q/GDW1973《分布式光伏并网专用低压断路器检测规程》标准，延时时间为0～10s用户可调(出厂默认设定值3s），其步长为1s，当延时时间为0s时动作时间小于0.2s，其他延时时间时的动作时间准确度为+20%。

CW3-1000/CW3-1600欠电压延时脱扣器需外装延时模块，模块卡装于35mm标准导轨上。模块输入端接至主电路，输出端接至断路器二次回路31、32接线端子。

CW3-2500及以上（FQT/W）
CW3-2500 and over

CW3-1000/CW3-1600欠电压延时脱扣器延时模块（FQY/W）
Time delay module of under-voltage time delay release

● Under-voltage release

● The under-voltage release consists of release coil and control unit,and is devided to action or time delay action for action time.

● There are four specifications of time delay for AC230V、400V the under-voltage time delay release: 0.5s, 1s, 2s and 3s. Users should consult with the manufacturer in the light of their order about special time-delay specifications as from 3s and above up to 9s. The time delay accurary is ± 30% for 0.5s,other time delay accurary is ± 10%.

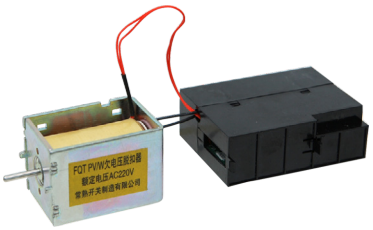
● The specical AC220V、380V under-voltage releases of grid-connected PV system is complied with the state Grid corporation standards: Q/GDW1972 《specification for low-voltage circuit-breaker for distributed grid-connected PV system》 and Q GDW 1973《test code for low-voltage circuit-breaker for distributed grid-connected PV system》.the delay time of release is 0~10s for user adjusting and step is 1s. the action time is less than 0.2s when delay time is 0s,and the other delay time accuracy is +20%.

● The Under-voltage release of CW3-1000/CW3-1600 must be combined with the time-delay module which is installed by getting stuck into the standard slideway with 35mm in width.The module input terminals connect with main circuit,the output terminals connect with terminal 31,32 of the breaker.

特性 Characteristics

型号 Type	FQT/W216	FQT/W216 +FQY/W2163	FQT/W216 +FQY/W2169	FQT/W316	FQT/W316 +FQY/W2163	FQT/W316 +FQY/W2169	FQT/W325	FQT/W325 +FQY/W3253	FQT/W325 +FQY/W3259
配用断路器 Fitting breaker	CW3-1000			CW3-1600			CW3-2500/3200/4000/6300/7400		
延时时间(s) Delay time	瞬时 Instantaneous	0.5 / 1 / 2 / 3	0.5 / 4 / 5 / 9	瞬时 Instantaneous	0.5 / 1 / 2 / 3	0.5 / 4 / 5 / 9	瞬时 Instantaneous	0.5 / 1 / 2 / 3	0.5 / 4 / 5 / 9
额定工作电压Ue(V) Rated work voltage	AC400 / AC230								
动作电压(V) Operating voltage	(0.35~0.7)Ue								
可靠合闸电压(V) Reliable closing voltage	(0.85~1.1)Ue								
可靠不能合闸电压(V) Reliable impossible voltage	≤0.35Ue								
功耗，吸合/保持(VA) Power Consumption	300/12								

型号 Type	FQTPV/W216	FQTPV/W216+ FQYPV/W21610	FQTPV/W316	FQTPV/W316+ FQYPV/W31610	FQTPV/W325	FQTPV/W325+ FQYPV/W32510
配用断路器 Fitting breaker	CW3-1000		CW3-1600		CW3-2500/3200/4000/6300/7400	
延时时间(s) Delay time	瞬时 Instantaneous	0~10	瞬时 Instantaneous	0~10	瞬时 Instantaneous	0~10
额定工作电压Ue(V) Rated work voltage	AC380 / AC220					
动作电压(V) Operating voltage	(0.2~0.7)Ue					
可靠合闸电压(V) Reliable closing voltage	(0.85~1.1)Ue					
可靠不能合闸电压(V) Reliable impossible voltage	≤0.2Ue					
功耗，吸合/保持(VA) Power Consumption	300/12					



光伏并网专用（FQTPV/W）

注：在雷雨多发地区或在供电电源电压不稳定的电网中，推荐使用带延时的欠电压脱扣器，可防止由于短时的电压降低而使断路器脱扣。延时时间一般为0.5s、1s、2s、3s，可供用户选择。

Note: In the electrified networks where thunder and rain often happens or whose power supply is not stable, under-voltage release with time delay is highly recommended to protect the circuit breaker from releasing due to transient voltage-lowering. Generally, the delay time which is selected by users is 0.5s, 1s, 2s or 3s.

光伏专用欠压延时模块（FQTPV/W）
Specical PV time delay under-voltage module

● 可编程输出模块 Programmable output module

断路器内部提供2路可编程输出模块，如用户需要，另再可提供6路可编程扩展输出模块（此模块安装于导轨上），可编程内容见“可编程输出模块项目”表；2路可编程输出模块和6路可编程扩展输出模块触头类型见“可编程输出模块触头类型”表，其中时间延时触头时间整定见“时间延时触头时间整定”表；可编程模块继电器输出电气参数见“可编程输出模块继电器电气参数”表，通电操作性能次数为10^5。

2 lines programmable output module is stalled in the circuit breaker and 6 lines programmable output expansion module can be provided (getting stuck into the standard guide way) according to users' need- Programmable content is in the" Items of programmable output module" table; Content types of 2 lines programmable output module and 6 lines programmable output expansion module are in the" contact types of programmable output module" table; Setting time of time delay contact is in "Setting time of time delay contact" table; Electrical parameters of relay with programmable output module is in the" electrical parameters of relay with programmable output module" table. The operation times on electricity are 10^5.

型号 Type	FCM/W32	FCM/W36
配用断路器 Fitting breaker	CW3-1000/1600/2500/3200/4000/6300/7400	
型式 Specification	2路可编程输出模块 2 lines programmable output module	6路可编程输出扩展模块 6 lines programmable output expansion module

可编程输出模块项目
Items of programmable output module

编号 No	功　能 Function		备注 Remarks
A	Ir_0	过载预报警 Overload pre-alarm	过载预报警及电流卸载 Overload pre-alarm and current shedding
B	I_{LC1}	电流卸载1 Current shedding 1	
C	I_{LC2}	电流卸载2 Current shedding 2	
D	Ir_1	长延时脱扣报警 Long-time delay trip alarm	电流保护报警 Current protection alarm
E	Ir_2	短延时脱扣报警 Short-time delay trip alarm	
F	Ir_3	瞬时脱扣报警 Instantaneous trip alarm	
G	Ir_4/I△n	接地/剩余电流脱扣报警 Earth residual current trip alarm	
H	Iunbal	电流不平衡动作报警 Current unbalance operating alarm	
I	断相 Open-phase	断相动作报警 Open-phase alarm	
J	超温 Over-temperature	控制器超温报警 Over-temperature alarm	内部故障报警 Internal fault alarm
K	存储器故障 Memory fault	存储器故障报警 Memory fault alarm	
L	内部附件故障 Internal accessories fault	内部附件故障报警 Internal accessories fault alarm	
M	$\overline{I_1}$max	最大需用电流动作报警 Maximum demand current operating alarm	电流保护报警 Current protection alarm
N	$\overline{I_2}$max	最大需用电流动作报警 Maximum demand current operating alarm	
O	$\overline{I_3}$max	最大需用电流动作报警 Maximum demand current operating alarm	
P	$\overline{I_n}$max	最大需用电流动作报警 Maximum demand current operating alarm	
Q	Umin	低电压动作报警 Under-voltage operating alarm	电压保护报警 Voltage protection alarm
R	Umax	过电压动作报警 Over-voltage operating alarm	
S	Uunbal	电压不平衡动作报警 Voltage unbalance operating alarm	
T	相序 phase sequence	相序保护动作报警 Phase sequence operating alarm	其它保护报警 Other protection alarm
U	F_{MIN}	欠频保护报警 Under-frequency operating alarm	
V	F_{MAX}	过频保护报警 Over- frequency operating alarm	
W	rPmax	逆功率动作报警 Inverse frequency operating alarm	

可编程输出模块触头类型
Contact types of programmable output module

a.非闭锁触头 Non-interlocking contact	故障引起的报警未消除，触头保持动作 It keeps operation until the failure alarm is gone.
b.闭锁触头 Interlocking contact	触头保持动作至被复位（复位菜单） It keeps operation until it is reset (reset menu).
c.时间延时触头 Time delay contact	触头保持在可调的时间延时内或被复位（复位菜单） It is kept in adjustable time delay or it is reset (reset menu).

时间延时触头时间整定
Setting time of time delay contact

项目 Item	范围 Range	步长 Step	精度 Precision
延时时间触头延时时间 Delay time of time delay contact	1-360s	1s	±10%

可编程输出模块继电器电气参数
Electrical parameters of relay with programmable output module

额定工作电压Ue/V Rated operational voltage		约定发热电流Ith/A Conventional thermal current	额定工作电流Ie/A Rated operational current	额定控制容量 Rated control capacity
AC	230	5（2路可编程输出模块为1A）（2 lines programmable output module is 1A）	AC-15：5（2路可编程输出模块为1A）（2 lines programmable output module is 1A）	1200VA（2路可编程输出模块为230VA）（2 lines programmable output module is 230VA）
	400		AC-15：3	1200VA
DC	220		DC-13：0.15	50W
	110		DC-13：0.4	

● 抽屉座位置电气指示装置 Electrical mechanism for the indication of draw-out socket' position

抽屉式断路器本体与抽屉座分别处于“分离”、“试验”、“连接”三位置时，三个位置电气指示装置可分别输出对应此三位置时电气状态信号，装置安装于抽屉座内。

When the main body of the draw-out circuit breaker and the draw-out socket are at the position of "separated","tested" and "connected" respectively, three electrical mechanisms for the indication of draw-out socket" location can output the electrical signals corresponding with three positions above respectively. These mechanisms are installed inside the draw-out socket.

特性 Characteristics

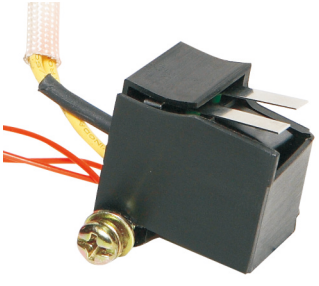
型号 Type	FWZ/W316	FWZ/W325
配用断路器 Fitting breaker	CW3-1000/1600	CW3-2500/3200/4000/6300/7400
额定工作电压 Ue (V)Rated operational voltage	AC 230	
约定发热电流 Ith (A)Conventional thermal current	6	
额定工作电流 Ie (A)Rated operational current	3	

● 合闸准备就绪电气指示模块

Electrical module for indication of ready-for-close

断路器合闸准备就绪电气指示模块，指示断路器可以准备合闸。

The electrical module indicates that the circuit breaker is ready for close.



特性 Characteristics

型号 Type	FHM/W316	FHM/W325
配用断路器 Fitting breaker	CW3-1000/1600	CW3-2500/3200/4000/6300/7400
额定工作电压 Ue (V) Rated operational voltage	AC 230	
约定发热电流 Ith (A) Conventional thermal current	1	
额定工作电流 Ie (A) Rated operational current	1	

● 外接中性线N电流互感器

Current tramsformer with neutral line N connected externally

TN-S配电系统中与三极断路器一起使用，安装于中性线N上，安装点距离最大2m。

It is used together with circuit breaker with three poles in the power distribution system of TN-S and installed in the neutral line N with 2m at maximum far from the installation point.

型号 Type	配用断路器 Fitting breaker
FDH-60	CW3-1000/1600
FDH-80	CW3-2500
FDH-120	CW3-3200/4000/6300/7400
FDH-260	

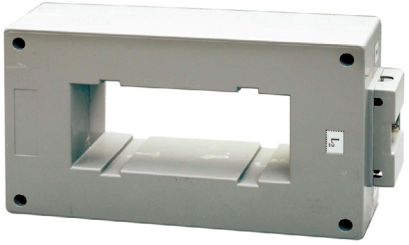
●外接变压器中心点接地单元

Externally transformer's center earth unit

型号 Type	配用断路器 Fitting breaker	配置 Configuration
FBM/W3	CW3-1000/1600/2500/3200/4000/6300/7400	接地模块+接地互感器 connected earth transformer + connected earth module

●外接变压器中心点接地互感器 Externally connected earth transformer with transformer's center

TN-S配电系统中与三极断路器或四极断路器一起使用，安装于变压器低压侧中心点接地线上，电流采样信号经外接变压器中心点接地单元输入断路器EN、EA、EP、EQ智能控制器，作接地故障保护用。



It is used together with three-phase circuit breakers or four-phase circuit breakers in TN-S distribution system and installed in the earth line of transformer at the low-voltage side. Current sampling signals used for earth-fault protection are sent to type EN,EA, EP and EQ intelligent circuits by the externally connected unit with transformer's center.

●外接变压器中心点接地模块 Externally connected earth module with transformer's center

用于变压器中心点接地故障保护用，与外接变压器中心点接地互感器配套使用。P1、P3接外接变压器中心点接地互感器，P2、P4分别接断路器二次回路接线端子48、50。此单元卡装于成套柜内35mm标准导轨上。

It is used together with the externally connected unit with transformer's center for transformer's center earth-fault protection. P1 and P3 connect with the externally connected unit with transformer's center and P2 and P4 connect with terminals 48 and 50 of the secondary circuit. The module is installed by getting stuck to the standord guide way with 35mm in width inside the switchgear cabinet.

● 附件监测单元 Accessories detection unit

断路器安装了附件监测单元后，可对分励脱扣器、合闸电磁铁、欠电压脱扣器、贮能电机的线圈是否断线进行在线监测，确保断路器正常动作。

With accessories detection unit installed the circuit breaker can online monitor that if the coil of shunt release, closing electromagnet, under-voltage release or charging motor is disconnected to ensure the normal work of the circuit breaker.

型号 Type	配用断路器 Fitting breaker
FFJ/W3	CW3- 1600/2500/3200/4000/6300/7400

● 远程复位 Remote reset

断路器脱扣后，远程复位功能可使复位按钮复位，并可撤除故障脱扣指示。
The function can reset the reset button and remove the instructions of tripping for fault after circuit breaker trips.

特性 Characteristics

型号 Type	FYF/W3
配用断路器 Fitting breaker	CW3-1000/1600/2500/3200/4000/6300/7400
额定控制电源电压Us(V)Rated voltage of control power supply	AC 230
动作电压(V) Operating voltage	(0.85~1.1)Us
瞬时电流(A) Instantaneous current	1

● 储能信号电气指示装置 Electrical mechanism for the indication of energy storage signals

可电气指示断路器电动操作机构贮能、释能状况。
The function gives a electrical indication about charging and discharging situation of motor driven operating mechanism.

特性 Characteristics

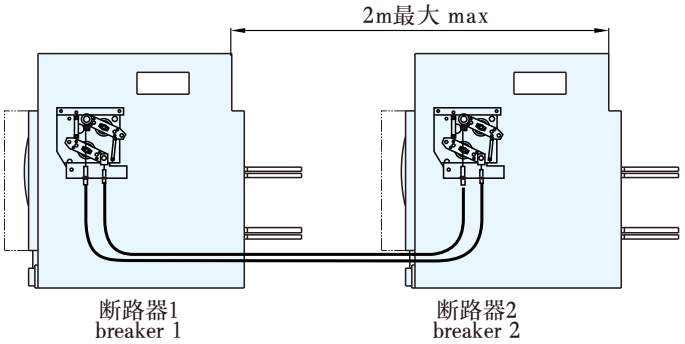
型号 Type	FCZ/W316	FCZ/W325
配用断路器 Fitting breaker	CW3-1000/1600	CW3-2500/3200/4000/6300/7400
额定工作电压Ue (V) Rated operational voltage	AC 230	
约定发热电流Ith (A) Conventional thermal current	1	
额定工作电流Ie (A) Rated operational current	1	

●便携式测试器

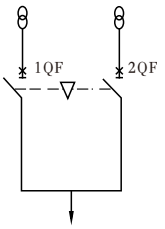
FCS/W便携式测试器通过对智能控制器注入信号方式来测试断路器的多项性能：
特性测试：过载长延时、短路短延时、短路瞬时、接地故障保护；
电源测试：智能控制器自供电电源测试；
复制整定值：把一台断路器的智能控制器整定值复制到另外一台断路器的智能控制器中；
记录转存：把测试记录转存到U盘中；
软件更新：通过U盘更新测试软件。

● 两台断路器的钢缆联锁或两台叠装断路器的联杆联锁
Two sets of circuit breakers interlocked with steel cable or stacked and interlocked with connecting rods

（两台CW3-2500～7400叠装断路器联杆联锁的型式及底板开孔尺寸参见三台断路器的型式及开孔尺寸）
(the style of interlock between two sets of circuit breakers with connecting rods and aperture dimensions of their bases see the counterpart of three sets of circuit breakers)



电路图 Wiring diagram　　可能的运行方式 Possible operation pattern

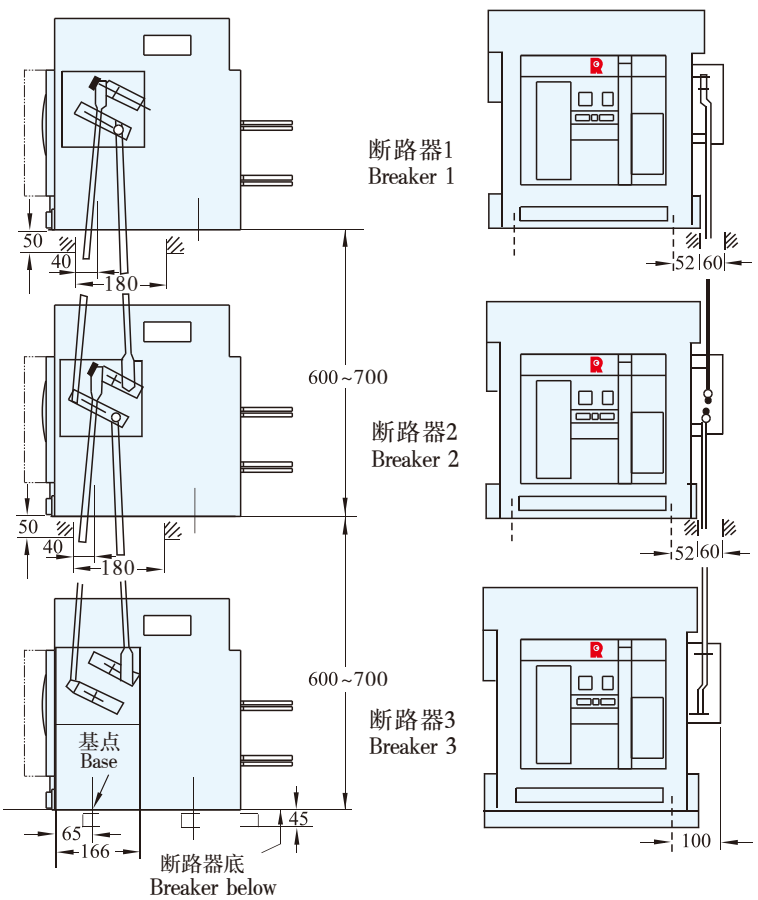


1QF	2QF
0	0
0	1
1	0

注：钢缆联锁的钢缆长度常规为2.5m，也可提供1.5m钢缆，但用户订货时需注明。
Note：Normally 2.5m steel cable of interlock is provided, either 1.5m is but an indication is needed when marking order.

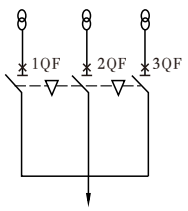
● 三台叠装断路器的联杆联锁或三台断路器的钢缆联锁
Three sets of circuit breakers stacked and interlocked with connecting rods or three sets of circuit breakers interlocked with steel cable

● 三台CW3-2500~7400抽屉式联杆联锁 Stacked and interlocked



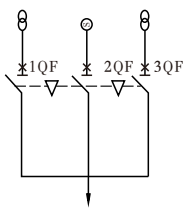
电路图 Wiring diagram　　可能的运行方式 Possible operation pattern

方式一：三个电源只能合一台断路器
Pattern one: three sets of power supply can only close one set of circuit breaker



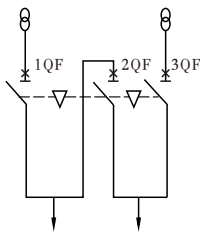
1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
0	0	1

方式二：二个常用电源+一个备用电源
Pattern two: three sets of common power apply plus one set of alternate power supply



1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
1	0	1
0	0	1

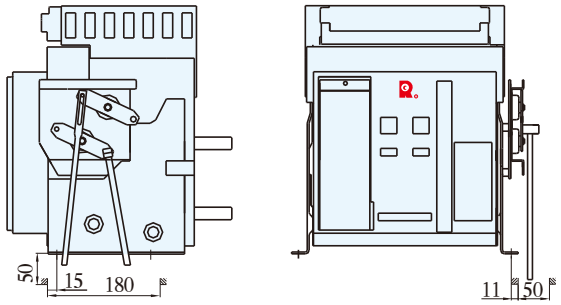
方式三：二个电源一个分段
Pattern three: three sets of power supply plus one piece of coupling bus-bar



1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
0	0	1
1	1	0
0	1	1
1	0	1

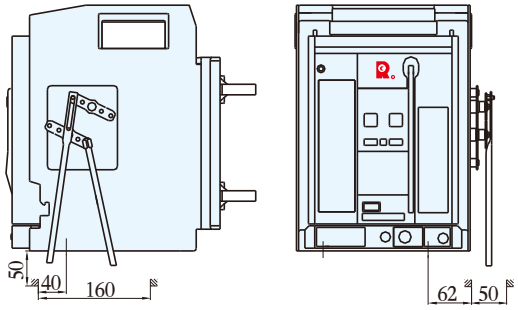
●三台CW3-2500~7400固定式联杆联锁
（上下安装板间距参考抽屉式）

Stacked and interlocked of fixed
（distamce from up to down,please seeing draw-out）



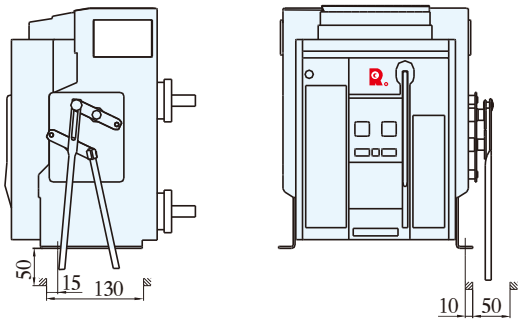
●两台CW3-1000/1600抽屉式联杆联锁
（上下安装板间距参考CW3-2500~7400抽屉式）

Stacked and interlocked of draw-out
（distamce from up to down,please seeing CW3-2500~7400 draw-out）



●两台CW3-1000/1600固定式联杆联锁
（上下安装板间距参考CW3-2500~7400抽屉式）

Stacked and interlocked of draw-out
（distamce from up to down,please seeing
CW3-2500~7400 draw-out）

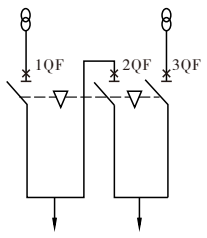


● 钢缆联锁

三台CW3-2500～7400断路器钢缆联锁的型式，参见两台断路器的型式，间距最大2m。

The style of interlock between three sets of circuit breakers see the interlock between two sets of circuit breakers. The maximum distance of two circuit breakers is 2m.

电路图 Wiring diagram	可能的运行方式 Possible operation pattern
方式三：二个电源一个分段 Pattern three: three sets of power supply plus one piece of coupling bus-bar	



1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
0	0	1
1	1	0
0	1	1
1	0	1

型号 Type	联锁型式 Configuration	配用断路器 Fitting breaker
FLS/WG2	2台钢缆联锁 2 sets of circuit breakers steel lock interlock	CW3-1000/1600/2500/3200/4000/6300/7400
FLS/WL2	2台联杆联锁 2 sets of circuit breakers link rod interlock	CW3-1000/1600/2500/3200/4000/6300/7400
FLS/WG3	3台钢缆联锁 3 sets of circuit breakers steel lock interlock	CW3-2500/3200/4000/6300/7400
FLS/WL31	3台联杆联锁方式一 3 sets of circuit breakers link rod interlock type	CW3-2500/3200/4000/6300/7400
FLS/WL32	3台联杆联锁方式二 3 sets of circuit breakers link rod interlock type	CW3-2500/3200/4000/6300/7400
FLS/WL33	3台联杆联锁方式三 3 sets of circuit breakers link rod interlock type	CW3-2500/3200/4000/6300/7400

● “分闸”锁定装置 "opening" locking mechanism

“分闸”锁定装置可将断路器的分闸按钮锁定在分闸位置上，此时，断路器将不能闭合。

用户选装后，工厂提供锁和钥匙。一台断路器配一把锁和一把钥匙；二台断路器配二把相同的锁和一把钥匙；三台断路器配三把相同的锁和二把钥匙。

"opening" locking mechanism can lock the "OFF" button of the circuit breaker on the opening position. As a result, the circuit breaker can not be closed.

After the lock mechanism is chosen by users the manufacture would provide locks and keys. One set of circuit breaker is outfitted with one lock and one key; two sets of circuit breakers are outfitted with two locks and one key; three sets of circuit breakers are outfitted with three same locks and two keys.

“分闸”锁定装置
"Opening" locking mechanism

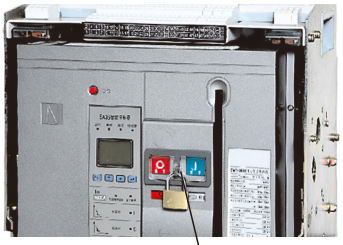
型号 Type	型式 Configuration
FFS/W11	1锁1钥匙 One lock and one key
FFS/W21	2锁1钥匙 Two lock and one key
FFS/W32	3锁2钥匙 Three lock and two key

● 按钮锁定装置 "Pushbutton" locking device

加装按钮锁定装置可防止误操作合闸或分闸按钮。
挂锁用户自备，锁杆直径Φ4～Φ8mm。

When "Pushbutton" locking device is installed it can prevent somebody from operating button of closing or opening by mistake.

Padlock should be provided by users themselves,and its rod should be Φ4～Φ8mm.



按钮锁定装置
Pushbutton locking device

型号 Type	配用断路器 Fitting breaker
FAN/W3	CW3-1000/1600/2500/3200/4000/6300/7400

● 计数器 Counter

计数器累计断路器机械操作的次数，用户一目了然。

The counter can count mechanical operation times accumulatively and an exact number is presented.

型号 Type	配用断路器 Fitting breaker
FJS/W316	CW3-1000/1600
FJS/W325	CW3-2500/3200/4000/6300/7400

● 相间隔板 Interphase barriers

相间隔板加强母排间绝缘，为断路器选择件，用户需要时可配置。

Interphase barriers which strengthen insulation between bus-bars are optional and will be equipped when users need.

相间隔板
Interphase barriers

型号 Type	配用断路器 Fitting breaker	安装方式 The method of installation	数量（块） amount
FXG/W2163C	CW3-1000/1600三极three poles	抽屉式 withdrawable	2
FXG/W1203C	CW3-2500/3200/4000三极 three poles		
FXG/W2633C	CW3-6300三极three poles		
FXG/W3743C	CW3-7400三极three poles		3
FXG/W2164C	CW3-1000/1600四极four poles		
FXG/W1204C	CW3-2500四极fourpoles /4000四极four poles（In≤2500A）		
FXG/W2404C	CW3-3200/4000四极four poles （In≥2900A）		
FXG/W2634C	CW3-6300四极four poles		
FXG/W3744C	CW3-7400四极four poles		
FXG/W2163G	CW3-1000/1600三极three poles	固定式 fixed	2
FXG/W1203G	CW3-2500三极three poles		
FXG/W2403G	CW3-3200/4000/6300/7400三极 three poles		
FXG/W2164G	CW3-1000/1600四极four poles		3
FXG/W1204G	CW3-2500四极four poles		
FXG/W2404G	CW3-3200/4000/6300/7400四极 four poles		

通信选择附件 Choice of communication accessories

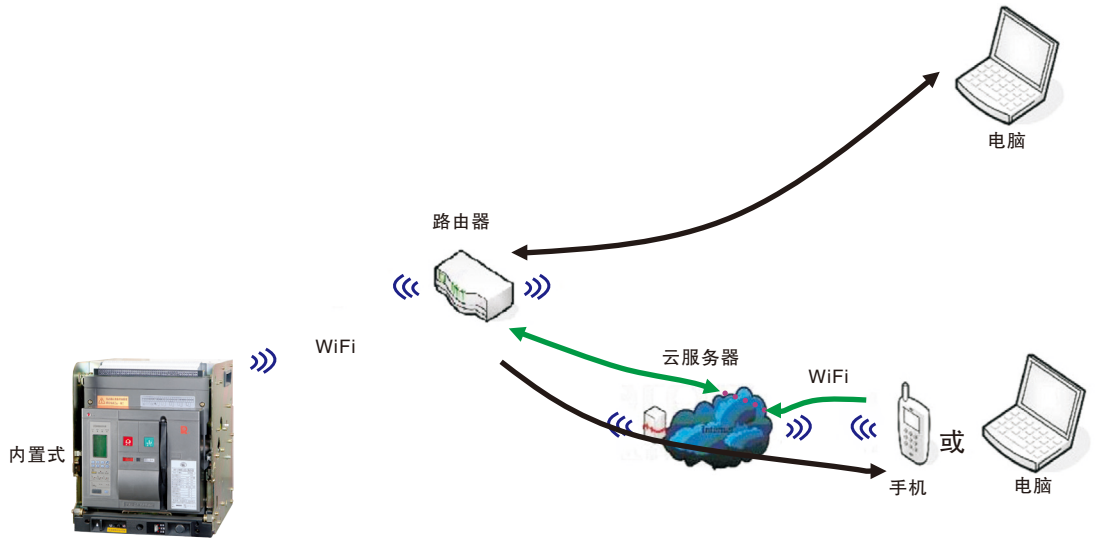
● 本体通信模块 Body's communicative module

通过选择通信协议即选择了本体通信模块，而不需另选其他附件即可实现Modbus、Profibus、Devicenet、CAN任一协议进行通信，实现四遥功能。

Selecting body's communicative module by selecting communicative protocol,don't selecting other accessories,can achieve any protocol for Modus,Profibus,Devicenet,CAN to communicate and four remoting funcation.

● WiFi通信模块 WiFi communicative module

内置WiFi通信模块通过WiFi无线信号下连路由器组建无线局域网模式或连接互联网组建云服务模式。用户可通过WiFi无线方式远程监测断路器运行状态和参数，并可在局域网模式下实现四遥功能，在云服务模式下实现遥测、遥信功能。



● 抽屉座通信模块组件 Components of draw-out socket communication module

抽屉座通信模块基于Modbus-RTU通信协议，可通过CN1DP通信适配器应用于Profibus、Devicenet、CAN总线，抽屉座通信模块组件由断路器外部的抽屉座通信模块和内部的抽屉座通信部件两部分组成。抽屉座通信部件安装于抽屉座内，提供抽屉式断路器本体与抽屉座处于“分离”、“试验”、“连接”三位置状态通信信号；抽屉座通信模块卡装于成套柜内35mm标准导轨上，提供读写断路器地址功能，显示断路器本体与抽屉座三位置状态指示等。两部分用软导线联结。

Draw-out socket communicative moduce based on Modbus-RTU communtcative protocol,used to profibus、Devicenet、CAN bus through CN1DP adapter,The components of draw-out socket communication module consist of external draw-out socket communication module and internal draw-out socket communication parts. The draw-out socket communication parts are installed inside the draw-out socket to provide the status signals of such three positions as "separated", "test" and "connected" of the main body of the draw-out circuit breaker and the draw-out socket. The draw-out socket communication module which can provide the function of reading the address of the circuit breaker and display the status indication of the main body and three positions of the draw-out socket etc. is installed by getting stuck into the standard guide way with 35mm in width inside the switchgear cabinet. The two parts of the draw-out socket communication module are connected with soft conducting lines.

型号 Type	配用断路器 Fitting breaker
FCT/W2	CW3-1000/1600/2500/3200/4000/6300/7400

● 合闸准备就绪信号 Ready-for-close signal

通过上位机可获得指示断路器可以准备合闸状态的信息。

You can get the information through the up-level device that the circuit breaker is ready for close.

型号 Type	配用断路器 Fitting breaker
FHX/W316	CW3-1000/1600
FHX/W325	CW3-2500/3200/4000/6300/7400

● 欠电压信号 Under-voltage signal

通过上位机可获得断路器欠电压脱扣状态信息。

You can get the information through the up-level device that the circuit breaker is tripping under voltage.

型号 Type	配用断路器 Fitting breaker
FQX/W3	CW3-1000/1600/2500/3200/4000/6300/7400

● 故障脱扣信号 Faulty tripping signal

通过上位机可获得断路器由于线路或设备过载、短路或接地等保护跳闸状态信息。

You can get the information through the up-level device that the circuit breaker is tripping because of overload, short circuit or earth protection of the connection and devices.

型号 Type	配用断路器 Fitting breaker
FGT/W3	CW3-1000/1600/2500/3200/4000/6300/7400

● 储能信号 Charging signal

通过上位机可获得断路器电动操作机构“贮能”、“释能”状态信息。

You can get the information of charging or discharging of motor driven operating mechanism through the up-level device.

型号 Type	配用断路器 Fitting breaker
FNX/W316	CW3-1000/1600
FNX/W325	CW3-2500/3200/4000/6300/7400

断路器功耗及降容系数 POWER LOSS AND DERATING COEFFICIENT

功耗（环境温度+40℃）
Power loss (environment temperature +40℃)
功耗是在断路器通以壳架电流Inm情况下测量的总的损耗。
Power loss is the overall consumption measured with the circuit breaker which is electrified with current Inm.

型号 Type	三极/四极 功耗（W） Three/Four-poles power loss	
	固定式 Fixed type	抽屉式 Draw-out type
CW3-1000	48	130
CW3-1600	228	409
CW3-2500	400	564
CW3-3200	440	837
CW3-4000	688	1308
CW3-6300	787	1400
CW3-7400	968	1530

降容系数 Derating coefficient

下表表示断路器在所处周围工作环境温度且满足GB/T14048.2中约定发热条件下持续承载电流的能力。
The following table shows continual current-loading capacity of circuit breakers at different ambient environment temperature and under the conditions of the satisfaction of conventional heating in GB/T14048.2.

型号 Type	额定电流（A）	周围工作环境温度℃ Ambient environment temperature						
		+40	+45	+50	+55	+60	+65	+70
CW3-1000	200	1	1	1	1	1	1	1
	400	1	1	1	1	1	1	1
	630	1	1	1	1	1	1	1
	800	1	1	1	1	1	1	1
	1000	1	1	1	1	1	1	1
CW3-1600	200	1	1	1	1	1	1	1
	400	1	1	1	1	1	1	1
	630	1	1	1	1	1	1	1
	800	1	1	1	1	1	1	1
	1000	1	1	1	1	1	1	1
	1250	1	1	1	1	1	1	1
	1600	1	1	1	1	0.98	0.93	0.87
CW3-2500	630	1	1	1	1	1	1	1
	800	1	1	1	1	1	1	1
	1000	1	1	1	1	1	1	1
	1250	1	1	1	1	1	1	1
	1600	1	1	1	1	1	1	1
	2000	1	1	1	1	1	1	1
	2500	1	1	1	1	0.99	0.94	0.89
CW3-3200	1000	1	1	1	1	1	1	1
	1250	1	1	1	1	1	1	1
	1600	1	1	1	1	1	1	1
	2000	1	1	1	1	1	1	1
	2500	1	1	1	1	1	1	1
	2900	1	1	1	1	1	1	0.96
	3200	1	1	1	1	1	1	1
CW3-4000	1000	1	1	1	1	1	1	1
	1250	1	1	1	1	1	1	1
	1600	1	1	1	1	1	1	1
	2000	1	1	1	1	1	1	1
	2500	1	1	1	1	1	1	1
	2900	1	1	1	1	1	1	0.96
	3200	1	1	1	1	1	1	1
	3600	1	1	1	1	1	0.97	0.92
	4000	1	1	1	1	0.96	0.91	0.86
CW3-6300	4000	1	1	1	1	1	1	1
	5000	1	1	1	1	1	1	1
	6300	1	1	0.98	0.93	0.89	0.85	0.82

断路器功耗及降容系数 POWER LOSS AND DERATING COEFFICIENT

型号 Type	额定电流（A）	周围工作环境温度℃ Ambient environment temperature						
		+40	+45	+50	+55	+60	+65	+70
CW3-7400	4000	1	1	1	1	1	1	1
	5000	1	1	1	1	1	1	0.97
	6300	1	1	1	1	0.99	0.94	0.88
	7400	1	0.97	0.93	0.89	0.84	0.80	0.75

注:1、表中参数仅作为一般选型指导，鉴于开关柜形式和使用条件的多样性，实际应用中不同的解决方案必须进行试验验证。
2、表中参数是基于推荐接线铜排规格参考表，断路器主回路接线端子温度为120℃。

1、Parameter listed in the table is only for ordinary select guide, since switchgears have various forms and use condition, different soulutions in real applications must be tested before.
2、Parameter listed in table is based on the recommended wiring copper bus bar, and wiring terminal temperature of breaker's main circuit is 120℃.

高海拔降容 ALTITUDE DERATING

海拔超过适用工作环境的2000m，断路器电气性能可参照下表修正：
If altitude exceeds work environment for 2000m the electric property of circuit breaker can be corrected according to the following table.

海拔(m) Altitude		2000	3000	4000	4500	5000
工频耐压(V)Power frequency withstand voltage		3500	3500	3000	2500	2200
最大额定工作电压（V）MAX rated operational voltage		690	690	690	690	560
工作电流修正系数 Correction factor of operational current	Inm=1000A	1	0.98	0.93	0.90	0.87
	Inm=1600A	1	0.98	0.93	0.90	0.87
	Inm=2500A	1	1	1	1	0.97
	Inm=3200A	1	1	1	1	1
	Inm=4000A	1	0.93	0.88	0.85	0.82
	Inm=6300A	1	0.98	0.93	0.90	0.87
	Inm=7400A	1	0.98	0.93	0.90	0.87

断路器主回路接线铜排规格参考表 ROFERENCE TABLE OF MAIN CIRCUIT WIRING COPPER BAR FOR CIRCUIT BREADERS

壳架等级额定电流Inm(A) frame size rated current	额定电流In(A) Rated current	铜排 Cooper bars	
		根数 Number	尺寸(mm × mm) Size
1000	200	1	20 × 5
	400	1	40 × 6
	630	2	40 × 5
	800	2	40 × 6
	1000	3	40 × 5
1600	200	1	20 × 5
	400	1	50 × 5
	630	2	40 × 5
	800	2	50 × 5
	1000	3	40 × 5
	1250	4	40 × 5
	1600	2	50 × 10

断路器主回路接线铜排规格参考表 ROFERENCE TABLE OF MAIN CIRCUIT WIRING COPPER BAR FOR CIRCUIT BREADERS

壳架等级额定电流Inm(A) frame size rated current	额定电流In(A) Rated current	铜排 Cooper bars	
		根数 Number	尺寸(mm × mm) Size
2500	630	2	50 × 5
	800	2	60 × 5
	1000	2	60 × 5
	1250	3	60 × 5
	1600	2	60 × 10
	2000	3	60 × 10
	2500	4	60 × 10
3200	1000	2	60 × 5
	1250	3	60 × 5
	1600	2	60 × 10
	2000	3	60 × 10
	2500	4	100 × 5
	2900	3	100 × 10
	3200	4	100 × 10
4000	1000	2	60 × 5
	1250	3	60 × 5
	1600	2	60 × 10
	2000	3	60 × 10
	2500	4	100 × 5
	2900	3	100 × 10
	3200	4	100 × 10
	3600	4	100 × 10
	4000	4	100 × 10
6300	4000	4	100 × 10
	5000	6	100 × 10
	6300	6	100 × 10
7400	4000	4	120 × 10
	5000	4	120 × 10
	6300	6	120 × 10
	7400	6	120 × 10

表中规格为断路器处于周围环境温度最高40℃，敞开安装且满足GB/T14048.2中约定发热条件。

The specification of cooper bars in the above table are introduced under the conditions that the circuit breakers open installed are at the maximum ambient environment temperature of 40℃ and satisfy conventional heating in GB/T14048.2.

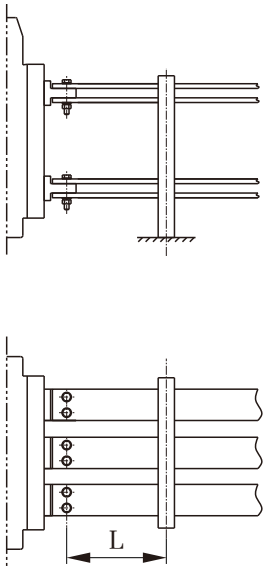
主回路端子至外接铜排支架最大允许距离参考表 MAX.DISTANCE REFERENCE TABLE OF BREAKER'S TERMINALS TO EXTERNAL COPPER BAR HOLDER

主电路端子至母线支架的最大允许距离 Max. Distance Of Main Circuit Terminals To Copper Bar Holder								
短路电流（kA） Short Circuit Current		42	55	65	85	100	120	135
L（mm）	CW3-1000 CW3-1600	200	100	100	—	—	—	—
	CW3-2500	300	200	150	100	—	—	—
	CW3-3200/4000	350	250	150	100	100	—	—
	CW3-6300 CW3-7400	350	300	250	150	150	150	150

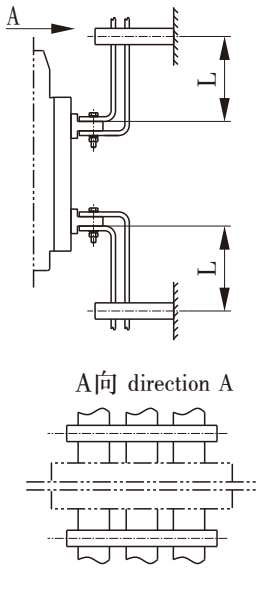
● CW3-1000、1600

水平接线
Horizontally Wire

情形1
condication 1

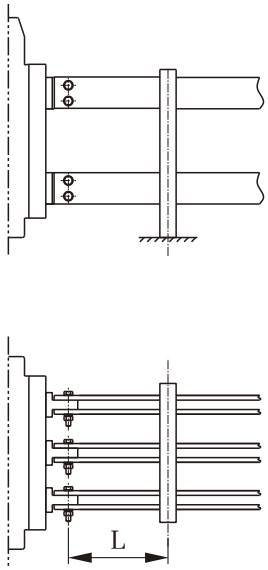


情形2
condication 2

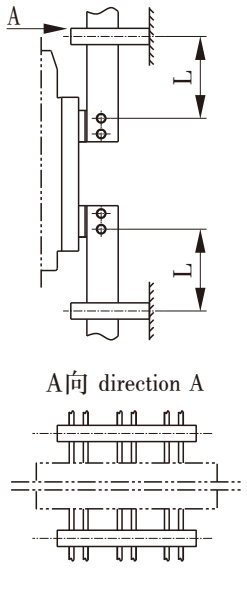


垂直接线
Vertically Wire

情形1
condication 1



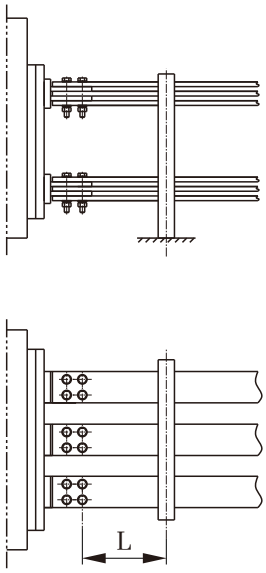
情形2
condication 2



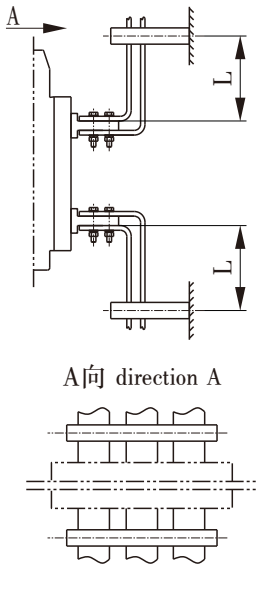
● CW3-2500～7400

水平接线
Horizontally Wire

情形1
condication 1

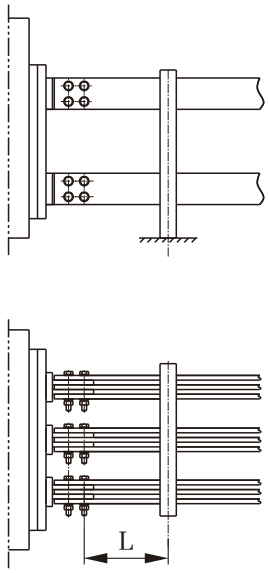


情形2
condication 2

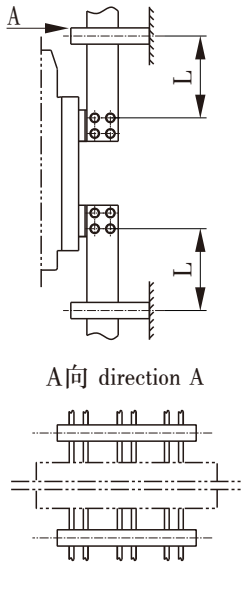


垂直接线
Vertically Wire

情形1
condication 1



情形2
condication 2



自动电源转换系统可以实现两路AC400V电源之间或两进线一母联或三电源AC400V电源之间的转换，确保用户可靠供电。自动电源转换系统由自动转换控制器和转接器及控制电缆（厂方已提供）组成，同时可与机械联锁配合使用。当实现手动并联转换时，则不应机械联锁。自动转换控制器安装于开关柜门板上，转接器安装于开关柜安装板上，控制器至转接器/转接器至断路器电缆长度标准配置为：两路电源转换1.8 m /1.8 m，两进线一母联2 m /1.8m（超过标准配置电缆长度用户订货时应注明）。

Automatic power supply switch system guarantees reliable power supply for users by providing AC400V two lines or two incoming one bus conple of power supply or three supply alternatively.It consists automatic transfer controller,switching unit and cables (already prepared by the manufacture).The system may be used together with the mechanical interlock.But mechanical interlock can,t be used when manual in parallel transfer is used.the switching unit is mounted on the mounting plate of switchboard while the controller is mounted on the panel door of the switchboard.the cable standard length of controller to switching unit and switching unit to breaker is 1.8m/1.8m for tow supply transfer or 2m/1.8m for two incoming one bus conple(user should make special order when they require for the length mor than standard).

● FZZ两路电源转换 FZZ two supply transfer

▲功能汇总 function summary

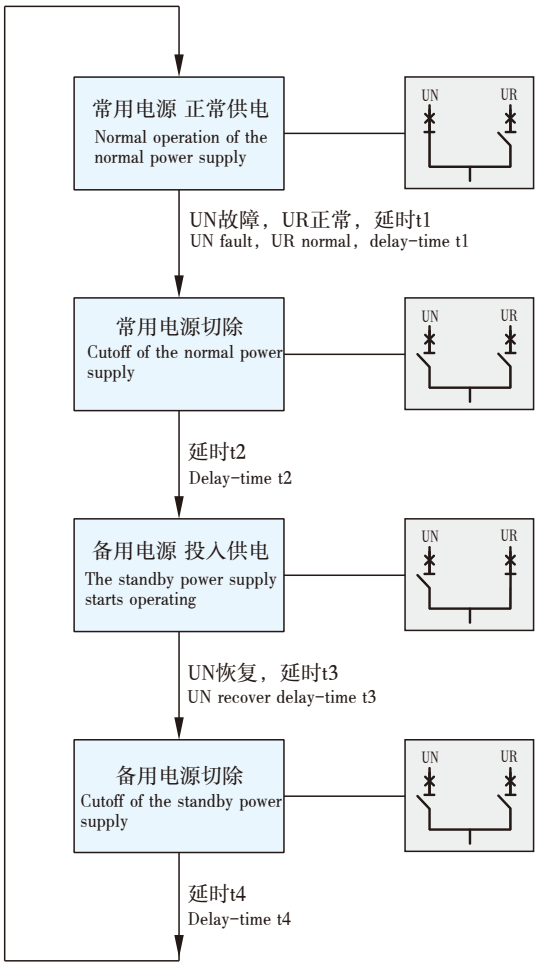
自动转换控制器型号 Automatic transfer controller type	电子型R、S、F Electronic	智能型ZR、ZS、ZF intelligent 智能可通信ZTR、ZTS、ZTF intelligent communicative
自动转换控制器示意 Automatic transfer controller indication		
转接器示意 Adapter indication		
监测 Monitor	对常用电源各相电压、备用（或发电）电源A相电压进行检测，若被检测相发生过电压、欠电压、失压则动作 Check the phase voltage of normal power supply and standby (or generator) power supply	
自动转换 Automatic transfer	R、ZR、ZTR：常用备用电源间的自投自复 Automatic charge and automatic recovery between normal power supply and standby power supply S、ZS、ZTS：常用备用电源间的自投不自复（互为备用） Automatic charge and not automatic recovery between normal power supply and standby power supply (alterater each other) F、ZF、ZTF：常用发电电源间的自投自复 Automatic charge and automatic recovery between normal power supply and generator	
强制转换 Forced transfer	强制常用、强制备用、强制断开 Forced to normal，forced to standby，forced to disconnected	
复位操作 Reset operation	按钮复位 Reset button	
试验功能 Test function	由强制转换功能实现 Implemented by forced transfer function	
手动转换 Manual transfer	手动常用、手动备用、手动断开 Manual to normal ， manual to standby， manual disconnect	
发电控制 Generating control	F、ZF、ZTF有此功能 Only for F、ZF、ZTF type	
负荷卸载 Load uninstall	F有此功能 Only for F type	
显示方式 Display mode	LED指示：常备用电源状态，常备用断路器合、分及脱扣状态，操作模式 LED indicator: condition of normal/standby power supply,close, open or tripped condition and operationg mode of normal/standby breaker	（1）LCD指示：常备用电源状态，常备用断路器合、分状态及脱扣状态，参数设定，动作记录 LCD indication:condition of normal/standby power supply ,close、open and tripped condition parameter setting, history of normal/standby breaker （2）LED指示：常备用断路器合、分状态，操作模式 LED indication:close、 open condition,operating mode of normal/standby breaker
设置方式 Setting mode	旋钮操作，可进行工作模式、延时时间等的设置 Set the working mode, delay time and others by knob	按键操作、全中文菜单引导，可进行工作模式、欠压动作值、延时时间、通信参数等的设置 All chinese menu guide、set the working mode、undervoltage operation value、delay time communication parameter and others by keyboard
参数设定 Parameter setting	欠压：75% Us 过压：115%Us 失压：30%Us Under voltage: 75% Us Overvoltage: 115%Us Voltage loss: 30%Us	欠压：（75%~85%）Us用户可调 过压：115%Us 失压：30%Us Under voltage: （75%~85%）User adjustable Overvoltage: 115%Us Voltage loss: 30%Us

延时时间（s）Delaytime / 控制器型号 Controller type	R、ZR、ZTR、S、ZS、ZTS	F、ZF、ZTF
转换断开延时时间t1 Transfer disconnection	0.5~64	0.5~64
转换接通延时时间t2 Transfer colsing	0.5	0.5~64
返回断开延时时间t3 Return disconnection	0.5~64	0.5~240
返回接通延时时间t4 Return closing	0.5	0.5~64
发电指令延时时间t5 Generating indication		1~180
发电停机指令延时时间t6 Generating stop indication		32~600

通信功能 Communication		实现遥调、遥测、遥控、遥信。RS485 通信接口，Modbus-RTU协议。 Tele-control,tele-communication,tele-adjustment,tele-detection, RS485 communication interface,, Modbus-RTU protocol

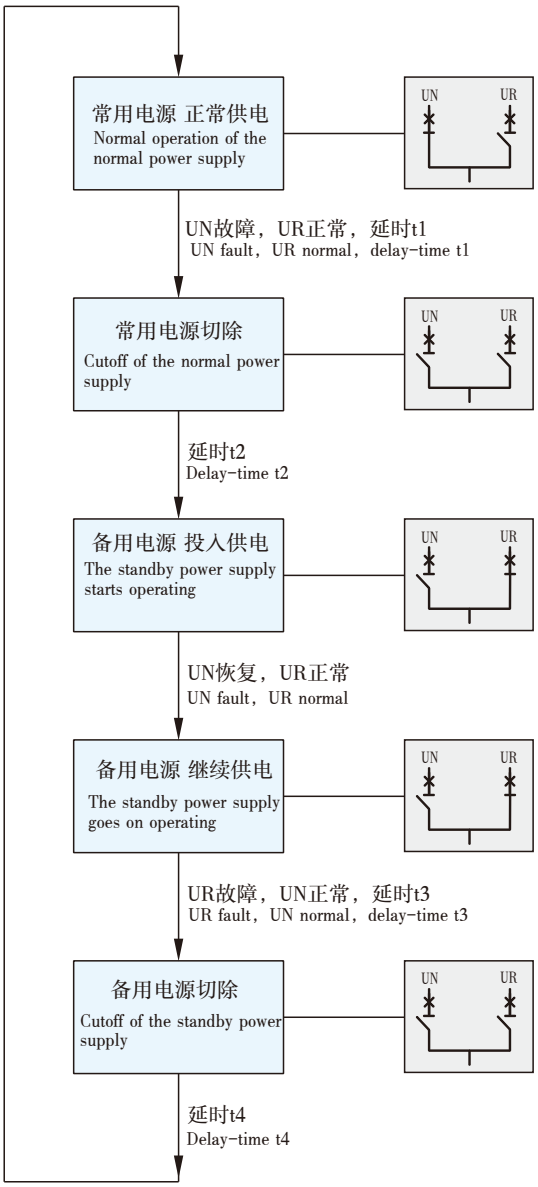
▲R、ZR、ZTR型--常用-备用间的自投自复

Automatic change and automatic recovery between normal and standby supply



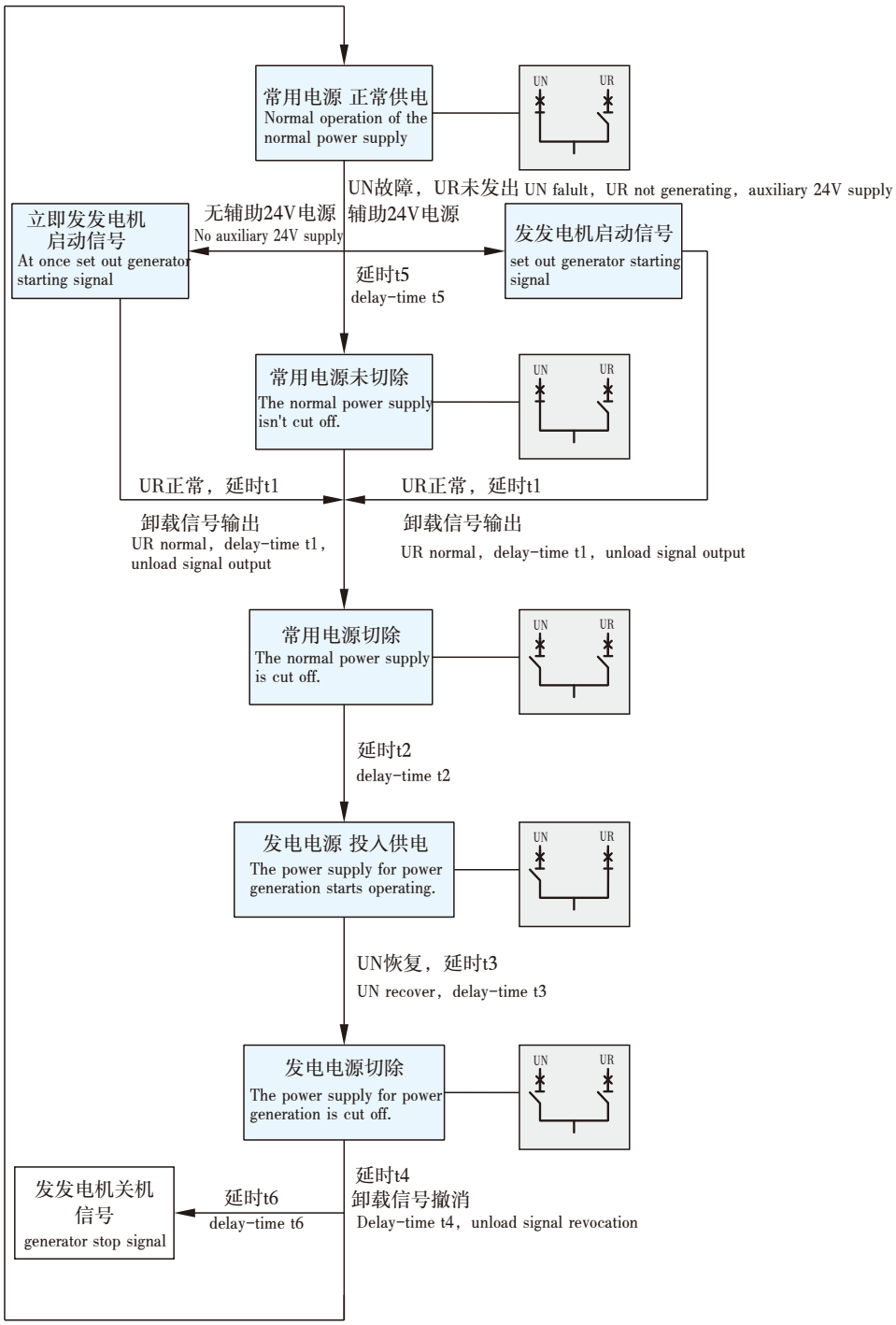
▲S、ZS、ZTS型--常用-备用间的自投不自复

Automatic change and not automatic recover between normal and standby supply



▲F、ZF、ZTF型--常用-发电电源间的自投自复

Automatic change and automatic recovery between normal and generator supply

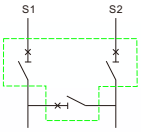
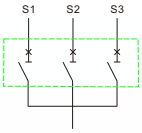


注：常用-发电型必须为控制器提供一个稳定、不间断的直流电源，直流电源电压对F型控制器为DC12V，对ZF、ZTF型控制器为DC24V，其容量不小于6W。当此直流电源缺失时，系统具有R型（自投自复型）的全部功能。

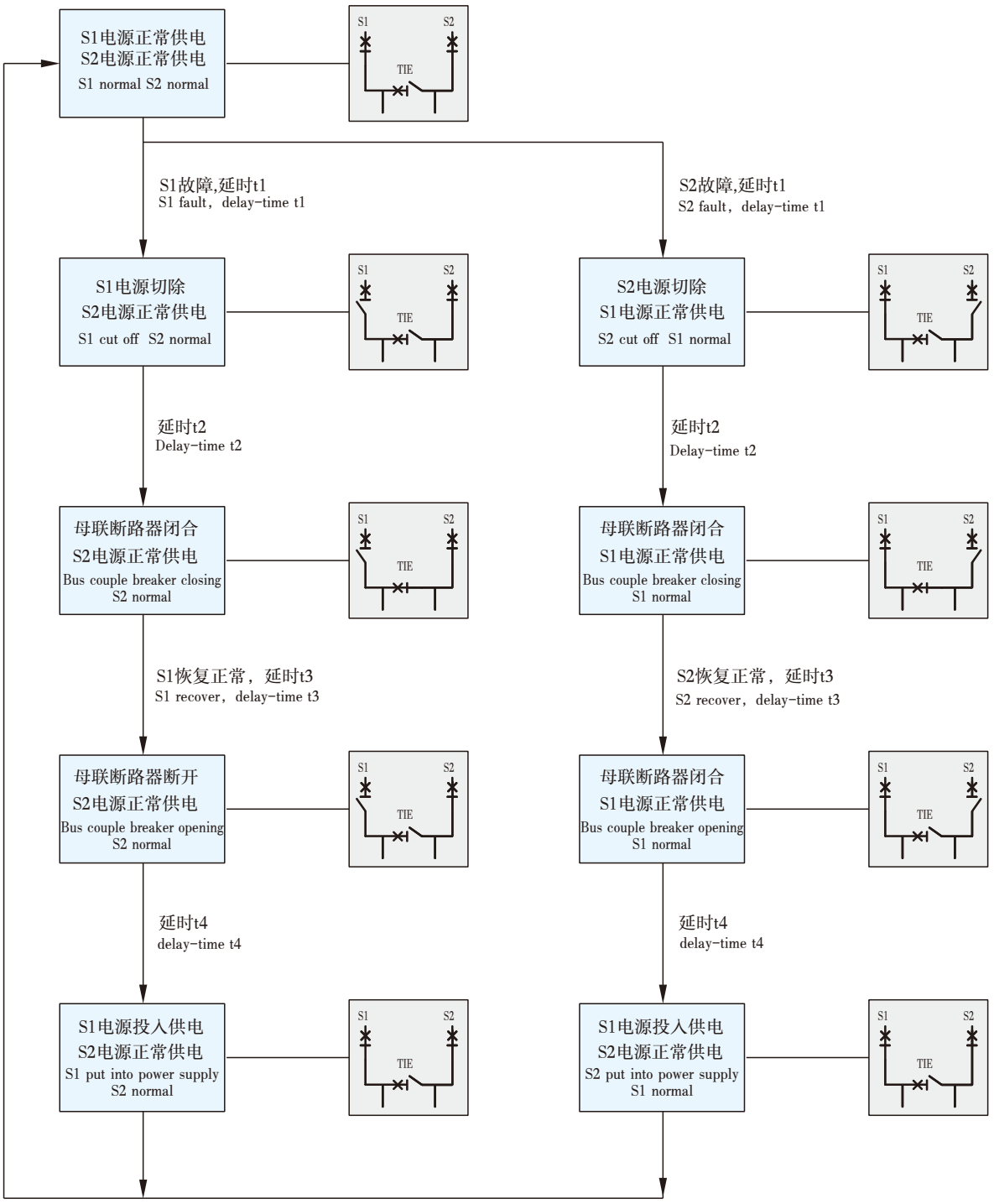
For the switch system used for normal power supply to power generation supply system,the controller should be supplied with a reliable and consecutive power supply of D.C. 12V (F type) or D.C.24V (ZF、ZTF type) and power capacity no less than 6W.If the D.C. supply is cut off,the switch system will has the function of automatic switch and restoration （type R）.

● FLZ两进线一母联电源转换及三电源转换 FLZ two incoming line one bus conple supply transfer and three supplys transfer

▲功能汇总 Function summary

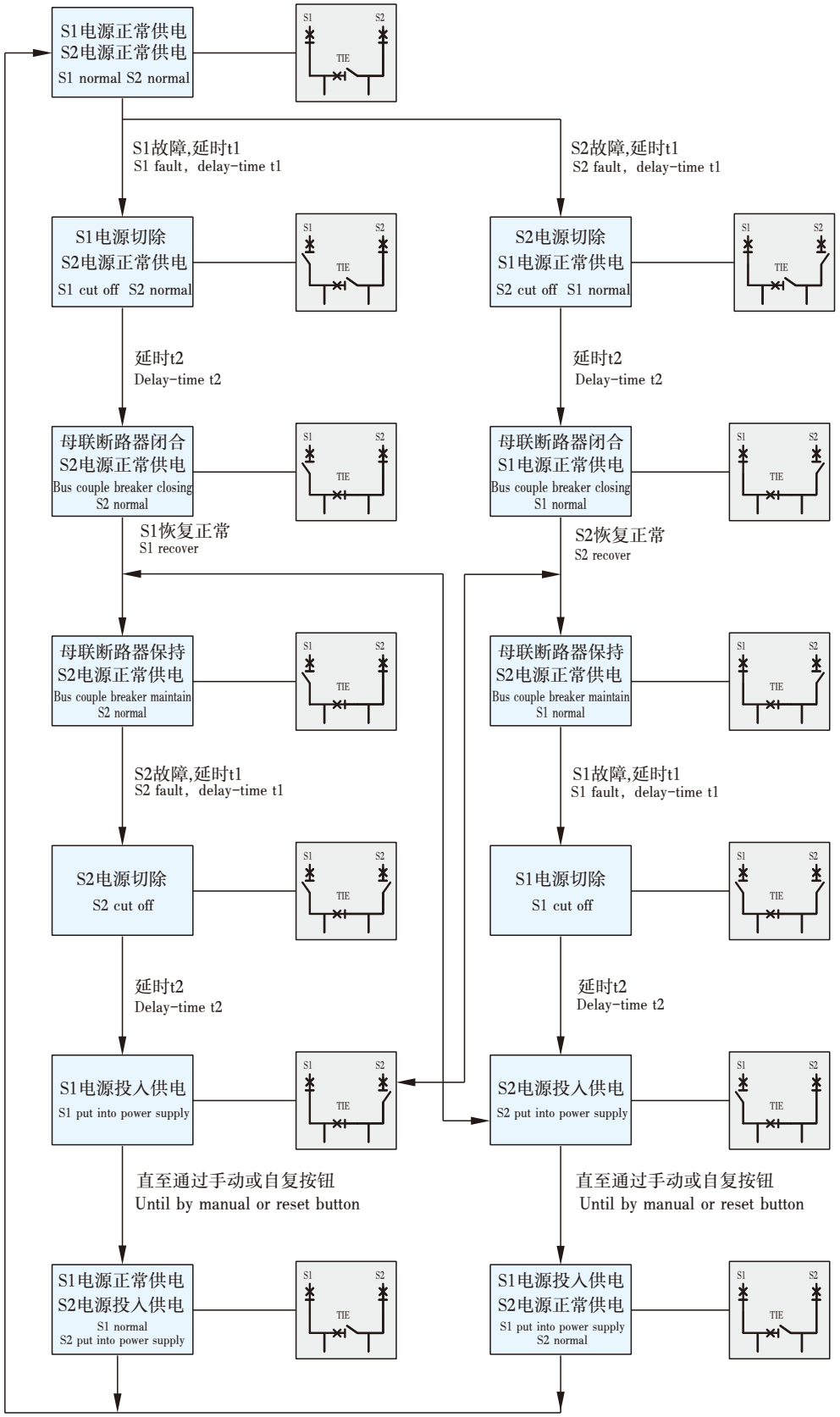
<table>
<tr><td>自动电源转换系统型式
Automatic power supply switch system type</td><td colspan="2">两进线一母联电源转换
Two incoming line one bus conple supply transfer</td><td>三电源转换
Three supplys transfer</td></tr>
<tr><td>主回路接线
Main circuit tie line</td><td colspan="2">  </td><td>  </td></tr>
<tr><td>自动转换控制器型号
Automatic transfer controller type</td><td>智能型WTT3
Intelligent</td><td>智能型带并联转换WTB3
Intelligent with parallel</td><td>智能型WTT5
Intelligent</td></tr>
<tr><td>自动转换控制器示意
Automatic transfer controller indication</td><td>  </td><td>  </td><td>  </td></tr>
<tr><td>转接器示意
Adapter indication</td><td>  </td><td>  </td><td>  </td></tr>
<tr><td>监测
Monitor</td><td>对常用（S1）、备用（S2）电源各相电压进行检测，若被检测相发生过电压、欠电压、失压则动作
Check the each phase voltage of normal, standby power supply.if there is overvoltage、 undervoltage、 voltageloss in the checker phase、 transfer will operation</td><td>对常用（S1）、备用（S2）电源各相电压进行检测，若被检测相发生过电压、欠电压、失压则动作；具有常、备用电源频率、电压差、频率差和相位差检测
Check the each phase voltage of normal,standby power supply.if there is overvoltage、 undervoltage、 voltageloss in the checker phase、 transfer will operation.this type can check frequency,voltage difference,frequency difference and phase difference of mormal standby power supply.</td><td>对S1、S2、S3三路电源各相电压进行检测，若被检测相发生过电压、欠电压、失压则动作。
Check the each phase voltage of S1，S2，S3 three supplys，if there is overvoltage，undervoltage， voltage loss in the checker phase，transfer will operation</td></tr>
<tr><td>自动转换
Automatic transfer</td><td colspan="3">可设定自投自复或自投不自复
Automatic charge and automatic rerovery or automatic charge and not automatic recovery</td></tr>
<tr><td>强制转换
Forced transfer</td><td colspan="3">强制常用、强制备用、强制断开</td></tr>
<tr><td>手动并联转换
Manual parallel transfer</td><td>——</td><td>√</td><td>——</td></tr>
<tr><td>复位操作
Reset operation</td><td colspan="3">按钮复位
Reset button</td></tr>
<tr><td>试验功能
Test function</td><td colspan="3">由强制转换功能实现
Implemented by forced transfer function</td></tr>
<tr><td>手动转换
Manual transfer</td><td colspan="3">由强制转换功能实现
Implemented by forced transfer function</td></tr>
<tr><td>显示方式
Display mode</td><td>（1）LCD指示：常备用电源状态，常备用断路器合、分状态及脱扣状态，参数设定，动作记录
LCD indication: condition of normal/standby power supply, close、 open and tripped condition, parameter setting history of normal/standby breaker
（2）LED指示：常备用电源状态，常备用断路器合、分及脱扣状态
LED indicator: condition of normal/standby power supply, close open or tripped condition and operationg mode of normal/standby breaker</td><td>（1）LCD指示：常备用电源状态，常备用断路器合、分状态及脱扣状态，参数设定，动作记录
LCD indication: condition of normal/standby power supply, close、 open and tripped condition, parameter setting history of normal/standby breaker
（2）LED指示：常备用电源状态，常备用电源电压差、频率差、相位差状态，常备用断路器合、分及脱扣状态
LED indication: close, open condition, operating mode of normal/standby breaker. condition: voltage difference, frequencydifference, phase difference of normal/standby power supply</td><td>1）LCD指示：三路电源状态，三路电源断路器合、分状态及脱扣状态，参数设定，动作记录
LCD indication: condition of three supplys, close、open and tripped condition, parameter setting history of three breaker.
（2）LED指示：三路电源状态，三路断路器合、分及脱扣状态
LED indication: condition of three supplys, close、open and tripped condication.</td></tr>
<tr><td>设置方式
Setting mode</td><td colspan="3">按键操作、全中文菜单引导，可进行工作模式、欠压动作值、延时时间、通信参数等的设置
All chinese menu guide、set the working mode、undervoltage operation value、delay time communication parameter and others by keyboard</td></tr>
<tr><td>参数设定
Parameter setting</td><td colspan="3">欠压：（70%~90%）Us用户可调； 过压：（105%~120%）Us用户可调； 失压：30%Us，步长：5%
under voltage：（70%~90%）Us user adjustable； over voltage：（105%~120%）Us user adjustable； voltage loss：30%Us；step：5%
<table>
<tr><td rowspan="4">延时时间（s）
Delay time</td><td>电源断开延时时间t1
Disconnection of power supply</td><td>0.1~100</td><td rowspan="4">步长0.1s
Time step
（≤10s时），
1s（>10s时）</td></tr>
<tr><td>母联断路器接通延时时间t2
Closing of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>母联断路器断开延时时间t3
Disconnection of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>电源闭合延时时间t4
Closing of power supply</td><td>0.1~100</td></tr>
</table>
<table>
<tr><td rowspan="3">并联转换条件
Parallel transfer condition</td><td>并联转换电压差ΔU（V）
Voltage difference</td><td>(0.02~0.12)Ue，步长：1V</td></tr>
<tr><td>并联转换频率差Δf（Hz）
Frequency difference</td><td>0.1~1，步长：0.1Hz</td></tr>
<tr><td>并联转换相位差Δδ（°）
Phase difference</td><td>5~20，步长：1</td></tr>
</table>
<table>
<tr><td rowspan="4">延时时间（s）
Delay time</td><td>电源断开延时时间t1
Disconnection of power supply</td><td>0.1~100</td><td rowspan="4">步长0.1s
Time step
（≤10s时），
1s（>10s时）</td></tr>
<tr><td>母联断路器接通延时时间t2
Closing of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>母联断路器断开延时时间t3
Disconnection of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>电源闭合延时时间t4
Closing of power supply</td><td>0.1~100</td></tr>
</table>
<table>
<tr><td rowspan="8">延时时间（s）
Delay time</td><td>S1电源断开延时时间t1
S1Disconnection of power supply</td><td>0.1~100</td><td rowspan="8">步长0.1s
Time step
（≤10s时），
1s（>10s时）</td></tr>
<tr><td>S1电源接通延时时间t2
S1Closing of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>S2电源断开延时时间t3
S2Disconnection of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>S2电源接通延时时间t4
S2Closing of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>S3电源断开延时时间t5
S3Disconnection of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>S3电源接通延时时间t6
S3Closing of bus couple breaker</td><td>0.1~100</td></tr>
<tr><td>发电起动延时时间t7
Generator starting delay-time</td><td>1~180</td></tr>
<tr><td>发电停止延时时间t8
Generator stop delay-time</td><td>1~180</td></tr>
</table></td></tr>
<tr><td>通信功能
Communication</td><td colspan="3">实现遥调、遥测、遥控、遥信。RS485 通信接口，Modbus-RTU协议。
Tele-control,tele-communication,tele-adjustment,tele-detection, RS485 communication interface,, Modbus-RTU protocol</td></tr>
</table>

▲WTT3 、WTB3型--常用-备用间的自投自复
Automatic change and automatic recovery between normal and standby supply



注：TIE为母联断路器
Note: TIE-bus couple breaker.

▲WTT3 、WTB3型--常用-备用间的自投不自复
Automatic change and not automatic recover between normal and standby supply



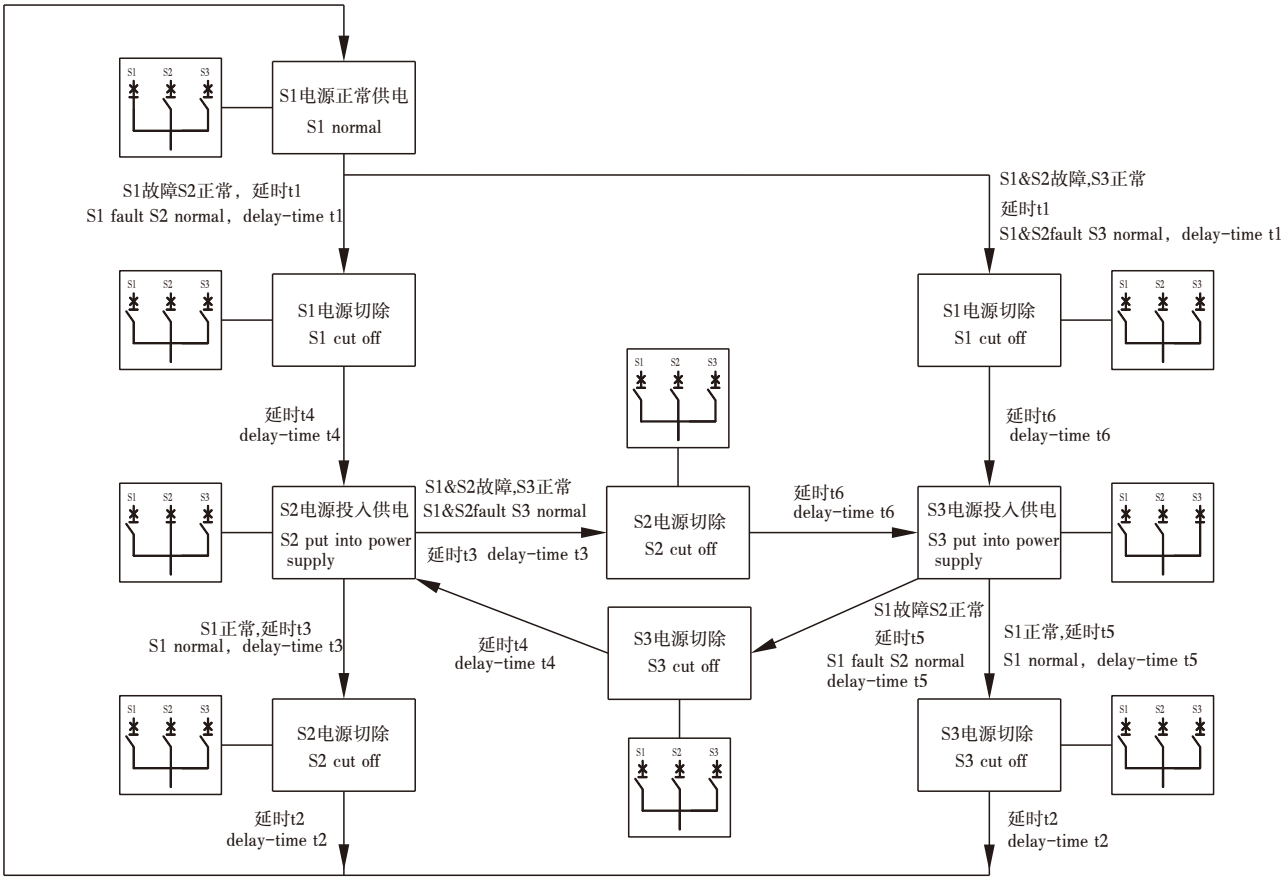
注：TIE为母联断路器
Note: TIE-bus couple breaker.

▲WTB3手动并联转换 WTB3 manual parallel transfer

WTB3控制器手动模式为并联转换切换，即动作方式为断路器先合后分，断路器同时闭合时间＜0.5s。并联模式可设定为“最佳”和“常规”两种模式，“最佳”是指控制器检测到常备用电源相序、电压差、频率差满足条件的前提下自动搜索接近于同相角的时刻进行并联合闸，以最大限度的降低合环电流；“常规”是指控制器检测到常备用电源相序、电压差、频率差满足条件的前提下检测到相角差满足设定的阈值即进行并联合闸。

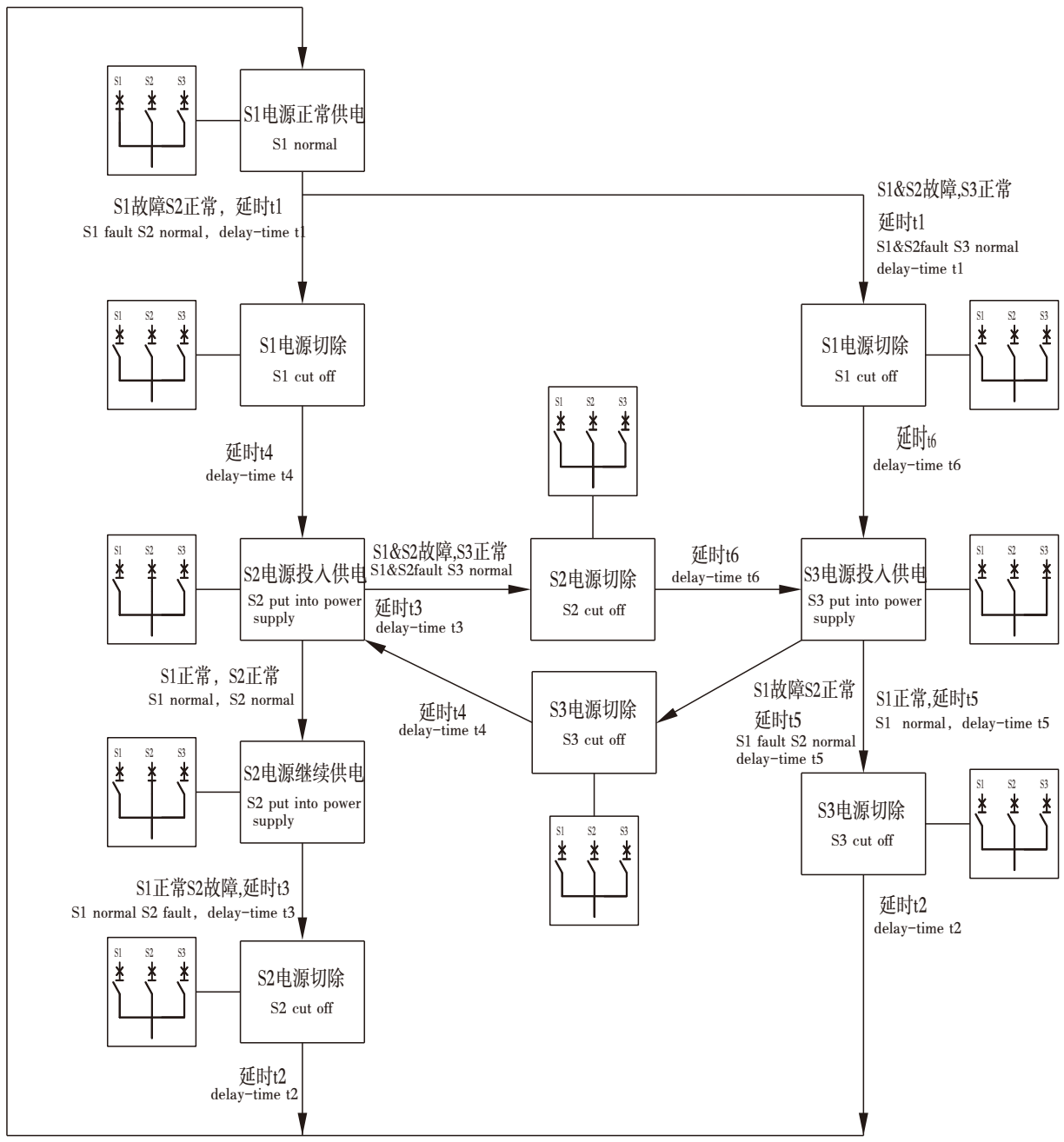
WTB3 controller,s manul mode uses parattel conuersion switchover,that is ,circuit breaker,s operation metliiol is "first male,then meat",meanushilie,circuit breaker,s making time is less than 0.5s ,Parallelmode can be set with in "optimiztion" means when the controller detects the phase order voltage difference and treguency different .the preconditions ,it cuatornat.cally searches the time which approaches in phase angle and it operates parallet making to maxiumly rechue loop current; "Normal" means when the controller detects the phase order,voltage difference and frequency difference of backup power meet the meconditions and phase angle difference meets setting,it operates paralled meching.

▲WTT5型--三电网电源自投自复
Automatic change and automatic recover between three network supplys



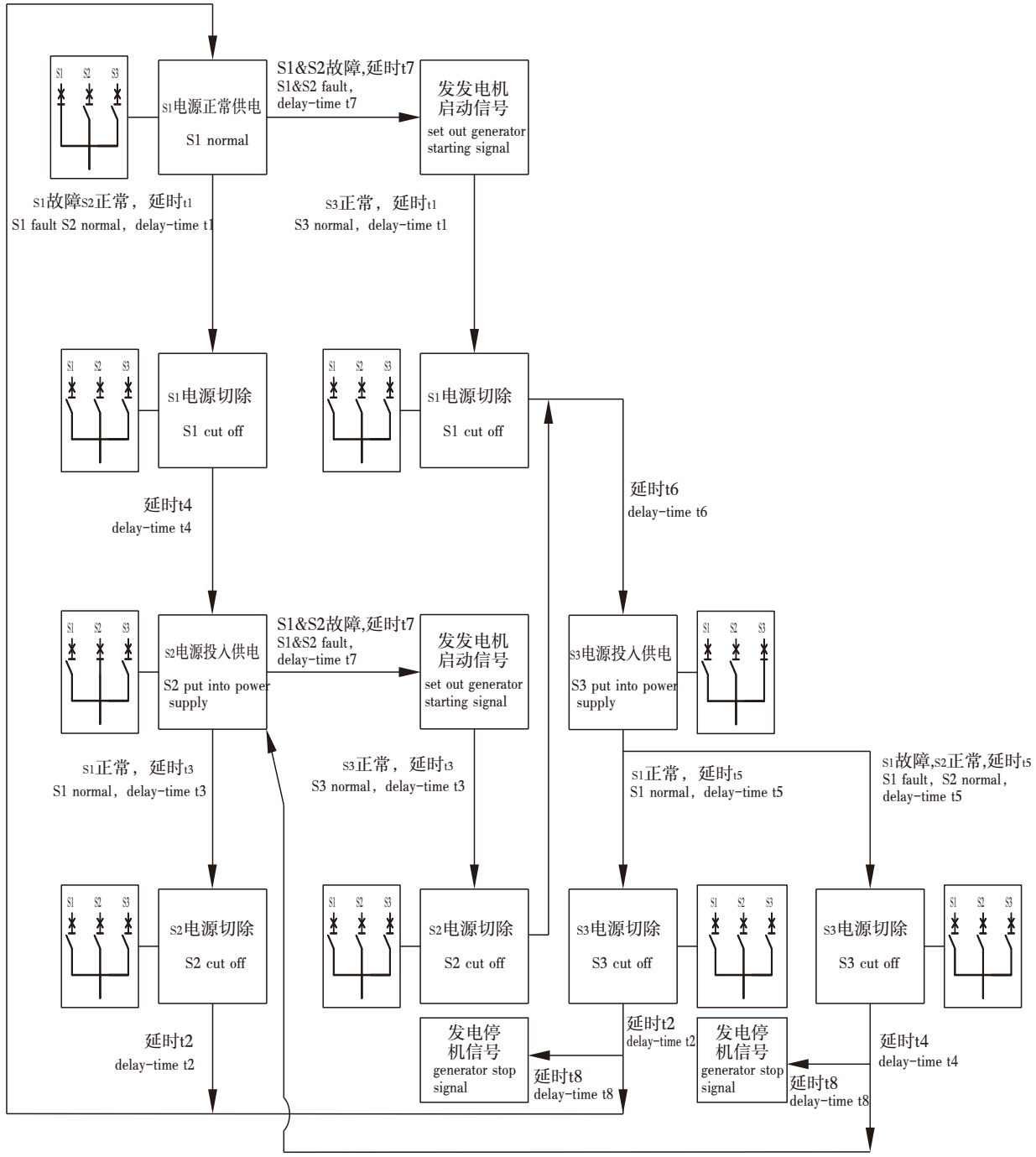
▲WTT5型--三电网电源自投不自复

Automatic change and not automatic recover between three network supplys



▲WTT5型--两个电网电源和一个发电电源自投自复

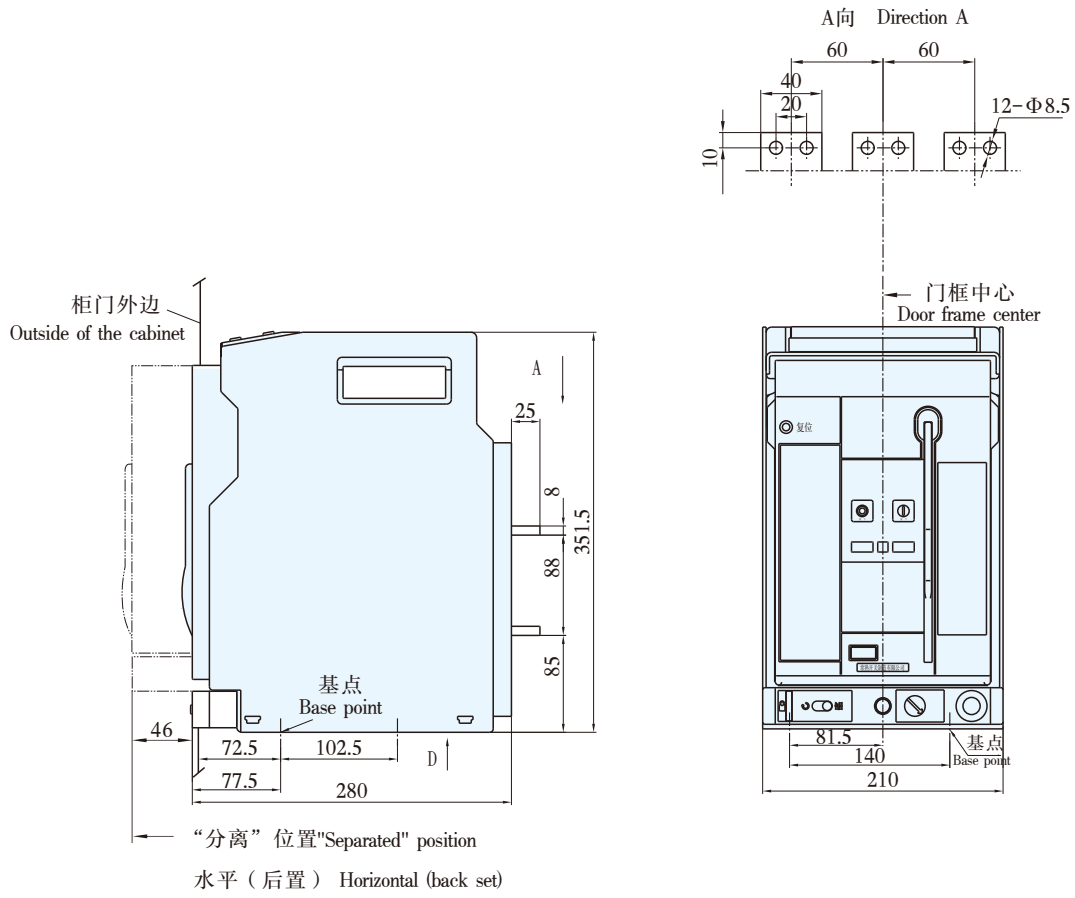
Automatic change and automatic recover between two network supplys with generating

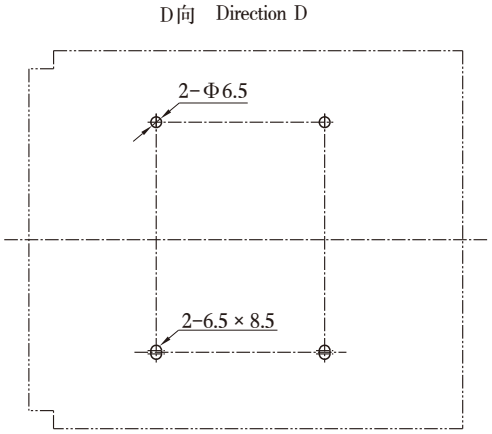


●特性 Characteristics

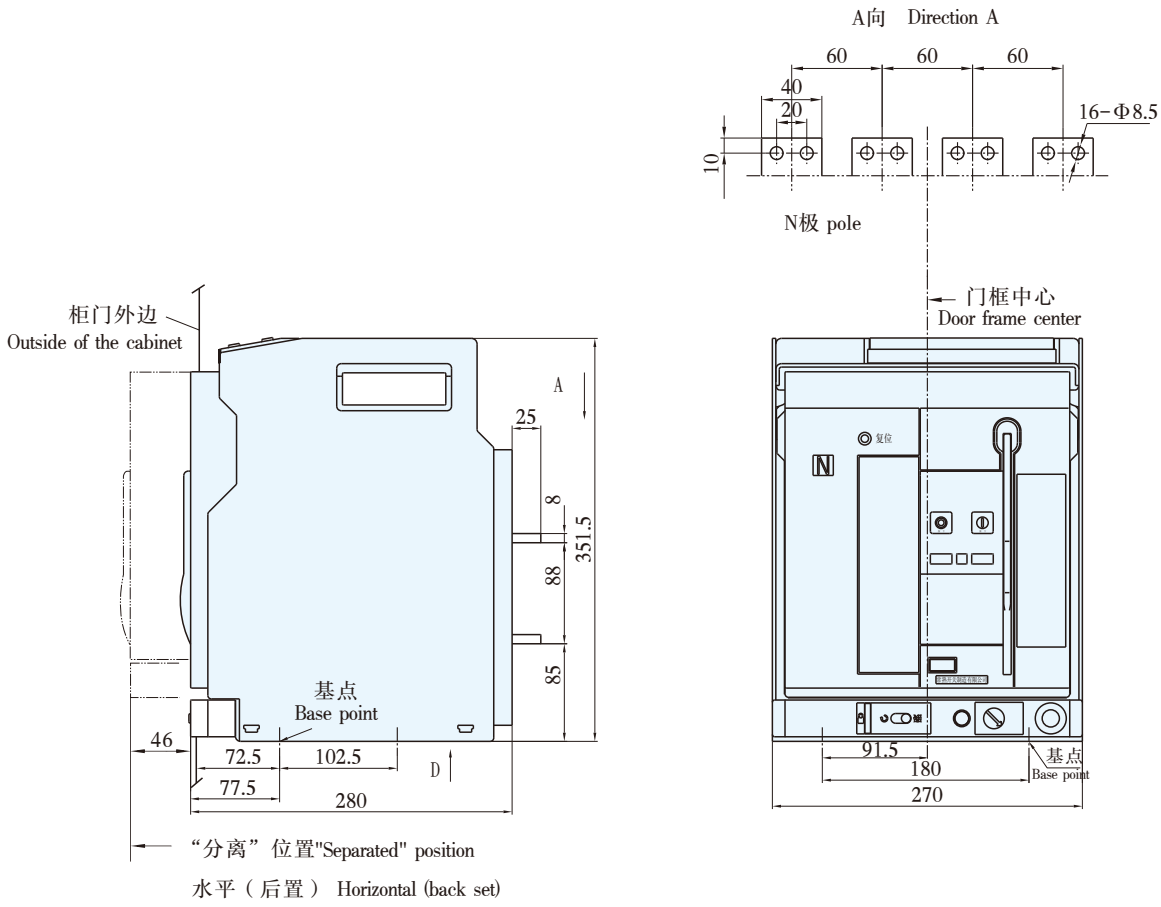
型　号 Type	自动转换控制器型号 Automatic controller type	配用断路器 Fitting breaker
FZZ两路电源转换 Two lines supply transfer	R、ZR、ZTR	CW3-1000/1600/2500/4000/6300/7400 两台 （可配其它CW系列断路器）
	S、ZS、ZTS	
	F、ZF、ZTF	
FLZ两进线一母联电源转换 Two incoming one bus conple	WTT3	CW3-1000/1600/2500/4000/6300/7400 三台 （可配其它CW系列断路器）
	WTB3	
FLZ三电源转换 Three supply transfer	WTT5	CW3-1000/1600/2500/4000/6300/7400 三台 （可配其它CW系列断路器）

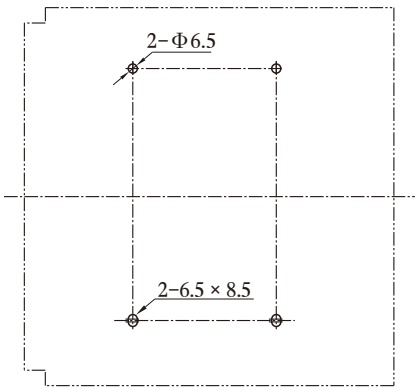
CW3-1000三极智能型万能式断路器（抽屉式）
CW3-1000 Intelligent Air Circuit Breaker with three poles (draw-out type)



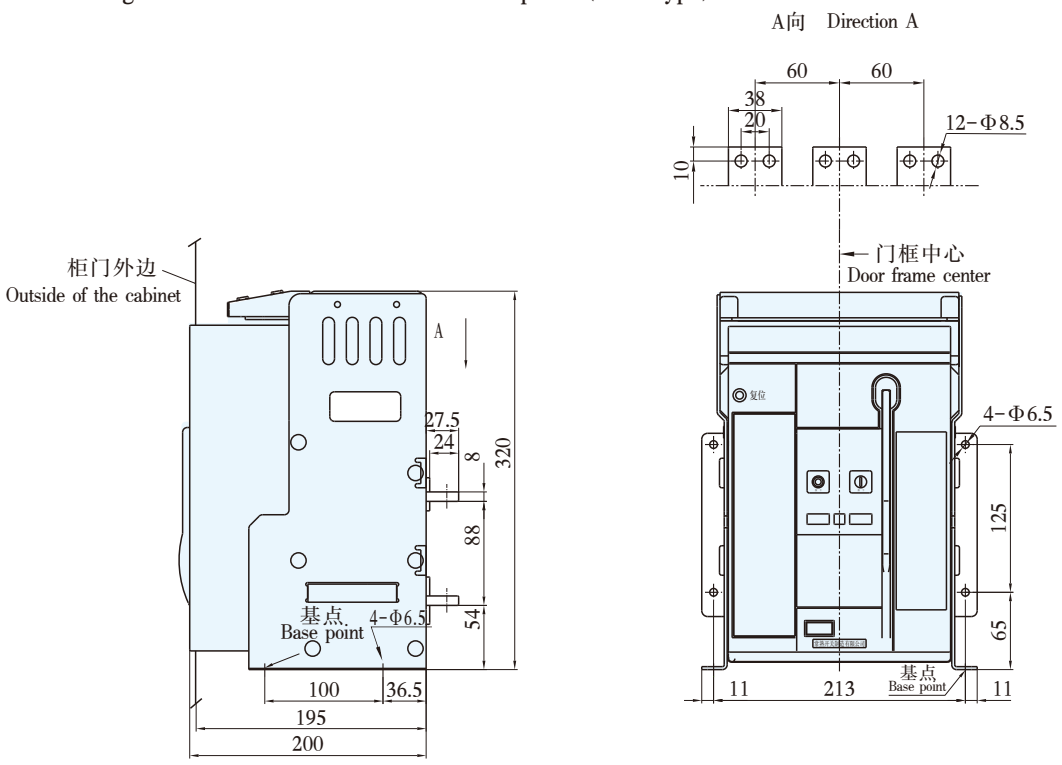


CW3-1000四极智能型万能式断路器（抽屉式）
CW3-1000 Intelligent Air Circuit Breaker with four poles (draw-out type)

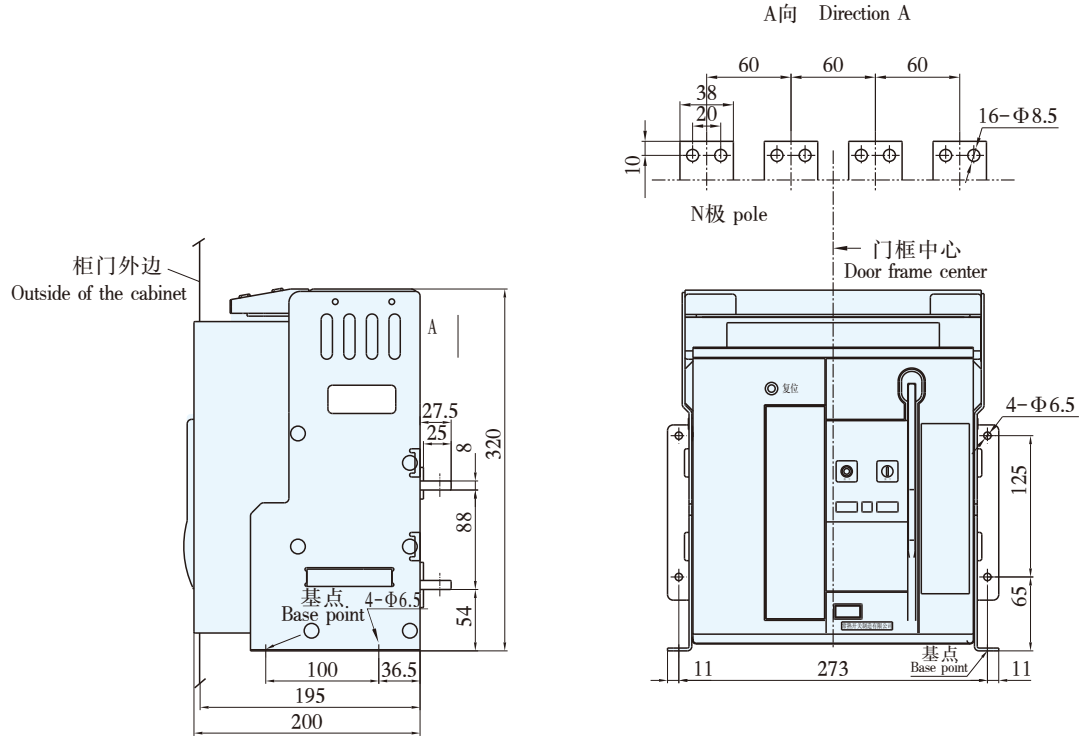




CW3-1000三极智能型万能式断路器（固定式）
CW3-1000 Intelligent Air Circuit Breaker with three poles (fixed type)

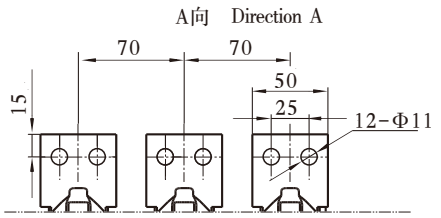


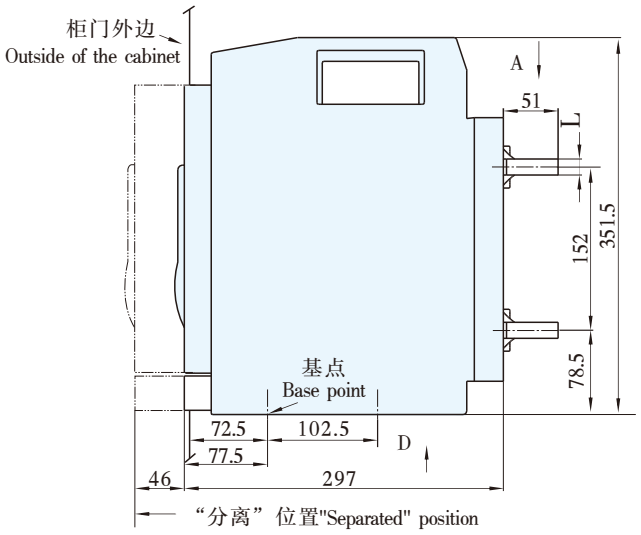
CW3-1000四极智能型万能式断路器（固定式）
CW3-1000 Intelligent Air Circuit Breaker with four poles (fixed type)



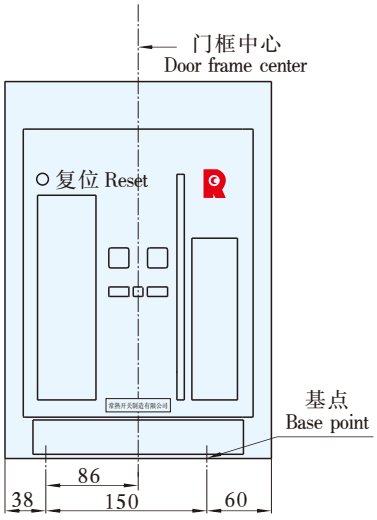
CW3-1600三极智能型万能式断路器（抽屉式）
CW3-1600 Intelligent Air Circuit Breaker with three poles (draw-out type)

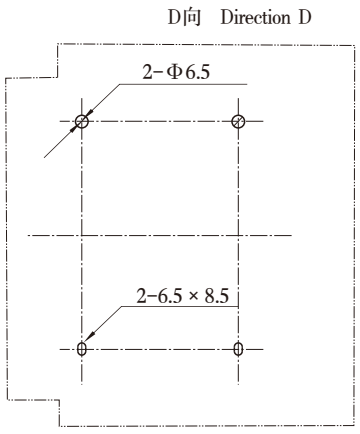
电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10

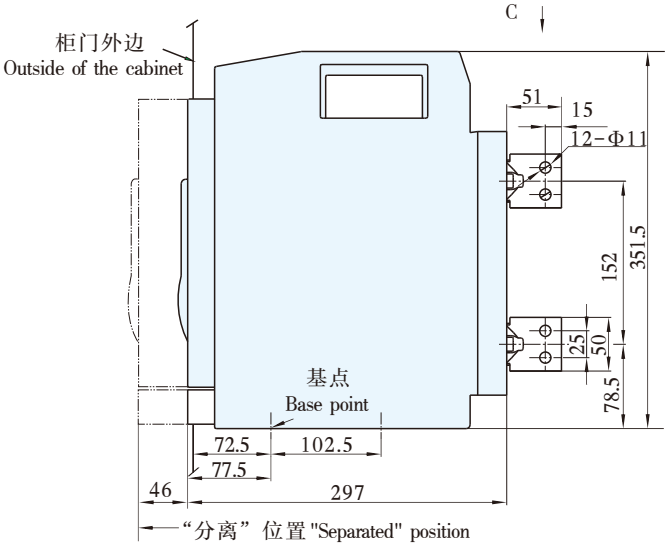




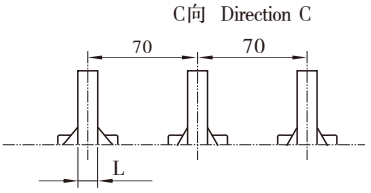
水平（后置） Horizontal (back set)





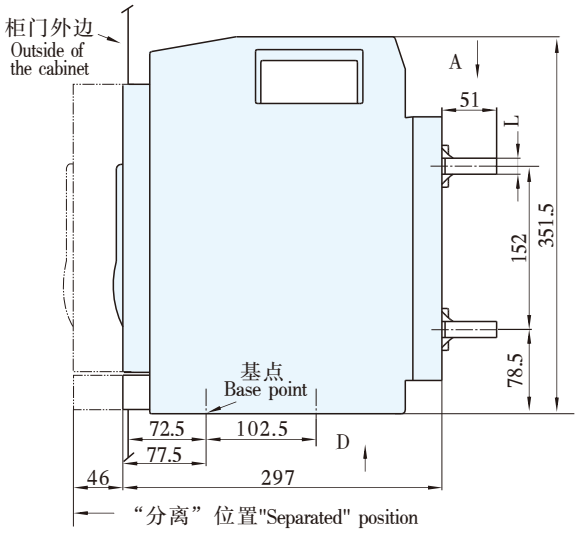


垂直（后置） Vertical (back set)



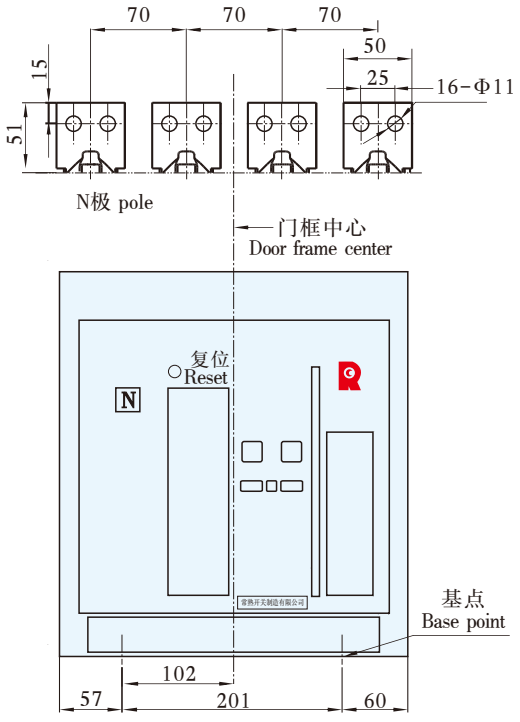
CW3-1600四极智能型万能式断路器（抽屉式）
CW3-1600 Intelligent Air Circuit Breaker with four poles (draw-out type)

电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10

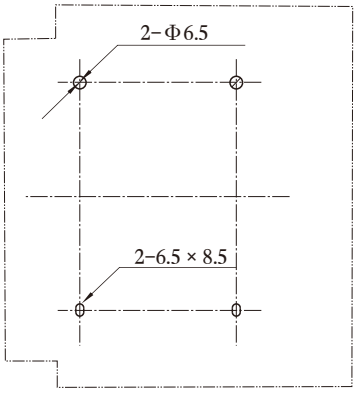


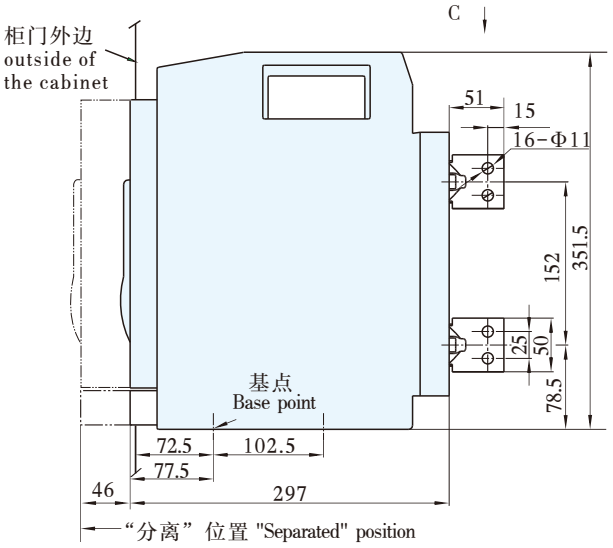
水平（后置）Horizontal (back set)

A向 Direction A



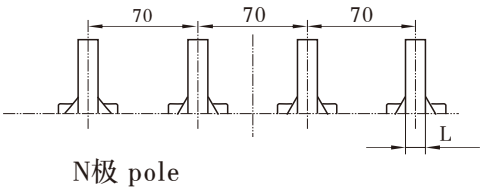
D向 Direction D





垂直（后置） Vertical (back set)

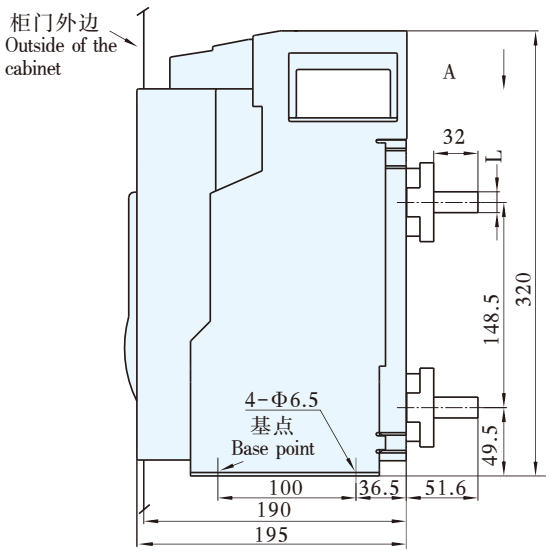
C向 Direction C



N极 pole

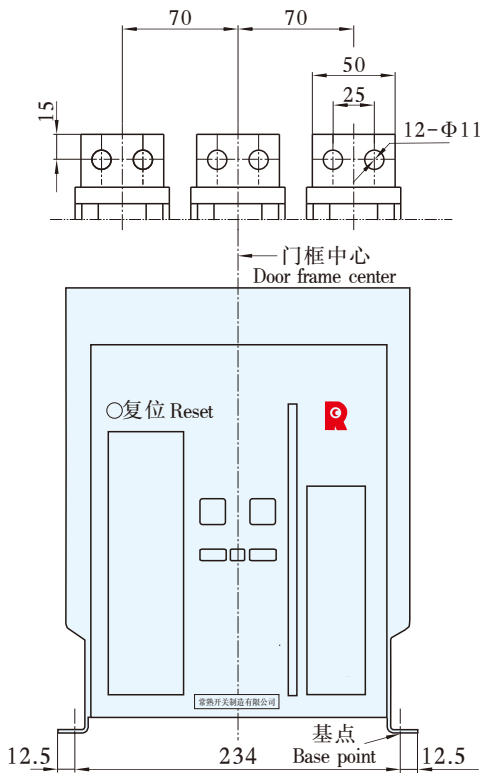
CW3-1600三极智能型万能式断路器（固定式）
CW3-1600 Intelligent Air Circuit Breaker with three poles (fixed type)

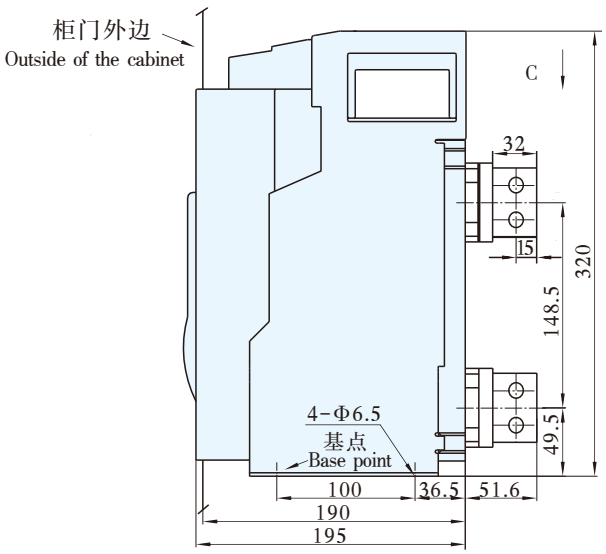
电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10



水平（后置）
Horizontal(back set)

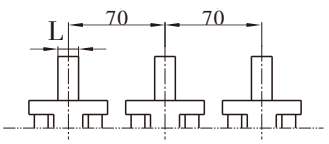
A向 Direction A





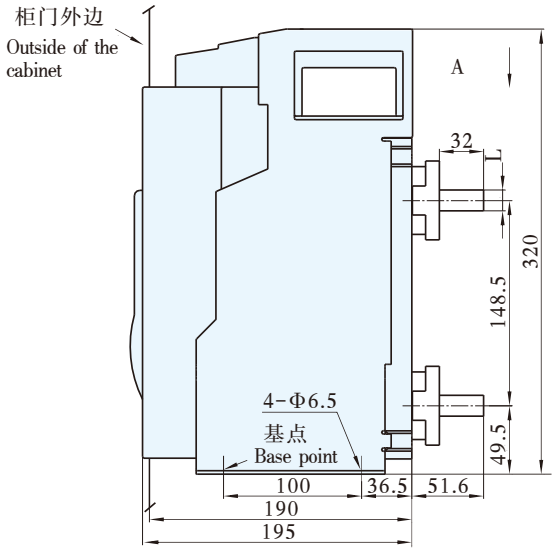
垂直（后置）
Vertical (back set)

C向 Direction C

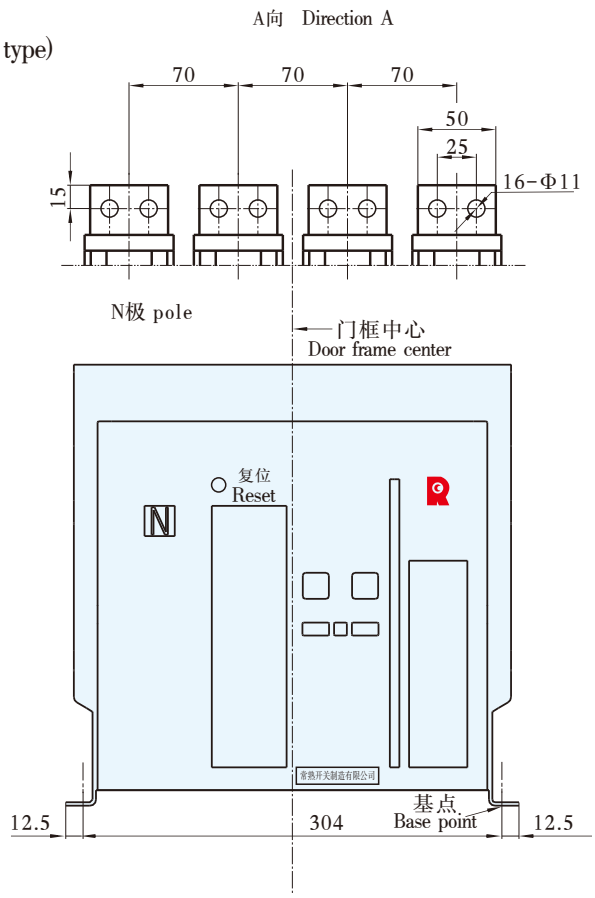


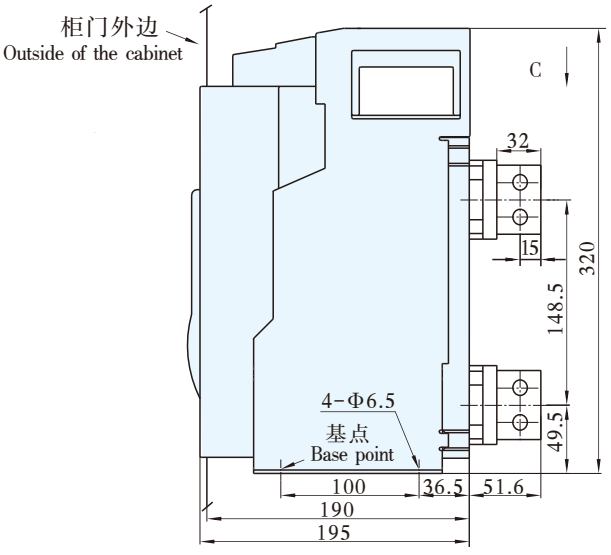
CW3-1600四极智能型万能式断路器（固定式）
CW3-1600 Intelligent Air Circuit Breaker with four poles (fixed type)

电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10

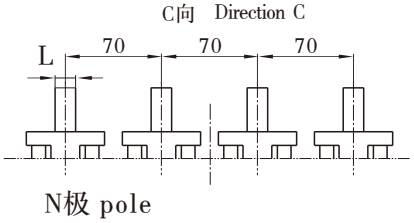


水平（后置）
Horizontal(back set)



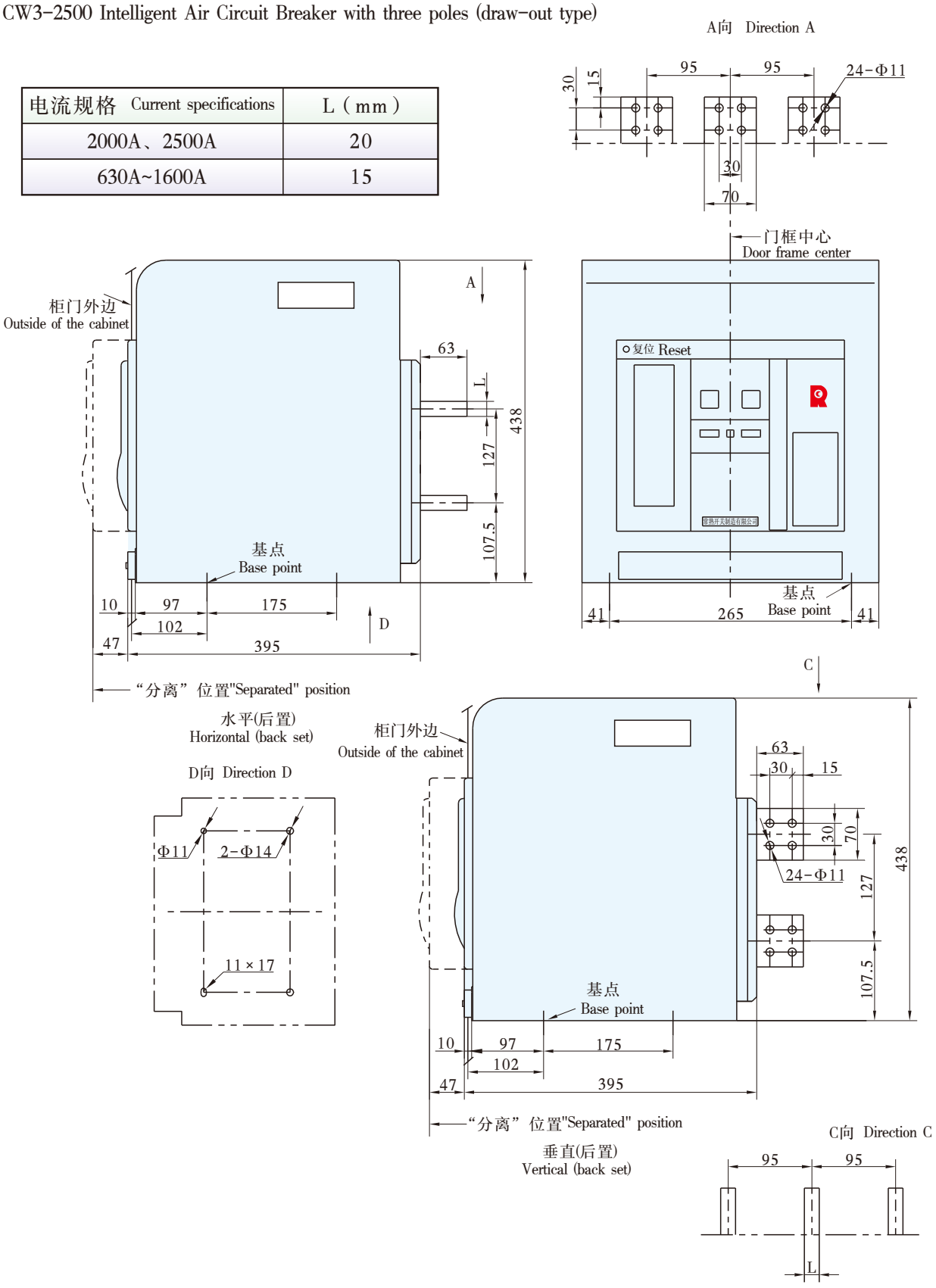


垂直（后置）
Vertical (back set)



CW3-2500三极智能型万能式断路器（抽屉式）
CW3-2500 Intelligent Air Circuit Breaker with three poles (draw-out type)

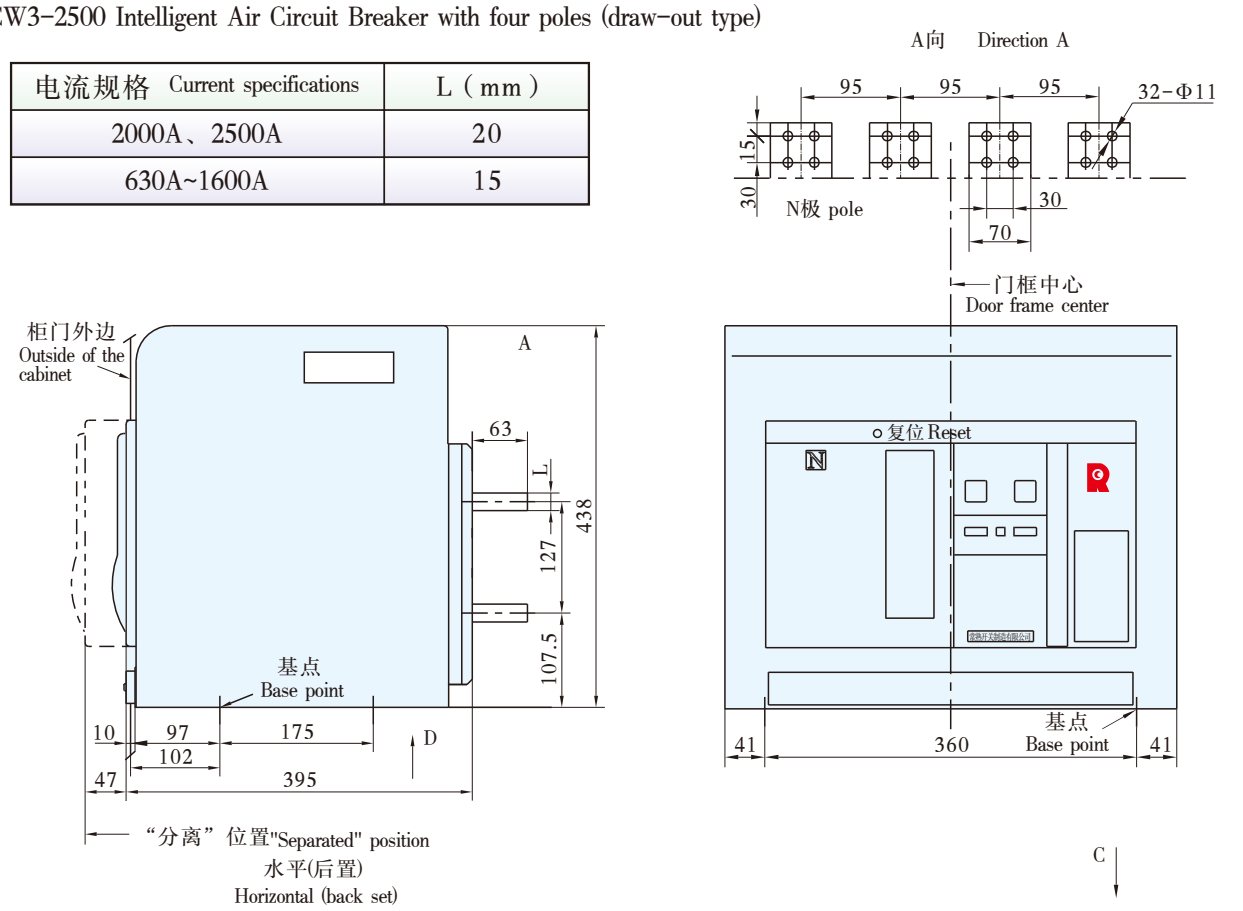
电流规格 Current specifications	L（mm）
2000A、2500A	20
630A~1600A	15

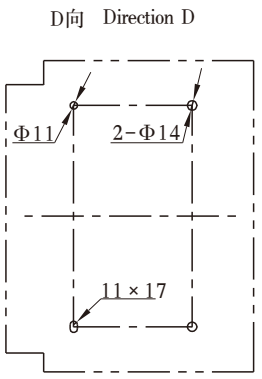


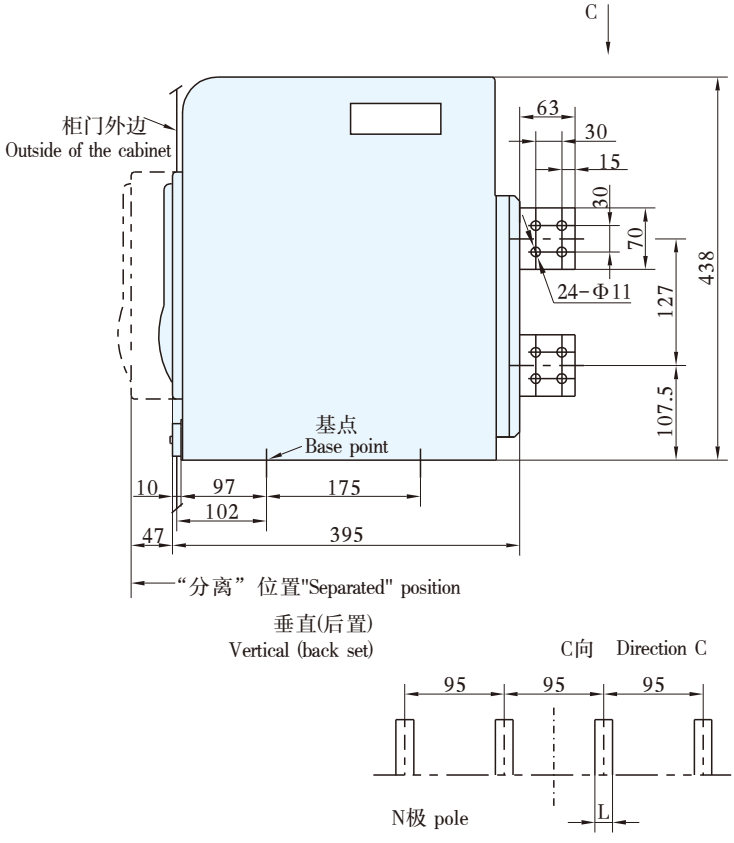
CW3-2500四极智能型万能式断路器（抽屉式）

CW3-2500 Intelligent Air Circuit Breaker with four poles (draw-out type)

电流规格 Current specifications	L（mm）
2000A、2500A	20
630A~1600A	15

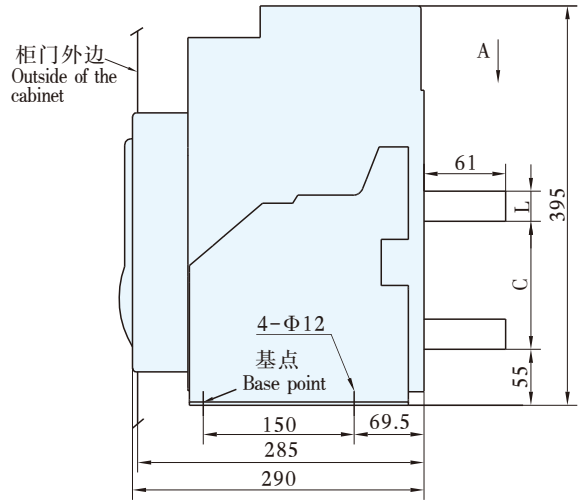


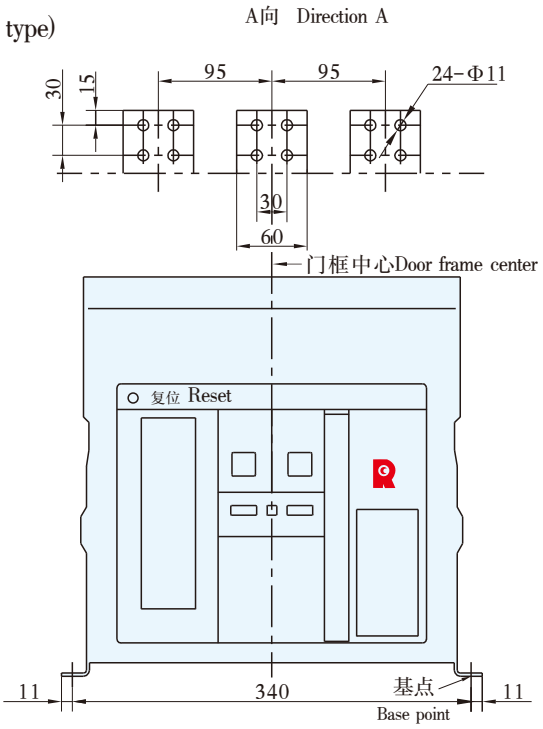




CW3-2500三极智能型万能式断路器（固定式）
CW3-2500 Intelligent Air Circuit Breaker with three poles (fixed type)

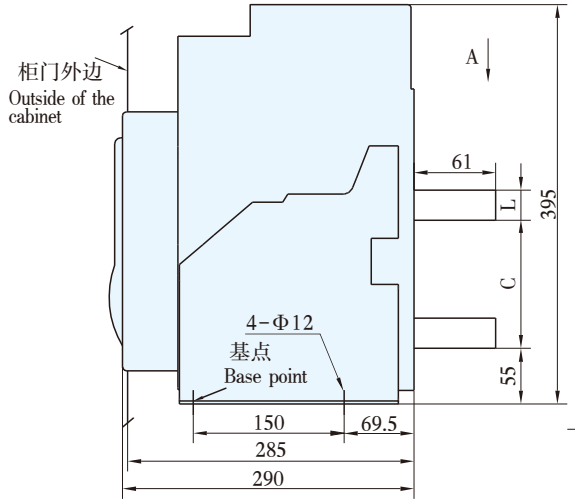
电流规格 Current specifications	L（mm）	C（mm）
2000A、2500A	20	132
630A~1600A	15	134.5

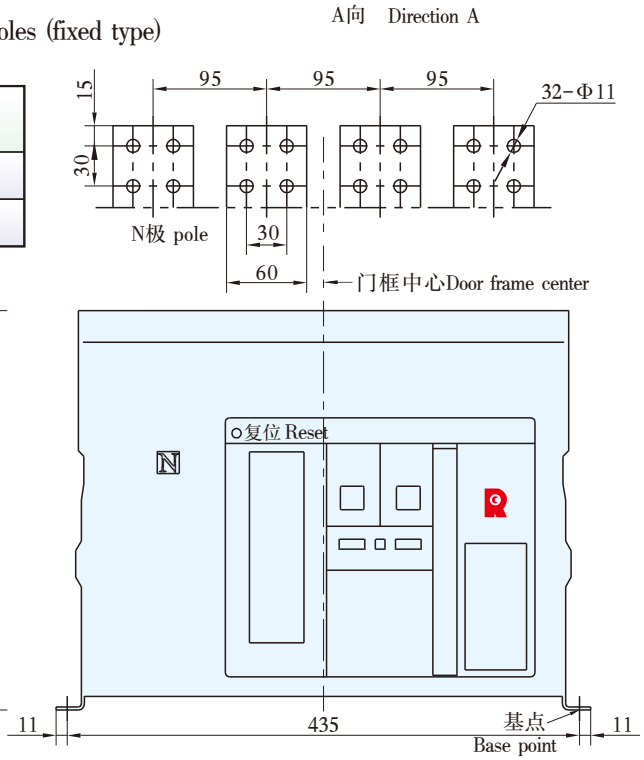




CW3-2500四极智能型万能式断路器（固定式）
CW3-2500 Intelligent Air Circuit Breaker with four poles (fixed type)

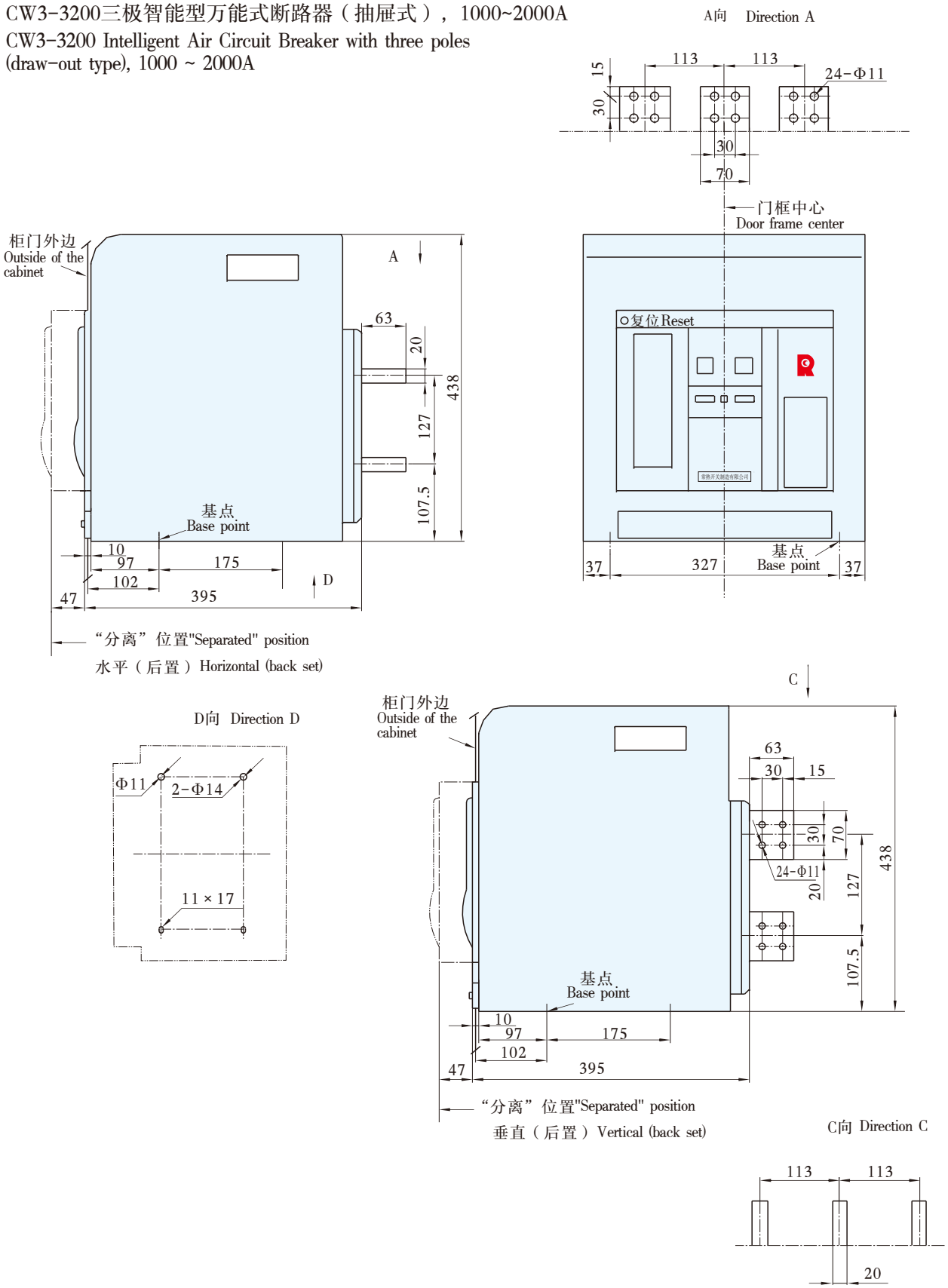
电流规格 Current specifications	L（mm）	C（mm）
2000A、2500A	20	132
630A~1600A	15	134.5





CW3-3200三极智能型万能式断路器（抽屉式），1000~2000A

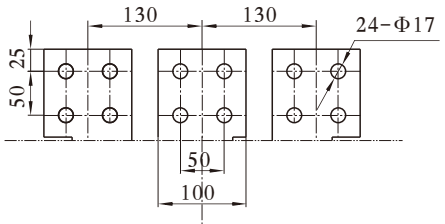
CW3-3200 Intelligent Air Circuit Breaker with three poles (draw-out type), 1000 ~ 2000A

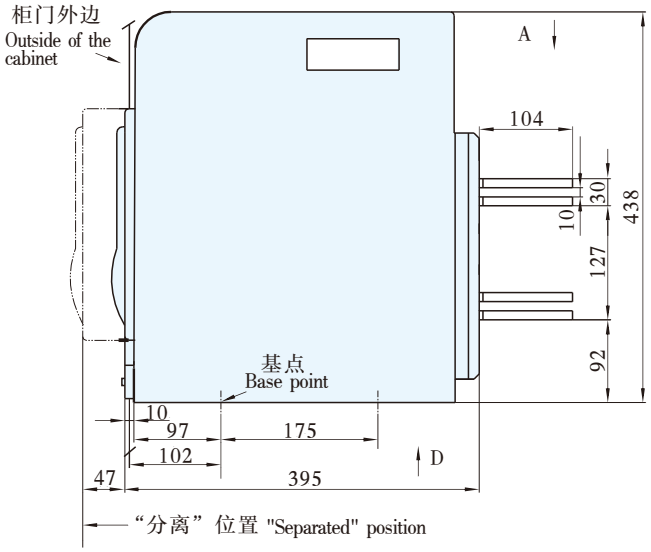


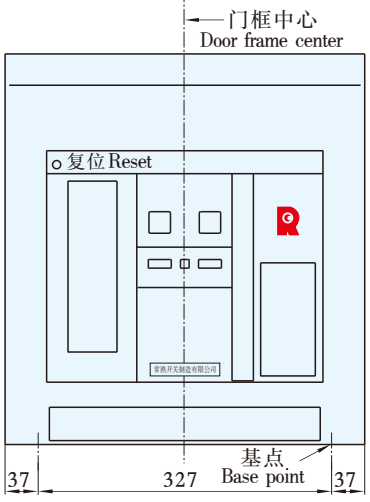
CW3-3200三极智能型万能式断路器（抽屉式），2500~3200A

CW3-3200 Intelligent Air Circuit Breaker with three poles (draw-out type), 2500 ~ 3200A

A向 Direction A

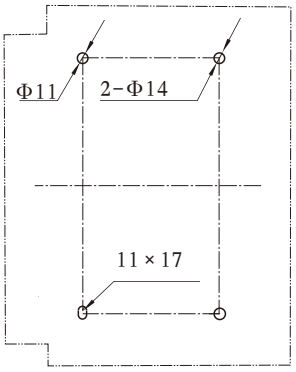




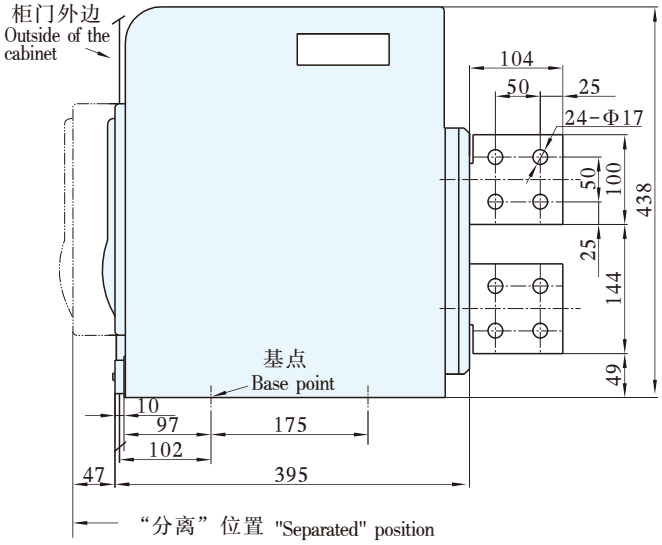


水平（后置）Horizontal (back set)

D向 Direction D

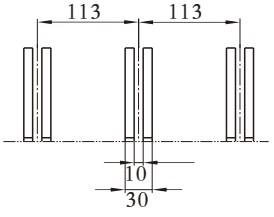


C



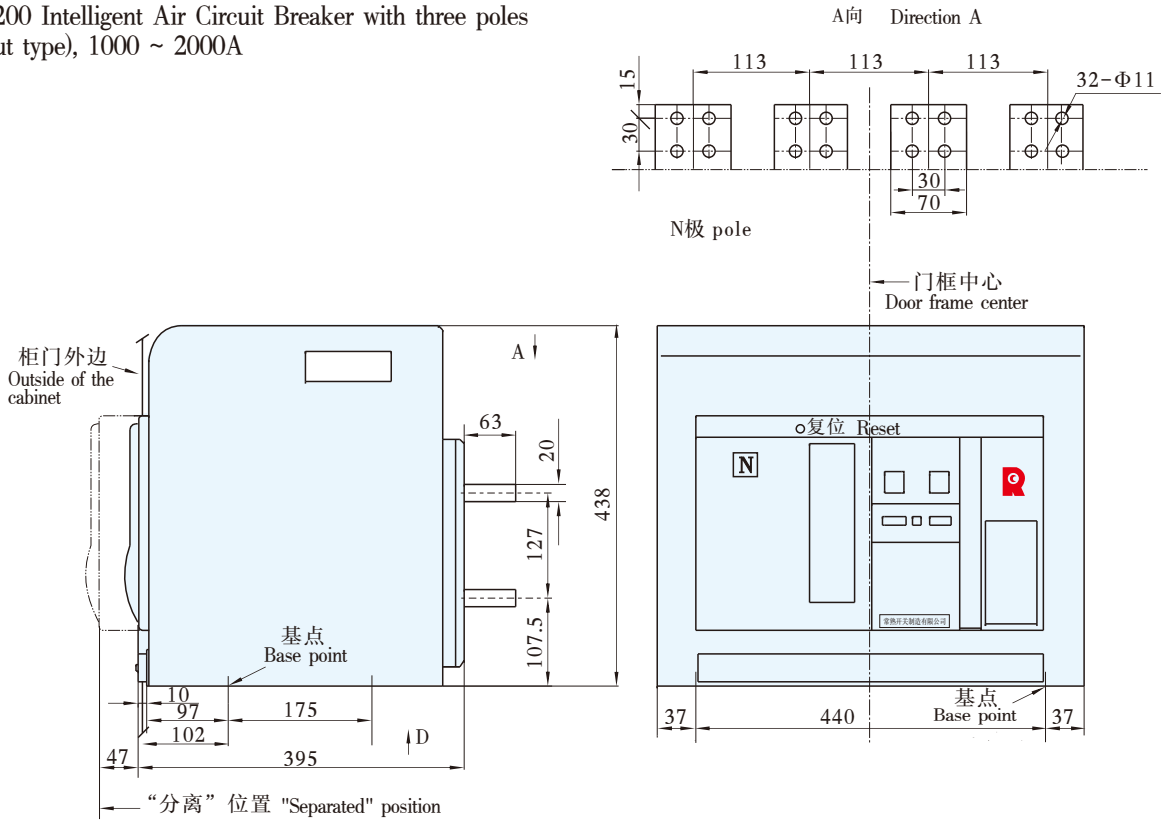
垂直（后置）Vertical (back set)

C向 Direction C

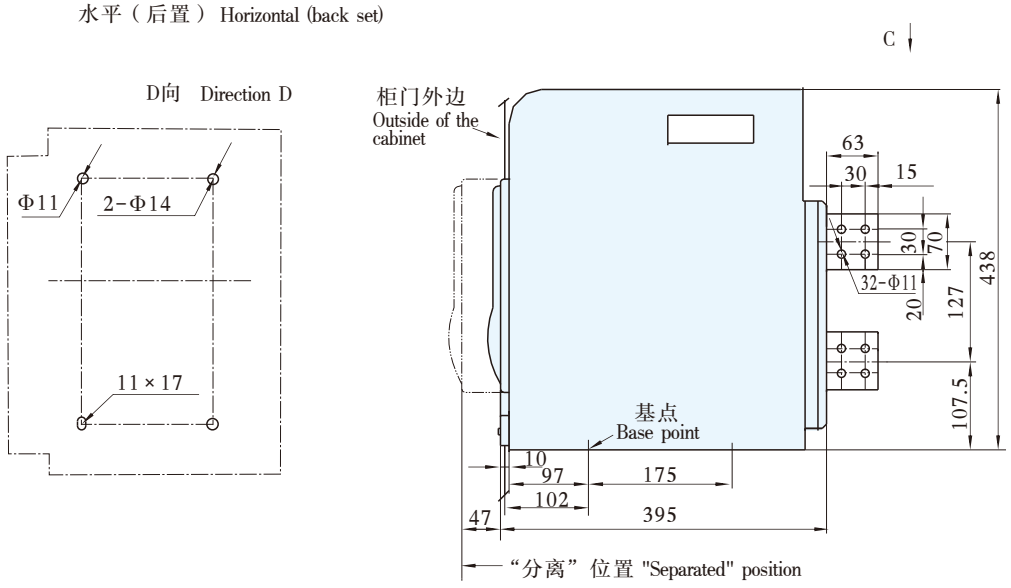


CW3-3200四极智能型万能式断路器（抽屉式），1000~2000A

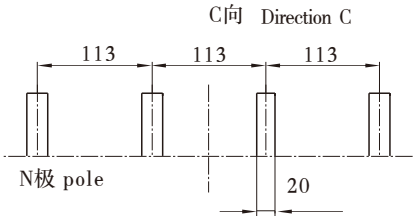
CW3-3200 Intelligent Air Circuit Breaker with three poles (draw-out type), 1000 ~ 2000A



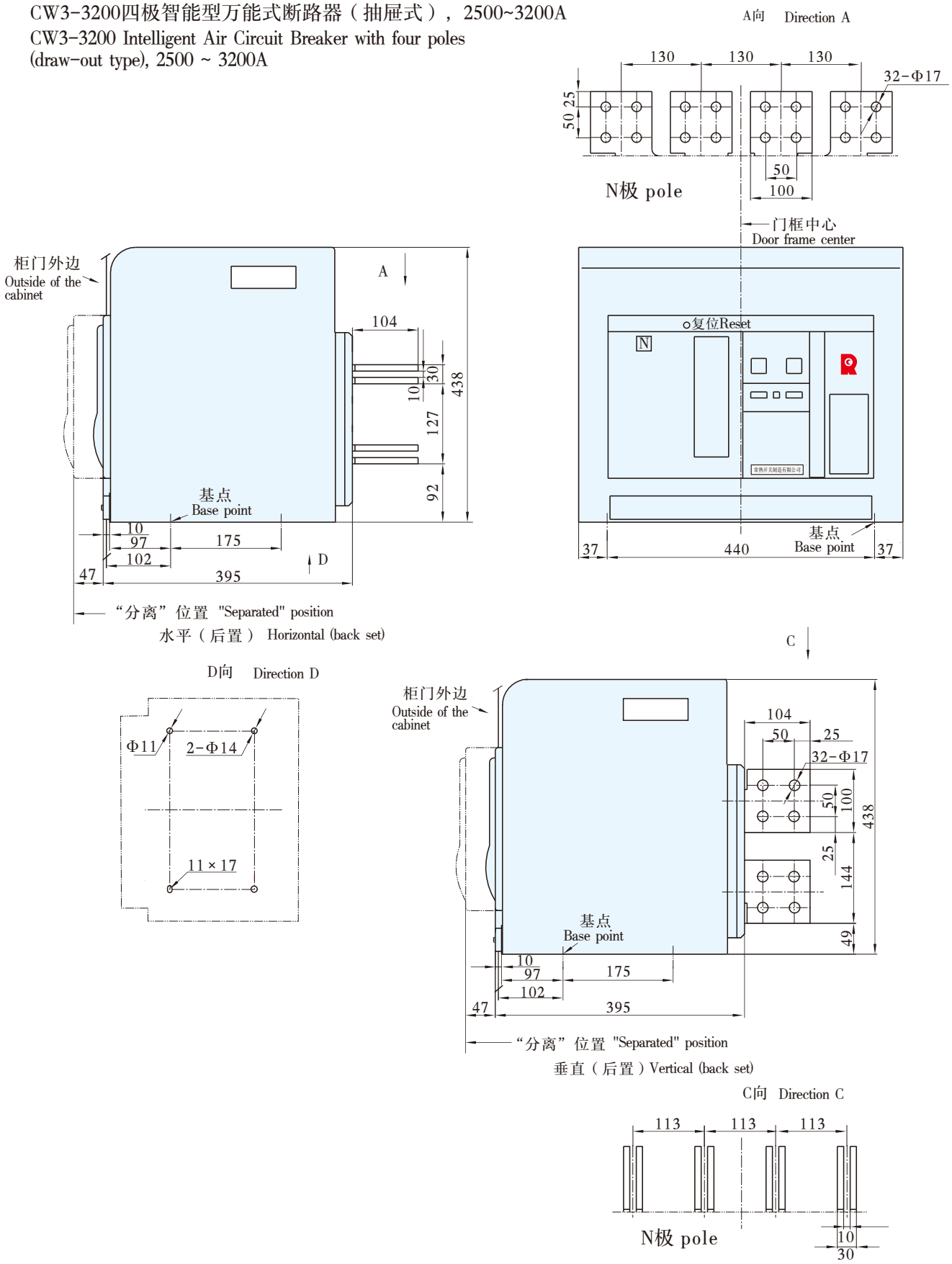
水平（后置） Horizontal (back set)



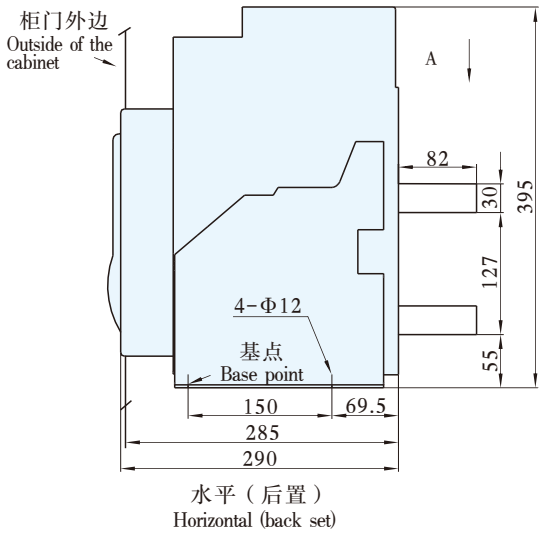
垂直（后置） Vertical (back set)

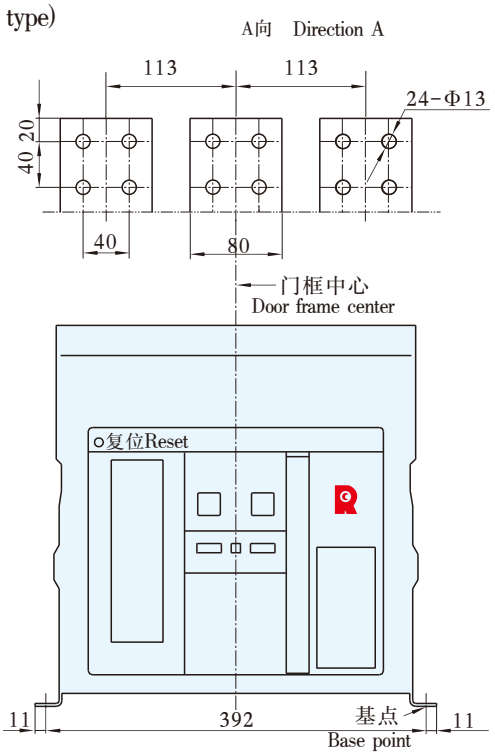


CW3-3200四极智能型万能式断路器（抽屉式），2500~3200A
CW3-3200 Intelligent Air Circuit Breaker with four poles (draw-out type), 2500 ~ 3200A

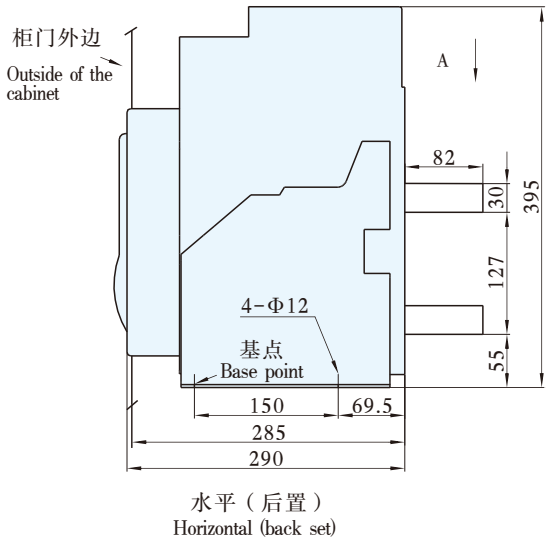


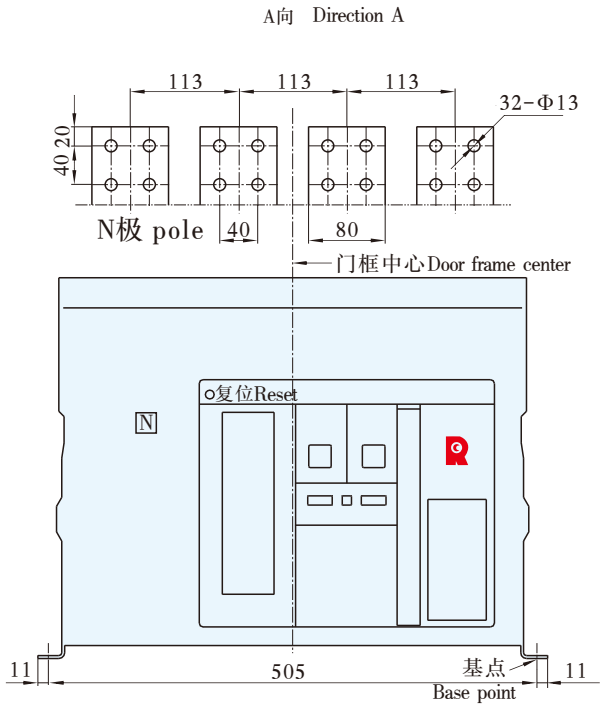
CW3-3200三极智能型万能式断路器（固定式）
CW3-3200 Intelligent Air Circuit Breaker with three poles (fixed type)





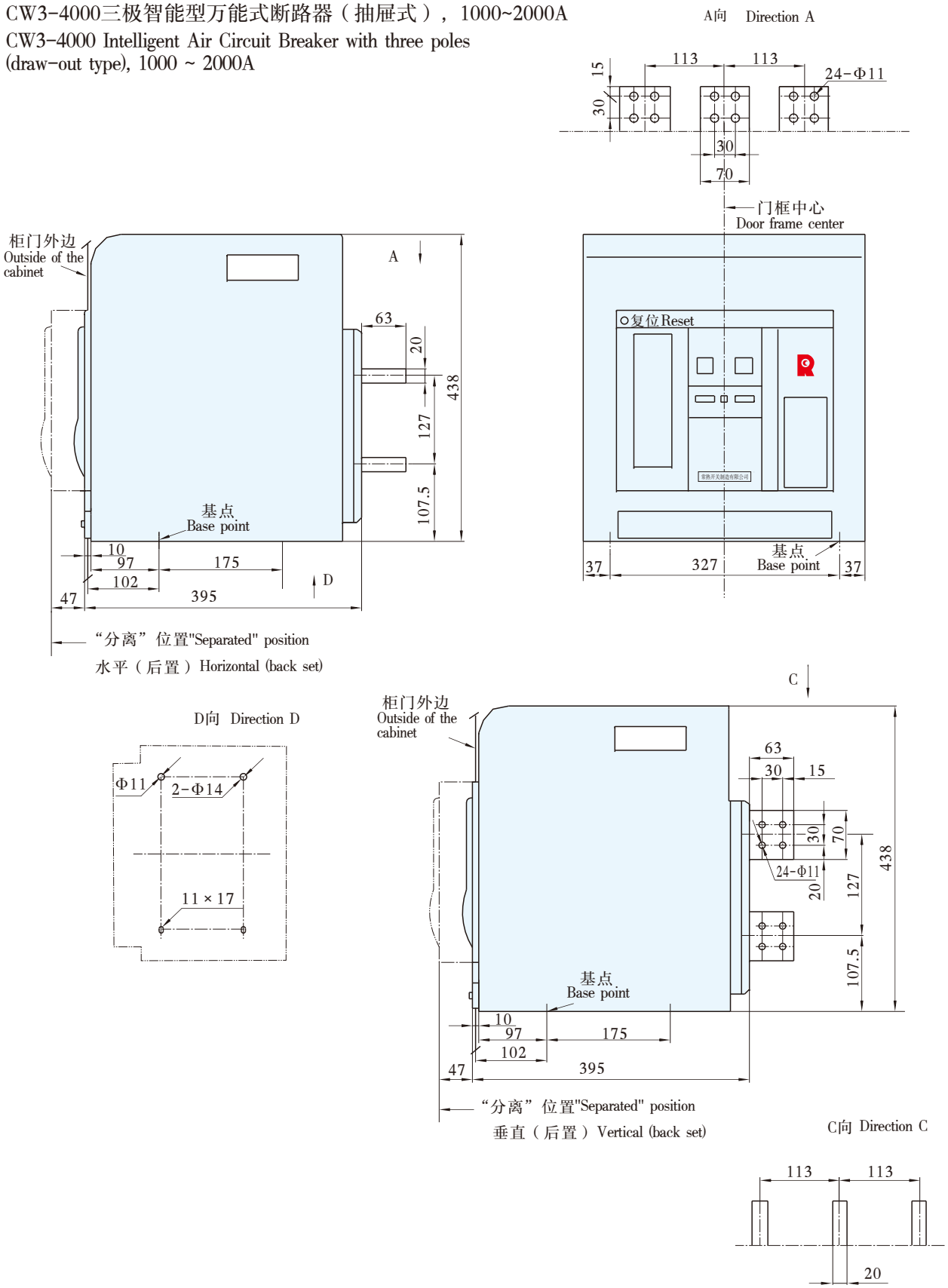
CW3-3200四极智能型万能式断路器（固定式）
CW3-3200 Intelligent Air Circuit Breaker with four poles (fixed type)





CW3-4000三极智能型万能式断路器（抽屉式），1000~2000A

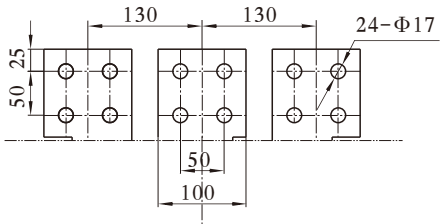
CW3-4000 Intelligent Air Circuit Breaker with three poles (draw-out type), 1000 ~ 2000A

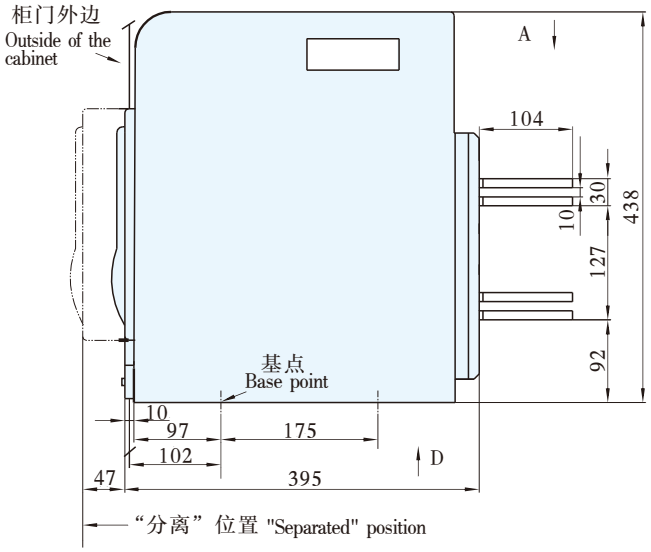


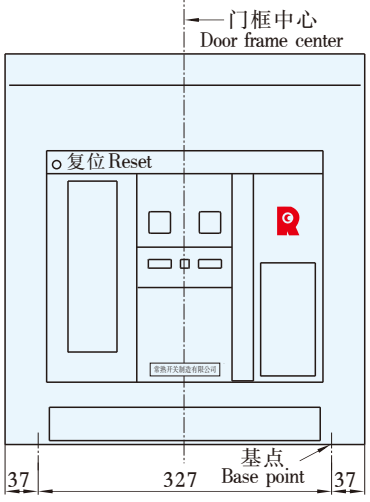
CW3-4000三极智能型万能式断路器（抽屉式），2500~4000A

CW3-4000 Intelligent Air Circuit Breaker with three poles (draw-out type), 2500 ~ 4000A

A向 Direction A

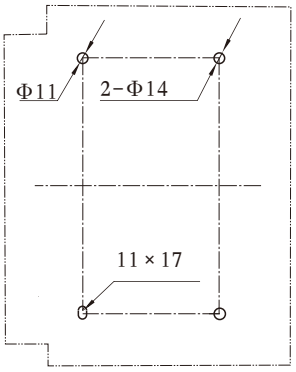




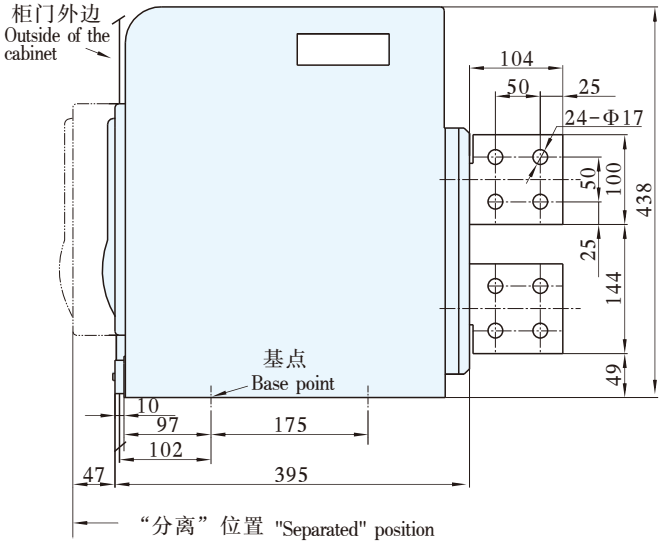


水平（后置）Horizontal (back set)

D向 Direction D

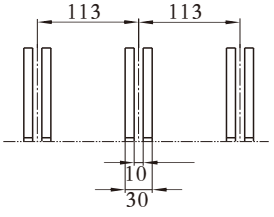


C



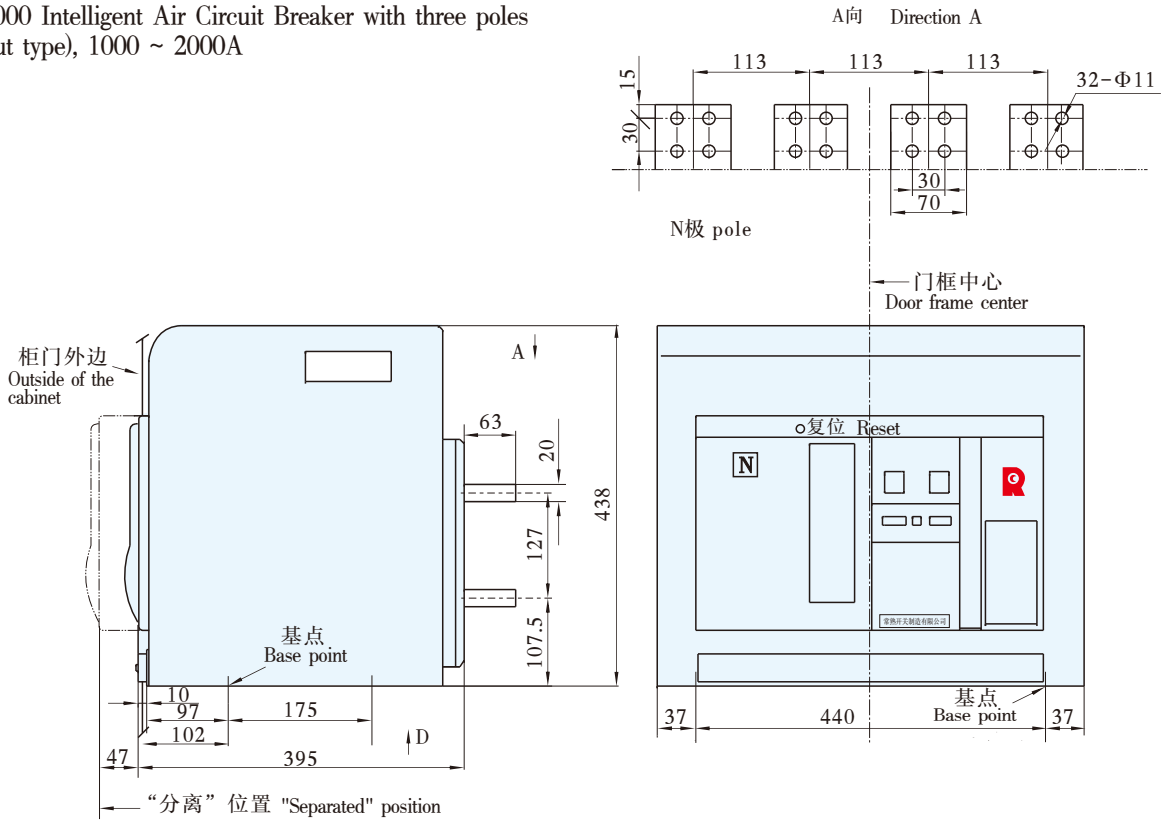
垂直（后置）Vertical (back set)

C向 Direction C

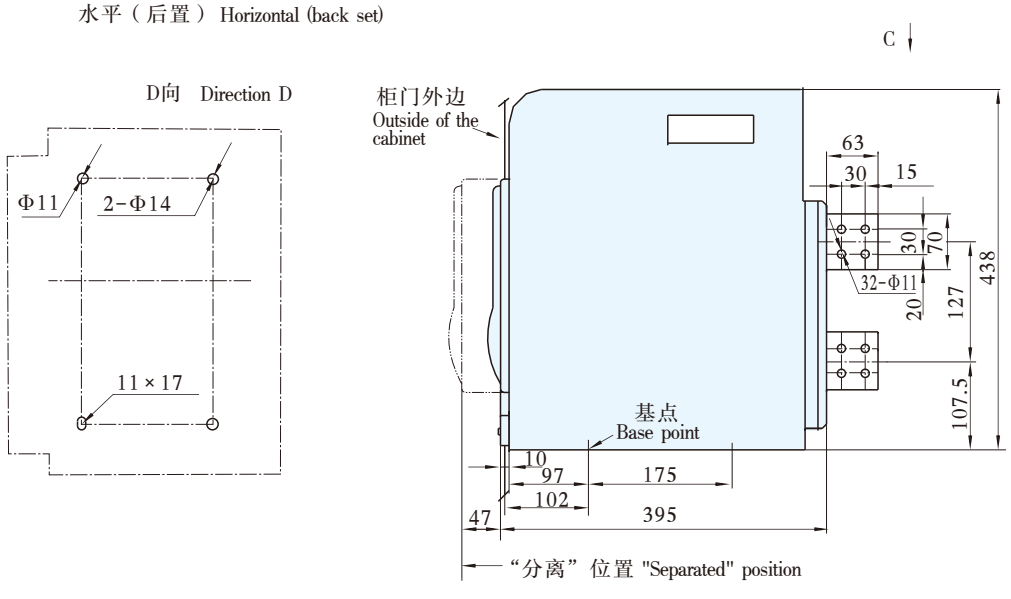


CW3-4000四极智能型万能式断路器（抽屉式），1000~2000A

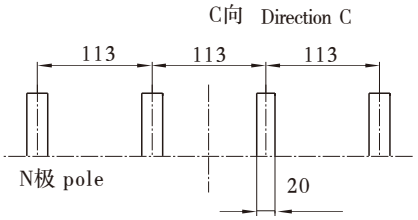
CW3-4000 Intelligent Air Circuit Breaker with three poles (draw-out type), 1000 ~ 2000A



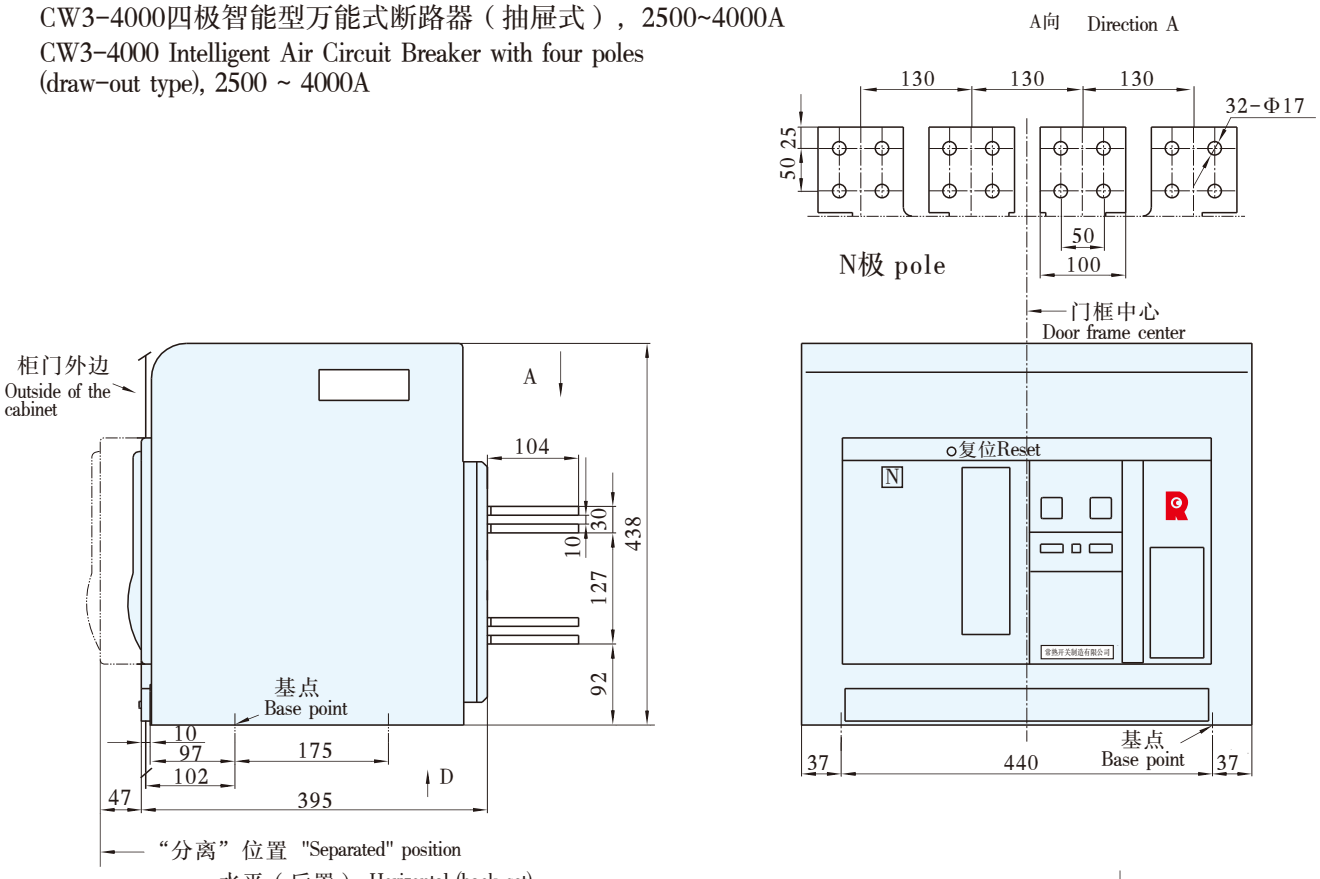
水平（后置） Horizontal (back set)

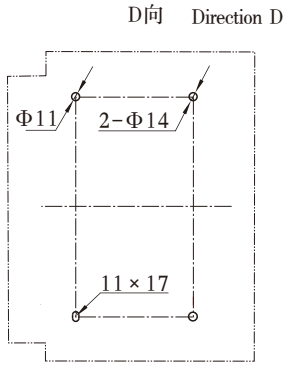


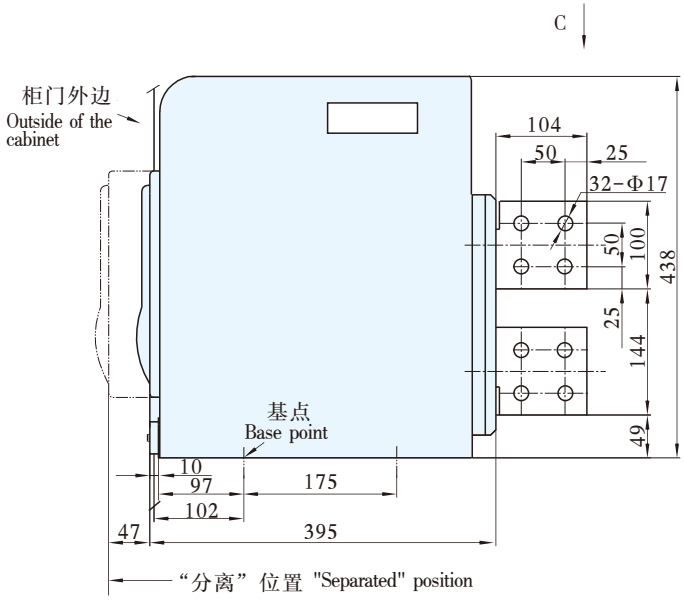
垂直（后置） Vertical (back set)

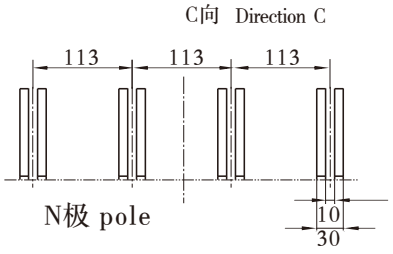


CW3-4000四极智能型万能式断路器（抽屉式），2500~4000A
CW3-4000 Intelligent Air Circuit Breaker with four poles (draw-out type), 2500 ~ 4000A

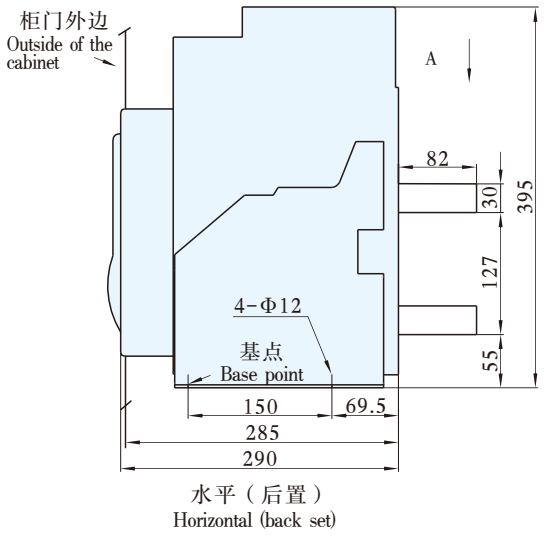


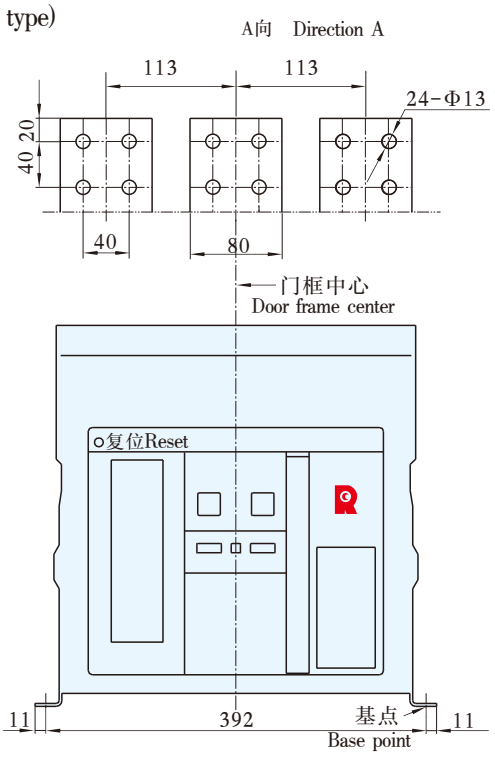




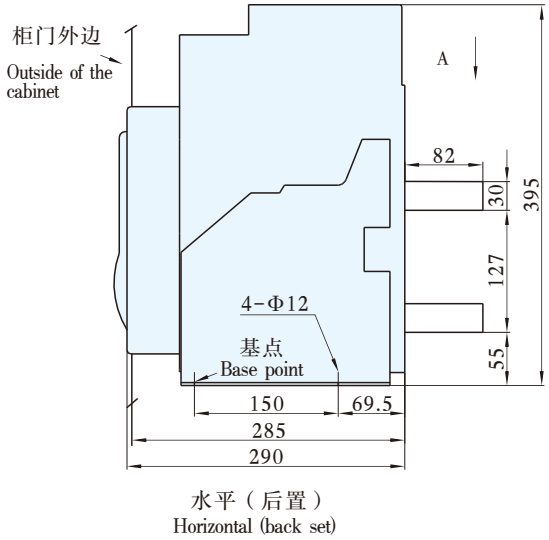


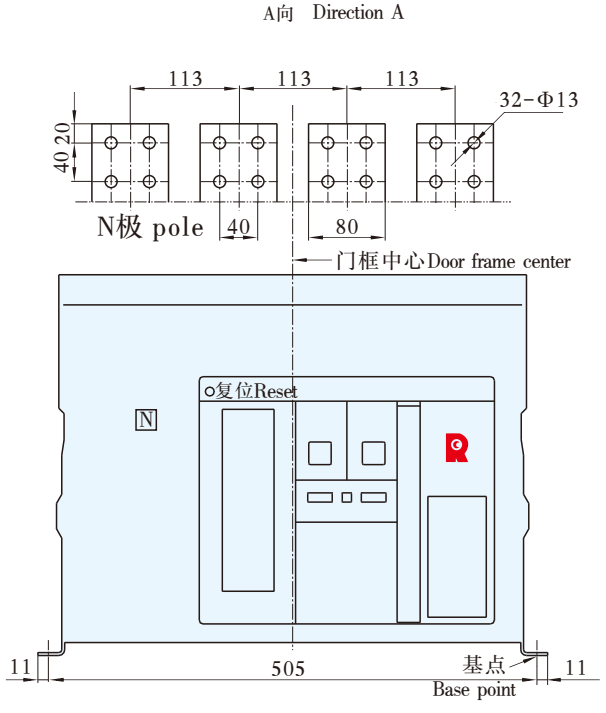
CW3-4000三极智能型万能式断路器（固定式）
CW3-4000 Intelligent Air Circuit Breaker with three poles (fixed type)



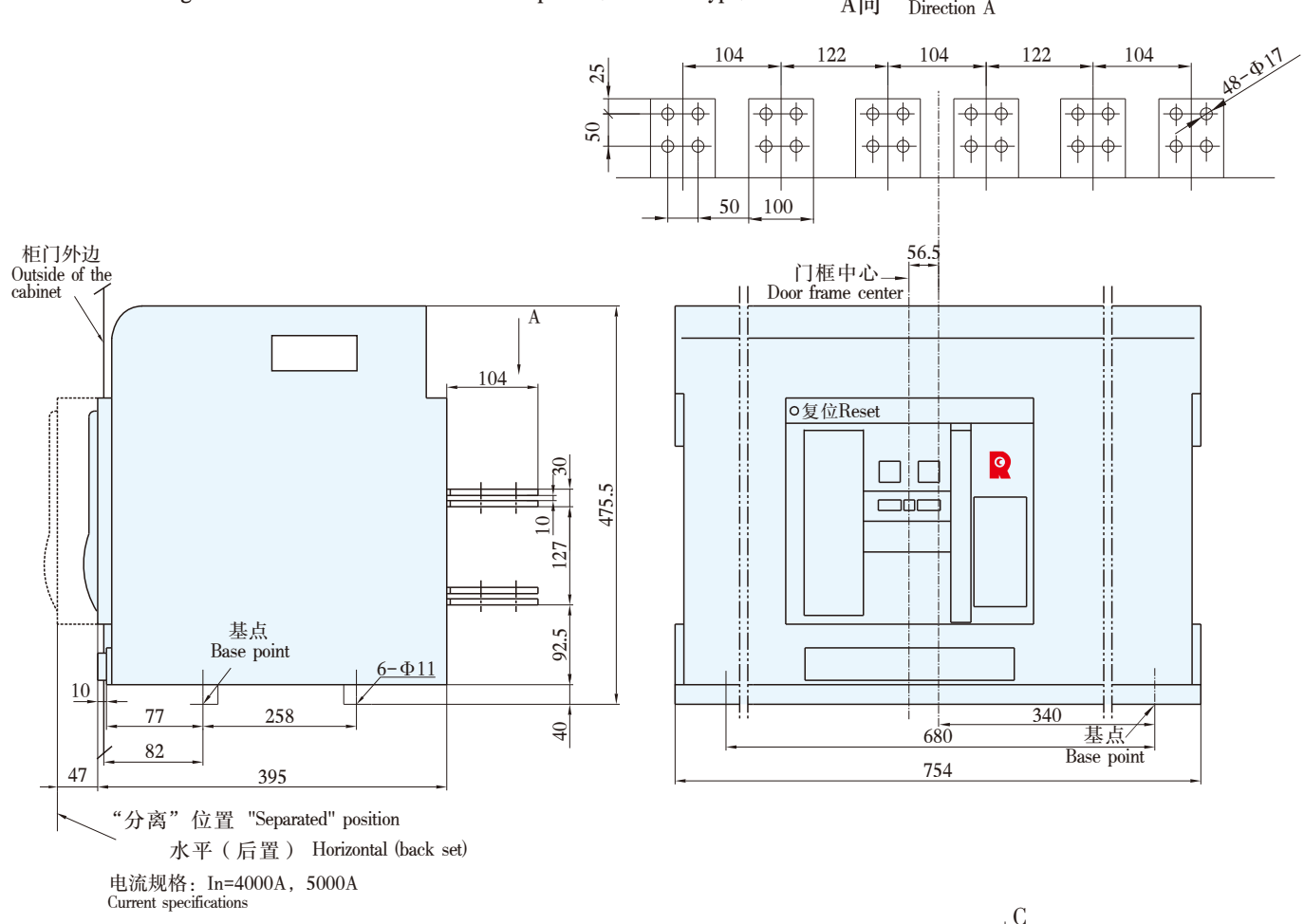


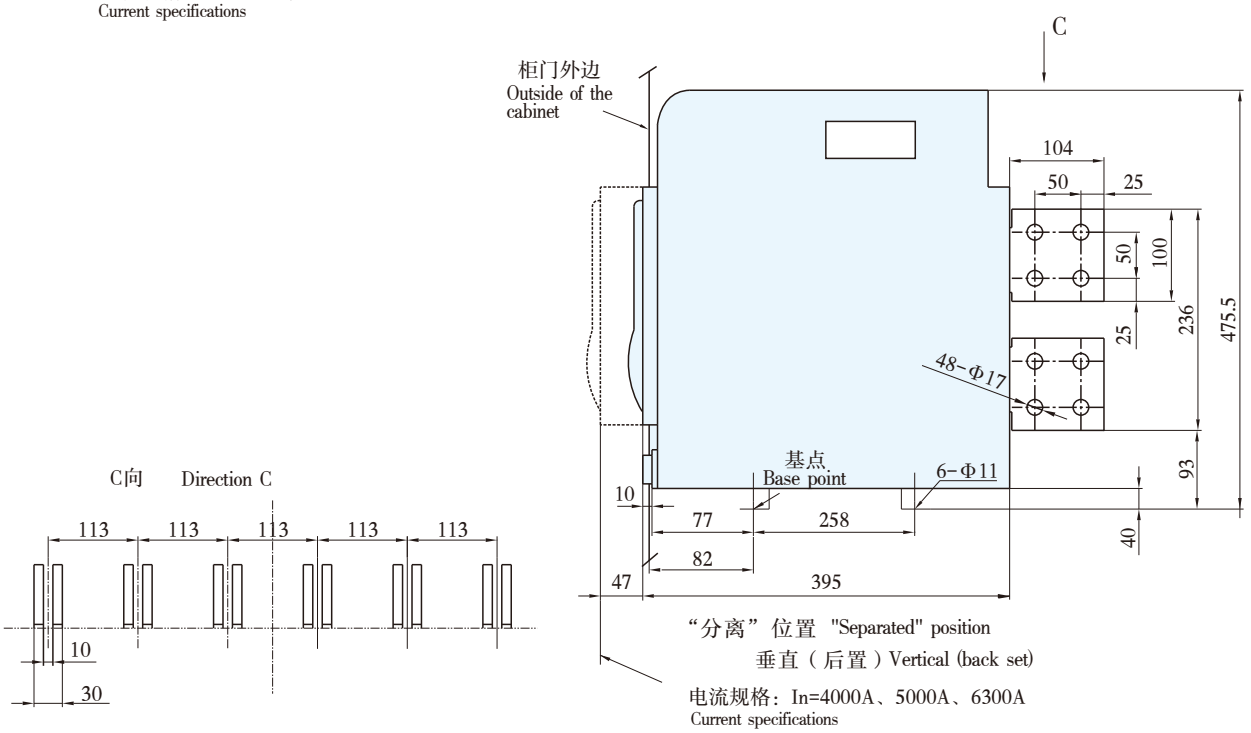
CW3-4000四极智能型万能式断路器（固定式）
CW3-4000 Intelligent Air Circuit Breaker with four poles (fixed type)



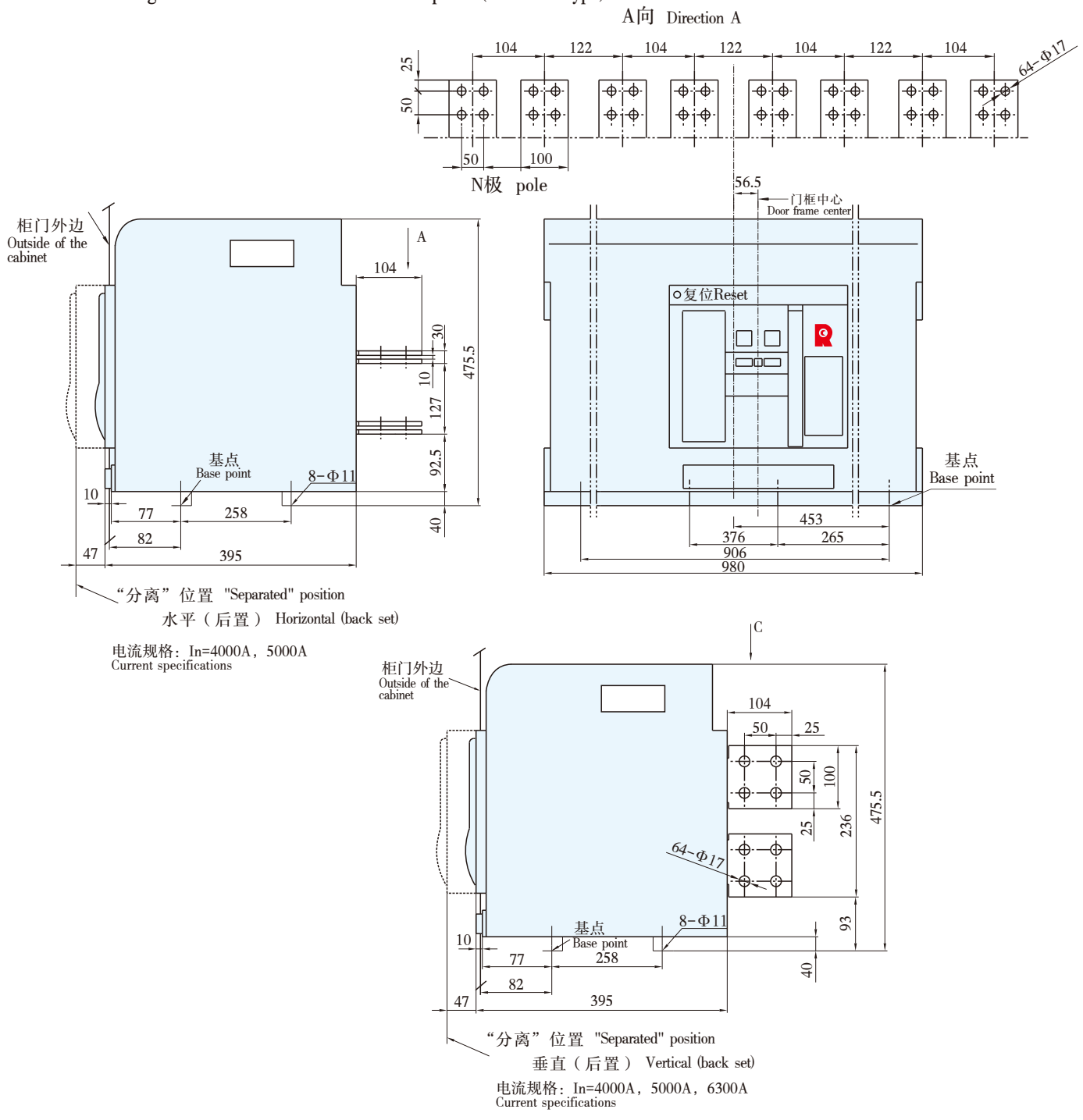


CW3-6300三极智能型万能式断路器（抽屉式）
CW3-6300 Intelligent Air Circuit Breaker with three poles (draw-out type)

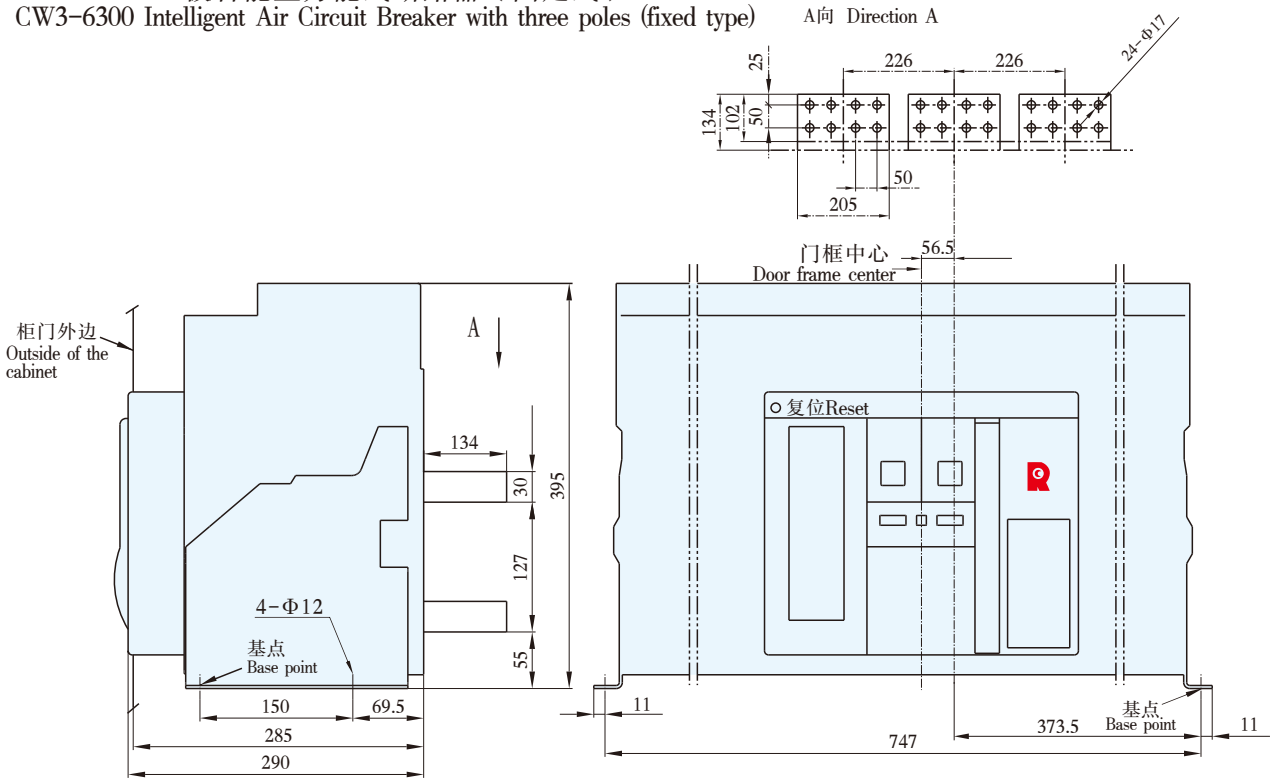




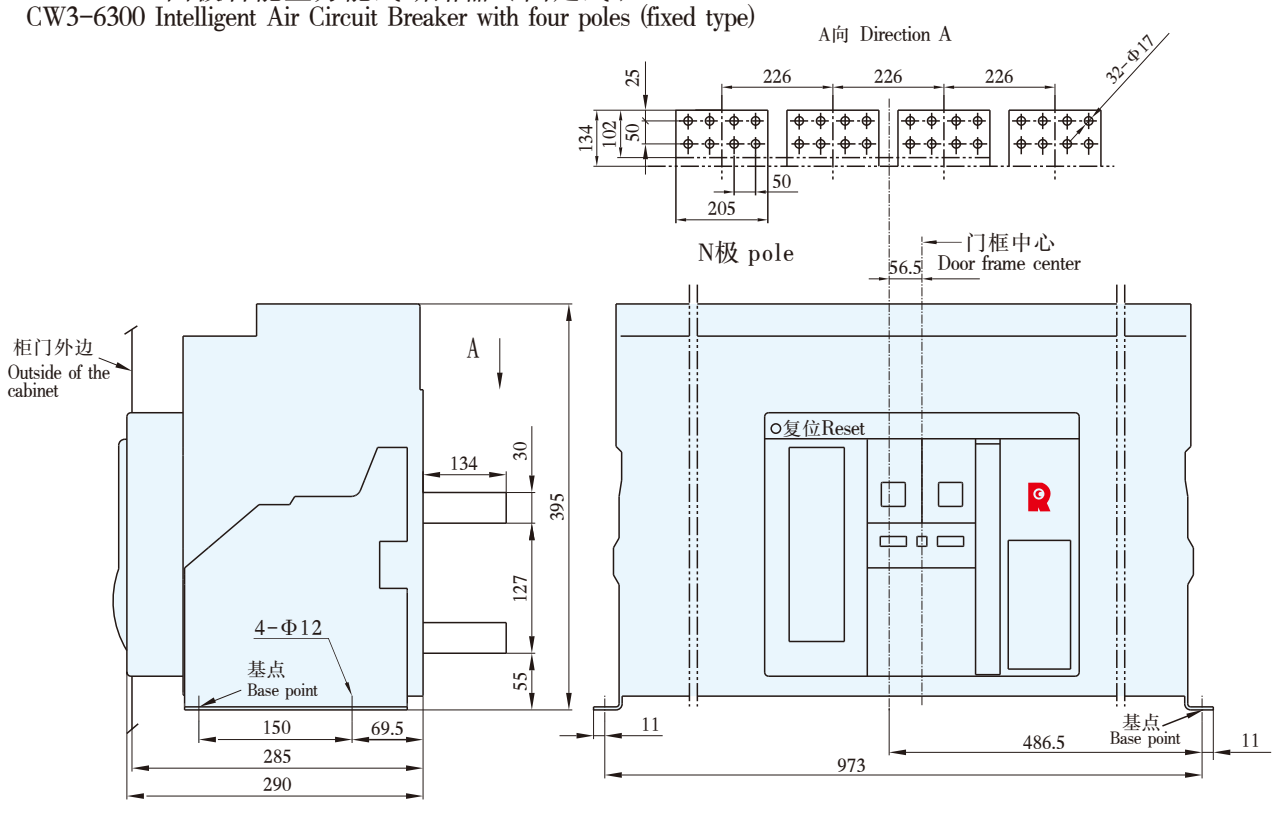
CW3-6300四极智能型万能式断路器（抽屉式）
CW3-6300 Intelligent Air Circuit Breaker with four poles (draw-out type)



CW3-6300三极智能型万能式断路器（固定式）
CW3-6300 Intelligent Air Circuit Breaker with three poles (fixed type)

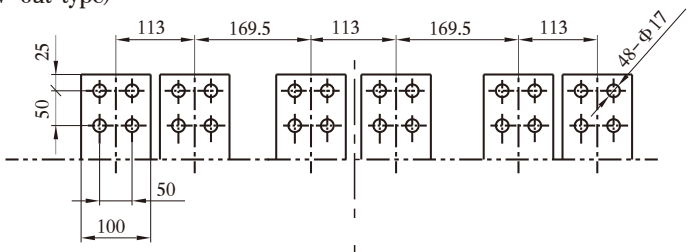


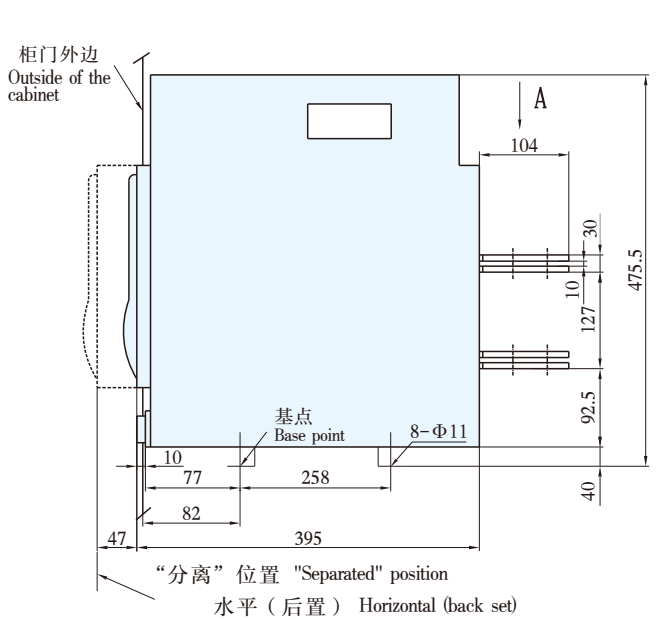
CW3-6300四极智能型万能式断路器（固定式）
CW3-6300 Intelligent Air Circuit Breaker with four poles (fixed type)



CW3-7400三极智能型万能式断路器（抽屉式）
CW3-7400 Intelligent Air circuit Breaker with three poles(draw-out type)

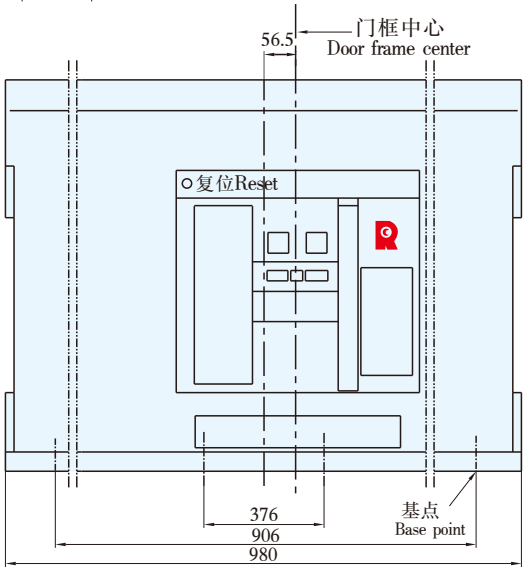
A向 Direction A



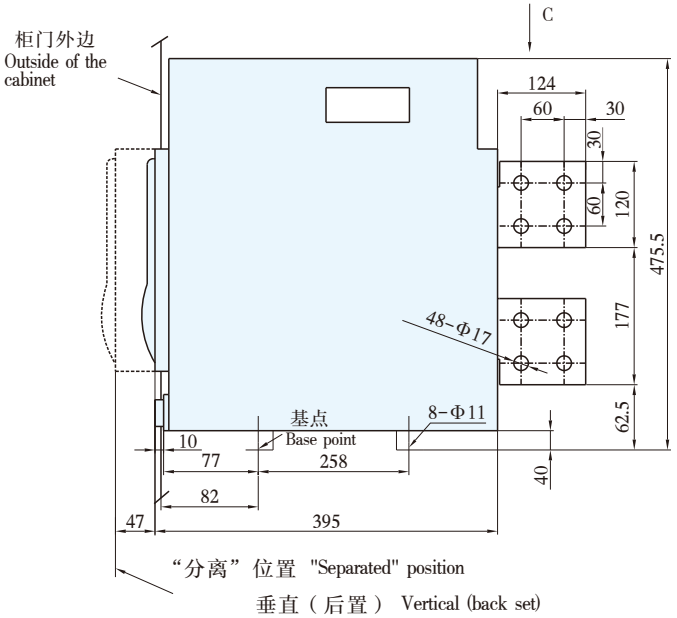


“分离”位置 "Separated" position

水平（后置） Horizontal (back set)



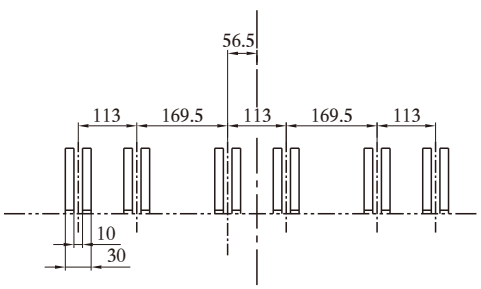
电流规格：In=4000A、5000A、6300A
Current specifications



“分离”位置 "Separated" position

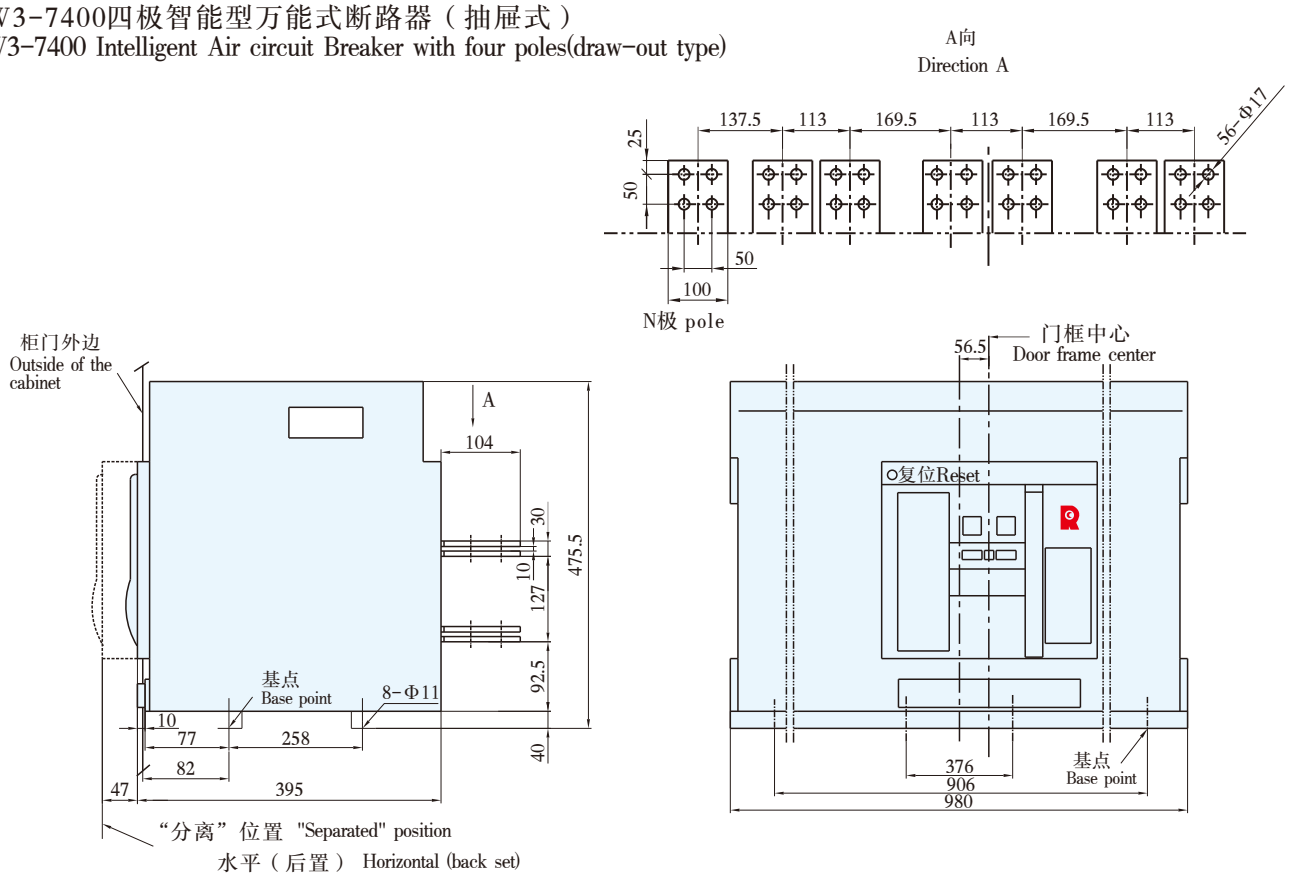
垂直（后置） Vertical (back set)

C向
Direction C

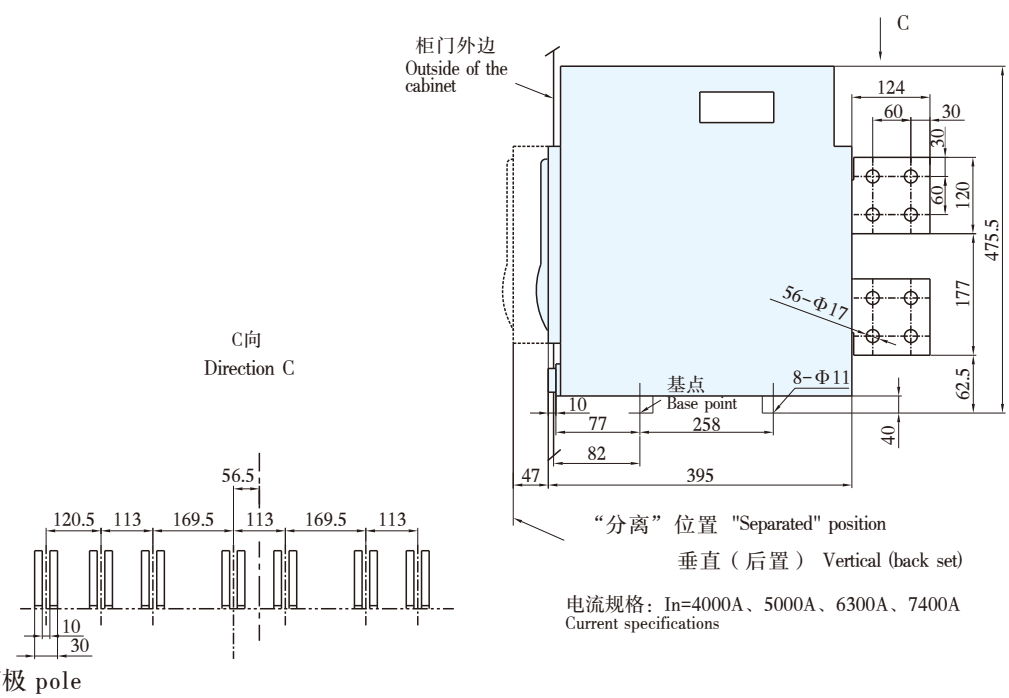


电流规格：In=4000A、5000A、6300A、7400A
Current specifications

CW3-7400四极智能型万能式断路器（抽屉式）
CW3-7400 Intelligent Air circuit Breaker with four poles(draw-out type)

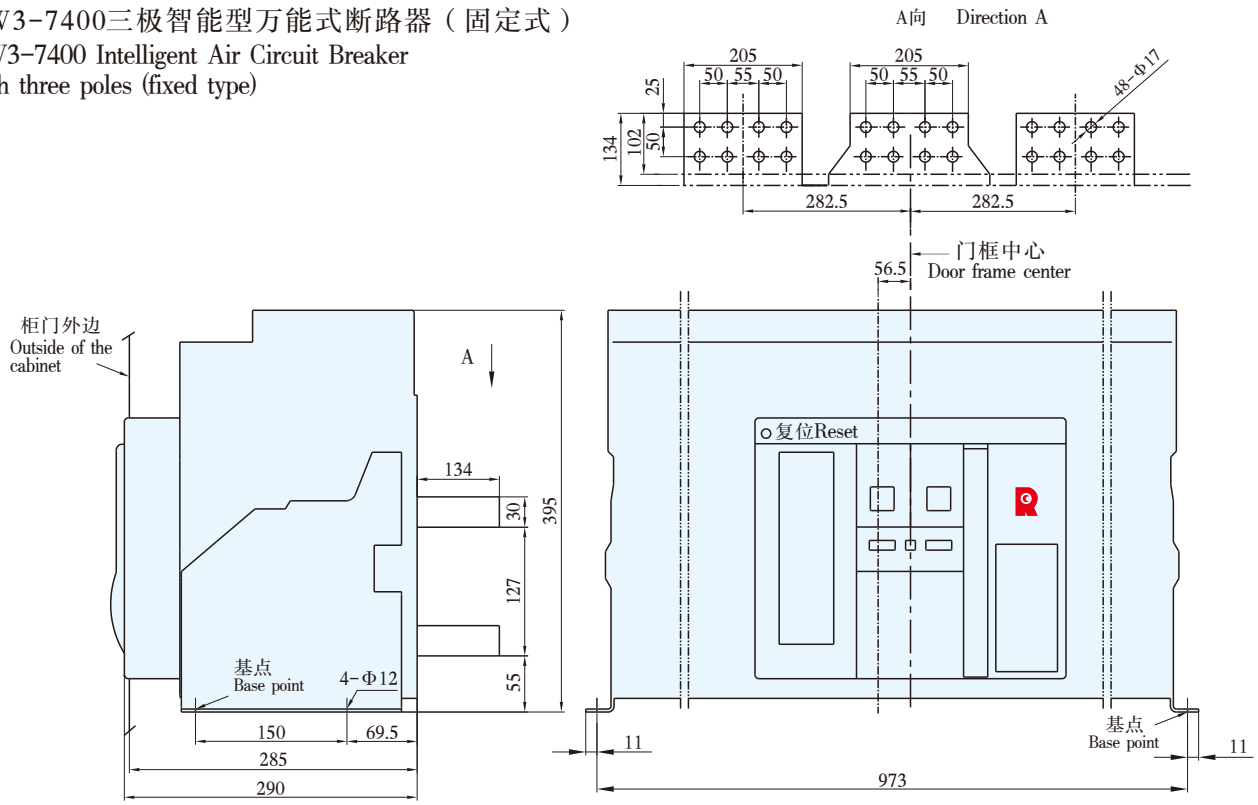


电流规格：In=4000A、5000A、6300A
Current specifications

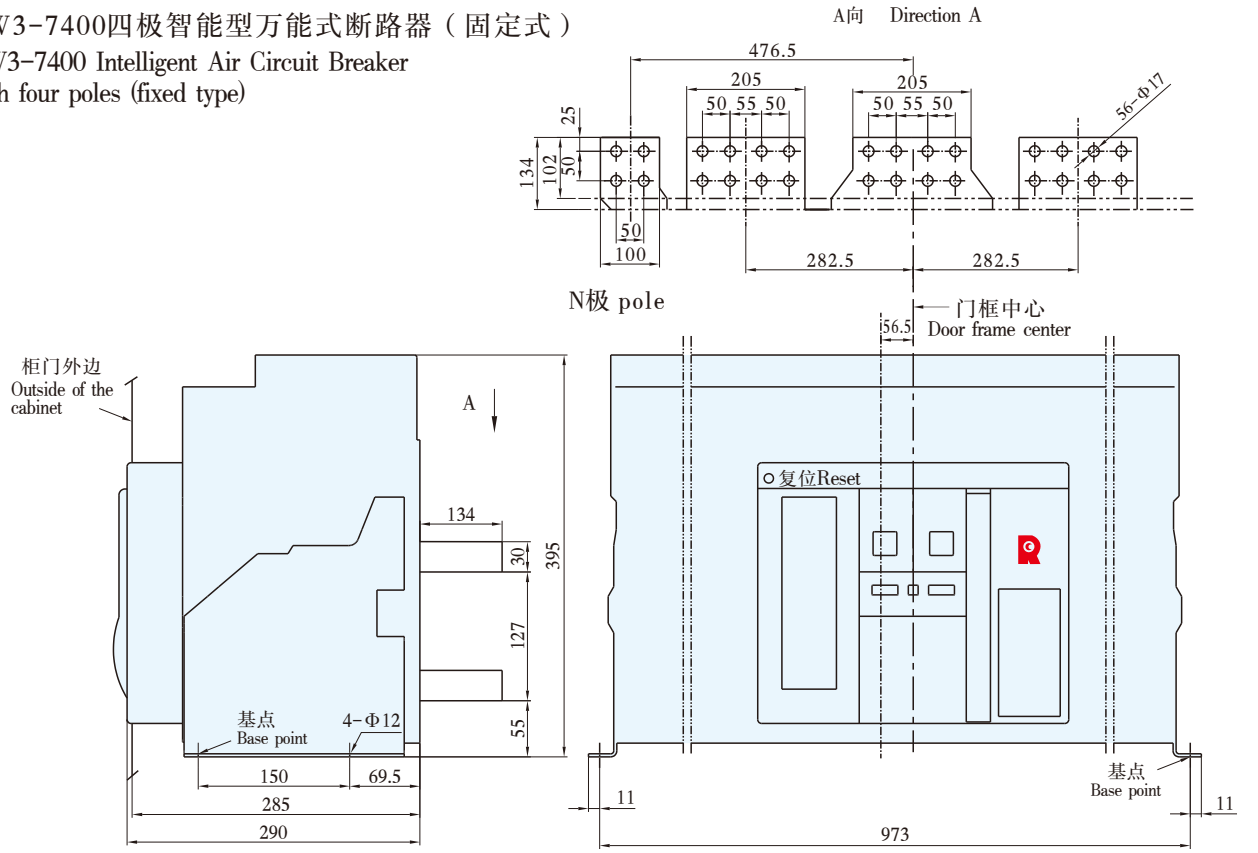


电流规格：In=4000A、5000A、6300A、7400A
Current specifications

CW3-7400三极智能型万能式断路器（固定式）
CW3-7400 Intelligent Air Circuit Breaker with three poles (fixed type)



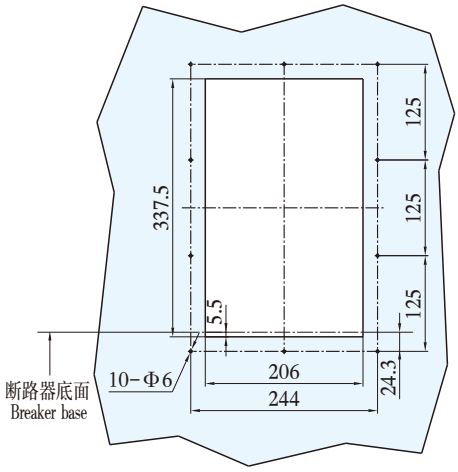
CW3-7400四极智能型万能式断路器（固定式）
CW3-7400 Intelligent Air Circuit Breaker with four poles (fixed type)



CW3-1000门框开孔尺寸 Cutout Dimensions of CW3-1000 doorframe

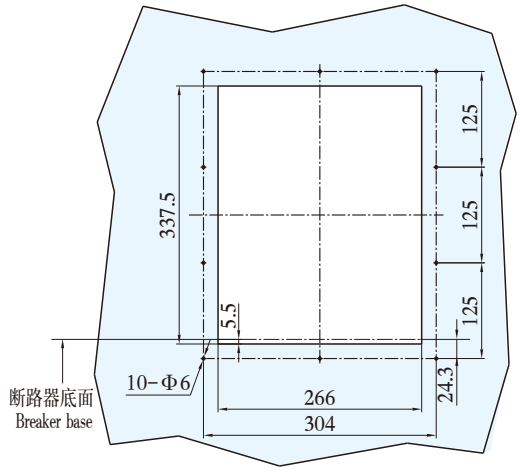
CW3-1000三极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为222mm

CW3-1000 Intelligent Air Circuit Breaker with three poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterof thecircuitbreakertotherigh thinge of cabinet door should beat least 222mm



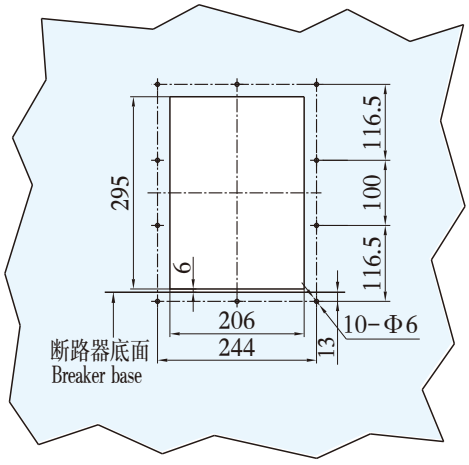
CW3-1000四极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为252mm

CW3-1000 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 252mm



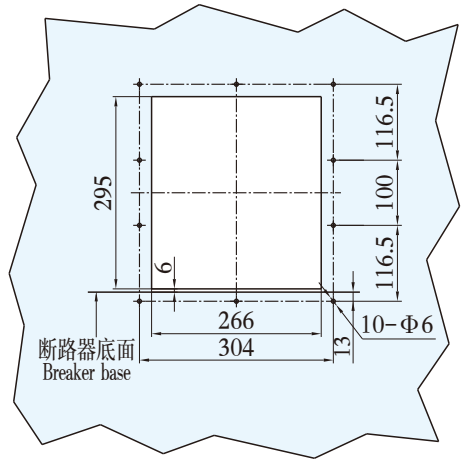
CW3-1000三极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为222mm

CW3-100IntelligentAirCircuitBreakerwiththreepoles(fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterofthecircuitbreakertotheright hinge of cabinet door should beat least 222mm



CW3-1000四极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为252mm

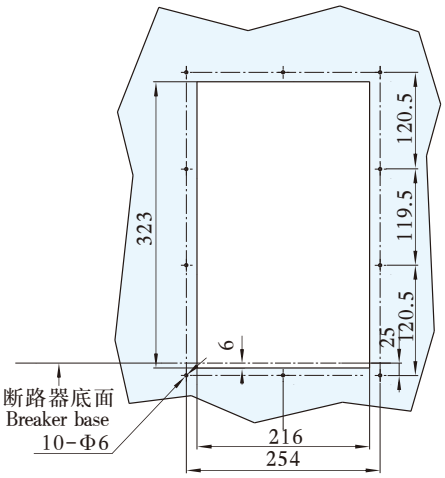
CW3-1000IntelligentAirCircuitBreakerwithfourpoles(fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panelcenterofthecircuitbreakertotherigh thinge of cabinet door should beat least 252mm



CW3-1600门框开孔尺寸 Cutout Dimensions of CW3-1600 doorframe

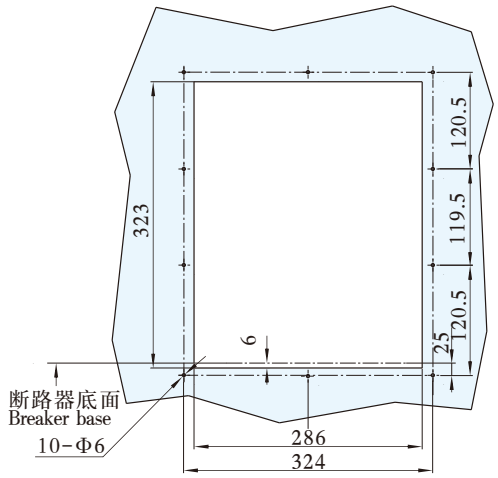
CW3-1600三极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为227mm

CW3-1600 Intelligent Air Circuit Breaker with three poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterof thecircuitbreakertotherigh thinge of cabinet door should beat least 227mm



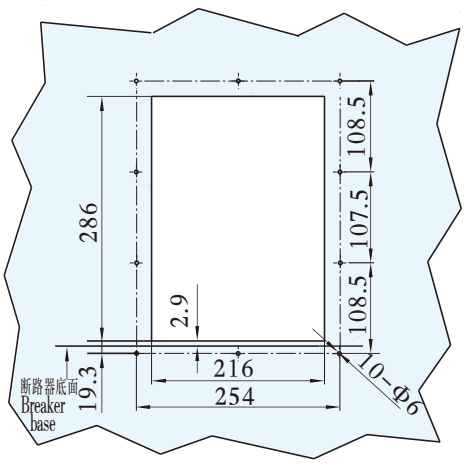
CW3-1600四极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为262mm

CW3-1600 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 262mm



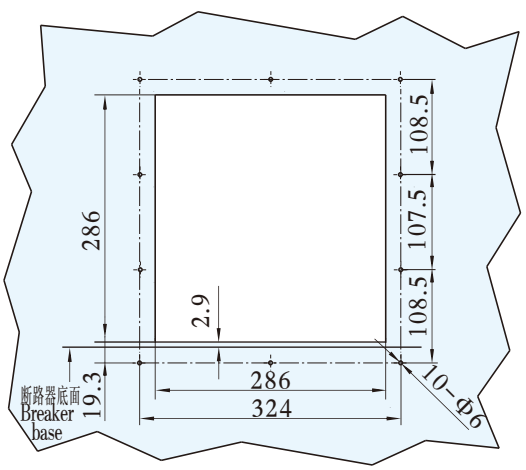
CW3-1600三极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为227mm

CW3-1600 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterofthecircuitbreakertotheright hinge of cabinet door should beat least 227mm



CW3-1600四极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为262mm

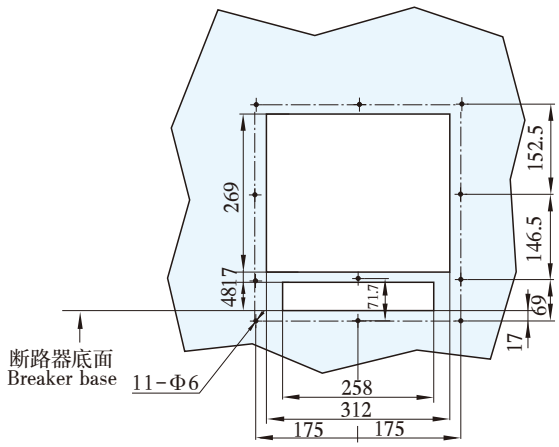
CW3-1600IntelligentAirCircuitBreakerwithfourpoles(fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panelcenterofthecircuitbreakertotherigh thinge of cabinet door should beat least 262mm



- CW3-2500门框开孔尺寸 Cutout Dimensions of CW3-2500 doorframe

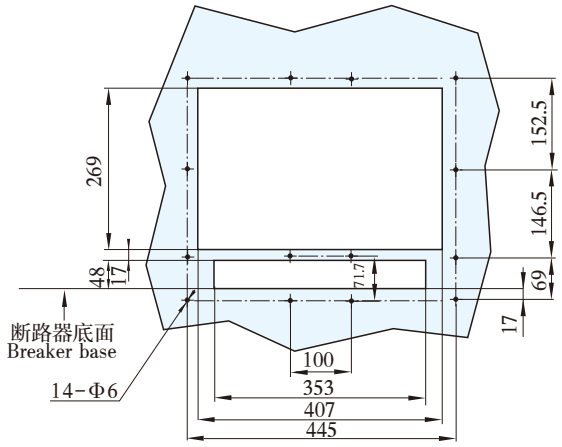
CW3-2500三极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为256mm

CW3-2500 Intelligent Air Circuit Breaker with three poles (draw-outtype)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righthing of cabinet door should be at least 256mm



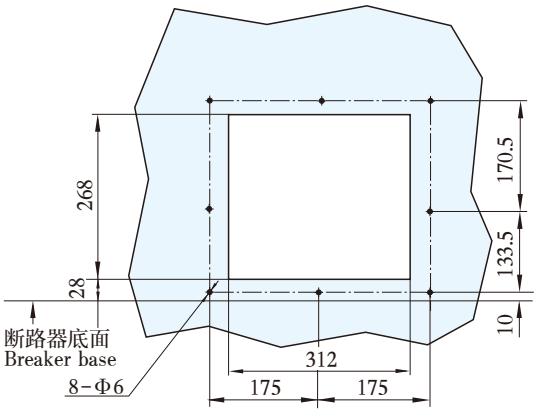
CW3-2500四极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为303.5mm

CW3-2500 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the right hinge of cabinet door should be at least 303.5mm



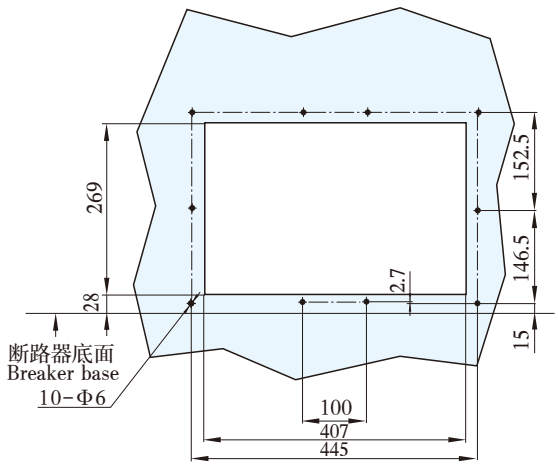
CW3-2500三极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为256mm

CW3-2500 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 256mm



CW3-2500四极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为303.5mm

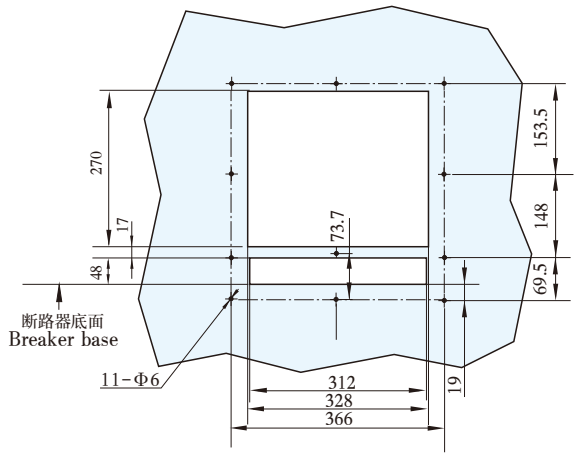
CW3-2500 Intelligent Air Circuit Breaker with four poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 303.5mm



CW3-3200门框开孔尺寸 Cutout Dimensions of CW3-3200 doorframe

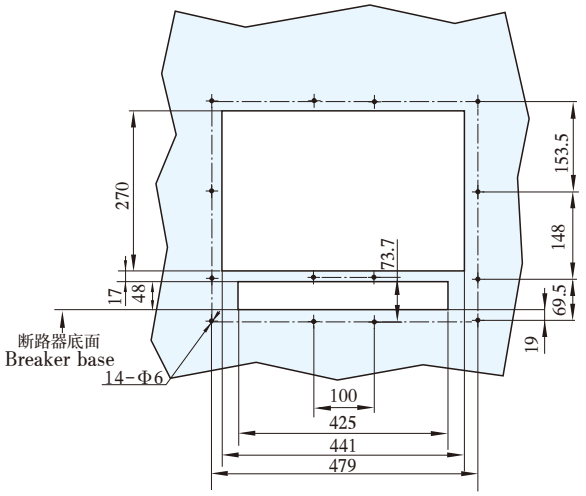
CW3-3200三极智能型万能式断路器（抽屉式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为264mm

CW3-3200 Intelligent Air Circuit Breaker with three poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 264mm



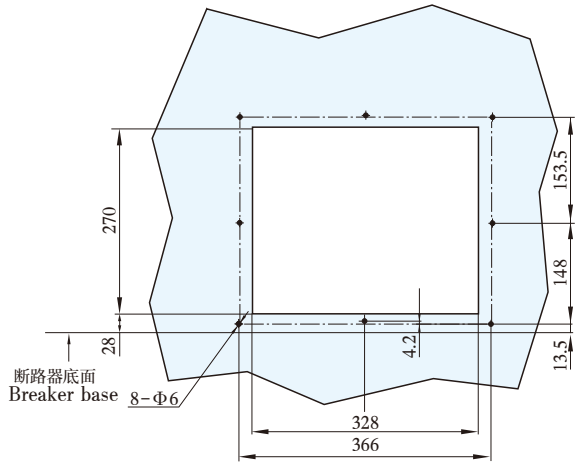
CW3-3200四极智能型万能式断路器（抽屉式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为320.5mm

CW3-3200 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 320.5mm



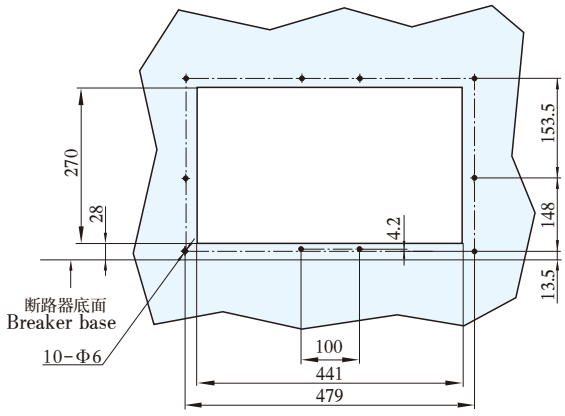
CW3-3200三极智能型万能式断路器（固定式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为264mm

CW3-3200 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 264mm



CW3-3200四极智能型万能式断路器（固定式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为320.5mm

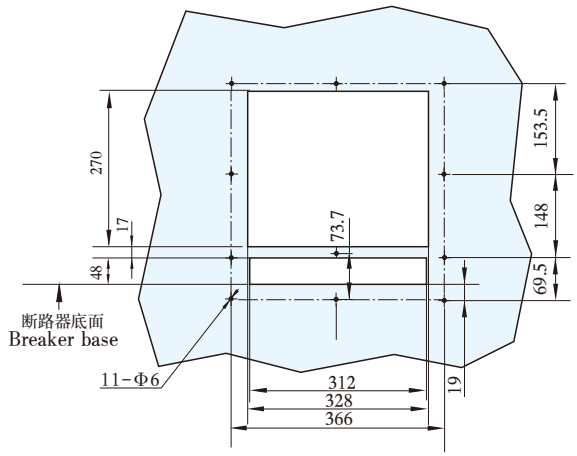
CW3-3200 Intelligent Air Circuit Breaker with four poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 320.5mm



CW3-4000门框开孔尺寸 Cutout Dimensions of CW3-4000 doorframe

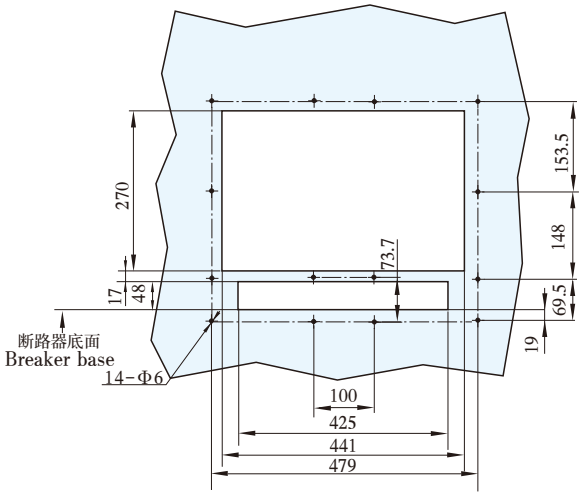
CW3-4000三极智能型万能式断路器（抽屉式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为264mm

CW3-4000 Intelligent Air Circuit Breaker with three poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterofthecircuitbreakertothe righ thinge of cabinet door should beat least 264mm



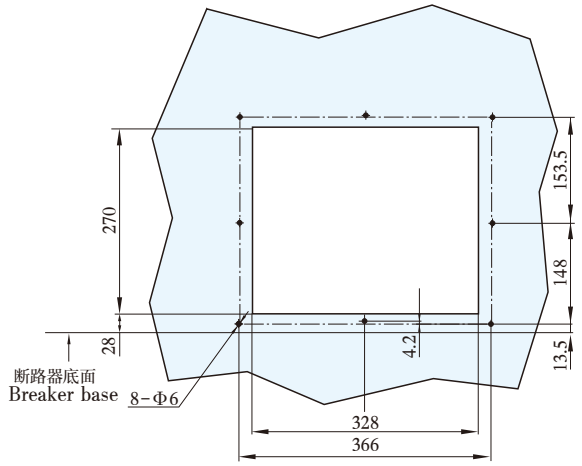
CW3-4000四极智能型万能式断路器（抽屉式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为320.5mm

CW3-4000 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterofthecircuitbreakertothe righ thinge of cabinet door should beat least 320.5mm



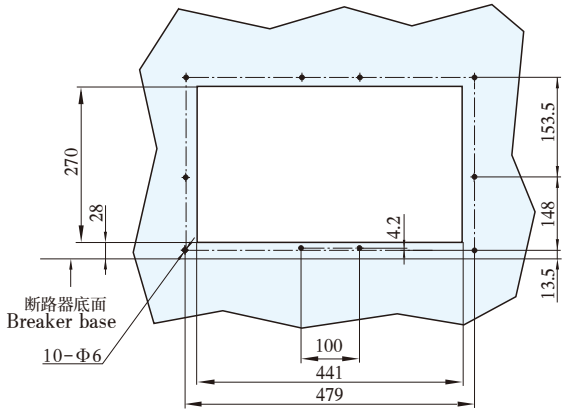
CW3-4000三极智能型万能式断路器（固定式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为264mm

CW3-4000 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 264mm



CW3-4000四极智能型万能式断路器（固定式）安装门框前盖开孔图 控制面板中心离柜门右铰链最小距离为320.5mm

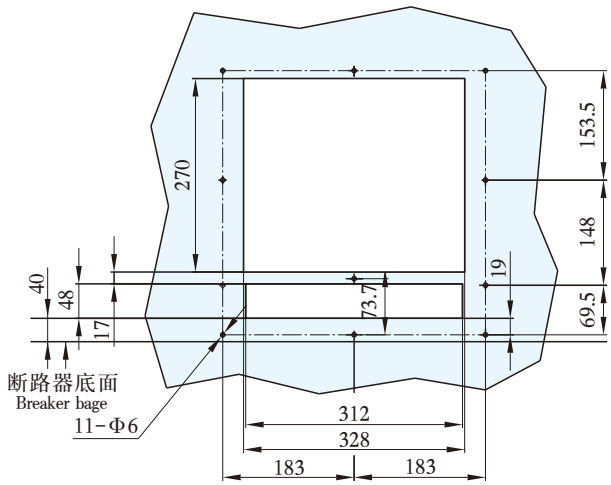
CW3-4000IntelligentAirCircuitBreakerwithfourpoles(fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 320.5mm



CW3-6300门框开孔尺寸 Cutout Dimensions of CW3-6300 doorframe

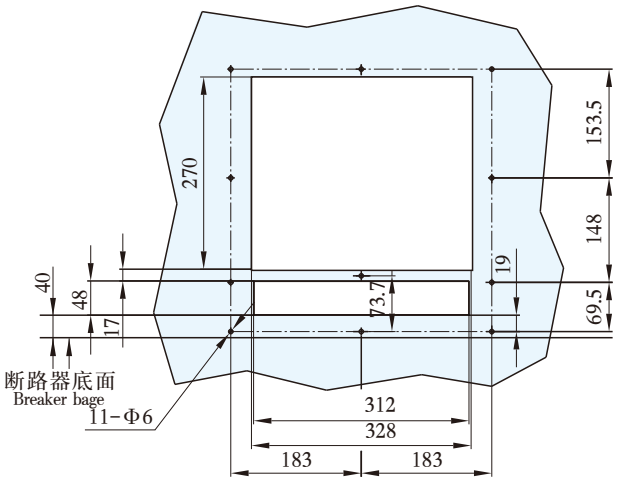
CW3-6300三极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm

CW3-6300 Intelligent Air Circuit Breaker with three poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterofthecircuitbreakertothe righ thinge of cabinet door should beat least553.5mm



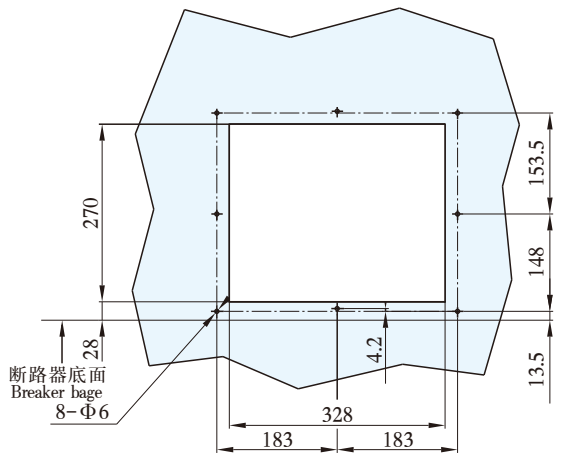
CW3-6300四极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm

CW3-6300 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenterofthecircuitbreakertothe righ thinge of cabinet door should beat least 553.5mm



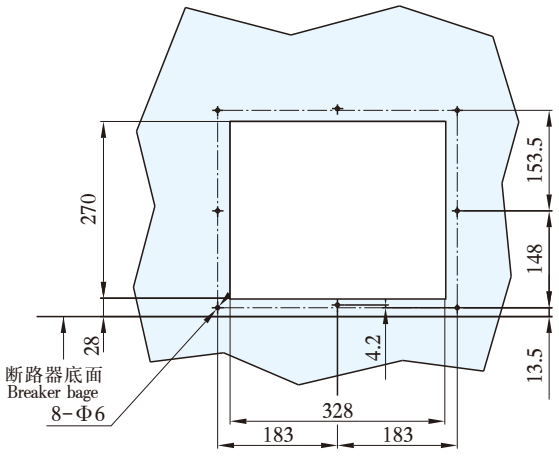
CW3-6300三极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm

CW3-6300 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least553.5mm



CW3-6300四极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm

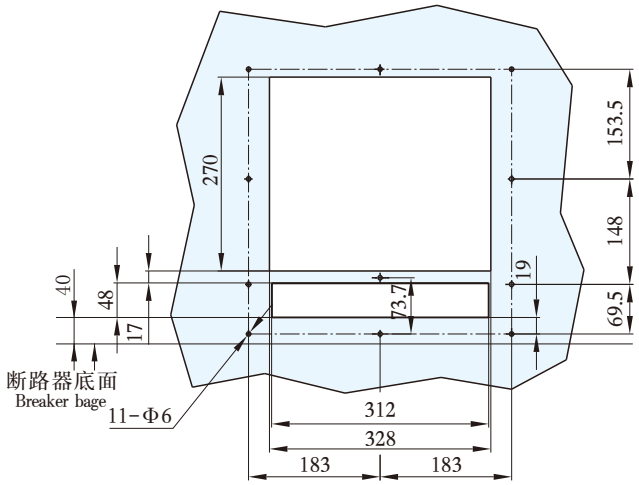
CW3-6300IntelligentAirCircuitBreakerwithfourpoles(fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 553.5mm



● CW3-7400门框开孔尺寸 Cutout Dimensions of CW3-7400 doorframe

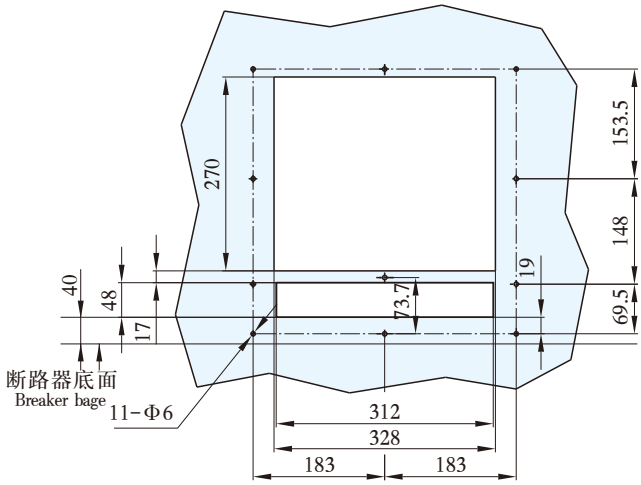
CW3-7400三极智能型万能式断路器（抽屉式）
安装门框前盖配孔图
控制面板中心离柜门右铰链最小距离为553.5mm

CW3-7400 Intelligent Air Circuit Breaker with three poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenteroftheciruitbreakertothe righ thinge of cabinet door should beat least553.5mm



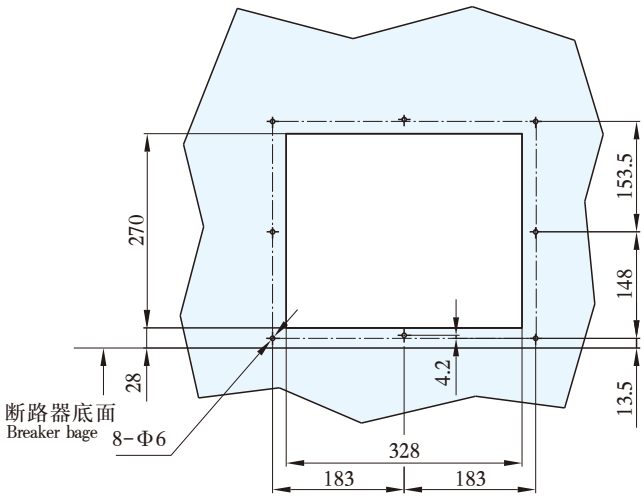
CW3-7400四极智能型万能式断路器（抽屉式）
安装门框前盖配孔图
控制面板中心离柜门右铰链最小距离为553.5mm

CW3-7400 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least553.5mm



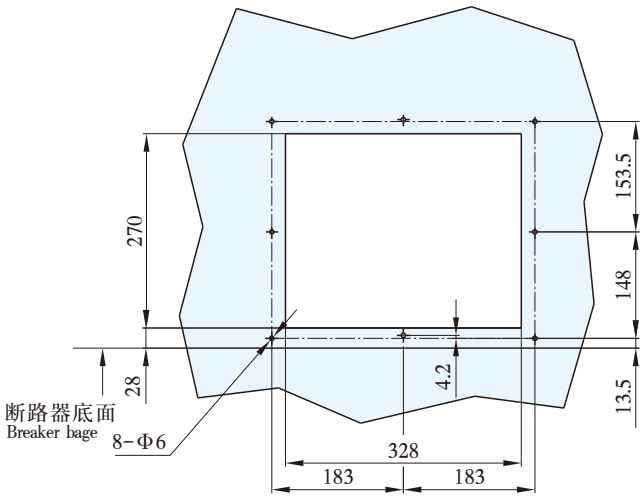
CW3-7400三极智能型万能式断路器（固定式）
安装门框前盖配孔图
控制面板中心离柜门右铰链最小距离为553.5mm

CW3-7400 Intelligent Air Circuit Breaker with three poles (Fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from thepanelcenteroftheciruitbreakertothe righ thinge of cabinet door should beat least 553.5mm

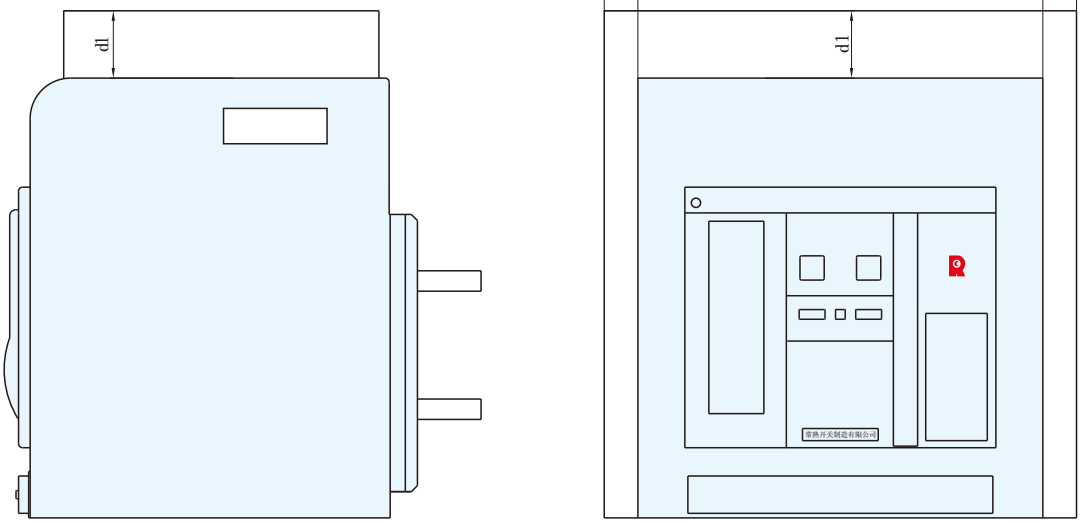


CW3-7400四极智能型万能式断路器（固定式）
安装门框前盖配孔图
控制面板中心离柜门右铰链最小距离为553.5mm

CW3-7400 Intelligent Air Circuit Breaker with four poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 553.5mm



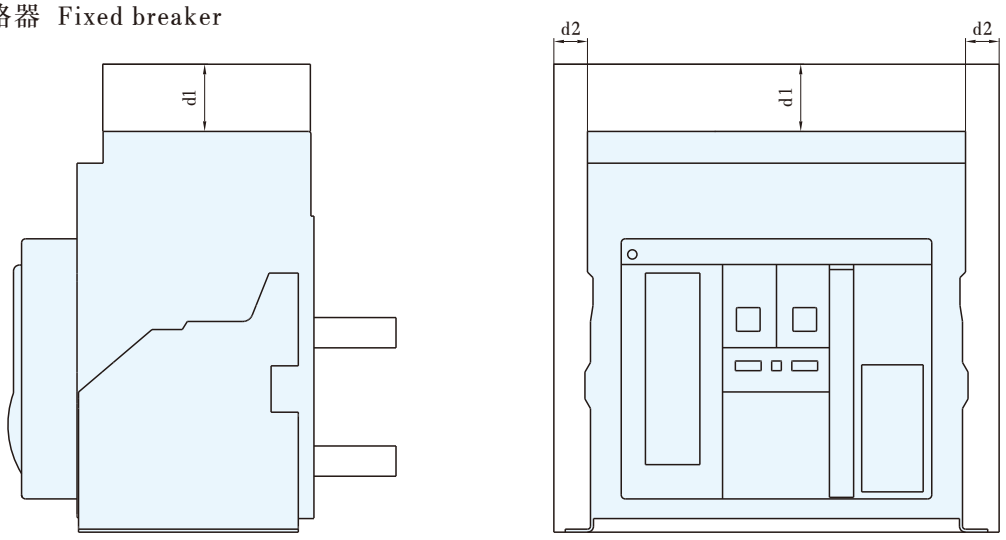
● 抽屉式断路器 Draw-out breaker



断路器与柜壁或带电部件最小距离
Minimn distance between breaker with switchboard wall or live part.

	柜壁 Switchboard wall	带电部分 Live part
d1(注note)(mm)	0	60
d2(mm)	0	60

● 固定式断路器 Fixed breaker

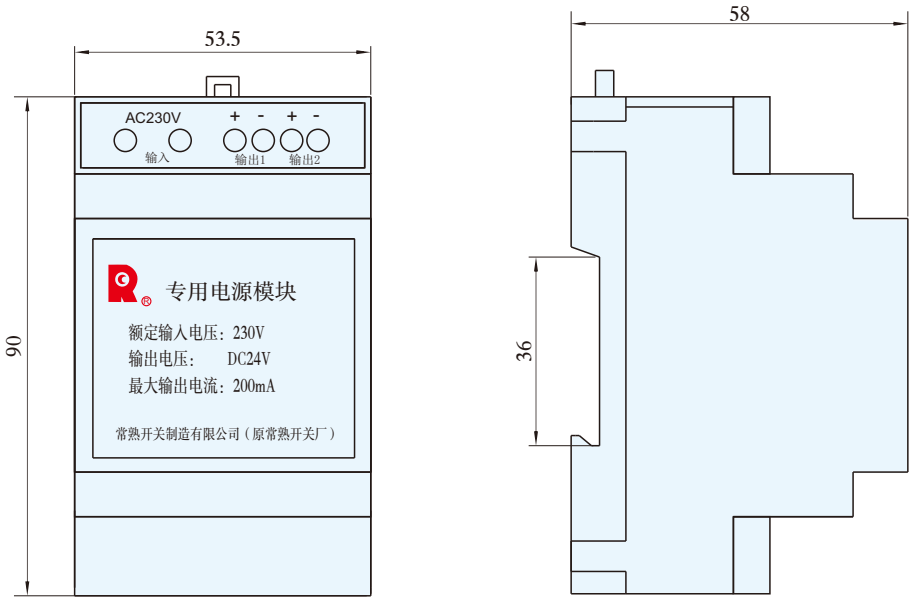


断路器与柜壁或带电部件最小距离
Minimn distance between breaker with switchboard wall or live part.

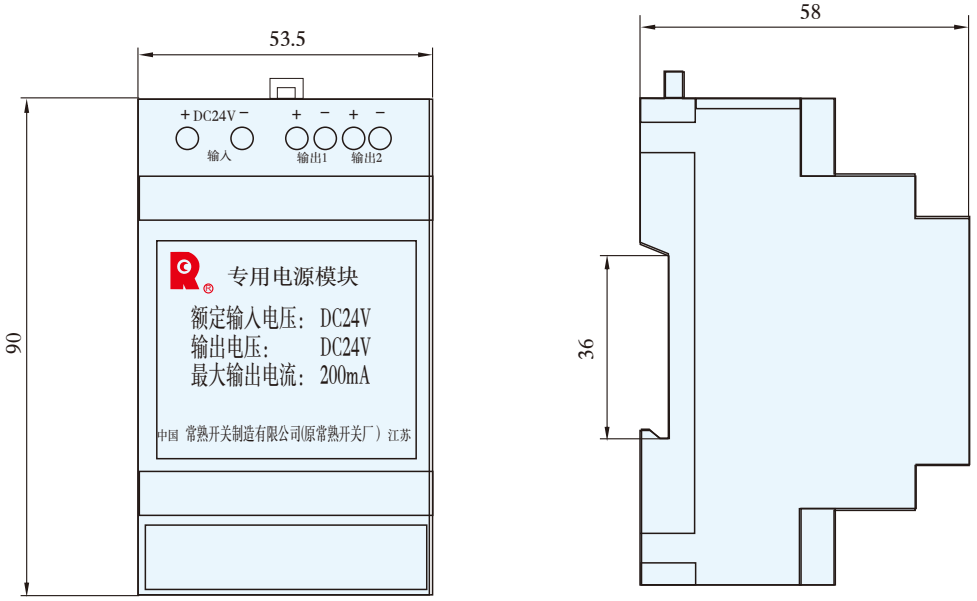
	柜壁 Switchboard wall	带电部分 Live part
d1(注note)(mm)	0	60
d2(mm)	0	60

注：安全间隙要考虑两次回路的走线。
Note:secondary circuit wiring must be considered for safety clearance.

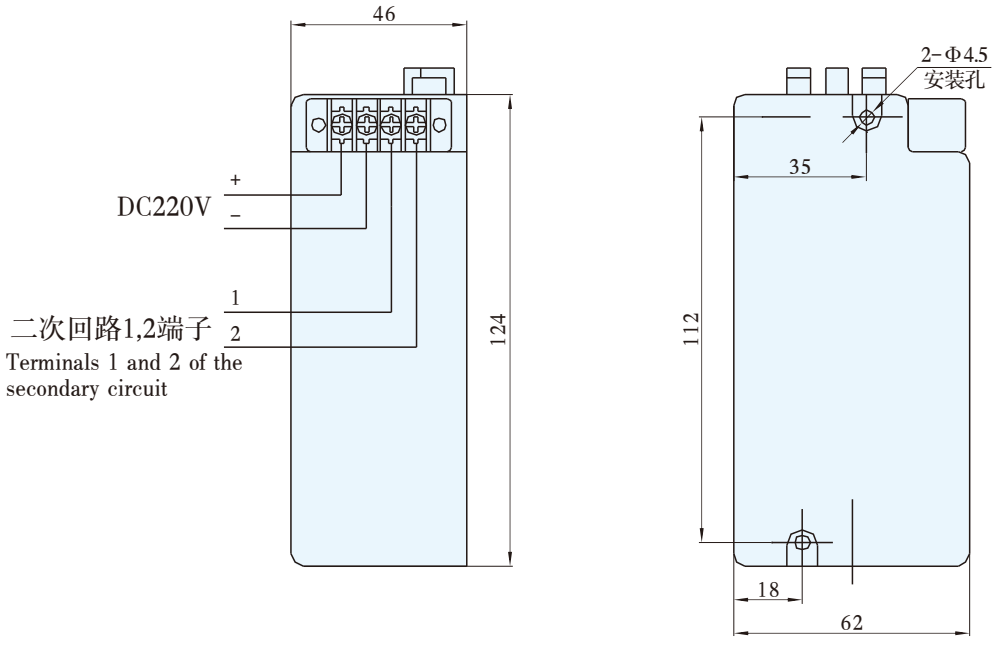
- 专用电源模块 Special power module



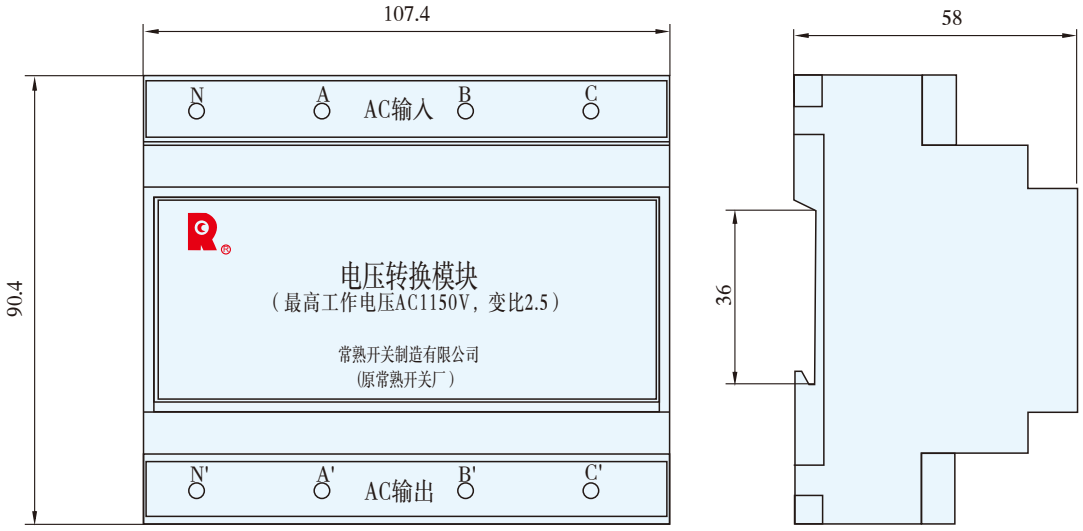
- DC24V电源模块DC24V power module



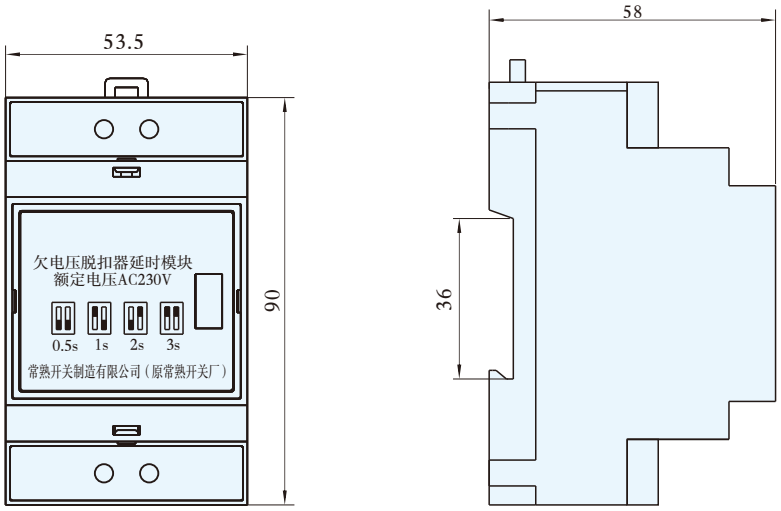
- 直流电源模块：DC power module



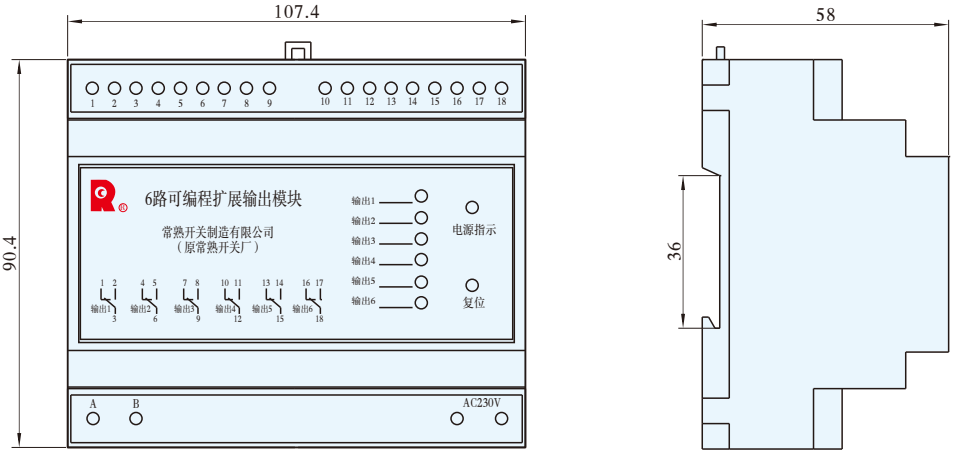
- 电压转换模块Voltage changover module



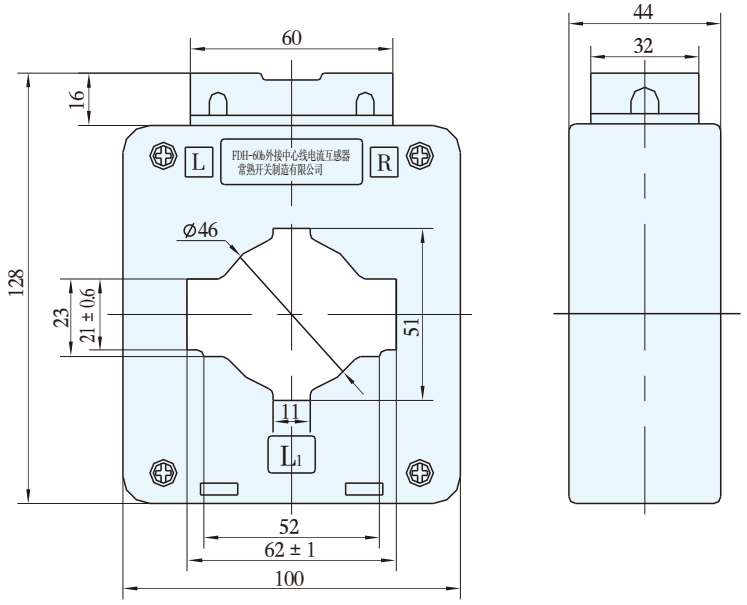
- CW3-1000/ CW3-1600断路器欠电压脱扣器延时模块
  Delay module of under-voltage release of CW3-1000/ CW3-1600



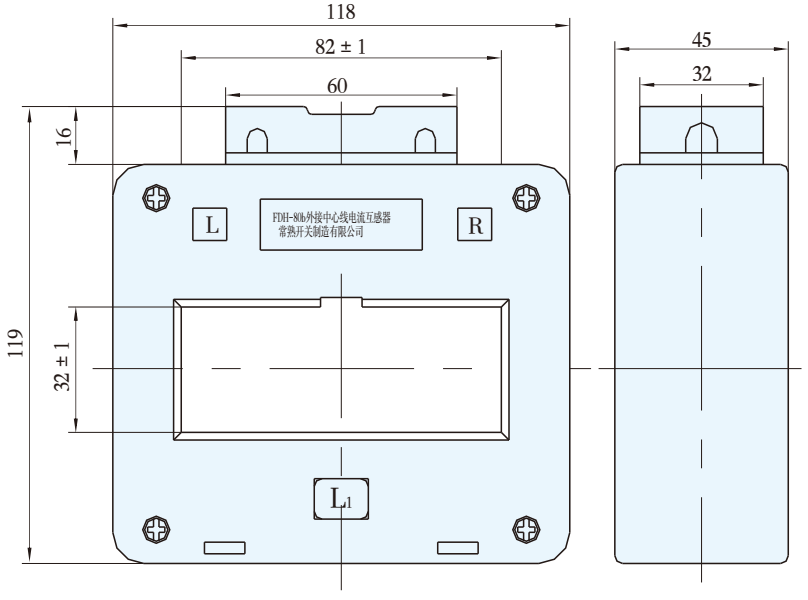
- 可编程扩展输出模块 Programmable output expansion module



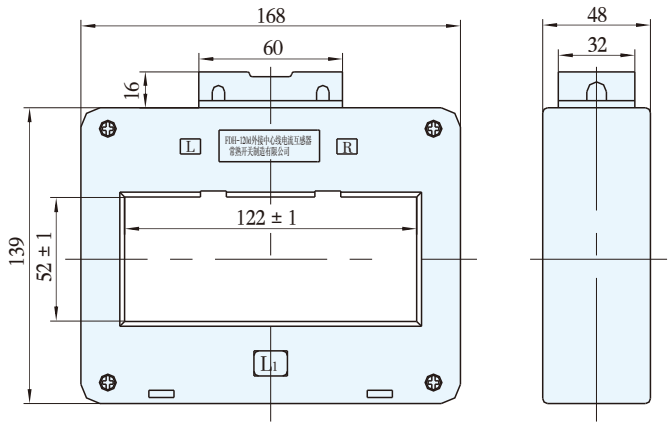
- 外接中性线互感器 Neutral transformer external connected



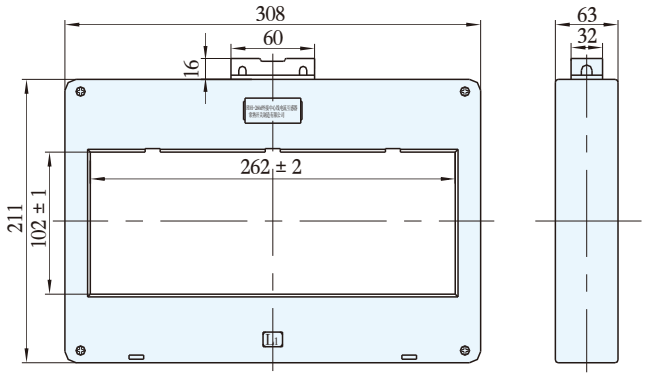
FDH-60
配CW3-1000/ CW3-1600三极for three poles



FDH-80
配CW3-2500三极for three poles



FDH-120

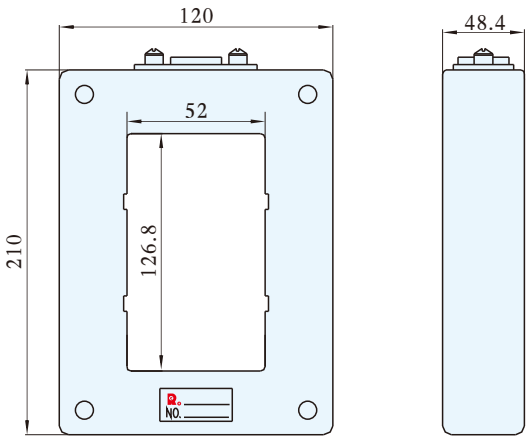


FDH-260

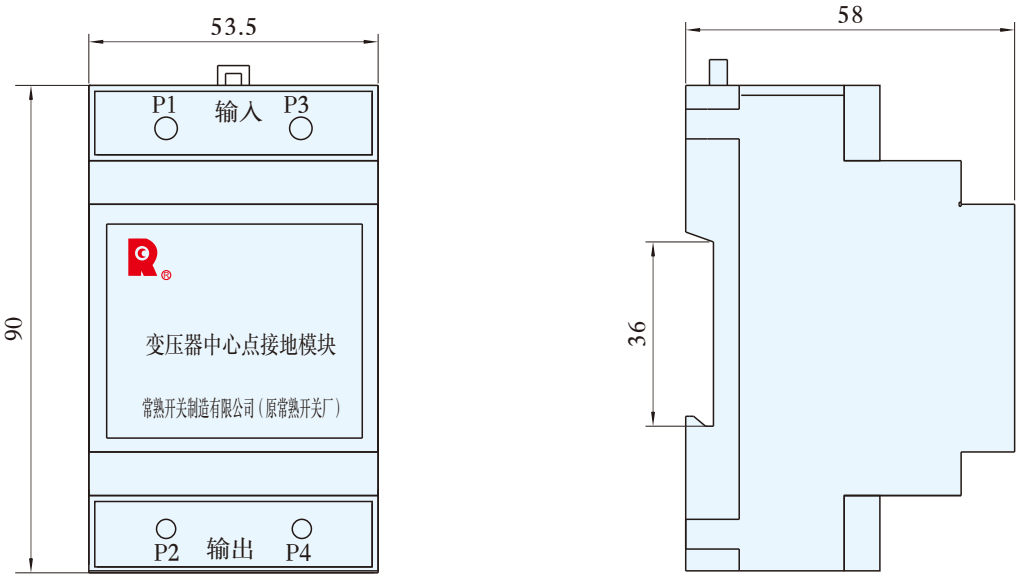
配CW3-3200/4000/6300/7400三极for three poles

CW3-3200/4000/6300/7400三极断路器用户可根据N极母线大小选择中性极互感器FDH-120或FDH-260。

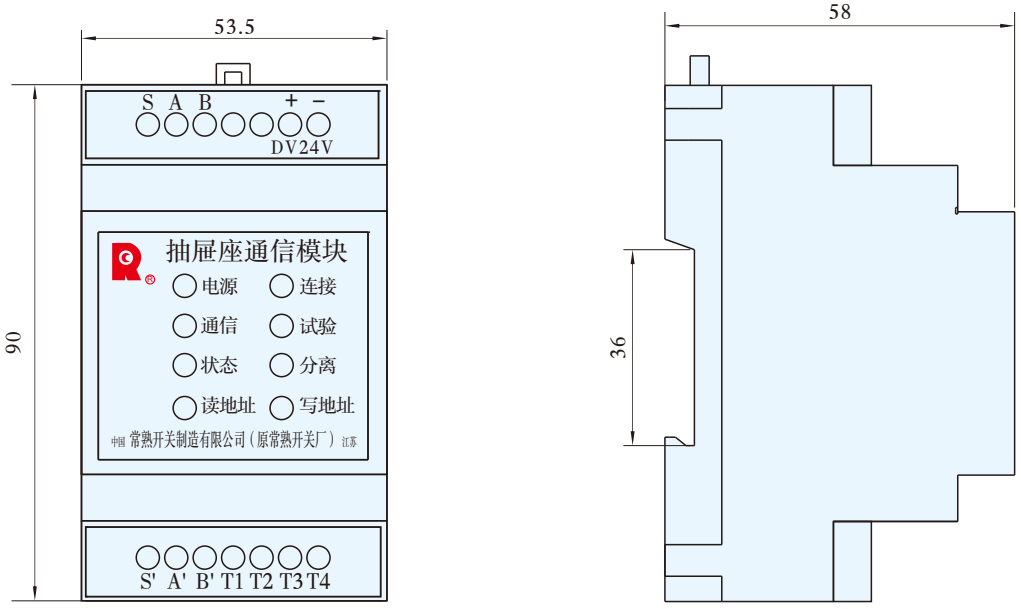
- 变压器中心点接地电流互感器 Earth transformer with transformer's center



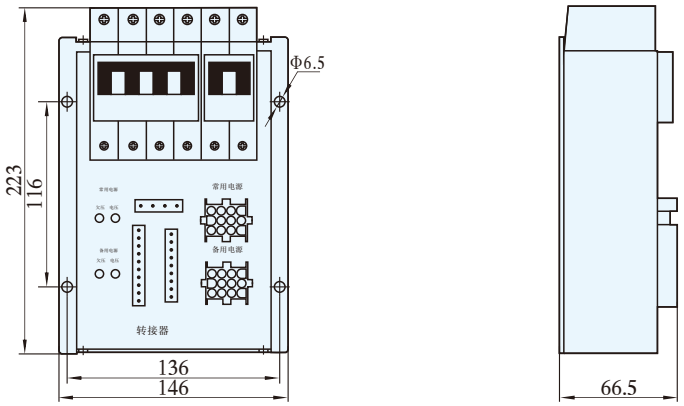
- 变压器中心点接地模块 Earth module of transformer's center



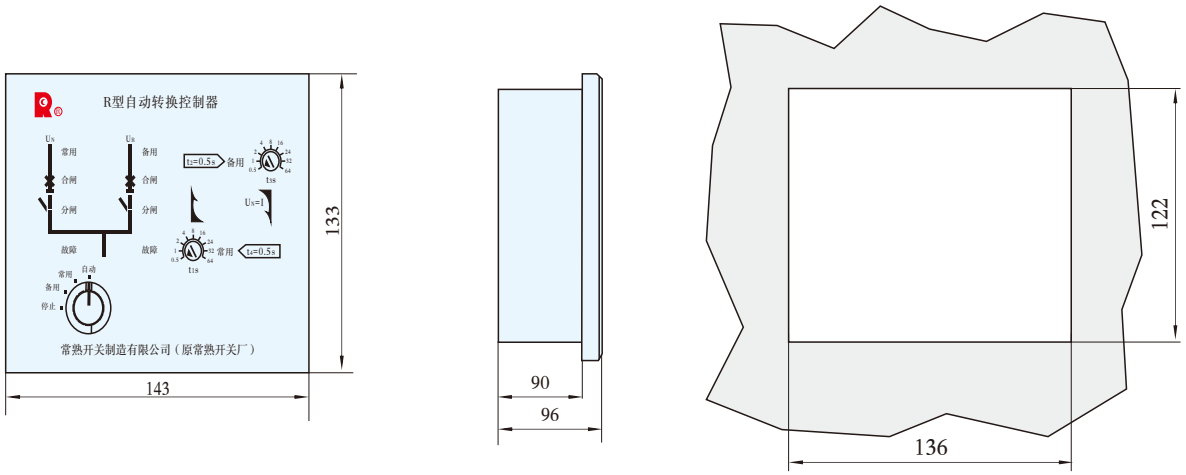
- 抽屉座通信模块 Draw-out socket communication module



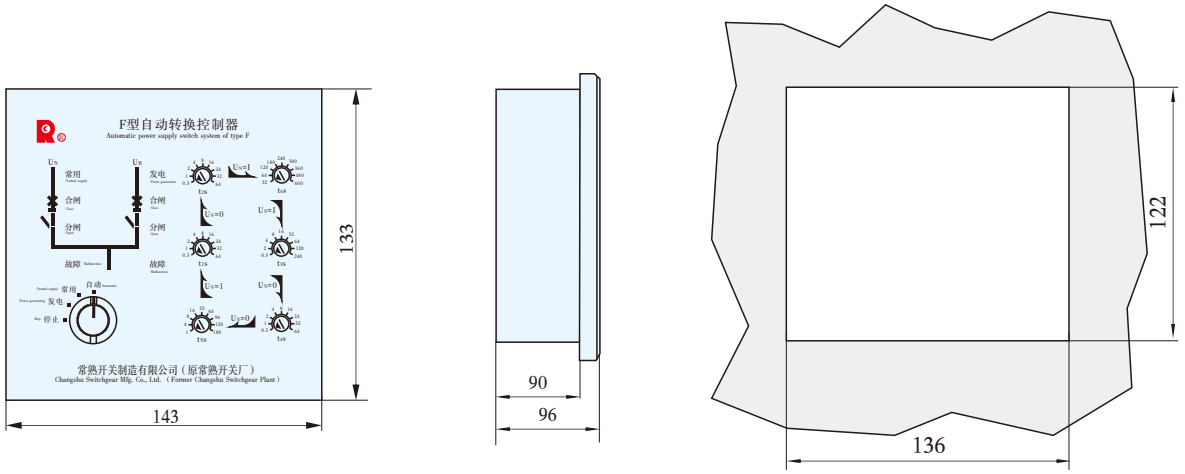
- 两电源转换 Two supply transfer
- 转接器 The switching unit



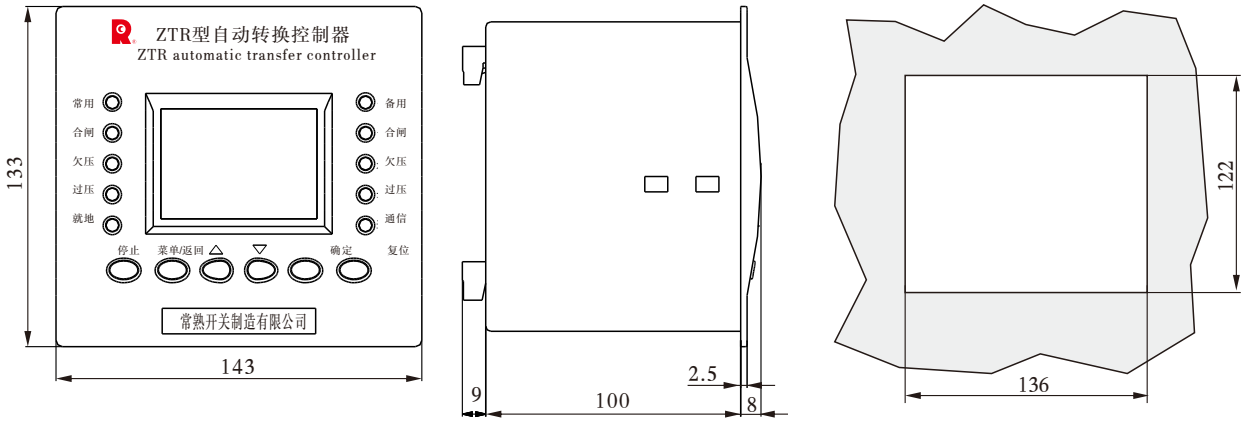
- R、S型自动转换控制器 Automatic power supply switch system of type R and S



- F型自动转换控制器 Automatic power supply switch system of type F

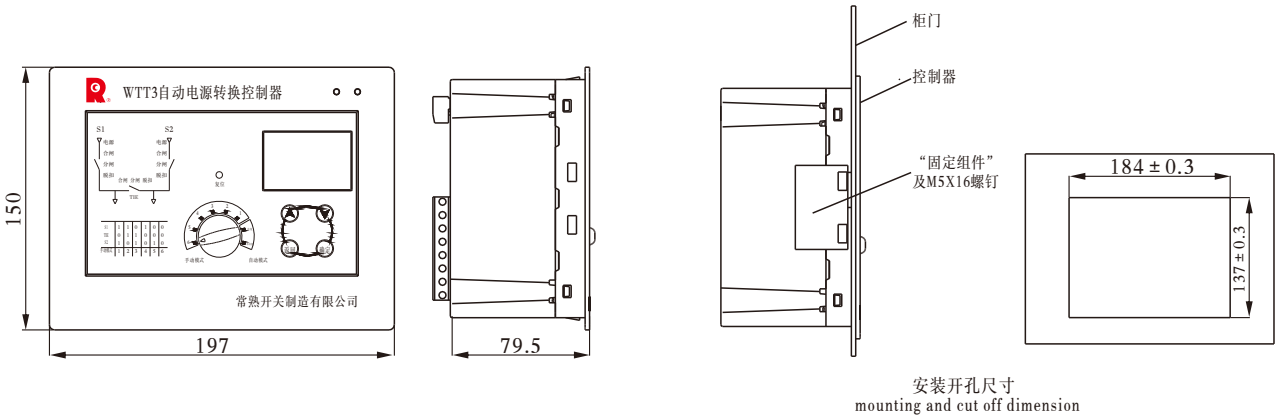


ZR、ZS、ZF、ZTR、ZTS、ZTF自动转换控制器
Type ZR,ZS,ZF,ZTR,ZTS,ZTF automatic transfer controller



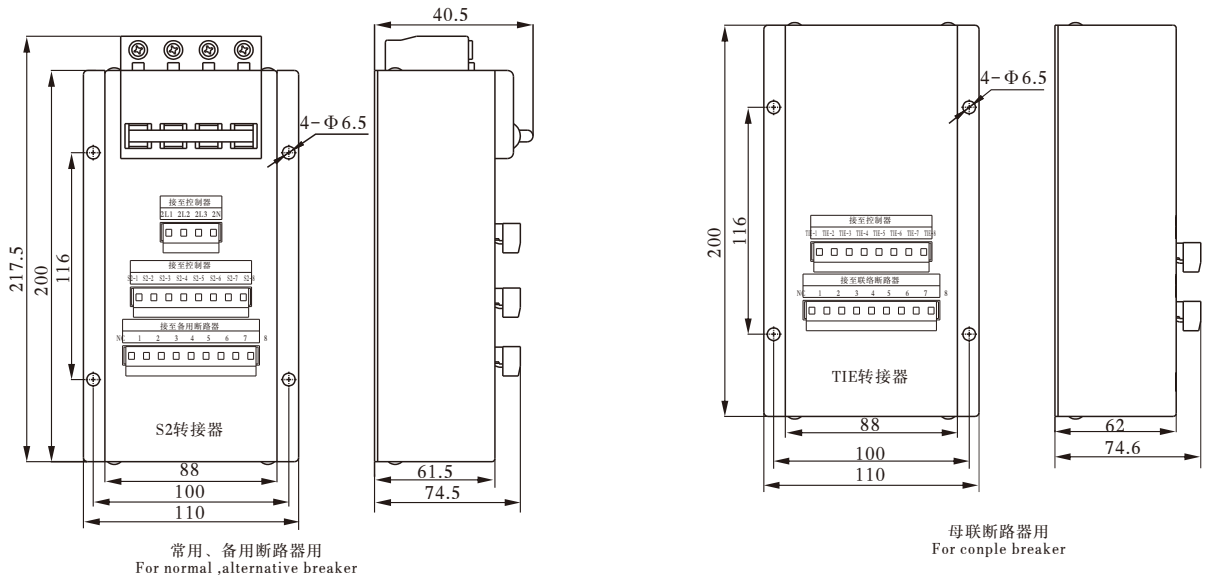
两进线一母联和三电源转换 Two incoming one bus conple supply and three supplys transfer

WTT3/WTB3/WTT5自动转换控制器 Automatic transfer controller



安装开孔尺寸
mounting and cut off dimension

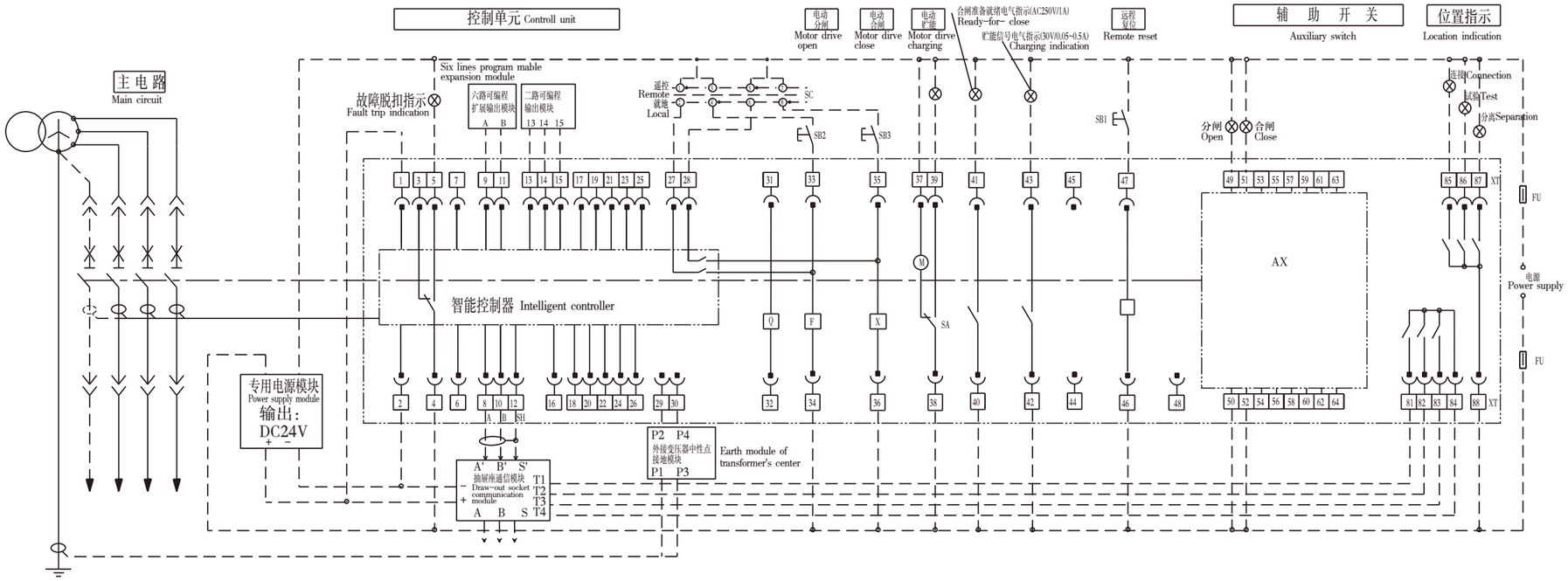
转接器 Adapter（WTT3/WTB3/WTT5自动转换控制器 automatic transfer controller）



常用、备用断路器用
For normal ,alternative breaker

母联断路器用
For conple breaker

CW3-1000二次回路接线图
(智能控制器为EN35/36、EA35/36、ER35/36、EP35/36、EQ35/36、EG35/36)

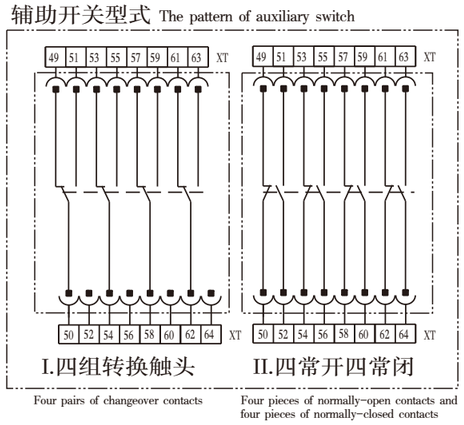


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

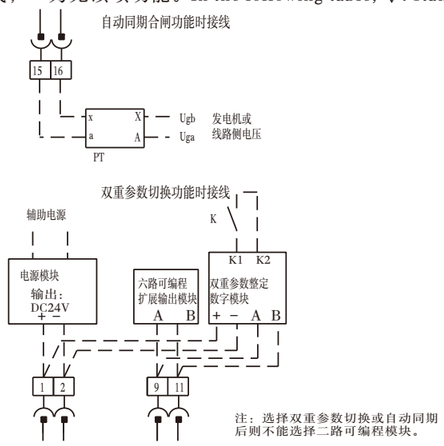
注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch



Four pairs of changeover contacts　Four pieces of normally-open contacts and four pieces of normally-closed contacts



注：选择双重参数切换或自动同期后则不能选择二路可编程模块。

端子号 Terminal	功能Function				适用控制器类型 Controller type					
					EN35/36	EA35/36	EP35/36	EQ35/36	EG35/36	ER35/36
1, 2	辅助电源（DC24V）		Auxiliary power supply		√	√	√	√	√	√
3, 4, 5	故障指示触点(AC250V 1A)		Fault Instruction (AC250V 1A)		√	√	√	√	√	√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。		Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L.		○	○	○	○	○	○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’		A/B is RS485 interface, 8 toA,10 toB,12 to SHf with components of draw-out socket communication module8,to A’, 10 to B’, 12 to S’		○	○	○	○	○	○
13, 14	二路可编程	可编程K1、K2输出	二选一	two programmable	programmable K1、K2 output	two selecting one	○	○	○	○	○	○
	双重参数切换	空		two group parameter changover	void		○	○	○	○	○	○
15, 16	二路可编程	可编程COM输出	二选一	two programmable	programmable com output	two selecting one	○	○	○	○	○	○
	自动同期合闸功能	接发电机或线路侧电压互感器输出端		synchrocheck	connecting voltage sensor out of generator or line		○	○	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入			Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V,Voltage changover Module must be selected.			○	–	√	√	√	√
21,22	ZSI功能	ZSI信号输出，21接“+”，22接“COM”		ZSI function	ZSI signal out, 21 to “+”, 22 to “COM”		○	○	○	○	○	○
	方向性保护	21接正向输出，22接“COM”		directionality	21 to forwad out, 22 to “COM”		○	○	○	○	○	○
23,24	ZSI功能	ZSI信号输入，23接“+”，24接“COM”		ZSI function	ZSI signal input, 23 to “+”, 24 to “COM”		○	○	○	○	○	○
	方向性保护	23接正向输入，24接“COM”		directionality	23 to forwad input, 24 to “COM”		○	○	○	○	○	○
25,26	方向性保护	25接反向输出，26接反向输入		directionality	25 to reverse out, 26 to reverse input		○	○	○	○	○	○
27	遥控分闸时接与33端子同相位电源			When remote open, connecting terminal 33			○	○	○	○	○	○
28	遥控合闸时接与35端子同相位电源			When remote close, connecting terminal 35			○	○	○	○	○	○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端			Connect with under-voltage release (must connecting main circuit, when with undervoltage delay module, connecting to it's output)			○	○	○	○	○	○
33, 34	分励脱扣器			Connect with shunt release			√	√	√	√	√	√
35, 36	合闸电磁铁			Connect with closing electromagnet			√	√	√	√	√	√
37,38,39	电动(电机贮能，37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）			Connect with Motor driven operating mechanism, Power supply directly (auto energy prestore) or power supply with a NO (normal open) button simultaneously (manual energy prestore) with 37,38.			√	√	√	√	√	√
40,41	合闸准备就绪电气指示			Ready-for-close indication			○	○	○	○	○	○
42,43	储能信号电气指示			charging indication			○	○	○	○	○	○
29,30	接地电流模块，29接P2，30接P4			earth current module, 29 connecting P2, 30 connecting P4			○	○	○	○	○	○
9,11	可编程扩展输出，双重参数整定数字模块输出，9接A，11接B			Programmable expansion output, two group parameter setting dial module putput, 9 connecting A, 11 connecting B			○	○	○	○	○	○
46,47	远程复位			Remote reset			○	○	○	○	○	○
49~64	辅助开关连接端子			Connecting terminals of auxiliary switch			√	√	√	√	√	√
85,88	抽屉座“连接”位置指示（AC250V 1A）			“Connected” position indication （AC250V 1A）			○	○	○	○	○	○
86,88	抽屉座“试验”位置指示（AC250V 1A）			“Test” position indication（AC250V 1A）			○	○	○	○	○	○
87,88	抽屉座“分离”位置指示（AC250V 1A）			“Separated” position indication（AC250V 1A）			○	○	○	○	○	○
81,82,83,84	位置信号输出至抽屉座通信模块			Location signal output to draw-out socket communication Module			○	○	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4			Input of draw-out socket communication module tocation Signal 81 connecting T1,82 connecting T2,83 connecting T3,84 connecting T4			○	○	○	○	○	○
A, B, S	抽屉座通信模块通信输出			Communication output of draw-out socket communication module			○	○	○	○	○	○
A’, B’, S’	抽屉座通信模块通信输入，连接本体通信输出，A’接8，B’接10，S’接12			Communication input of draw-out socket communicatiop module , connect with communication output of the main body, A’ connect with 8, B’ with10,S’ with 12Connecting earth transformer of transformer center			○	○	○	○	○	○
P1,P3	接外接变压器中心点接地互感器			Connecting earth transformer of transformer center			○	○	○	○	○	○

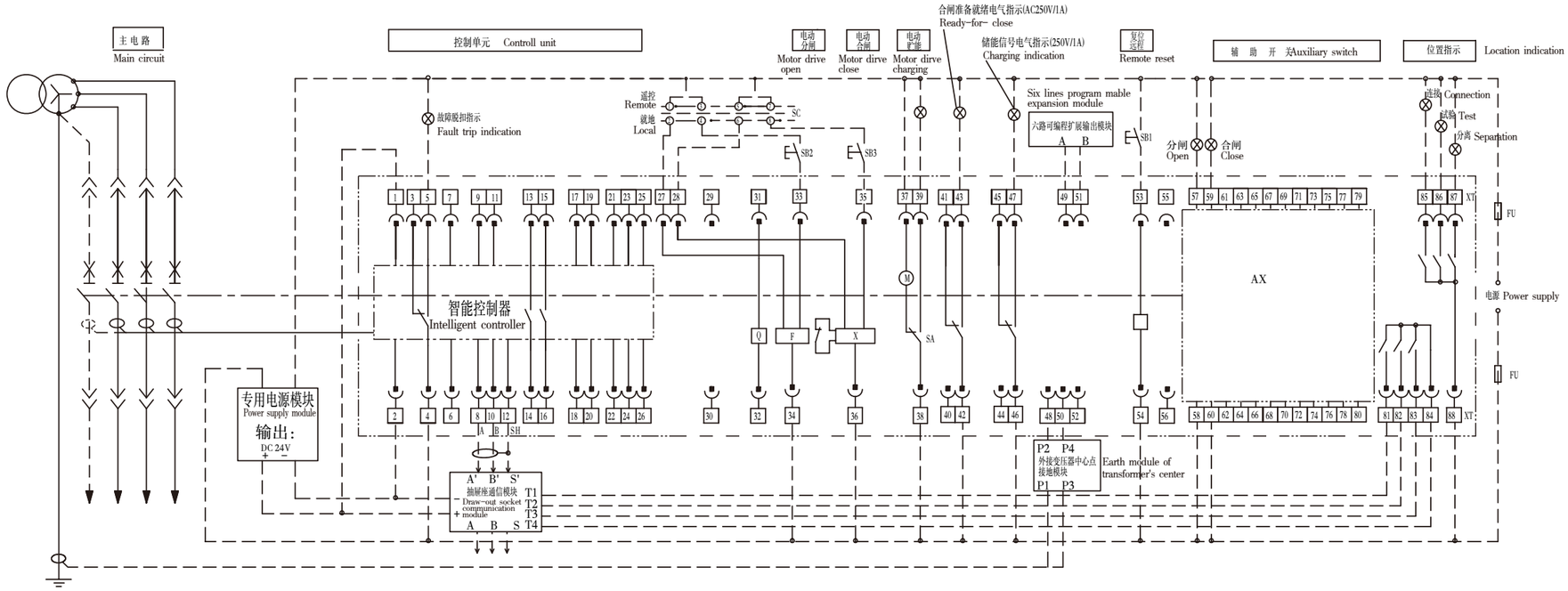
特别注意：辅助电源电压为AC230V、400V时，需通过CW3-1000/ CW3-1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。

Special Note: When the voltage of auxiliary power supply is AC230V or AC400V, power supply module of CW3-1000/ CW3-1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：通信型断路器选择同期合闸功能后，不再具有遥控合闸功能。

Note: Communicative breaker has not remote close function, when it selectes synchrocheck close function.

CW3-1600二次回路接线图
(智能控制器为EN35/36、EA35/36、EP35/36、EQ35/36、EG35/36)

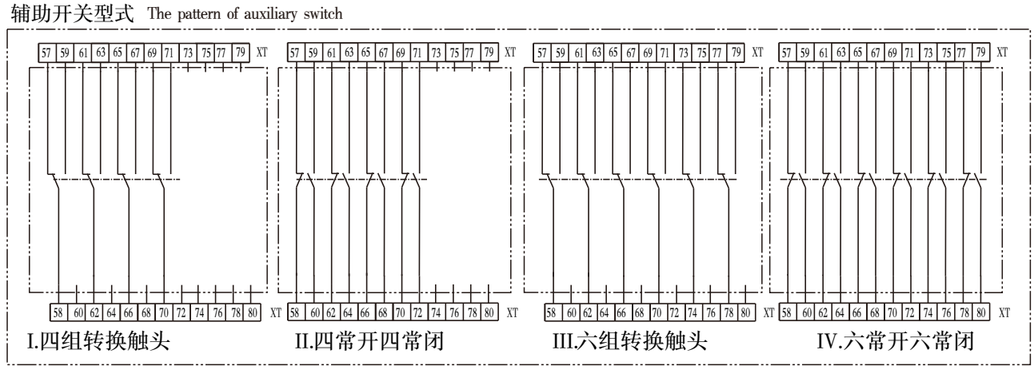


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch



特别注意：辅助电源电压为AC230V、400V时，需通过CW3-1000/ CW3-1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。

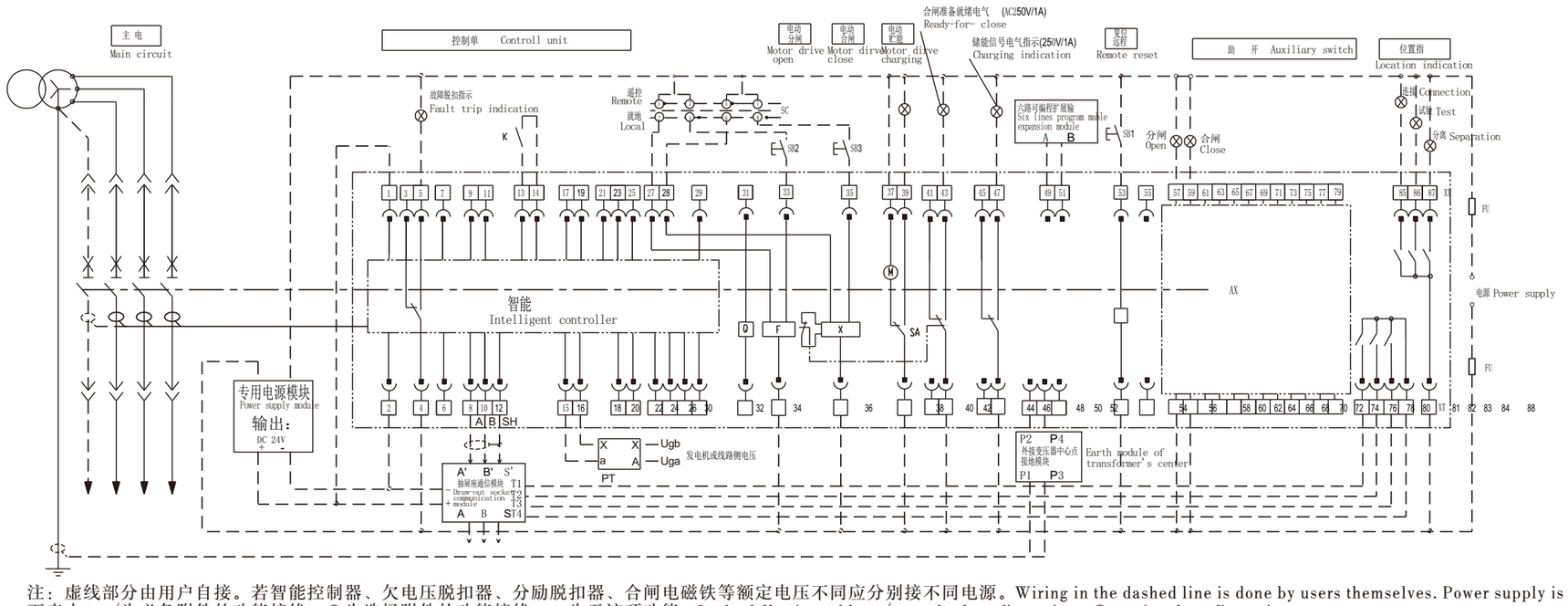
Special Note: When the voltage of auxiliary power supply is AC230V or AC400V, power supply module of CW3-1000/ CW3-1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：抽屉式断路器的辅助开关安装于抽屉座内，断路器本体在试验和连接位置时，辅助开关随断路器主触头的合分状态相应转换。当断路器本体处于分离位置或取出时，辅助开关的状态为断路器分闸时的状态。

Note: Auxiliary of draw-out circuit breaker is installed in socket, when circuit breaker's body is at test and connection positions, the auxiliary is transfered corresponding switch status of main contacts of circuit. when circuit breaker's body is at separation position or is taken out, the auxiliary is the status of circuit breaker opening.

端子号 Terminal	功能Function		适用控制器类型 Controller type				
			EN35/36	EA35/36	EP35/36	EQ35/36	EG35/36
1, 2	辅助电源（DC24V）	Auxiliary power supply	√	√	√	√	√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)	√	√	√	√	√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L.	○	○	○	○	○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	A/B is RS485 interface, 8 toA,10 toB,12 to SHJf with components of draw-out socket communication module ,8 to A’ , 10 to B’ , 12 to S’	○	○	○	○	○
13, 14	可编程输出1	Programmable out 1	○	○	○	○	○
15, 16	可编程输出2	Programmable out 2	○	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V,Voltage changover Module must be selected.	○	—	√	√	√
21,22	ZSI信号输出，21接“+”，22接“COM”	ZSI signal output, 21 connecting “+” , 22 connecting “COM”	○	○	○	○	○
23,24	ZSI信号输入，23接“+”，24接“COM”	ZSI signal input, 23 connecting “+” , 24 connecting “COM”	○	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○	○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）	Connect with under-voltage release (must connecting main circuit, when with undervoltage delay module, connecting to it's output)	○	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release	√	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√	√
37,38,39	电动(电机贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO (normal open) button simultaneously (manual energy prestore) with 37,38.	√	√	√	√	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○	○
48,50,52	接地电流模块，48接P2，50接P4	earth current module, 48 connecting P2, 50 connecting P4	○	○	○	○	○
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○	○
57-80	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√	√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）	○	○	○	○	○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication （AC250V 1A）	○	○	○	○	○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication （AC250V 1A）	○	○	○	○	○
81,82,83,84	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module	○	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4	Input of draw-out socket communication module location Signal, 81 connecting T1,82 connecting T2,83 connecting T3,84 connecting T4	○	○	○	○	○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module	○	○	○	○	○
A’, B’, S’	抽屉座通信模块通信输入，连接本体通信输出，A’接8，B’接10，S’接12	Communication input of draw-out socket communication module , connect with communication output of the main body, A’ connect with 8, B’ with10,S’ with 12Connecting earth transformer of transformer center	○	○	○	○	○
P1,P3	接外接变压器中心点接地互感器	Connecting earth transformer of transformer center	○	○	○	○	○

CW3-1600二次回路接线图 (智能控制器为ER35/36)

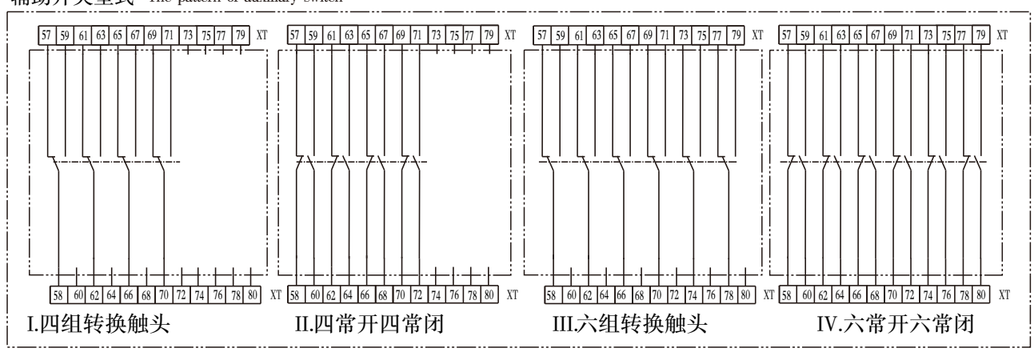


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
K	双重参数切换控制节点信号输入	
SC	转换开关	chang-over switch
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
SA	电动机行程开关	Limit switch
M	贮能电机	Charging motor
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch
PT	发电机或线路侧电压互感器（用户根据系统电压自购 AC690V/100V或AC400V/100V规格）	Voltage sensor of generator or line(AC690V/100V or AC400V/100V useself)

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch



特别注意：辅助电源电压为AC230V、400V时，需通过CW3-1000/ CW3-1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。

Special Note: When the voltage of auxiliary power supply is AC230V or AC400V, power supply module of CW3-1000/ CW3-1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：1、抽屉式断路器的辅助开关安装于抽屉座内，断路器本体在试验和连接位置时，辅助开关随断路器主触头的合分状态相应转换。当断路器本体处于分离位置或取出时，辅助开关的状态为断路器分闸时的状态。

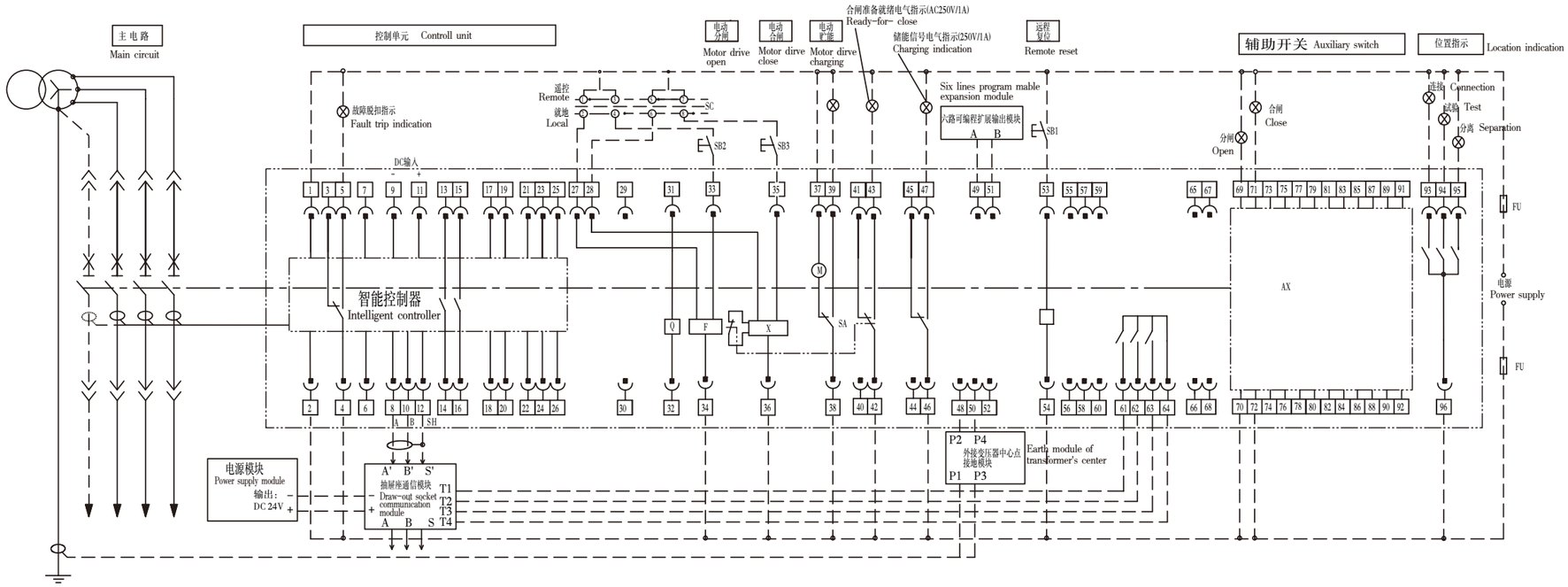
2、通信型断路器选择同期合闸功能后，不再具有遥控合闸功能。

Note: 1、Auxiliary of draw-out circuit breaker is installed in socket, when circuit breaker's body is at test and connection positions, the auxiliary is transfered corresponding switch status of main contacts of circuit. when circuit breaker's body is at separation position or is taken out, the auxiliary is the status of circuit breaker opening.

2、Communicative breaker has not remote close function, when it selectes synchrocheck close function.

端子号 Terminal	功能Function				适用控制器类型 Controller type
					ER35/36
1, 2	辅助电源（DC24V）		Auxiliary power supply		√
3, 4, 5	故障指示触点(AC250V 1A)		Fault Instruction (AC250V 1A)		√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。		Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L.		○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层。其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’		A/B is RS485 interface, 8 toA,10 toB,12 to SH. If with components of draw-out socket communication module , 8 to A’, 10 to B’, 12 to S’		○
13, 14	二路可编程	可编程输出1	two programmable	two programmable out 1	○
	双重参数切换	双重参数设定数字输入（干触头输入）	two group parameter changover	two group parameter set digital input(dry contact input)	○
15, 16	二路可编程	可编程输出2	two programmable	two programmable out 2	○
	自动同期合闸	接发电机或线路侧电压互感器输出端	synchrocheck close	connecting voltage sensor out of generator or line	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入		Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V,Voltage changover Module must be selected.		√
21,22	ZSI功能	ZSI信号输出，21接“+”，22接“COM”	ZSI function	ZSI signal out, 21 to “+”, 22 to “COM”	○
	方向性保护	21接正向输出，22接“COM”	directionality	21 to forwad out, 22 to “COM”	○
23,24	ZSI功能	ZSI信号输入，23接“+”，24接“COM”	ZSI function	ZSI signal input, 23 to “+”, 24 to “COM”	○
	方向性保护	23接正向输入，24接“COM”	directionality	23 to forwad input, 24 to “COM”	○
25,26	方向性保护	25接反向输出，26接反向输入	directionality	25 to reverse out, 26 to reverse input	○
27	遥控分闸时接与33端子同相位电源		When remote open, connecting terminal 33		○
28	遥控合闸时接与35端子同相位电源		When remote close, connecting terminal 35		○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）		Connect with under-voltage release (must connecting main circuit, when with undervoltage delay module, connecting to it's output)		○
33, 34	分励脱扣器		Connect with shunt release		○
35, 36	合闸电磁铁		Connect with closing electromagnet		√
37,38,39	电动(电机贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）		Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO (normal open) button simultaneously (manual Energyprestore) with 37,38.		√
41,42,43	合闸准备就绪电气指示		Ready-for-close indication		√
45,46,47	储能信号电气指示		charging indication		○
48,50,52	接地电流模块，48接P2，50接P4		earth current module, 48 connecting P2, 50 connecting P4		○
49,51	可编程扩展输出，49接A，51接B		Programmable expansion output, 49 connecting A, 51 connecting B		○
53,54	远程复位		Remote reset		○
57~80	辅助开关连接端子		Connecting terminals of auxiliary switch		○
85,88	抽屉座“连接”位置指示（AC250V 1A）		“Connected” position indication （AC250V 1A）		√
86,88	抽屉座“试验”位置指示（AC250V 1A）		“Test” position indication （AC250V 1A）		○
87,88	抽屉座“分离”位置指示（AC250V 1A）		“Separated” position indication （AC250V 1A）		○
81,82,83,84	位置信号输出至抽屉座通信模块		Location signal output to draw-out socket communication Module		○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4		Input of draw-out socket communication module location Signal, 81 connecting T1, 82 connecting T2,83 connecting T3,84 connecting T4		○
A, B, S	抽屉座通信模块通信输出		Communication output of draw-out socket communication module		○
A’, B’, S’	抽屉座通信模块通信输入，连接本体通信输出，A’接8，B’接10，S’接12		Communication input of draw-out socket communication module , connect with Communication output of the main body, A’ connect with 8, B’ with10,S’ with 12Connecting earth transformer of transformer center?		○
P1,P3	接外接变压器中心点接地互感器		Connecting earth transformer of transformer center		○

CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400二次回路接线图
(智能控制器为EN35/36、EA35/36、EP35/36、EQ35/36、EG35/36)

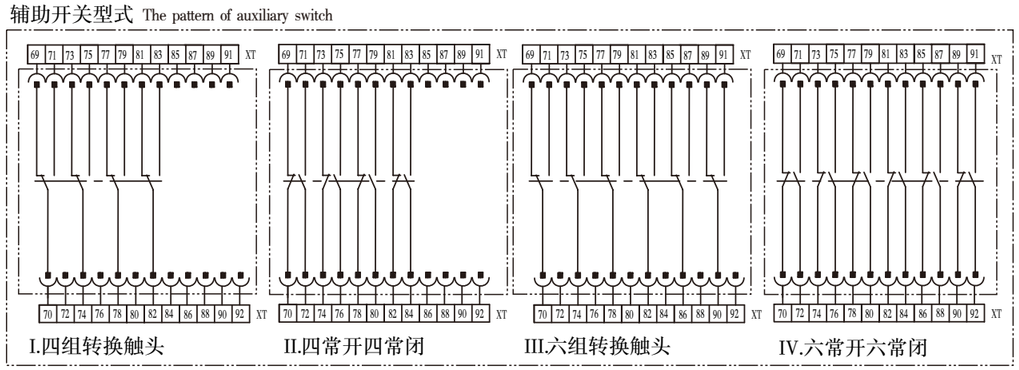


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

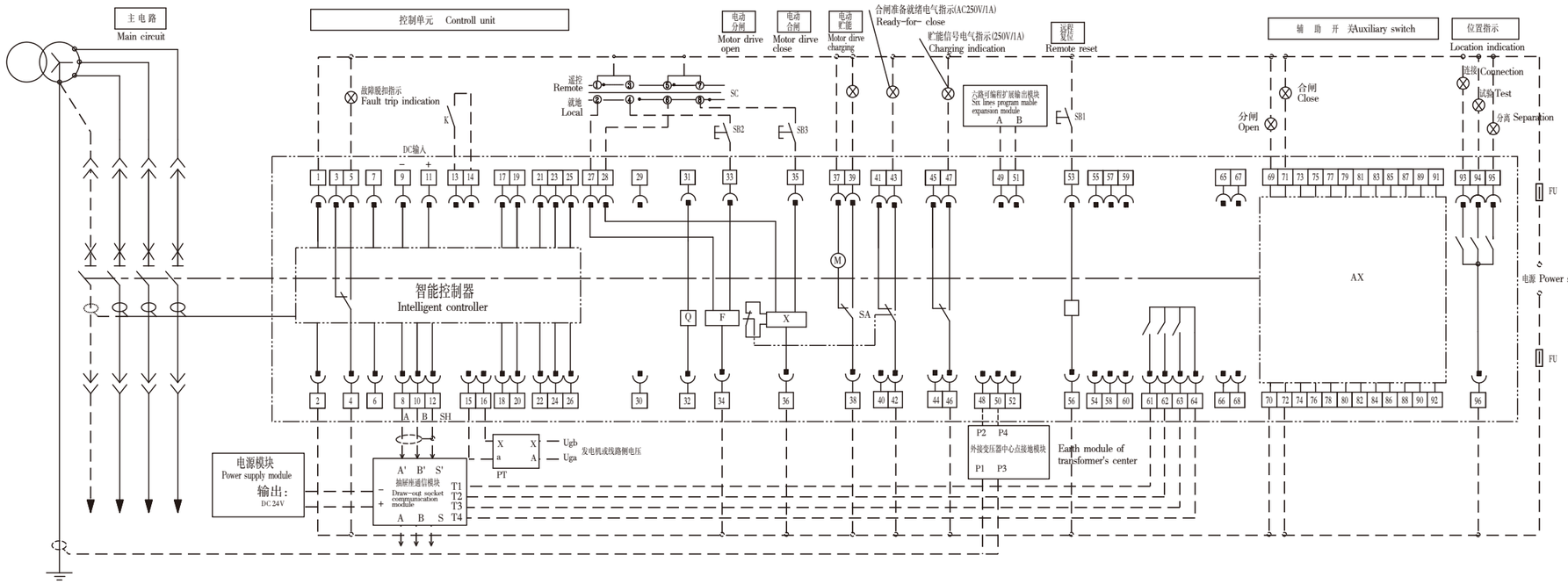
辅助开关型式 The pattern of auxiliary switch



特别注意：辅助电源电压为DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。
Special Note: When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

端子号 Terminal	功能Function		适用控制器类型 Controller type				
			EN35/36	EA35/36	EP35/36	EQ35/36	EG35/36
1, 2	辅助电源	Auxiliary power supply	√	√	√	√	√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)	√	√	√	√	√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L.	○	○	○	○	○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	A/B is RS485 interface, 8 toA,10 toB,12 to SH If with components of draw-out socket communication module ,8 to A’, 10 to B’, 12 to S’	○	○	○	○	○
9,11	通信型断路器需要时接入DC24V电源 9接“-”，11接“+”	connecting DC24V power supply if necessary for communicative circuit breaker	○	○	○	○	○
13, 14	可编程输出1	Programmable out 1	○	○	○	○	○
15, 16	可编程输出2	Programmable out 2	○	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V,Voltage changover Module must be selected.	○	—	√	√	√
21,22	ZSI信号输出，21接“+”，22接“COM”	ZSI signal output, 21 connecting “+”, 22 connecting “COM”	○	○	○	○	○
23,24	ZSI信号输入，23接“+”，24接“COM”	ZSI signal input, 23 connecting “+”, 24 connecting “COM”	○	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○	○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）	Connect with under-voltage release (must connecting main circuit, when with undervoltage delay module, connecting to it's output)	○	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release	√	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√	√
37,38,39	电动(电机贮能，37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism, Power supply directly (auto energy prestore) or power supply with a NO(normal open) button Ready-for-close indication	√	√	√	√	√
41,42,43	合闸准备就绪电气指示	simultaneously (manual energy prestore) with 37,38.	○	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○	○
48,50,52	接地电流模块，48接P2，50接P4	earth current module, 48 connecting P2, 50 connecting P4	○	○	○	○	○
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○	○
69~92	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√	√
93,96	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）	○	○	○	○	○
94,96	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○	○	○	○	○
95,96	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○	○	○	○	○
61,62,63,64	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module	○	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，61至T1，62至T2，63至T3，64至T4	Input of draw-out socket communication module location Signal, 61 connecting T1,62 connecting T2,63 connecting T3,64 connecting T4	○	○	○	○	○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module	○	○	○	○	○
A’, B’, S’	抽屉座通信模块通信输入，连接本体通信输出，A’接8，B’接10，S’接12	Communication input of draw-out socket communication module connect with communicable output of the main body, A’ connect with 8, B’ with10,S’ with 12	○	○	○	○	○
P1,P3	接外接变压器中心点接地互感器	Connecting earth transformer of transformer center	○	○	○	○	○

CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400二次回路接线图 (智能控制器为ER35/36)

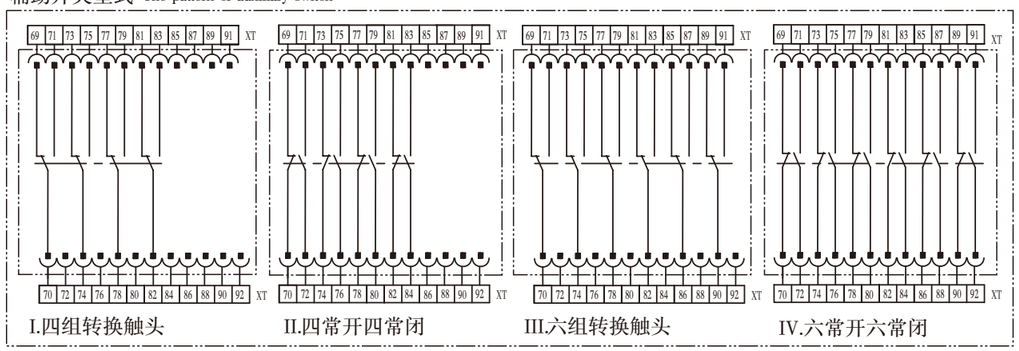


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
K	双重参数切换控制节点信号输入	
SC	转换开关	chang-over switch
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
SA	电动机行程开关	Limit switch
M	贮能电机	Charging motor
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch
PT	发电机或线路侧电压互感器（用户根据系统电压自购AC690V/100V或AC400V/100V规格）	Voltage sensor of generator or line(AC690V/100V or AC400V/100V useself)

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch



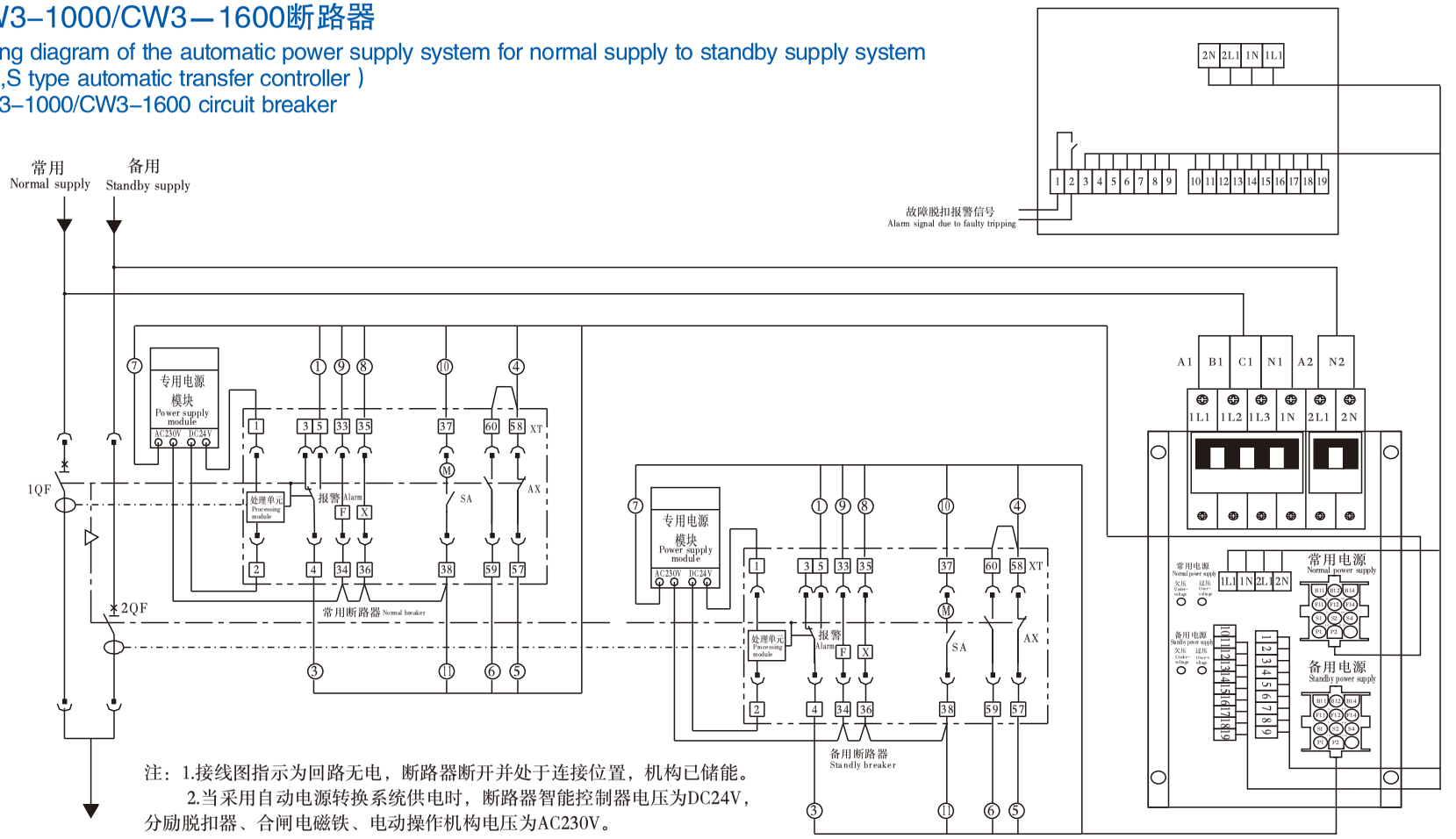
特别注意：辅助电源电压为DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。
Special Note: When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：通信型断路器选择同期合闸功能后，不再具有遥控合闸功能。
Note: Communicative breaker has not remote close function, when it selectes synchrocheck close function.

端子号 Terminal	功能Function			适用控制器类型 Controller type
				ER35/36
1, 2	辅助电源	Auxiliary power supply		√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)		√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L.		○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	A/B is RS485 interface, 8 toA,10 toB,12 to SH If with components of draw-out socket communication module ,8 to A’ , 10 to B’ , 12 to S’		○
9,11	通信型断路器需要时接入DC24V电源 9接 “–” ，11接 “+”	connecting DC24V power supply if necessary for communicative circuit breaker		○
13, 14	二路可编程	可编程输出1	two programmable	two programmable out 1 ○
	双重参数切换	双重参数设定数字输入（干触头输入）	two group parameter changover	two group parameter set digital input(dry contact input) ○
15, 16	二路可编程	可编程输出2	two programmable	two programmable out 2 ○
	自动同期合闸	接发电机或线路侧电压互感器输出端	synchrocheck close	connecting voltage sensor out of generator or line ○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V,Voltage changover Module must be selected.		√
21,22	ZSI功能	ZSI信号输出，21接 “+” ，22接 “COM”	ZSI function	ZSI signal out, 21 to “+” , 22 to “COM” ○
	方向性保护	21接正向输出，22接 “COM”	directionality	21 to forwad out, 22 to “COM” ○
23,24	ZSI功能	ZSI信号输入，23接 “+” ，24接 “COM”	ZSI function	ZSI signal input, 23 to “+” , 24 to “COM” ○
	方向性保护	23接正向输入，24接 “COM”	directionality	23 to forwad input, 24 to “COM” ○
25,26	方向性保护	25接反向输出，26接反向输入	directionality	25 to reverse out, 26 to reverse input ○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33		○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35		○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）	Connect with under-voltage release (must connecting main circuit, when with undervoltage delay module, connecting to it's output)		○
33, 34	分励脱扣器	Connect with shunt release		√
35, 36	合闸电磁铁	Connect with closing electromagnet		√
37,38,39	电动(电机贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO(normal open) button Ready-for-close indication		√
41,42,43	合闸准备就绪电气指示	simultaneously (manual energy prestore) with 37,38.		○
45,46,47	储能信号电气指示	charging indication		○
48,50,52	接地电流模块，48接P2，50接P4	earth current module, 48 connecting P2, 50 connecting P4		○
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B		○
53,54	远程复位	Remote reset		○
69~92	辅助开关连接端子	Connecting terminals of auxiliary switch		√
93,96	抽屉座 “连接” 位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）		○
94,96	抽屉座 “试验” 位置指示（AC250V 1A）	“Test” position indication （AC250V 1A）		○
95,96	抽屉座 “分离” 位置指示（AC250V 1A）	“Separated” position indication （AC250V 1A）		○
61,62,63,64	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module		○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，61至T1，62至T2，63至T3，64至T4	Input of draw-out socket communication module location Signal, 61 connecting T1,62 connecting T2,63 connecting T3,64 connecting T4		○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module		○
A’, B’, S’	抽屉座通信模块通信输入，连接本体通信输出，A’接8，B’接10，S’接12	Communication input of draw-out socket communication module, connect with communication output of the main body, A’ connect with 8, B’ with10,S’ with 12		○
P1,P3	接外接变压器中心点接地互感器	Connecting earth transformer of transformer center		○

常用–备用自动电源转换系统电气线路图（R型、S型自动转换控制器）CW3–1000/CW3—1600断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system （R,S type automatic transfer controller） CW3–1000/CW3–1600 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

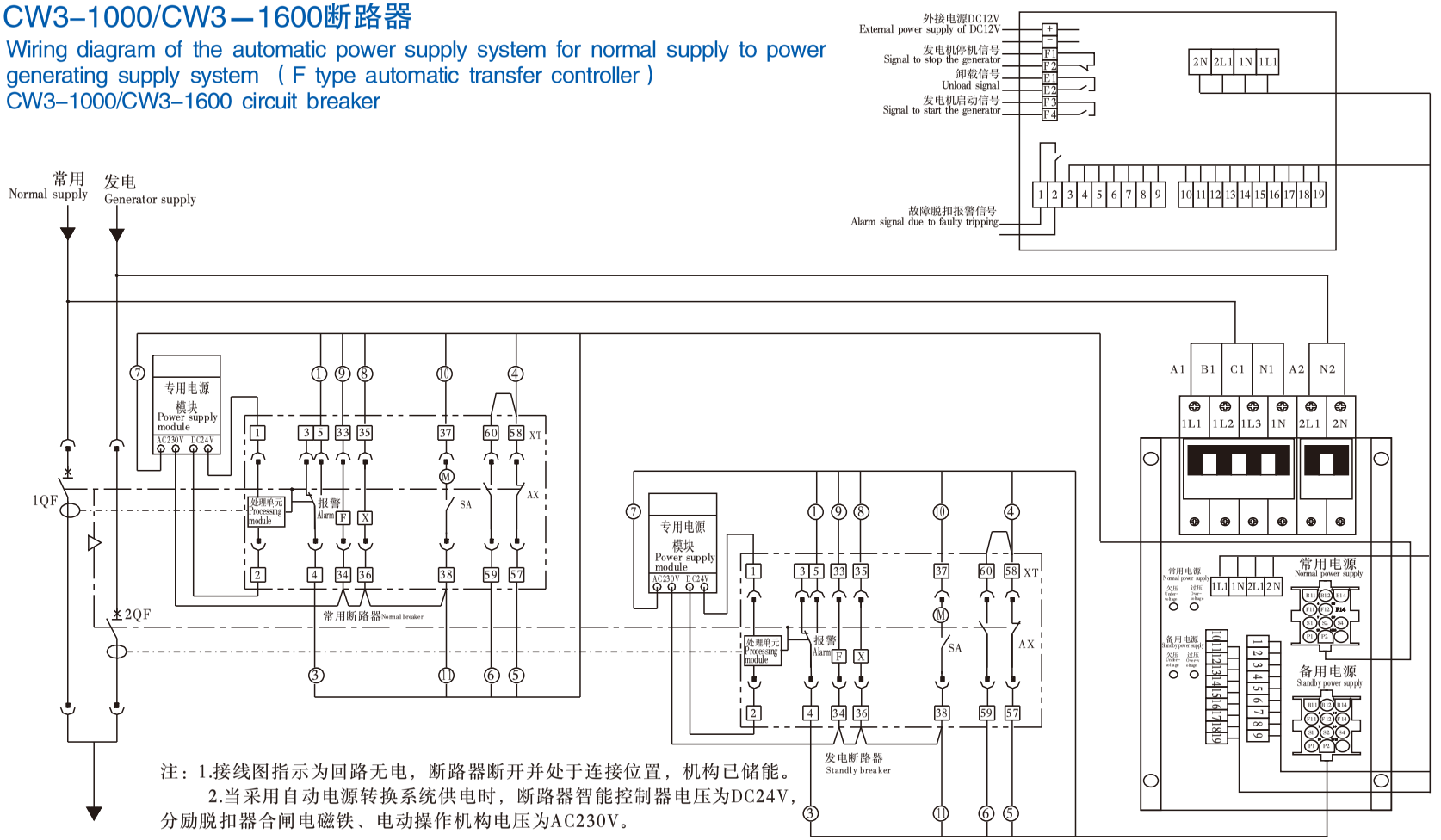
2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关	AX – Auxiliary switch
F–断路器分励脱扣器	F – Shunt release
X–断路器合闸电磁铁	X – The electro-magnet to close the breaker
M–断路器贮能电机	M – Charging motor
SA–断路器贮能电动机行程开关	SA – Travel-limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT – Terminals for the secondary circuit of the breaker

常用–发电自动电源转换系统电气线路图（F型自动转换控制器）
CW3–1000/CW3—1600断路器

Wiring diagram of the automatic power supply system for normal supply to power generating supply system （F type automatic transfer controller）
CW3–1000/CW3–1600 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。
2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

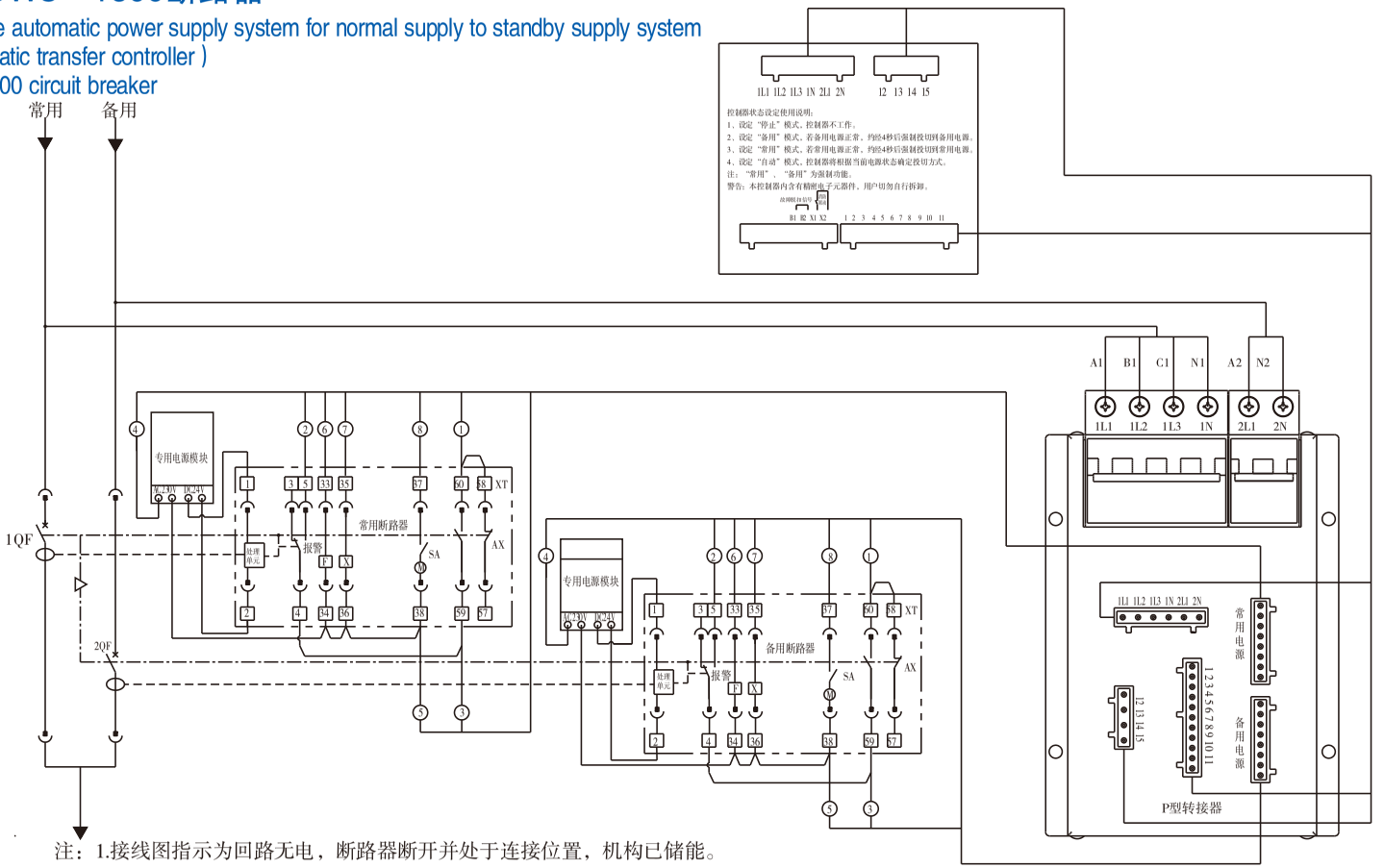
AX–断路器辅助开关
F–断路器分励脱扣器
X–断路器合闸电磁铁
M–断路器贮能电机
SA–断路器贮能电动机行程开关
XT–断路器二次回路接线端子

AX – Auxiliary switch
F – Shunt release
X – The electro-magnet to close the breaker
M – Charging motor
SA – Travel-limit switch for the charging motor of the breaker
XT – Terminals for the secondary circuit of the breaker

说明：当常用电源正常时，发电机启动信号（F3、F4）、发电机停机信号（F1、F2）、卸载信号（E1、E2）均处于断开位置。
当常用电源失电后，发电机停机信号（F1、F2）立即闭合，发电机启动信号（F3、F4）经t5延时后闭合。
当发电机电源发出后，发电机启动信号（F3、F4）立即断开，卸载信号（E1、E2）经t1延时后闭合。
当常用电源恢复后，卸载信号（E1、E2）立即断开，发电机停机信号（F1、F2）经t6延时后断开。

常用–备用自动电源转换系统电气线路图（ZR型、ZS型自动转换控制器）
CW3–1000/CW3—1600断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system
（ZR,ZS type automatic transfer controller）
CW3–1000/CW3–1600 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。
2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

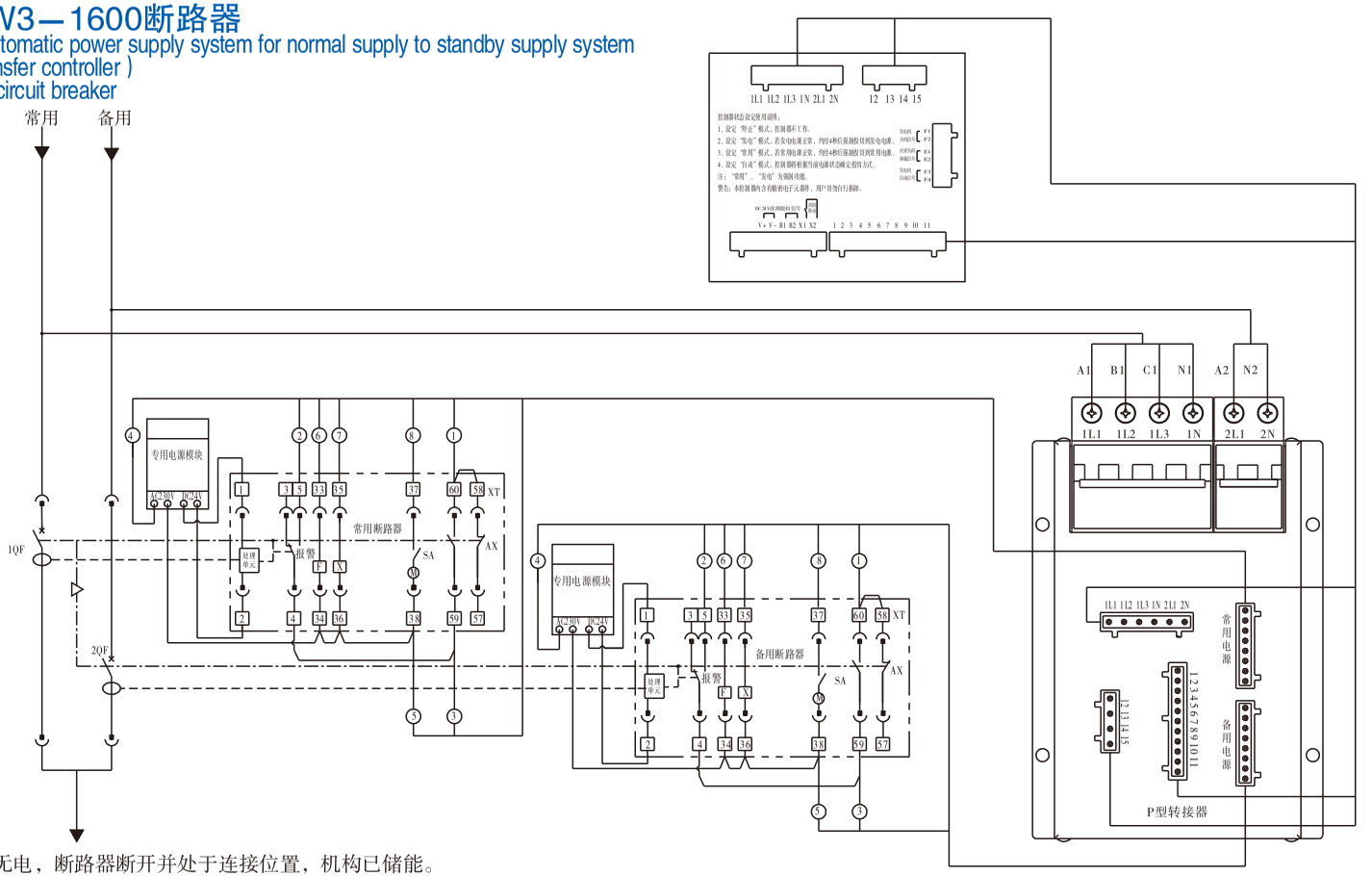
Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关
F–断路器分励脱扣器
X–断路器合闸电磁铁
M–断路器贮能电机
SA–断路器贮能电动机行程开关
XT–断路器二次回路接线端子

AX–Auxiliary switch
F–Shunt release
X–The electro–magnet to close the breaker
M–Charging motor
SA–Overtravel–limit switch for the charging motor of the breaker
XT–Terminals for the secondary circuit of the breaker

常用–备用自动电源转换系统电气线路图（ZF型自动转换控制器）
CW3–1000/CW3—1600断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system
(ZF type automatic transfer controller)
CW3–1000/CW3–1600 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

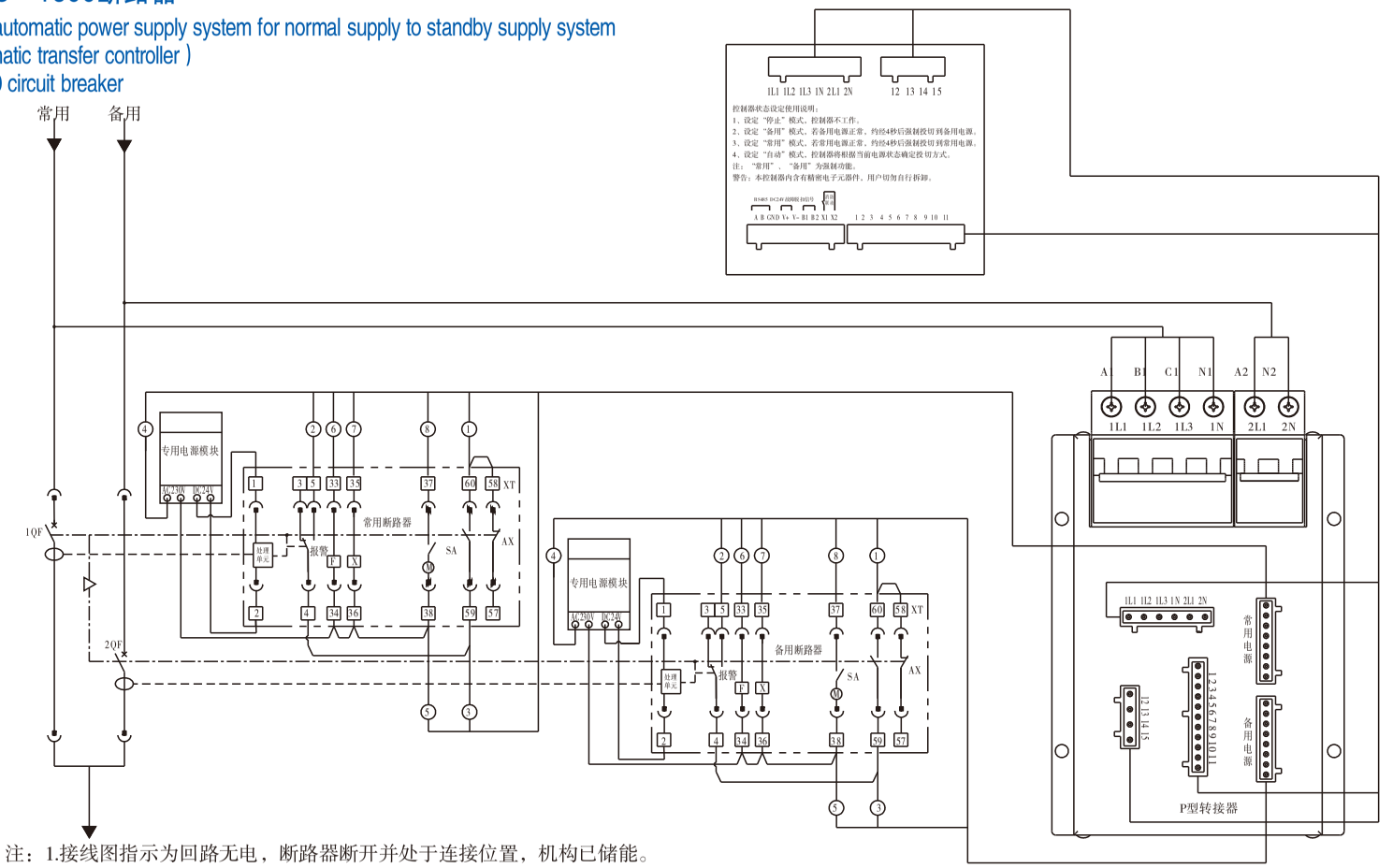
Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关	AX–Auxiliary switch
F–断路器分励脱扣器	F–Shunt release
X–断路器合闸电磁铁	X–The electro–magnet to close the breaker
M–断路器贮能电机	M–Charging motor
SA–断路器贮能电动机行程开关	SA–Overtravel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT–Terminals for the secondary circuit of the breaker

说明：当常用电源正常时，发电机启动信号（F3、F4）、发电机停机信号（F1、F2）、卸载信号（E1、E2）均处于断开位置。
当常用电源失电后，发电机停机信号（F1、F2）立即闭合，发电机启动信号（F3、F4）经t5延时后闭合。
当发电机电源发出后，发电机启动信号（F3、F4）立即断开，卸载信号（E1、E2）经t1延时后闭合。
当常用电源恢复后，卸载信号（E1、E2）立即断开，发电机停机信号（F1、F2）经t6延时后断开。

常用-备用自动电源转换系统电气线路图（ZTR型、ZTS型自动转换控制器）
CW3-1000/CW3—1600断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system
（ZTR,ZTS type automatic transfer controller）
CW3-1000/CW3-1600 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

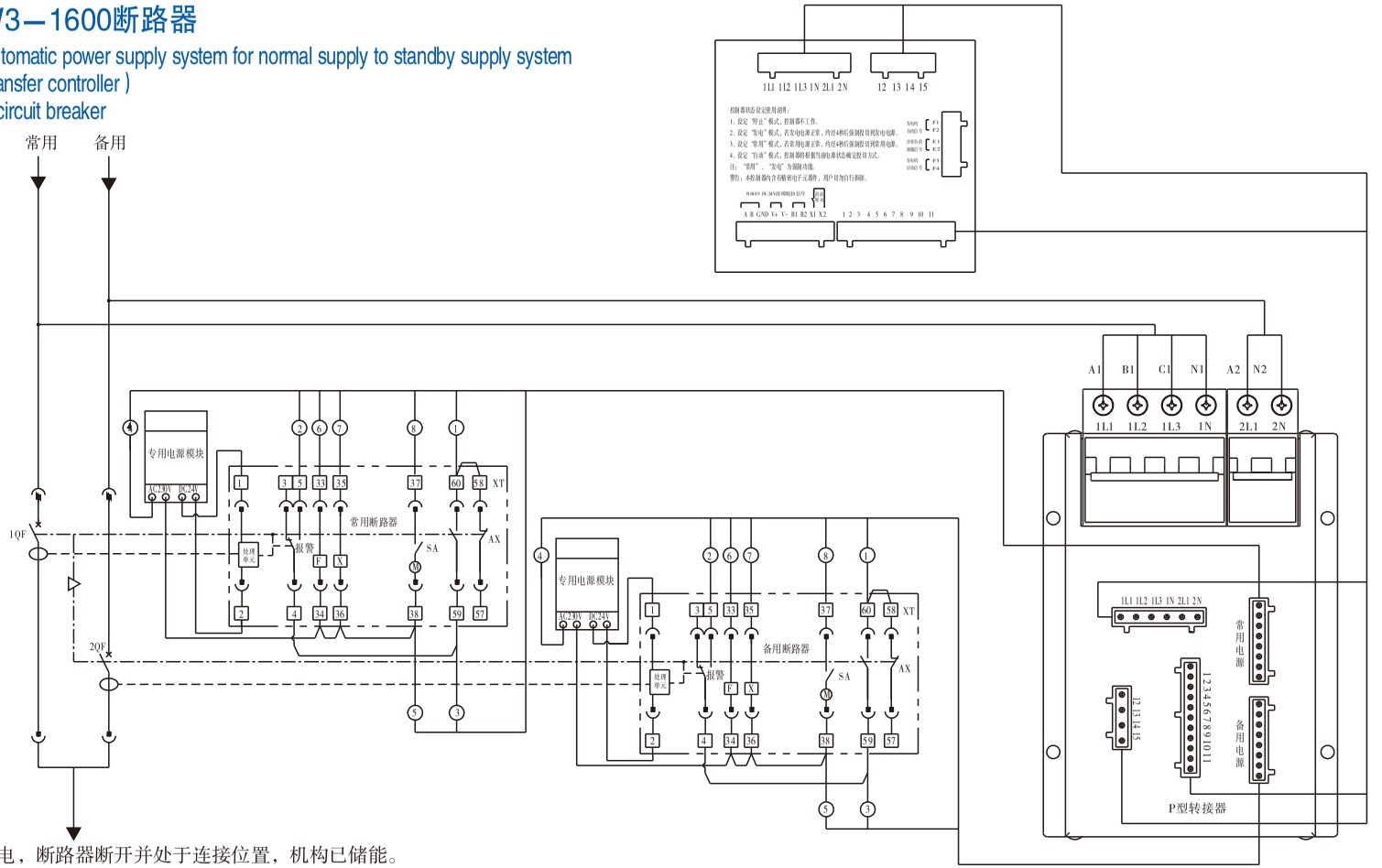
Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.

2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX-断路器辅助开关	AX-Auxiliary switch
F-断路器分励脱扣器	F-Shunt release
X-断路器合闸电磁铁	X-The electro-magnet to close the breaker
M-断路器贮能电机	M-Charging motor
SA-断路器贮能电动机行程开关	SA-Overtravel-limit switch for the charging motor of the breaker
XT-断路器二次回路接线端子	XT-Terminals for the secondary circuit of the breaker

常用-备用自动电源转换系统电气线路图（ZTF型自动转换控制器）CW3-1000/CW3—1600断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system
（ZTF type automatic transfer controller）
CW3-1000/CW3-1600 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。
2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

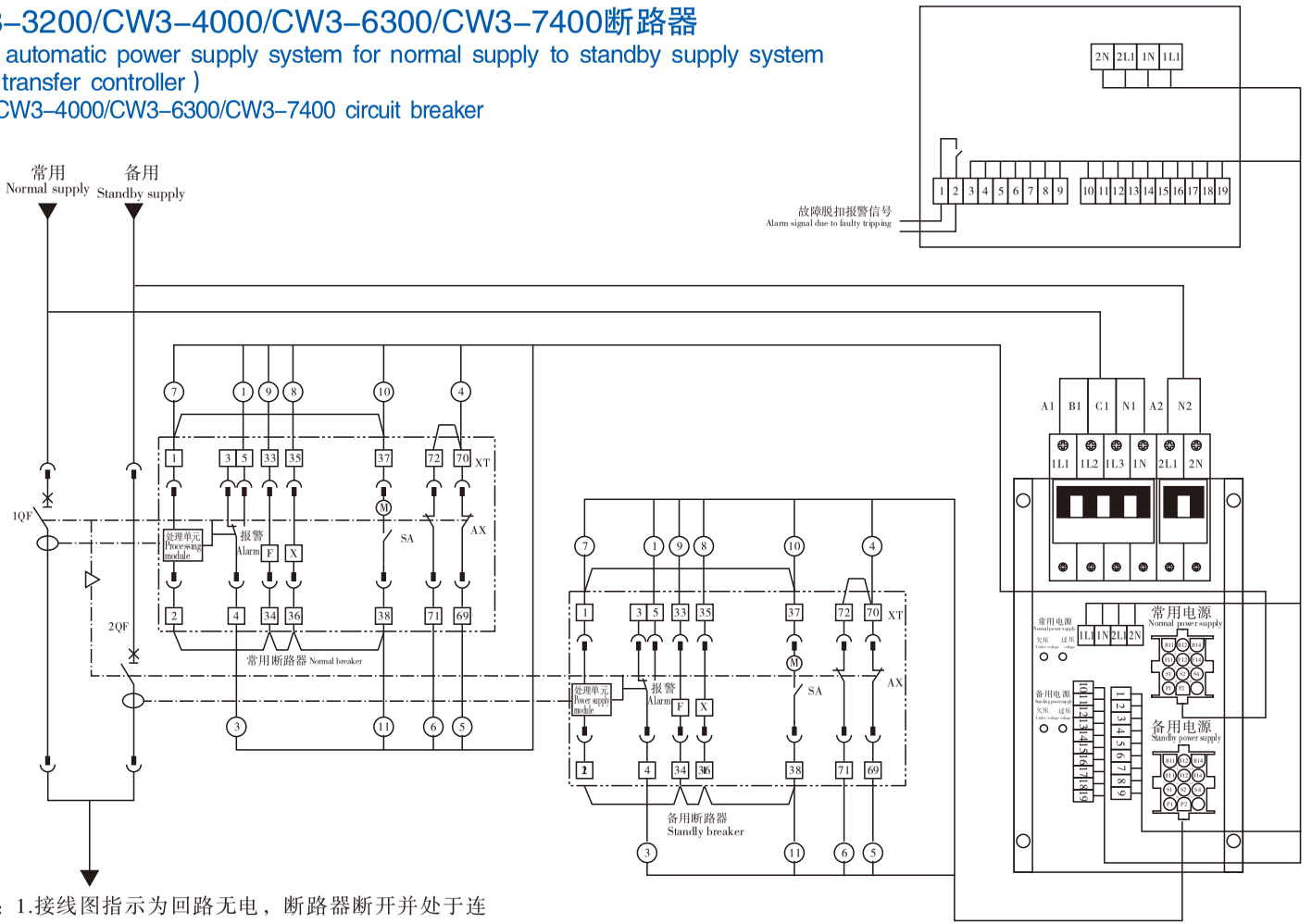
AX-断路器辅助开关
F-断路器分励脱扣器
X-断路器合闸电磁铁
M-断路器贮能电机
SA-断路器贮能电动机行程开关
XT-断路器二次回路接线端子

AX-Auxiliary switch
F-Shunt release
X-The electro-magnet to close the breaker
M-Charging motor
SA-Overtravel-limit switch for the charging motor of the breaker
XT-Terminals for the secondary circuit of the breaker

说明：当常用电源正常时，发电机启动信号（F3、F4）、发电机停机信号（F1、F2）、卸载信号（E1、E2）均处于断开位置。
当常用电源失电后，发电机停机信号（F1、F2）立即闭合，发电机启动信号（F3、F4）经t5延时后闭合。
当发电机电源发出后，发电机启动信号（F3、F4）立即断开，卸载信号（E1、E2）经t1延时后闭合。
当常用电源恢复后，卸载信号（E1、E2）立即断开，发电机停机信号（F1、F2）经t6延时后断开。

常用–备用自动电源转换系统电气线路图（R型、S型自动转换控制器）CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system （R,S type automatic transfer controller）CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

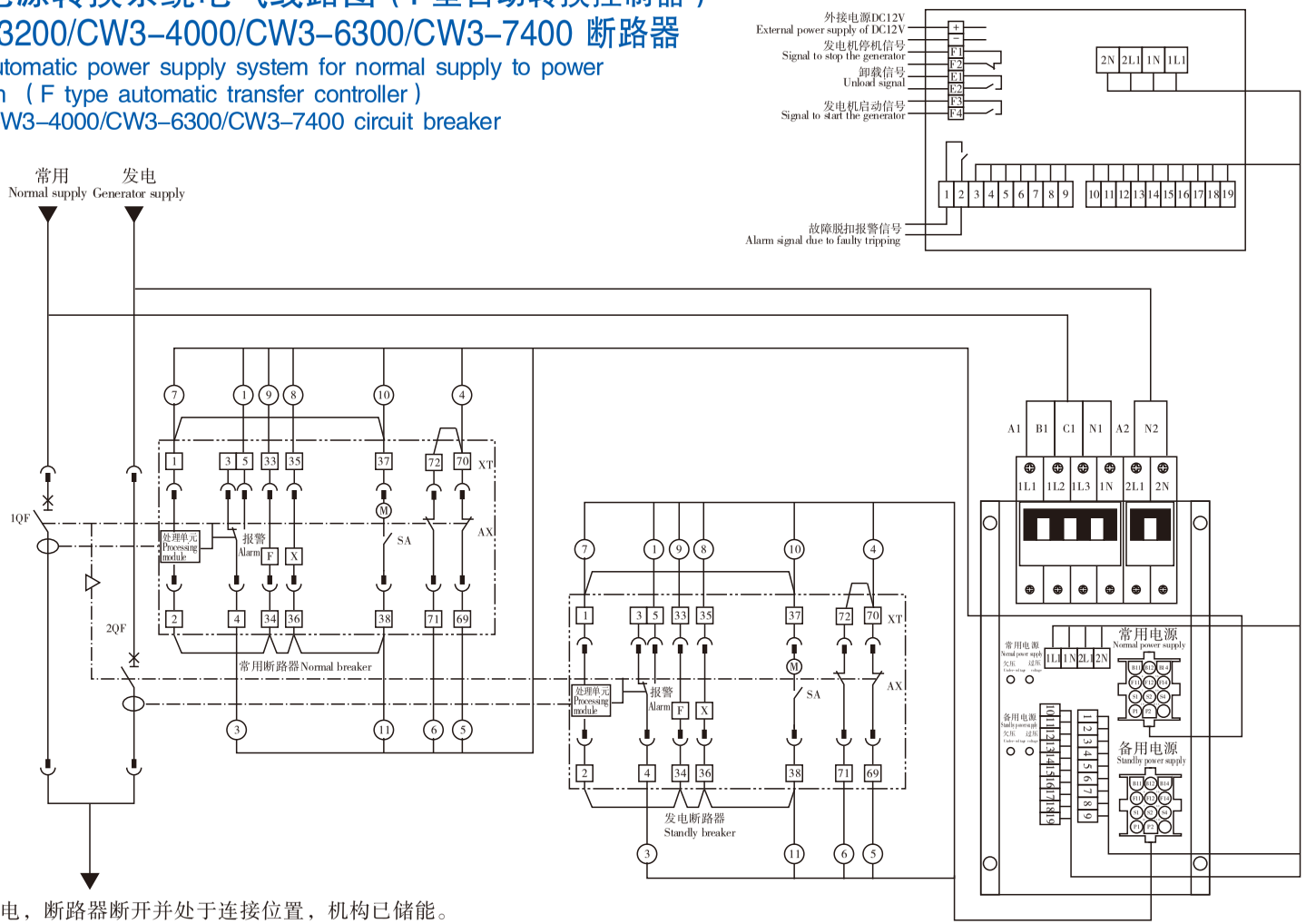
Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关
F–断路器分励脱扣器
X–断路器合闸电磁铁
M–断路器贮能电机
SA–断路器贮能电动机行程开关
XT–断路器二次回路接线端子

AX – Auxiliary switch
F – Shunt release
X – The electro–magnet to close the breaker
M – Charging motor
SA – Travel–limit switch for the charging motor of the breaker
XT – Terminals for the secondary circuit of the breaker

常用–发电自动电源转换系统电气线路图（F型自动转换控制器）
CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400 断路器

Wiring diagram of the automatic power supply system for normal supply to power generating supply system （F type automatic transfer controller）
CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

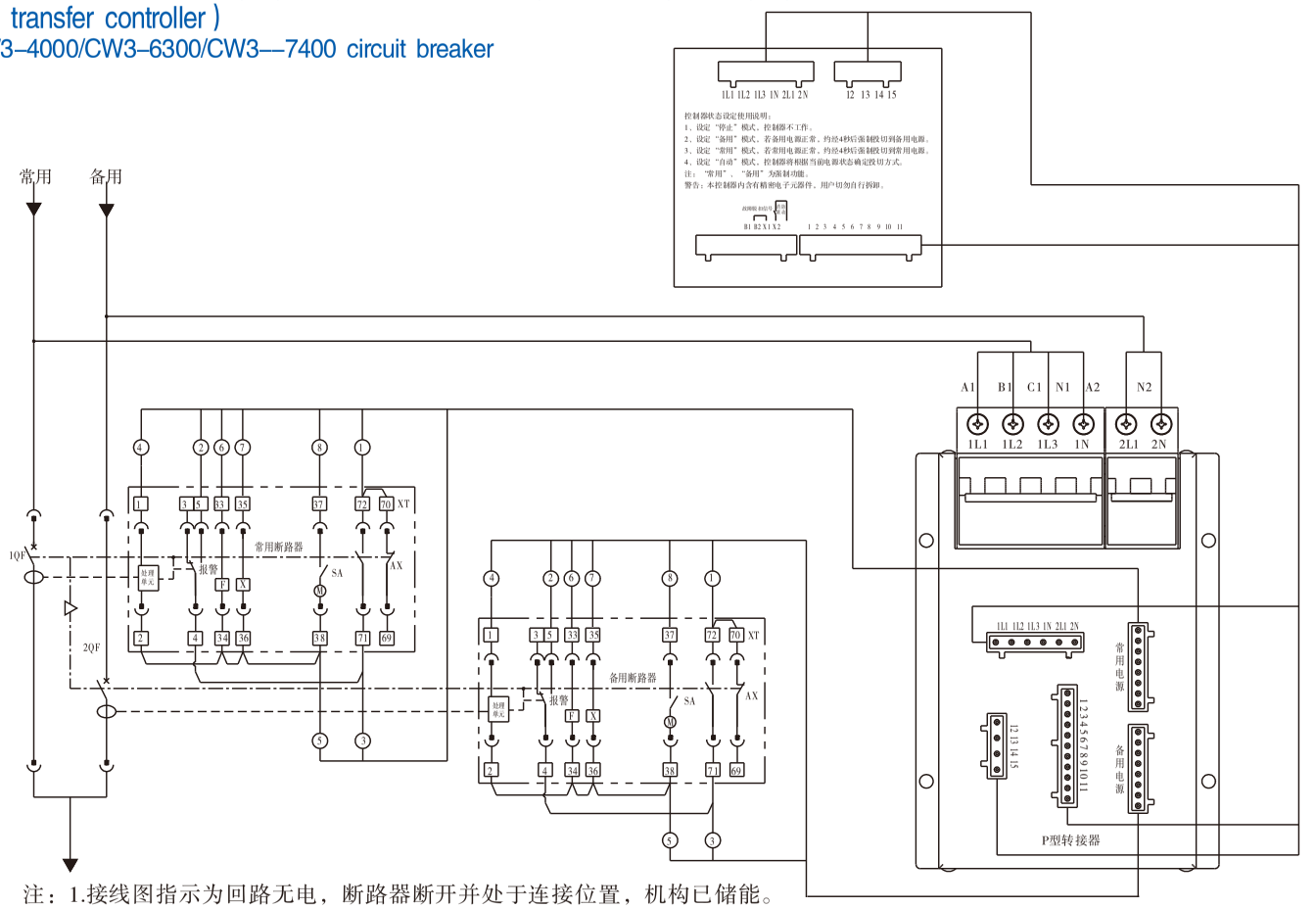
2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关	AX – Auxiliary switch
F–断路器分励脱扣器	F – Shunt release
X–断路器合闸电磁铁	X – The electro–magnet to close the breaker
M–断路器贮能电机	M – Charging motor
SA–断路器贮能电动机行程开关	SA – Travel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT – Terminals for the secondary circuit of the breaker

说明：当常用电源正常时，发电机启动信号（F3、F4）、发电机停机信号（F1、F2）、卸载信号（E1、E2）均处于断开位置。
当常用电源失电后，发电机停机信号（F1、F2）立即闭合，发电机启动信号（F3、F4）经t5延时后闭合。
当发电机电源发出后，发电机启动信号（F3、F4）立即断开，卸载信号（E1、E2）经t1延时后闭合。
当常用电源恢复后，卸载信号（E1、E2）立即断开，发电机停机信号（F1、F2）经t6延时后断开。

常用-备用自动电源转换系统电气线路图（ZR型、ZS型自动转换控制器）
CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400断路器
Wiring diagram of the automatic power supply system for normal supply to standby supply system
（ZR,ZS type automatic transfer controller）
CW3-2500/CW-3200/CW3-4000/CW3-6300/CW3—7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

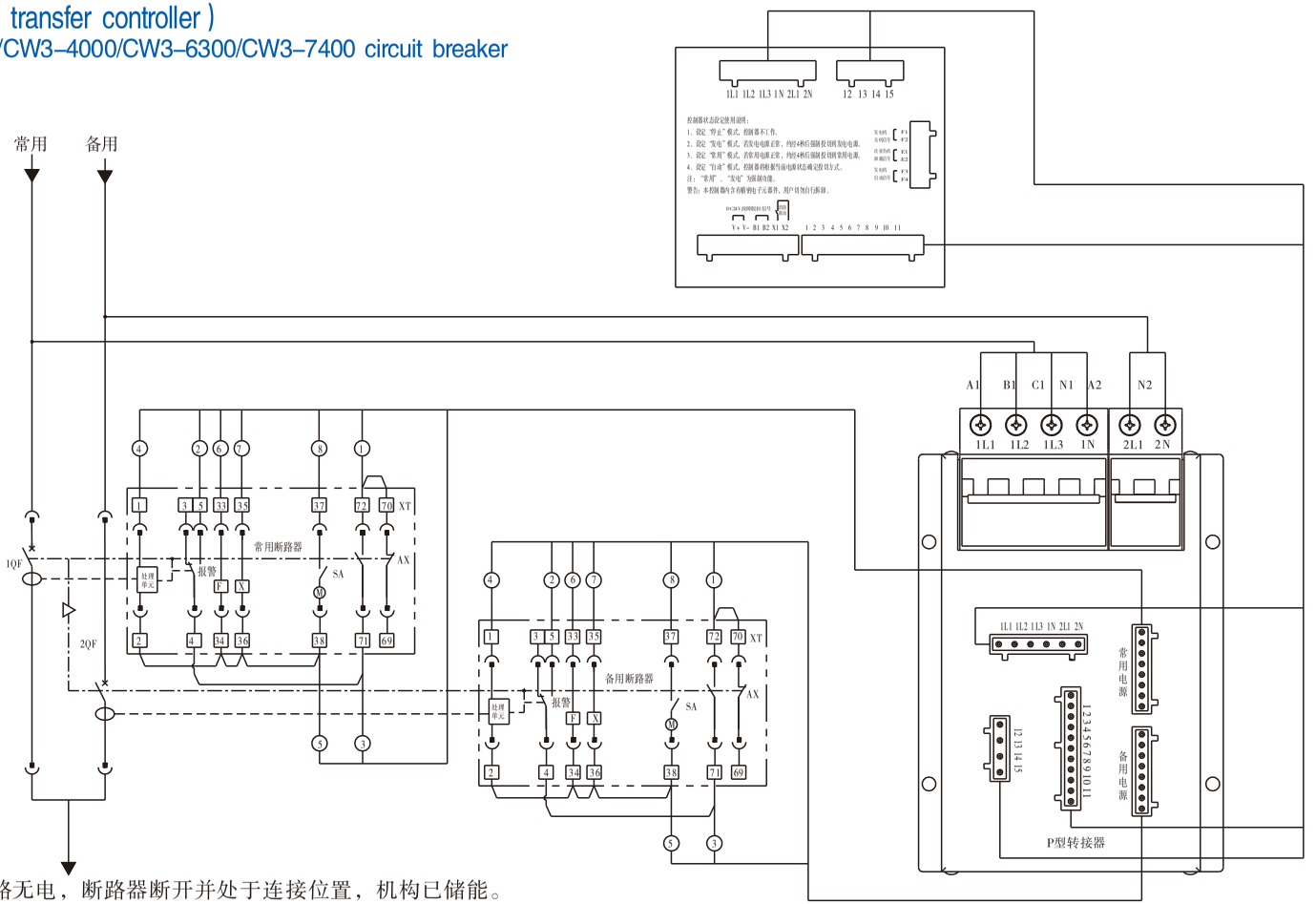
Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.

2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX-断路器辅助开关
F-断路器分励脱扣器
X-断路器合闸电磁铁
M-断路器贮能电机
SA-断路器贮能电动机行程开关
XT-断路器二次回路接线端子

AX-Auxiliary switch
F-Shunt release
X-The electro-magnet to close the breaker
M-Charging motor
SA-Overtravel-limit switch for the charging motor of the breaker
XT-Terminals for the secondary circuit of the breaker

常用-备用自动电源转换系统电气线路图（ZF型自动转换控制器）
CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400断路器
Wiring diagram of the automatic power supply system for normal supply to standby supply system （ZF type automatic transfer controller）
CW3-2500/CW-3200/CW3-4000/CW3-6300/CW3-7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.

2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX-断路器辅助开关	AX-Auxiliary switch
F-断路器分励脱扣器	F-Shunt release
X-断路器合闸电磁铁	X-The electro-magnet to close the breaker
M-断路器贮能电机	M-Charging motor
SA-断路器贮能电动机行程开关	SA-Overtravel-limit switch for the charging motor of the breaker
XT-断路器二次回路接线端子	XT-Terminals for the secondary circuit of the breaker

说明：当常用电源正常时，发电机启动信号（F3、F4）、发电机停机信号（F1、F2）、卸载信号（E1、E2）均处于断开位置。

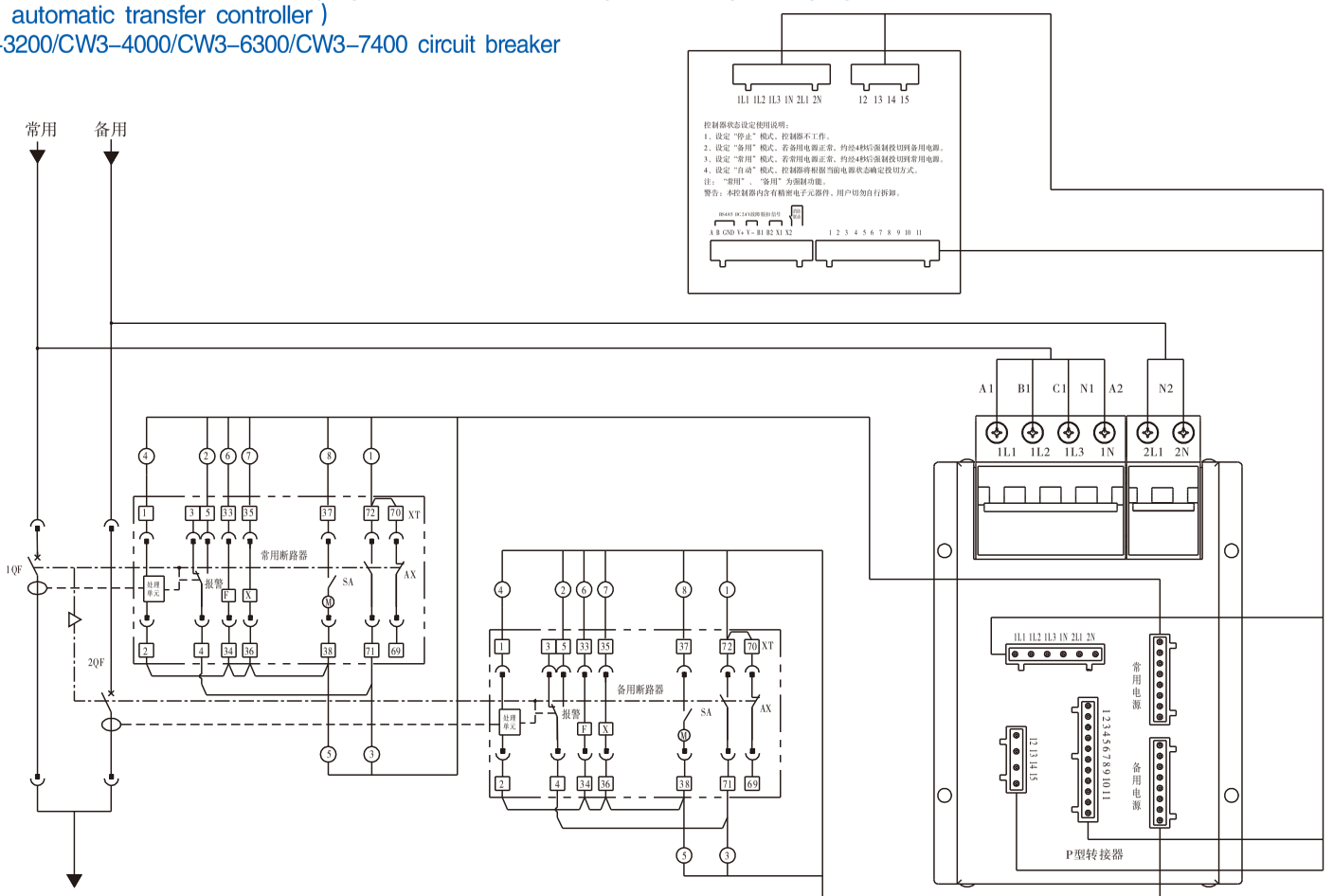
当常用电源失电后，发电机停机信号（F1、F2）立即闭合，发电机启动信号（F3、F4）经t5延时后闭合。

当发电机电源发出后，发电机启动信号（F3、F4）立即断开，卸载信号（E1、E2）经t1延时后闭合。

当常用电源恢复后，卸载信号（E1、E2）立即断开，发电机停机信号（F1、F2）经t6延时后断开。

常用-备用自动电源转换系统电气线路图（ZTR型、ZTS型自动转换控制器）
CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system
（ZTR,ZTS type automatic transfer controller）
CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.

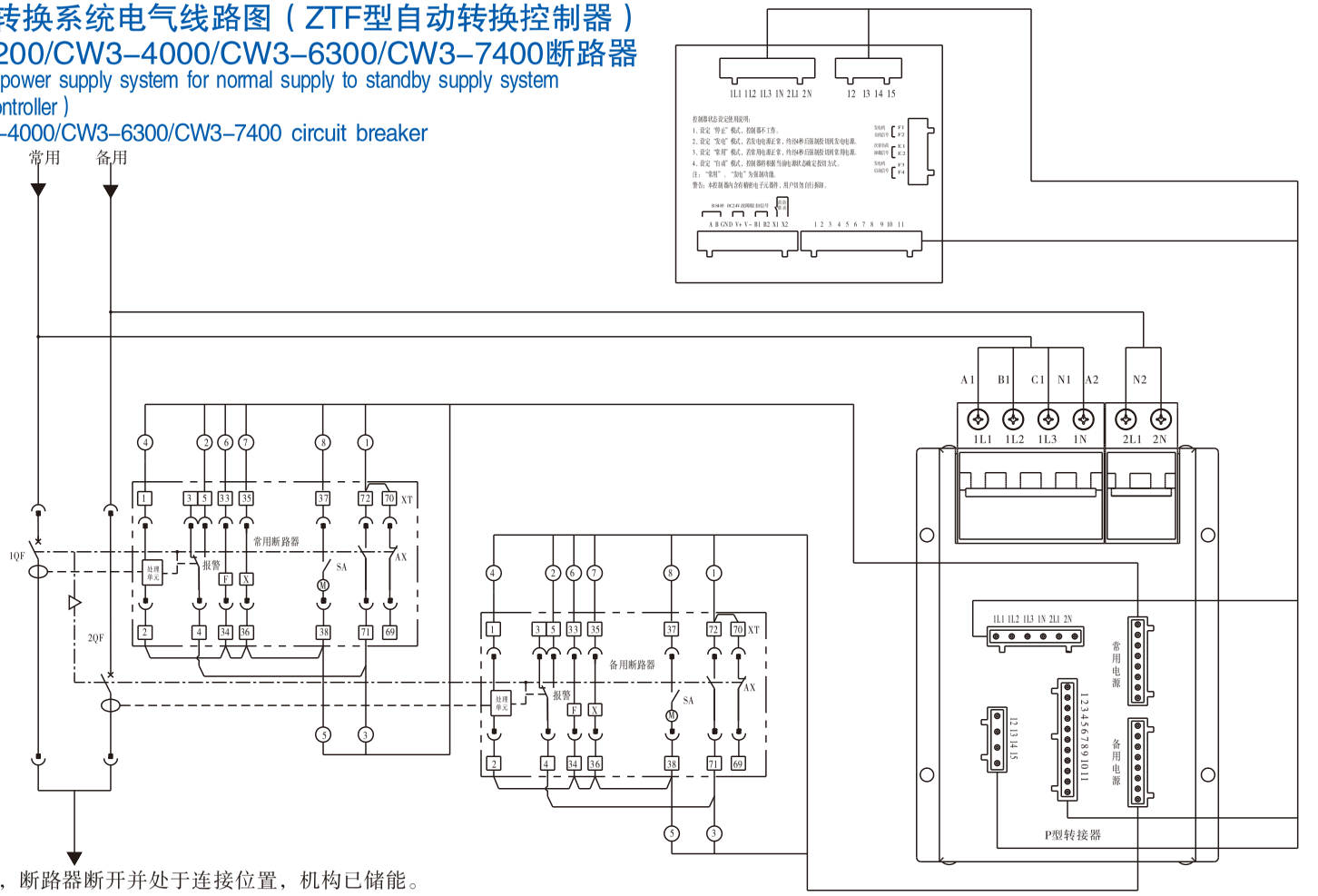
2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX-断路器辅助开关
F-断路器分励脱扣器
X-断路器合闸电磁铁
M-断路器贮能电机
SA-断路器贮能电动机行程开关
XT-断路器二次回路接线端子

AX-Auxiliary switch
F-Shunt release
X-The electro-magnet to close the breaker
M-Charging motor
SA-Overtravel-limit switch for the charging motor of the breaker
XT-Terminals for the secondary circuit of the breaker

常用-备用自动电源转换系统电气线路图（ZTF型自动转换控制器）
CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system
（ZTF type automatic transfer controller）
CW3-2500/CW3-3200/CW3-4000/CW3-6300/CW3-7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。
2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

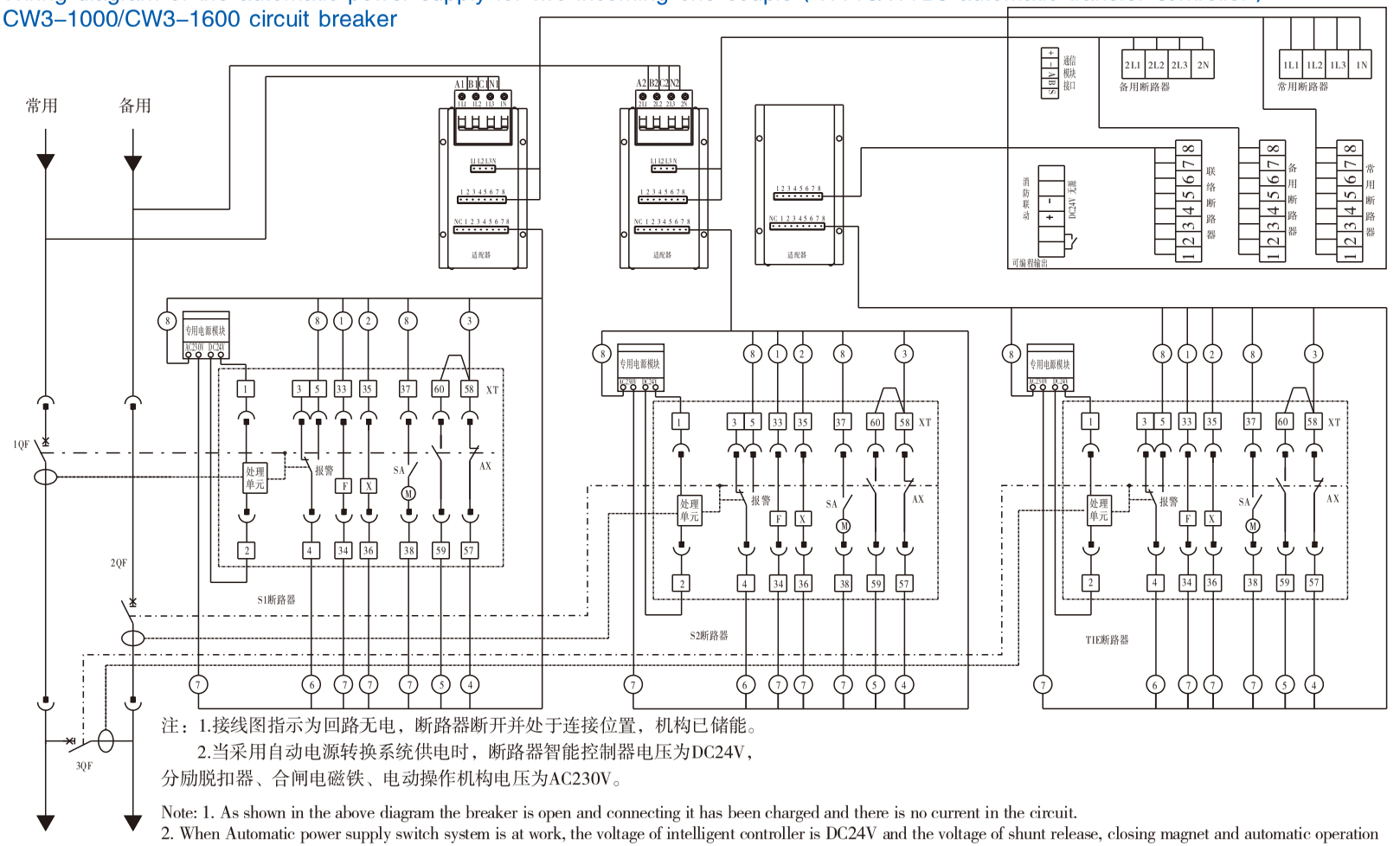
Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX-断路器辅助开关	AX-Auxiliary switch
F-断路器分励脱扣器	F-Shunt release
X-断路器合闸电磁铁	X-The electro-magnet to close the breaker
M-断路器贮能电机	M-Charging motor
SA-断路器贮能电动机行程开关	SA-Overtravel-limit switch for the charging motor of the breaker
XT-断路器二次回路接线端子	XT-Terminals for the secondary circuit of the breaker

说明：当常用电源正常时，发电机启动信号（F3、F4）、发电机停机信号（F1、F2）、卸载信号（E1、E2）均处于断开位置。
当常用电源失电后，发电机停机信号（F1、F2）立即闭合，发电机启动信号（F3、F4）经t5延时后闭合。
当发电机电源发出后，发电机启动信号（F3、F4）立即断开，卸载信号（E1、E2）经t1延时后闭合。
当常用电源恢复后，卸载信号（E1、E2）立即断开，发电机停机信号（F1、F2）经t6延时后断开。

两进线一母联自动电源转换系统电气线路图（WTT3/WTB3 自动转换控制器）CW3–1000/CW3–1600断路器

Wiring diagram of the automatic power supply for two incoming one couple (WTT3/WTB3 automatic transfer controller) CW3–1000/CW3–1600 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

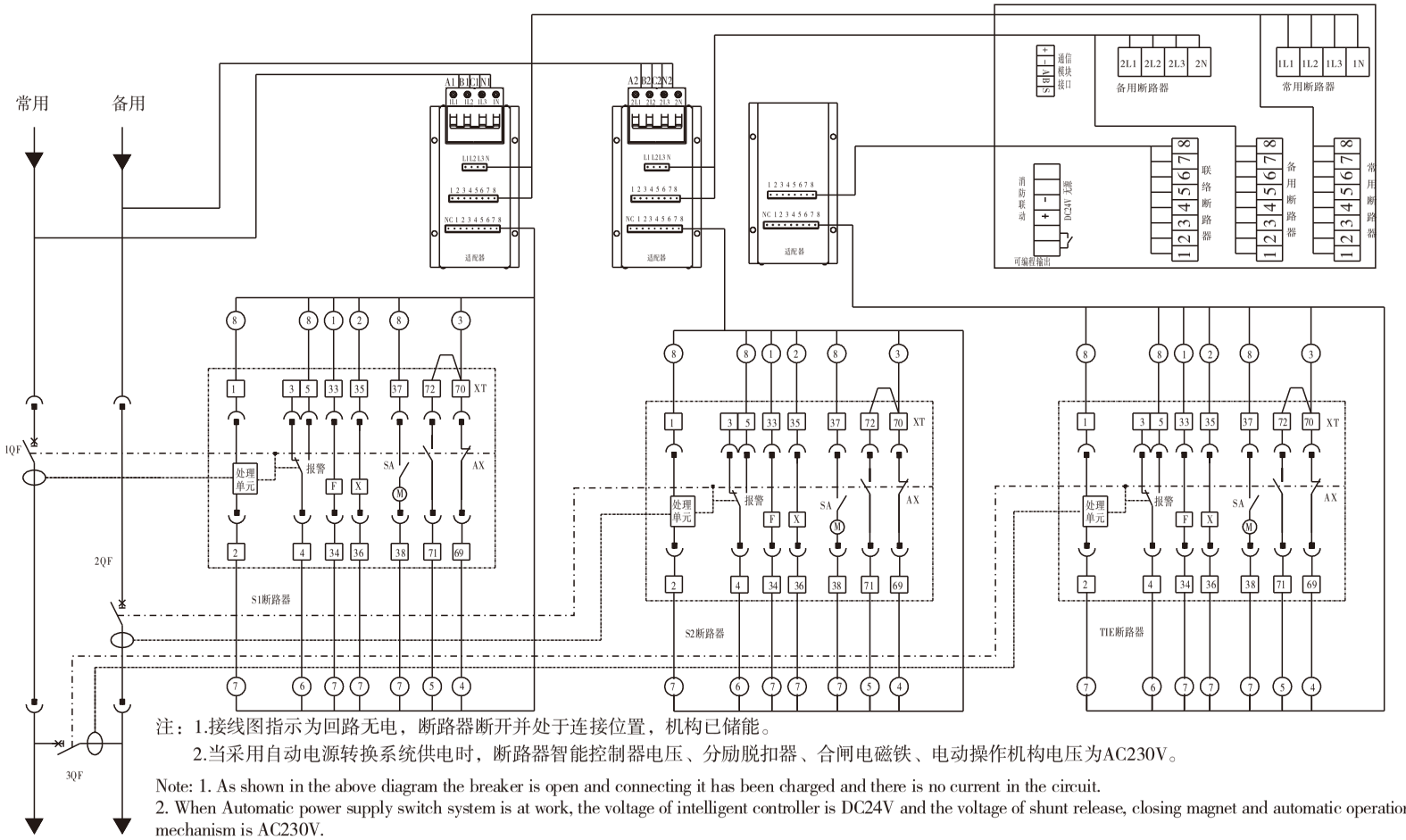
2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关	AX–Auxiliary switch
F–断路器分励脱扣器	F–Shunt release
X–断路器合闸电磁铁	X–The electro–magnet to close the breaker
M–断路器贮能电机	M–Charging motor
SA–断路器贮能电动机行程开关	SA–Overtravel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT–Terminals for the secondary circuit of the breaker

两进线一母联自动电源转换系统电气线路图（WTT3/WTB3 自动转换控制器）CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400断路器

Wiring diagram of the automatic power supply for two incoming one couple (WTT3/WTB3 automatic transfer controller) CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器电压、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

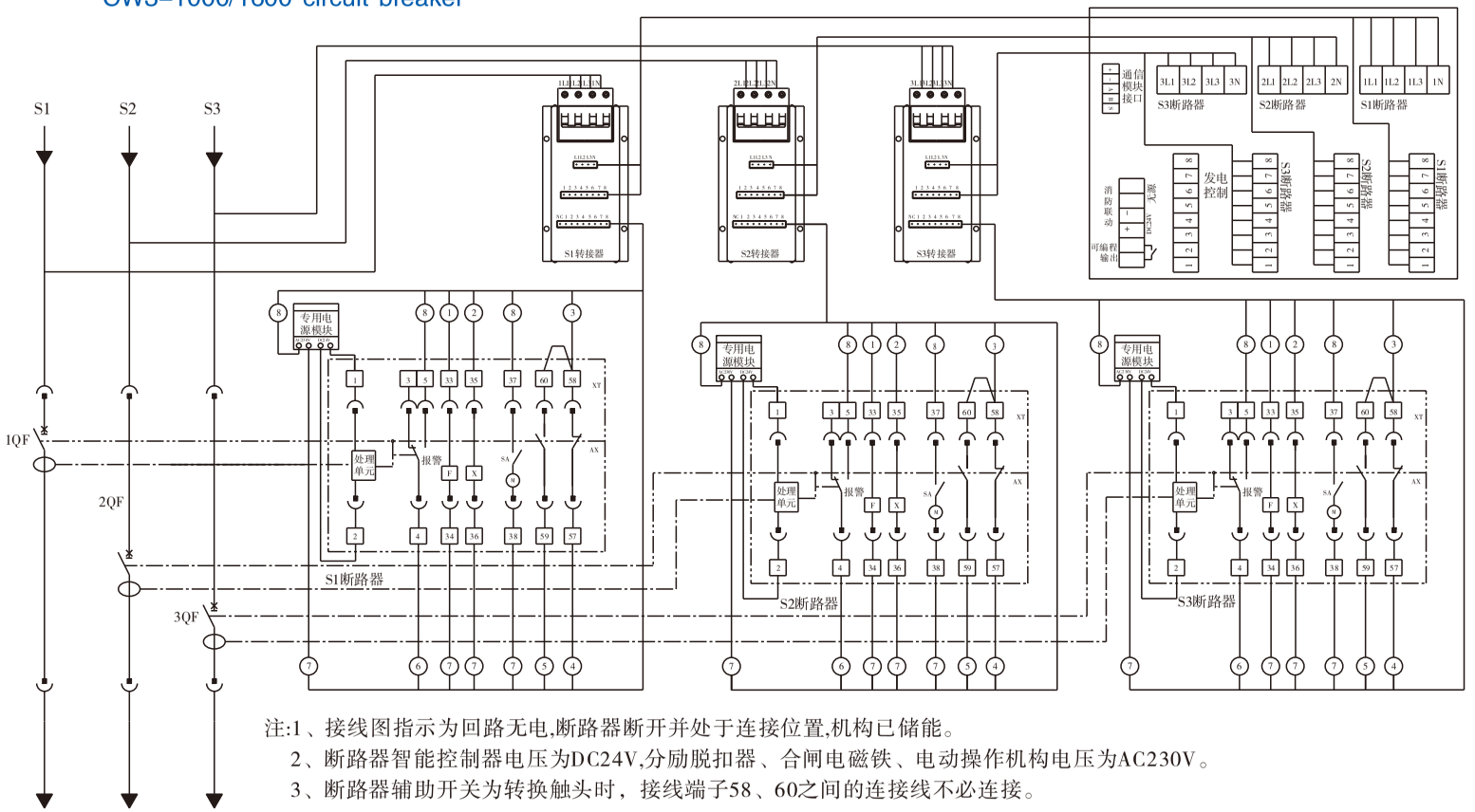
Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.

2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关	AX–Auxiliary switch
F–断路器分励脱扣器	F–Shunt release
X–断路器合闸电磁铁	X–The electro–magnet to close the breaker
M–断路器贮能电机	M–Charging motor
SA–断路器贮能电动机行程开关	SA–Overtravel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT–Terminals for the secondary circuit of the breaker

三电源自动电源转换系统电气线路图（WTT5型自动转换控制器）CW3–1000/1600断路器

Wiring diagram of the automatic power supply for three supplys (WTT5 automatic transfer controller) CW3–1000/1600 circuit breaker



注:1、接线图指示为回路无电,断路器断开并处于连接位置,机构已储能。

2、断路器智能控制器电压为DC24V,分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

3、断路器辅助开关为转换触头时，接线端子58、60之间的连接线不必连接。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.

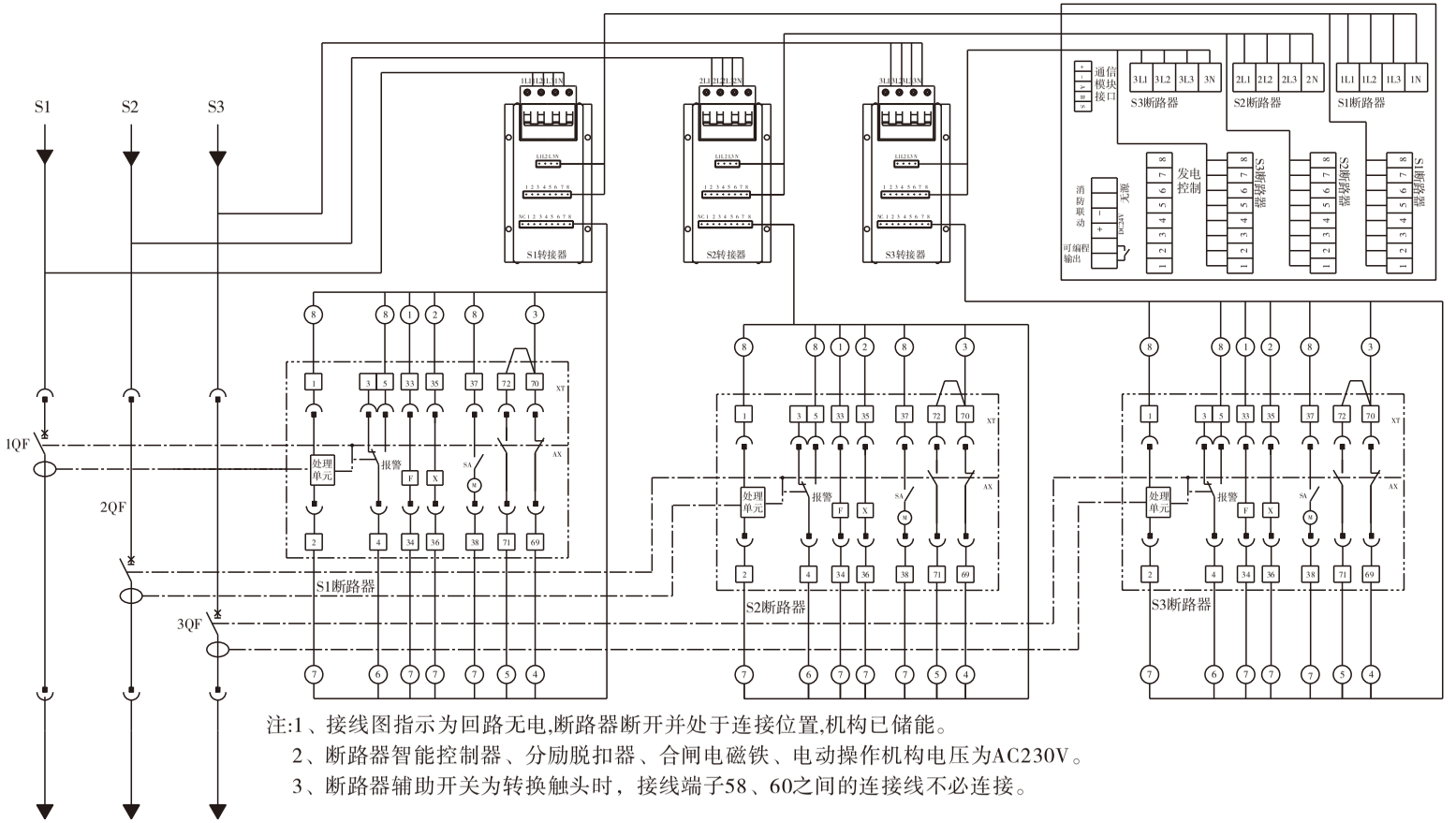
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

3. Wire of 58, 60 terminals isn’t connected for changover conacts

AX–断路器辅助开关	AX–Auxiliary switch
F–断路器分励脱扣器	F–Shunt release
X–断路器合闸电磁铁	X–The electro–magnet to close the breaker
M–断路器贮能电机	M–Charging motor
SA–断路器贮能电动机行程开关	SA–Overtravel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT–Terminals for the secondary circuit of the breaker

三电源自动电源转换系统电气线路图（WTT5型自动转换控制器）
CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400断路器

Wiring diagram of the automatic power supply for three supplys (WTT5 automatic transfer controller)
CW3–2500/CW3–3200/CW3–4000/CW3–6300/CW3–7400 circuit breaker



注:1、接线图指示为回路无电,断路器断开并处于连接位置,机构已储能。

2、断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

3、断路器辅助开关为转换触头时，接线端子58、60之间的连接线不必连接。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.
3. Wire of 58, 60 terminals isn't connected for changover conacts

AX–断路器辅助开关	AX–Auxiliary switch
F–断路器分励脱扣器	F–Shunt release
X–断路器合闸电磁铁	X–The electro–magnet to close the breaker
M–断路器贮能电机	M–Charging motor
SA–断路器贮能电动机行程开关	SA–Overtravel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT–Terminals for the secondary circuit of the breaker

本公司结合开发智能电器、成套设备和控制系统的经验，推出了三位一体的Riyear-PowerNet配电监控系统，满足了智能电网对用户端系统智能控制的要求。这套系统以高性能的可通信智能配电元件为基础，将现场的低压配电系统和计算机网络紧密结合，集遥测、遥信、遥控、遥调等功能于一体，是传统配电系统的理想升级。

监控系统除支持本公司所有的可通信元件外，也支持各种不同厂商的具有标准协议的可通信元件，支持包括ModBus、ModBus TCP、Profibus-DP、DeviceNet等各种标准通信总线，还提供简单配电、网络型配电、无线型配电、混合型配电系统等各种连接方式，是功能强大、开放灵活的监控系统。用户可根据实际需要建立适合自己的完善的监控系统，实现远程掌控整个配电系统的运行情况。

监控系统主要包括可靠的系统控制软件、丰富的通信网络和高性能的各类可通信配电元件：系统控制软件实现系统管理功能；通信网络提供现场智能元件和上位监控主机间的连接，进行数据传输，协议的转换；可通信配电元件负责采集现场信息和现场控制，通过通信接口提供给监控系统进行远程管理。

On the experience of developing intelligent equipment,complete equipment and control system,we release the Trinity Riyear-PowerNet power distribution monitoring system to fulfill the requirements of intelligent eletrified wire netting on the intelligent control of user's terminal system.This system,on the basis of high-performance communicative intelligent power distribution component,deeply combine the power distribution system on-the-spot with the computer network and has the function of tele-detection,tele-communication,tele-control and tele-adjustment.It is a fantastic upgrade of conventional power distribution system.

The monitoring system not only supports all kinds of communicative components of our company,but also supports every kind of communicative components made by different manufacturers according to the standard protocol.It supports ModBus,ModBus TCP,Profibus-DP,DeviceNet and every kind of standard communicaion buses.Thus,is provides simple power distribution,mixed type power distribution and every kind of connection ways.It is a funcionally strong,open and flexible monitoring system.Users can build their own complete monitoring system fits to themselves according to the need in practice to achieve mastering the whole power distribution's operation condition remotely.

The monitoring system mainly includes reliable systematic control software,complete communication network and all kinds of communicative power distribution component of high performance:the system control software to achieve system management function;the communication network to provide the connection between the intelligent component on-the-spot and the up-position monitoring host,to perform data transmission and the transformation of the protocol;the communicative power distribution component to handle the gathering of the information on-the-spot,the control on-the-spot and the remote management proided to the monitoring system through the communication interface.

● 断路器通信功能：

可通信CW3智能型万能式断路器通过RS-485接口与上位机连接可实现对断路器远距离遥控、遥信、遥调、遥测功能，用户可在Modbus、Profibus、Devicenet、CAN中任选一种协议进行通信。

可通信数据:

遥测：实时电流、电压、基波电流、基波电压、功率、功率因数、电能、频率、谐波电流电压含有率、谐波电流电压总畸变率数据。

遥信：报警、故障脱扣、储能信号、欠电压、断路器本体位置、合闸准备就绪、分合闸位置等断路器状态数据。

遥控：远程分合断路器。

遥调：远程保护参数读取和修改。

通信参数：Modbus：波特率 19200bps（支持1200、2400、4800、9600、38400bps）；

Profibus：波特率 9.6K、19.2K、93.75K、187.5K、500K、1.5M、3M、6M、12M；

Devicenet：波特率 125K、250K、500K；

CAN：波特率 5K、10K、20K、40K、50K、80K、100K、125K、200K、250K、400K、500K、666K、800K、1000K。

通信地址：1-119。

帧格式：1位起始位，8位数据，2位停止位，偶校验（支持无校验、奇校验）。

网络特性：

通信线路为双绞屏蔽线。

一条线路可同时连接32台可通信断路器。

最大接线距离1200米，可通过加装中继器延长通信距离。

● Communication function of breaker

Communicative CW3 breaker can achieve these function of tele-control,tele-communication,tele-adjustment and tele-detection by RS485 interface to upper computer.user may select one protocol of Modbus,protibus,Devicenet and CAN.

Communication data:

Remote detection: real-time current、voltage、fundamental current、fundamental voltage、power、power factor、electric energy、harmonic current or voltage ratio and total distortion of current or voltage.

Remote communication: state data of circuit breakers such as alarm、fault 、energy-storage、under-voltage、main body position of breaker、ready-for-closing、the position of closing and opening etc.

Remote control: long-distance operation if closing and opening.

Remote adjustment: long-distance fetching and modifition of the setting values of breaker.

Communication parameter:

Modbus: Band rate 19200bps (in favor of 1200、2400、4800、9600、38400bps).

Profibus: band rate 9.6K、19.2K、93.75K、187.5K、500K、1.5M、3M、6M、12M;

Devicenet: band rate 125K、250K、500K;

CAN: band rate 5K、10K、20K、40K、50K、80K、100K、125K、200K、250K、400K、500K、666K、800K、1000K。

Communication address: 1~119.

Byte format: first bit as start bit、eighth bit as data bit、second bit as stop bit、even check (in favour of non-check、odd check).

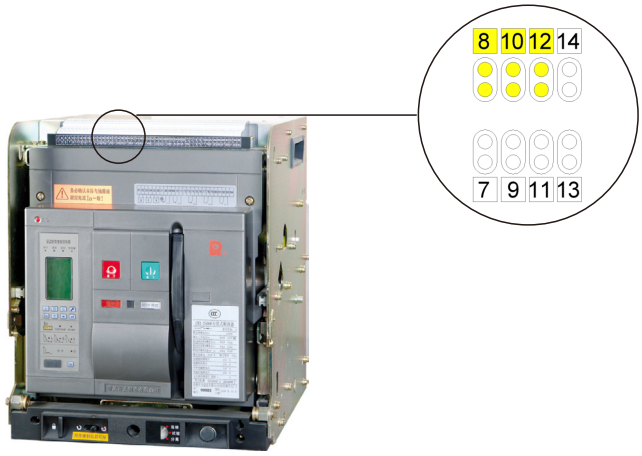
Network characteristic:

Twisted-pair shielded cables serve as communication lines.

One line can link up 32 pieces of communicative breakers at the same time.

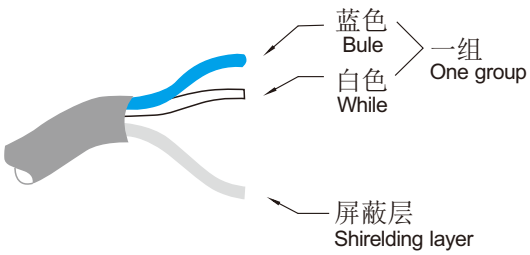
Wiring distance is 1200m at maximum but the distance of communication can be extended by equipping with repeaters additionally.

● 通信接线端子　Wiring terminals for communication



端子 Terminals	信号 Signal	功能 Function
8	DATA+(A+)/CAN_H	接收/发送数据+ Receive/transmit date+
10	DATA-(B-)/CAN_L	接收/发送数据- Receive/transmit date-
12	SH/drain	接通信线屏蔽层 Connecting shielded lager of communication line

● 通信电缆连接　Communication cable connected



标准双绞线带屏蔽
Standard twisted-pair shielded cable

颜色/color		信号signal	功能 Function
蓝色blue		DATA+	接收/发送数据+ Receive/transmit data
白色white		DATA-	接收/发送数据- Receive/transmit data
通信线屏蔽层 Shielding layer		GND	接地 Grounding

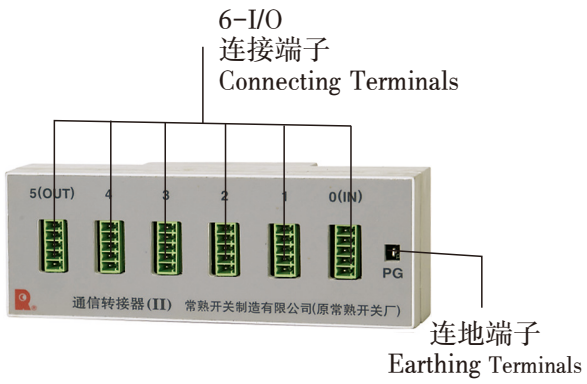
如上图中使用通信电缆中的一组双绞线作为485通信线，屏蔽层用于接地。用户实际所使用的可能会有所差异，如双绞线颜色。用户可根据实际情况自行定义，但应事先明确每一通信电缆线的信号定义情况。

注意：通信电缆请使用带屏蔽的型号，在柜内走线时尽量远离强电线路。

As the above diagram shows,a group of twisted-pair lines in the standard communication cable is employed as the communication line of 485 and the sheilding lager is grounded.The actual pratice should be possibly different such as the application of the colour of the twisted-pair line.Users could define the ways of cable's usage by themselves but the definition of the signal of each line in the cable shoule be made clear in adcance.

Note:please use the type of communication cable with the shielding lager and approach to circuits with strongelectricity should be advoided as far as possible when wiring in the cabinet.

通信连接扩展 Communication connection eottend

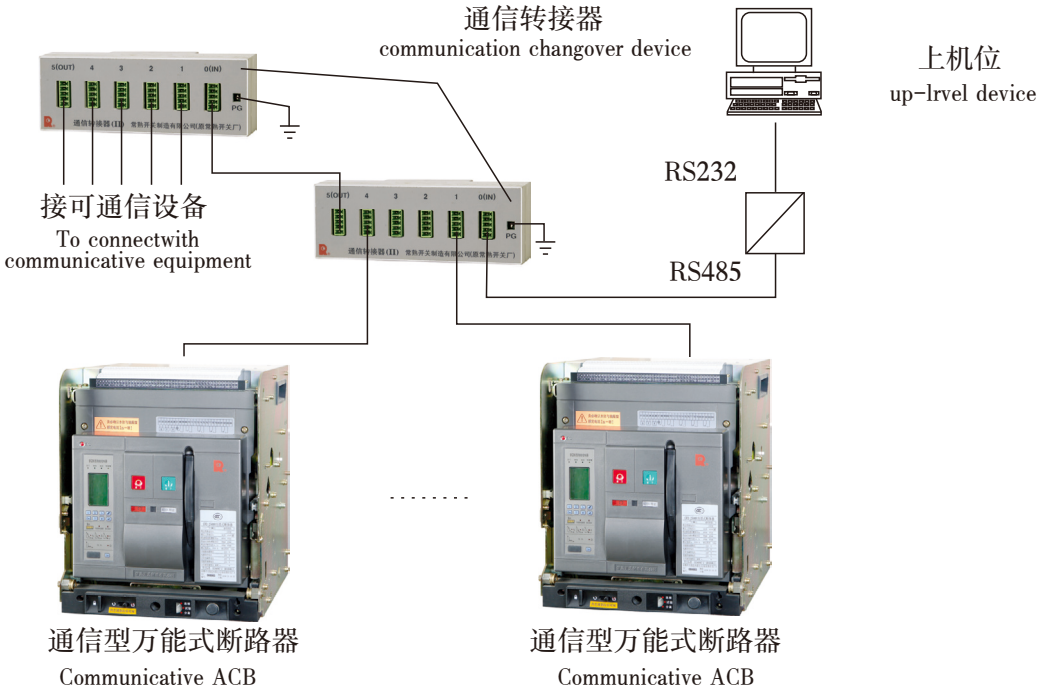


注：可多次扩展，但一条线路不应连接超过32台设备。
Note: can be expanded by several times, but one piece of circuit can not connect with 32 sets of devices at most.

通信转接器可以提高用户现场接线的效率和可靠性，它具有以下特点：
6个RS485通信接口，最多可扩展5个可通信设备
多个通信转换器可互联进行扩展（参见注）
配有通信线接地端子
可直接安装在标准35mm导轨上

The Communication Adapter can largely improve the efficiency and reliability of wiring on site by customers, which embraces the characteristics of :
Six pieces of RS485 Communication Interfaces, can join together with 5 sets of Communicative Devices at most
Several Communication Adapters can realize the expansions by their networking (Refer to Note)
Equipped with earthing terminals of communication line
Can be installed directly on the standard slideway in 35mm width

连接示意图 Connection figured diagram



网络通信

我公司还提供多种通信适配器实现对Profibus-DP、DeviceNet、CAN及以太网ModBus /TCP协议的支持，为用户提供了丰富的解决方案。

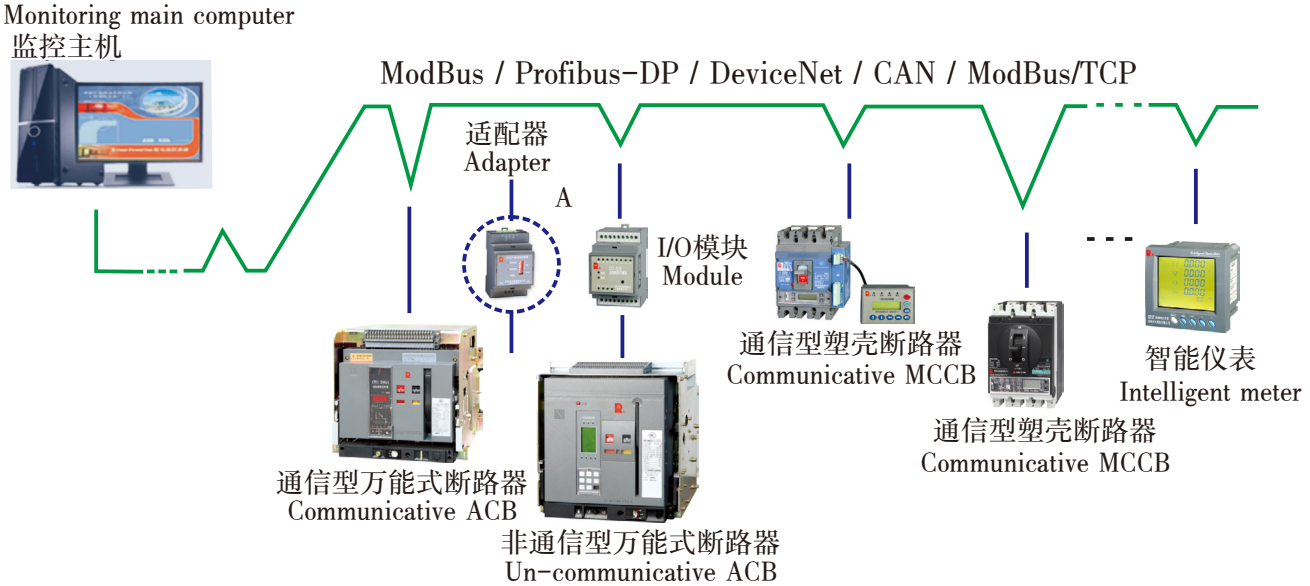
用户也可使用CEPA3智能配电一体机，同我公司的可通信断路器进行连接，实现远程对断路器各项参数显示、监控、配置、历史数据保存等。同时我们还率先推出通信断路器的无线监视功能，通过配置FDM3短消息通知模块可实现断路器故障脱扣或报警的远程信息监视。

用户还可通过CI1系列远程智能I/O模块连接非通信型断路器，实现远程监测断路器合分闸状态、故障状态等重要信息。

Our company also offers several kinds of communication adapters to achieve the support of Profibus-DP,DeviceNet,CAN and Ethernet ModBus/TCP protocol and to supply the customers with lots of solutions.

The users can also connect CEPA3 intelligent power distribution monitor with our company's communicative circuit breaker to achieve the display,monitor,configurationand the previous data's maintenance of the circuit breaker's parameter remotely.At the same time,we also promote the radio monitoring function of the communicaiton circuit breaker.By the configuration of the short message informing module,we can achieve the information's remote monitoring of the ctircuit breaker's failure release or alarm.

The users can connnect the uncommunicative circuit breaker through CI1 series remote intelligent I/O module to achieve remotely monitoring the circuit breaker's,switching-on or -off state,failure state and other important information.



注A：本公司通信元件采用标准的ModBus-RTU协议，可直接接入ModBus总线，当使用其它协议时采用相应的通信适配器转接。

NoteA:The communicative compents of my company adopts standard ModBus-RTU protocol,may be connected ModBus field bus.if adopting other protocol,using communicative adapters changover.

● 通信适配器　　Communication adaptor


FTM61


CN1DP-MD


CN1DP-MP


CN1DP-MC


CN1EG/10

FTM61、CN1DP-MD、CN1DP-MP、CN1DP-MC和CN1EG/10为具有通信转换功能的适配器，与本公司具有标准ModBus-RTU协议接口的通信型智能产品连接，实现不同协议的转换，使通信型智能产品能在DeviceNet、Profibus-DP、CAN现场总线上或以太网TCP/IP网络上实现遥信、遥调、遥控及遥测功能。

FTM61通信模块实现从ModBus-RTU协议向IEC61850协议的转换。

CN1DP-MD通信适配器实现从ModBus-RTU协议向DeviceNet协议的转换；

CN1DP-MP通信适配器实现从ModBus-RTU协议向Profibus-DP协议的转换；

CN1DP-MC通信适配器实现从ModBus-RTU协议向CAN总线协议的转换；

CN1EG/10以太网适配器实现ModBus协议在串行链路和以太网TCP/IP网络间进行数据传输；

CN1DP-MD、CN1DP-MP只支持单台设备通信，CN1EG/10、CN1DP-MC最多可支持32台设备通信。

CN1DP-MD,CN1DP-MP,CN1DP-MC and CN1EG/10 are four types of adapters which have the function of communicative transformation.They can be connected to our company's communicative intelligent products which have the standard ModBus-RTU protocol interface to achieve the transformation of different protocls,and further to make the communicative intelligent product achieve tele-communication,tele-adjustment tele-control and tele-detection unction on DeviceNet,PROFIBUS-DP,CAN field bus or Ethernet TCP/IP network.

CN1DP-MD Communicative adaptor achieves the transformation from ModBus-RTU protocol to DeviceNet protocol;

CN1DP-MP communicative adaptor achieves the transformation from ModBus-RTU protocol to Profibus-DP protocol.

CN1DP-MC communicative adaptor achieves the transformation from ModBus-RTU protocol to CAN bus protocol

CN1EG/10 Ethernet adaptor make ModBus protocol transmit data between the serial chain circuit and the Ethernet TCP/IP network.

CN1DP-MD、CN1DP-MP can only support single equipment communication, CN1EG/10、CN1DP-MC can support 32 equipment's communication at most.

● 短消息通知模块　short message alarm module

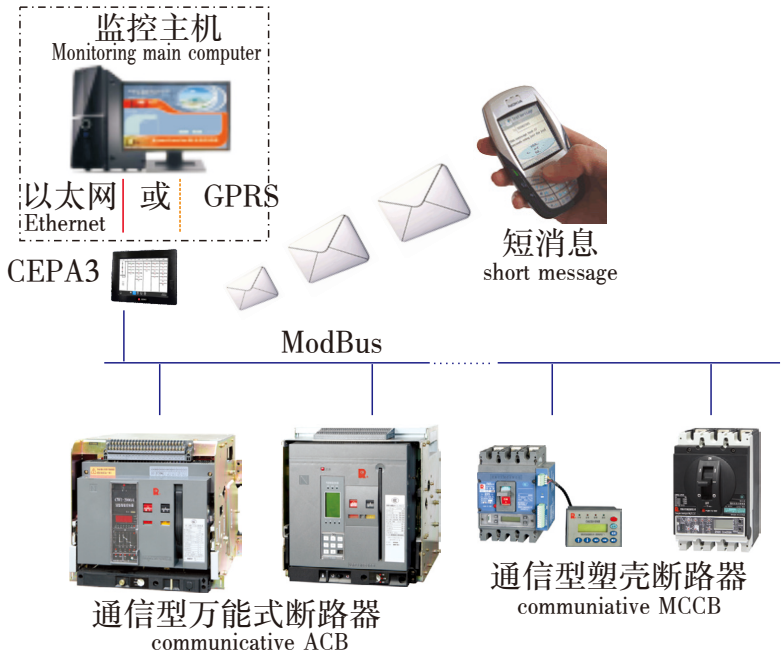
FDM3短消息通知模块采用标准RS485通信方式直接连接一台或多至16台可通信断路器，当断路器发生预先设置的事件时，通过GSM网络发送短消息到一部或多至10部手机提示用户及时处置，预设的事件可以是各种故障脱扣和电力参数异常报警。用户可通过我公司提供的计算机配置软件对短消息通知模块进行配置，包括通信参数、手机号码、设备名称、报警类型等，运行时无需计算机。

FDM3 short message informing module adopts the standard RS485 communication method to connect one or at most 16 communicative circuit breaker directly.When the circuit breaker encounter an incident previously set,the module sends short message to one or at most ten mobile phones through GSM network to cue the users to handle in time.The previously set incident can be all kinds of failure release and electric parameter abnormal alarm.The users can configure the short message informing module with the computer configuration software offered by our company, including communication parameter, mobile phone number,equipment name,alarm type and so on.When working,no need of computer.

● 智能配电一体机　intelligent power distribution monitor

CEPA3智能配电一体机是我公司专门为设备数量不多的用户研发的高性价比监控解决方案，也同样适用于大型分布式配电监控系统中。

CEPA3 intelligent power distribution monitor is a high cost-effective monitor solution specially developed for users have less devices, it also suit for large-scale power distribution monitor



CEPA3是软硬件一体的产品，集监控主机、监控软件、数据采集器和Modbus TCP网关为一体，用户只需将我公司的智能化元器件与CEPA3相连接，然后经过简单的设置即可投入运行，实现“遥信、遥测、遥调、遥控”功能，用户无需编程也无需另外购买及安装软件。

CEPA3智能配电一体机与我公司智能通信型产品通过RS-485总线连接，最多支持128台设备，支持我公司大部分智能通信型产品。CEPA3具有7寸、10寸彩色液晶触摸屏，无按键设计，图形化操作界面，简洁明了，是一种低成本高效率的配电监控方案。

CEPA3 is a software and hardware integration product which intergrated master computer monitoring、software monitoring、data collecting and Modbus TCP into one. User only need to connect our intelligent components to CEPA3, then it can be put into operation and it can provide "tele-comuniction、tele-detection、tele-adjustment and tele-control" after some simple set-up.

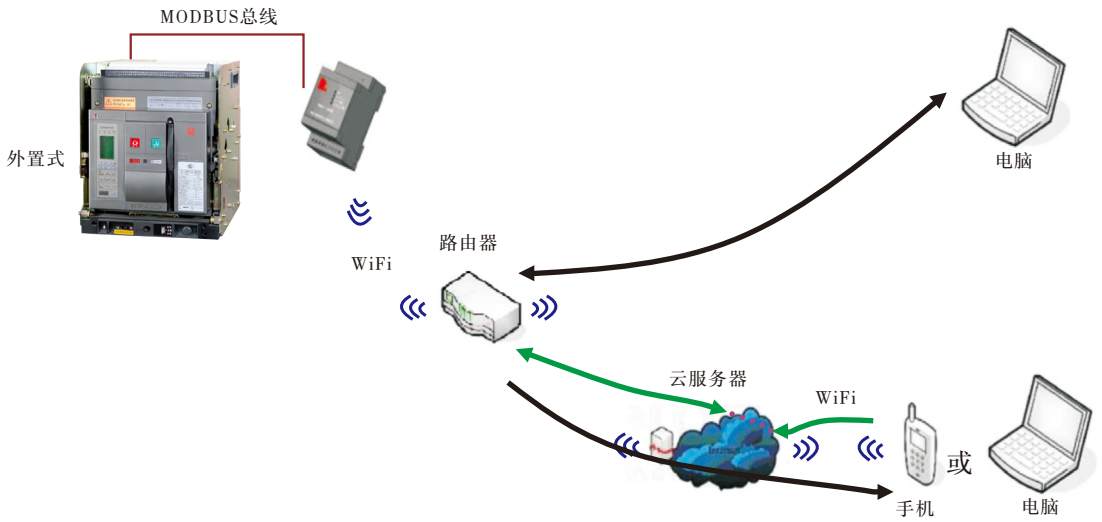
There is no need for user to program or buy additional software.

CEPA3 intelligent power distribution monitor can connect to our intelligent communication products via RS-485 bus, it supports most of our intelligent communication products, maximum capacity can be 128. CEPA3 has 7inch or 10inch color liquid touch screen, no button design and graphic operation interface make operation simpler, it is also a low-cost and high-efficiency power distribution solution.

● WiFi通信模块　WiFi communicative module

FWF1 WiFi通信模块通过Modbus总线下连通信型断路器，通过WiFi无线信号上连路由器组建无线局域网模式或连接至互联网组建云服务模式。用户可通过WiFi无线方式远程监测断路器运行状态和参数，并可在局域网模式下实现遥测、遥信、遥调、遥控的四遥功能，在云模式下实现遥测、遥信功能。

FWF1 WiFi communicative module aare connected down communicative breaker by modbus bus,and are connected upper router by WiFi wireless signal to build wireless local area network or cloud services mode. user remotely monitor breaker's state and parameter by WiFi wireless mode. andachieve tele-communication, tele-detection, tele-adjustment and tele-control at local area network or achieve tele-communication, tele-detection.



● FDA数据采集器

FDA数据采集器是一款便携式采集设备，通过CW3断路器智能控制器测试口下连断路器，通过蓝牙上连智能手机（Android操作系统）或通过MicroUSB接口、蓝牙上连上位机采集断路器测量数据、历史记录数据、整定数据、产品信息及状态信息并在智能手机、上位机等现场终端设备上显示，也可上传至云服务器实现采集数据的远程共享。而智能手机或上位机也能通过采集器将测试指令、整定指令、故障显示清除指令发送至断路器。

● 远程智能I/O模块

CI1系列远程智能I/O模块是一种简洁实用可靠的可通信监控模块，通过标准RS485接口、ModBus-RTU协议可实现系统的遥信、遥控及遥测功能。用户使用非通信型断路器时，可以通过该模块实现对相应配电回路的监测。用户能远程监测该回路电流、断路器合分闸状态、故障状态等重要的信息。

CI1 series remote intelligent I/O module is a convenient,practical and reliable communication monitoring module.It can achieve the system's tele-communication,tele-control and tele-detection function through standard RS485 interface,ModBus-RTU protocol.When the users use the uncommunication circuit breaker,the moitoring of respective distributing circuit can be achieved by the module.The users can monitor the current of the circuit,the switching -on or -off state,failure state and other important information remotely.

CI1-SCM423具有4路共端开关量输入、2路继电器输出、3路5A电流输入。用户通过它并且配合断路器的输入输出及线路中的标准电流互感器，能知道馈电线路的3相电流和4路开关量（如：开关合分闸状态，故障状态等）。

CI1-S12具有12路共端开关量输入。用户通过它可以了解到最多12台断路器的合分闸状态，或者6台断路器的合分闸状态、故障状态。

CI1-C8具有4组8路继电输出，可以控制4台断路器的合分闸。

CI1-SC64具有6路开关量输入和4路继电输出，可以在控制断路器的同时，对其重要状态进行监测。

CI1-SCM423 has four-circuit co-terminal switching times output,two-circuit 5A current input.The users can be informed of the feeder's three-phase current and four-circuit switching times(for example:switching -on and -off sttate,failure state and so on)through CI1-SM423 and with the help of circuit breaker's input,output and standard current mutual inductor in the circuit.

CI-S12 has twelve-circuit co-terminal switching times input.The users can know the switching -on or -off state of at most twelve circuit breakers or six cicuit breakers' switching -on or -off state,failure state by it

CI1-C8 has four groups of eight-circuit relay output and it can control the switching -on or -off of four circuit breakers.

CI1-SC64 has six-circuit switching times input and four relay output.It not only controls the circuit breaker,but also monitors circuit breaker's state at the same time.

主回路温度在线监测有有线和无线二种方式，而无线方式的实现也有二种方案：
①有线方式：FWD1温度上传模块+FRG热传感器
②无线方式一：增配温度显示功能ER控制器的CW3断路器+ FWX1-C无线温度传感器
③无线方式二：FWX1-J接收显示单元+ FWX1-C无线温度传感器

There are two modess of wire and wireless for main circuit temperature monitoring on line, there are alse two modes for wireless .
a.wire mode:FWD1 temperature upload module + FRG heat sensor
b.wireless mode one:CW3 breaker matching ER controllers deployed temperature deplay function + FWX1-C wireless temperature sensor
c.wireless mode two: FWX1-J receiving and display unit + FWX1-C wireless temperature sensor

● FWD1温度上传模块

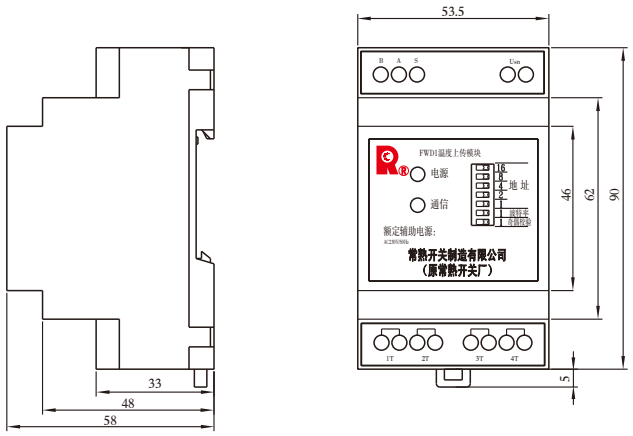
FWD1温度上传模块采用FRG热传感器直接安装在连接点位置在线检测温度，最多监测4路连接位置温度（热传感器连接至上传模块的输入端子分别为1T、2T、3T、4T）。采用Modbus-RTU协议，通过RS485接口将温度信息上传到监控主机，实现温度的网络监测。

FWD1 temperature upload module

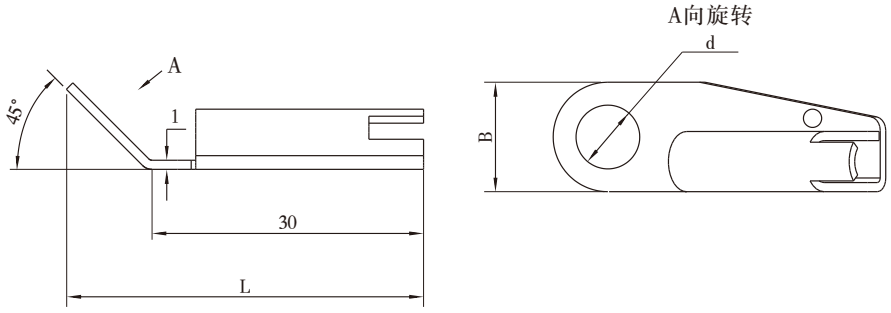
FWD1 temperature upload module's FRG thermal sensor is installed directly at connecting position to monitor the temperature online, it can monitor up to 4 connecting positions (the input terminal which connect to upload module of thermal sensor are 1T、2T、3T、4T respectively). Modbus-RTU protocol used it uploads temperature information to computer by RS485 interface and network monitoring is acheived.

温度上传模块参数
temperature upload module parameters

测温范围 temperature detection range	0~150℃
精度 precision	±5℃
热时间常数 precision	≤7s
传感器绝缘耐压 sensor insulation withstand voltage	AC3500V/1min
测温点数 temperature detection points	最多4路 4 points at most
工作电源 operatiing current	AC230V，范围range195~253V
输出触头容量 output contace capacity	3A/AC250V（AC-15），3A/DC24V（DC-13）
工作温度 operating temperature	-20℃~+70℃



● FRG热传感器
FRG heat sensor



FRG热传感器
Heat sensor

FRG热传感器尺寸
heat sensor dimensions

热传感器型号 heat sensor type	B（mm）	L（mm）	d（mm）
FRG-7	12	40	Φ7
FRG-9	14	41	Φ9
FRG-11	16	42	Φ11
FRG-13	18	44	Φ13
FRG-17	22	47	Φ17

● 增配温度显示功能ER控制器的CW3断路器+ FWX1-C无线温度传感器

由增配温度显示功能ER控制器的CW3断路器和FWX1-C无线温度传感器实现在断路器本体上温度测量值显示，并可通过断路器通信接口上传温度和电参量测量值至监控主机，提供对温度、电参量参数共同监测的解决方案。

CW3 breaker matching ER controllers deployed temperature deplay function + FWX1-C wireless temperature sensor

The measuring temperature value is deplayed on breaker by CW3 breaker matching ER controllers deployed temperature deplay function and FWX1-C wireless temperature sensor, and the temperature and electrical parameters values are uploaded to monitoring master. This provides solution together monitoring temperature and electrical parameters.

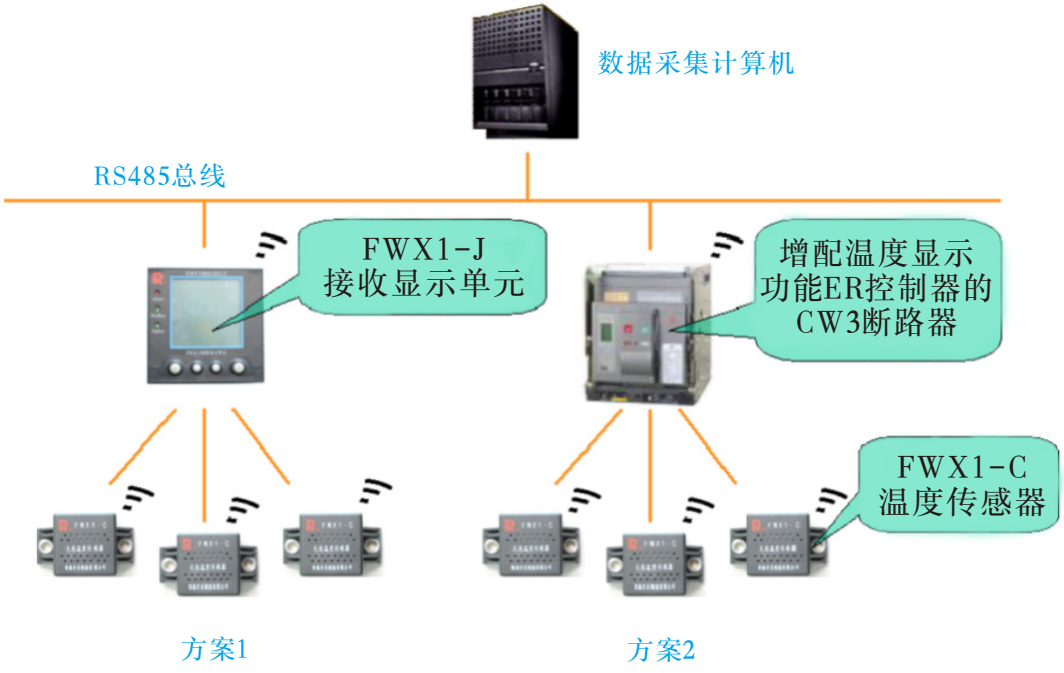
● FWX1-J接收显示单元+FWX1-C无线温度传感器

由FWX1-J接收显示单元和FWX1-C无线温度传感器组成FWX1无线温度测量模块，可实现对主回路最多20个测量点的温度测量、显示及温度异常报警，并可通过RS485接口实现温度数据的上传。

FWX1-J receiving and display unit +FWX1-C wireless temperature sensor

FWX1 wireless temperature measuring module is made up of FWX1-J receiving and display unit and FWX1-C wireless temperature sensor.This can achieve temperature measuring,deplaying and temperature abnormal alarm, and uploads to computer by RS485 communicative interface.

无线温度监测二种方式示意图
two modes schematic diagram of wireless temperature monitoring

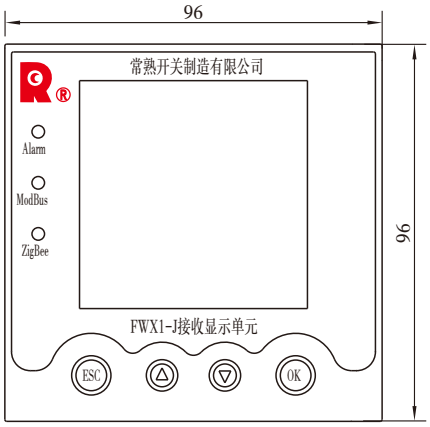


FWX1-J接收显示单元
receiving and display unit

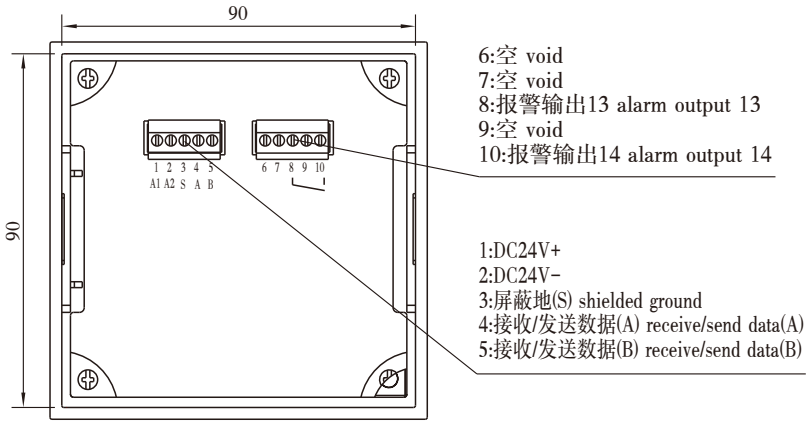
温度报警整定值 temperature alarm setting values		90℃～130℃，步长step1℃
报警复位温度 alarm reset temperature		（报警整定值-4）℃ alarm setting value
可连接传感器数 connecting sensor number		20
输出接点容量 output contact capacity		1NO，AC-15:5A/250VAC；DC-13:5A/30VDC
工作电源 operating supply		DC24V ± 10%
通信方式 communicative mode	与传感器 with sensor	Zigbee，2.4GHz
	与上位机 with computer	RS485，Modbus RTU
功耗 power loss		≤5W
工作温度 operating temperature		-10℃～+60℃

FWX1-C无线温度传感器
wireless temperature sensor

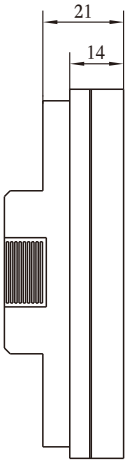
温度测量范围 temperature measuring range	0℃～130℃，在130℃～150℃范围内，传感器能稳定运行30min。 At 130℃～150℃ range，the sensor can service 30min.
精度 precision	± 4℃
分辨率 resolution	0.1℃
温度测量周期 temperature measuring cycle	60s
供电方式 supply mode	自供电，启动电流100A，启动时间≤10min self-supply,starting current 100A, starting time≤10min
通信方式 communicative mode	Zigbee，2.4GHz
工作温度 operating temperature	-25℃～+70℃，被测点温度 measured point temperature≤150℃



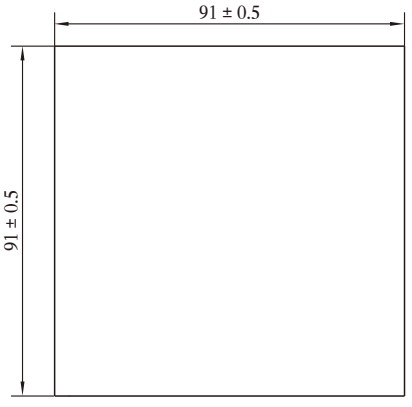
正面
Front view



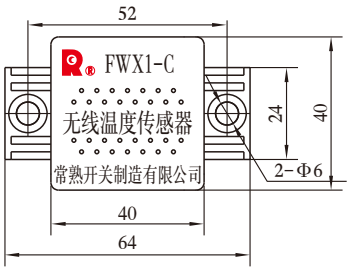
背面
Back view



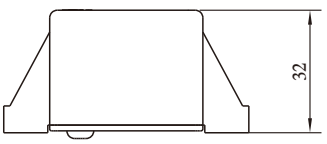
左视
left view



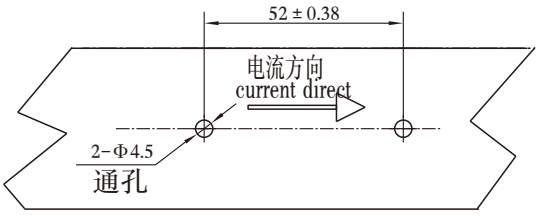
参考开孔尺寸
Reference cutout dimensions



正面
Front view



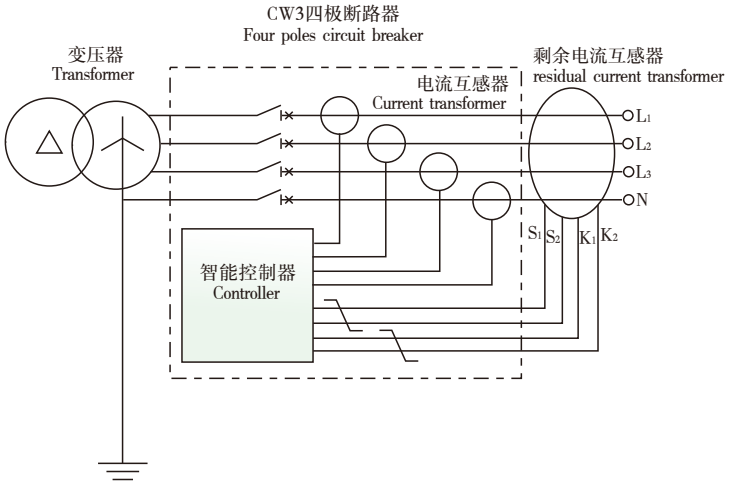
侧面
Side view



母排参考开孔尺寸（使用配套螺钉）
Reference cutout dimensions of busbar
（using matching screws）

注：传感器需按图示方向安装。
Note：sensor must be mounted by diagram form.

剩余电流保护功能说明
Instruction of residual current protection function



● CW3-1000/CW3-1600/CW3-2500断路器配置了带剩余电流保护功能的智能控制器可实现附加的剩余电流保护功能。

剩余电流保护可实现以下二种形式：

①跳闸；

②跳闸并报警：发生剩余电流故障时断路器跳闸，且通过安装的“二路可编程输出模块”输出剩余电流故障报警信号。如果用户要实现输出报警触点复位，必须按智能控制器上的“Clear”键才能完成。

● 实现原理：断路器剩余电流保护功能的实现由套装于A、B、C、N相上的剩余电流互感器采样、剩余电流信号经EN37或EA37或ER37或EP37或EQ37智能控制器处理后，判别故障电流并发出相应动作信号，如图所示。采样信号经最大长度为4m的20#~14#屏蔽双绞线接至断路器二次回路接线端子，互感器输出端子S1、S2接至断路器二次端子48、50（对CW3-1000为29、30），K1、K2接至52、56（对CW3-1000为44、45）。

注：对剩余电流保护，断路器二次回路接线端子1、2必须接辅助电源。

● CW3-1000/CW3-1600/CW3-2500 circuit breaker with intelligent controller having residual current protection function,can achieve additional residual current protection function.

Residual current protection can achieve the following two forms:

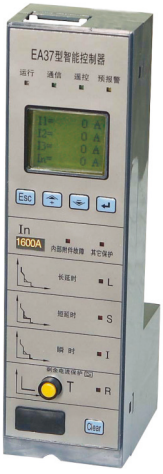
① trip;

②alarm and trip:When residual current occurs, the circuit breaker trips,and outputs residual current fault alarm signal by the installed"two-circuit programmable output module".If the customer wants to achieve output alarm contact reset,he needs to push the "Clear"button on the intelligent controller.

● Principle:residual current protection function is achieved by the sampling of residual current transformer suited on A.B.C.N phase.EN37 or EA37 or ER or EP37 or EQ37 intelligent controller deals with residual current signal, identify fault current and send relative action signal,as figure illustrated.sampling signal goes by20#~14# shielded cable with 2 twisted pairs,whose maximum length is 4m, to circuit breaker secondary circuit wiring terminals.The residual current transformer output terminals S1,S2 and connected to the circuit residual current tramsformer breaker secondary terminals 48,50(29,30 for CW3-1000), and K1,K2 are connected to 52,56(44,45 for CW3-1000).

Note:About the residual current protection funcion, circuit breaker secondary return circuit wiring terminals 1,2 must be connected to the auxiliary supply.

● 带剩余电流保护功能智能控制器
Intelligent controller incorporating residual current protection function.



① EN37型、EA37型、ER37型、EP37型、EQ37型智能控制器的保护功能为：过载长延时+短路短延时+短路瞬时+剩余电流保护；
② EN37型、EA37型、ER37型、EP37型、EQ37型其他功能见P15；
③ EN37型、EA37型、ER37型、EP37型、EQ37型智能控制器上额定剩余动作电流I△n可调，可调延时时间△t可调。

① Protection function for EN37、EA37、ER37、EP37、EQ37: overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & residual current protection;
② other functions for their is seen P15;
③ Rated residual operating current and delay time are adjustable

● 剩余电流动作特性 Operating characteristic of residual current

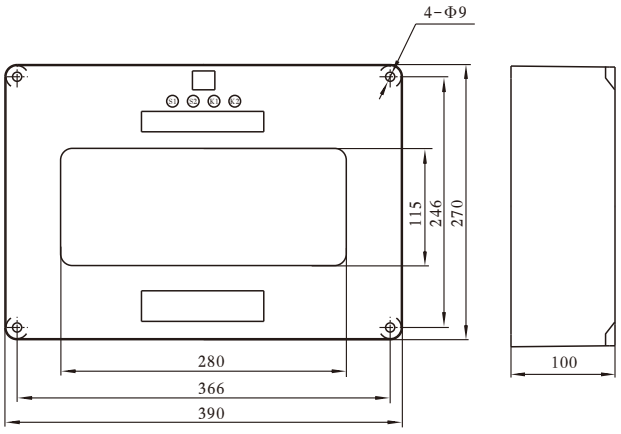
保护功能 Protection function	动作电流 Operating Current	动作时间 Operating time									适用场合 Suit for place
剩余电流保护 Residual current	I△n=(0.5-1-2-3-5-7-10-20-30)A	可调延时△t(s)* Delay time	0.10	0.20	0.30	0.40	0.50	0.80	1.00	3.00	5.00	交流AC、交流/脉动直流 A
		最大断开时间(s) Max.break time	0.25	0.35	0.45	0.60	0.70	1.00	1.20	3.20	5.20	

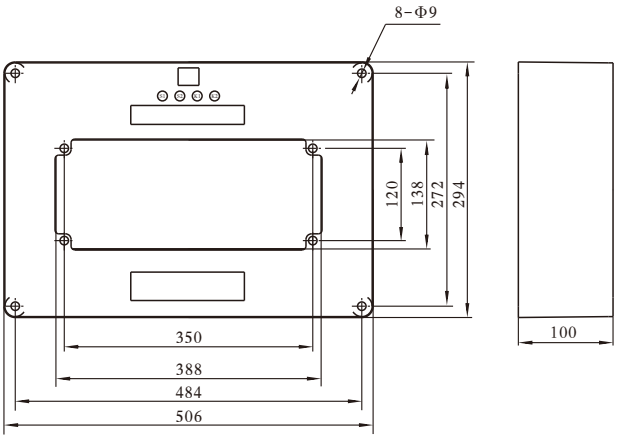
*注：按GB/T14048.2，可调延时△t为2I△n时的设定值。
*Note:△t of delay time is setting valuse of 2I△n by GB/T14048.2.

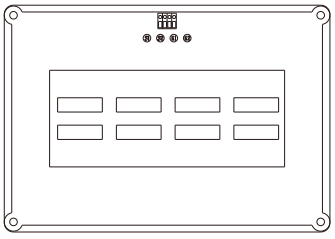
● 剩余电流互感器 Residual current transformer

配用于CW3-1000/CW3-1600/CW3-2500断路器并且智能控制器为EN37、EA37、ER37、EP37、EQ37，剩余电流互感器与三极断路器或四极断路器一起使用，套装于开关柜三相相线和中性线母线上。

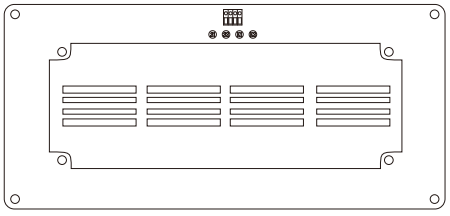
Be suitable for CW3-1000/CW3-1600/CW3-2500 breaker and intelligent controllers of EN37、EA37、ER37、EP37 and EQ37.it is installed at three phases and neutral bars of switchgear assenble with three poles or four poles breaker.



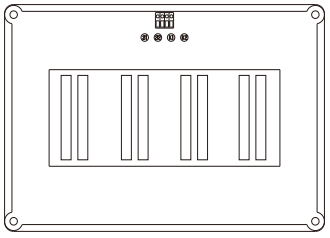




2根50 × 10(mm × mm)母排安装示意
Mounting type for two bars

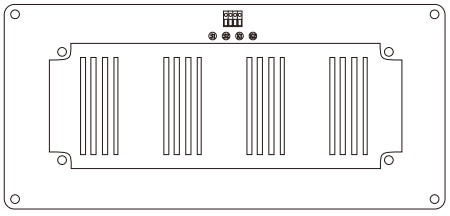


4根60 × 10(mm × mm)母排安装示意
Mounting type for two bars



2根100 × 5(mm × mm)母排安装示意
Mounting type for two bars

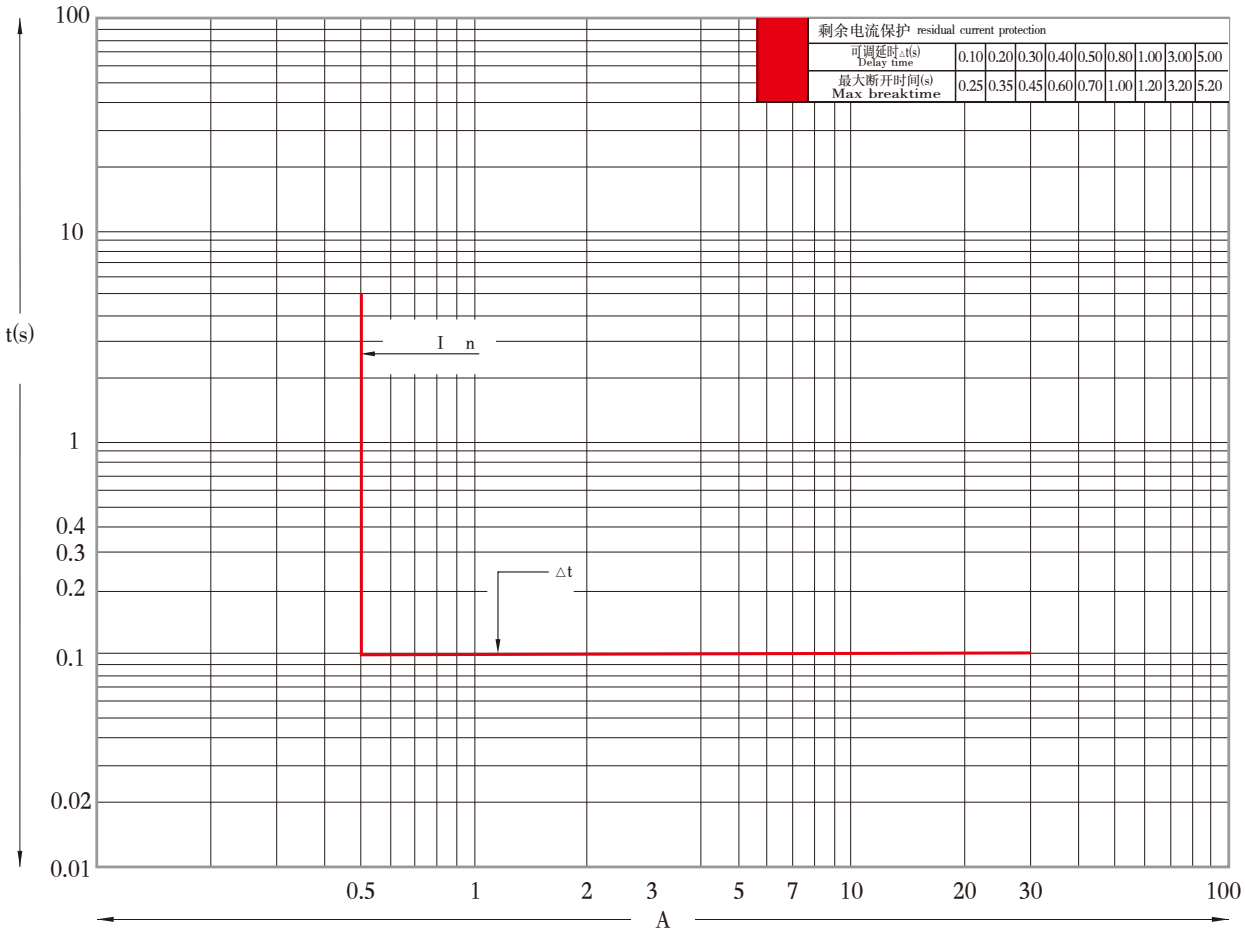
配CW3-1000/CW3-1600



4根120 × 5(mm × mm)母排安装示意
Mounting type for two bars

配CW3-2500

● 剩余电流保护时间/电流特性曲线
T/I (time/current) curve of residual current protection

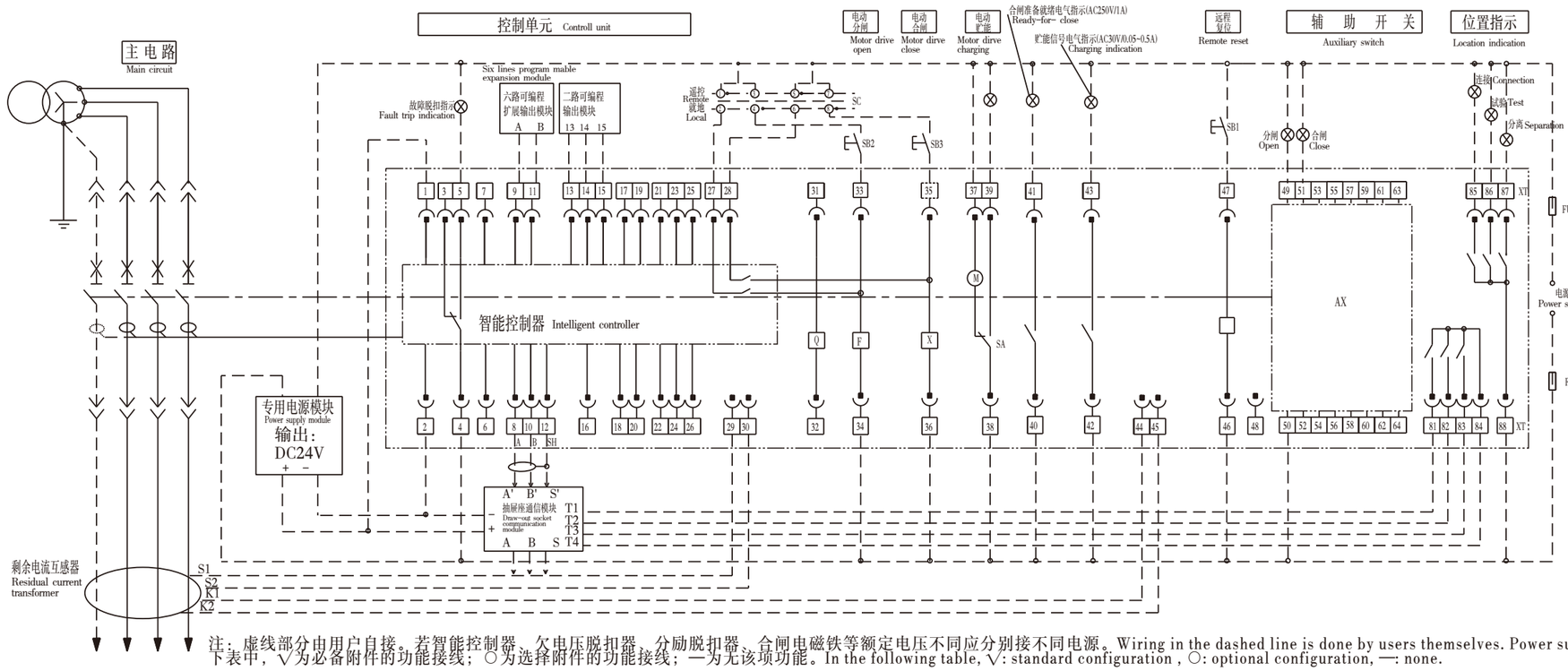


● 智能控制器的剩余电流显示及测量准确度
Residual current indication and accuracy of intellingent controller

项目 Item		测量范围 Measmenent range	准确度 Accuracy				
			EN 37	EA37	ER37	EP37	EQ37
剩余电流I△测量 Residual current measurement	正弦交流AC型 SinusoidalA.C	（0.3~36）A	± 10%	± 10%	± 10%	± 10%	± 10%
	交流/脉动直流A型 A.C/Pulasting D.C		± （0.2I△n+0.1 × 读数）				

CW3-1000断路器带剩余电流保护二次回路接线图
(智能控制器为EN37、EA37、ER37、EP37、EQ37)

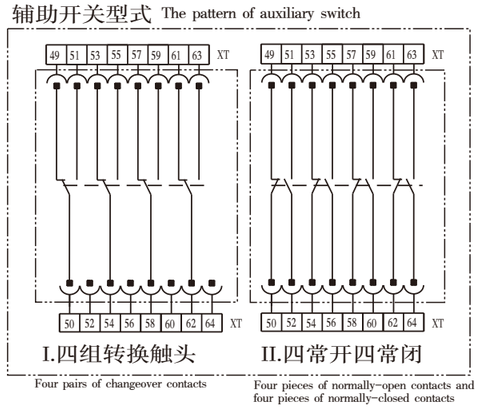
● 断路器二次回路接线图
Wiring diagram of the breaker secondary circuit

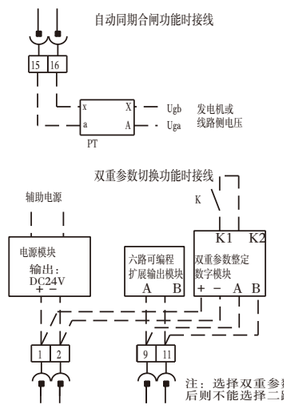


注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc
下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

SB1	远程复位按钮 Remote reset button
SB2	分励按钮 Shunt button
SB3	合闸按钮 Closing button
SC	转换开关 chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器 Under-voltage release
F	分励脱扣器 Shunt release
X	合闸电磁铁 Closing electromagnet
M	贮能电机 Charging motor
SA	电动机行程开关 Limit switch
XT	断路器两次回路接线端子 Terminals
FU	熔断器 Fuse
AX	断路器辅助开关 Auxiliary switch

辅助开关型式 The pattern of auxiliary switch





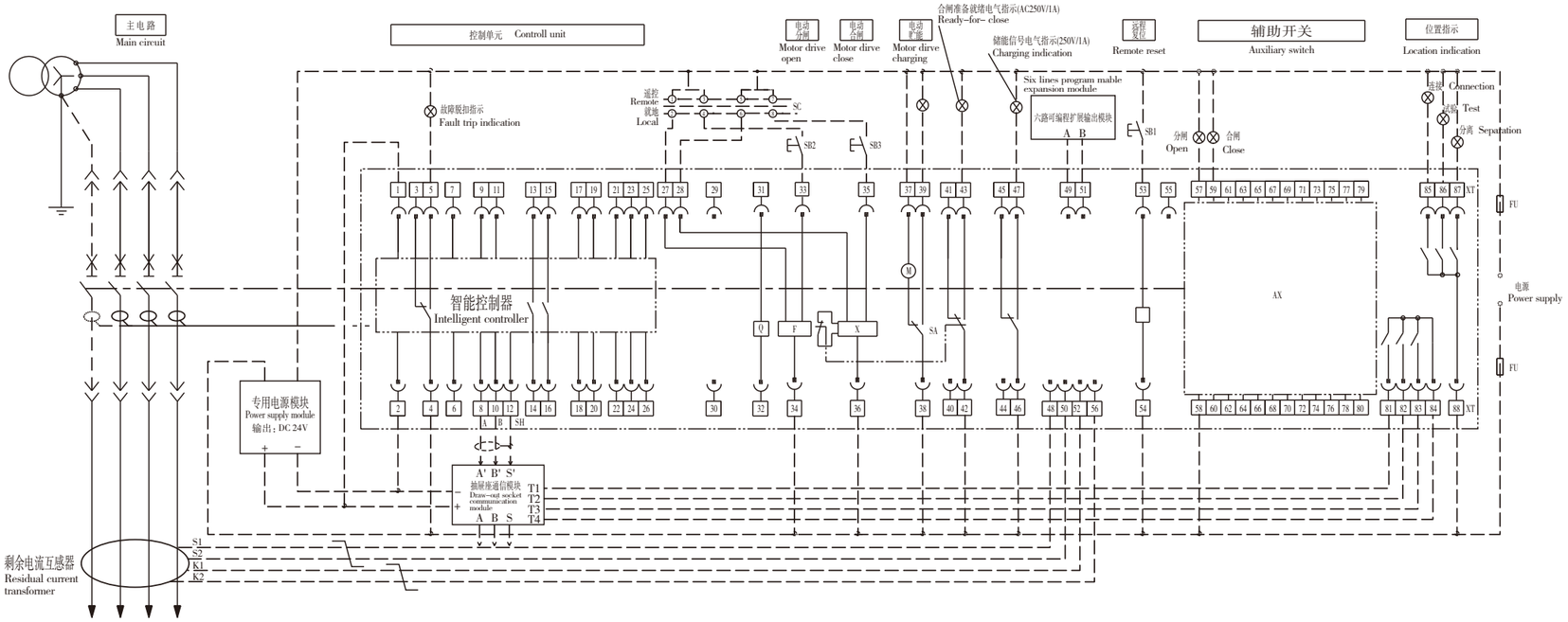
特别注意：对剩余电流保护，辅助电源必须接入1、2端子。辅助电源电压为AC230V、400V时，需通过CW3-1000/ CW3-1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。

Special Note: Auxiliary power supply must be connected to terminals of 1 and 2 for residual current protection.When the voltage of auxiliary power supply is AC230V or AC400V, power supply module of CW3-1000/ CW3-1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：通信型断路器选择同期合闸功能后，不再具有遥控合闸功能。
Note: Communicative breaker has not remote close function, when it selectes synchrocheck close function.

端子号 Terminal	功能Function				适用控制器类型 Controller type				
					EN37	EA37	EP37	EQ37	ER37
1, 2	辅助电源（DC24V）	Auxiliary power supply			√	√	√	√	√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)			√	√	√	√	√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L. A/B is RS485 interface, 8 toA,10 toB,12 to SH			○	○	○	○	○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	If with components of draw-out socket communication module , 8 to A’ , 10 to B’ , 12 to S’			○	○	○	○	○
13, 14	二路可编程	可编程K1、K2输出	二选一	two programmable	programmable K1、K2 output	two selecting one	○	○	○	○	○
	双重参数切换	空		two group parameter changover	void		○	○	○	○	○
15, 16	二路可编程	可编程COM输出	二选一	two programmable	programmable com output	two selecting one	○	○	○	○	○
	自动同期合闸功能	接发电机或线路侧电压互感器输出端		synchrocheck	connecting voltage sensor out of generator or line		○	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, When main voltage is large than AC400V, Voltage changover Module must be selected.			○	–	√	√	√
21,22	ZSI功能	ZSI信号输出，21接“+”，22接“COM”		ZSI function	ZSI signal out, 21 to “+” , 22 to “COM”		○	○	○	○	○
	方向性保护	21接正向输出，22接“COM”		directionality	21 to forwad out, 22 to “COM”		○	○	○	○	○
23,24	ZSI功能	ZSI信号输入，23接“+”，24接“COM”		ZSI function	ZSI signal input, 23 to “+” , 24 to “COM”		○	○	○	○	○
	方向性保护	23接正向输入，24接“COM”		directionality	23 to forwad input, 24 to “COM”		○	○	○	○	○
25,26	方向性保护	25接反向输出，26接反向输入		directionality	25 to reverse out, 26 to reverse input		○	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33					○	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35					○	○	○	○	○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）	Connect with under-voltage release (must connecting main circuit, when with undervoltage delay module, connecting to it's output)			○	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release			√	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet			√	√	√	√	√
37,38,39	电动(电机)贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.			√	√	√	√	√
40,41	合闸准备就绪电气指示	Ready-for-close indication			○	○	○	○	○
42,43	储能信号电气指示	charging indication			○	○	○	○	○
29,30,44,45	接剩余电流互感器	connecting residual current transformer			√	√	√	√	√
9,11	可编程扩展输出，双重参数整定数字模块输出，9接A，11接B	Programmable expansion output, two group parameter setting dial module putput, 9 connecting A, 11 connecting B			○	○	○	○	○
46,47	远程复位	Remote reset			○	○	○	○	○
49~64	辅助开关连接端子	Connecting terminals of auxiliary switch			√	√	√	√	√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）			○	○	○	○	○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）			○	○	○	○	○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）			○	○	○	○	○
81,82,83,84	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module			○	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4	Input of draw-out socket communication module,location Signal, 81 connecting T1,82 connecting T2,83 connecting T3,84 connecting T4			○	○	○	○	○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module			○	○	○	○	○
A’, B’, S’	抽屉座通信模块通信输入,连接本体通信输出,A’接8,B’接10,S’接12	Communication input of draw-out socket communication module connect with communication output of the main body, A’ connect with 8, B’ with10,S’ with 12			○	○	○	○	○
S1,S2	剩余电流互感器测量输出，S1至29、S2至30	measurement output of residual current transformer,S1 connecting29、S2 connecting 30			√	√	√	√	√
K1,K2	剩余电流互感器试验输出，K1至44、K2至45	test output of residual current transformer, K1 connecting 44、K2 connecting 45			√	√	√	√	√

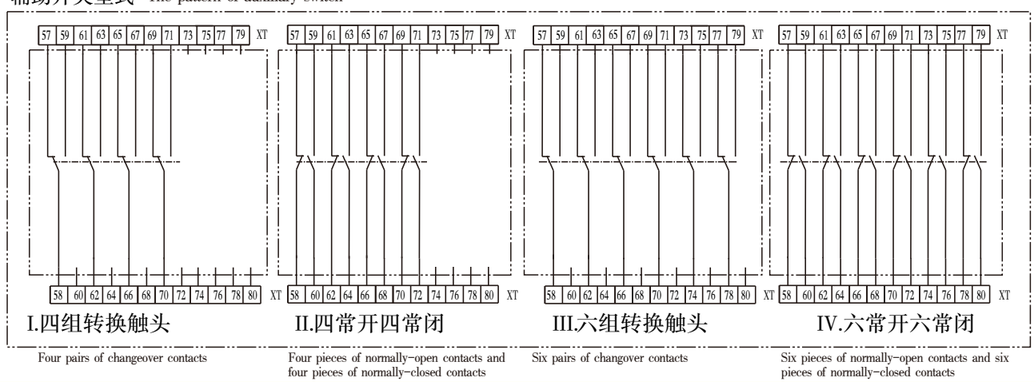
CW3-1600断路器带剩余电流保护二次回路接线图
(智能控制器为EN37、EA37、EP37、EQ37)



SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltagerelease
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc
下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch



特别注意：对剩余电流保护，辅助电源必须接入1、2端子。辅助电源电压为AC230V、400V时，需通过CW3-1000/ CW3-1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。

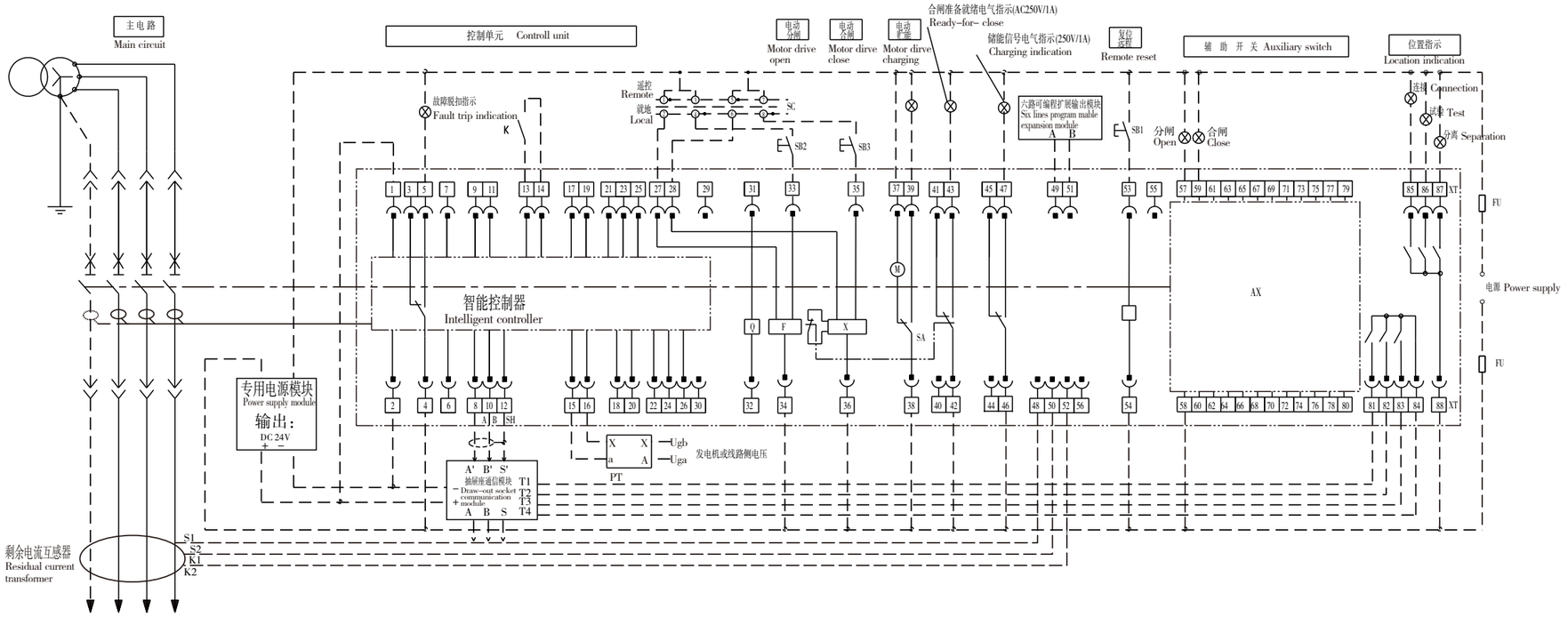
Special Note: Auxiliary power supply must be connected to terminals of 1 and 2 for residual current protection.When the voltage of auxiliary power supply is AC230V or AC400V, power supply module of CW3-1000/ CW3-1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：抽屉式断路器的辅助开关安装于抽屉座内，断路器本体在试验和连接位置时，辅助开关随断路器主触头的合分状态相应转换。当断路器本体处于分离位置或取出时，辅助开关的状态为断路器分闸时的状态。

Note: Auxiliary of draw-out circuit breaker is installed in socket, when circuit breaker's body is at test and connection positions, the auxiliary is transfered corresponding switch status of main contacts of circuit. when circuit breaker's body is at separation position or is taken out, the auxiliary is the status of circuit breaker opening.

端子号Terminal	功能Function		适用控制器类型 Controller type			
			EN37	EA37	EP37	EQ37
1、2	辅助电源（DC24V）	Auxiliary power supply	√	√	√	√
3、4、5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)	√	√	√	√
6、7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L. A/B is RS485 interface, 8 to A,10 toB,12 to SH	○	○	○	○
8、10、12	A、B为RS485通信接口，SH接屏蔽层，其中8接A、10接B、12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A'，10接B'，12接S'	If with components of draw-out socket communication module , 8 to A' ,10 to B' ,12 to S'	○	○	○	○
13、14	可编程输出1	Programmable out 1	○	○	○	○
15、16	可编程输出2	Programmable out 2	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, When main voltage is large than AC400V,Voltage changover Module must be selected.	○	—	√	√
21,22	ZSI信号输出，21接“+”，22接“COM”	ZSI signal output, 21 connecting “+” ,22 connecting “COM”	○	○	○	○
23,24	ZSI信号输入，23接“+”，24接“COM”	ZSI signal input, 23 connecting “+” ,24 connecting “COM”	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○
31、32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）	Connect with under-voltage release （must connecting main circuit, when with undervoltage delay module, connecting to it's output ）	○	○	○	○
33、34	分励脱扣器	Connect with shunt release	√	√	√	√
35、36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√
37,38,39	电动(电机)贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism, Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.	√	√	√	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○
48,50,52,56	接剩余电流互感器	connecting residual current transformer	√	√	√	√
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○
57-80	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）	○	○	○	○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication （AC250V 1A）	○	○	○	○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication （AC250V 1A）	○	○	○	○
81,82,83,84	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4	Input of draw-out socket communication module location Signal, 81 connecting T1,82 connecting T2,83 connecting T3,84 connecting T4	○	○	○	○
A、B、S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module	○	○	○	○
A'，B'，S'	抽屉座通信模块通信输入,连接本体通信输出,A'接8,B'接10,S'接12	Communication input of draw-out socket communication module , connect with communication output of the main body, A' connect with 8, B' with10, S' with12	○	○	○	○
S1,S2	剩余电流互感器测量输出，S1至48、S2至50	measurement output of residual current transformer,S1 connecting48、S2 connecting 50	√	√	√	√
K1,K2	剩余电流互感器试验输出，K1至52、K2至56	test output of residual current transformer, K1 connecting 52、K2 connecting 56	√	√	√	√

CW3-1600断路器带剩余电流保护二次回路接线图　　(智能控制器为ER37)

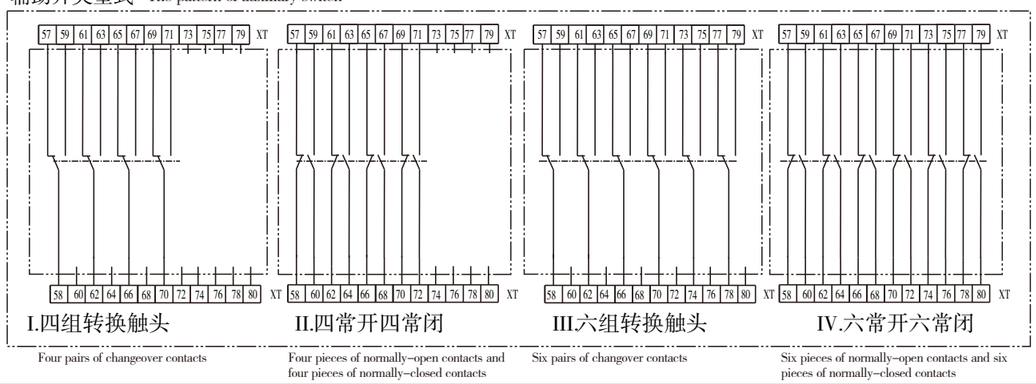


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
K	双重参数切换控制节点信号输入	
SC	转换开关	chang-over switch
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
SA	电动机行程开关	Limit switch
M	贮能电机	Charging motor
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch
PT	发电机或线路侧电压互感器（用户根据系统电压自购AC690V/100V或AC400V/100V规格）	Voltage sensor of generator or line (AC690V/100V or AC400V/100V useself)

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式　The pattern of auxiliary switch



特别注意：对剩余电流保护，辅助电源必须接入1、2端子。辅助电源电压为AC230V、400V时，需通过CW3-1000/ CW3-1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。

Special Note: Auxiliary power supply must be connected to terminals of 1 and 2 for residual current protection.When the voltage of auxiliary power supply is AC230V or AC400V, power supply module of CW3-1000/ CW3-1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：1、抽屉式断路器的辅助开关安装于抽屉座内，断路器本体在试验和连接位置时，辅助开关随断路器主触头的合分状态相应转换。当断路器本体处于分离位置或取出时，辅助开关的状态为断路器分闸时的状态。

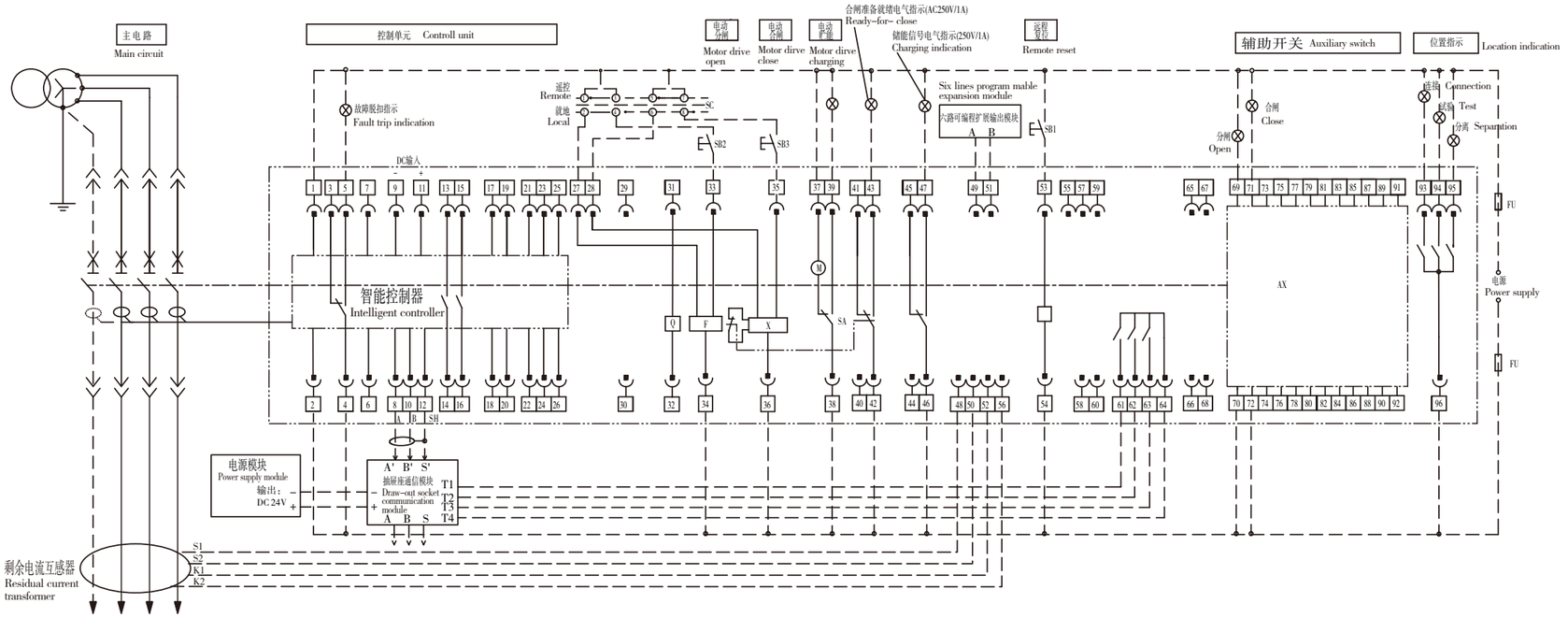
2、通信型断路器选择同期合闸功能后，不再具有遥控合闸功能。

Note: 1、Auxiliary of draw-out circuit breaker is installed in socket, when circuit breaker's body is at test and connection positions, the auxiliary is transfered corresponding switch status of main contacts of circuit. when circuit breaker's body is at separation position or is taken out, the auxiliary is the status of circuit breaker opening.

2、Communicative breaker has not remote close function, when it selectes synchrocheck close function.

端子号Terminal	功能Function			适用控制器类型 Controllertype
				ER37
1, 2	辅助电源（DC24V）	Auxiliary power supply		√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)		√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L. A/B is RS485 interface, 8 toA, 10 toB,12 to SH		○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层。其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	If with components of draw-out socket communication module ,8 to A’，10 to B’，12 to S’		○
13, 14	二路可编程	可编程输出1	two programmable	two programmable out 1	○
	双重参数切换	双重参数设定数字输入（干触头输入）	two group parameter changover	two group parameter set digital input(dry contact input)	○
15, 16	二路可编程	可编程输出2	two programmable	two programmable out 2	○
	自动同期合闸	接发电机或线路侧电压互感器输出端	synchrocheck close	connecting voltage sensor out of generator or line	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, When main voltage is large than AC400V,Voltage changover Module must be selected.			√
21,22	ZSI功能	ZSI信号输出，21接“+”，22接“COM”	ZSI function	ZSI signal out, 21 to “+”，22 to “COM”	○
	方向性保护	21接正向输出，22接“COM”	directionality	21 to forwad out, 22 to “COM”	○
23,24	ZSI功能	ZSI信号输入，23接“+”，24接“COM”	ZSI function	ZSI signal input, 23 to “+”，24 to “COM”	○
	方向性保护	23接正向输入，24接“COM”	directionality	23 to forwad input, 24 to “COM”	○
25,26	方向性保护	25接反向输出，26接反向输入	directionality	25 to reverse out, 26 to reverse input	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33			○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35			○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端	Connect with under-voltage release（must connecting main circuit, when with undervoltage delay module, connecting to it's output）			○
33, 34	分励脱扣器	Connect with shunt release			√
35, 36	合闸电磁铁	Connect with closing electromagnet			√
37,38,39	电动(电机贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply A/B is RS485 interface, 8 toA,10 toB,12 to SH? A/B is RS485 interface, 8 toA,10 toB,12 to SH			√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication			○
45,46,47	储能信号电气指示	charging indication			○
48,50,52,56	接剩余电流互感器	connecting residual current transformer			√
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B			○
53,54	远程复位	Remote reset			○
57-80	辅助开关连接端子	Connecting terminals of auxiliary switch			√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication（AC250V 1A）			○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）			○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）			○
81,82,83,84	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module			○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4	Input of draw-out socket communication module location Signal, A/B is RS485 interface, 8 toA, 10 toB,12 to SH			○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module			○
A’，B’，S’	抽屉座通信模块通信输入,连接本体通信输出,A’接8,B’接10,S’接12	Communication input of draw-out socket communication module , A/B is RS485 interface, 8 toA,10 toB,12 to SH			○
S1,S2	剩余电流互感器测量输出，S1至48、S2至50	measurement output of residual current transformer,S1 connecting48、S2 connecting 50			√
K1,K2	剩余电流互感器试验输出，K1至52、K2至56	test output of residual current transformer, K1 connecting 52、K2 connecting 56			√

CW3-2500断路器带剩余电流保护二次回路接线图
(智能控制器为EN37、EA37、EP37、EQ37)

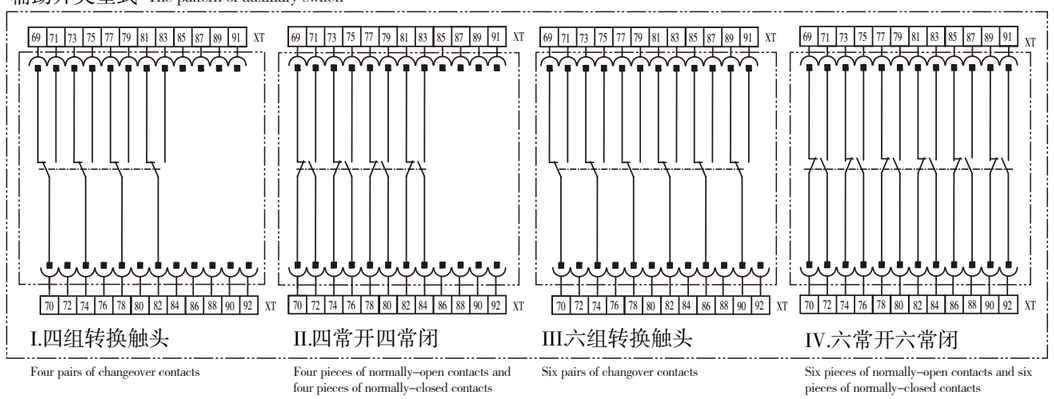


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件~~的功能接线~~；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

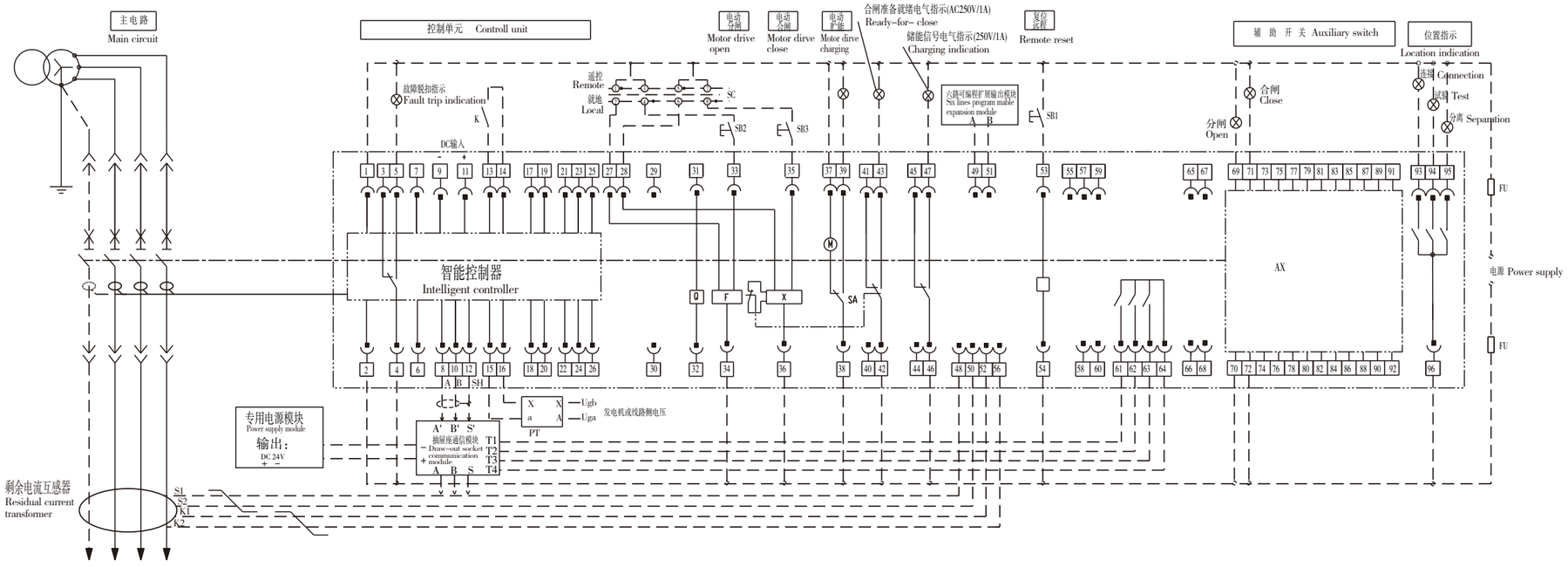
辅助开关型式 The pattern of auxiliary switch



特别注意：对剩余电流保护，辅助电源必须接入1、2端子。辅助电源电压为DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。
Special Note: Auxiliary power supply must be connected to terminals of 1 and 2 for residual current protection.When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

端子号Terminal	功能Function		适用控制器类型 Controller type			
			EN37	EA37	EP37	EQ37
1, 2	辅助电源	Auxiliary power supply	√	√	√	√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)	√	√	√	√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L. A/B is RS485 interface, 8 toA,10 toB,12 to SH	○	○	○	○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	If with components of draw-out socket communication module ,8 to A’, 10 to B’, 12 to S’	○	○	○	○
9,11	通信型断路器需要时接入DC24V电源 9接 “-”，11接 “+”	connecting DC24V power supply if necessary for communicative circuit breaker	○	○	○	○
13, 14	可编程输出1	Programmable out 1	○	○	○	○
15, 16	可编程输出2	Programmable out 2	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V,Voltage changover Module must be selected.	○	—	√	√
21,22	ZSI信号输出，21接 “+”，22接 “COM”	ZSI signal output, 21 connecting “+”, 22 connecting “COM”	○	○	○	○
23,24	ZSI信号输入，23接 “+”，24接 “COM”	ZSI signal input, 23 connecting “+”, 24 connecting “COM”	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）	Connect with under-voltage release（must connecting main circuit, when with undervoltage delay module, connecting to it’s output）	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√
37,38,39	电动(电机贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism, Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.	√	√	√	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○
48,50,52,56	接剩余电流互感器	connecting residual current transformer	√	√	√	√
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○
69-92	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√
93,96	抽屉座 “连接” 位置指示（AC250V 1A）	“Connected” position indication（AC250V 1A）	○	○	○	○
94,96	抽屉座 “试验” 位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○	○	○	○
95,96	抽屉座 “分离” 位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○	○	○	○
61,62,63,64	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4	Input of draw-out socket communication module location Signal, 81 connecting T1,82 connecting T2,83 connecting T3,84 connecting T4	○	○	○	○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module	○	○	○	○
A’, B’, S’	抽屉座通信模块通信输入,连接本体通信输出,A’接8,B’接10,S’接12	Communication input of draw-out socket communication module, connect with communication output of the main body, A’ connect with 8, B’ with10,S’ with 12	○	○	○	○
S1,S2	剩余电流互感器测量输出，S1至48、S2至50	measurement output of residual current transformer,S1 connecting48、S2 connecting 50	√	√	√	√
K1,K2	剩余电流互感器试验输出，K1至52、K2至56	test output of residual current transformer, K1 connecting 52、K2 connecting 56	√	√	√	√

CW3-2500断路器带剩余电流保护二次回路接线图　　(智能控制器为ER37)

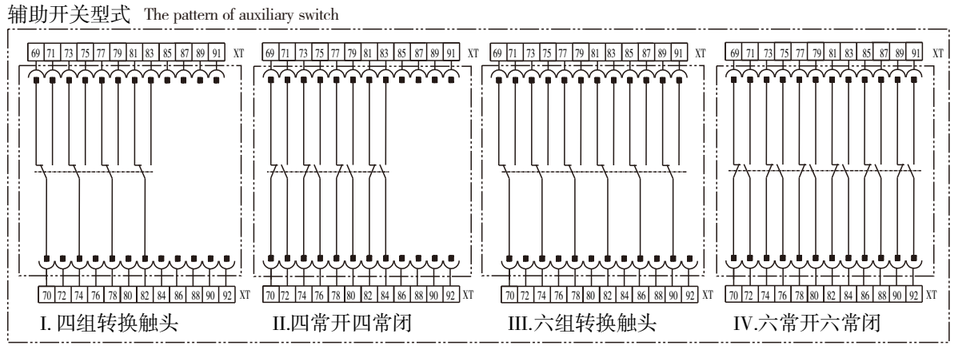


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
K	双重参数切换控制节点信号输入	
SC	转换开关	chang-over switch
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
SA	电动机行程开关	Limit switch
M	贮能电机	Charging motor
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch
PT	发电机或线路侧电压互感器（用户根据系统电压自购AC690V/100V或AC400V/100V规格）	Voltage sensor of generator or line (AC690V/100V or AC400V/100V useself)

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式　The pattern of auxiliary switch



Four pairs of changeover contacts　Four pieces of normally-open contacts and four pieces of normally-closed contacts　Six pairs of changover contacts　Six pieces of normally-open contacts and six pieces of normally-closed contacts

特别注意：对剩余电流保护，辅助电源必须接入1、2端子。辅助电源电压为DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。
Special Note: Auxiliary power supply must be connected to terminals of 1 and 2 for residual current protection.When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

注：通信型断路器选择同期合闸功能后，不再具有遥控合闸功能。
Note: Communicative breaker has not remote close function, when it selectes synchrocheck close function.

端子号Terminal	功能Function				适用控制器类型 Controller type
					ER37
1, 2	辅助电源		Auxiliary power supply		√
3, 4, 5	故障指示触点(AC250V 1A)		Fault Instruction (AC250V 1A)		√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。		Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L. A/B is RS485 interface,8 toA, 10 toB,12 to SH		○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’		If with components of draw-out socket communication module ,8 to A’，10 to B’，12 to S’		○
9,11	通信型断路器需要时接入DC24V电源 9接“-”，11接“+”		connecting DC24V power supply if necessary for communicative circuit breaker		○
13, 14	二路可编程	可编程输出1	two programmable	two programmable out 1	○
	双重参数切换	双重参数设定数字输入（干触头输入）	two group parameter changover	two group parameter set digital input(dry contact input)	○
15, 16	二路可编程	可编程输出2	two programmable	two programmable out 2	○
	自动同期合闸	接发电机或线路侧电压互感器输出端	synchrocheck close	connecting voltage sensor out of generator or line	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入		Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V, Voltage changover Module must be selected.		√
21,22	ZSI功能	ZSI信号输出，21接“+”，22接“COM”	ZSI function	ZSI signal out, 21 to “+”，22 to “COM”	○
	方向性保护	21接正向输出，22接“COM”	directionality	21 to forwad out, 22 to “COM”	○
23,24	ZSI功能	ZSI信号输入，23接“+”，24接“COM”	ZSI function	ZSI signal input, 23 to “+”，24 to “COM”	○
	方向性保护	23接正向输入，24接“COM”	directionality	23 to forwad input, 24 to “COM”	○
25,26	方向性保护	25接反向输出，26接反向输入	directionality	25 to reverse out, 26 to reverse input	○
27	遥控分闸时接与33端子同相位电源		When remote open, connecting terminal 33		○
28	遥控合闸时接与35端子同相位电源		When remote close, connecting terminal 35		○
31, 32	欠电压脱扣器（应接在主电路中，当带有欠电压延时模块时，接到欠电压延时模块输出端）		Connect with under-voltage release（must connecting main circuit, when with undervoltage delay module, connecting to it’s output）		○
33, 34	分励脱扣器		Connect with shunt release		√
35, 36	合闸电磁铁		Connect with closing electromagnet		√
37,38,39	电动(电机)贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）		Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.		√
41,42,43	合闸准备就绪电气指示		Ready-for-close indication		○
45,46,47	储能信号电气指示		charging indication		○
48,50,52,56	接剩余电流互感器		connecting residual current transformer		√
49,51	可编程扩展输出，49接A，51接B		Programmable expansion output, 49 connecting A, 51 connecting B		○
53,54	远程复位		Remote reset		○
69-92	辅助开关连接端子		Connecting terminals of auxiliary switch		√
93,96	抽屉座“连接”位置指示（AC250V 1A）		“Connected” position indication （AC250V 1A）		○
94,96	抽屉座“试验”位置指示（AC250V 1A）		“Test” position indication（AC250V 1A）		○
95,96	抽屉座“分离”位置指示（AC250V 1A）		“Separated” position indication（AC250V 1A）		○
61,62,63,64	位置信号输出至抽屉座通信模块		Location signal output to draw-out socket communication Module		○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4		Input of draw-out socket communication module location Signal, 81 connecting T1,82 connecting T2, 83 connecting T3,84 connecting T4		○
A, B, S	抽屉座通信模块通信输出		Communication output of draw-out socket communication module		○
A’，B’，S’	抽屉座通信模块通信输入,连接本体通信输出,A’接8,B’接10,S’接12		Communication input of draw-out socket communication module , connect with communication output of the main body, A’ connect with 8, B’ with10,S’ with 12		○
S1,S2	剩余电流互感器测量输出，S1至48，S2至50		measurement output of residual current transformer,S1 connecting48，S2 connecting 50		√
K1,K2	剩余电流互感器试验输出，K1至52，K2至56		test output of residual current transformer, K1 connecting 52，K2 connecting 56		√

断路器订货规范

断路器订货规范（带EA35或EA36型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	
型号 CW3- _____ _____ / _____ □陆用 □湿热带型（TH型） □船用（1600A、2500A壳架）					
额定电流 In =_____ A		额定电压 □AC400V □AC440V □AC690V*			
安装方式 □固定式 □抽屉式					
联接方式 □水平 □垂直 □上垂直下水平 □上水平下垂直（CW3-1000仅供水平连接方式）					
智能控制器	类型选择 □EA35 □EA36				
	基本功能	长延时 Ir1_____A t1_____s 短延时 Ir2_____A t2 _____s 瞬时 Ir3_____A			
		接地保护 注 Ir4_____A t4_____s (仅36型需填)			
		长延时曲线 □通用长延时反时限(I^2t) □非常反时限(It) □高压熔丝型(I^4t)			
		N极保护 □OFF □50%In □100%In（CW3-7400四极无100%In保护）	□200%In（三极断路器用于2倍相线截面中性线保护，但CW3-6300、7400除外）		
	选择功能	□过载预报警 Ir0=_____Ir1			
		□电流不平衡 动作阈值___% 动作延时 ___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸			
		□断相保护 动作阈值___% 动作延时 ___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸			
		□电流卸载 动作阈值___ 动作延时 ___%t1 返回阈值___ 返回延时___s			
		□通信功能	通信协议选择	标准型式 □Modbus	
				特殊型式 □ Profibus □Devicenet □CAN □WiFi	
		□ ZSI功能			
	选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表”选择信号输出。				
	智能控制器电压 □DC24V □AC230V □AC400V (CW3-1000/CW3-1600必选专用电源模块)			□DC220V □DC110V (需配装直流电源模块)	
附件配置	FFT 分励脱扣器 □AC230V □AC400V □DC220V □DC110V				
	FHD 合闸电磁铁 □AC230V □AC400V □DC220V □DC110V				
	FDC 电动操作机构 □AC230V □AC400V □DC220V □DC110V				
	FFC 辅助开关 □4组转换触头 □4常开4常闭	特殊形式 □6组转换触头 □6常开6常闭			
选择附件	□ FQT欠电压脱扣器	□ AC230V □ AC400V	光伏专用型 □ AC220V □ AC380V		
		□ 欠电压瞬时脱扣器	□ 欠电压瞬时脱扣器		
		□ 欠电压延时脱扣器 □ 0.5s □ 1s □ 2s □ 3s	□ 欠电压0~10s延时脱扣器（出厂默认设定值3s）		
	□FFS分闸锁定装置 □一锁一钥匙 □二锁一钥匙 □三锁二钥匙				
	□FLS机械联锁	二台断路器 □钢缆联锁 □联杆联锁（上下联锁）			
		三台断路器 □钢缆联锁方式三 □联杆联锁方式一 □联杆联锁方式二 □联杆联锁方式三			
	□FAN按钮锁定装置 □FXG相间隔板（CW3-1000/CW3-1600垂直联接方式必配相间隔板） □FJS计数器				
	□FHM合闸准备就绪电气指示模块 □FYF远程复位（仅提供AC230V） □FWZ抽屉座位置电气指示装置 □FCZ储能信号电气指示装置				
	□FFJ附件监测单元 □FBM外接变压器中心点接地单元				
	□外接中性线电流互感器 □FDH-60 □FDH-80 □FDH-120 □FDH-260				
	□FCM/W32 2路可编程输出模块 输出1编号_____类型 _____时间_____ s 输出2 _____ _____ _____s				
	□FCM/W36 6路可编程扩展输出模块	输出1编号 _____ 类型 _____ 时间 _____ s 输出2 _____ _____ _____ s 输出3 _____ _____ _____ s			
		输出4编号 _____ 类型 _____ 时间 _____ s 输出5 _____ _____ _____ s 输出6 _____ _____ _____ s			
	通信功能选件 □FGT故障脱扣信号 □FNX储能信号 □FHX合闸准备就绪信号 □FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）				
	□FDY专用电源模块 □AC230V □AC400V □DC24V				
	□FDY/WT直流电源模块 □DC110V □DC220V				
	□FCS/W便携式测试器				
	□FZZ两路电源自动电源转换系统	电子型自动转换控制器 □R型 □S型 □F型 智能型自动转换控制器 □ZR型 □ZS型 □ZF型 智能可通信自动转换控制器 □ZTR型□ZTS型□ZTF型			
	□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT3型 智能型带并联转换自动转换控制器 □WTB3型	□通信		
	□FLZ三电源自动电源转换系统	智能型自动转换控制器 □WTT5型	□通信		

注1：接地保护用户可选择矢量和型或变压器中心点接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。注2：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块，若断路器选择了电源模块，则智能控制器的电源电压不作选择。注3：可提供CW3全系列低温至-40℃断路器；注4：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。

*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带ER35或ER36型智能控制器）（请在___上填上数字，□ 内打上√）

用户单位		订货台数		订货日期	
型号	CW3- ____ ____ / ____	□陆用	□湿热带型（TH 型）	□船用（1600A、2500A壳架）	
额定电流	In = ____A	额定电压	□AC400V □AC440V □ AC690V*		
安装方式	□ 固定式	□ 抽屉式			
联接方式	□水平	□ 垂直	□上垂直下水平	□上水平下垂直（CW3-1000仅供水平连接方式）	
智能控制器	类型选择	□ ER35	□ ER36		
基本功能	长延时 Ir1____A t1____s	短延时 Ir2____A t2____s	瞬时 Ir3____A		
	接地保护 Ir4____A t4____s（仅36型需填）				
	N 极保护 □ OFF □50%In □100%In(CW3-7400四极无100%保护)	□200%In(三极断路器用于 2 倍相线截面中性线保护，但CW3-6300 、7400 除外)			
选择功能	□过载预报警	Ir0=____Ir1			
	□电流不平衡	动作阈值___% 动作延时___s	返回阈值___%	返回延时___s	□OFF □报警 □ 跳闸
	□断相保护	动作阈值___% 动作延时___s	返回阈值___%	返回延时___s	□OFF □报警 □ 跳闸
	□需用电流保护	动作阈值___ 动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □ 跳闸
	□低电压保护	动作阈值___ 动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □ 跳闸
	□过电压保护	动作阈值___ 动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □ 跳闸
	□电压不平衡	动作阈值___% 动作延时___s	返回阈值___%	返回延时___s	□OFF □报警 □ 跳闸
	□相序保护	动作阈值___ 动作延时 0.3 s			□OFF □报警 □ 跳闸
	□欠频保护	动作阈值___ 动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □ 跳闸
	□过频保护	动作阈值___ 动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □ 跳闸
	□电流卸载	动作阈值___ 动作延时___%t_1	返回阈值___	返回延时___s	
	□逆功率保护	动作阈值___ 动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □ 跳闸
	□双重保护参数设定功能 注：选择双重保护参数设定功能，智能控制器保护参数默认为 A 组，B 组参数用户自行设定。				
	□方向性保护	□ ZSI 功能	□ 方向性 ZSI 功能（ZSI 和方向性 ZSI 功能二者选一）		□谐波功能（含波形捕捉、故障录波）
	□自动同期功能	电压差△U ____V	频率差△f____Hz	相角差△ δ____	□频率 □电能 □需用电流功率
	□通信功能	通信协议选择	标准型式 □ Modbus		
			特殊型式□ Profibus □Devicenet □CAN □WiFi		
	□温度显示功能（必选FWX1-C无线温度传感器____只）				
附件配置	选报警功能时，必须选择 2 路可编程输出模块（内置）或 6 路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表”选择信号输出。				
	智能控制器电压	□ DC24V □AC230V □AC400V (CW3-1000/CW3-1600 必选专用电源模块)	□ DC220V □ DC110V （需配装直流电源模块）		
	FFT 分励脱扣器	□AC230V □AC400V □DC220V □DC110V			
	FHD 合闸电磁铁	□AC230V □AC400V □DC220V □DC110V			
	FDC 电动操作机构	□AC230V □AC400V □DC220V □DC110V			
	FFC 辅助开关	□ 4 组转换触头 □4 常开 4 常闭	特殊形式 □6 组转换触头 □6 常开 6 常闭		
选择附件	□FQT欠电压脱扣器	□AC230V □AC400V	□光伏专用型 □AC220V □AC380V		
		□欠电压瞬时脱扣器	□欠电压瞬时脱扣器		
		□欠电压延时脱扣器 □0.5s □1s □2s □3s	□欠电压0~10s延时脱扣器（出厂默认设定值3s）		
	□ FFS 分闸锁定装置	□ 一锁一钥匙	□ 二锁一钥匙	□ 三锁二钥匙	
	□FLS机械联锁	二台断路器 □钢缆联锁	□联杆联锁（上下联锁）		
		三台断路器 □钢缆联锁方式三	□联杆联锁方式一	□联杆联锁方式二	□联杆联锁方式三
	□ FAN 按钮锁定装置	□FXG 相间隔板（CW3-1000/CW3-1600 垂直联接方式必选相间隔板）		□ FJS 计数器	
	□FHM合闸准备就绪电气指示模块	□FYF远程复位（仅提供AC230V）	□FWZ抽屉座位置电气指示装置	□FCZ储能信号电气指示装置	
	□ FFJ 附件监测单元	□FZF自动复位	□外接中性线电流互感器	□FDH-60 □FDH-80 □FDH-120 □FDH-260	
	□ FCM/W32 2 路可编程输出模块	输出 1 编号 ___ 类型___ 时间____s	输出 2____ ____ ____s (选择双重保护参数设定及自动同期时无)		
	□ FCM/W36 6 路可编程扩展输出模块	输出 1 编号___ 类型___ 时间___s 输出 4 编号___ 类型___ 时间___s	输出 2____ ____ ____s 输出 5____ ____ ____s	输出 3____ ____ ____s 输出 6____ ____ ____s	
	通信功能选件 □ FGT 故障脱扣信号 □ FNX 储能信号 □FHX 合闸准备就绪信号 □FQX 欠电压输出信号 □FCT 抽屉座通信模块组件（仅适用 Modbus 协议）				
	□ FDY 专用电源模块	□ AC230V □ AC400V □ DC24V			
	□ FDY/WT 直流电源模块	□ DC110V □ DC220V	□FCS/W便携式测试器		
	□FZZ两路电源自动电源转换系统	电子型自动转换控制器 □R型 □S型 □F型 智能型自动转换控制器 □ZR型 □ZS型 □ZF型 智能可通信自动转换控制器 □ZTR型 □ZTS型 □ZTF型			
	□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT3型 智能型带并联转换自动转换控制器 □WTB3型	□通信		
	□FLZ三电源自动电源转换系统	智能型自动转换控制器 □WTT5型	□通信		

注1：接地保护用户可选择矢量和型或变压器中心点接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。注2：所有电源模块电压均为输入电压，输出均为DC24V。用户应根据自己提供的电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注3、可提供CW3全系列低温至-40℃断路器；注4：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。

*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EP35、EP36或EQ35、EQ36型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	
型号	CW3- _____ _____ / _____ □陆用 □湿热带型（TH型） □船用（1600A、2500A壳架）				
额定电流	In = _____A	额定电压	□AC400V □AC440V □AC690V*		
安装方式	□固定式 □抽屉式				
联接方式	□水平 □垂直 □上垂直下水平 □上水平下垂直（CW3-1000仅供水平连接方式）				

智能控制器

类型选择 □EP35 □EP36 □EQ35 □EQ36

基本功能

长延时 I_{r1}_____A	t_1_____ s	短延时 I_{r2} _____ A	t_2 _____ s 瞬时 I_{r3}_____A
接地保护 注	I_{r4} _____ A	t_4 _____ s (仅36型需填)	
长延时曲线 □通用长延时反时限(I^2t) □非常反时限(It) □高压熔丝型(I^4t)			
N极保护 □OFF□50%In□100%In（CW3-7400四极无100%In保护）	□200%In（三极断路器用于2倍相线截面中性线保护，但CW3-6300、7400除外）		

选择功能

□过载预报警	I_{r0}= _____ I_{r1}				
□电流不平衡	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF □报警 □跳闸
□断相保护	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF □报警 □跳闸
□需用电流保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □跳闸
□低电压保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □跳闸
□过电压保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF □报警 □跳闸
□电压不平衡	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF □报警 □跳闸
□相序保护	动作阈值___	动作延时0.3s			□OFF □报警 □跳闸
□电流卸载	动作阈值___动作延时___%t_1	返回阈值___返回延时___s			
□通信功能	通信协议选择	标准型式 □Modbus			
		特殊型式 □Profibus □Devicenet □CAN □WiFi			
□ ZSI功能					

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压 □DC24V □AC230V □AC400V (CW3-1000/CW3-1600必选专用电源模块) □DC220V □DC110V (需配装直流电源模块)

附件配置

FFT分励脱扣器	□AC230V	□AC400V	□DC220V	□DC110V
FHD合闸电磁铁	□AC230V	□AC400V	□DC220V	□DC110V
FDC电动操作机构	□AC230V	□AC400V	□DC220V	□DC110V
FFC辅助开关	□4组转换触头	□4常开4常闭	特殊形式	□6组转换触头 □6常开6常闭

选择附件

□ FQT欠电压脱扣器	□ AC230V □ AC400V	光伏专用型 □ AC220V □ AC380V
	□ 欠电压瞬时脱扣器	□ 欠电压瞬时脱扣器
	□ 欠电压延时脱扣器 □ 0.5s □ 1s □ 2s □ 3s	□ 欠电压0~10s延时脱扣器（出厂默认设定值3s）

□FFS分闸锁定装置	□一锁一钥匙	□二锁一钥匙	□三锁二钥匙	
□FLS机械联锁	二台断路器	□钢缆联锁	□联杆联锁（上下联锁）	
	三台断路器	□钢缆联锁方式三	□联杆联锁方式一	□联杆联锁方式二 □联杆联锁方式三

□FAN按钮锁定装置 □FXG相间隔板（CW3-1000/CW3-1600垂直联接方式必配相间隔板） □FJS计数器

□FHM合闸准备就绪电气指示模块 □FYF远程复位（仅提供AC230V） □FWZ抽屉座位置电气指示装置 □FCZ储能信号电气指示装置

□FFJ附件监测单元 □FBM外接变压器中心点接地单元

□外接中性线电流互感器 □FDH-60 □FDH-80 □FDH-120 □FDH-260

□FCM/W32 2路可编程输出模块 输出1编号_____类型_____时间_____s 输出2_____ _____ _____ s

□FCM/W36 6路可编程扩展输出模块 输出1编号_____ 类型 _____时间 _____ s 输出2 _____ _____ _____ s 输出3 _____ _____ _____ s

输出4编号_____ 类型 _____时间 _____ s 输出5 _____ _____ _____ s 输出6 _____ _____ _____ s

通信功能选件 □FGT故障脱扣信号 □FNX储能信号 □FHX合闸准备就绪信号 □FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）

□FDY专用电源模块 □AC230V □AC400V □DC24V

□FDY/WT直流电源模块 □DC110V □DC220V

□FCS/W便携式测试器

□FZZ两路电源自动电源转换系统	电子型自动转换控制器 □R型 □S型 □F型 智能型自动转换控制器 □ZR型 □ZS型 □ZF型 智能可通信自动转换控制器 □ZTR型□ZTS型□ZTF型	
□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT3型 智能型带并联转换自动转换控制器 □WTB3型	□通信
□FLZ三电源自动电源转换系统	智能型自动转换控制器 □WTT5型	□通信

注1：接地保护用户可选择矢量和型或变压器中心点接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。注2：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注3、可提供CW3全系列低温至-40℃断路器；注4：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。

*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EG35或EG36型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	
型号	CW3- _____ _____ / _____ □陆用 □湿热带型（TH型） □船用（1600A、2500A壳架）				
额定电流	In = _____A	额定电压	□AC400V □AC440V □AC690V*		
安装方式	□固定式 □抽屉式				
联接方式	□水平 □垂直 □上垂直下水平 □上水平下垂直（CW3-1000仅供水平连接方式）				
智能控制器	类型选择	□发电机保护型EG35	□发电机保护型EG36		
	基本功能	长延时 Ir1_____A t1_____s	短延时 Ir2_____A t2 _____s	瞬时 Ir3_____A	
		接地保护 Ir4 ____ A	t4 _____ s (仅36型需填)		
		欠频保护 动作阈值 ___ 动作延时___ s	返回阈值___ 返回延时___s	□OFF □报警 □跳闸	
		过频保护 动作阈值 ___ 动作延时___ s	返回阈值___ 返回延时___s	□OFF □报警 □跳闸	
		逆功率保护 动作阈值 ___ 动作延时___ s	返回阈值___ 返回延时___s	□OFF □报警 □跳闸	
		N极保护 □OFF □50%In	□100%In（CW3-7400四极无100%In保护）		
	选择功能	□过载预报警 Ir0= _____ Ir1			
		□电流不平衡 动作阈值___% 动作延时___s	返回阈值___% 返回延时___s	□OFF □报警 □跳闸	
		□断相保护 动作阈值___% 动作延时___s	返回阈值___% 返回延时___s	□OFF □报警 □跳闸	
		□需用电流保护 动作阈值___ 动作延时___s	返回阈值___ 返回延时___s	□OFF □报警 □跳闸	
		□低电压保护 动作阈值___ 动作延时___s	返回阈值___ 返回延时___s	□OFF □报警 □跳闸	
		□过电压保护 动作阈值___ 动作延时___s	返回阈值___ 返回延时___s	□OFF □报警 □跳闸	
		□电压不平衡 动作阈值___% 动作延时___s	返回阈值___% 返回延时___s	□OFF □报警 □跳闸	
		□相序保护 动作阈值 动作延时 0.3s		□OFF □报警 □跳闸	
		□电流卸载 动作阈值___ 动作延时___%t1	返回阈值___ 返回延时___s		
		□通信功能	通信协议选择	标准型式 □Modbus	
				特殊型式 □Profibus □Devicenet □CAN □WiFi	
		□ ZSI功能			
	选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。				
	智能控制器电压 □DC24V □AC230V □AC400V (CW3-1000/CW3-1600必选专用电源模块)			□DC220V	□DC110V (需配装直流电源模块)
附件配置	FFT分励脱扣器	□AC230V	□AC400V	□DC220V	□DC110V
	FHD合闸电磁铁	□AC230V	□AC400V	□DC220V	□DC110V
	FDC电动操作机构	□AC230V	□AC400V	□DC220V	□DC110V
	FFC辅助开关	□4组转换触头	□4常开4常闭	特殊形式 □6组转换触头	□6常开6常闭
选择附件	□FQT欠电压脱扣器	□ AC230V □ AC400V		光伏专用型 □ AC220V □ AC380V	
		□ 欠电压瞬时脱扣器		□ 欠电压瞬时脱扣器	
		□ 欠电压延时脱扣器 □ 0.5s □ 1s □ 2s □ 3s		□ 欠电压0~10s延时脱扣器（出厂默认设定值3s）	
	□FFS分闸锁定装置	□一锁一钥匙	□二锁一钥匙	□三锁二钥匙	
	□FLS机械联锁	二台断路器	□钢缆联锁	□联杆联锁（上下联锁）	
		三台断路器	□钢缆联锁方式三	□联杆联锁方式一	□联杆联锁方式二 □联杆联锁方式三
	□FAN按钮锁定装置	□FXG相间隔板（CW3-1000/CW3-1600垂直联接方式必配相间隔板）		□FJS计数器	
	□FHM合闸准备就绪电气指示模块	□FYF远程复位（仅提供AC230V）	□FWZ抽屉座位置电气指示装置	□FCZ储能信号电气指示装置	
	□FFJ附件监测单元	□外接中性线电流互感器	□FDH-60	□FDH-80	□FDH-120 □FDH-260
	□FCM/W32 2路可编程输出模块	输出1编号_____类型_____时间_____s		输出2 ___ ___ ___s	
	□FCM/W36 6路可编程扩展输出模块	输出1编号_____ 类型 ____ 时间 ____ s	输出2 ____ ____ ____ s	输出3 ____ ____ ____ s	
		输出4编号_____ 类型 ____ 时间 ____ s	输出5 ____ ____ ____ s	输出6 ____ ____ ____ s	
	通信功能选件 □FGT故障脱扣信号 □FNX储能信号 □FHX合闸准备就绪信号 □FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）				
	□FDY专用电源模块	□AC230V	□AC400V	□DC24V	
	□FDY/WT直流电源模块	□DC110V	□DC220V		
	□FCS/W便携式测试器				
	□FZZ两路电源自动电源转换系统	电子型自动转换控制器 □R型 □S型 □F型 智能型自动转换控制器 □ZR型 □ZS型 □ZF型 智能可通信自动转换控制器 □ZTR型□ZTS型□ZTF型			
	□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT3型 智能型带并联转换自动转换控制器 □WTB3型		□通信	
	□FLZ三电源自动电源转换系统	智能型自动转换控制器 □WTT5型		□通信	

注1：所有电源模块电压均为电源模块的输入电压，输出电压均为DC24V。用户应根据所提供电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注2：可提供CW3全系列低温至-40℃断路器；注3：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注4、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EN35、EN36型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	

型号　CW3-　_____　_____　/　_____　□陆用　□湿热带型（TH型）　□船用（1600A、2500A壳架）

额定电流　In =_____ A　　额定电压　□AC400V　□AC440V　□AC690V*

安装方式　□固定式　□抽屉式

联接方式　□水平　□垂直　□上垂直下水平　□上水平下垂直（CW3-1000仅供水平连接方式）

智能控制器

类型选择　□EN35　□EN36

基本功能

长延时 Ir1_____ A　t1_____s　短延时 Ir2_____A　t2 _____s　瞬时　Ir3_____A

接地保护注　Ir4_____A　t4 _____s　（仅36型需填）

长延时曲线　□通用长延时反时限(I^2t)

N极保护　□OFF　□50%In　□100%In（CW3-7400四极无100%In保护）　□200%In（三极断路器用于2倍相线截面中性线保护，但CW3-6300、7400除外）

选择功能

□过载预报警　Ir0=_____Ir1

□电流不平衡　动作阈值___%　动作延时 ___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□断相保护　动作阈值___%　动作延时 ___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□电流卸载　动作阈值___动作延时 ___%t1　返回阈值___返回延时___s

□功率电能测量

□通信功能　通信协议选择　标准型式　□Modbus　特殊型式　□Profibus　□Devicenet　□CAN　□WiFi

□ ZSI功能

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压　□DC24V　□AC230V　□AC400V(CW3-1000/CW3-1600必选专用电源模块)　□DC220V　□DC110V(需配装直流电源模块)

附件配置

FFT分励脱扣器　□AC230V　□AC400V　□DC220V　□DC110V

FHD合闸电磁铁　□AC230V　□AC400V　□DC220V　□DC110V

FDC电动操作机构　□AC230V　□AC400V　□DC220V　□DC110V

FFC辅助开关　□4组转换触头　□4常开4常闭　特殊形式　□6组转换触头　□6常开6常闭

选择附件

□ FQT欠电压脱扣器　□ AC230V　□ AC400V　光伏专用型　□ AC220V　□ AC380V

□ 欠电压瞬时脱扣器　□ 欠电压瞬时脱扣器

□ 欠电压延时脱扣器　□ 0.5s　□ 1s　□ 2s　□ 3s　□ 欠电压0~10s延时脱扣器（出厂默认设定值3s）

□FFS分闸锁定装置　□一锁一钥匙　□二锁一钥匙　□三锁二钥匙

□FLS机械联锁　二台断路器　□钢缆联锁　□联杆联锁（上下联锁）

三台断路器　□钢缆联锁方式三　□联杆联锁方式一　□联杆联锁方式二　□联杆联锁方式三

□FAN按钮锁定装置　□FXG相间隔板（CW3-1000/CW3-1600垂直联接方式必配相间隔板）　□FJS计数器

□FHM合闸准备就绪电气指示模块　□FYF远程复位（仅提供AC230V）　□FWZ抽屉座位置电气指示装置　□FCZ储能信号电气指示装置

□FFJ附件监测单元　□FBM外接变压器中心点接地单元

□外接中性线电流互感器　□FDH-60　□FDH-80　□FDH-120　□FDH-260

□FCM/W32　2路可编程输出模块　输出1编号____类型 ____时间 ____ s　输出2 ____ ____ ____ s

□FCM/W36 6路可编程扩展输出模块　输出1编号 ____ 类型 ____ 时间 ____ s　输出2 ____ ____ ____ s　输出3 ____ ____ ____ s

输出4编号 ____ 类型 ____ 时间 ____ s　输出5 ____ ____ ____ s　输出6 ____ ____ ____ s

通信功能选件　□FGT故障脱扣信号　□FNX储能信号　□FHX合闸准备就绪信号　□FQX欠电压输出信号　□FCT抽屉座通信模块组件（仅适用Modbus协议）

□FDY专用电源模块　□AC230V　□AC400V　□DC24V

□FDY/WT直流电源模块　□DC110V　□DC220V

□FCS/W便携式测试器

□FZZ两路电源自动电源转换系统　电子型自动转换控制器　□R型　□S型　□F型

智能型自动转换控制器　□ZR型　□ZS型　□ZF型

智能可通信自动转换控制器　□ZTR型□ZTS型□ZTF型

□FLZ两进线一母联自动电源转换系统　智能型自动转换控制器　□WTT3型　智能型带并联转换自动转换控制器　□WTB3型　□通信

□FLZ三电源自动电源转换系统　智能型自动转换控制器　□WTT5型　□通信

注1：接地保护用户可选择矢量和型或变压器中心点接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。注2：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注3、可提供CW3全系列低温至-40℃断路器。注4：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EA37型智能控制器） （请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	
型号	CW3- _____ _____ / _____ □陆用 □湿热带型（TH型） □船用（1600A、2500A壳架）				
额定电流	In =_____ A	额定电压	□AC400V □AC440V □AC690V		
安装方式	□固定式 □抽屉式				
联接方式	□水平 □垂直 □上垂直下水平 □上水平下垂直（CW3-1000仅供水平连接方式）				
智能控制器	类型选择 □EA37				
基本功能	长延时 Ir1_____ A t1_____s 短延时 Ir2_____A t2 _____s 瞬时 Ir3_____A				
	剩余电流保护I△n_____A △t _____s □跳闸 □跳闸并报警				
	长延时曲线 □通用长延时反时限(I^2t) □非常反时限(It) □高压熔丝型(I^4t)				
	N极保护 □OFF □50%In □100%In	□200%In（三极断路器用于2倍相线截面中性线保护）			
选择功能	□过载预报警 Ir0=_____Ir1				
	□电流不平衡 动作阈值___% 动作延时 ___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸				
	□断相保护 动作阈值___% 动作延时 ___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸				
	□电流卸载 动作阈值___动作延时 ___%t1 返回阈值___ 返回延时___s				
	□通信功能	通信协议选择	标准型式 □Modbus		
			特殊型式 □Profibus □Devicenet □CAN □WiFi		
	□ ZSI功能				
	选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。				
	智能控制器电压 □DC24V □AC230V □AC400V (CW3-1000/CW3-1600必选专用电源模块)	□DC220V □DC110V (需配装直流电源模块)			
附件配置	FFT分励脱扣器 □AC230V □AC400V □DC220V □DC110V				
	FHD合闸电磁铁 □AC230V □AC400V □DC220V □DC110V				
	FDC电动操作机构 □AC230V □AC400V □DC220V □DC110V				
	FFC辅助开关 □4组转换触头 □4常开4常闭	特殊形式 □6组转换触头 □6常开6常闭			
选择附件	□ FQT欠电压脱扣器	□ AC230V □AC400V	光伏专用型 □ AC220V □ AC380V		
		□ 欠电压瞬时脱扣器	□ 欠电压瞬时脱扣器		
		□ 欠电压延时脱扣器 □ 0.5s □ 1s □ 2s □ 3s	□ 欠电压0~10s延时脱扣器（出厂默认设定值3s）		
	□FFS分闸锁定装置 □一锁一钥匙 □二锁一钥匙 □三锁二钥匙				
	□FLS机械联锁	二台断路器 □钢缆联锁 □联杆联锁（上下联锁）			
		三台断路器 □钢缆联锁方式三 □联杆联锁方式一 □联杆联锁方式二 □联杆联锁方式三			
	□FAN按钮锁定装置 □FXG相间隔板（CW3-1000/CW3-1600垂直联接方式必配相间隔板） □FJS计数器				
	□FHM合闸准备就绪电气指示模块 □FYF远程复位（仅提供AC230V） □FWZ抽屉座位置电气指示装置 □FCZ储能信号电气指示装置				
	□FFJ附件监测单元				
	□外接中性线电流互感器 □FDH-60 □FDH-80				
	□FCM/W32 2路可编程输出模块 输出1编号___类型 ___时间 ___ s 输出2 ____ ____ ___ s				
	□FCM/W36 6路可编程扩展输出模块	输出1编号 ____ 类型 ____时间 ____ s 输出2 ____ ____ ____ s 输出3 ____ ____ ____ s			
		输出4编号 ____ 类型 ____时间 ____ s 输出5 ____ ____ ____ s 输出6 ____ ____ ____ s			
	通信功能选件 □FGT故障脱扣信号 □FNX储能信号 □FHX合闸准备就绪信号 □FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）				
	□FDY专用电源模块 □AC230V □AC400V □DC24V				
	□FDY/WT直流电源模块 □DC110V □DC220V				
	□FCS/W便携式测试器				
	□FZZ两路电源自动电源转换系统	电子型自动转换控制器 □R型 □S型 □F型 智能型自动转换控制器 □ZR型 □ZS型 □ZF型 智能可通信自动转换控制器 □ZTR型□ZTS型□ZTF型			
	□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT3型 智能型带并联转换自动转换控制器 □WTB3型	□通信		
	□FLZ三电源自动电源转换系统	智能型自动转换控制器 □WTT5型	□通信		

注1：所有电源模块电压均为电源模块的输入电压，输出电压均为DC24V，用户应根据所提供电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注2：剩余电流保护功能选择“跳闸并报警”时剩余电流故障报警信号通过“2路可编程输出模块”输出，其他选择功能报警信号需通过“6路可编程扩展模块”输出。注3： 可提供CW3-1000、1600、2500低温至-40℃断路器。注4：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。

断路器订货规范

断路器订货规范（带ER37型智能控制器）

（请在___上填上数字，□ 内打上√）

用户单位		订货台数		订货日期	
型号	CW3- _____ _____ / _____ □陆用 □湿热带型（TH型） □船用（1600A、2500A壳架）				
额定电流	In = _____ A	额定电压	□AC400V □AC440V □ AC690V		
安装方式	□ 固定式 □ 抽屉式				
联接方式	□水平 □ 垂直 □上垂直下水平 □上水平下垂直（CW3-1000仅供水平连接方式）				
智能控制器	类型选择 □ ER37				
基本功能	长延时 Ir1 _____ A t1 _____ s 短延时 Ir2 _____ A t2 _____ s 瞬时 Ir3 _____ A				
	剩余电流保护 I△n _____ A △t _____ s □ 跳闸 □ 跳闸并报警				
	N 极保护 □OFF □50%In □100%In	□ 200%In（三极断路器用于2倍相线截面中性线保护）			
选择功能	□过载预报警 Ir0=_____Ir1				
	□电流不平衡 动作阈值___% 动作延时___s 返回阈值___% 返回延时___s			□OFF □报警 □ 跳闸	
	□断相保护 动作阈值___% 动作延时___s 返回阈值___% 返回延时___s			□OFF □报警 □ 跳闸	
	□需用电流保护 动作阈值___ 动作延时___s 返回阈值___ 返回延时___s			□OFF □报警 □ 跳闸	
	□低电压保护 动作阈值___ 动作延时___s 返回阈值___ 返回延时___s			□OFF □报警 □ 跳闸	
	□过电压保护 动作阈值___ 动作延时___s 返回阈值___ 返回延时___s			□OFF □报警 □ 跳闸	
	□电压不平衡 动作阈值___% 动作延时___ s 返回阈值___% 返回延时___s			□OFF □报警 □ 跳闸	
	□相序保护 动作阈值___ 动作延时 0.3 s			□OFF □报警 □ 跳闸	
	□欠频保护 动作阈值___ 动作延时___ s 返回阈值 ___ 返回延时___ s			□OFF □报警 □ 跳闸	
	□过频保护 动作阈值___ 动作延时___ s 返回阈值 ___ 返回延时___ s			□OFF □报警 □ 跳闸	
	□电流卸载 动作阈值___动作延时___%t1 返回阈值 ___ 返回延时___ s				
	□逆功率保护 动作阈值___ 动作延时___ s 返回阈值 ___ 返回延时___ s			□OFF □报警 □ 跳闸	
	□双重保护参数设定功能 注：选择双重保护参数设定功能，智能控制器保护参数默认为 A 组，B 组参数用户自行设定。				
	□方向性保护	□ ZSI 功能 □ 方向性 ZSI 功能（ZSI 和方向性 ZSI 功能二者选一）		□谐波功能（含波形捕捉、故障录波）	
	□自动同期功能 电压差△U_____V 频率差△f_____Hz 相角差△δ_____			□频率 □电能 □需用电流功率	
	□通信功能	通信协议选择	标准型式 □ Modbus		
			特殊型式 □ Profibus □Devicenet □CAN □WiFi		
	□温度显示功能（必选FWX1-C无线温度传感器 _____ 只）				
附件配置	选报警功能时，必须选择 2 路可编程输出模块（内置）或 6 路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表”选择信号输出。				
	智能控制器电压 □ DC24V □AC230V □AC400V (CW3-1000/CW3-1600 必选专用电源模块)		□ DC220V □ DC110V （需配装直流电源模块）		
	FFT 分励脱扣器	□AC230V □AC400V □DC220V □DC110V			
	FHD 合闸电磁铁	□AC230V □AC400V □DC220V □DC110V			
	FDC 电动操作机构	□AC230V □AC400V □DC220V □DC110V			
	FFC 辅助开关	□ 4 组转换触头 □4 常开 4 常闭	特殊形式	□6 组转换触头 □6 常开 6 常闭	
选择附件	□FQT欠电压脱扣器	□AC230V □AC400V	□光伏专用型	□AC220V □AC380V	
		□欠电压瞬时脱扣器	□欠电压瞬时脱扣器		
		□欠电压延时脱扣器 □0.5s □1s □2s □3s	□欠电压0~10s延时脱扣器（出厂默认设定值3s）		
	□ FFS 分闸锁定装置	□ 一锁一钥匙 □ 二锁一钥匙	□ 三锁二钥匙		
	□FLS机械联锁	二台断路器 □钢缆联锁 □联杆联锁（上下联锁）			
		三台断路器 □钢缆联锁方式三 □联杆联锁方式一 □联杆联锁方式二 □联杆联锁方式三			
	□ FAN 按钮锁定装置	□FXG 相间隔板（CW3-1000/CW3-1600 垂直联接方式必选相间隔板）	□ FJS 计数器		
	□FHM合闸准备就绪电气指示模块 □FYF远程复位（仅提供AC230V）		□FWZ抽屉座位置电气指示装置	□FCZ储能信号电气指示装置	
	□ FFJ 附件监测单元	□FZF自动复位	□外接中性线电流互感器	□FDH-60 □FDH-80	
	□ FCM/W32 2 路可编程输出模块	输出 1 编号 ___ 类型 ___ 时间___ s	输出 2___ ___ ___ s (选择双重保护参数设定及自动同期时无)		
	□ FCM/W36 6 路可编程扩展输出模块	输出 1 编号___ 类型 ___ 时间___ s 输出 4 编号___ 类型 ___ 时间___ s	输出 2___ ___ ___ s 输出 5___ ___ ___ s	输出 3___ ___ ___ s 输出 6___ ___ ___ s	
	通信功能选件 □ FGT 故障脱扣信号□ FNX 储能信号□FHX 合闸准备就绪信号□FQX 欠电压输出信号□FCT 抽屉座通信模块组件（仅适用 Modbus 协议）				
	□ FDY 专用电源模块	□ AC230V □ AC400V □ DC24V			
	□ FDY/WT 直流电源模块	□ DC110V □ DC220V	□FCS/W便携式测试器		
	□FZZ两路电源自动电源转换系统	电子型自动转换控制器 □R型 □S型 □F型 智能型自动转换控制器 □ZR型 □ZS型 □ZF型 智能可通信自动转换控制器 □ZTR型 □ZTS型 □ZTF型			
	□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT3型 智能型带并联转换自动转换控制器 □WTB3型	□通信		
	□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT5型	□通信		

注1：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注2：剩余电流保护功能选择“跳闸并报警”时剩余电流故障报警信号通过“2路可编程输出模块”输出，其他选择功能报警信号需通过“6路可编程扩展输出模块”输出。注3： 可提供CW3-1000、1600、2500低温至-40℃断路器。注4：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。

断路器订货规范

断路器订货规范（带EP37或EQ37型智能控制器）（请在___上填上数字，□ 内打上√）

用户单位		订货台数		订货日期	

型号　CW3-　_____　_____　/　_____　□陆用　□湿热带型（TH型）　□船用（1600A、2500A壳架）

额定电流　In = _____A　　额定电压　□AC400V　□AC440V　□AC690V

安装方式　□固定式　□抽屉式

联接方式　□水平　□垂直　□上垂直下水平　□上水平下垂直（CW3-1000仅供水平连接方式）

智能控制器

类型选择　□EP37　□EQ37

基本功能

- 长延时 I_{r1}_____A　t_1_____ s　短延时 I_{r2}_____ A　t_2_____ s　瞬时　I_{r3}_____A
- 剩余电流保护I△n ____ A　△t _____ s　□跳闸　□跳闸并报警
- 长延时曲线　□通用长延时反时限(I^2t)　□非常反时限(It)　□高压熔丝型(I^4t)
- N极保护　□OFF　□50%In　□100%In　□200%In（三极断路器用于2倍相线截面中性线保护）

选择功能

- □过载预报警　I_{r0}= _____ I_{r1}
- □电流不平衡　动作阈值___%　动作延时___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸
- □断相保护　动作阈值___%　动作延时___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸
- □需用电流保护 动作阈值___　动作延时___s　返回阈值___　返回延时___s　□OFF　□报警　□跳闸
- □低电压保护　动作阈值___　动作延时___s　返回阈值___　返回延时___s　□OFF　□报警　□跳闸
- □过电压保护　动作阈值___　动作延时___s　返回阈值___　返回延时___s　□OFF　□报警　□跳闸
- □电压不平衡　动作阈值___%　动作延时___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸
- □相序保护　动作阈值___　动作延时0.3s　□OFF　□报警　□跳闸
- □电流卸载　动作阈值___动作延时___%t_1　返回阈值___返回延时___s
- □通信功能　通信协议选择　标准型式　□Modbus
  特殊型式　□Profibus　□Devicenet　□CAN　□WiFi
- □ ZSI功能

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压　□DC24V　□AC230V　□AC400V (CW3-1000/CW3-1600必选专用电源模块)　□DC220V　□DC110V(需配装直流电源模块)

附件配置

- FFT分励脱扣器　□AC230V　□AC400V　□DC220V　□DC110V
- FHD合闸电磁铁　□AC230V　□AC400V　□DC220V　□DC110V
- FDC电动操作机构　□AC230V　□AC400V　□DC220V　□DC110V
- FFC辅助开关　□4组转换触头　□4常开4常闭　特殊形式　□6组转换触头　□6常开6常闭

选择附件

- □FQT欠电压脱扣器　□ AC230V　□ AC400V　光伏专用型　□ AC220V　□ AC380V
  □ 欠电压瞬时脱扣器　□ 欠电压瞬时脱扣器
  □ 欠电压延时脱扣器　□ 0.5s　□ 1s　□ 2s　□ 3s　□ 欠电压0~10s延时脱扣器（出厂默认设定值3s）
- □FFS分闸锁定装置　□一锁一钥匙　□二锁一钥匙　□三锁二钥匙
- □FLS机械联锁　二台断路器　□钢缆联锁　□联杆联锁（上下联锁）
  三台断路器　□钢缆联锁方式三　□联杆联锁方式一　□联杆联锁方式二　□联杆联锁方式三
- □FAN按钮锁定装置　□FXG相间隔板（CW3-1000/CW3-1600垂直联接方式必配相间隔板）　□FJS计数器
- □FHM合闸准备就绪电气指示模块　□FYF远程复位（仅提供AC230V）　□FWZ抽屉座位置电气指示装置　□FCZ储能信号电气指示装置
- □FFJ附件监测单元
- □外接中性线电流互感器　□FDH-60　□FDH-80
- □FCM/W32　2路可编程输出模块　输出1编号____类型____时间 ____ s　输出2____ ____ ____ s
- □FCM/W36 6路可编程扩展输出模块　输出1编号_____ 类型 ____ 时间 ____ s　输出2 ____ ____ ____ s　输出3 ____ ____ ____ s
  输出4编号_____ 类型 ____ 时间 ____ s　输出5 ____ ____ ____ s　输出6 ____ ____ ____ s
- 通信功能选件　□FGT故障脱扣信号　□FNX储能信号　□FHX合闸准备就绪信号　□FQX欠电压输出信号　□FCT抽屉座通信模块组件（仅适用Modbus协议）
- □FDY专用电源模块　□AC230V　□AC400V　□DC24V
- □FDY/WT直流电源模块　□DC110V　□DC220V
- □FCS/W便携式测试器
- □FZZ两路电源自动电源转换系统　电子型自动转换控制器　□R型　□S型　□F型
  智能型自动转换控制器　□ZR型　□ZS型　□ZF型
  智能可通信自动转换控制器　□ZTR型□ZTS型□ZTF型
- □FLZ两进线一母联自动电源转换系统　智能型自动转换控制器　□WTT3型
  智能型带并联转换自动转换控制器　□WTB3型　□通信
- □FLZ三电源自动电源转换系统　智能型自动转换控制器　□WTT5型　□通信

注1：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注2：剩余电流保护功能选择“跳闸并报警”时剩余电流故障报警信号通过“2路可编程输出模块”输出，其他选择功能报警信号需通过“6路可编程扩展输出模块”输出。注3：　可提供CW3-1000、1600、2500低温至-40℃断路器。注4：选择FLZ两进线一母联自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。

断路器订货规范

断路器订货规范（带EN37智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	
型号	CW3– _____ _____ / _____	□陆用	□湿热带型（TH型）	□船用（1600A、2500A壳架）	
额定电流	In =_____ A	额定电压	□AC400V	□AC440V	□AC690V
安装方式	□固定式	□抽屉式			
联接方式	□水平	□垂直	□上垂直下水平	□上水平下垂直（CW3–1000仅供水平连接方式）	

智能控制器	类型选择	□EN37	
	基本功能	长延时 Ir1_____ A t1_____s 短延时 Ir2_____A t2 _____s 瞬时 Ir3_____A	
		剩余电流保护I△n ___ A △t _____ s □跳闸 □跳闸并报警	
		长延时曲线 □通用长延时反时限(I^2t)	
		N极保护 □OFF □50%In □100%In	□200%In（三极断路器用于2倍相线截面中性线保护）
	选择功能	□过载预报警 Ir0=_____Ir1	
		□电流不平衡 动作阈值___% 动作延时 ___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸	
		□断相保护 动作阈值___% 动作延时 ___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸	
		□电流卸载 动作阈值___动作延时 ___%t1 返回阈值___返回延时___s	
		□功率电能测量	
		□通信功能	通信协议选择
			标准型式 □Modbus
			特殊型式 □Profibus □Devicenet □CAN □WiFi
		□ ZSI功能	
	选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。		
	智能控制器电压	□DC24V □AC230V □AC400V (CW3–1000/CW3–1600必选专用电源模块)	□DC220V □DC110V （需配装直流电源模块）
附件配置	FFT分励脱扣器	□AC230V □AC400V □DC220V □DC110V	
	FHD合闸电磁铁	□AC230V □AC400V □DC220V □DC110V	
	FDC电动操作机构	□AC230V □AC400V □DC220V □DC110V	
	FFC辅助开关	□4组转换触头 □4常开4常闭	特殊形式 □6组转换触头 □6常开6常闭
选择附件	□ FQT欠电压脱扣器	□ AC230V □ AC400V	光伏专用型 □ AC220V □ AC380V
		□欠电压瞬时脱扣器	□ 欠电压瞬时脱扣器
		□欠电压延时脱扣器 □ 0.5s □ 1s □ 2s □ 3s	□ 欠电压0~10s延时脱扣器（出厂默认设定值3s）
	□FFS分闸锁定装置	□一锁一钥匙	□二锁一钥匙 □三锁二钥匙
	□FLS机械联锁	二台断路器	□钢缆联锁 □联杆联锁（上下联锁）
		三台断路器	□钢缆联锁方式三 □联杆联锁方式一 □联杆联锁方式二 □联杆联锁方式三
	□FAN按钮锁定装置	□FXG相间隔板（CW3–1000/CW3–1600垂直联接方式必配相间隔板）	□FJS计数器
	□FHM合闸准备就绪电气指示模块	□FYF远程复位（仅提供AC230V）	□FWZ抽屉座位置电气指示装置 □FCZ储能信号电气指示装置
	□FFJ附件监测单元		
	□外接中性线电流互感器	□FDH–60	□FDH–80
	□FCM/W32 2路可编程输出模块	输出1编号____类型 ____时间 ____ s	输出2 ____ ____ ____ s
	□FCM/W36 6路可编程扩展输出模块	输出1编号 ____ 类型 ____时间 ____ s 输出4编号 ____ 类型 ____时间 ____ s	输出2 ____ ____ ____ s 输出3 ____ ____ ____ s 输出5 ____ ____ ____ s 输出6 ____ ____ ____ s
	通信功能选件	□FGT故障脱扣信号 □FNX储能信号 □FHX合闸准备就绪信号	□FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）
	□FDY专用电源模块	□AC230V	□AC400V □DC24V
	□FDY/WT直流电源模块	□DC110V	□DC220V
	□FCS/W便携式测试器		
	□FZZ两路电源自动电源转换系统	电子型自动转换控制器 □R型 □S型 □F型 智能型自动转换控制器 □ZR型 □ZS型 □ZF型 智能可通信自动转换控制器 □ZTR型□ZTS型□ZTF型	
	□FLZ两进线一母联自动电源转换系统	智能型自动转换控制器 □WTT3型 智能型带并联转换自动转换控制器 □WTB3型	□通信
	□FLZ三电源自动电源转换系统	智能型自动转换控制器 □WTT5型	□通信

注1：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注2：剩余电流保护功能选择“跳闸并报警”时剩余电流故障报警信号通过“2路可编程输出模块”输出，其他选择功能报警信号需通过“6路可编程扩展输出模块”输出。注3： 可提供CW3–1000、1600、2500低温至–40℃断路器。注4：选择FLZ自动电源转换系统时断路器标配FAN按钮锁定装置。注5、选择FZZ、FLZ自动电源转换系统时，智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压均为AC230V。

2路可编程输出模块输出定义（置于断路器内部）

可编程输出1和输出2可通过智能控制器按“可编程输出模块输出编号定义表”对以下各项内容编程设置输出，如用户对编程内容不作选择，本公司出厂缺省编号为：可编程输出1选择Bc1，即电流卸载1,时间延时触点，延时时间为1秒；可编程输出2选择Cc1，即电流卸载2,时间延时触点，延时时间为1秒。

对EN37、EA37、ER37、EP37、EQ37智能控制器，可编程输出1和输出2编程设置输出都为Gb，即剩余电流脱扣报警，闭锁触头。

6路可编程扩展输出模块（外部附件）

6路可编程扩展输出模块通过智能控制器按“可编程输出模块输出编号定义表”编程设置输出。编程输出只有在断路器具有相应功能的前提下才有效，用户应在订货规范中注明编号、类型、延时时间（仅对时间延时触点有效），出厂时按该编号供货，如未作选择本公司出厂缺省编号为：可编程输出1选择Aa，可编程输出2选择Bc1，可编程输出3选择Cc1，可编程输出4选择Da，可编程输出5选择Ea，可编程输出6选择Fa。

可编程输出模块输出编号定义表

编号	功能		备注	控制器类型
A	Ir_0	过载预报警	过载预报警及电流卸载	适用于EN、EA、ER、EP、EQ、EG型
B	ILC1	电流卸载1		
C	ILC2	电流卸载2		
D	Ir_1	长延时脱扣报警	电流保护报警	
E	Ir_2	短延时脱扣报警		
F	Ir_3	瞬时脱扣报警		
G	Ir_4/I△n	接地/剩余电流脱扣报警		
H	Iunbal	电流不平衡动作报警		
I	断相	断相动作报警		
J	超温	控制器超温报警	内部故障报警	适用于EN、EA、ER、EP、EQ、EG型
K	存储器故障	存储器故障报警		
L	内部附件故障	内部附件故障报警		
M	$\overline{I_1}$max	最大需用电流动作报警	电流保护报警	适用于ER、EP、EQ、EG型
N	$\overline{I_2}$max	最大需用电流动作报警		
O	$\overline{I_3}$max	最大需用电流动作报警		
P	$\overline{I_n}$max	最大需用电流动作报警		
Q	Umin	低电压动作报警	电压保护报警	
R	Umax	过电压动作报警		
S	Uunbal	电压不平衡动作报警		
T	相序	相序保护动作报警	其它保护报警	
U	FMIN	欠频保护报警		适用于ER、EG型
V	FMAX	过频保护报警		
W	rPmax	逆功率动作报警		

可编程输出模块输出类型定义表

输出编号	输出类型	时间延时触头延时时间	备注
见编号定义表 A～W	a,非闭锁触头 b,闭锁触头 c,时间延时触头	1～360s	2路可编程输出模块（内置）或 6路可编程扩展输出模块（外置）

保护参数出厂缺省整定值

如用户订货时已选择相应功能而未作具体要求，智能控制器出厂整定值按如下配置：

项目		可调范围			出厂设定	备注
长延时保护	保护曲线类型	I^2t	It	I^4t	I^2t	EN、EG型仅有I^2t
	整定电流Ir1	0.4～1In			In	EA、ER、EP、EQ型
		0.4～1.15In				EG型
	整定时间t1	15～480s	10～120s	60～1440s	480s	EN、EA、ER、EP、EQ型
		15～60s			60s	EG型
短延时保护	整定电流Ir2	(0.4～15)In+OFF			6Ir1	EN、EA、ER、EP、EQ型
	整定时间t2	(0.4～5)In+OFF			3Ir1	EG型
		0.1～0.4s（定时限或反时限+定时限）			0.2s/反时限+定时限	EG型为定时限
瞬时保护	整定电流Ir3	1000	(1～25) kA+OFF		In≤1000A：15In In = 1250A、1600：12In In≥2000A：10In	
		1600	(1.6～35) kA+OFF			
		2500	(2.5～50) kA+OFF			
		3200	(3.2～80) kA+OFF			
		4000	(4～80)kA+OFF			
		6300	(6.3～100)kA+OFF			
		7400	(7.4～115)kA+OFF			
接地保护	整定电流Ir4	<1250A	(0.4～0.8)In		最大	
		≥1250A	500～1200A			
	整定时间t4	0.1～0.4s+OFF			0.4s/定时限	
剩余电流保护	额定剩余动作电流I△n	（0.5~30）A			30A	EN37、EA37、ER37、EP37、EQ37型
	可调延时△t	（0.10~5.00）s			1.0s	
中性极保护	电流整定值	OFF－N/2－N－N×2 (CW3-6300、7400和EG控制器型无N×2			OFF	三极断路器
		OFF-N/2-N （CW3-7400无N）			CW3-1000~CW3-6300：N CW3-7400：N/2	四极断路器
方向性保护	整定电流Ir5	（0.4～10）In+OFF			6Ir1	ER型
	整定时间 t5F	0.1～0.4s（定时限）			0.2s	
	整定时间 t5B	0.1～0.4s（定时限）			0.2s	
	参考方向	上进下出或下进上出			上进下出	
自动同期	无压定值整定值Uw	0.05～0.2UnV			0.2Un	ER型
	有压定值整定值Uy	0.5～1.1UnV			0.5Un	
	电压差△U	0.02～0.12UnV			0.12Un	
	相角差△δ	5～20°			20°	
	频率差△f	0.1～1Hz			0.1	
	合闸窗口时间td	0.1～3s			0.1	
	判断电压稳定延时时间ts	0.1～30s			1	

续　表

项　　目		可调范围	出厂设定	备注
过载预报警	整定电流Ir0	(0.75～1.05)Ir1	1.05Ir1	
电流不平衡保护	动作阈值	20～80%	60%	
	动作延时	1～40s	40s	
	返回阈值	20%～动作阈值	20%	
	返回延时	10～360s	10s	
断相保护	动作阈值	90～99%	95%	
	动作延时	0.1～3s	3s	
	返回阈值	20%～动作阈值	20%	
	返回延时	10～360s	10s	
需用电流保护	动作阈值	0.4～1In	1In	
	动作延时	15～1500s	1500s	
	返回阈值	0.4In～动作阈值	0.4In	
	返回延时	15～3000s	15s	
低电压保护	动作阈值	50～690V	265V	
	动作延时	EP/EQ/EG: 1～30s	5s	
		ER：0.2~30s	0.2s	
	返回阈值	动作阈值～690V	325V	
	返回延时	EP/EQ/EG:1～100s	10s	
		ER：0.2~100s	10s	
过电压保护	动作阈值	200～1000V	725V	
	动作延时	EP/EQ/EG: 1～5s	5s	
		ER：0.2～5s	0.2s	
	返回阈值	200V～动作阈值	400V	
	返回延时	EP/EQ/EG:1～36s	2s	
		ER：0.2～36s	2s	
电压不平衡保护	动作阈值	2～50%	30%	
	动作延时	1～40s	40s	
	返回阈值	2%～动作阈值	10%	
	返回延时	10～360s	10s	

续　表

项　　目		可调范围	出厂设定	备　　注
逆功率保护	动作阈值	20～500kW	500kW	
	动作延时	0.2～20s	20s	
	返回阈值	20kW～动作阈值	100kW	
	返回延时	1～360s	1s	
过频保护	动作阈值	50～65Hz	65Hz	
	动作延时	0.2～5s	5s	
	返回阈值	45Hz～动作阈值	50Hz	
	返回延时	1～360s	1s	
欠频保护	动作阈值	45～60Hz	45Hz	
	动作延时	0.2～5s	5s	
	返回阈值	动作阈值～60Hz	50Hz	
	返回延时	1～360s	1s	
相序保护	动作阈值	1，2，3或1，3，2	1，2，3	
	动作延时	0.3s	0.3s	
电流卸载	动作阈值	0.2～1In	1In	
	动作延时	20%～80%t1	80%t1	
	返回阈值	0.2In～动作阈值	0.5In	
	返回延时	10～600s	10s	

如用户订货时已选择6路可编程扩展输出模块而未作具体要求，则2路可编程输出模块和6路可编程扩展输出模块编程输出出厂整定值按如下配置：

输出编号	A～W	出厂设定	备　　注
		Bc1,Cc1	2路可编程输出模块（内置）
		Aa ,Bc1,Cc1 ,Da, Ea, Fa	6路可编程扩展输出模块（外置）
输出类型	a. 非闭锁触头 b. 闭锁触头 c. 时间延时触头	c	
时间延时触头延时时间	1～360s	1s	

通信可选元件订货规范

用户单位		订货日期	
产品型号		订货数	
通信转接器（Ⅱ）			
CN1通信适配器	FTM61		
	CN1DP-MD		
	CN1DP-MP		
	CN1DP-MC		
	CN1EG/10		
FDM3短消息通知模块			
FWF1 WiFi通信模块			
FDA数据采集器			
CEPA3智能配电一体机	本体		
	可选模块: 短消息扩展模块		
CI1远程智能I/O模块	CI1-SCM423		
	CI1-S12		
	CI1-C8		
	CI1-SC64		

温度在线监测元件订货规范

请在□内打“√”，请在 ▭内填上数字

用户单位			订货日期				
有线方式	FWD1温度上传模块▭+	热传感器	FRG-7	FRG-9	FRG-11	FRG-13	FRG-17
		数量	▭	▭	▭	▭	▭
无线方式	方式一	见带ER35或ER36或ER37型智能控制器断路器订货规范中选择功能					
	方式二 □	1只 FWX1-J接收显示单元+▭ FWX1-C无线温度传感器					

注：若用户采用自有ZigBee接收单元与FWX1-C无线温度传感器进行组网，请咨询本公司。

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type EA35 or EA36 intelligent controllers) (Please fill number in ___ or mark √ in □)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			□On land □damp heat (TH type) □in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage	□AC400V □AC440V □AC690V*		
Mounting □Fixed □Draw-out					
Connection □Horizontal □Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection □EA35 □EA36				
	Basic function: Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A				
	Basic function: Earth-fault protection Ir4___A t4___s (Only type 36)				
	Basic function: Curve of long-time delay □General inverse long-time delay (I^2t) □Special inverse time delay (It) □High-voltage fuse type (I^4t)				
	Basic function: Neutral protection □OFF □50%In □100%In (without 100%In for CW3-7400 four poles)	□200%In(double phase line cross-section protection for 3-pole circuit breaker, but except for CW3-6300, 7400)			
	Selective function: □Overload pre-alarm Ir0=___Ir1				
	Selective function: □Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip				
	Selective function: □Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip				
	Selective function: □Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s				
	Selective function: □Communication	Communicative protocol	Standardard □Modbus		
			Specical □Profibus □Devicenet □CAN □WiFi		
	Selective function: □ZSI				
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller □DC24V □AC230V □AC400 (must select power supply module for CW3-1000/ CW3-1600)	□DC220V □DC110V(Equipped with DC power supply module)			
Accessories	FFT shunt release □AC230V □AC400V □DC220V □DC110V				
	FHD closing electromagnet □AC230V □AC400V □DC220V □DC110V				
	FDC motor-driven operating mechanism □AC230V □AC400V □DC220V □DC110V				
	FFC auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts and four pieces of normally-closed contacts	Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts and six pieces of normally-closed contacts			
Choice of accessories	□FQT under-voltage release	□AC230V □AC400V	PV special □AC220V □AC380V		
		□Instantaneous	□Instantaneous		
		□Time delay □0.5s □1s □2s □3s	□0-10s time delay(factory setting 3s)		
	□FFS open lock device □One lock one key □Two locks one key □Three locks two keys				
	□FLS mechanical interlock	Two circuit-breakers □Steel interlock □Rod interlock (up and down interlock)			
		Three circuit-breakers □Pattern three of steel interlock □Pattern one of rod interlock □Pattern two of rod interlock □Pattern three of rod interlock			
	□FAN pushbutton lock device □FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) □FJS counter				
	□FHM electrical indication module of ready-for-close □FYF remote reset (only AC230V) □FWZ electrical indication device of socket's position □FCZ electrical indication device of storage signal				
	□FFJ accessories monitoring unit □FBM transformer's center earth unit externally connected				
	□Neutral connected externally current sensor □FDH-60 □FDH-80 □FDH-120 □FDH-260				
	□FCM/W32 2 lines programmable output module Output1 number___type time___s Output2 ___ ___ ___ s				
	□FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories □FGT fault trip signal □FNX stored energy signal □FHX ready-for-close signal □FQX under-voltage output signal □FCT component of withdrawable set communicative module (only for Modbus)				
	□FDY special power supply module □AC230V □AC400V □DC24V				
	□FDY/WT DC power supply module □DC110V □DC220V				
	□FCS/W portable tester				
	□FZZ two supplys automatic transfer system	electronic automatic transfer controllers □R □S □F intelligent automatic transfer controllers □ZR □ZS □ZF intelligent and communicative automatic transfer controllers □ZTR □ZTS □ZTF			
	□FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller □WTT3 Intelligent with parallel transfer automatic transfer controller □WTB3		□communication	
	□FLZ three supplys automatic transfer system	Intelligent automatic transfer controller □WTT5		□communication	

Note1: Users can choose vectorial summation type or transformer's center earth type for earth-fault protection. If they make no choice, the default type is the vectorial summation type. Users should order units with transformer's center earth externally connected (earth transformer and earth module included) if they choose the transformer's center earth type.
Note2: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note3: Can provide -40℃ lower temperature type CW3 series circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.
*Note: When order the IT power distribution system breakers of CW3-6300, 7400 used in AC690V, please call us.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type ER35 or ER36 intelligent controllers) (Please fill number in ___ or mark √ in □)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			□On land □damp heat (TH type) □in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage	□AC400V □AC440V □AC690V*		
Mounting □Fixed □Draw-out					
Connection □Horizontal □Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection □ER35 □ER36				
	Basic function	Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A			
		Earth-fault protection Ir4___A t4___s (Only type 36)			
		Curve of long-time delay □General inverse long-time delay (I^2t) □Special inverse time delay (It) □High-voltage fuse type (I^4t)			
		Neutral protection □OFF □50%In □100%In (without 100%In for CW3-7400 four poles)	□200%In(double phase line cross-section protection for 3-pole circuit breaker, but except for CW3-6300, 7400)		
	Selective function	□Overload pre-alarm Ir0=___Ir1			
		□Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Demand current operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Under-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Over-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Voltage unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Phase sequence operating threshold__ operating delay 0.3 s □OFF □Alarm □Trip			
		□Under-frequency operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Over-frequency operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s			
		□Inverse power operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Two group parameters set note:if selecting two group parameters set function, protecting parameters of intelligent controller are defaulued as A group, B group parameters are self-set by user.			
		□Directionality	□ZSI □Directionality ZSI (only one can be chosen from the two)		□Harmonic(including waveform capture and fault record wave)
		□Automatic synchrocheck voltage diffence △U＿V frequency diffence △f＿Hz phase angle△ δ ＿ °			□Frequency □Energy □Demand current, demand power
		□Communication	Communicative protocol	Standardard □Modbus Specical □Profibus □Devicenet □CAN □WiFi	
		□Temperature display(must selecting FWX1-C wireless sensors pieces)			
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller □DC24V □AC230V □AC400 (must select power supply module for CW3-1000/ CW3-1600)			□DC220V □DC110V(Equipped with DC power supply module)	
Accessories	FFT shunt release	□AC230V □AC400V □DC220V □DC110V			
	FHD closing electromagnet	□AC230V □AC400V □DC220V □DC110V			
	FDC motor-driven operating mechanism	□AC230V □AC400V □DC220V □DC110V			
	FFC auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts and four pieces of normally-closed contacts		Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts and six pieces of normally-closed contacts		
Choice of accessories	□FQT under-voltage release	□AC230V □AC400V	PV special □AC220V □AC380V		
		□Instantaneous	□Instantaneous		
		□Time delay □0.5s □1s □2s □3s	□0-10s time delay(factory setting 3s)		
	□FFS open lock device □One lock one key □Two locks one key □Three locks two keys				
	□FLS mechanical interlock	Two circuit-breakers □Steel interlock □Rod interlock (up and down interlock)			
		Three circuit-breakers □Pattern three of steel interlock □Pattern one of rod interlock □Pattern two of rod interlock □Pattern three of rod interlock			
	□FAN pushbutton lock device □FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) □FJS counter				
	□FHM electrical indication module of ready-for-close □FYF remote reset (only AC230V) □FWZ electrical indication device of socket's position □FCZ electrical indication device of storage signal				
	□FFJ accessories monitoring unit □FBM transformer's center earth unit externally connected				
	□Neutral connected externally current sensor □FDH-60 □FDH-80 □FDH-120 □FDH-260				
	□FCM/W32 2 lines programmable output module Output1 number___ type time___s Output2 ___ ___ ___s				
	□FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s			
		Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories □FGT fault trip signal □FNX stored energy signal □FHX ready-for-close signal □FQX under-voltage output signal □FCT component of withdrawable set communicative module (only for Modbus)				
	□FDY special power supply module □AC230V □AC400V □DC24V				
	□FDY/WT DC power supply module □DC110V □DC220V				
	□FCS/W portable tester				
	□FZZ two supplys automatic transfer system	electronic automatic transfer controllers □R □S □F intelligent automatic transfer controllers □ZR □ZS □ZF intelligent and communicative automatic transfer controllers □ZTR □ZTS □ZTF			
	□FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller □WTT3 Intelligent with parallel transfer automatic transfer controller □WTB3			□communication
	□FLZ three supplys automatic transfer system	Intelligent automatic transfer controller □WTT5			□communication

Note1: Users can choose vectorial summation type or transformer's center earth type for earth-fault protection. If they make no choice, the default type is the vectorial summation type. Users should order units with transformer's center earth externally connected (earth transformer and earth module included) if they choose the transformer's center earth type.
Note2: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note3: Can provide -40°C lower temperature type CW3 series circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.
*Note: When order the IT power distribution system breakers of CW3-6300, 7400 used in AC690V, please call us.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type EP35, EP36 or EQ35, EQ36 intelligent controllers) (Please fill number in ___ or mark √ in □)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			□On land □damp heat (TH type) □in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage	□AC400V □AC440V □AC690V*		
Mounting □Fixed □Draw-out					
Connection □Horizontal □Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection □EP35 □EP36 □EQ35 □EQ36				
	Basic function	Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A			
		Earth-fault protection Ir4___A t4___s (Only type 36)			
		Curve of long-time delay □General inverse long-time delay (I^2t) □Special inverse time delay (It) □High-voltage fuse type (I^4t)			
		Neutral protection □OFF □50%In □100%In (without 100%In for CW3-7400 four poles)	□200%In(double phase line cross-section protection for 3-pole circuit breaker, but except for CW3-6300, 7400)		
	Selective function	□Overload pre-alarm Ir0=___Ir1			
		□Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Demand current operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Under-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Over-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Voltage unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Phase sequence operating threshold__ operating delay 0.3 s □OFF □Alarm □Trip			
		□Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s			
		□Communication	Communicative protocol	Standardard □Modbus	
				Specical □Profibus □Devicenet □CAN □WiFi	
		□ZSI			
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller □DC24V □AC230V □AC400 (must select power supply module for CW3-1000/ CW3-1600)		□DC220V □DC110V(Equipped with DC power supply module)		
Accessories	FFT shunt release	□AC230V □AC400V □DC220V □DC110V			
	FHD closing electromagnet	□AC230V □AC400V □DC220V □DC110V			
	FDC motor-driven operating mechanism	□AC230V □AC400V □DC220V □DC110V			
	FFC auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts and four pieces of normally-closed contacts		Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts and six pieces of normally-closed contacts		
Choice of accessories	□FQT under-voltage release	□AC230V □AC400V	PV special □AC220V □AC380V		
		□Instantaneous	□Instantaneous		
		□Time delay □0.5s □1s □2s □3s	□0-10s time delay(factory setting 3s)		
	□FFS open lock device □One lock one key □Two locks one key □Three locks two keys				
	□FLS mechanical interlock	Two circuit-breakers □Steel interlock □Rod interlock (up and down interlock)			
		Three circuit-breakers □Pattern three of steel interlock □Pattern one of rod interlock □Pattern two of rod interlock □Pattern three of rod interlock			
	□FAN pushbutton lock device □FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) □FJS counter				
	□FHM electrical indication module of ready-for-close □FYF remote reset (only AC230V) □FWZ electrical indication device of socket's position □FCZ electrical indication device of storage signal				
	□FFJ accessories monitoring unit □FBM transformer's center earth unit externally connected				
	□Neutral connected externally current sensor □FDH-60 □FDH-80 □FDH-120 □FDH-260				
	□FCM/W32 2 lines programmable output module Output1 number___type time___s Output2 ___ ___ ___s				
	□FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s			
		Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories □FGT fault trip signal □FNX stored energy signal □FHX ready-for-close signal □FQX under-voltage output signal □FCT component of withdrawable set communicative module (only for Modbus)				
	□FDY special power supply module □AC230V □AC400V □DC24V				
	□FDY/WT DC power supply module □DC110V □DC220V				
	□FCS/W portable tester				
	□FZZ two supplys automatic transfer system	electronic automatic transfer controllers	□R	□S	□F
		intelligent automatic transfer controllers	□ZR	□ZS	□ZF
		intelligent and communicative automatic transfer controllers	□ZTR	□ZTS	□ZTF
	□FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller	□WTT3		□communication
		Intelligent with parallel transfer automatic transfer controller	□WTB3		
	□FLZ three supplys automatic transfer system	Intelligent automatic transfer controller	□WTT5		□communication

Note1: Users can choose vectorial summation type or transformer's center earth type for earth-fault protection. If they make no choice, the default type is the vectorial summation type. Users should order units with transformer's center earth externally connected (earth transformer and earth module included) if they choose the transformer's center earth type.
Note2: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note3: Can provide -40°C lower temperature type CW3 series circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.
*Note: When order the IT power distribution system breakers of CW3-6300, 7400 used in AC690V, please call us.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type EG35 or EG36 intelligent controllers) (Please fill number in ___ or mark √ in ☐)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			☐On land ☐damp heat (TH type) ☐in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage	☐AC400V ☐AC440V ☐AC690V*		
Mounting ☐Fixed ☐Draw-out					
Connection ☐Horizontal ☐Vertical ☐The upper vertical and the below horizontal ☐The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection ☐EG35 ☐EG36				
	Basic function	Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A			
		Earth-fault protection Ir4___A t4___s (Only type 36)			
		Under-frequency operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		Over-frequency operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		Inverse power operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		Neutral protection ☐OFF ☐50%In ☐100%In (without 100%In for CW3-7400 four poles)			
	Selective function	☐Overload pre-alarm Ir0=___Ir1			
		☐Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Demand current operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Under-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Over-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Voltage unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Phase sequence operating threshold__ operating delay 0.3 s ☐OFF ☐Alarm ☐Trip			
		☐Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s			
		☐Communication	Communicative protocol	Standardard ☐Modbus	
				Specical ☐Profibus ☐Devicenet ☐CAN ☐WiFi	
		☐ZSI			
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller ☐DC24V ☐AC230V ☐AC400 (must select power supply module for CW3-1000/ CW3-1600)		☐DC220V ☐DC110V(Equipped with DC power supply module)		
Accessories	FFT shunt release ☐AC230V ☐AC400V ☐DC220V ☐DC110V				
	FHD closing electromagnet ☐AC230V ☐AC400V ☐DC220V ☐DC110V				
	FDC motor-driven operating mechanism ☐AC230V ☐AC400V ☐DC220V ☐DC110V				
	FFC auxiliary switch ☐Four pairs of changeover contacts ☐Four pieces of normally-open contacts and four pieces of normally-closed contacts		Exceptional pattern ☐Six pairs of changeover contacts ☐Six pieces of normally-open contacts and six pieces of normally-closed contacts		
Choice of accessories	☐FQT under-voltage release	☐AC230V ☐AC400V	PV special ☐AC220V ☐AC380V		
		☐Instantaneous	☐Instantaneous		
		☐Time delay ☐0.5s ☐1s ☐2s ☐3s	☐0-10s time delay(factory setting 3s)		
	☐FFS open lock device ☐One lock one key ☐Two locks one key ☐Three locks two keys				
	☐FLS mechanical interlock	Two circuit-breakers ☐Steel interlock ☐Rod interlock (up and down interlock)			
		Three circuit-breakers ☐Pattern three of steel interlock ☐Pattern one of rod interlock ☐Pattern two of rod interlock ☐Pattern three of rod interlock			
	☐FAN pushbutton lock device ☐FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) ☐FJS counter				
	☐FHM electrical indication module of ready-for-close ☐FYF remote reset (only AC230V) ☐FWZ electrical indication device of socket's position ☐FCZ electrical indication device of storage signal				
	☐FFJ accessories monitoring unit ☐FBM transformer's center earth unit externally connected				
	☐Neutral connected externally current sensor ☐FDH-60 ☐FDH-80 ☐FDH-120 ☐FDH-260				
	☐FCM/W32 2 lines programmable output module Output1 number___type time___s Output2 ___ ___ ___s				
	☐FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s			
		Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories ☐FGT fault trip signal ☐FNX stored energy signal ☐FHX ready-for-close signal ☐FQX under-voltage output signal ☐FCT component of withdrawable set communicative module (only for Modbus)				
	☐FDY special power supply module ☐AC230V ☐AC400V ☐DC24V				
	☐FDY/WT DC power supply module ☐DC110V ☐DC220V				
	☐FCS/W portable tester				
	☐FZZ two supplys automatic transfer system	electronic automatic transfer controllers ☐R ☐S ☐F intelligent automatic transfer controllers ☐ZR ☐ZS ☐ZF intelligent and communicative automatic transfer controllers ☐ZTR ☐ZTS ☐ZTF			
	☐FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller ☐WTT3 Intelligent with parallel transfer automatic transfer controller ☐WTB3		☐communication	
	☐FLZ three supplys automatic transfer system	Intelligent automatic transfer controller ☐WTT5		☐communication	

Note1: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note2: Can provide -40℃ lower temperature type CW3 series circuit-breakers.
Note3: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note4: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.
*Note: When order the IT power distribution system breakers of CW3-6300, 7400 used in AC690V, please call us.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type EN35 or EN36 intelligent controllers) (Please fill number in ___ or mark √ in ☐)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			☐On land ☐damp heat (TH type) ☐in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage ☐AC400V ☐AC440V ☐AC690V			
Mounting ☐Fixed ☐Draw-out					
Connection ☐Horizontal ☐Vertical ☐The upper vertical and the below horizontal ☐The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection ☐EN35 ☐EN36				
	Basic function	Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A			
		Earth-fault protection Ir4___A t4___s (Only type 36)			
		Curve of long-time delay ☐General inverse long-time delay (I^2t)			
		Neutral protection ☐OFF ☐50%In ☐100%In (without 100%In for CW3-7400 four poles)	☐200%In(double phase line cross-section protection for 3-pole circuit breaker, but except for CW3-6300, 7400)		
	Selective function	☐Overload pre-alarm Ir0=___Ir1			
		☐Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s			
		☐Power, energy measure			
		☐Communication	Communicative protocol	Standardard ☐Modbus	
				Specical ☐Profibus ☐Devicenet ☐CAN ☐WiFi	
		☐ZSI			
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller ☐DC24V ☐AC230V ☐AC400 (must select power supply module for CW3-1000/ CW3-1600)		☐DC220V ☐DC110V(Equipped with DC power supply module)		
Accessories	FFT shunt release	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FHD closing electromagnet	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FDC motor-driven operating mechanism	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FFC auxiliary switch ☐Four pairs of changeover contacts ☐Four pieces of normally-open contacts and four pieces of normally-closed contacts		Exceptional pattern ☐Six pairs of changeover contacts ☐Six pieces of normally-open contacts and six pieces of normally-closed contacts		
Choice of accessories	☐FQT under-voltage release	☐AC230V ☐AC400V	PV special ☐AC220V ☐AC380V		
		☐Instantaneous	☐Instantaneous		
		☐Time delay ☐0.5s ☐1s ☐2s ☐3s	☐0-10s time delay(factory setting 3s)		
	☐FFS open lock device ☐One lock one key ☐Two locks one key ☐Three locks two keys				
	☐FLS mechanical interlock	Two circuit-breakers ☐Steel interlock ☐Rod interlock (up and down interlock)			
		Three circuit-breakers ☐Pattern three of steel interlock ☐Pattern one of rod interlock ☐Pattern two of rod interlock ☐Pattern three of rod interlock			
	☐FAN pushbutton lock device ☐FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) ☐FJS counter				
	☐FHM electrical indication module of ready-for-close ☐FYF remote reset (only AC230V) ☐FWZ electrical indication device of socket's position ☐FCZ electrical indication device of storage signal				
	☐FFJ accessories monitoring unit ☐FBM transformer's center earth unit externally connected				
	☐Neutral connected externally current sensor ☐FDH-60 ☐FDH-80 ☐FDH-120 ☐FDH-260				
	☐FCM/W32 2 lines programmable output module Output1 number___type time___s Output2___ ___ ___s				
	☐FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s			
		Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories ☐FGT fault trip signal ☐FNX stored energy signal ☐FHX ready-for-close signal ☐FQX under-voltage output signal ☐FCT component of withdrawable set communicative module (only for Modbus)				
	☐FDY special power supply module ☐AC230V ☐AC400V ☐DC24V				
	☐FDY/WT DC power supply module ☐DC110V ☐DC220V				
	☐FCS/W portable tester				
	☐FZZ two supplys automatic transfer system	electronic automatic transfer controllers ☐R ☐S ☐F intelligent automatic transfer controllers ☐ZR ☐ZS ☐ZF intelligent and communicative automatic transfer controllers ☐ZTR ☐ZTS ☐ZTF			
	☐FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller ☐WTT3 Intelligent with parallel transfer automatic transfer controller ☐WTB3		☐communication	
	☐FLZ three supplys automatic transfer system	Intelligent automatic transfer controller ☐WTT5		☐communication	

Note1: Users can choose vectorial summation type or transformer's center earth type for earth-fault protection. If they make no choice, the default type is the vectorial summation type. Users should order units with transformer's center earth externally connected (earth transformer and earth module included) if they choose the transformer's center earth type.
Note2: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note3: Can provide -40°C lower temperature type CW3 series circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.
*Note: When order the IT power distribution system breakers of CW3-6300, 7400 used in AC690V, please call us.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type EA37 intelligent controller) (Please fill number in ___ or mark √ in ☐)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			☐On land ☐damp heat (TH type) ☐in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage	☐AC400V ☐AC440V ☐AC690V		
Mounting ☐Fixed ☐Draw-out					
Connection ☐Horizontal ☐Vertical ☐The upper vertical and the below horizontal ☐The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection ☐EA37				
	Basic function: Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A				
	Basic function: Residual current protection I△n___A △t___s ☐Trip ☐Trip and alarm				
	Basic function: Curve of long-time delay ☐General inverse long-time delay (I^2t) ☐Special inverse time delay (It) ☐High-voltage fuse type (I^4t)				
	Basic function: Neutral protection ☐OFF ☐50%In ☐100%In	☐200%In(double phase line cross-section protection for 3-pole circuit breaker			
	Selective function: ☐Overload pre-alarm Ir0=___ Ir1				
	Selective function: ☐Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip				
	Selective function: ☐Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip				
	Selective function: ☐Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s				
	Selective function: ☐Communication	Communicative protocol	Standardard ☐Modbus		
			Specical ☐Profibus ☐Devicenet ☐CAN ☐WiFi		
	Selective function: ☐ZSI				
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller ☐DC24V ☐AC230V ☐AC400 (must select power supply module for CW3-1000/ CW3-1600)	☐DC220V ☐DC110V(Equipped with DC power supply module)			
Accessories	FFT shunt release	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FHD closing electromagnet	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FDC motor-driven operating mechanism	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FFC auxiliary switch ☐Four pairs of changeover contacts ☐Four pieces of normally-open contacts and four pieces of normally-closed contacts	Exceptional pattern ☐Six pairs of changeover contacts ☐Six pieces of normally-open contacts and six pieces of normally-closed contacts			
Choice of accessories	☐FQT under-voltage release	☐AC230V ☐AC400V	PV special ☐AC220V ☐AC380V		
		☐Instantaneous	☐Instantaneous		
		☐Time delay ☐0.5s ☐1s ☐2s ☐3s	☐0-10s time delay(factory setting 3s)		
	☐FFS open lock device ☐One lock one key ☐Two locks one key ☐Three locks two keys				
	☐FLS mechanical interlock	Two circuit-breakers ☐Steel interlock ☐Rod interlock (up and down interlock)			
		Three circuit-breakers ☐Pattern three of steel interlock ☐Pattern one of rod interlock ☐Pattern two of rod interlock ☐Pattern three of rod interlock			
	☐FAN pushbutton lock device ☐FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) ☐FJS counter				
	☐FHM electrical indication module of ready-for-close ☐FYF remote reset (only AC230V) ☐FWZ electrical indication device of socket's position ☐FCZ electrical indication device of storage signal				
	☐FFJ accessories monitoring unit ☐FBM transformer's center earth unit externally connected				
	☐Neutral connected externally current sensor ☐FDH-60 ☐FDH-80				
	☐FCM/W32 2 lines programmable output module Output1 number___type time___s Output2 ___ ___ ___s				
	☐FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories ☐FGT fault trip signal ☐FNX stored energy signal ☐FHX ready-for-close signal ☐FQX under-voltage output signal ☐FCT component of withdrawable set communicative module (only for Modbus)				
	☐FDY special power supply module ☐AC230V ☐AC400V ☐DC24V				
	☐FDY/WT DC power supply module ☐DC110V ☐DC220V				
	☐FCS/W portable tester				
	☐FZZ two supplys automatic transfer system	electronic automatic transfer controllers ☐R ☐S ☐F intelligent automatic transfer controllers ☐ZR ☐ZS ☐ZF intelligent and communicative automatic transfer controllers ☐ZTR ☐ZTS ☐ZTF			
	☐FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller ☐WTT3 Intelligent with parallel transfer automatic transfer controller ☐WTB3	☐communication		
	☐FLZ three supplys automatic transfer system	Intelligent automatic transfer controller ☐WTT5	☐communication		

Note1: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note2: When "trip and alarm" is chosen for residual current protection, residual current fault alarm signal is output by "2 lines programmable output module", the other selected function alarm signals must be output by "6 lines programmable output module".
Note3: Can provide -40℃ lower temperature type CW3-1000, 1600, 2500 circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type ER37 intelligent controller) (Please fill number in ___ or mark √ in ☐)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			☐On land ☐damp heat (TH type) ☐in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage	☐AC400V ☐AC440V ☐AC690V		
Mounting ☐Fixed ☐Draw-out					
Connection ☐Horizontal ☐Vertical ☐The upper vertical and the below horizontal ☐The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection ☐ER37				
	Basic function	Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A			
		Residual current protection I△n___A △t___s ☐Trip ☐Trip and alarm			
		Curve of long-time delay ☐General inverse long-time delay (I^2t) ☐Special inverse time delay (It) ☐High-voltage fuse type (I^4t)			
		Neutral protection ☐OFF ☐50%In ☐100%In	☐200%In(double phase line cross-section protection for 3-pole circuit breaker)		
	Selective function	☐Overload pre-alarm Ir0=___Ir1			
		☐Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Demand current operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Under-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Over-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Voltage unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Phase sequence operating threshold__ operating delay 0.3 s ☐OFF ☐Alarm ☐Trip			
		☐Under-frequency operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Over-frequency operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s			
		☐Inverse power operating threshold__ operating delay__s Return threshold__ Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Two group parameters set note:if selecting two group parameters set function, protecting parameters of intelligent controller are defaulued as A group, B group parameters are self-set by user.			
		☐Directionality	☐ZSI ☐Directionality ZSI (only one can be chosen from the two)	☐Harmonic(including waveform capture and fault record wave)	
		☐Automatic synchrocheck voltage diffence △U＿V frequency diffence △f＿Hz phase angle△δ＿°		☐Frequency ☐Energy ☐Demand current, demand power	
		☐Communication	Communicative protocol	Standardard ☐Modbus Specical ☐Profibus ☐Devicenet ☐CAN ☐WiFi	
		☐Temperature display(must selecting FWX1-C wireless sensors pieces)			
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller ☐DC24V ☐AC230V ☐AC400 (must select power supply module for CW3-1000/ CW3-1600)		☐DC220V ☐DC110V(Equipped with DC power supply module)		
Accessories	FFT shunt release	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FHD closing electromagnet	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FDC motor-driven operating mechanism	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FFC auxiliary switch ☐Four pairs of changeover contacts ☐Four pieces of normally-open contacts and four pieces of normally-closed contacts		Exceptional pattern ☐Six pairs of changeover contacts ☐Six pieces of normally-open contacts and six pieces of normally-closed contacts		
Choice of accessories	☐FQT under-voltage release	☐AC230V ☐AC400V	PV special ☐AC220V ☐AC380V		
		☐Instantaneous	☐Instantaneous		
		☐Time delay ☐0.5s ☐1s ☐2s ☐3s	☐0-10s time delay(factory setting 3s)		
	☐FFS open lock device ☐One lock one key ☐Two locks one key ☐Three locks two keys				
	☐FLS mechanical interlock	Two circuit-breakers ☐Steel interlock ☐Rod interlock (up and down interlock)			
		Three circuit-breakers ☐Pattern three of steel interlock ☐Pattern one of rod interlock ☐Pattern two of rod interlock ☐Pattern three of rod interlock			
	☐FAN pushbutton lock device ☐FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) ☐FJS counter				
	☐FHM electrical indication module of ready-for-close ☐FYF remote reset (only AC230V) ☐FWZ electrical indication device of socket's position ☐FCZ electrical indication device of storage signal				
	☐FFJ accessories monitoring unit ☐FBM transformer's center earth unit externally connected				
	☐Neutral connected externally current sensor ☐FDH-60 ☐FDH-80				
	☐FCM/W32 2 lines programmable output module Output1 number___type time___s Output2___ ___ ___s				
	☐FCM/W36 6 lines programmable output expansion module	Output1 number___type time___s Output2 ___ ___ ___s Output3___ ___ ___ s Output4 number___type time___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories ☐FGT fault trip signal ☐FNX stored energy signal ☐FHX ready-for-close signal ☐FQX under-voltage output signal ☐FCT component of withdrawable set communicative module (only for Modbus)				
	☐FDY special power supply module ☐AC230V ☐AC400V ☐DC24V				
	☐FDY/WT DC power supply module ☐DC110V ☐DC220V				
	☐FCS/W portable tester				
	☐FZZ two supplys automatic transfer system	electronic automatic transfer controllers ☐R ☐S ☐F intelligent automatic transfer controllers ☐ZR ☐ZS ☐ZF intelligent and communicative automatic transfer controllers ☐ZTR ☐ZTS ☐ZTF			
	☐FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller ☐WTT3 Intelligent with parallel transfer automatic transfer controller ☐WTB3		☐communication	
	☐FLZ three supplys automatic transfer system	Intelligent automatic transfer controller ☐WTT5		☐communication	

Note1: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note2: When "trip and alarm" is chosen for residual current protection, residual current fault alarm signal is output by "2 lines programmable output module", the other selected function alarm signals must be output by "6 lines programmable output module".
Note3: Can provide -40℃ lower temperature type CW3-1000, 1600, 2500 circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type EP37 or EQ37 intelligent controllers) (Please fill number in ___ or mark √ in □)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			□On land □damp heat (TH type) □in ship (1600A, 2500A frames)		
Rated current In = _____ A		Rated voltage	□AC400V □AC440V □AC690V		
Mounting □Fixed □Draw-out					
Connection □Horizontal □Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection □EP37 □EQ37				
	Basic function	Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A			
		Residual current protection I△n___A △t___s □Trip □Trip and alarm			
		Curve of long-time delay □General inverse long-time delay (I^2t) □Special inverse time delay (It) □High-voltage fuse type (I^4t)			
		Neutral protection □OFF □50%In □100%In	□200%In(double phase line cross-section protection for 3-pole circuit breaker)		
	Selective function	□Overload pre-alarm Ir0=___Ir1			
		□Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Demand current operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Under-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Over-voltage operating threshold__ operating delay__s Return threshold__ Return delay__s □OFF □Alarm □Trip			
		□Voltage unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip			
		□Phase sequence operating threshold__ operating delay 0.3 s □OFF □Alarm □Trip			
		□Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s			
		□Communication	Communicative protocol	Standardard □Modbus	
				Specical □Profibus □Devicenet □CAN □WiFi	
		□ZSI			
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller □DC24V □AC230V □AC400 (must select power supply module for CW3-1000/ CW3-1600)		□DC220V □DC110V(Equipped with DC power supply module)		
Accessories	FFT shunt release	□AC230V □AC400V □DC220V □DC110V			
	FHD closing electromagnet	□AC230V □AC400V □DC220V □DC110V			
	FDC motor-driven operating mechanism	□AC230V □AC400V □DC220V □DC110V			
	FFC auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts and four pieces of normally-closed contacts		Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts and six pieces of normally-closed contacts		
Choice of accessories	□FQT under-voltage release	□AC230V □AC400V	PV special □AC220V □AC380V		
		□Instantaneous	□Instantaneous		
		□Time delay □0.5s □1s □2s □3s	□0-10s time delay(factory setting 3s)		
	□FFS open lock device □One lock one key □Two locks one key □Three locks two keys				
	□FLS mechanical interlock	Two circuit-breakers □Steel interlock □Rod interlock (up and down interlock)			
		Three circuit-breakers □Pattern three of steel interlock □Pattern one of rod interlock □Pattern two of rod interlock □Pattern three of rod interlock			
	□FAN pushbutton lock device □FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) □FJS counter				
	□FHM electrical indication module of ready-for-close □FYF remote reset (only AC230V) □FWZ electrical indication device of socket's position □FCZ electrical indication device of storage signal				
	□FFJ accessories monitoring unit □FBM transformer's center earth unit externally connected				
	□Neutral connected externally current sensor □FDH-60 □FDH-80				
	□FCM/W32 2 lines programmable output module Output1 number___type time___s Output2 ___ ___ ___s				
	□FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories □FGT fault trip signal □FNX stored energy signal □FHX ready-for-close signal □FQX under-voltage output signal □FCT component of withdrawable set communicative module (only for Modbus)				
	□FDY special power supply module □AC230V □AC400V □DC24V				
	□FDY/WT DC power supply module □DC110V □DC220V				
	□FCS/W portable tester				
	□FZZ two supplys automatic transfer system	electronic automatic transfer controllers □R □S □F intelligent automatic transfer controllers □ZR □ZS □ZF intelligent and communicative automatic transfer controllers □ZTR □ZTS □ZTF			
	□FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller □WTT3 Intelligent with parallel transfer automatic transfer controller □WTB3		□communication	
	□FLZ three supplys automatic transfer system	Intelligent automatic transfer controller □WTT5		□communication	

Note1: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note2: When "trip and alarm" is chosen for residual current protection, residual current fault alarm signal is output by "2 lines programmable output module", the other selected function alarm signals must be output by "6 lines programmable output module".
Note3: Can provide -40℃ lower temperature type CW3-1000, 1600, 2500 circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.

ORDER FORM OF CIRCUIT-BREAKER

Order form of circuit-breaker (with type EN37 intelligent controller) (Please fill number in ___ or mark √ in ☐)

Name		Order amount		Order date	
Type CW3- _____ _____ / _____			☐On land ☐damp heat (TH type) ☐in ship (1600A, 2500A frames)		
Rated current In = _____ A					
Mounting ☐Fixed ☐Draw-out					
Connection ☐Horizontal ☐Vertical ☐The upper vertical and the below horizontal ☐The below vertical and the upper horizontal (only horizontal for CW3-1000)					
Intelligent controller	Type selection ☐EN37				
	Basic function	Long-time delay Ir1___A t1___s Short-time delay Ir2___A t2___s Instantaneous Ir3___A			
		Residual current protection I△n___A △t___s ☐Trip ☐Trip and alarm			
		Curve of long-time delay ☐General inverse long-time delay (I^2t)			
		Neutral protection ☐OFF ☐50%In ☐100%In	☐200%In(double phase line cross-section protection for 3-pole circuit breaker)		
	Selective function	☐Overload pre-alarm Ir0=___Ir1			
		☐Current unbalance operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Phase loss operating threshold__% operating delay__s Return threshold__% Return delay__s ☐OFF ☐Alarm ☐Trip			
		☐Current shedding operating threshold__ operating delay__%t1 Return threshold__ Return delay__s			
		☐Power, energy measure			
		☐Communication	Communicative protocol	Standardard ☐Modbus	
				Specical ☐Profibus ☐Devicenet ☐CAN ☐WiFi	
		☐ZSI			
	Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.				
	Voltage of intelligent controller ☐DC24V ☐AC230V ☐AC400V (must select power supply module for CW3-1000/ CW3-1600)		☐DC220V ☐DC110V(Equipped with DC power supply module)		
Accessories	FFT shunt release	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FHD closing electromagnet	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FDC motor-driven operating mechanism	☐AC230V ☐AC400V ☐DC220V ☐DC110V			
	FFC auxiliary switch ☐Four pairs of changeover contacts ☐Four pieces of normally-open contacts and four pieces of normally-closed contacts		Exceptional pattern ☐Six pairs of changeover contacts ☐Six pieces of normally-open contacts and six pieces of normally-closed contacts		
Choice of accessories	☐FQT under-voltage release	☐AC230V ☐AC400V	PV special ☐AC220V ☐AC380V		
		☐Instantaneous	☐Instantaneous		
		☐Time delay ☐0.5s ☐1s ☐2s ☐3s	☐0-10s time delay(factory setting 3s)		
	☐FFS open lock device ☐One lock one key ☐Two locks one key ☐Three locks two keys				
	☐FLS mechanical interlock	Two circuit-breakers ☐Steel interlock ☐Rod interlock (up and down interlock)			
		Three circuit-breakers ☐Pattern three of steel interlock ☐Pattern one of rod interlock ☐Pattern two of rod interlock ☐Pattern three of rod interlock			
	☐FAN pushbutton lock device ☐FXG interphase barriers(must be selected for CW3-1000/CW3-1600 vertical connection) ☐FJS counter				
	☐FHM electrical indication module of ready-for-close ☐FYF remote reset (only AC230V) ☐FWZ electrical indication device of socket's position ☐FCZ electrical indication device of storage signal				
	☐FFJ accessories monitoring unit ☐FBM transformer's center earth unit externally connected				
	☐Neutral connected externally current sensor ☐FDH-60 ☐FDH-80				
	☐FCM/W32 2 lines programmable output module Output1 number___type time___s Output2 ___ ___ ___ s				
	☐FCM/W36 6 lines programmable output expansion module	Output1 number___type time ___s Output2 ___ ___ ___s Output3___ ___ ___ s			
		Output4 number___type time ___s Output5 ___ ___ ___s Output6___ ___ ___ s			
	Communication accessories ☐FGT fault trip signal ☐FNX stored energy signal ☐FHX ready-for-close signal ☐FQX under-voltage output signal ☐FCT component of withdrawable set communicative module (only for Modbus)				
	☐FDY special power supply module ☐AC230V ☐AC400V ☐DC24V				
	☐FDY/WT DC power supply module ☐DC110V ☐DC220V				
	☐FCS/W portable tester				
	☐FZZ two supplys automatic transfer system	electronic automatic transfer controllers ☐R ☐S ☐F intelligent automatic transfer controllers ☐ZR ☐ZS ☐ZF intelligent and communicative automatic transfer controllers ☐ZTR ☐ZTS ☐ZTF			
	☐FLZ two incoming line one bus couple automatic transfer system	Intelligent automatic transfer controller ☐WTT3 Intelligent with parallel transfer automatic transfer controller ☐WTB3		☐communication	
	☐FLZ three supplys automatic transfer system	Intelligent automatic transfer controller ☐WTT5		☐communication	

Note1: The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module is selected, supply voltage of intelligent controller is not selected.
Note2: When "trip and alarm" is chosen for residual current protection, residual current fault alarm signal is output by "2 lines programmable output module", the other selected function alarm signals must be output by "6 lines programmable output module".
Note3: Can provide -40℃ lower temperature type CW3-1000, 1600, 2500 circuit-breakers.
Note4: When selecting FLZ automatic power supply transfer system, FAN pushbutton lock device of circuit-breaker is configured.
Note5: When selecting FZZ, FLZ automatic power supply transfer system, the voltage of intelligent, shunt release, closing electromagnet, motor-driven operating mechanism are AC230V.

Output definition of 2 lines programmable output module (placed in the circuit breaker)

Programmable output 1 and 2 set outputs for the following items by "Output number definition of programmable output module" table by intelligent controller. If users make no choices about programming content the default number is as follows: choose Bc1 for programmable output 1 which represents current unloading 1, time delay contact and delay time is 1s and choose Cc1 for programmable output 2 which represents current unloading 2, time delay contact and delay time is 1s.

For EN37、EA37、ER37、EP37、EQ37 controllers,programmable output 1 and 2 set outputs Gb,which represent residual current trip alarm and interlocking contact.

6 lines programmable output expansion module (external connected)

6 lines programmable output expansion module can program and set outputs by "Output number definition of programmable output module" table by intelligent controller. Programming output is effective only when circuit breaker has corresponding functions. Users must indicate number, type and delay time (just effective for time delay contact) and the manufacture provides goods in accordance with the number. If users make no choices the default number is as follows: choose Aa for programmable output 1, choose Bc1 for programmable output 2, choose Cc1 for programmable output 3, choose Da for programmable output 4, choose Ea for programmable output 5 and choose Fa for programmable output 6.

Output number definition of programmable output module

No.	Function		Remarks	Controller type
A	Ir_0	Overload pre-alarm	Overload pre-alarm and current shedding	Type EN, EA, ER, EP, EQ, EG
B	ILC1	Current shedding 1		
C	ILC2	Current shedding 2		
D	Ir_1	Long-time delay trip alarm	Current protection alarm	
E	Ir_2	Short-time delay trip alarm		
F	Ir_3	Instantaneous trip alarm		
G	Ir_4/I△n	Earth/residual current trip alarm		
H	Iunbal	Current unbalance Operating alarm		
I	Phase loss	Phase loss alarm		

Continued table

No.	Function		Remarks	Controller type
J	Over-temperature	Over-temperature alarm	Internal fault alarm	Type EN, EA, ER, EP, EQ, EG
K	Memory fault	Memory fault alarm		
L	Internal accessories fault	Internal accessories fault alarm		
M	$\overline{I}_1max$	Maximum demand current operating alarm	Current protection alarm	Type ER, EP, EQ, EG
N	$\overline{I}_2max$	Maximum demand current operating alarm		
O	$\overline{I}_3max$	Maximum demand current operating alarm		
P	$\overline{I}_nmax$	Maximum demand current operating alarm		
Q	Umin	Under-voltage operating alarm	Voltage protection alarm	
R	Umax	Over-voltage operating alarm		
S	Uunbal	Voltage unbalance operating alarm		
T	Phase sequence	Phase sequence operating alarm	Other protections alarm	
U	FMIN	Under-frequency operating alarm		Type ER, EG
V	FMAX	Over- frequency operating alarm		
W	rPmax	Inverse frequency operating alarm		

Output number definition of programmable output module

Output number	Output type	Delay time of time delay contact	Remarks
See the number definition table A ~ W	a. Non-interlocking contact b. Interlocking contact c. Time delay contact	1 ~ 360s	2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected)

Factory's default setting values of protection parameters

The manufacture would configure by "Factory's default setting values of protection parameters" table if users no specific requirements for functions when making order.

Item		Adjusted range			Setting value	Remarks
Long-time delay protection	Curve types	I^2t	It	I^4t	I^2t	Only I^2t for type EN, EG
	Setting current Ir1	0.4 ~ 1In			In	For type EA, ER, EP, EQ
		0.4 ~ 1.15In				For type EG
	Setting time t1	15 ~ 480s	10 ~ 120s	60 ~ 1440s	480s	For type EN, EA, ER, EP, EQ
		15 ~ 60s			60s	For type EG
Short-time delay protection	Setting current Ir2	(0.4 ~ 15)In+OFF			6Ir1	For type EN, EA, ER, EP, EQ
		(0.4 ~ 5)In+OFF			3Ir1	For type EG
	Setting time t2	0.1 ~ 0.4s (definite time or definite + inverse time)			0.2s/definite + inverse time	Definite time for type EG
Instantaneous protection	Setting current Ir3	1000	(1 ~ 25) kA+OFF		In≤1000A: 15In In = 1250A、1600: 12In In≥2000A: 10In	
		1600	(1.6 ~ 35) kA+OFF			
		2500	(2.5 ~ 50) kA+OFF			
		3200	(3.2 ~ 80)kA+OFF			
		4000	(4 ~ 80)kA+OFF			
		6300	(6.3 ~ 100)kA+OFF			
		7400	(7.4 ~ 115)kA+OFF			
Earth-fault protection	Setting current Ir4	<1250A	(0.4 ~ 0.8)In		Maximum	
		≥1250A	500 ~ 1200A			
	Setting time t4	0.1 ~ 0.4s+OFF			Inverse time	
Residual current protection	Rated residual operating current I△n	(0.5~30) A			30A	For type EN37, EA37, ER37, EP37, EQ37
	Delay time △t	(0.10~5.00) s			1.0s	
Neutral protection	Current setting value	OFF – N/2 – N–N × 2 (CW3-6300、7400 and type EG controller without N × 2			OFF	Three-pole circuit breaker
		OFF–N/2–N (CW3-7400 without N)			CW3-1600~CW3-6300: N CW3-7400: N/2	Four-pole circuit breaker
Directionality protection	Setting current Irs	(0.4 ~ 10) In+OFF			6Ir1	For type ER
	Setting time t5F	0.1 ~ 0.4s (definite)			0.2s	
	Setting time t5B	0.1 ~ 0.4s (definite)			0.2s	
	Reference direction	Up in down out or down in up out			Up in down out	
Automatic synchrocheck	No-voltage fixed value setting Uw	0.05 ~ 0.2UnV			0.2Un	For type ER
	With-voltage fixed value setting Uy	0.5 ~ 1.1UnV			0.5Un	
	Voltage difference △U	0.02 ~ 0.12UnV			0.12Un	
	Phase angle difference △δ	5 ~ 20°			20°	
	Frequency difference △f	0.1 ~ 1Hz			0.1	
	Closing window time td	0.1 ~ 3s			0.1	
	Judging voltage stable delay time ts	0.1 ~ 30s			1	

Continued table

Item		Adjusted range	Setting value	Remarks
Overload pre-alarm	Setting value of current	(0.75 ~ 1.05)Ir1	1.05Ir1	
Current unbalance protection	Operating threshold	20 ~ 80%	60%	
	Operating delay	1 ~ 40s	40s	
	Return threshold	20% ~ Operating threshold	20%	
	Return delay	10 ~ 360s	10s	
Phase loss protection	Operating threshold	90 ~ 99%	95%	
	Operating delay	0.1 ~ 3s	3s	
	Return threshold	20% ~ Operating threshold	20%	
	Return delay	10 ~ 360s	10s	
Demand current protection	Operating threshold	0.4 ~ 1In	1In	
	Operating delay	15 ~ 1500s	1500s	
	Return threshold	0.4In ~ Operating threshold	0.4In	
	Return delay	15 ~ 3000s	15s	
Under-voltage protection	Operating threshold	50 ~ 690V	265V	
	Operating delay	1 ~ 30s	5s	
	Return threshold	Operating threshold ~ 690V	325V	
	Return delay	1 ~ 100s	10s	
Over-voltage protection	Operating threshold	200 ~ 1000V	725V	
	Operating delay	1 ~ 5s	5s	
	Return threshold	200V ~ Operating threshold	400V	
	Return delay	1 ~ 36s	2s	
Voltage unbalance protection	Operating threshold	2 ~ 50%	30%	
	Operating delay	1 ~ 40s	40s	
	Return threshold	2% ~ Operating threshold	10%	
	Return delay	10 ~ 360s	10s	

Continued table

Item		Adjusted range	Setting value	Remarks
Inverse power protection	Operating threshold	20~500kW	500kW	
	Operating delay	0.2~20s	20s	
	Return threshold	20kW ~ Operating threshold	100kW	
	Return delay	1~360s	1s	
Over-frequency protection	Operating threshold	50~65Hz	65Hz	
	Operating delay	0.2~5s	5s	
	Return threshold	45Hz ~ Operating threshold	50Hz	
	Return delay	1~360s	1s	
Under-frequency protection	Operating threshold	45~60Hz	45Hz	
	Operating delay	0.2~5s	5s	
	Return threshold	Action threshold ~ 60Hz	50Hz	
	Return delay	1~360s	1s	
Phase sequence protection	Operating threshold	1，2，3或1，3，2	1，2，3	
	Operating delay	0.3s	0.3s	
Current shedding	Operating threshold	0.2~1In	1In	
	Operating delay	20%~80%t1	80%t1	
	Return threshold	0.2In ~ Operating threshold	0.5In	
	Return delay	10~600s	10s	

If users have chosen 6 lines programmable output expansion module but have no specific requirements when making order, programmable outputs of 2 lines programmable output module and 6 lines programmable output expansion module are set as follows.

		Setting value	Remarks
Output number	A~W	Bc1,Cc1	2 lines programmable output module (internal connected)
		Aa ,Bc1,Cc1 ,Da, Ea, Fa	6 lines programmable output expansion module (external connected)
Output type	a. Non-interlocking contact b. Interlocking contact c. Time delay contact	c	
delay time of time delay contact	1~360s	1s	

Order Form Of Selecting Communication Component

User		Order date	
Product type		order amount	
Communication changover device			
CN1 communicative adapter	FTM61		
	CN1DP-MD		
	CN1DP-MP		
	CN1DP-MC		
	CN1EG/10		
FDM3 Message Notify Module			
FWF1 WiFi communicative module			
FDA data collector			
CEPA3 Intelligent Distribution Monitor	Main body		
	Selecting module : short message extend module		
CI1 Remote Intelligence I/O Module	CI1-SCM423		
	CI1-S12		
	CI1-C8		
	CI1-SC64		

Order Form Of Temperature Monitoring On Line Component

please fill "√" in □ ,and please fill number in ▭

User			order date				
Wire mode	FWD1 temperature upload module ▭ +	Heat sensor	FRG-7	FRG-9	FRG-11	FRG-13	FRG-17
		Number	▭	▭	▭	▭	▭
Wireless mode	One mode	Please seeing selecting function of order form of breaker with ER35 or ER36 or ER37 intelligent controllers					
	Two mode	One FWX1-J receiving and display unit+ ▭ FWX1-C wireless temperature sensor					

Note: if user use self-ZigBee receiving unit with FWX1-C wireless temperature sensor to network, please call us.

本公司可提供不带智能控制器的断路器，符合GB/T14048.2附录L的CBI-Y要求，断路器无过电流保护功能，其主要技术指标、二次回路接线图、订货规范分别如下。

Can provide breakers without intelligent controllers ,compliance with GB/T14048.2 annex L CBI-Y demands.The breakers are not fulfilling the requirements for overcurrent protection.Main technical index,wiring diagram of secondary circuit and order form,please seeing follow.

●主要技术指标
Main technical index

型号 Type		CW3-1000	CW3-1600	CW3-2500		CW3-3200		CW3-4000		CW3-6300		CW3-7400
壳架等级额定电流Inm(A) Frame size rated current		1000	1600	2500		3200		4000		6300		7400
额定电流In(A) Rated current		200,400,630, 800,1000	200,400,630, 800,1000, 1250,1600	630,800,1000, 1250,1600,2000, 2500		1000,1250, 1600,2000, 2500,2900, 3200		1000,1250, 1600,2000, 2500,2900, 3200,3600, 4000		4000,5000,6300		4000,5000, 6300,7400
额定电压Ue(V) Rated voltage		AC50Hz/60Hz，400、690										
额定绝缘电压Ui(V) Rated insulation voltage		1000										
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage		12										
工频耐受电压U(V) Power frequency withstand voltage		3500										
极数 Pole number		3,4										
中性极额定电流In(A) Rated current of N pole		100%In										50%In
原体断路器短路分断能力级别 Short circuit breaking capacity class of equivalent circuit breaker				M	H*	M	H*	M	H*	M	H*	
额定限制短路电流Icc(kA)(有效值) Rated conditional short circuit current（effective value）	AC400V	42	50	65	85	85	100	85	100	100	135	100
	AC690V	42	42	55	65	75	85	75	85	85	100	85

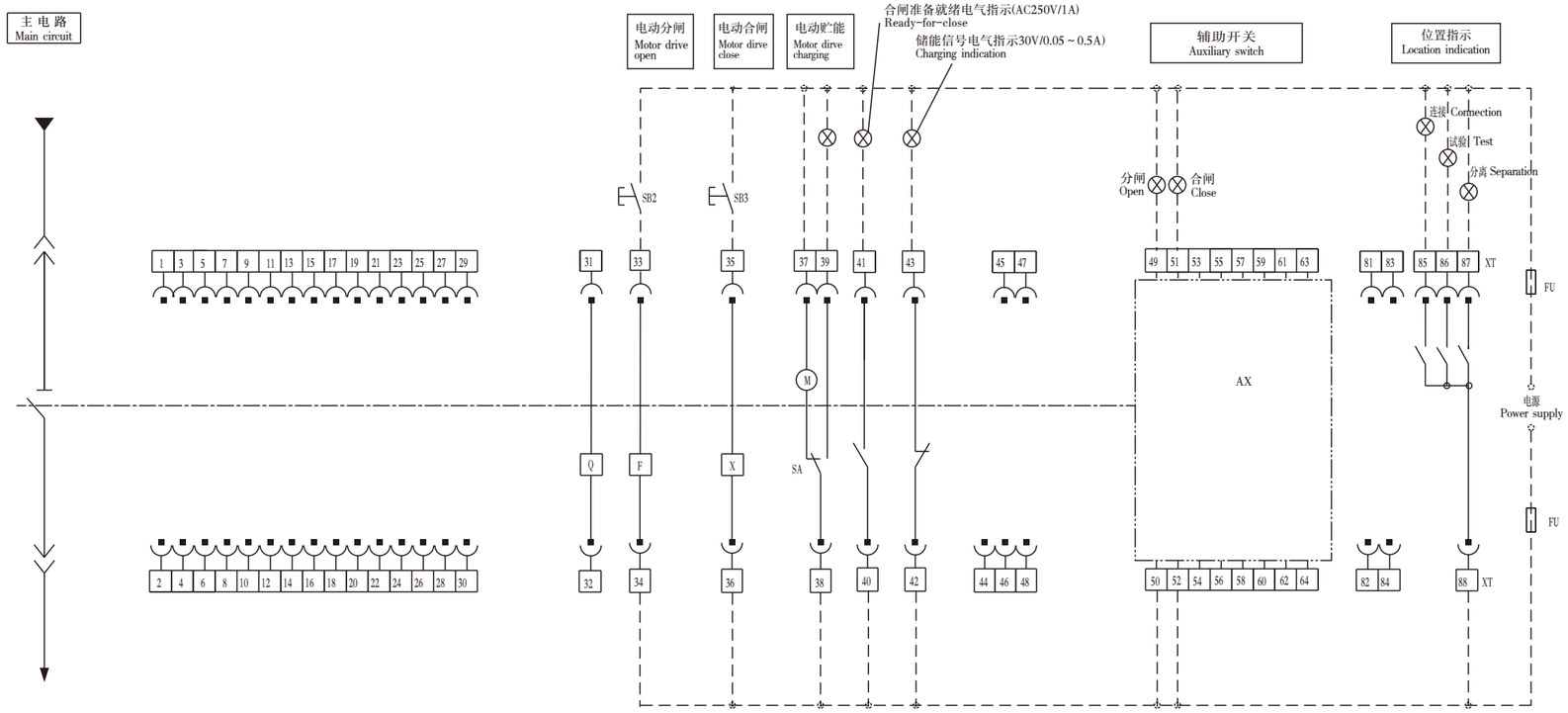
*注：具有接通短路脱扣器，其闭合峰值：CW3-2500为66kA，CW3-3200/4000为105kA，CW3-6300为166kA，允差±20%。

*Note：having making short circuit release,it's closing peak value:66kA for CW3-2500，105kA for CW3-3200/4000，166kA for CW3-6300，toleramce ±20%.

●二次回路接线图
Wiring diagram of secondary circuit

CW3-1000无过电流保护断路器二次回路接线图

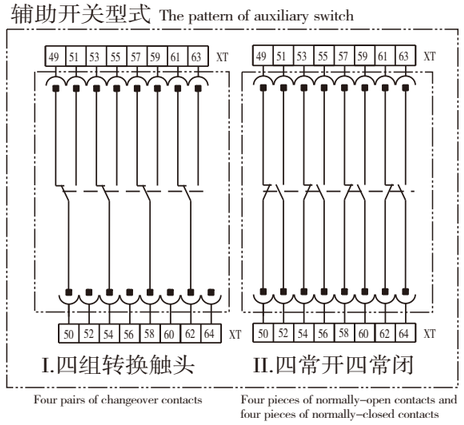
Wiring diagram of secondary circuit of CW3-1000 not fulfilling the requirements for overcurrent protection



SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltagerelease
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of Q, F,X etc
下表中，√为必备附件的功能接线；○为选择附件的功能接线. In the following table, √: standard configuration , ○: optional configuration.

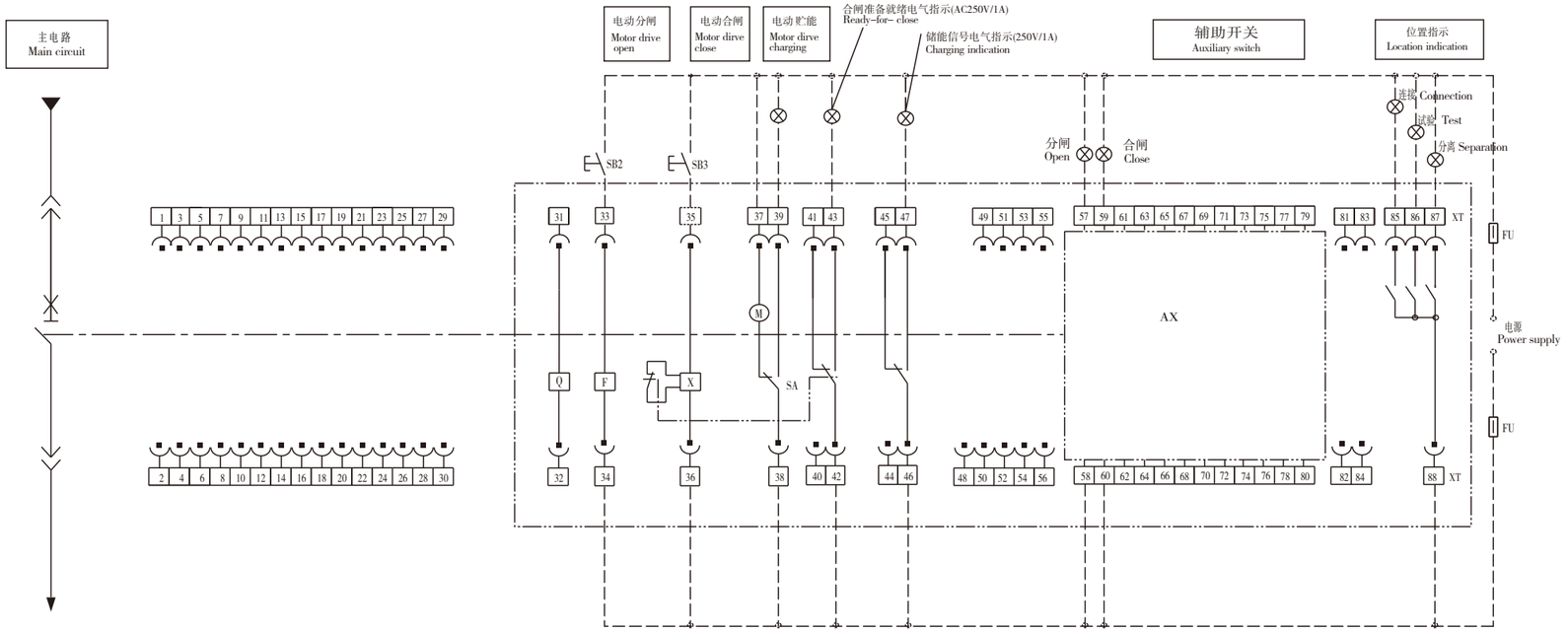
辅助开关型式 The pattern of auxiliary switch



端子号Terminal	功能Function		功能接线 Function wiring
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○
33, 34	分励脱扣器	Connect with shunt release	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√
37,38,39	电动(电机)贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.	√
40,41	合闸准备就绪电气指示	Ready-for-close indication	○
42,43	储能信号电气指示	charging indication	○
49~64	辅助开关连接端子	Connecting terminals of auxiliary switch	√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）	○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication （AC250V 1A）	○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication （AC250V 1A）	○

CW3-1600无过电流保护断路器二次回路接线图

Wiring diagram of secondary circuit of CW3-1600 not fulfilling the requirements for overcurrent protection

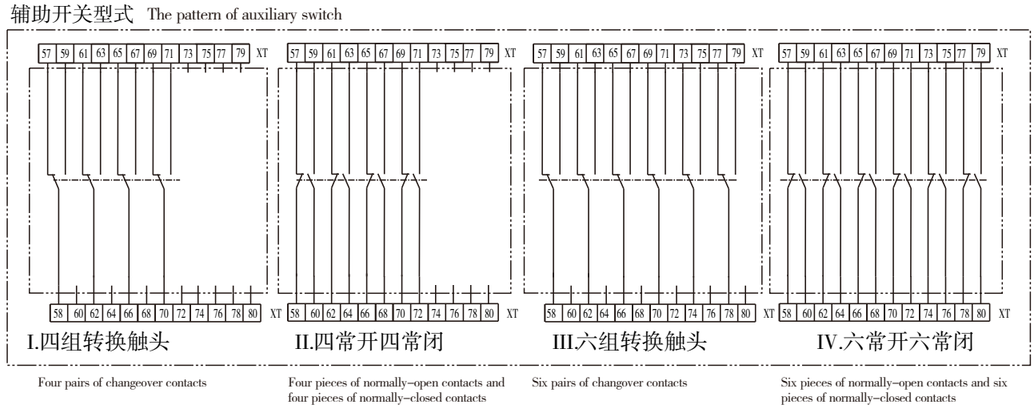


SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltagerelease
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线. In the following table, √: standard configuration , ○: optional configuration.

辅助开关型式 The pattern of auxiliary switch



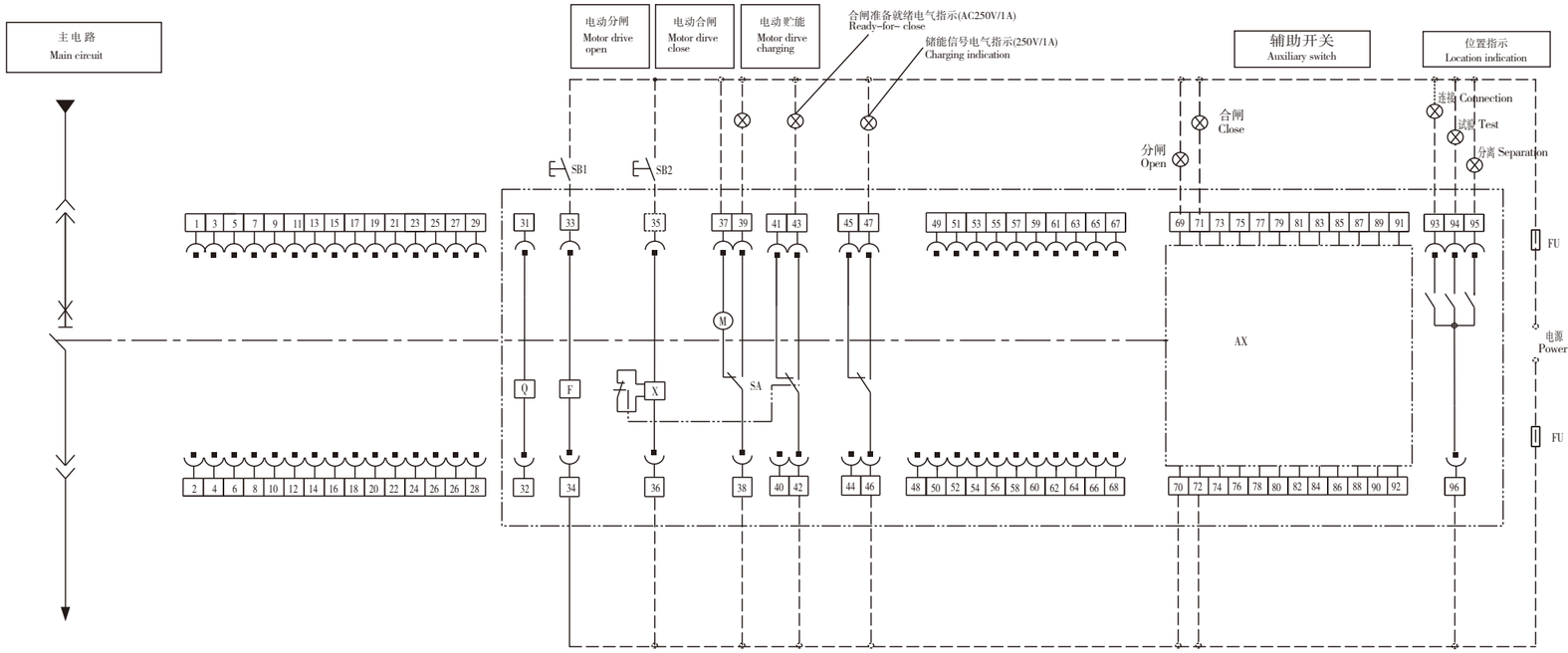
端子号Terminal	功能Function		功能接线 Function wiring
31，32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○
33，34	分励脱扣器	Connect with shunt release	√
35，36	合闸电磁铁	Connect with closing electromagnet	√
37,38,39	电动(电机)贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○
45,46,47	储能信号电气指示	charging indication	○
57~80	辅助开关连接端子	Connecting terminals of auxiliary switch	√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）	○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○

注：抽屉式断路器的辅助开关安装于抽屉座内，断路器本体在试验和连接位置时，辅助开关随断路器主触头的合分状态相应转换。当断路器本体处于分离位置或取出时，辅助开关的状态为断路器分闸时的状态。

Note: Auxiliary of draw-out circuit breaker is installed in socket, when circuit breaker's body is at test and connection positions, the auxiliary is transfered corresponding switch status of main contacts of circuit. when circuit breaker's body is at separation position or is taken out, the auxiliary is the status of circuit breaker opening.

CW3-2500~7400无过电流保护断路器二次回路接线图

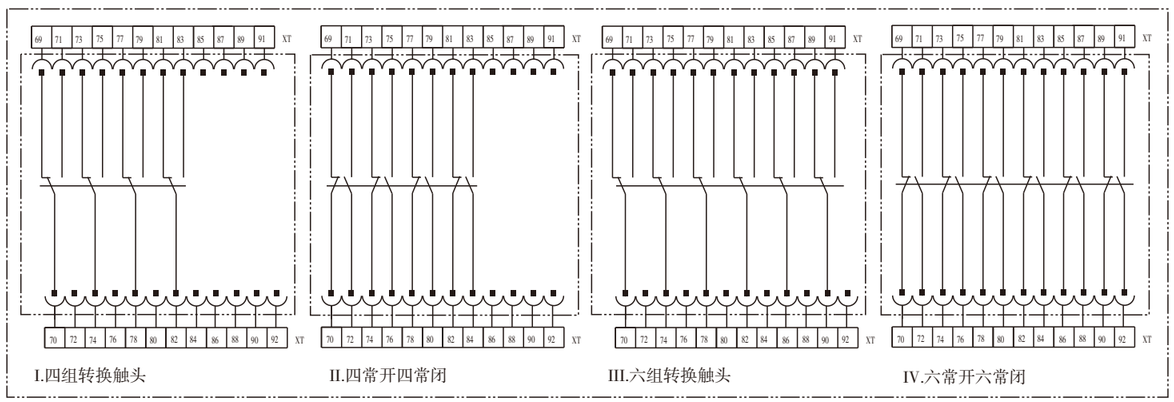
Wiring diagram of secondary circuit of CW3-2500~7400 not fulfilling the requirements for overcurrent protection



SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltagerelease
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of Q, F,X etc
下表中，√为必备附件的功能接线；○为选择附件的功能接线. In the following table, √: standard configuration , ○: optional configuration.

辅助开关型式 The pattern of auxiliary switch



I.四组转换触头 Four pairs of changeover contacts

II.四常开四常闭 Four pieces of normally-open contacts and four pieces of normally-closed contacts

III.六组转换触头 Six pairs of changover contacts

IV.六常开六常闭 Six pieces of normally-open contacts and six pieces of normally-closed contacts

端子号Terminal	功能Function		功能接线 Function wiring
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○
33, 34	分励脱扣器	Connect with shunt release	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√
37,38,39	电动(电机)贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○
45,46,47	储能信号电气指示	charging indication	○
69~92	辅助开关连接端子	Connecting terminals of auxiliary switch	√
93,96	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）	○
94,96	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○
95,96	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○

●订货规范

无过电流保护断路器订货规范
Order form of breakers not fulfulling the requirement for overcurrent protection

(请在＿上填上数字，□内打上√)
(Please fill numbers in ___ or mark √ in □)

用户单位 Name		订货台数 Order amount		订货日期 Order data	

型号 Type　CW3 – _____ _____ / _____ /CBI　□陆用 On Land　□湿热带型（TH型） Humid tropical(TH)　□船用（1600A、2500A壳架）

额定电流 Rated current　In = _____ A

额定电压 Rated voltage　□ AC400V　□ AC690V

安装方式 Connection　□ 固定式 Fixed　□ 抽屉式 Draw-out

联接方式 Connection　□ 水平 Horizontal　□ 垂直 Vertical　□ 上垂直下水平 The upper vertical and the below horizontal　□ 上水平下垂直 The below vertical and the upper horizontal

附件配置 Normally-deployed accessories

FFT分励脱扣器 FFT Shunt release	□ AC230V	□ AC400V	□ DC220V	□ DC110V
FHD合闸电磁铁 FHD Switching-on eletromagnet	□ AC230V	□ AC400V	□ DC220V	□ DC110V
FDC电动操作机构 FDC Power-driven operation mechanism	□ AC230V	□ AC400V	□ DC220V	□ DC110V

FFC辅助开关 FFC Auxiliary switch　□ 4组转换触头 Four groups of changeover contacts　□ 4常开4常闭 Four pieces of normally-opened contacts　特殊形式 Exceptional pattern　□ 6组转换触头 Six pieces of normally-opened contacts　□ 6常开6常闭 Six pieces of normally-opened contacts

选择附件 Choice of accessories

□ FQT欠电压脱扣器 FQT Under-voltage release　□ AC230V　□ AC400V

□ 瞬时型 Under-voltage instantaneous release　延时型 Under-voltage time delay release　□ 0.5s　□ 1s　□ 2s　□ 3s

□ FFS 分闸锁定装置 FFS "Switching-off" lock mechanism　□ 一锁一钥匙 One lock and one key　□ 二锁一钥匙 Two lock and one key　□ 三锁二钥匙 Three lock and two key

□ FLS 机械联锁 FLS Mechanical interlock　二台断路器 Two sets of circuit breakers　□ 钢缆联锁 Steel lock interlock　□ 联杆联锁（上下联锁） Link rod interlock

三台断路器 Three sets of circuit breakers　□ 钢缆联锁方式三 Steel lock interlock　□ 联杆联锁方式一 Pattern one of rod interlock　□ 联杆联锁方式二 Pattern two of rod interlock　□ 联杆联锁方式三 Pattern three of rod interlock

□ FAN 按钮锁定装置 FAN "Button" locking device　□ FXG 相间隔板 FXG Isolation plate between phases　（CW3-1600垂直联接方式必配相间隔板 must be selected for CW3-1600 vertical connection）　□ FJS 计数器 FJS Counter

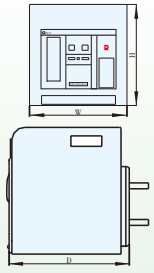
□ FXM 合闸准备就绪电气指示模块 FXM electrical module for indication of ready-for-close　□ FWZ 抽屉座位置电气指示装置 FWZ electrical indication mechanism of socket's position

□ FCZ储能信号电气指示装置 FCZ electrical indication mechanism of storage signal Accessories monitoring units

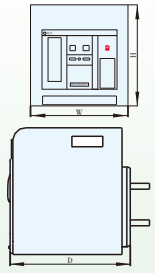
CW3 系列AC1140V断路器主要技术指标及说明
CW3 SERIES AC1140V BREAKER TECHNICAL INDEX AND INSTRUCTION

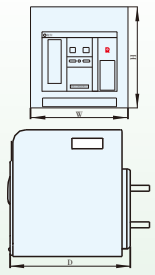
CW3系列断路器应用于AC1140V、800V时，型号为CW3-2500HU、CW3-3200HU、CW3-4000HU、CW3-6300HU，“HU”含义为高电压等级。
When CW3 serues circuit breakers are used in AC1140V、800V, this type is CW3-2500HU, CW3-3200HU, CW3-4000HU and CW3-6300HU, the "HU"means high voltage class.

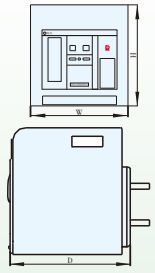
●主要技术指标 Primary technical index

型号 Type designation					CW3-2500HU		
壳架等级额定电流Inm(A) Frame size rated current					2500		
额定电流In(A) Rated current					630、800、1000、1250、1600、2000、2500		
额定电压Ue(V) Rated operational voltage					AC50Hz/60Hz，800、1140*		
额定绝缘电压Ui(V) Rated insulation voltage					1250		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					4420		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)					50		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)					50		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)					105		
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)					50		
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命**（次 times） Electrical durability					500		
机械寿命**（次 times） Mechanical durability	免维护 Non-maintenance				12500		
	有维护 Maintenance				25000		
外形尺寸(mm) Outline dimensions 	宽 × 高 × 深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	347	438	395
			4P	后置Back set	442	438	395
		垂直连接 Vertical	3P	后置Back set	347	438	395
			4P	后置Back set	442	438	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	362	395	290
			4P	后置Back set	457	395	290

*注：CW3-2500HU、CW3-3200HU、CW3-4000HU、CW3-6300HU型式试验时额定电压为AC1150V，用于AC1150VIT配电系统时请咨询本公司。
**注：免维护寿命指电器在修理或更换部件前能完成的操作循环次数的期望值。
*Note: Rated voltage of CW3-2500HU、CW3-3200HU、CW3-4000HU、CW3-6300HU is AC1150V at type test, please call us when breaker used for AC1150V IT distribution system.
**Note: Non-maintenance durability expresses the expectancy of the number of operating cycles which can be performed by the equipment before repair or replacement parts.

型号 Type designation					CW3-3200HU		
壳架等级额定电流Inm(A) Frame size rated current					3200		
额定电流In(A) Rated current					1000、1250、1600、2000、2500、2900、3200		
额定电压Ue(V) Rated operational voltage					AC50Hz/60Hz，800、1140		
额定绝缘电压Ui(V) Rated insulation voltage					1250		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					4420		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)					50		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)					50		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)					105		
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)					50		
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命（次 times） Electrical durability					500		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				10000		
	有维护 Maintenance				20000		
外形尺寸(mm) Outline dimensions 	宽 × 高 × 深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
		垂直连接 Vertical	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	414	395	290
			4P	后置Back set	527	395	290

型号 Type designation					CW3-4000HU		
壳架等级额定电流Inm(A) Frame size rated current					4000		
额定电流In(A) Rated current					1000、1250、1600、2000、2500、2900、3200、3600、4000		
额定电压Ue(V) Rated operational voltage					AC50Hz/60Hz，800、1140		
额定绝缘电压Ui(V) Rated insulation voltage					1250		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					4420		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)					50		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)					50		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)					105		
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)					50		
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命（次 times） Electrical durability					500		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				10000		
	有维护 Maintenance				20000		
外形尺寸(mm) Outline dimensions 	宽 × 高 × 深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
		垂直连接 Vertical	3P	后置Back set	401	438	395
			4P	后置Back set	514	438	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	414	395	290
			4P	后置Back set	527	395	290

型号 Type designation					CW3-6300HU		
壳架等级额定电流Inm(A) Frame size rated current					6300		
额定电流In(A) Rated current					4000、5000、6300		
额定电压Ue(V) Rated operational voltage					AC50Hz/60Hz，800、1140		
额定绝缘电压Ui(V) Rated insulation voltage					1250		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					4420		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)					65		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)					65		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)					143		
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)					65		
分断时间（ms） Breaking time					＜30		
闭合时间（ms） Closing time					＜70		
电气寿命（次 times） Electrical durability					500		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				6500		
	有维护 Maintenance				13000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width × height × depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	754	475.5	395
			4P	后置Back set	980	475.5	395
		垂直连接 Vertical	3P	后置Back set	754	475.5	395
			4P	后置Back set	980	475.5	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	769	395	290
			4P	后置Back set	995	395	290

●应用说明application instruction

当订购电压显示功能时，相应配置电压转换模块（标配），模块输入端接至主回路，输出端接至相应的断路器电压输入二次端子17、18、19、20。

when ordering voltage display function, the corresponding distribution of voltage tranfer module(standard), the module input terminals connect to main circuit, the output terminals connect to second terminals 17,18,19,20.

CW3断路器AC1140V订货规范

（请在___上填上数字，□ 内打上√）

用户单位		订货台数		订货日期	
型号 □ CW3-2500HU/___ □ CW3-3200HU/___ □ CW3-4000HU/___ □ CW3-6300HU/___ □陆用 □湿热带型（TH型）					
额定电流 In = _____A		额定电压 □AC1140V □AC800V			
安装方式 □固定式 □抽屉式					
联接方式 □水平 □垂直 □上垂直下水平 □上水平下垂直					
智能控制器	类型选择 □EA35 □EA36 □EP35 □EP36 □EQ35 □EQ36 □EN35 □EN36				
	注：智能控制器的详细功能请参阅 AC400V、AC440V、AC690V 订货规范				
	智能控制器电压 □AC230V □AC400V		□DC220V □DC110V（需配装直流电源模块）		
附件配置	FFT分励脱扣器 □AC230V □AC400V □DC220V □DC110V				
	FHD合闸电磁铁 □AC230V □AC400V □DC220V □DC110V				
	FDC电动操作机构 □AC230V □AC400V □DC220V □DC110V				
	FFC辅助开关 □4组转换触头 □4常开4常闭		特殊形式 □6组转换触头 □6常开6常闭		
选择附件	□ FQT欠电压脱扣器	□ AC230V □ AC400V	光伏专用型 □ AC220V □ AC380V		
		□ 欠电压瞬时脱扣器	□ 欠电压瞬时脱扣器		
	□FFS分闸锁定装置 □一锁一钥匙 □二锁一钥匙 □三锁二钥匙				
	□FLS机械联锁 二台断路器 □钢缆联锁 □联杆联锁（上下联锁）				
	□FAN按钮锁定装置 □FXG相间隔板 □FJS计数器				
	□FHM合闸准备就绪电气指示模块 □FYF远程复位（仅提供AC230V） □FWZ抽屉座位置电气指示装置 □FCZ储能信号电气指示装置				
	□FFJ附件监测单元 □外接中性线电流互感器 □FDH-80 □FDH-120 □FDH-260				
	□FCM/W32 2路可编程输出模块 输出1编号_____类型_____时间_____s 输出2 ____ ____ ____s				
	□FCM/W36 6路可编程扩展输出模块 输出1编号 ____ 类型 ____ 时间 ____ s 输出2 ____ ____ ____ s 输出3 ____ ____ ____ s 输出4编号 ____ 类型 ____ 时间 ____ s 输出5 ____ ____ ____ s 输出6 ____ ____ ____ s				
	通信功能选件 □FGT故障脱扣信号 □FNX储能信号 □FHX合闸准备就绪信号 □FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）				
	□FDY/WT直流电源模块 □DC110V □DC220V				

注1：接地保护用户可选择矢量和型或变压器中心接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。注2：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。若断路器选择了电源模块，则智能控制器的电源电压不作选择。注3：可提供CW3-2500HU、CW3-3200HU、4000HU、6300HU低温至-40℃断路器。注4：可提供AC800V、1140V不带智能控制器的无过电流保护断路器，其额定限制短路电流Icc为相应规格断路器的短时耐受电流值，二次回路接线参见“CW3-2500~7400无过电流保护断路器二次回路接线图”。

保护参数出厂缺省整定值

如用户订货时已选择相应功能而未作具体要求，智能控制器出厂整定值按如下配置：按断路器额定工作电压AC400V、440V、690V“保护参数出厂缺省整定值”表，但短延时保护整定电流$Ir_2=4Ir_1$，瞬时保护整定电流$Ir_3=10In$（$In<2000A$）或$8In$（$In\geq2000A$）。

Order form of AC1140V breakers

(Please fill numbers in____ or mark √ in □)

Name		Order amount		Order date	
Type □ CW3-2500HU/___ □ CW3-3200HU/___ □ CW3-4000HU/___ □ CW3-6300HU/___ □On land □damp heat (TH type)					
Rated current In = ____ A		Rated voltage □AC1140V □AC800V			
Mounting □Fixed □Draw-out					
Connection □Horizontal □Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal					
Intelligent controller	Type selection □EA35 □EA36 □EP35 □EP36 □EQ35 □EQ36 □EN35 □EN36				
	Note: the detail functions of intelligent controllers are seen order form of A400V,440V,690V.				
	Voltage of intelligent controller □AC230V □AC400	□DC220V □DC110V(Equipped with DC power supply module)			
Accessories	FFT shunt release □AC230V □AC400V □DC220V □DC110V				
	FHD closing electromagnet □AC230V □AC400V □DC220V □DC110V				
	FDC motor-driven operating mechanism □AC230V □AC400V □DC220V □DC110V				
	FFC auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts and four pieces of normally-closed contacts	Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts and six pieces of normally-closed contacts			
Choice of accessories	□FQT under-voltage release	□AC230V □AC400V	PV special □AC220V □AC380V		
		□Instantaneous	□Instantaneous		
		□Time delay □0.5s □1s □2s □3s	□0-10s time delay(factory setting 3s)		
	□FFS open lock device □One lock one key □Two locks one key □Three locks two keys				
	□FLS mechanical interlock	Two circuit-breakers □Steel interlock □Rod interlock (up and down interlock)			
		Three circuit-breakers □Pattern three of steel interlock □Pattern one of rod interlock □Pattern two of rod interlock □Pattern three of rod interlock			
	□FAN pushbutton lock device □FXG interphase barriers □FJS counter				
	□FHM electrical indication module of ready-for-close □FYF remote reset (only AC230V) □FWZ electrical indication device of socket's position □FCZ electrical indication device of storage signal				
	□FFJ accessories monitoring unit □FBM transformer's center earth unit externally connected				
	□Neutral connected externally current sensor □FDH-80 □FDH-120 □FDH-260				
	□FCM/W32 2 lines programmable output module Output1 number ___type ___time___s Output2 ___ ___ ___s				
	□FCM/W36 6 lines programmable output expansion module	Output1 number___type ___time___ s Output2___ ___ ___s Output3___ ___ ___s Output4 number___type ___time___ s Output5___ ___ ___s Output6___ ___ ___s			
	Communication accessories □FGT fault trip signal □FNX stored energy signal □FHX ready-for-close signal □FQX under-voltage output signal □FCT component of withdrawable set communicative module (only for Modbus)				
	□FDY/WT DC power supply module □DC110V □DC220V				

Note1: Users can choose transformer's center earth type or vectorial summation type for earth-fault protection. If they make no choices the default type is the vectorial summation type. Users should order units with transformer's center earth externally connected (earth transformer and earth module included) if they choose the transformer's center earth type. Note2:The voltages of all power supply modules are input voltage, output voltage is DC24V, users may choose suitable modules by providing supply. If power supply module of intelligent controller isn't selected. Note3: Can provide -40℃ circuit breakers. Note4: Can provide AC800V, 1140V circuit-breaker that havn't overcurrent protection without intelligent controllers, it's rated conditional short circuit current Icc is same as relevant specification rated short-time withstand current, and it's secondary circuit wiring diagram is please seen "wiring diagram of secondary circuit of CW3-2500～7400 not fulfilling the requirements for vercurrent protection".

Factory's default setting values of protection parameters

If users no speific requirements for functions when making order, factory's defult setting values of intelligent controller are configured by following: according to "factory's default setting values of protection parameters" table of rated operational voltage AC400V, 440V, 690V, but short-time delay setting current $Ir_2=4Ir_1$ and instantanous setting current $Ir_3=10In(In<2000A)$ or $8In(In\geqslant2000A)$.

全国一级经销商明细表

北京

北京欣凯通机电有限公司 010-66162644
北京市北方森源电气有限责任公司 010-87581702
众业达电气(北京)有限公司 010-67315343

天津

天津市强强电器科技有限公司 022-83715527
天津众业达电气有限公司 022-86326008

上海

上海企开电器设备有限公司 021-56319844
上海森昊电气有限公司 021-54791857
上海泰耀机电设备有限公司 021-57428230
上海华启电气设备有限公司 021-56319844
上海斐格电气有限公司 021-24205696
上海众业达电器有限公司 021-56988198

重庆

重庆众业达电器有限公司 023-63056952

福建

泉州市恒源电力设备有限公司 0595-22587087
厦门亿合电器有限公司 0592-5223466
众业达电气（厦门）有限公司 0592-5976058
福州众业达电器有限公司 0591-83802051

浙江

杭州华森电器有限公司 0571-86947817
杭州天源机电设备有限公司 0571-87244850
杭州众业达电器有限公司 0571-88260931
乐清市新格电气有限公司 0577-62727313
宁波市江东腾辉电器有限公司 0574-87890910
宁波众业达电器有限公司 0574-87052331
宁波安能电气有限公司 0574-87239079
金华三变电气有限公司 13605798321
众业达电气温州有限公司 0577-88919098

安徽

合肥皖为电气设备工程有限责任公司 0551-62884402
合肥环亚机电贸易有限责任公司 0551-62871030
众业达电气安徽有限公司 0551-65670231

江苏

南京扬力电器有限公司 025-84585297
南京兰珀电气工程有限公司 025-85283021
众业达电气南京有限公司 025-58833275
常州市中环电器有限公司 0519-88867161
镇江兆丰电器有限公司 0511-88320888
苏州苏新机电设备有限公司 0512-67571866
苏州市中信机电设备有限公司 0512-65236366
苏州华夏华通电气有限公司 0512-67702333
常熟市中通电力设备有限责任公司 0512-52853511
常熟市润源电气设备销售有限公司 0512-52110269
常熟市创达电气物资有限责任公司 0512-52728292
无锡智帆达商贸有限公司 0510-82736734
无锡众业达电器有限公司 0510-85431468
南通正源电气有限公司 18751322091
扬州易尔法电气有限公司 0514-87895515
连云港市希门自动化电器设备有限公司 0518-85013959
徐州泛得电子有限公司 0516-83861527
海安巨龙工贸有限公司 0513-88839628
淮安康泰电气设备有限公司 0517-89897555
宿迁市常开电气有限公司 0527-88803336

山东

莱芜汇鑫实业有限公司 13563400899
山东亘源电力工程有限公司 0531-86018833
淄博新能机电设备有限公司 0533-2186118
济南久业电气设备有限公司 0531-85869178
烟台信谊电气技术有限公司 0535-6105866
江苏华晟电器设备有限公司山东电气技术中心 0531-88950385
济南众业达电器有限公司 0531-81216270
青岛众业达电器有限公司 0532-55557512

江西

江西佳创实业有限公司 0791-88317951
九江安力达电气有限公司 0792-7031115
南昌众业达电气有限公司 0791-88205101

广东

广州市友朋电气设备有限公司 020-34527080
广州市众业达电器有限公司 020-81279615
佛山市君鹏机电设备有限公司 0757-83811990
佛山市嘉合贸易有限公司 0757-83397660
东莞市运通泰电气科技有限公司 0769-22028877
深圳市华冠电器销售有限公司 0755-83928099
众业达电气（深圳）有限公司 0755-25874404
众业达电气股份有限公司（含子公司） 0754-88739376
汕头市新兴工业配套材料有限公司 0754-88681888
汕头市众业达机电设备有限公司 0754-88739149

湖南

长沙市康发电器有限公司 0731-84422858
长沙众业达电器有限公司 0731-85453248

湖北

武汉万千新能电气有限公司 027-87312243
武汉圣天科技有限公司 027-82706552
武汉众业达机电设备有限责任公司 027-87929423
众业达电气襄阳有限公司 0710-3721652

广西

南宁市德控机电设备有限责任公司 0771-3212829
广西众业达电气有限公司 0771-3809503

河北

河北华尔电气有限公司 0311-87227761
石家庄市众业达电气自动化有限公司 0311-89624271
石家庄市晓赛电气设备贸易有限公司 13803115659
唐山众业达电气设备有限公司 0315-5772709

河南

河南中电电器有限公司 0371-66965984
河南百望电气设备有限公司 0371-63329025
郑州众业达电器有限公司 0371-68772833
众业达电气洛阳有限公司 0379-60697679

四川

成都慧永电器成套设备有限公司 028-68003527
成都众业达电器有限责任公司 028-87560470

陕西

陕西新力源电气有限公司 029-88348188
陕西众业达电器有限公司 029-87452381
西安西菱电器机械设备有限公司 029-88320213

云南

昆明惠尔电气有限公司 0871-63835808
昆明众业达自动化设备有限公司 0871-68065589

宁夏

银川同正电气有限公司 0951-6014483

山西

山西三为电控设备成套有限公司 0351-6521630
山西常顺电器销售服务有限公司 0351-7023860
山西众业达电器有限公司 0351-6386456

新疆

众业达新疆电气有限公司 0991-4523128

辽宁

沈阳市新业物资实业公司 024-22734762
众业达电气（沈阳）有限公司 024-88505149
鞍山市耐特机电系统工程有限公司 0412-5230221
众业达电气（大连）有限公司 0411-86713487

吉林

长春市金蟾经贸有限公司 0431-84788961

黑龙江

哈尔滨北低日月机电设备有限公司 0451-88387734
众业达电气哈尔滨有限公司 0451-83336586

内蒙古

包头市杰德自动化工程有限公司 0472-6180955
内蒙古宇欣机电科技有限公司 0471-6512281

海南

海南华胜电气设备有限公司 0898-66226803

甘肃

甘肃众业达电器有限公司 0931-8406069