

RONGER[®]

荣尔[®]输变电

湖南著名商标 湖南名牌产品

RONGER TRANSMISSION

产品选型手册 / Products Selection Manual

专业，智慧，品质 Professional, Wisdom, Quality

湖南荣尔输变电股份有限公司
HUNAN RONGER TRANSMISSION & DISTRIBUTION CO., LTD.

荣尔[®]输变电
RONGER TRANSMISSION



湖南荣尔输变电股份有限公司（以下简称：公司）创建于1999年，其前身为德力西集团衡阳输变电设备有限公司，2007年改制为湖南荣尔输变电股份有限公司，是高低压输电成套设备、电力系统自动化控制设备、变压器在线检测系统的研发、制造、安装、调试的专业企业。

公司始终坚持“苦博”、“求胜”、“诚信”、“致远”的企业精神；始终坚持“以高质优价的产品赢得市场、以高效优质的服务取信用户”的经营理念；始终坚持“以市场为导向，生产一代、开发一代、储备一代”的发展战略，致力于新技术的研究、开发和实践。目前，公司具有大专及以上学历或具有初级及以上专业技术职称人数为员工总数的85%，依托于强大的人力资源优势，公司的产品开发设计能力、制造技术已进入国内领先行列。同时，公司结合行业和企业自身特点，不断创新管理模式，推行“6S”现场管理、准时化生产管理、全员全过程质量管理，使公司的管理规范化、系统化、精细化。2007年12月，公司系列产品通过了国家强制性产品CCC认证；2008年1月，公司通过了ISO9001质量管理体系认证；2010年11月，公司被评为衡阳市“质量管理先进单位”，并被中国电器工业协会电控配电设备分会接收为会员单位。公司系列产品广泛用于水电系统、矿山、房地产以及大型企业等国家省市重点工程，产品质量稳定可靠、售后服务热情周到，深受广大用户和行业专家的肯定和赞许。

近年来，凭借着高素质的员工队伍和雄厚的技术力量，公司得到了快速发展。公司先后投入2000余万元，实施了大规模、高等级的技术改造。目前，公司拥有4500平方米国内领先的防尘现代化生产车间，生产、检测设备先进、齐全，具有年产过亿元的生产能力。

公司坐落于南岳衡山之麓、湘江之畔的古城湖南衡阳市，是我国中南、西南最重要的交通枢纽之一，武广高铁、京广、湘桂铁路交汇市区；京珠高速、衡昆高速公路贯穿全境；中国最大的内陆河之一湘江穿城而过，铁路、公路、水路四通八达，交通十分便利。

让品质写出荣尔人的尊严是公司的价值观；为用户提供卓越的电气产品和技术服务是公司的使命；成为最可信赖的输变电设备采购和咨询专家，始终引领行业发展的未来是公司的远景，我们坚信在您的关心和支持下，公司的明天将会更加辉煌灿烂！

Founded in 1999, Hunan Rong'er Electric Transmission and Transformation Stock Co., Ltd. (hereinafter referred to as Company) was reorganized from DELIXI Group Hengyang Electric Transmission and Transformation Co., Ltd. in 2007, is a professional enterprise specialized in R & D, manufacture, installation and debugging of high/low-voltage transmission and distribution complete sets of equipment, automatic control equipment of electric power system, and online detection system of transformer.

Abiding by the enterprise spirit of “struggle”, “win”, “good faith”, “go forward”; adhering to the management philosophy of “winning market with high-quality reasonable-price products, winning trust with high-efficient excellent service”; the company always insists on the guiding orientation of market forces, and development strategy of “a generation of production, a generation of development, a generation of reserve”, is engaged in research, development and practice of new technologies. So far, the staff that have received higher education and above or has senior and above professional and technical titles share a percent of 85% of the total. Depending on the advantage in human resources, our product development and design capability as well as manufacturing technology have reached domestic leading level. Meanwhile, the company combines their own characteristics with the industry, innovates the management mode constantly, implements “6S” field management, just-in-time production management, all personnel and full process quality management, enables the company's management to be standardized, systematized and refined. Serial products of the company passed CCC certification in Dec. 2007, and passed ISO9001 quality management system certification in Jan. 2008; in Nov.2010, the company has the honor to be assessed as “Advanced Unit in Quality Control”, became a member unit of Electric Control and Distribution Equipment Branch of China Electrical Equipment Industrial Association. The products are widely applied to hydroelectric systems, mines, real estates and large-scale enterprise and other national and provincial key projects, and win favorable comments from users and industry experts due to stable and reliable quality and warm and considerable after-sale service.

In recent years, depending on high quality staff team and strong technical force, the company developed quickly, has invested 20 million Yuan to carry out large-scale and high-level technical innovation. Now, the company has a modern dustproof manufacturing shop covering an area of 4,500 square meters, with advanced and complete production and test equipment, the annual output capacity over a hundred million Yuan.

The company is located in the ancient city Hengyang Hunan, at the foot of Nanyue Mountain on the coast of Xiangjiang River, where is one of the most important transportation hubs in central-south and southwest of China, with Wuhan-Guangzhou high-speed railway, Beijing-Guangzhou and Hunan-Guangxi Railways meet in the city; Beijing-Zhuhai Expressway and Hengyang-Kunming Expressway run through, one of China's largest inland rivers Xiangjiang River go through the city, accessible in all directions through railway, expressway and waterway, enjoying very convenient transportation.

Let the quality records Rong'er people's dignity is the company's values; providing superexcellent electrical products and technical service for users is the company's mission; becoming the most reliable procurement and consultancy expert of power transmission and transformation equipment, always leading the development trend of the industry is the company's prospect, we firmly believe that our company will become more brilliant under your concern and support!

Brief introduction 企业简介

专业，智慧，品质 Professional, Wisdom, Quality

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REYBW 35KV 环保型组合式变电站

Combined type transtormer substation

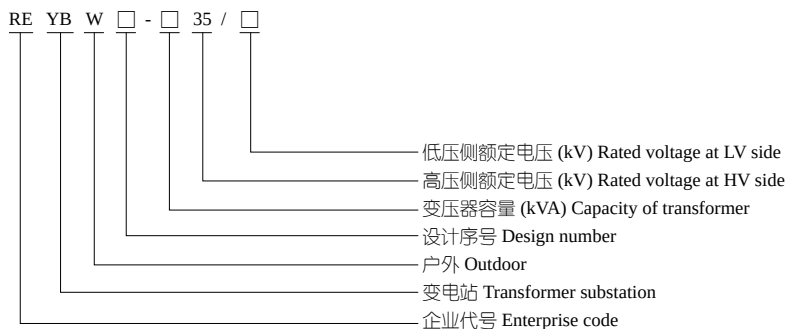


概述 General

REYBW 35KV 环保型组合式变电站是一种将电压开关设备、变压器、低压配电设备组装成一体的成套性产品。它作为城市建筑、生活小区、中小型工厂、矿山油田等用电部门的变配电设备，具有成套性强、体积小结构紧凑、可靠性高、现场安装工作量小、安装高度周期短，以及可移等特点。适当改变其外形和颜色，使之与环境相适应，还可以起到美化环境的作用，是目前城乡土建变电站的替代产品和城网建设、改造的新型成套设备。

Combined type transformer substation is a kind of complete set product integrating voltage switch equipment and transformer with LV distribution equipment. It is usually applied to civic architectures, residential districts, mid-size and small-size factories, mine and oil fields, used as tran-sformation and distribution equipment, with characteristics of strong completeness, compact structure, high reliability, low on-site workload, short installation period, movability, etc. In addition, its color and exterior can be changed appropriately to adapt to the surroundings and beautify the environment, it really is the ideal successor of current urban and rural civil engineering transformer substation, and also is a new type complete set equipment for urban network construction and reformation.

产品型号及含义 Product type and meaning



使用环境条件 Environmental condition

- 海拔高度：不超过 1000 米；
 - 环境温度：+40℃ -25℃；
 - 相对湿度：日平均不超过 95%，月平均不超过 90%；
 - 地震烈度：无经常性剧烈振动和冲击；
 - 安装环境：户外、安装在无火灾、爆炸危险、无严重污秽、腐蚀性气体及粉尘、无剧烈冲击的场所；
- 注：超过以上条件时，可与我公司协商：

- Altitude: ≤ 1000m;
 - Ambient temperature: +40℃ -25℃；
 - Relative humidity: Daily average ≤ 95%, monthly average ≤ 90%;
 - Abnormal severe vibration or impact;
 - Environment for installation: Indoors, no fire or explosion danger, no corrosive gas or dust, no sharp impact.
- Nole: Please negotiate with us if your product is used beyond the range of above conditions.

REYBW 35KV 环保型组合式变电站

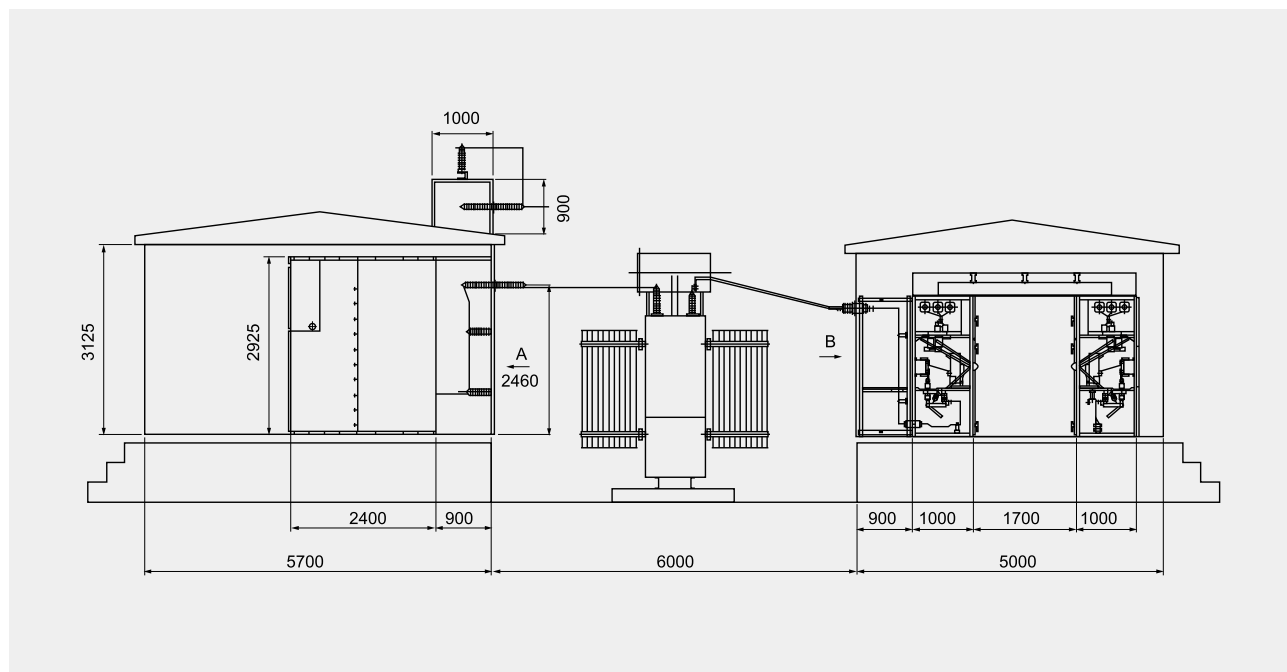
Combined type transormer substation

结构特点 Structure character

- 1、变电站由高压开关室、低压开关室、继电保护室和变压器室组成。高压开关定、低压开关室、继电保护室外壳可采用铝合金板、钢板或复合板制作。铝合金板表面经阳极氧化处理，增强了铝合金板的耐腐蚀性强度。钢板及钢结构件都经磷化处理，复合板具有色彩鲜艳美观并有绝热、阻燃等特点。变压器室不设封闭外壳构而高置安全网罩，既有利于变压器通风散热，又能确保人身和设备安全。
 - 2、高压开关室 HV 高压开关室可装 JYNI-35、KYNI0-35 开关柜或 35KV 负荷开关。35KV 进线和出线方式用户可自由选择架空式电缆方式。
 - 3、低压开关室 LV
 - a. 当低压侧为 10KV 时，低压开关室可安装 XGN2-10、KZNI-12、KYNI-12 开关柜，HXGNII-10F、HXGN26-10(F) 环网柜。
 - b. 当低侧为 0.4KV 时，低压开关室 (为节省空间一般不做低压开关柜) 内安装 DW15T 系列、ME 系列、M 系列、F 系列框架式断式断路器和 DZ20 系列、CM 系列、H 系列、S 系列塑壳空气断路器。
 - 4、断电保护室 断电保护室内安装交流屏、直流屏、信号屏、保护屏、运动控制屏 (RTU) 载波机屏或光纤终端机。
- 注：根据用户要求本变电站可采用常规继电器保护，也可采用变电站微机综合自动化系统。
- 5、35KV 变电站平面、立面布置示意图见图。

- 1、 This transformer substation is made up of HV swich compartment, LV switch compartment, relay protection compartment and transformer compartment. Enclosures of HV switch compartment, LV switch compartment and relay protection compartment can be made of aluminum alloy plate, steel plate of composite plate. Aluminum alloy plate is anodic oxidation treated to strengthen its corrosion stability. Steel plate and steel structured parts are all phosphating treated, and the composite plate is featured with vivid appearance, heat insulation and fire retardation. The transformer compartment is arranged with safeguard protecting net but not enclosed enclosure, which not only gua-rantees better thermal diffusivity, but also is able to insure person and equipment against accident.
 - 2、 HV switch compartment The HV switch compartment can be mounted with JYNI-35, KYNI0-35 switchgear or 35KV load switch. Aerial cable type is available for mounting 35KV inlet and outlet wire.
 - 3、 LV switch compartment
 - a. When it is 10KV at LV side, the LV switch compartment can be mounted with XGN2-10, KZNI-12 and KYNI-12 swichgear, HXGNII-10F, HXGN26-10(F) Ring main unit
 - b. When it is 0.4KV at LV side, the LV switch compartment (no preparation of LV switchgear in consideration of space saving) can be mounted with DW15T series, ME series, M series and F series frame type circuit breaker as well as DZ20 series, CM series, H series and S series molded case air circuit breaker.
 - 4、 Power-off protection compartment The power-off protection compartment is mounted with AC panel, DC panel, signal panel, protection pandel, motion control panel (RTU), carrier wave machine panel or optical fiber termination set.
- Note: This transformer substation can adopt general relay protection, also microcomputer-based integretd automatic control system is available on request.
- 5、 Refer to the diagram for plan layout and vertical plane layout of transformer substation of 35KV.

平面、立面布置示意图 Refer to the diagram for plan layout and vertical plane layout



REYBW 35KV 环保型组合式变电站

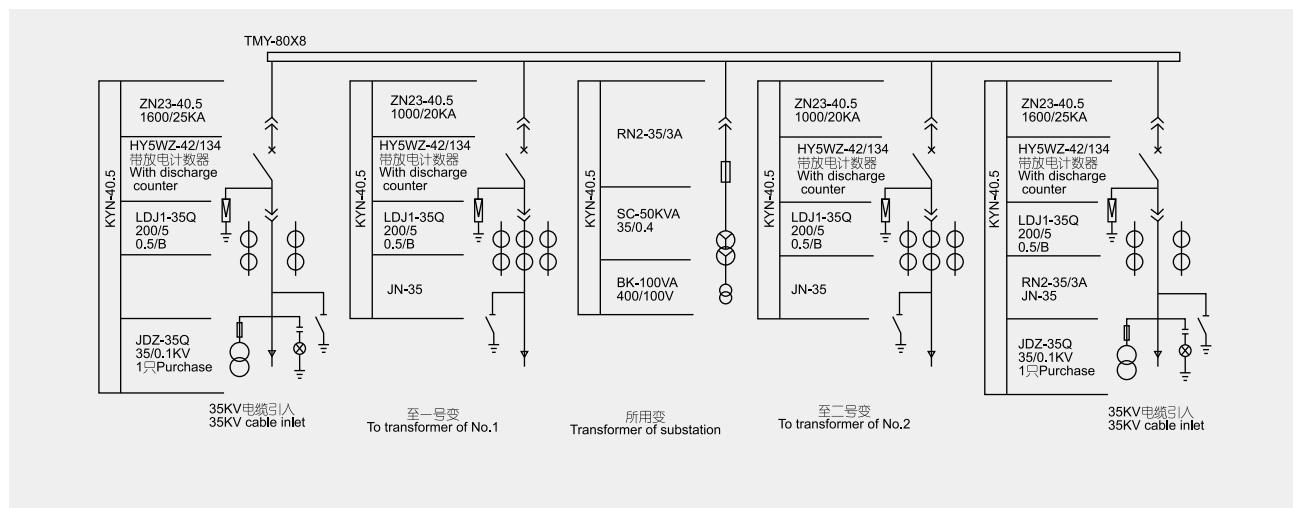
Combined type transormer substation

技术数据 Technical parameters

变压器主要技术参数 Main technical parameters of transformer

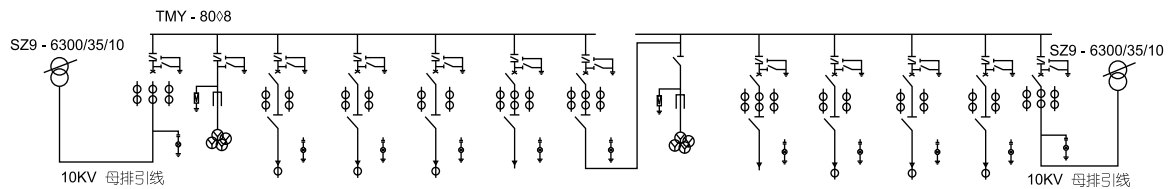
型号 Model	额定电压 (kV) Rated voltage	额定容量 (KVA) Rated capacity	变化 (KV/KV) Change
SZ7	35	400-20000	35/10, 35/6.3, 35/0.4
SZ9	35	400-20000	35/10, 35/6.3, 35/0.4

典型一次接线图 Typical primary connecton diagram



35KV 侧一次单线图

Primary single line diagram of 35KV side

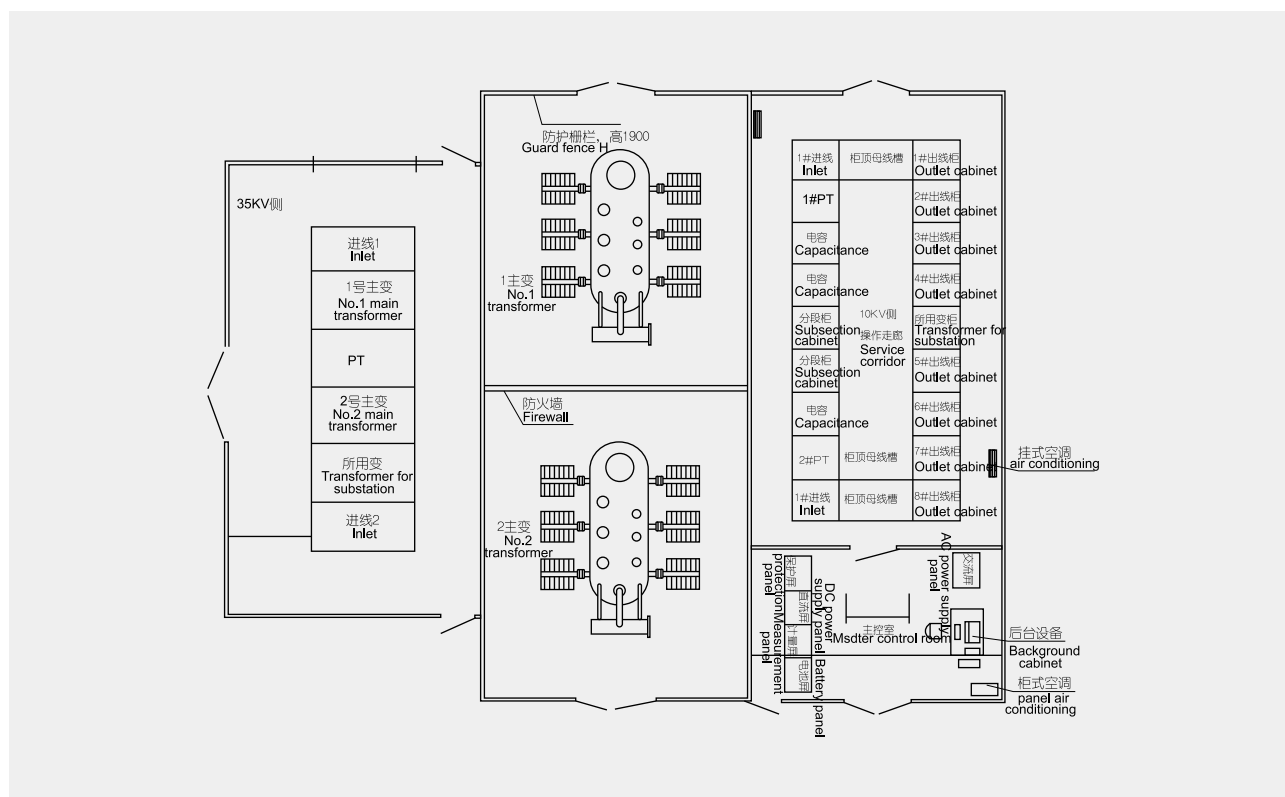


用途 Application	1# 进线	1#PT	1# 出线	2# 出线	3#备用 Standby	# 电容	分段	2#PT	2# 电容	4# 出线	5# 出线	6# 备用	2# 进线
柜型 Cabinet type	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66	XGN66
隔离开关 Isolating switch	1000A	630A	630A	630A	630A	630A	1000A	630A	630A	630A	630A	630A	1000A
断路器 VS1-12	1250		630/	630/	630/	630/	1250/		630/	630/	630/	630/	1250/
Breaker	/31.5KA-1		20kA 1	20kA 1	20kA 1	20kA 1	31.5kA 1		20kA 1	20kA 1	20kA 1	20kA 1	31.5kA 1
电流互感器 LZZBJ-10	400/5,		400/5,200/5	300/5, 100/5	300/5, 100/5	100/5 0.2/	300/5, 100/5		100/5,	400/5,200	200/5,100	400/5,200	
Current transformer	200/5,0.2 级		0.2 级	0.2 级	0.2 级	5 级	0.2 级		0.2 5 级	0.2 级	0.2 级	0.2 级	0.2 级
电压互感器 JDZJ-10		10/√3:0.1/√3						10/√3:0.1/√3					
Voltage transformer		:0.1/√3:0.1/√3						:0.1/√3:0.1/√3					
熔断器 RN2-10		3						3					
Fuse													
避雷器 HY5WZ-12.7/50		3						3					
Lightning arrester	1		1						1				
带电显示器 GSN-10				1	1	1	1			1	1	1	1
Electrification display			1										
零序互感器 LJ-100				1	1					1	1	1	1
Zero sequence transformer	装于主变保护屏上		1						1				
微机保护装置	Be mounled on protection scfoon of main transformer			1	1	1	1			1	1	1	装于主变保护屏上
Microcomputer protection device													Be mounled on protection scfoon of main transformer

REYBW 35KV 环保型组合式变电站

Combined type transformer substation

平面布置图 Layout plan



安装 Mounting

- 1、本型组合式变电站只需在户外空地上浇钢筋混凝土基础即可。
- 2、变压器室 35KV 开关室、10KV 或 0.4KV 开关室都为单个的输出单元，在现场进行拼装联接；电源的引入与引出。
- 3、电源的引入与引出采用架空与电缆两种形式，用户可根据需要选择，订货时请注明。

- 1、This type of combined type transformer substation only requires reinforced concrete foundation outdoors.
- 2、Transformer compartment, 35KV switch compartment, 10KV or 0.4KV switch compartment are all individual output units, and are assembled on site; Inlet and outlet of power supply .
- 3、Inlet and outlet of power supply have overhead and cable two modes for selecting, please select according to requirements and give clear indication when placing the order.

运输及储存 Transportation and storage

组合变电站出厂迁移时，需分成几个运输单元进行运输，若装设 SF6 断路器，则应放气至零表压。
本产品应储存与通风干燥，无腐蚀性气体的场所。

When the combined type transformer substation is moved away from the factory, it should be divided into several parts for transportation, if it has been equipped with SF6 circuit breaker, please discharge it to zero gauge pressure first.

This product should be stored in draughty areas free from corrosive gas.

REYBF 风力变电站 (欧式)

Wind power transformer substation



概述 General

风力变电站是将风电机组发出的电压 (0.6-0.69KV) 升高至 35KV 或 10KV, 并网后输出的专用变电设备, 是我公司根据国内风力发电市场的要求而量身定做的专供风力电站的箱变, 是集可靠性、安全性、适用性、经济性于一体的理想的风力发电系统的配套产品。

The wind power transformer substation is a special transformer equipment used to boost the voltage generated by wind-driven generating sets to 35KV or 10KV, and outputs by being connected to the power grid, it is developed by our company especially designed for wind power station by responding to the market demand of wind electric power generation, it is a supported product of wind generator system integrating reliability, safety and serviceability with economical efficiency.

产品型号及含义 Product type and meaning

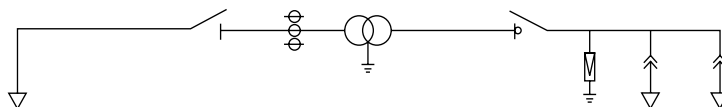


结构特点 Structure character

- 1、内部配置可靠性高、经济适用。高压侧配置负荷开关 + 熔断器, 可以可靠的保护变压器, 低压侧配置进口 SOCOMEC 隔离开关, 配以高分断能力熔断器, 同时可安装一台 2KVA 站用变压器; 主电路方案简单、经济;
- 2、高压负荷开关与高压熔断器置于全密封的变压器油箱中, 利用变压器油作为绝缘介质, 高压出线端采用全绝缘硅橡胶电缆接头, 真正全工况、全绝缘、全密封、免维护, 保证在恶劣环境中全用寿命达 20 年。
- 3、采用进口高燃点油作为绝缘和冷却介质, 寿命期内无须滤油、换油, 密封件采用高性能的进口胶珠, 与设备同寿命。
- 4、箱体外门采用独特的迷宫式密封方式, 配以高弹性长寿命密封胶条, 通风孔处均设有防尘设施, 能有效防止风沙、雨雪等对风力变的侵蚀, 防护等级为 IP44。

- 1、The inner configurations are of high reliability, serviceability and economical efficiency. HV side is equipped with load switch and fuse to protect the transformer reliably, and the LV side is equipped with imported SOCOMEC isolating switch and high breaking capacity fuse as well as one substation-used transformer of 2KVA; the main circuit scheme is simple and economical;
- 2、HV load switch and HV fuse are set in full-enclosed transformer oil tank, and making use of transformer oil as insulating medium. We adopt full-insulated silicon rubber cable joint for HV outlet end, so that to realize full operating condition, full insulated, full enclosed and free of maintenance, it can be operated in harsh environment for 20 years at least.
- 3、Adopt imported high burning point oil as insulating and cooling medium, it is unnecessary to filter or change the oil during service life. In addition, we adopt imported beads of high performance as sealing member, which has the same service life with that of equipment.
- 4、The outer door of box adopts particular labyrinth sealing mode, equipped with joint strip of high elasticity and long service life. There is dustproof facilities arrange at ventilation holes, which can protect the wind power transformer substation from blow sand, rain or snow effectively, degree of protection is IP44.

一次系统图 Primary system diagram



XBZ2 智能型 /XBJ2 紧凑型 24kV(20kV) 箱式变电站

Intelligent/compact box-type substation of 24kV(20kV)

任务来源 Source of obligation



随着我国经济的发展，城镇用电迅速增加，特别是市区负荷密度增大更快，一些城镇进行电网建设与改造规划中，将对原有配电电压等级不合格和维修困难的电网进行升压改造。我国的城网改造应吸取国外的一些有益经验，国外的技术经济比较均匀证明 24kV 方案比 12kV 方案优越。这不仅是因为 24kV 与 12kV 相比，其供电半径与容量几乎比后者增加一倍，同时降低了损耗和单位容量建设投资及维修费用，且避免大拆大换，节约投资。我国一些负荷密度高的城市，继续沿着 12kV 外延将难以继续。城网改造 12kV 升级至 24kV 是未来的发展趋势，有一些省市已开始试点。

XBZ2 智能型 /XBJ2 紧凑型 24kV(20 kV) 箱式变电站是天津电气传统设计研究所、中国电器工业协会电控配电设备分会组织全国七十余家企业，为满足国民经济日益发展的需要，针对我国国情的特点，满足国家电网需求，而开发出新一代通过型式试验的 24kV 箱式变电站。



With the development of national economy, the urban electric energy consumption is increased day by day, especially, the load density downtown rises more quickly, as for this problem, some towns increase the voltage of the power grid whose distribution voltage class is improper or it is difficult to repair in their plans for construction and reform of power grids. Our construction of urban power grid shall absorb some foreign useful experience, both the domestic and foreign technology economy prove the scheme of 24kv is superior to that of 12kV. This not only lies in the comparison of 24kV and 12kV, but also the power supply radius and capacity almost is once more than those of the latter, meanwhile, the former lowers the loss, unit capacity construction capital and maintenance expense, avoids the overhaul and saves the investment. In Chinese cities of high load density, if the extension of 12kV is used continuously, it will be difficult to carry on. In the construction of urban grid, the scheme from 12kV upgraded to 24kV is the future development trend, now, some provinces and cities have begun to test that scheme.

XBZ2 intelligent/XBJ2 compact box-type substation of 24kV(20kV) has passed the type test, it is a new generation of 24kV box-type substation that is developed by Tianjin Electric Drive Design Institute, Electric Control and Distribute Equipment Institute of China Electrical Equipment Industry Association together with more than 70 national enterprise based on the situation of our country, to meet the demand of national increasing economy development and of the state grid.

概述 General

XBZ2 智能型 /XBJ2 紧凑型 24kV(20 kV) 箱式变电站（以下简称箱变）吸收国外箱变的优点，采用了新工艺和先进的电器部件及高、低压自动化技术，满足了我国电网自动化及电力部门的要求。箱式变电站是由高压开关设备、配电变压器、低压开关设备、电能计量设备和功率补偿装置等组装在一个或几个箱体内构成的。在高压、低压侧安装智能化模块，实现配电网中的自动化要求，实现遥控、遥测、遥信、遥调、上机系统管理。

此设备适用于城市高层建筑、住宅小区、厂矿企业、市政建设、公路、路灯等场所，及临时施工用电。本产品具有成套性强，安装周期短，占地面积小，投资省，少维护，运行安全可靠，外形美观，使用寿命长，易与周围环境相协调等特点。

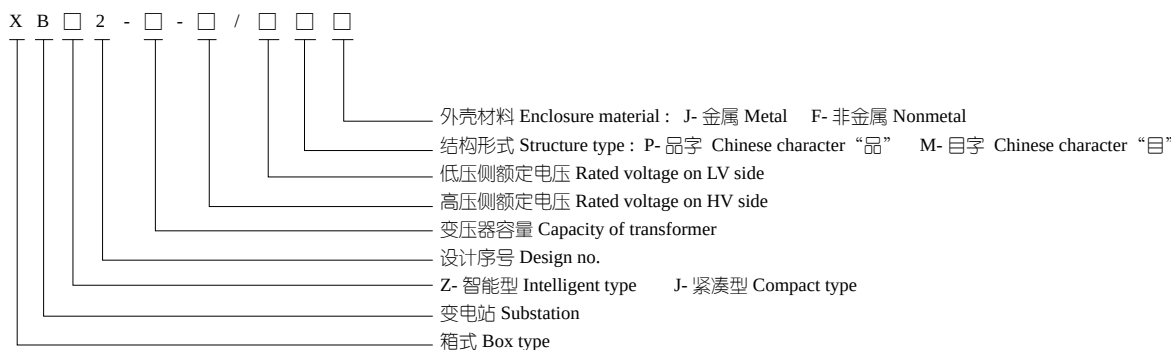
XBZ2 intelligent/XBJ2 compact box-type substation of 24kV (20kV) (hereinafter referred to as box-type substation) takes the advantages of foreign box-type substations, employs the new techniques, advanced electric parts and HV/LV automated technology, it meets the requirements of the state grid automation and electric power requirements. It is formed a box or several boxes that are assembled with HV switchgear, distribution transformer, LV switchgear, electric energy metering equipment and power compensation equipment. The intelligent module is installed on its HV and LV side, to reach the requirements of automation in the distribution grid and realize the remote control, remote sensing, remote signaling and remote regulating as well as upper computer system management.

This equipment is applicable for the locations such as the urban high-rise buildings, residential houses, industrial and mining enterprises, municipal constructions, roads and street lamps as well as the temporary constructions. It has many advantages such as the strong completeness, short installation period, small floor area, low investment, less maintenance, reliable operation, nice appearance, long service life, in addition, it is easy to harmonize with the surroundings.

XBZ2 智能型 /XBJ2 紧凑型 24kV(20kV) 箱式变电站

Intelligent/compact box-type substation of 24kV(20kV)

产品型号及含义 Product type and meaning



使用条件 Service conditions

装于户外的箱变的正常使用条件

- 周围空气温度不超过 +40℃，且在 24h 内测得的温度平均值不超过 +35℃。最低周围空气温度可为 -10℃，-25℃。应为考虑温度的急骤变化。
- 应当考虑高达 1000W/m²（晴天中午）的阳光辐射。
- 海拔不超过 1000m。
- 周围空气可以受到尘埃、烟、腐蚀性气体、蒸汽或烟雾的污染。污秽等级不超过 III 级。
- 覆冰对 1 级不超过 1mm，10 级不超过 10mm，20 级不超过 20mm。
- 风速不超过 34m/s。
- 应当考虑凝露和降水。
- 在二次系统中感应的电磁骚扰电压值不超过 1.6 kV。

特殊使用条件

超过 3.1 的正常使用条件，应由制造厂与用户协调解决。

Normal service conditions of outdoor box-type substation

- The ambient temperature shall not exceed +40℃, and the average temperature within 24h shall not be more than +35℃. The min ambient temperature may be -10℃ and -25℃. What's more, the sharp change of temperature shall be taken into consideration.
- The sunshine radiation of 1,000W/m² (At noon on a cloudless day) shall be taken into consideration.
- The altitude shall not be higher than 1,000m.
- If the ambient air is subject to the pollution of dust, smoke, corrosive gas, steam or salt mist, the pollution class shall not exceed the class III.
- For class 1, the ice coating thickness shall not exceed 1mm; for class 10, it shall not be thicker than 10mm; and for class 20; it shall not be more than 20mm.
- The wind speed shall not exceed 34m/s.
- The condensation and precipitation shall be taken into consideration.
- The inductive electromagnetic disturbance voltage range shall not be more than 1.6kV in the secondary system.

Special service conditions

If beyond the normal service conditions mentioned in clause 3.1, please contact and negotiate with the manufacturer.

技术参数 Technical parameters

额定电压 (Ur): 高压侧: 24 kV 底测压: 0.4 kV
 辅助回路: 交流 110V, 220V, 380V; 直流 24V
 变压器额定容量: 100, 125, 160, 200, 250, 315, 400, 630, 800, 1000, 1250, 1600 kVA
 额定电流 (Ir): 高压侧: 400, 630A 底测压: 最大 2500A
 额定频率 (fr): 50Hz
 额定短时耐受电流 (Ik):
 高压开关设备: 16kA 2s(4s), 20kA 2s(4s)
 低压开关设备: 15kA 用于 315~500kVA
 30 kA 用于 630~1600kVA
 试验时间: 1S
 变压器容量小于 315 kVA 时, 免试。

外壳防护等级: 不低于 IP23D

Rated voltage (Ur): On the HV side: 24kV On the LV side: 0.4kV
 Auxiliary circuit: AC110V, 220V and 380V; DC 24V
 Rated capacity of transformer: 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1,000, 1,250, 1,600kVA
 Rated current (Ir): On the HV side: 400A and 630A On the LV side: Max 2,500A
 Rated frequency (fr): 50Hz
 Rated short-time withstand current (Ik):
 HV switchgear: 16kA 2s(4s), 20kA 2s(4s)
 LV switchgear: 15kA for 315~500kVA
 30kA for 630~1,600kVA
 Test time: 1s
 If the capacity of transformer is less than 315kVA, the equipment will be exempted from the test.
 International protection of enclosure: Not lower than IP23D

XBZ2 智能型 /XBJ2 紧凑型 24kV(20kV) 箱式变电站

Intelligent/compact box-type substation of 24kV(20kV)

结构特征 Structure features

1. 本设计考虑到地域、环境及用户需求的多样化，在箱变本身结构上采用了模块式结构，可由下列各种形式组合而成。
按高压开关接入电网型式分：环网型、终端型、高压电能计量形式、低压电能计量形式。
按设备布置方式分：“目”字型结构；“品”字型结构。
按内装变压器种类分：油浸全面密封变压器，干式变压器。
按高压开关选型分：真空式负荷开关及组合电器开关柜，六氟化硫负荷开关及组合电器开关，充气式开关柜。
按箱体（外壳）材质分：金属外壳，非金属外壳
金属外壳底架材料采用槽钢，工字钢焊接，侧壁及顶盖为双层组装而成的，外部有吊装脚、安装脚，金属门均有良好接地线，底架与地基都有连通的接地导体。
变压器室两侧装有门，便于变压器安装及检修，门内还有安全隔离网门，防止人员误入带电间隔区，保证设备及人身安全。
2. 有良好的隔热通风措施：
箱体四周均为双层结构，箱顶层中还没有隔热材料，有效降低了因日照而引起的室内温度升高，高压室侧门有自动控制的换气扇，可保证变压器在高温季节内满载安全运行。
3. 高压侧的高压开关柜有五防措施，与变压器室有带电可靠锁装置，确保人身安全。箱体防护等级达到 IP23D，防雨性能良好。
4. 操作维护方便
箱变外部有明显的标识，分高压室、变压器室、低压室，打开各室门可易操作。检修，各室均有自动照明装置，变压器室便于变压器安装、维护、更换，低压室均为前面接线和维修通道。
5. 外形美观，经久耐用
外壳除采用数铝锌板，彩钢板等金属材料，经前期处理，喷涂工艺壳体外，还采用了玻纤加特种水泥经特殊工艺合成的非金属外壳，其外形可塑性强，抗腐蚀、隔热、隔音等优点，表面涂层附着力强，涂层色感柔和，美观耐用。

1. This design considers the territory, environment and variety of customer demands, it employs the modular structure, combined with following types:
According to the HV switch connecting with the power grid: ring net type, terminal type, HV energy metering type, LV energy metering type.
According to the equipment arrangement: Chinese character “目” type structure and Chinese character “品” type structure
According to the type of built-in transformer: oil-immersed full-seal transformer and dry-type transformer
According to the type of HV switch: vacuum type load switch and combination unit switchgear, SF6 load switch and combination unit switch, gas-filled switchgear
According to the material of box body (enclosure): metallic enclosure and non-metallic enclosure
The metallic enclosure and underframe are welded with the beam channel and steel I-beam, the side wall and top cover is of two-layer assembly, the outer has the hoisting pin and mounting pin, the metallic door has the good earthing line, and, the underframe and foundation have the connecting earthing conductor. There are doors installed on both sides of transformer, which facilitate the installation and repair of the transformer; and a safe and isolating net door are installed in such doors, to prevent person entering into the electriferous isolating area by mistake and guarantee the safety of equipment and human.
2. Good ventilation measures
The structure of box body is of two layers, the top of box is else made of heat-isolation material, which can lower the rise of indoor temperature caused by the sunshine, and there is an automatic ventilator mounted at the side door of HV chamber, which can ensure the transformer runs safely in full load in the high-temperature season.
3. The HV switchgear on HV side is provided with five-prevention measures, and there is an energized reliable lock with the transformer compartment, to ensure the human security. The international protection of box body can reach IP23D, it has good rain-proof performance.
4. Convenient operation and maintenance
There are some visible marks outside of the box-type substation, indicating the HV compartment, transformer compartment and LV compartment, through opening the compartment doors, they can be easily operated and repaired, each compartment has the automatic lighting device, even, the compartment of transformer is used for installing, maintaining and changing the transformer, in addition, LV compartment is of fore connection and for repairing the channels.
5. Nice appearance and durability
The enclosure is made of AL-plated zinc plates and color-steel sandwich plates, it is given the pre-treatment and plating treatment, besides, it also can be the non-metallic enclosure made of the glass fiber and special cement and with the special technology, so it has the obvious advantages like the strong plasticity of appearance, corrosion resistance, heat isolation and sound isolation, etc., the surface coating is beautiful and durable, with the high cohesion and soft color sense.

型式试验 Type test

XBZ2 紧凑型 24kV(20 kV) 箱式变电站三台样机均通过了国家电控配电设备质量监督检验中心的型式试验验证，满足相关标准的要求。

Three samples of XBZ2 intelligent/XBJ2 compact box-type substation of 24kV (20kV) have passed the type test conducted by National Center of Quality Supervision and Inspection for Electrical Control and Distribution Equipment, and they have met the requirements of relevant standards.

XBZ2 智能型 /XBJ2 紧凑型 24kV(20kV) 箱式变电站

Intelligent/compact box-type substation of 24kV(20kV)

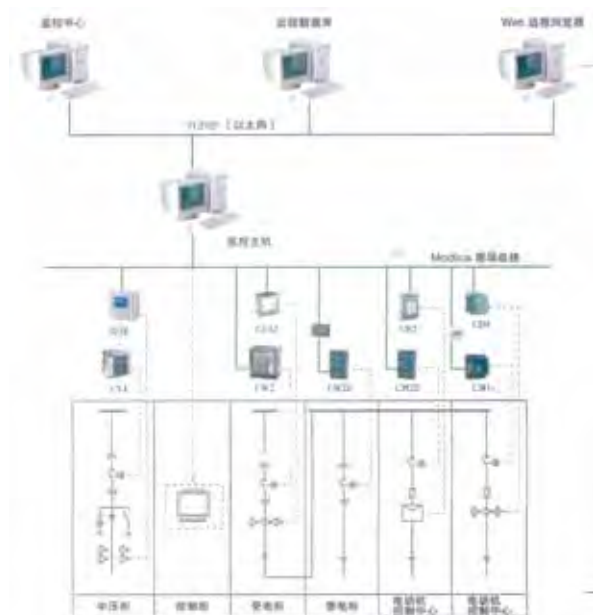
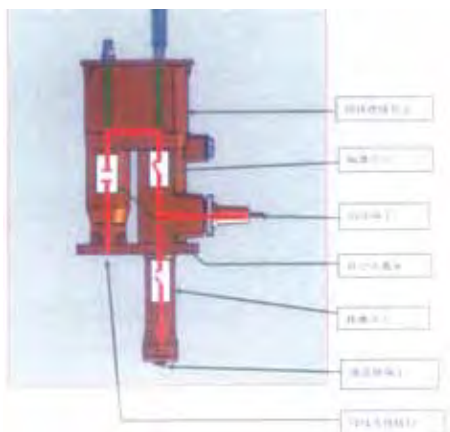
主要特点和创新点 Main characteristics and innovation points

XBZ2 智能型 /XBJ2 紧凑型 24kV(20 kV) 箱式变电站的创造性、先进性如下:

- 1) 高低压回路均配有智能模块, 运行信息和控制信号经现场总线或智能控制传至上位机, 实现遥控、遥测、通信、遥调、上机系统管理。弥补了国内同类产品在智能化控制方面的严重不足。无线 MODEM 采用 GPRS 方式与用户手机相连接, 用户可随时随地监控箱式变电站的运行情况。
- 2) 采用真空密封绝缘开关, 具有可靠性高、零排放、零污染、免维护、体积小、重量轻等特点, 更加环保和安全。
- 3) 创新的在箱式变电站中采用铜铝复合母线作为载流导体, 大幅度降低对我国有限的铜资源的消耗。
- 4) 采用组装式结构, 成套性强、生产效率高、安装周期短、运输成本低。
- 5) 采用氮气弹簧取代传统风钩, 解决了传统防风钩易脱落的问题, 且外形美观、操作简便。
- 6) XBJ2 紧凑型 24kV(20 kV) 箱式变电站, 将高压负荷开关熔断器等高压组件, 进行结构优化, 完美组合置于变压器油箱里, 浸入油中。低压开关设备亦小型化, 使组合式变电站体积缩小, 占地面积仅为常见产品 1/3~1/5。变压器箱体裸露在空气中自然散热, 运行条件优良。具备机械强度高、低损耗、低噪音、低温升、过载能力强等优点, 结构为“品”字型。
- 7) XBJ2 紧凑型 24kV(20 kV) 箱式变电站在控制原理、结构、新型部件等多个创新点申请发明专利 1 项和实用新型专利 8 项, 均已受理。

XBZ2 intelligent/XBJ2 compact box-type substation of 24kV(20kV) has the following innovative points and advantages:

- 1) There are intelligent modules installed at HV and LV circuits, they can pass the operation information and control signal to the upper machine via the field bus or intelligent controller, to realize the remote control, remote sensing, remote signaling, remote regulating and system management. It covers the serious shortage of domestic similar products in the intelligent control. The wireless MODEM employs GPRS mode to connect with the user's mobile phone, so that user can monitor the operation situation of box-type substation anywhere, anytime.
- 2) It uses the solid-encapsulated insulating switch, which has the features such as the high reliability, zero discharge, zero pollution, free maintenance, small volume and light weight, etc., besides, this switch is more environmental protection and safe.
- 3) The innovation point rests with that the Cu-Al composite bus is used as the carrying-current conductor in the substation, which can lower the consumption of Chinese limited copper resource to a large extent.
- 4) It is designed with the assembled structure, with the features of strong completeness, high production efficiency, short installation period and low transportation cost.
- 5) It uses the nitrogen spring instead of the traditional windproof hook, can solve such problem that the traditional windproof hook easily comes off; and this spring is very nice and takes the convenience for the operation.
- 6) XBJ2 compact box-type substation of 24KV, through the structure optimization of the high voltage components like the HV load switch fuse, presents the perfect combination unit that is placed into the oil tank of transformer and immersed in the oil. LV switchgear is minimized to reduce the volume of combined substation, so its floor space is only 1/3~1/5 that of usual products. The box body of transformer can disperse the heat naturally if it is exposed in the air, therefore, it has the good operation conditions. What's more, it possesses the outstanding advantages like the high mechanical strength, low loss, low noise, low temperature rise, strong overload capacity, etc., its structure presents the type of Chinese character “品”.
- 7) One invention patent and eight utility model patents have been applied for XBZ2 intelligent/XBJ2 compact box-type substation of 24kV (20kV) in many innovative points like the control principle, structure and new type of parts, etc., and they have been accepted.



XBZ2 智能型 /XBJ2 紧凑型 24kV(20kV) 箱式变电站

Intelligent/compact box-type substation of 24kV(20kV)

高压侧主电路方案 Scheme of main circuit on HV side

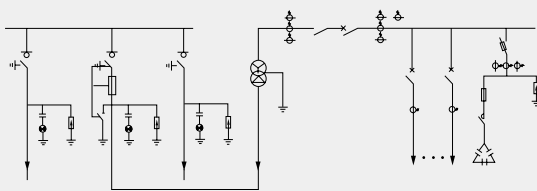
方案编号 Scheme No.	01	02	03	04	05	06	07
单线图 Line diagram							
用途 Purpose	进出线柜 Wire incoming and outgoing	进出线柜 Wire incoming and outgoing	进出线柜 Wire incoming and outgoing	进出线柜 Wire incoming and outgoing	进出线柜 Wire incoming and outgoing	电压互感器柜 Voltage transformer cabinet	高压计量柜 HV metering cabinet

低压侧电路方案 Scheme of main circuit on LV side

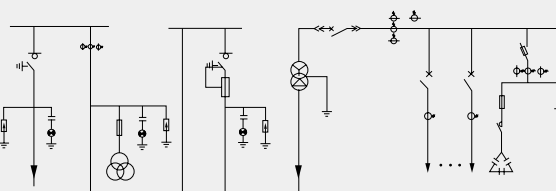
方案编号 Scheme No.	01	02	03	04	05	06	07
单线图 Line diagram							
用途 Purpose	受电 Electrification	受电 Electrification	受电 Electrification	馈电 Feeding	无功补偿 Reactive compensation	无功补偿 Reactive compensation	低压计量 Low-voltage metering

典型系统方案举例参考 Example of typical system scheme

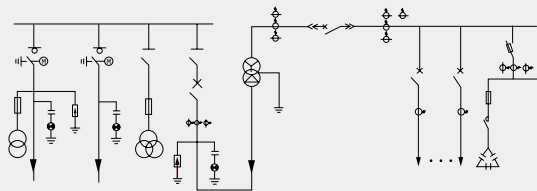
电缆进出线，环网供电，高供低计，手动操作
Cable incoming and outgoing; ring net power supply; HV supply and LV metering; manual operation



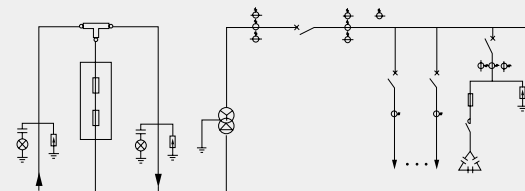
电缆进出线，终端供电，高供高计，手动操作
Cable incoming and outgoing; terminal power supply; HV supply and LV metering; manual operation



电缆进出线，环网供电，高供低计，电动操作
Cable incoming and outgoing; ring net power supply; HV supply and LV metering; electrical operation



紧凑型组合方案示例
Example of compact type combination scheme



REYB 智能型预装式变电站

Intelligent prefabricated transformer substation

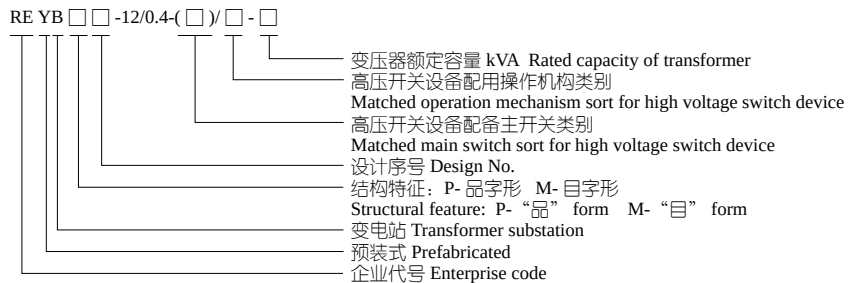
概述 General



REYB 系列智能型箱式变电站是由荣尔公司自立开发的最新产品，它吸收了美式箱变、欧式箱变和国产箱变三大派别的优点，适合于我国的国情特点，采用了环保、新材料、新工艺及先进的元器件和高低压自动化技术，其中高压（12KV）侧能满足电力部门对于配电网自动化的要求，低压（0.4KV）侧能满足小区物业管理智能化的要求，可以用设置在中心站或物业管理处的上位机对箱式变电站进行“四遥”（遥测、遥讯、遥调、遥控）系统管理。当多台智能型箱式变电站连接成“手拉手”环网供电时，在自主软件配合下，能完成故障区段自动定位、故障切除、负荷转带、网络重构等功能，从而保证在一分钟内恢复送电。该系列智能型箱式变电站是由高压单元、电力变压器、低压单元、计量单元及智能系统等，优化组合成的完整的智能化供配电成套装置，它功能多、用途广，运行安全可靠，外型美观，并具有安装方便、少占地、少维护、少投资、见效快、寿命长等特点。可作为城市建筑、居民小区、市政设施、工厂、矿山、公路、码头、油田及施工临时用电等部门、场所的变配电设备。

Intelligent box substation of series REYB, the newest product developed independently by RONGER Company, integrates the advantages of American box substation, European box substation and home box substation, which adopts environment protection and new material, new technology and advanced components as well as high-low voltage automation technology, and among them, the high voltage side (12KV) can meet the demand of power department for power distribution automation, and the low voltage side (0.4KV) can meet the demand of intelligent community property management, and the upper monitor which is located in the central station or the property management department can be used for four-remote (remote measurement, remote communication, remote adjustment, remote control) system management. When several intelligent box substations connect into “hand-in-hand” ring network and supply power, they, combined with autonomous software, can accomplish the functions of automatic location, fault clearance, load shifting and network reconfiguration at the fault section, so that the recovery of power transmission is guaranteed in one minute. This series of intelligent box substation is one optimized combination of complete intelligent power supply and distribution integrated device consisting of high voltage unit, power transformer, low voltage unit, metering unit and intelligent system, etc. It has the characteristics of multi-functions, wide application, safe and reliable operation, beautiful outline, as well as convenient installation, little land occupation, little maintenance, low cost, quick effect and long service life. It can be used as power transformation and distribution equipment in the following departments and places, such as urban architecture, residential areas, municipal facilities, factories, mines, roads, wharves and oil fields, as well as construction in need of temporary power supply.

产品型号及含义 Product type and meaning



主要技术参数 Main technical parameters

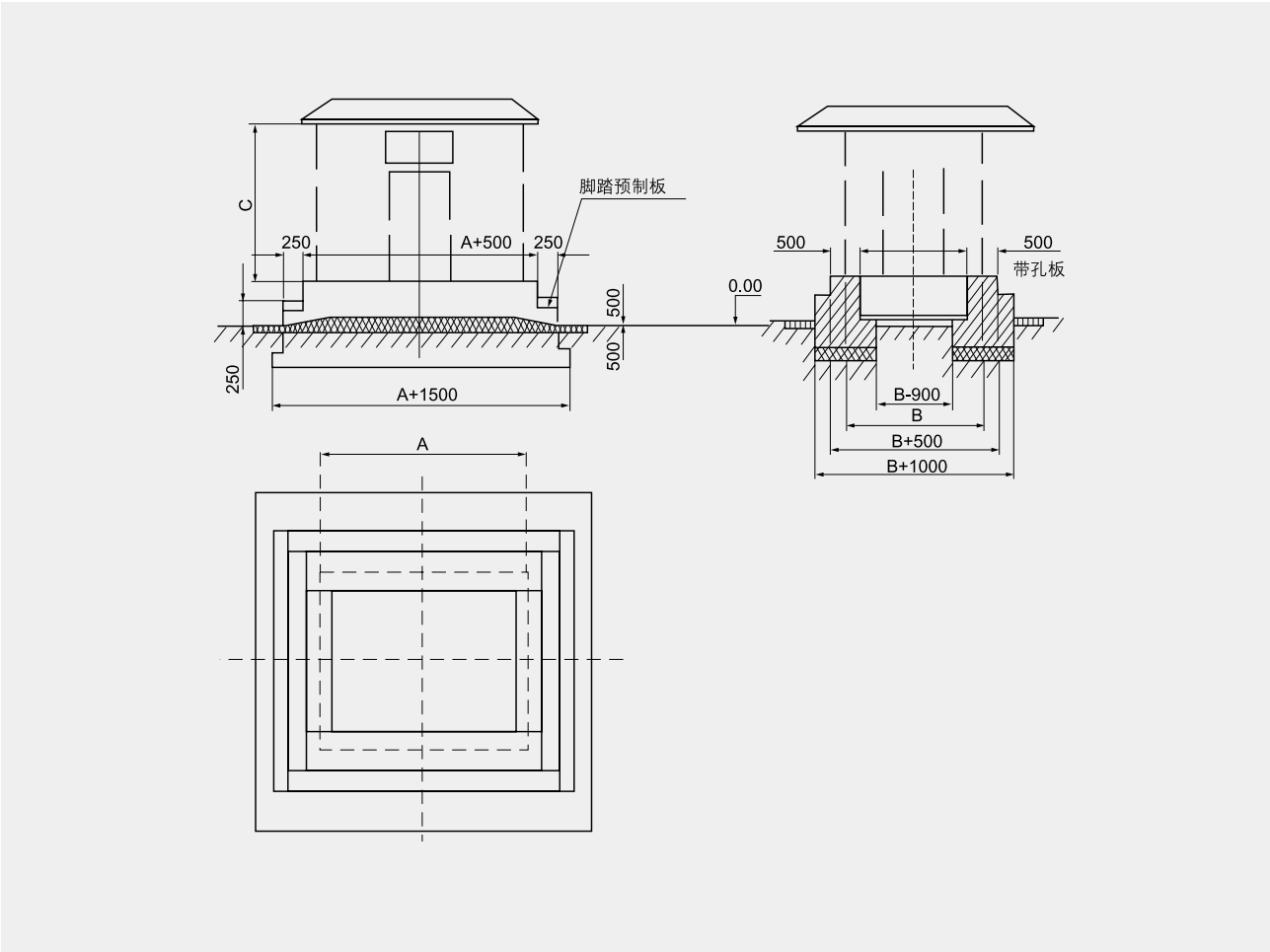
项目 Item	单位 Unit	高压电器 High voltage electrical equipment	变压器 Transformer	低压电器 Low voltage electrical equipment
额定电压 Rated voltage	kV	7.2、12	6/0.4、10/0.4	0.4
额定容量 Rated capacity	kVA		目型“目” type: 200~1250 品型“品” type: 50~400	
额定电流 Rated current	A	200~630		100~3000
额定开断电流 Rated breaking current	A kA	负荷开关 Load switch 400~630A 组合电器取决于熔断器 Combined electrical equipment is dependent on fuse		15~63
额定短时耐受电流 (秒) Rated short time withstand current	kA(xs)	20 × (2) (12.5 × 4)	200~400kVA 400kVA	15 × 1 30 × 1
额定峰值耐受电流 Rated peak withstand current	kA	31.5、50	200~400kVA 400kVA	30 63
额定关合电流 Rated closing current	kA	31.5、50		
工频耐受电压 Line frequency withstand voltage	kV	相对地及相同 Phase to earth and phase similar 32、40 隔离断口 Isolated fracture 34、48	油浸 Oil immersion: 35/5min 干式 Dry type: 28/5min	≤ 300V 时 2kV 300,600V 时 2.5kV
雷击冲击 Thunderstroke impact	kV	相对地及相同 Phase to earth and phase similar 60、75 隔离断口 Isolated fracture 75、85	75	
噪声水平 Noise level	dB		油浸 Oil immersion: <55 干式 Dry type: <65	
防护等级 Protection grade			IP23D	
外形尺寸 Outline dimension		根据所选变压器容量和形式，选定不同的外形尺寸。 Choose different outline dimension according to the capacity and mode of selected transformer.		

REYB 智能型预装式变电站
Intelligent prefabricated transformer substation

常用外形尺寸 Common outline dimension

序号 No.	箱体型式 Box type	外形尺寸 (mm)Outline dimension	结构形式 Structure form	操作方式 Operation mode
一	平顶型 Flat top type	3000 × 1600 × 2200	目字型 目-shaped	单面户外操作 Single-sided outdoor operation
		3200 × 2200 × 2500	目字型 目-shaped	单面户外操作 Single-sided outdoor operation
		3700 × 2300 × 2500	目字型 目-shaped	单面户外操作 Single-sided outdoor operation
		4000 × 2500 × 2500	目字型 目-shaped	单面户外操作 Single-sided outdoor operation
		4300 × 2500 × 2500	目字型 目-shaped	走廊式双面操作 Double-sided corridor operation
		4700 × 2500 × 2500	目字型 目-shaped	走廊式双面操作 Double-sided corridor operation
		5300 × 2500 × 2500	目字型 目-shaped	走廊式双面操作 Double-sided corridor operation
		6300 × 2500 × 2700	目字型 目-shaped	走廊式双面操作 Double-sided corridor operation
		8000 × 2500 × 2700	目字型 目-shaped	走廊式双面操作 Double-sided corridor operation
二	尖顶型 Fastigium typ	3200 × 2200 × 2500	目字型 目-shaped	单面户外操作 Single-sided outdoor operation
		3200 × 2500 × 2500	目字型 目-shaped	单面户外操作 Single-sided outdoor operation
		3600 × 2300 × 2500	品字型 品-shaped	单面户外操作 Single-sided outdoor operation
		4300 × 2300 × 2500	目字型 目-shaped	走廊式双面操作 Double-sided corridor operation
		4500 × 2300 × 2500	目字型 目-shaped	走廊式双面操作 Double-sided corridor operation
三	斜顶型 Slanted-top type	3500 × 2000 × 2500	目字型 目-shaped	单面户外操作 Single-sided outdoor operation
四	半敞开型 Half-open type	2800 × 1800 × 2500	品字型 品-shaped	单面户外操作 Single-sided outdoor operation

安装基础图 Installation base diagram



REYB 智能型预装式变电站

Intelligent prefabricated transformer substation

高压主电路常用方案 Common scheme of high-voltage main circuit

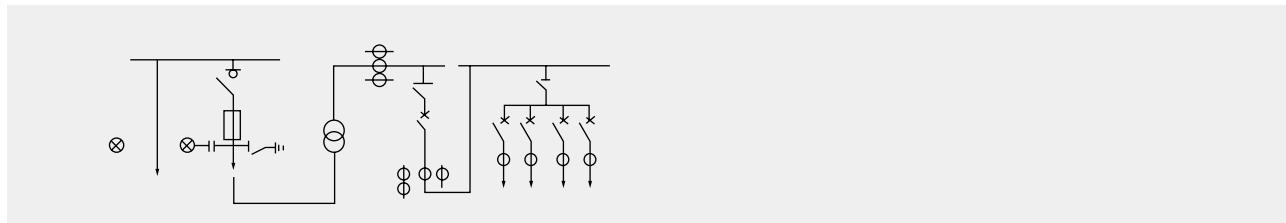
方案编号 Scheme No.	01	02	03	04	05	06	07
单线图 Line diagram							
用途 Purpose	电缆进出线 Cable incoming and outgoing	电缆进出线 Cable incoming and outgoing	电缆进出线 Cable incoming and outgoing	电缆进出线 Cable incoming and outgoing	双电源电缆进出线 Incoming and outgoing line of dual power supply	左(左、右)联络、出线 Left(right, right) interconnection, outgoing line	高压计量 High voltage metering

低压主电路常用方案 Common scheme of low-voltage main circuit

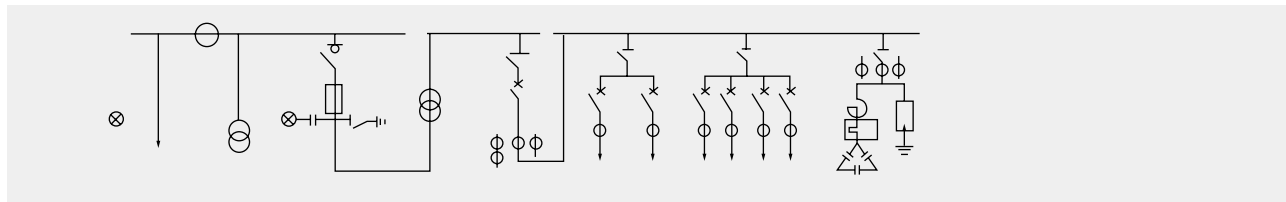
方案编号 Scheme No.	01	02	03	04	05	06	07
单线图 Line diagram							
用途 Purpose	受电 Electrification	受电 Electrification	馈电 Feeding	馈电 Feeding	无功补偿 Reactive compensation	受电计量 Electrification-metering	低压计量 Low-voltage metering

典型系统方案举例参考 Example of typical system scheme

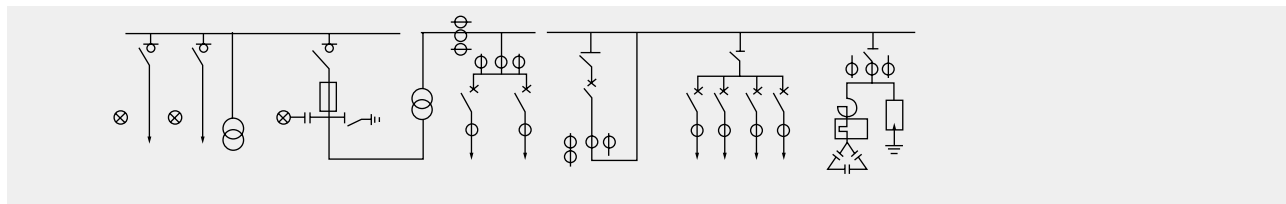
电缆进出，终端供电，低压计量 Cable incoming and outgoing, terminal power supply, low voltage metering



电缆进出，终端供电，高压计量，低压走廊图，低压电容补偿 Cable incoming and outgoing, terminal power supply, high voltage metering, low voltage corridor diagram, low voltage capacitance compensation,



电缆进出，环网供电，低压计量，低压走廊图，低压电容补偿 Cable incoming and outgoing, ring network power supply, low voltage metering, low voltage corridor diagram, low voltage capacitance compensation,



REYB6 智能型一体化变电站

Intelligent integrated transformer substation

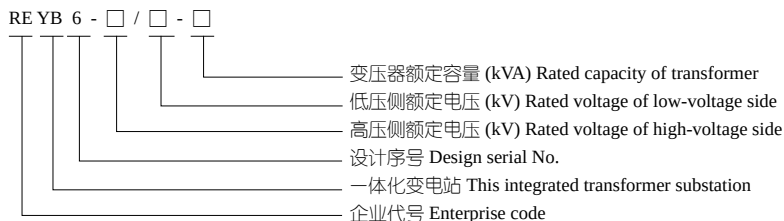


概述 General

本智能型一体化变电站是荣尔公司推出的国产化美式箱变。该产品作为电缆化配电网中重要的供电单元，集高压控制、保护、变电、以及配电设备于一体的成套预装产品，广泛应用于城乡配电网之中。该产品将高压负荷开关、高压熔断器置于变压器油中，具有与变压器身共箱或分箱两种结构形式。油箱采用全密封结构，配有油温表、油位表、压力表、压力释放阀、放油阀等元件监测变压器运行状况。该产品分为环网型、终端型及电源型供电方式。为了使此种产品更适合于我国电网的实际要求，荣尔公司又推出了插拔型干式熔断器，熔丝的熔断不影响变压器油的性能。根据低压馈出要求的复杂程度，此产品分为标准型、加强型和综合型三种外壳形式，使用户和设计单位在选型时，做到更灵活、更经济。 This intelligent integrated transformer substation is a nationalized type American box substation developed by RONGER Company. As an important power supply unit in the cable distribution network, it is an integrated prefabricated product of high voltage control, protection, power transformation and power distribution, which is widely used in the urban and rural distribution network.

The high voltage load switch and high voltage fuse are put into the transformer oil, so this product has two structure forms of one box and divided box with the transformer body. The oil box is of full-sealed structure with oil temperature indicator, oil level gauge, pressure gauge, pressure relief valve and oil drain valve to monitor the operation condition of the transformer. This kind of products has three types of power supply modes - ring network type, terminal type and power type. In order to make the product meet the actual demands of the power grid in China better, Ronger Company promotes plug-pull dry type fuse and the fusing of the fuse wire has no effect to the performance of transformer oil. According to the complicated degree of low voltage outgoing demands, this product has three types of enclosure - standard type, reinforced type and integrated type, as a result, the clients and design agents have more choices.

产品型号及含义 Product type and meaning



使用环境条件 Environmental condition

- 环境温度：最高气温 +40℃，最低气温 -30℃；
 - 海拔：≤ 1000m；
 - 风速：相当 34m/s (不大于 700Pa)
 - 湿度：日相对湿度平均值不大于 95%，
月相对湿度平均值不大于 90%；
 - 防震：水平加速不大于 0.4m/s²；垂直加速不大于 0.15m/s²；
 - 安装地点倾斜度：不大于 3°；
 - 安装环境：周围空气不受腐蚀性，可燃性气体等明显污染，安装地点无剧烈震动；
 - 订购本产品超出上述条件的规定时，可与本公司协商。
- Ambient temperature: maximum +40℃, minimum -30℃；
 - Altitude: ≤ 1000m
 - Wind speed: About 34m/s (≤ 700Pa);
 - Humidity: Average daily relative humidity ≤ 95%
Average monthly relative humidity ≤ 90%
 - Shake-roof: Level acceleration ≤ 0.4m/s²; vertical acceleration ≤ 0.15m/s²;
 - Gradient of installation position: ≤ 3° .
 - Installing environment: ambient air has not been obviously polluted by corrosive or flammable gas, and there is no strong feeling of shock.
 - Please negotiate with the company when the purchased product is beyond above stipulated conditions.

REYB6 智能型一体化变电站

Intelligent integrated transformer substation

产品额定参数 Rated parameter of product

额定电压 Rated voltage	10kV/0.4kV
高压侧额定电压 Rated voltage of high-voltage side	10kV
高压侧最高电压 Max. voltage of high-voltage side	12kV
低压侧额定电压 Rated voltage of low-voltage side	0.4kV
额定频率 Rated frequency	50Hz
高压开关热稳定容量 Thermal stability capacity of high-voltage switchgear	20kA/2S
低压主回路开关额定短路分断能力 Rated short-circuit breaking capacity of low-voltage main circuit switch	35kA
低压配出回路开关额定短路分断能力 Rated short-circuit breaking capacity of low-voltage branch circuit switch	35kA
高压负荷开关转移电流 Transferred current of high-voltage load switch	> 1500A
噪音水平 Noise level	< 50dB
箱壳防护等级 Protective class of case	不低于 IP3X Not less than IP3X

绝缘水平 Insulation level

额定电压 (kV) Rated voltage	10			0.4
	变压器 Transformer	开关对地及相间 Switch to earth and interphase	开关隔离断口间 Switch isolating inter-fracture	
工频耐压 (kV)Power frequency withstand voltage	35	42	48	2.5
冲击耐压峰值 (kV)Peak impulse withstand value	75	75	85	-

结构特点 Structure character

箱壳骨架结构采用槽钢及角钢制造，有较高的机械强度，外壳采用铝合金板等材料制造，表面光滑平整，产品美观大方，且具有较好的防腐性能。箱体的基座高出地基 300~600mm。

柜壳所有的门均向外开，开启角度大于 90°，且设定位装置。并装有把手。暗门和能防雨、防堵、防锈的暗锁。箱体均为全密封防盗结构；为保证在一般周围空气温度下运行时，所有的电器设备的温度不超过其最大允许温度，箱体设有足够的自然通风口和隔热措施。预装式变电站的箱体设有专用接地导体，该接地导体上设有与接地网相连的固定连接端子，其数量为两个以上，有明显的接地标志。接地端子为直径不小于 12mm 有铜质螺栓。接地导体采用铜带，其电流密度不大于 200A/mm² 截面不小于 30mm²，并保证流过最大短路电流时不发生过热和影响周围物体的安全。专用接地导体所承受的动、热稳定电流应与高压配电装置的接地方式相配合。

The framework structure of the box enclosure is made of channel steel and angle steel with higher mechanical strength. the enclosure is made of aluminum alloy plate with smooth surface, beautiful outline and better anticorrosion performance. the base of the box body is 300~600mm higher than the ground.

All the doors of the box enclosure are open to outside, and the opening angle is larger than 90° and is set with location device, handles, secret door, as well as built-in locks which have the functions of rain protection, anti-blockage and rust protection. the box bodies are of the full-sealed theft-proof structure. to assure the operation under the normal ambient air temperature, the temperature of all the electrical equipment can't exceed the maximum allowable temperature, and the box body has enough natural ventilation openings and heat insulation measures. the box body of the prefabricated substation is designed with special grounding conductor, on which there are more than 2 fixed connecting terminals connected to the grounding network and on which there are obvious grounding marks. the grounding terminal is the copper bolt, the diameter of which is not less than 12mm. the grounding conductor is made from copper strip, the current density of which is not higher than 200A/mm² and the cross section of which is not less than 30mm². and it is guaranteed that there is no overheat and there is no bad effect to the safety of the surrounding objects when the maximum short circuit current passes. the dynamic and thermal stability current that the special grounding conductor endures must be combined with the grounding mode of high voltage power distribution device.

REYB6 智能型一体化变电站

Intelligent integrated transformer substation

变压器性能参数 Performance parameter of transformer

10kV 预装式变电站用 S9、S10、S11 系列油浸式变压器性能水平 For 10kV prefabricated substation performance level of S9, S10, S11 series oil-immersed transformer

序号 No	额定容量 (kVA) Rated capacity	额定电压 Rated voltage		调压范围 (%) Voltage tapping range	连接组标号 Connection group mark	空载电流 (%) No-load current		损耗 (W) Loss					阻抗电压 (%) Impedance voltage	噪音 (dB) Noise	温升 Temperature rise
		高压 (kV) High-voltage	低压 (kV) low-voltage			S9	S10/S11	空载 No-load		负载 On-load					
1	30	6 6.3 10	0.4 (0.69)	±5 (±2×2.5)	Yyn0 Dyn11	2.2	2.0	130		600			4	55	顶层 油温 60° 线圈 65° Oil temperature of top layer 线圈 65° coil 65°
2	50					2.0	1.8	170		870					
3	63					1.9	1.5	200		1040					
4	80					1.7	1.2	250		1250					
5	100					1.6	1.1	290		1500					
6	125					1.5	1.0	340	270	1800					
7	160					1.4	1.0	400	310	2200					
8	200					1.4	0.8	480	375	2600					
9	250					1.2	0.8	560	455	400	3050	3000			
10	315					1.1	0.7	670	540	475	3650	3600			
11	400					1.0	0.7	800	650	570	4300	4200			
12	500					1.0	0.6	960	775	680	5100	5000			
13	630					0.9	0.6	1200	920	800	6200	6000	4.5		
14	800					0.8	0.6	1400	1120	980	7500	7400			
15	1000					0.7	0.5	1700	1320	1150	10300	9860			
16	1250					0.6	0.5	1950	1560	1360	12800	12000			
17	1600					0.6	0.5	2400	1880	1640	14500	14000			

- 注: a. 根据顾客要求变压器的高压分接范围可设计为 $\pm 2 \times 2.5\%$ 。
b. 根据顾客要求变压器的低压可设计为 0.69kV。
a. The high-voltage tapping range can be designed to $\pm 2 \times 2.5\%$ according to customer's requirement.
b. The low voltage of transformer can be designed to 0.69kV according to customer's requirement.

负荷开关性能参数 Performance parameter of load switch

额定电流 (A) Rated current	额定电压 (kV) Rated voltage	冲击耐压 (kV) Impulse withstand voltage	工频耐受电压 (1min.kV) Power frequency withstand voltage	额定短时耐受电流 (kA/s) Rated short-time withstand current	短路关合电流 (kA) Short-circuit making current	额定峰值耐受电流 (kA) Rated peak withstand current	负荷操作次数 (kA) Number of load operation	机械操作次数 Number of mechanical operation
315	12	75	42	12.5/2	31.5	31.5	100	2000
630	12	75	42	16/4	40	40	100	3000

主回路方案图 Schematic diagram of main circuit

编 号 No	01	02	03	04
系统方案 System scheme				
FYN-12 负荷开关 Charge switch	用于终端 For terminal use 315A/630A	环网供电 Ring network power supply 315A/630A	高压计量 High voltage metering 315A/630A	双电源供电 Dual power supply 315A/630A

- 注: a. 插入式熔断器与后备限流熔断器的额定值由制造厂家按变压器容量确定。
b. 进线可加装高压带电指示器或故障指示器。
c. 根据需要可加装高压计量装置。
a. The rated values of plug-in type fuse and backup current limiting fuse are subject to transformer's capacity by manufacturer.
b. High-voltage charged indicator or fault indicator can be extra installed for incoming line.
c. High-voltage metering device can be extra installed according to requirement.

KYN61-40.5(Z) 铠装移开式交流金属封闭开关柜

Alternating-current metal-clad and metal-enclosed withdrawable switchgear



概述 General

KYN61-40.5(Z) 型铠装移开式交流金属封闭开关柜 (以下简称开关柜) 系三相交流 50Hz, 额定电压 40.5kV 的户内成套配电装置。作为发电厂、变电站及工矿企业接受和分配电能之用。对电路起到控制、保护和检测等功能, 还可用于频繁操作的场所。本开关柜符合 GB/T11022-1999、GB3906-1991 及 DL404-1997 等标准。

KYN61-40.5(Z) type alternating-current metal-clad and metal-enclosed withdrawable switchgear (hereinafter referred to as switchgear) is a indoor complete set of power distribution unit of three-phase AC50Hz and rated voltage of 40.5kV. Used for receiving and distributing the electric energy in power plants, transformer substations, mining and industrial enterprises, etc., it controls, protects and detects the circuits, also is applicable to frequent operation locations. This switchgear complies with GB/T11022-1999, GB3906-1991, DL404-1997, etc.

主要特点 Main characteristics

1. 柜体结构采用组装式, 断路器采用手车落地式结构;
 2. 配用全新型复合绝缘真空断路器, 并具有互换性好更换简单之特点;
 3. 手车车架中装有丝杠螺母推进机构, 可轻松移动手车, 并防止误操作而损坏推进结构;
 4. 所有的操作均可在柜门关闭状态下进行;
 5. 主开关、手车、开关柜门之间的联锁均采用强制性机械闭锁方式, 满足“五防”功能;
 6. 电缆室空间充裕, 可连接多根电缆;
 7. 快速接地开关用于接地和回路短路;
 8. 外壳防护等级 IP3X, 手车室门打开状态下, 防护等级 IP2X;
 9. 产品符合 GB3906-1991、DL404-1997 及参照采用国际 IEC-298 标准。
1. Cabinet structure is of assembly type, the circuit breaker adopts floor type handcart structure;
 2. Equipped with brand new composite insulated vacuum circuit breaker, is featured with good interchangeability, and is simple to change;
 3. The handcart frame is mounted with lead screw nut propelling mechanism, it is able to move the handcart easily, and prevent damage of propelling mechanism caused by misoperation;
 4. All operations can be carried out when the cabinet door is closed;
 5. Interlocking among the main switch, handcart and switchgear adopts compulsory mechanical locking mode, meeting the “five preventions” function;
 6. Cable chamber is large enough, it could connect multi cables;
 7. The fast earthing switch is used for earthing and circuit short-circuit;
 8. Degree of protection of the enclosure is IP3X, and is IP2X when the door of handcart chamber is opened;
 9. The product complies with GB3906-1991, DL404-1997 and refers to the international standard IEC-298.

使用环境条件 Service conditions

1. 环境温度: 上限 +40℃, 且 24h 内测得的平均值不超过 35℃, 下限 -10℃。
 2. 海拔高度: 不超过 1000m
 3. 相对湿度: 日平均值不超过 95%, 月平均值不超过 90%。
 4. 地震烈度: 不超过 8 度。
 5. 水蒸汽压力: 日平均值不超过 2.2kPa, 月平均值不超过 1.8kPa。
 6. 周围环境: 无火灾、爆炸危险、严重污秽、化学腐蚀及剧烈振动的场所。
1. Ambient temperature: -10℃ ~ +40℃, mean value measured within 24h should not exceed 35℃.
 2. Altitude: not exceed 1000m;
 3. Relative humidity: daily mean not over 95%, monthly mean not over 90%;
 4. Seismic intensity: not beyond Ms8;
 5. Vapor pressure: daily mean not over 2.2kPa, monthly mean not over 1.8kPa.
 6. Ambient environment: the installation site should be free of fire, explosive danger, serious pollution, chemical corrosion or severe vibration.

KYN61-40.5(Z) 铠装移开式交流金属封闭开关柜

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

主要技术参数 Main technical parameters

真空开关柜主要技术参数 Main technical parameters of vacuum switchgear

名称 Name	单位 Unit	数值 Date
额定电压 Rated voltage	kV	40.5
额定电流 Rated current	A	1250 1600 2000
额定频率 Rated frequency	Hz	50
额定短时耐受电流 Rated short-time withstand current	kA	20 25 31.5
额定峰值耐受电流 Rated peak withstand current	kA	50 63 80
额定工频耐受电压 Rated power frequency withstand voltage	kV	95/1min
额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	185
额定短路持续时间 Rated short-circuit duration	s	4
防护等级 Degree of protection		IP3X

真空断路器主要技术参数 Main technical parameters of vacuum circuit breaker

名称 Name	单位 Unit	数值 Date
额定电压 Rated voltage	kV	40.5
额定频率 Rated frequency	Hz	50
额定工频耐受电压 Rated power frequency withstand voltage	kV	95/1min
额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	185
额定电流 Rated current	A	1250 1600 2000
额定短时耐受电流 Rated short-time withstand current	kA	20 25 31.5
额定短时开断电流 Rated short-time breaking current	kA	20 25 31.5
额定峰值耐受电流 Rated peak withstand current	kA	50 63 80
额定短路持续时间 Rated short-circuit duration	ms	4
分闸时间 Opening time	ms	30 ≤ t ≤ 60
合闸时间 Closing time	s	50 ≤ t ≤ 100
额定短路开断电流次数 Rated short-circuit breaking current times	次 times	20
机械寿命 Mechanical life	次 times	10000

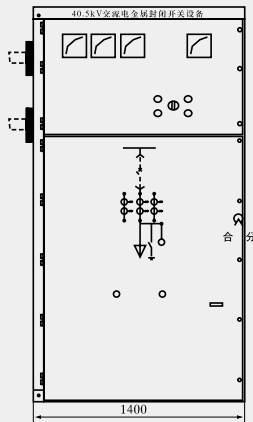
弹簧操动机构主要技术参数 Main technical parameters of spring operating mechanism

名称 Name	单位 Unit	数值 Date
额定操作电压 Rated operating voltage	V	DC220/110, AC220/110
分闸线圈 Opening coil		
合闸线圈 Closing coil		
额定操作电流 Rated operating current	A	0.96(220V), 1.05(110V)
分闸线圈 Opening coil		
合闸线圈 Closing coil		
储能电机功率 Power of energy-storage motor	W	230
储能电机额定电压 Rated voltage of energy-storage motor	V	DC220/110, AC220/110
储能时间 Energy-storage time	S	≤ 12

开关柜结构特征 Structural features of switchgear

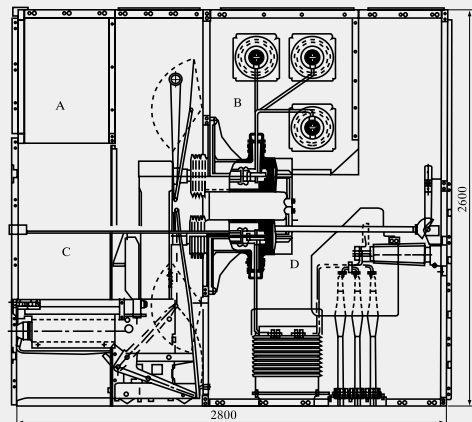
开关柜外形尺寸 Outline dimension of switchgear

外形尺寸 (宽 × 深 × 高)
Outline dimension (W × D × H)
1400 × 2800 × 2600



开关柜结构示意图 Structural schematic diagram of switchgear

A 继电器仪表室 B 母线室 C 断路器室 D 电缆室
A relay meter chamber B bus chamber C circuit breaker chamber D cable chamber

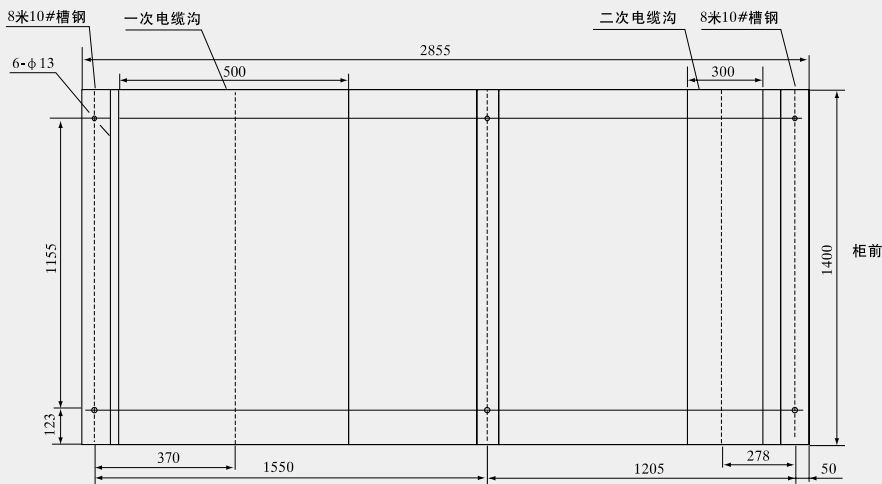
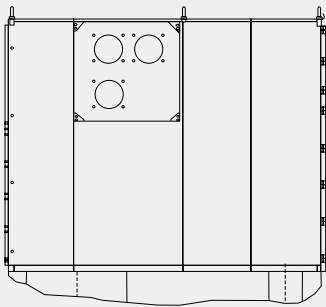


KYN61-40.5(Z) 铠装移开式交流金属封闭开关柜

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

开关柜的安装 Installation of switchgear

- 开关柜安装基础示意图
Schematic diagram of installation foundation of switchgear
- a、电器室的高度：≥ 4500mm；
 - b、柜后距墙距离：≥ 1500mm；
 - c、基础构架的平面度：≤ 1mm/m²；
 - d、基础预埋槽钢高出地面部分不得超过 3mm；
 - e、可用螺栓或焊接方式固定在基础上；
 - f、开关柜重量约 1800kg；
 - g、开关柜操作走廊宽度（单列）：≥ 3000mm；
双面（面对面）≥ 4000mm。



方案组合示例 Demonstration of composite scheme

开关柜的一次接线方案有 27 个常用典型方案，能满足用户电缆进出线、架空进出线，联络及测量、保护等的需要，若有不同与现有方案的其他方案的需要，请与厂方协商。
Primary wiring schemes of switchgear include 27 typical schemes, meeting users' demands on cable incoming and outgoing lines, overhead incoming and outgoing lines, tie, measurement and protection, if require other schemes, please contact the manufacturer.

方案编号 Scheme number		01	02	03	04
一次线路图 Primary circuit diagram					
主要元件 Main elements	额定电流 Rated current	1250, 1600, 2000			
	断路器 Circuit breaker ZN85-40.5	1	1	1	1
	电流互感器 Current transformer LDBJ8(9)-35	1	1	2	3
	接地开关 Earthing switch JN22-40.5/31.5	1	1	1	1
用途 Application		架空出线 Overhead outgoing line	架空出线 Overhead outgoing line	架空出线 Overhead outgoing line	架空出线 Overhead outgoing line

KYN61-40.5(Z) 铠装移开式交流金属封闭开关柜

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

方案编号 Scheme number	05	06	07	08
一次线路图 Primary circuit diagram				
主要元件 Main elements	额定电流 Rated current 1250, 1600, 2000			
	断路器 Circuit breaker ZN85-40.5 1	1	1	1
	电流互感器 Current transformer LDBJ8(9)-35 1	1	2	3
	接地开关 Earthing switch JN22-40.5/31.5 1	1	1	1
用途 Application	电缆出线 Cable outgoing line	电缆出线 Cable outgoing line	电缆出线 Cable outgoing line	电缆出线 Cable outgoing line

方案编号 Scheme number	09	10	11	12
一次线路图 Primary circuit diagram				
主要元件 Main elements	额定电流 Rated current 1250, 1600, 2000			
	断路器 Circuit breaker ZN85-40.5 1	1	1	1
	电流互感器 Current transformer LDBJ8(9)-35 1	1	2	3
用途 Application	左 (右) 联络 Left (right) tie	左 (右) 联络 Left (right) tie	左 (右) 联络 Left (right) tie	左 (右) 联络 Left (right) tie

方案编号 Scheme number	13	14	15	16
一次线路图 Primary circuit diagram				
主要元件 Main elements	额定电流 Rated current 1250, 1600, 2000			
	断路器 Circuit breaker ZN85-40.5			
	电流互感器 Current transformer LDBJ8(9)-35	1	2	3
用途 Application	隔离、联络 Isolation, tie	隔离、联络 Isolation, tie	隔离、联络 Isolation, tie	隔离、联络 Isolation, tie

KYN61-40.5(Z) 铠装移开式交流金属封闭开关柜

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

方案编号 Scheme number		17	18	19	20
一次线路图 Primary circuit diagram					
主要元件 Main elements	额定电流 Rated current	1250, 1600, 2000			
	断路器 Circuit breaker ZN85-40.5	1	1	1	1
	电流互感器 Current transformer LDBJ8(9)-35		1	2	3
用途 Application		电缆出线 Cable outgoing line	电缆出线 Cable outgoing line	电缆出线 Cable outgoing line	电缆出线 Cable outgoing line

方案编号 Scheme number		21	22	23	24
一次线路图 Primary circuit diagram					
主要元件 Main elements	额定电流 Rated current	1250, 1600, 2000			
	断路器 Circuit breaker ZN85-40.5	1	1	1	1
	电流互感器 Current transformer LDBJ8(9)-35		1	2	3
用途 Application		架空出线 Overhead outgoing line	架空出线 Overhead outgoing line	架空出线 Overhead outgoing line	架空出线 Overhead outgoing line

方案编号 Scheme number		25	26	27	
一次线路图 Primary circuit diagram					
主要元件 Main elements	额定电流 Rated current	1250, 1600, 2000			
	电流互感器 Current transformer JDZX9-35	2	3		
	熔断器 Fuse XRNP-35	3	3	3	
	避雷器 Lightning arrester YH5WS-51/134Q				
用途 Application		电压互感器 Voltage transformer	电压互感器 Voltage transformer	所有变 All transformer	

KYN28-24(Z) 系列铠装移开式交流金属封闭开关设备

Alternating-current metal-clad and metal-enclosed withdrawable switchgear



概述 General

KYN28-24(Z) 系列铠装移开式交流金属开关设备 (以下简称“开关设备”), 系 20kV 三相交流 50(60) Hz 单母线及单母线分段系统的成套配电装置。主要用于发电厂、中小型发电机送电、工矿企事业配电以及电业系统的二次变电所的受电、送电及大型高压电动机启动等, 实行控制保护、监测之用。

本开关设备具有防止带负荷推拉断路器手车、防止误分合断路器、防止接地开关处在闭合位置时关合断路器、防止误入带电隔室、防止在带电时误合接地开关的“五防”联锁功能, 既可配用我公司开发研制的 NV1-24 型真空断路器, 实为一种性能优越的配电装置。

标准该产品采用 GB 3906、GB/T 11022、IEC 60298 等标准要求。

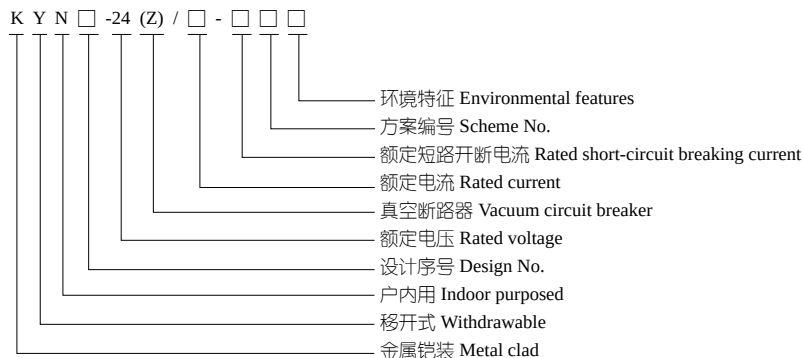
KYN28-24(Z) series alternating-current metal-clad and metal-enclosed withdrawable switchgear (hereinafter referred to as “switchgear”) is a complete set of power distribution unit of three-phase single bus and single-bus section system of 20kV and AC50(60)Hz.

This switchgear is mainly applicable to power plants, power transmitting of middle and small sized generators, distribution of industrial and mining enterprises, electricity receiving and transmitting of secondary substations, as well as starting of large high-voltage motors, etc, realizes control protection and monitoring.

It has “five preventions”, it prevents on-load pushing or pulling circuit breaker’s handcart, prevents making or breaking circuit breaker by mistake, prevents closing circuit breaker when the earthing switch is at closing position, prevents entering into live compartment by mistake, and prevents closing earthing switch under live condition. It can be equipped with the NV1-24 type vacuum circuit breaker developed by our company, it really is an ideal distribution equipment with perfect performances.

It complies with the standards GB 3906, GB/T 11022 and IEC 60298.

型号及含义 Model description



使用环境条 Service conditions

1. 周围空气温度: -15℃ ~+40℃;
2. 海拔高度: 1000m 及以下;
3. 相对湿度: 日平均相对湿度不大于 95%, 月平均相对湿度不大于 90%;
4. 地震烈度: 不超过 8°;
5. 无火灾、爆炸危险、严重污秽、化学腐蚀及剧烈振动的场所;
6. 在超过 GB3906 规定的正常环境条件下使用时, 请用户与我公司协商。
1. Ambient air temperature: -15℃ ~+40℃;
2. Altitude: ≤ 1000m;
3. Relative humidity: daily mean relative humidity not over 95%, monthly mean not over 90%;
4. Seismic intensity: not beyond Ms8;
5. The installation site should be free of fire, explosive danger, serious pollution, chemical corrosion or severe vibration.
6. If the product is intended for locations beyond the normal service conditions stipulated by GB3906, please negotiate with our company.

KYN28-24(Z) 系列铠装移开式交流金属封闭开关设备

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

主要技术参数 Main technical parameters

名称 Name	单位 Unit	数据 Data
		配用断路器 Matched circuit breaker NV1-24
额定电压 Rated voltage	kV	24
1 min 工频耐受电压 1min power frequency withstand voltage	kV	(50)65
额定冲击耐受电压 (峰值) Rated impulse withstand voltage (peak)	kV	125
额定频率 Rated frequency	Hz	50(60)
额定电流 Rated current	A	630 1250 1600 2000 2500 3150
分支母线额定电流 Rated current of branch bus	A	630 1250 1600 2000 2500
额定短时耐受电流 Rated short-time withstand current	kA	16 20 25 31.5
额定峰值耐受电流 Rated peak withstand current	kA	40 50 63 80
额定短路持续时间 Rated short-circuit duration	s	4
防护等级 Degree of protection		外壳为 IP4X, 隔室门、断路器室门打开时为 IP2X The enclosure is IP4X, it is IP2X when the compartment door and circuit breaker chamber door are opened
质量 Mass	kg	800 1000 (额定电流 1600A 以上 Rated current 1600A above)

产品结构性能特色 Structural performances and characteristics

1. 体积小巧的 24kV 开关设备

本产品结构型式与 12kV 中置开关设备类同, 用在 20kV 的系统中, 不需要复合绝缘, 不需要加相间隔板, 因此产品的绝缘水平优越。

2. 结构安全、安装灵活

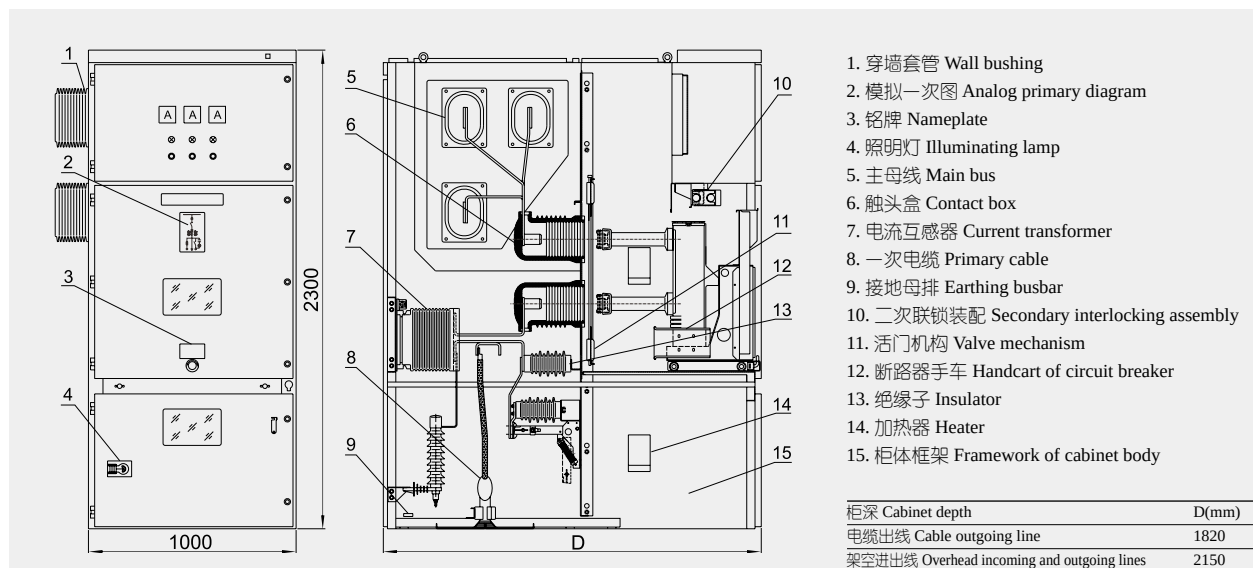
开关设备由柜体和可抽式部件 (即手车) 两大部分组成。柜体分四个单独的隔室, 外壳防护等级为 IP4X, 各小室外间和断路器室门打开时防护等级为 IP2X。具有架空进出线、电缆进出线及其它功能方案, 经排列、组合后能成为各种方案形式的配电装置。本开关设备可以从正面进行安装调试和维护, 因此它可以背靠背组成双重排列和靠墙安装, 提高了开关设备的安全性、灵活性, 减少了占地面积。

1. Switchgear of 24kV with compact volume

Structure of this product is similar to that of mid-set switchgear of 12kV, the product is applicable to systems of 20kV, need not composite insulation or interphase separator, with outstanding insulation performance.

2. Safe structure, flexible installation

This switchgear is composed of cabinet body and mid-set withdrawable part (i.e. handcart) two parts. The cabinet body is divided into four separate compartments, degree of protection of the enclosure is IP4X, and the protection degree is IP2X when compartment doors and circuit breaker chamber door are opened. It has overhead incoming and outgoing lines, cable incoming and outgoing lines and other function schemes, it can become power distribution unit of different schemes and forms after permutation and combination. This switchgear can be installed, debugged and maintained from the front side, so it can be arranged in duplex by means of back-to-back or arranged against the wall, which not only improves its safety and flexibility, but also reduces the floor space.

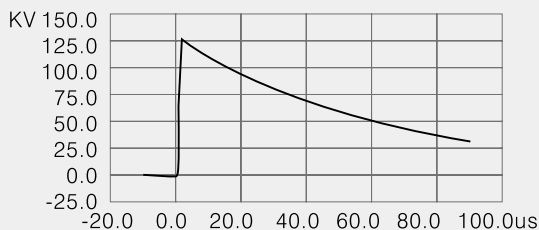


开关设备结构图 Structure drawing of switchgear

KYN28-24(Z) 系列铠装移开式交流金属封闭开关设备

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

3. 抗雷电冲击能力 Lightning impulse resistant capacity



U_{pk}=125.33kV

T₁=1.11us

T₂=45.45us

正级性雷电冲击全波 Full wave of lightning impulse of positive polarity

4. 手车种类多样、操作方便

手车骨架采用薄钢板经 CNC 机床加工后组装而成。手车与柜体绝缘配合，机械联锁安全、可靠、灵活。根据用途同手车分断路器手车、电压互感器手车、隔离手车，同规格手车可以百分之百互换。

手车在柜体内有断开位置、试验位置和工作位置，每一位置都分别有定位装置，以保证联锁可靠，必须按联锁防误操作程序进行操作。各种手车均采用丝杆摇动推进、退出。操作轻便、灵活，适合于各种值班人员操作。手车当需要移开柜体时，用一台专用转运车，就可以方便取出，进行各种检查、维护；而且采用中置式，整个手车体积小，检查、维护都极为方便。

4. Various handcars, convenient operation

Framework of the handcart is made up of steel sheets through machining of CNC machine tool. The handcart has good insulation coordination with the cabinet body, with safe, reliable and flexibly mechanical interlocking. It can be divided into circuit breaker handcart, voltage transformer handcart and isolating handcart according to the purposes, handcars of the same specification are exchangeable absolutely.

There are breaking position, test position and working position in the cabinet body for handcart, each position has positioning device respectively that guarantees reliable interlocking, must carry out operation according to the interlocking anti-misoperation process. All handcars adopt lead screw to rotate to push in or withdraw, it is convenient and flexible to operate, suitable for all kinds of operators on duty. When it is required to remove the handcart from the cabinet body, please use a special transfer car to take it out conveniently, then to carry out inspections and maintenance; it adopts mid-set type, has small volume, is convenient to check and maintain.



NVI-24 断路器 NVI-24 circuit breaker



隔离手车 Isolating handcart



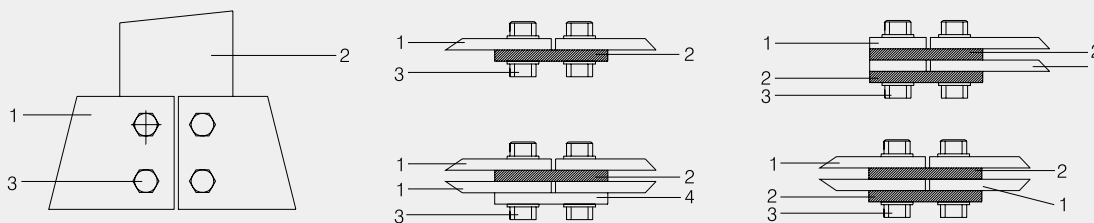
电压互感器手车 Voltage transformer handcart

5. 母线隔离

主母线和联络母线为矩形截面的铜排；用于大电流负荷时采用双根母排并联。支母线通过螺栓联接于静触头盒和主母线，不需要其它支撑。对于特殊需要，母线采用热缩套、联接螺栓绝缘套和端帽覆盖。相邻柜母线用套管固定。这样联接母线间所保留的空气缓冲，在如果出现内部故障电弧时，能防止其贯穿熔化。套管能有效把事故隔离而不向其它柜蔓延。

5. Bus isolation

Main bus and coupling bus are copper bars with rectangle sectional area; arrange two busbars in parallel connection for heavy current loads. The branch bus is connected with static contact box and main bus through bolts, need not other supports. For special demands, the bus can be covered by thermal-shrinkable sheath, coupling bolt insulating sheath and end cap. Buses of adjacent cabinets can be fixed by bushings, thus to remain air buffering among the connecting buses, preventing impenetrate or melting once there is fault arc inside. The bushing is able to isolate the accident effectively from spreading to other cabinets.



母线与支母线的链接形式 Connection mode between bus and branch bus

1. 主母线 Main bus 2. 分支小母线 Small branch bus 3. 螺栓 Bolt 4. 垫块 Cushion block

KYN28-24(Z) 系列铠装移开式交流金属封闭开关设备

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

主要电路方案图 Main conceptual drawings

方案编号 Scheme number	001	002	003	004
一次接线方案 Scheme of primary wiring				
柜体尺寸 (宽 × 深 × 高)mm Dim. of cabinet body (W × D × H)mm	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300
主电路元件 Electrical element of main circuit	630~3150A			
额定电流 (A)Rated current	630~3150A			
真空断路器 Vacuum circuit breaker NV1-24	1	1	1	1
电流互感器 Current transformer LZZB9-24	2~3	2~3	2~3	2~3
电压互感器 Voltage transformer				
高压熔断器 High-voltage fuse				
接地开关 Earthing switch			1	1
避雷器 Lightning arrester			3	
用途 Application	受电、馈电 Power receiving, feeding	受电、馈电 Power receiving, feeding	受电、馈电 Power receiving, feeding	受电、馈电 Power receiving, feeding
备注 Remark				

方案编号 Scheme number	005	006	007	008
一次接线方案 Scheme of primary wiring				
柜体尺寸 (宽 × 深 × 高)mm Dim. of cabinet body (W × D × H)mm	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300
主电路元件 Electrical element of main circuit	630~3150A			
额定电流 (A)Rated current	630~3150A			
真空断路器 Vacuum circuit breaker NV1-24	1	1	1	
电流互感器 Current transformer LZZB9-24	3	3	3	
电压互感器 Voltage transformer	1			
高压熔断器 High-voltage fuse	2			
接地开关 Earthing switch			1	
避雷器 Lightning arrester	3	3	3	
用途 Application	受电、馈电 Power receiving, feeding	受电、馈电 Power receiving, feeding	受电、馈电 Power receiving, feeding	隔离 Isolation
备注 Remark				

KYN28-24(Z) 系列铠装移开式交流金属封闭开关设备

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

方案编号 Scheme number	009	010	011	012
一次接线方案 Scheme of primary wiring				
柜体尺寸 (宽 × 深 × 高)mm Dim. of cabinet body (W × D × H)mm	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300
主电路元件 Electrical element of main circuit	630~3150A			
额定电流 (A)Rated current	630~3150A			
真空断路器 Vacuum circuit breaker NV1-24				
电流互感器 Current transformer LZZB9-24				
电压互感器 Voltage transformer		2~3	3	2~3
高压熔断器 High-voltage fuse		3	3	3
接地开关 Earthing switch				
避雷器 Lightning arrester				3
用途 Application	母联隔离 Bus tie isolation	电压测量 Voltage measurement	电压测量 Voltage measurement	电压测量 Voltage measurement
备注 Remark				

方案编号 Scheme number	013	014	015	016
一次接线方案 Scheme of primary wiring				
柜体尺寸 (宽 × 深 × 高)mm Dim. of cabinet body (W × D × H)mm	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300
主电路元件 Electrical element of main circuit	630~3150A			
额定电流 (A)Rated current	630~3150A			
真空断路器 Vacuum circuit breaker NV1-24				
电流互感器 Current transformer LZZB9-24				
电压互感器 Voltage transformer	3		3	3
高压熔断器 High-voltage fuse	3	3	3	3
接地开关 Earthing switch				
避雷器 Lightning arrester			3	3
用途 Application	测量 + 联络 Measurement + tie	熔断器 Fuse	测量 + 联络 Measurement + tie	测量 + 联络 Measurement + tie
备注 Remark				

KYN28-24(Z) 系列铠装移开式交流金属封闭开关设备

Alternating-current metal-clad and metal-enclosed withdrawable switchgear

方案编号 Scheme number	017	018	019	020
一次接线方案 Scheme of primary wiring				
柜体尺寸 (宽 × 深 × 高)mm Dim. of cabinet body (W × D × H)mm	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300	1000 × 1820 × 2300
主电路元件 Electrical element of main circuit	630~3150A			
额定电流 (A)Rated current	630~3150A			
真空断路器 Vacuum circuit breaker NV1-24	1	1		
电流互感器 Current transformer LZZB9-24	2~3	2~3	3	3
电压互感器 Voltage transformer			2	3
高压熔断器 High-voltage fuse			3	3
接地开关 Earthing switch				
避雷器 Lightning arrester		3		
用途 Application	联络 Tie	联络 Tie	联络 + 计量 Tie + metering	联络 + 计量 Tie + metering
备注 Remark				

方案编号 Scheme number	021	022	023	024
一次接线方案 Scheme of primary wiring				
柜体尺寸 (宽 × 深 × 高)mm Dim. of cabinet body (W × D × H)mm	1000 × 2150 × 2300	1000 × 2150 × 2300		
主电路元件 Electrical element of main circuit	630~3150A			
额定电流 (A)Rated current	630~3150A			
真空断路器 Vacuum circuit breaker NV1-24	1	1		
电流互感器 Current transformer LZZB9-24	2~3	3		
电压互感器 Voltage transformer				
高压熔断器 High-voltage fuse				
接地开关 Earthing switch				
避雷器 Lightning arrester		3		
用途 Application	联络 Tie	架空进线 Overhead incoming line		
备注 Remark				

KYN28A-12(GZS1) 铠装移开式交流金属封闭开关设备

Armored withdrawable AC metal-enclosed switchgear

概述 General



本装置系户内金属铠装抽出式开关设备（以下简称开关设备），系 3.6-12 千伏三相交流 50Hz 单母线及单母线分段系统的成套配电装置主要用于发电厂，中小型发电机送电、工矿企业事业配电以及电业系统的二次变电所的受电、送电及大型高压电动机启动等。实行控制保护、监测之用，本开关设备满足 IEC298、GB3906 等标准要求，具有防止带负荷推拉断路器手车、防止误分合断路器、防止接地开关处在闭合位置时关合断路器、防止误入带电室、防止在带电时误合接地开关的联锁功能，既可配用 VSI 真空断路器，又可配用 ABB 公司的 VD4 真空断路器。实为一种性能优越的配电装置。

This equipment is indoor metal armoring with drawble switchgear (hereafter refer to as switchgear. 3.6-12 kilovolt three phase AC 50Hz single bus bar and the single bus bar subsection system's complete electricity distribution equipment is used in the power plant, small and medium-sized generator power transmission, industry and mining business power distribution as well as electrical industry system's second transformer substation's electric take-over, power transmission and large-scale high pressure motor starting and so on. The purpose is to control, protect and monitor. This switch equipment is up to the standard of IEC298、GB3906 and can prevent the charge from pushing and pulling the breaker, from opening and closing the breaker, from insulation with electricity by mistaken, from earthed switch closing the breaker ,from opening the switch's interlock when it with electricity mistakenly. It can not only use with VSI vacuum circuit-breaker, but with ABB Corporation's VD4 vacuum circuit-breaker. It is indeed a kind of power distribution equipment with superior performance.

使用环境条件 Environmental condition

1. 正常条件

- 周围环境空气温度：上限，+40℃ 下限，-10℃
- 海拔：1000M
- 相对环境湿度：日平均相对湿度不大于 95%，月平均相对湿度平均不大于 90%；
- 地震：烈度不超过 8 度。
- 周围空气应不受腐蚀性或可燃气体、水蒸汽等明显污染。
- 无严重污秽及经常性的剧烈振动，严酷条件下严酷度设计满足 1 类要求。

2. 特殊工作条件：

* 在超过 GB3906 规定的正常的环境条件下使用时，由用户和制造厂协商。

1. Normal condition

- Surrounding air temperature:-10℃ ~ +40℃
- Altitude : 1000M
- Relative environment humidity: The daily relative humidity average is not higher than 95%, the monthly relative humidity average is not than higher 90%
- Earthquake : The intensity does not exceed 8 degree.
- The surrounding air without corrosive or flammable gas or water vapour.
- Without a lot of dirtiness and regular fierce vibration, under the severe condition, the intensity meets the first kind requirement.

2. special working conditions

* When it is used beyond the normal environmental condition stipulated in the GB3906, the user should consult with the manufacture.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	数据 Data	
		配用断路器 equipped with breaker	
		ZN63A-12(VS1) 型	VD4 型
额定电压 Rated voltage	kV	12	12
1min 工频耐受电压 1min working frequency endurable voltage	kV	42	42
额定冲击耐受电压 (峰值) Shock endurable rated voltage	kV	75	75
额定频率 Rated frequency	Hz	50	50
额定电流 Rated current	A	630、1250、1600、2000、2500、3150、4000、5000	
分支母线额定电流 Branch bus bar rated current	A	630、1250、1600、2000、2500、3150、4000、5000	
额定短时耐受电流 (有效值) Rated short time endurable current(virtual value)	kA	16、20、25、31.5、40、50	16、20、25、31.5、40、50
额定峰值耐受电流 Rated peak endurable voltage	kA	40、50、63、80、100、125	40、50、63、80、100、125
额定短路持续时间 Rated short-circuit duration	s	4	
防护等级 Protection degree		外壳为 IP4X，隔室门、手车室门打开时为 IP2X	
质量 Quality	kg	700~1200	700~1200

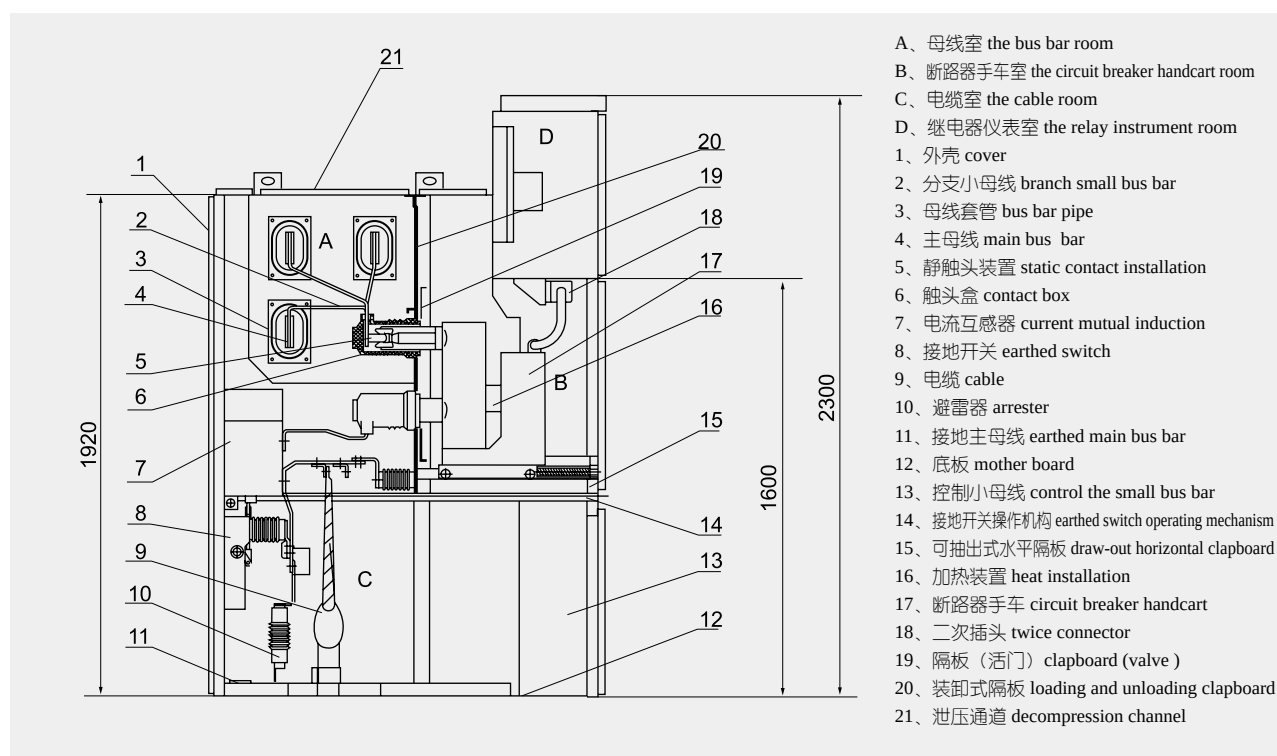
KYN28A-12(GZS1) 铠装移开式交流金属封闭开关设备

Armored withdrawable AC metal-enclosed switchgear

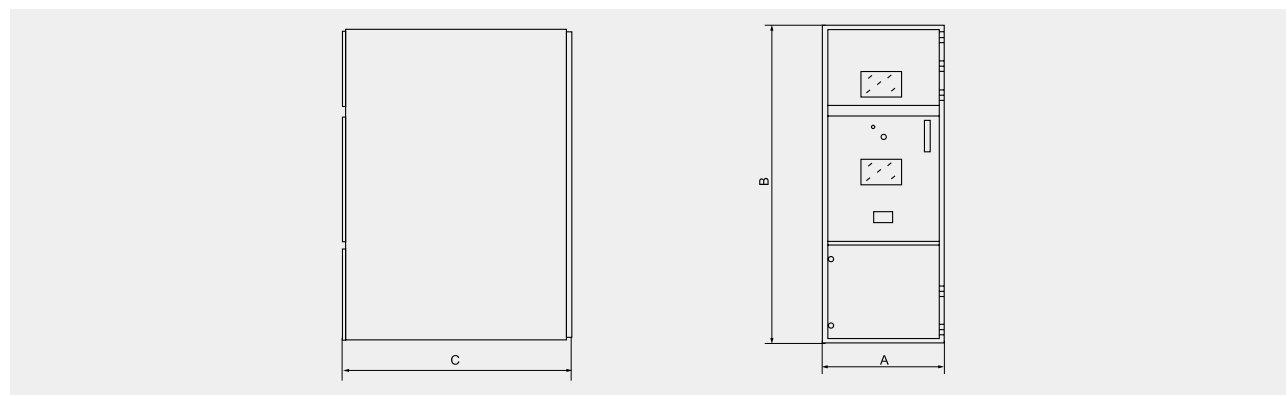
结构简介 The brief introduction of the structure

开关设备按 GB3906-91 中的铠装式金属封闭开关设备而设计。整流器体是由柜体和中置式可抽出部件（既手车）两大部分组成，见图 1。柜体分四个单独的隔室，外壳防护等级为 IP4X，各小室间和断路器室门打开时防护等级为 IP2X。具有架空进出线、电缆进出线及其它功能方案，经排列、组合后能成为各种方案形式的配电装置。本开关设备可以从正面进行安装调试和维护，因此它可以背靠背组成双重排列和靠墙安装，提高开关设备的安全性、灵活性，减少了占地面积。The switch equipment is designed according to GB3906-91 metal armoring seal switch equipment. The rectifier body is made up of the cabinet body and draw-out parts (namely handcart) placed in the middle. See charter 1. The cabinet divides into four separate rooms, the outer covering protection grade is IP4X, when each small room and the circuit breaker is opened, the protection grade is IP2X. It can suspend the inlet, outlet line, cable's inlet, outlet line and other function plan. After arranged and combined, it can become each kind of plan form of the power distribution equipment. This switch equipment may be installed and maintained from the frontage, therefore it may compose the dual arrangement back to back and be installed against the wall, improving the switch equipment's security and flexibility and making full use of the occupying area.

开关设备结构图 Structural diagram of switchgear



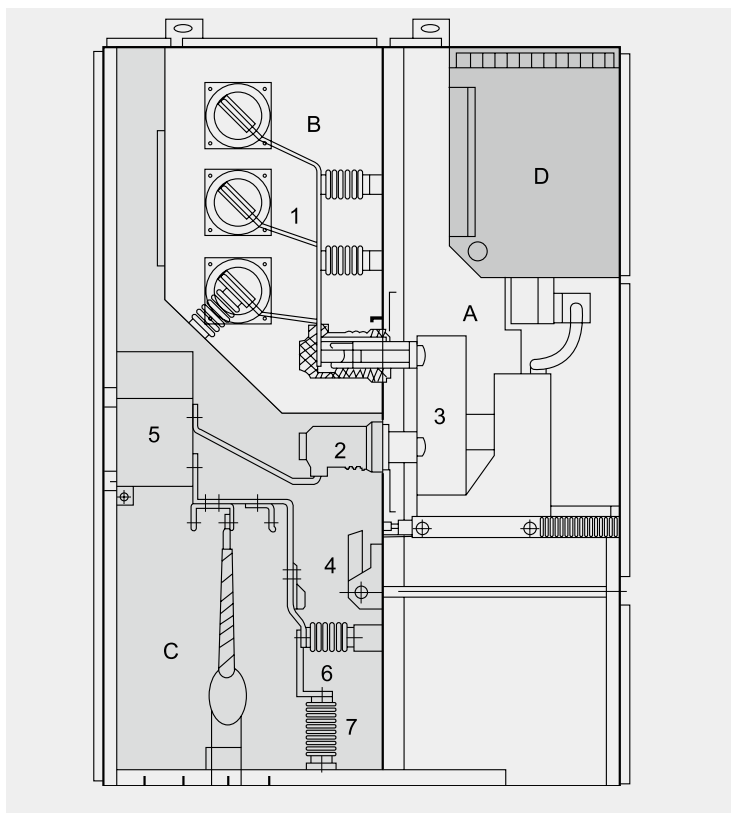
开关柜外形尺寸图 Outline dimension of switch cabinet



KYN28A-12(GZS1) 铠装移开式交流金属封闭开关设备

Armored withdrawable AC metal-enclosed switchgear

■ 开关柜外形尺寸图 Outline dimension of switch cabinet



A 手车 Handcar



B 母线室 Bus chamber



C 电缆室 Cable chamber

A 手车 Handcar

手车骨架系采用薄钢板经 CNC 机床加工后经铆、焊而成的。根据用途，手车可分为断路器手车、电压互感器手车、隔离手车、计量手车等等，相同规格的手车能方便互换。手车在柜内有隔离位置、试验位置和工作位置，每一位置均设有定位装置，以保证手车处于以上位置时不能随便移动、而移动手车时必须解除联锁。

The framework of handcart is made of steel sheet through the procession of CNC machine tool and rivet welding. According to the application, the handcarts can be divided into circuit breaker handcart, voltage transformer handcart, isolating handcart and metering handcart, etc. The handcarts of the same specification can be exchanged conveniently. In the cabinet, the handcart has isolating position, testing position and operating position, each of which is designed with a location device to assure that the handcart can't move easily at the above-mentioned positions, while the interlock must be unlocked to move the handcart.

B 母线室 Bus chamber

母线从一个开关柜引至另一开关柜，通过分支母线和静触头盒固定。扁平的分支母线通过螺栓连接于静触头盒和主母线，不需要任何其它的线夹或绝缘子联接。当用户和工程特殊需要时，母线排上的联接螺栓可用绝缘和端帽封装。在母线穿越开关柜隔板时，用母线套管固定。如果出现内部故障电弧，能限制事故蔓延到邻柜，并能保障母线的机械强度。

The bus is led from one switch cabinet to another one and fixed with static contact box through branch bus. The flat branch bus is connected through the bolt to the static contact box and main bus, not needing any other line clamps or insulators. When there is special demand of the clients or the project, the connecting bolt on the bus bar can be encapsulated with insulation and end cap. When the bus crosses the baffle of the switch cabinet, fix it with bus bushing, so that, if there is any internal fault arc, it can prevent the fault spreading to another cabinet and can guarantee the mechanical strength of the bus.

C 电缆室 Cable chamber

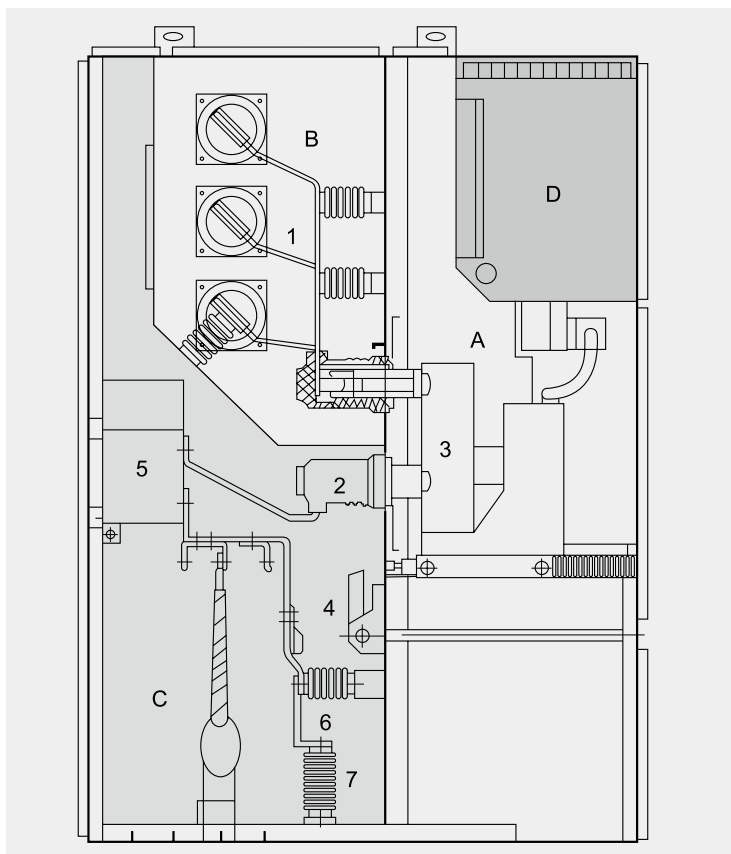
电缆室内可安装电流互感器、接地开关、避雷器以及电缆、并在其底部配制开缝的可卸铝板，以确保现场的施工方便。

Inside the cable chamber, the current transformer, grounding switch, arrester and cable can be installed, and on the bottom is designed slotted removable aluminum sheet to assure the convenient site construction.

KYN28A-12(GZS1) 铠装移开式交流金属封闭开关设备

Armored withdrawable AC metal-enclosed switchgear

■ 开关柜外形尺寸图 Outline dimension of switch cabinet



D 继电器仪表室
Relay instrument chamber



泄压装置
Pressure releasing device



锁扣结构
Latching device

D 继电器仪表室 Relay instrument chamber

继电器仪表室用于安装各类继电器、仪表、信号指示、操作开关等元器件。此外可根据用户要求在仪表室顶部增加小母线室，可敷设十六路控制小母线。
Relay instrument chamber is used to install all kinds of components, such as relays, instruments, signal indicator and operating switch, etc. In addition, it's available to add a small bus chamber on the top of the instrument chamber according to the demand of the clients, and set 16 lines to control the small bus.

泄压装置 Pressure releasing device

在手车室、母线室、电缆室的上方设有泄压装置，当断路器或主母线、电缆室内发生内部故障电弧时，伴随电弧的出现，开关柜内部气压上升，达到一定的压力后，顶部装置的压力释放金属板将被自动打开，释放压力和排泄气体，以确保操作人员和开关柜安全。

On the handcart chamber, bus chamber and cable chamber is installed pressure releasing device. When there is internal fault arc in the breaker, main bus or inside the cable chamber, and with the appearance of electric arc, the internal pressure in the switch cabinet rises. After it rises to a certain pressure, the pressure releasing metal sheet of the top device will be opened automatically, and the pressure and the gas are released to guarantee the safety of the operator and the switch cabinet.

锁扣结构 Latching device

中门与柜体之间的联接采用锁扣结构，并配以提升机构，使中门开启更为方便，当中门处于关闭状态时，其与柜体的联接强度更好，增强了有效抗击内部燃弧故障的能力。

Latching device is used to connect the central exit and cabinet body, and the lifting device is also designed to make it more convenient to open the central exit. When the central exit stays closed, the connecting strength with the cabinet body is the best and the capability against the internal arcing fault effectively is strengthened.

HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit



概述 General

HXGN □ -12 (SF₆) 型单元式交流金属封闭环网开关设备 (以下简称环网柜) 是我们在引进国外先进技术并按照国内农电及城网改造之要求而自行设计、研制成功的新一代高压电器产品。各项技术性能指标全部达到 IEC298 和 GB3906 标准。

环网柜的主开关、操作机构及元器件采用 ABB 公司原装件或采用进口部件国内组装生产的 SFL-12/24 型开关设备, 也可根据用户需要配装 ABB 公司原装 HAD/US 型 SF₆ 断路器或 VD4-S 型真空断路器, 其操作方式分为手动、电动两种。

柜体经数控机床加工后铆接而成, 防护等级达到 IP3X, 并有可靠的机械联锁和防误操作功能。本产品具有体积小、重量轻、外形美观、操作简便、长寿命、高参数、无污染、少维护等极具显著的特点。

HXGN □ -12(SF₆) Unit type AC metal-enclosed ring main unit(hereafter refer to as ring net cabinet) is a new generation of high-pressure electric appliance product designed and developed independently by our own company according to the requirement of the domestic agricultural electricity and the city net transformation after introduction of overseas advanced technology. Each technical performance index completely reaches the IEC298 and GB3906 standard.

The loop-net cabinet's main switch, the operating mechanism and the components is made of the ABB Corporation original piece or the SFL-12/24 switch equipment imported overseas and assembled at home. We can also install the ABB Corporation original piece of HAD/US type SF₆ according to the request of users. The circuit breaker or the VD4-S vacuum circuit-breaker divide into two kinds: be operated manually and electrically according to the operating mode.

The cabinet body is riveted after processed by numerical control machine tool with reliable mechanical interlocking and the misoperating-prevention function. The protection grade reaches IP3X. This product has the remarkable characteristics such as the small volume, light weight, artistic appearance, simple operation, long life, high parameter with no pollution and little maintenance.

用途 Application

HXGN □ -12 (SF₆) 型单元式交流金属环网开关设备, 适用于交流 50Hz、12K 中, 作为电能的接受和分配之用。

HXGN □ -12 (SF₆) unit type exchange metal ring-net switching equipment, is suitable to exchange 50Hz、12K, serving as device of receiving and distribution of electrical energy.

使用环境条件 Environmental condition

- 1、海拔不超过 2000m
- 2、周围空气温度: 上限 +40℃ 下限 -25℃
- 3、相对湿度: 日平均值不大于 95%, 月平均值不大于 90%
- 4、周围空气不受腐蚀性气体或可燃性气体、水蒸气等明显污染
- 5、无经常性的剧烈振动
1. The altitude should not exceed 2000m.
2. Surrounding air temperature: -25℃ ~+40℃
3. Relative temperature: the daily average value is not higher than 95%, the the monthly average value is not higher than 90%
4. Surrounding air without caustic gas or ignitable gas, steam and other obvious pollution
5. Without fierce vibration

HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit

型号及其含义 Types and meanings



主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Parameters
额定电压 Rated voltage	kV	12
额定频率 Rated frequency	Hz	50
主母线额定电流 / 熔断器最大额定电流 Main bus bar rated current fuse breaker maximum rated current	A	630/125
主回路、接地回路额定短时耐受电流 Main loop, earthed loop short time endurable rated current	kA/s	20/3
主回路、接地回路额定峰值耐受电流 Main loop, earthed loop maximum endurable rated current	kA	50
主回路、接地回路额定短路关合电流 Main loop, earthed loop short circuit on-and off rated current	kA	50
负荷开关满容量开断数 the opening number of the load switch with full capacity	次	100
熔断器开断电流 The fused breaker opening the current	kA	31.5、40
额定闭环开断电流 Rated closed loop opening current	A	630
额定转移电流 Rated shift current	A	1600
机械寿命 Machine' life	次	2000
1min 工频耐压 (峰值) 相间、对地 / 隔离断口 1min line frequency resistance (peak value) recurrence, to the earth/isolation fracture	kV	42/48
雷电冲击耐受电压 (峰值) 相间、对地 / 隔离断口 The lightning shock resistance (peak value) recurrence, to the earth/isolation fracture	kV	75/85
二次回路 1min 工频耐压 Secondary loop 1min line frequency voltage resistance	kV	2
防护等级 Protection grade	IP3X	

结构特点及工作原理 Structure character and operating principle

产品外形结构见图 1、图 2，安装尺寸如图 3 所示。本环网柜是以空气为绝缘介质的，主要配装 ZFN □ -10/630 型真空负荷开关，主要方案有进线柜和出线柜等。

1. 进线柜方案

柜内主回路有一台 ZFN □ -10/630 型真空负荷开关，它配装有隔离刀、酌情还配装接地刀所组成，三者共装在一个机架上，并互有联锁。因此可实现接通母线、隔离、接地三个工位的操作，柜内还可灵活配装 CT、PT 等元件。

2. 出线柜方案

柜内主回路有一台 ZFN □ -10/630 型真空负荷开关和带撞击器的熔断器（有隔离开关的作用）及接地刀所组成，也可实现三工位操作，柜内还可灵活配装 CT/PT 和 ZNO 避雷器等元件，因此有时可省去计量柜。进、出线柜均配有与接地开关联锁的绝缘防护隔板，柜内各开关与隔板及柜门间采用机械联锁，并达到“五防”要求，柜体外壳防护等级为 IP2X。

The outline structure of the product is referred to as diagram 1 and diagram 2; the installation dimension is referred to as diagram 3. This ring network type cabinet makes air as the insulating medium, mainly assembled with ZFN □ -10/630 type vacuum load switch. And there are two cabinet schemes - incoming cabinet and outgoing cabinet.

1. Incoming cabinet scheme

There is a ZFN □ -10/630 type vacuum load switch on the main circuit inside the cabinet with isolating knife, and grounding knife conditionally. The three of them are all installed in one machine stand and there are interlocks among them, so that it is realized to connect the operation of three working stations of bus, isolation and grounding. Inside the cabinet the components such as CT, PY are available.

2. Outgoing cabinet scheme

ZFN □ -10/630 type vacuum load switch, fuse with striker (used as isolating switch) and grounding knife on the main circuit inside the cabinet, and the three working stations operation can be realized. Inside the cabinet the components such as CT/PT and ZNO arrester are available, so the metering cabinet can be omitted. Inside the incoming cabinet and outgoing cabinet, there is insulating protecting baffle interlocked with grounding switch. And inside the cabinets, the mechanical interlocks are adopted between each switch and baffle as well as the cabinet door with the requirement of “five-prevention” and IP2X of the protection degree of the cabinet enclosure.

HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit

吊运、安装、调试和熔断器的更换 Handling, installing, debugging and fuse replacing

1. 吊运

吊运前按规定进行开箱前的检查。柜体吊运时按作业标准要求，小心轻放、防震等。

2. 安装

开箱后，检查柜体及柜内元件是否完好，动作是否正常，是否受潮等，在确认无误后，方可进行安装。

3. 调试

如发现柜内元件达不到其技术要求或联锁不到位时，需按下列过程调试：

(1) 对负荷开关和接地或隔离开关，可通过调节拉杆长度和变换拉杆与操作杆角度和位置来达到技术要求。

(2) 若有联锁不到位时，可微调相应的操作拉杆长度来改变联锁孔的位置，使联锁到位。

4. 更换熔断器

必须严格按停电顺序操作，首选将负荷开关分闸，然后打开熔断器到隔离位置，并将接地开关合上，在插入绝缘防护隔板后，柜门方可打开，才能进行更换熔断器。

1. Handling

Before handling, undertake check before opening the cabinet according to the regulations. When the cabinet is handling delivered, it's a must to operate according to the operation marking demands. Handle with care and without shake.

2. Installing

After opening the cabinet, check whether the cabinet body and the components inside are good, whether they work normally, and whether they are moistened. Only after definite confirmation can the installation be undertaken.

3. Debugging

It's necessary to have a debugging according to the following steps if the components inside the cabinet don't meet the technical requirements or the interlocks don't locate well:

(1) For the load switch, grounding switch or isolating switch, you can make them meet the technical demands by adjusting the drag rod length, changing the angle and position of drag rod and operating rod.

(2) If there is any interlock that doesn't locate well, you can make it locate by fine adjusting relevant operating rod length to change the position of interlock hole.

4. Fuse replacing

It must operate strictly according to the sequence of power off. First, turn off the load switch, turn on the fuse to the isolating position and then turn on the grounding switch. Only after plugging the insulating protecting baffle can the cabinet door be opened and can the fuse be replaced.

使用与故障处理 Operation and fault treatment

1. 使用

请务必严格按照下列步骤操作，否则易造成损害。

(1) 负荷开关的操作顺序

a 合闸：当负荷开关处于分闸状态时，将操作手柄插入负荷开关操作孔内顺时针转动（约 180°），使其合闸。

b 分闸当负荷开关处于合闸状态时，可由手动脱扣按钮或脱扣电磁铁操作使负荷开关分闸，对配有带撞击器的熔断器的负荷开关，熔断器熔断后，其撞击器也可使负荷开关分闸。

(2) 停电操作顺序

a 将负荷开关分闸，使它与隔离和接地开关之间的联锁解除。

b 将操作手柄插入隔离和接地开关操作孔内，按顺时针方向转动（约 90°），隔离刀被打开。

c 再按顺时针方向转动（约 90°）后，接地开关快速闭合。

d 插入绝缘隔板，使门联锁解除。

e 开门检修。

(3) 送电操作顺序

a 关闭柜门。

b 抽出绝缘隔板，柜门锁住。

c 将操作手柄插入隔离和接地开关操作孔内，逆时针转动（约 90°），使接地开关分闸。

d 对负荷开关进行操作，合闸送电。

2. 故障处理

环网柜在工作过程中，如果出现紧固件松动，机械部分润滑不良，真空灭弧室真空度下降等故障，在停电后采用紧固、加润滑油、打耐压等方法来检查和消除以上故障。

1. Operation

Please operate strictly according to the following steps, otherwise some damage may be caused.

(1) Operating sequence of load switch

a. Switch-on: When the load switch stays on, plug the operating handle into the operating hole of the load switch and turn it clockwise (about 180°) to make it stay on.

b. Switch-off: When the load switch stays on, manually operate the tripping button or the tripping electromagnet to make the load switch stay off. For the load switch with fuse striker, after the fuse is fused, the striker can make the load switch stay off.

Operating sequence of power off

a. Turn off the load switch to unlock the interlock between the isolating and grounding switches.

b. Plug the operating handle into the operating hole of the isolating and grounding switches and turn it clockwise (about 90°) to open the isolating knife.

c. Turn again clockwise (about 90°) to turn off the grounding switch rapidly.

d. Plug the insulating baffle to unlock the door interlock.

e. Open the door and maintain.

(3) Operating sequence of power transmission

a. Close the cabinet door.

b. Extract the insulating baffle and lock the cabinet door.

c. Plug the operating handle into the operating hole of the isolating and grounding switches and turn it anticlockwise (about 90°) to turn off the grounding switch.

d. Operate the load switch and turn it on to transmit the power.

2. Fault treatment

During the operation of the ring network type cabinet, if there is any fault, such as loose fasteners, bad lubrication of mechanical parts and reduced vacuum degree in the vacuum interrupter, etc. After the power off, check and remove the faults by fastening, adding lubricant and adding withstand voltage, etc.

HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit

维护与修理 Maintenance and repair

1. 开箱后，应对所有绝缘件进行检查，对确已受潮的元件，应将其拆下，放入 70-80℃ 的烘箱内，烘 48 小时后，取出装上重新调试。
2. 产品储放期间，如发现受潮或腐蚀，应立即进行清理，清理后做好防护处理。
3. 运行中的环网柜应进行定期维修检查。
 - (1) 真空灭弧室的真空度；
 - (2) 触头磨损情况；
 - (3) 机械紧固件是否松动；
 - (4) 开距超程等机械电气参数；
 - (5) 操作转动是否灵活；
 - (6) 联锁是否可靠；
 - (7) 所有零部件，特别是绝缘件是否清洁。
4. 下列情况时，应对环网柜进行全面检查和调试：
 - (1) 每年一次的例行检查和清洁工作；
 - (2) 负荷开关每动作 2000 次后。

1. After the cabinet is open, check all of the insulation pieces and disassemble the damp ones, put them into 70-80℃ drying box, and take out for debugging again after 48 hours drying.
2. If the product is damp or rusty during the storage, please clean it at once and protect it well.
3. Maintenance and repair should be done to ring network cabinet during operation.
 - (1). Vacuum extent of vacuum arc-extinguishing room
 - (2). Contact abrasion degree
 - (3). Whether the fastening pieces are loose or not;
 - (4). Mechanical electric parameter such as open travel, over travel.
 - (5). Whether the running is flexible or not;
 - (6). Whether the interlock is reliable or not;
 - (7). Whether all of the parts are clean, especially for insulation fittings.
4. Do overall examination and debugging to ring network cabinet in following conditions:
 - (1). Routine examination and cleaning for every
 - (2). After every 2000 times operation of load switch

储存 Storage

环网柜应储存在干燥通风，温度在 -30℃ ~+40℃ 的仓库中。

Ring network cabinet should be stored in the dry and ventilated warehouse with temperature of -30℃ ~+40℃ .

随机文件 Appending files

1. 产品合格证 Certificate of quality
2. 安装使用说明书 Installation and operation instruction
3. 装箱单 Packing list
4. 随机附件清单 Appending accessories list
5. 二次接线图 Secondary connection diagram

环网柜安装 Ring network cabinet installation

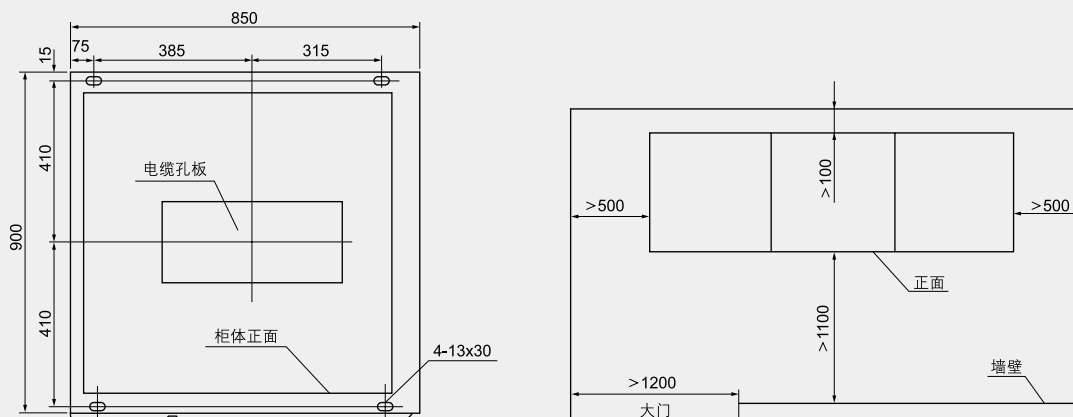
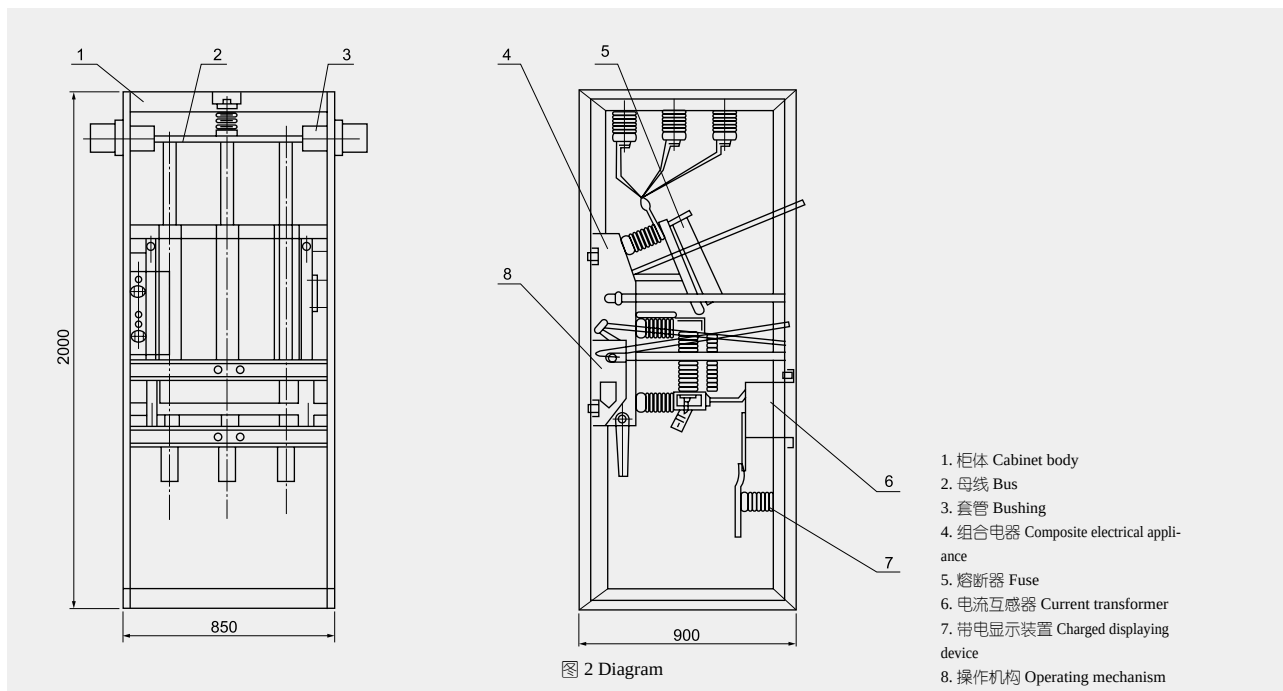


图 1 Diagram

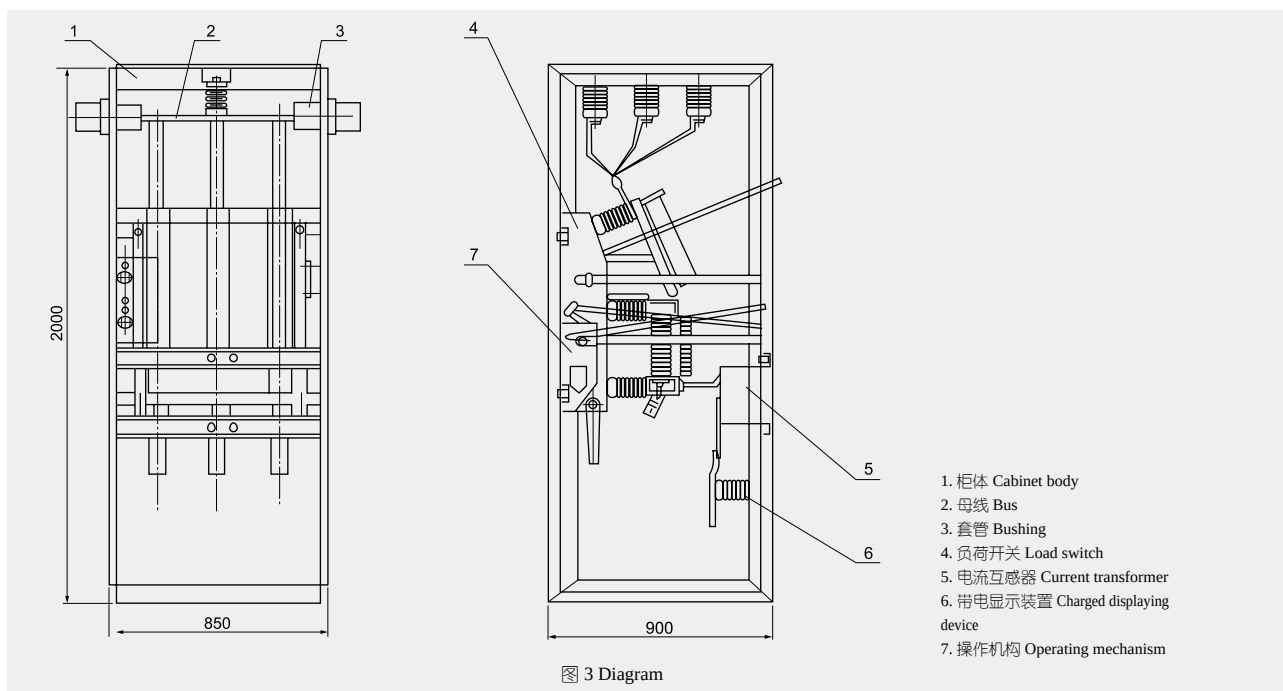
HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit

组合电器柜 Composite electrical appliance cabinet



负荷开关柜 Load switch cabinet



HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit

方案组合示例 Demonstration of composite scheme

方案编号 Scheme number	01	02	03	04	05	06
主电路方案图 Main circuit scheme diagram						
用途 Purpose	电缆进线或出线 Cable incoming or outgoing					
一次元件 Primary element	负荷开关 ZFN-10 Load switch			1	1	1
	隔离开关 Isolating switch			1	1	1
	接地开关 Grounding switch	1	1	1	1	1
	熔断器 SFL-J Fuse		3			
	熔断器 RN2 Fuse					
	电流互感器 Current transformer				1	2
	电压互感器 JDZ-10 Voltage transformer					
	避雷器 Y5W Arrester		3			

方案编号 Scheme number	07	08	09	10	11	12
主电路方案图 Main circuit scheme diagram						
用途 Purpose	电缆进线或出线 Cable incoming or outgoing					
一次元件 Primary element	负荷开关 ZFN-10 Load switch	1	1	1	1	1
	隔离开关 Isolating switch	1	1	1	1	1
	接地开关 Grounding switch	1	1	1	1	1
	熔断器 SFL-J Fuse					
	熔断器 RN2 Fuse			3	3	3
	电流互感器 Current transformer		1	2	1	2
	电压互感器 JDZ-10 Voltage transformer			2	2	2
	避雷器 Y5W Arrester	3	3	3		

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Unit type AC metal-enclosed ring main unit

方案编号 Scheme number	13	14	15	16	17	18
主电路方案图						
用途 Purpose	电缆进线或出线 Cable incoming or outgoing					
一次元件 Primary element	负荷开关 ZFN-10 Load switch	1	1	1		
	隔离开关 Isolating switch	1	1	1		
	接地开关 Grounding switch	1	1	1		1
	熔断器 SFL-J Fuse			3		
	熔断器 RN2 Fuse	3			3	
	电流互感器 Current transformer	2			2	
	电压互感器 JDZ-10 Voltage transformer					
	避雷器 Y5W Arrester					

方案编号 Scheme number	19	20	21	22	23	24
主电路方案图 Main circuit scheme diagram						
用途 Purpose	电缆进线或出线 Cable incoming or outgoing					
一次元件 Primary element	负荷开关 ZFN-10 Load switch	1	1	1	1	1
	隔离开关 Isolating switch	1	1	1	1	1
	接地开关 Grounding switch	1	1	1	1	1
	熔断器 SFL-J Fuse			3	3	3
	熔断器 RN2 Fuse					
	电流互感器 Current transformer		1	2	1	2
	电压互感器 JDZ-10 Voltage transformer					
	避雷器 Y5W Arrester					

HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit

方案编号 Scheme number	25	26	27	28	29	30
主电路方案图 Main circuit scheme diagram						
用途 Purpose	联络 Interconnection		计量联络 Metering interconnection		架空进线联络 Aerial incoming line interconnection	
一次元件 Primary element	负荷开关 ZFN-10 Load switch	1	1		1	1
	隔离开关 Isolating switch	1	1		1	1
	接地开关 Grounding switch	1	1		1	1
	熔断器 SFL-J Fuse		3			3
	熔断器 RN2 Fuse			3	3	
	电流互感器 LZSEJ Current transformer		2	2		
	电压互感器 JDZ-10 Voltage transformer		2	2		
	避雷器 Y5W Arrester					

方案编号 Scheme number	31	32	33	34	35	36
主电路方案图 Main circuit scheme diagram						
用途 Purpose	计量架空进线联络 Metering Aerial incoming line interconnection	计量 Metering	电压互感器 Voltage transformer		电压互感器 避雷器 Voltage transformer Arrester	
一次元件 Primary element	负荷开关 ZFN-10 Load switch		1	1	1	1
	隔离开关 Isolating switch		1	1	1	1
	接地开关 Grounding switch					
	熔断器 SFL-J Fuse					
	熔断器 RN2 Fuse	3	3	3	3	3
	电流互感器 LZSEJ Current transformer	2	2			
	电压互感器 JDZ-10 Voltage transformer	2	2	JDZJ-10 3只	2	JDZJ-10 3只
	避雷器 Y5W Arrester				3	3

HXGN □ -12(SF₆) 型单元式交流金属封闭环网开关设备

Unit type AC metal-enclosed ring main unit

方案编号 Scheme number		37	38	39	40	41	42
主电路方案图 Main circuit scheme diagram							
用途 Purpose		电缆进线或出线 Cable incoming or outgoing					
一次元件 Primary element	负荷开关 ZFN-10 Load switch				1	1	1
	隔离开关 Isolating switch				1	1	1
	接地开关 Grounding switch						
	熔断器 SFL-J Fuse		3				
	熔断器 RN2 Fuse						
	电流互感器 LZSEJ Current transformer					1	2
	电压互感器 JDZ-10 Voltage transformer						
	避雷器 Y5W Arrester			3			

方案编号 Scheme number		43	44	45	46	47	48
主电路方案图 Main circuit scheme diagram							
用途 Purpose		电缆进线或出线 Cable incoming or outgoing					
一次元件 Primary element	负荷开关 ZFN-10 Load switch	1	1	1	1	1	1
	隔离开关 Isolating switch	1	1	1	1	1	1
	接地开关 Grounding switch						
	熔断器 SFL-J Fuse						
	熔断器 RN2 Fuse				3	3	3
	电流互感器 LZSEJ Current transformer		1	2		1	2
	电压互感器 JDZ-10 Voltage transformer				2	2	2
	避雷器 Y5W Arrester	3	3	3			

XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear



概述 General

XGN2-12 箱型固定式金属开关设备（简称开关柜），用于 3.6、7.2、12KV 三相交流 50Hz 系统中作为接受与分配电能之用，特别适合于频繁操作的场合，其母线系统为单母线（并可派生出单母线带旁路和双母线结构）。

本开关柜符合国家标准 GB3906《3-35KV 交流金属封闭开关设备》及国际标准 IEC298 的要求，并达到“五防”闭锁功能。

本开关柜的主开关采用 ZN28A-12 或 ZN22-12 系列真空断路器配用 CD17A 电磁操作机构和 CT19B 弹簧操作机构，隔离开关采用 GN30-12 旋转式隔离开关、GN22-10 大电流隔离开关系列产品。

XGN2-12 box fixed type metal-enclosed switchgear (switch cabinet for short) is used to receive and distribute electrical energy in 3.6, 7.2, 12KV three phase AC 50Hz system, specially in the frequent operation occasion. Its bus bar system is single bus bar and it can derive single bus bar with branch and double bus bar structure.

This switch cabinet conforms to the requirement of national standard GB3906-91 “3-35KV AC Metal Seal Switch equipment” and the international standard IEC298, and has the function of “five prevention”.

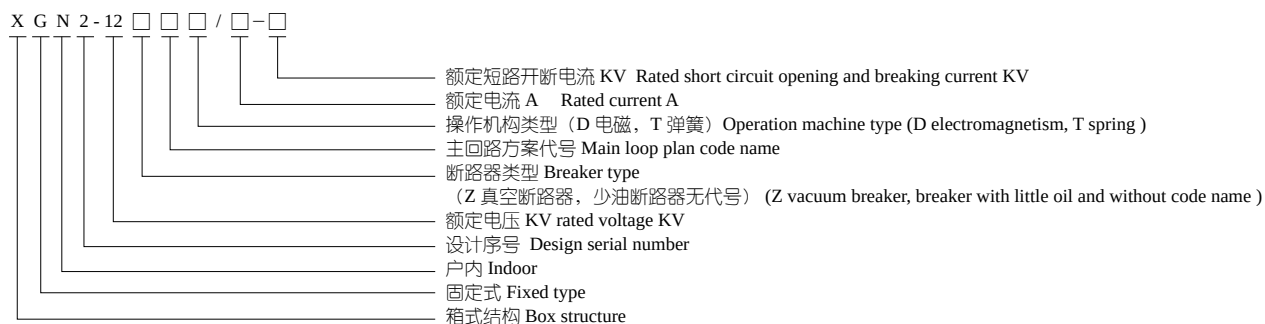
This switch cabinet's main switch is composed of ZN28A-12 Yu or the ZN22-12 series vacuum circuit-breaker, the CD17A spring operating mechanism and the CT19B spring operating mechanism, the GN30-12 rotary isolator and the GN22-10 big electric current isolator series product.

使用环境条件 Environmental condition

- 1、环境温度：上限 +40℃，下限 -25℃；
- 2、海拔高度不超过 1000m；
- 3、相对湿度：日平均值不大于 95%；
月平均值不大于 90%；
- 4、地震烈度不超过 8 度；
- 5、没有火灾、爆炸危险和污染等级不超过 3 级、
化学腐蚀及剧烈震动的场所。

1. Ambient temperature:-25℃ ~ +40℃；
2. Altitude is not higher than 1000m；
3. Relative environment humidity: The daily relative humidity average is not higher than 95%;
The monthly relative humidity average is not than higher 90%;
4. The earthquake s intensity does not exceed 8 degree.
5. Without fire, the danger of explosion, chemical corrosion and fierce vibration place and the pollution grade not beyond 3 level.

型号及其含义 Product's model and its meaning



主要技术参数 Main technical parameter

开关柜主要技术参数见表 1 Switch cabinet 's main technical parameters

	单位 Unit	VS1
额定电压 Rated voltage	kV	3.6, 7.2, 12
额定电流 Rated current	A	630,1250,1600,2000,3150
额定短路开断电流 Rated short circuit opening current	kA	16,20,31.5,40
额定短路关合电流 (峰值) Rated short circuit breaking current (peak value)	kA	40,50,80,100
额定短路动稳定电流 (峰值) Rated short circuit stable moving current (peak value)	kA	40,50,80,100
额定热稳定电流 Rated heat stable heating current	kA	16,20,31.5,40
额定热稳定时间 Rated heat stable heating time	s	4
防护等级 Protection grade		IP2X
结构型式 Structure type		单母线分断及单母线带旁路 Single bus bar disjunction and single bus bar with branches
操作方式 Operation mode		电磁式, 弹簧储能式 electromagnetic, spring and energy storage type
外形尺寸宽 X 深 X 高 The external dimension width X deep X is high	mm	1100 × 1200 × 2650(—般型)(common type)
重量 Weight	kg	1000

XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

结构特点 Structural features

XGN2-12 开关柜为金属封闭箱式结构，柜体骨架由角钢焊接而成，柜内分为断路器室、母线室、电缆室、继电器室等，室与室之间用钢板隔开。

1 断路器室在柜体前下部，断路器的转动由拉杆与操动机构连接，断路器上接线端子与上隔离开关连接，断路器下接线端子与电流互感器连接，电流互感器与下隔离开关接线端子连接，断路器室还设有压力释放通道，若内部电弧发生时，气体可通过排气通道将压力释放。

2 母线室在柜体后上部，为了减小柜体高度，母线呈品字形排列，以 7350N 抗弯强度的瓷质绝缘子支持，母线与上隔离开关接线端子相连接，相邻两柜母线室之间可隔离。

3 电缆室在柜体下部的后方，电缆室内支持绝缘子可设有电压监视装置，电缆固定在支架上，对于主结线为联络方案时，本室则为联络电缆室，继电器室在柜体上部前方，室内安装板可安装各安装各种继电器等，室内有端子排支架，门上可安装指示仪表、信号元件等二次元件，顶部还可布置二次小母线。

4 断路器的操动机构装在正面左边位置，其上方为隔离开关的操作及联锁机构，开关柜为双面维护，前面检修继电器室的二次元件，维护操动机构，机械联锁及传动部分，检修断路器，后面维修主母线和电缆终端，在断路器室装有照明灯，前门的下方设有与柜宽方向平行的接地铜母线，其截面为 $4 \times 40\text{mm}$ 。

5 机械联锁：为了防止带负荷分合隔离开关，防止误分误合断路器，防止误入带电间隔；防止带电合接地开关；防止带接地刀合闸，开关柜采用相应的机械联锁，机械联锁的动作原理如下：

(1) 停电操作（运行 - 检修）

开关柜处于工作位置，即上下隔离开关、断路器处于合闸状态，前后门已锁好，并处于带电运行之中，这时的小手柄处于工作位置，先将断路器分闸后，再将小手柄插入下隔离的操作孔内从上往下拉，拉到下隔离分闸位置，将手柄拿下，再插入上隔离操作孔内，从上往下拉，拉到上隔离分闸位置，再将操作手柄拿下，插入接地开关操作孔内，从下向上推，使接地开关处于合闸位置，这时可将小手柄扳至“检修”位置，可先打开前门，取出后门边钥匙打开后门，停电操作完毕，检修人员对断路器室及电缆室进行维护和检修。

(2) 送电操作（检修 - 运行）

若已检修完毕，需要送电，其操作程序如下：

将后门关闭，钥匙取出后关前门，将小手柄从“检修”位置扳到“分断闭锁”位置，这时前门被锁定，断路器不能合闸，用操作手柄插入接地开关操作孔内，从上向下拉，使接地开关处于分闸位置，将操作手柄拿下，再插入上隔离的操作孔内，从下向上推，使上隔离处于合闸位置，将操作手柄拿下，插入下隔离的操作孔内，从下向上推，使下隔离处于合闸位置，取出操作手柄，将小手柄扳至工作位置，这时可将断路器合闸。

6 产品外形尺寸及结构图（见图 1、图 2、图 3）

XGN2-12 switch cabinet is the metal-enclosed box structure, its cabinet frame is welded together by the angle iron, the cabinet inside is divided into breaker room, bus bar room, cable room, relays room and so on. Rooms are separated by armor plate.

1 The circuit breaker room is located below in front of the cabinet body.

It is connected by the tension bar and the drive mechanism. Line terminal above the breaker connects with isolated switch. Line terminal below the breaker connects with the current mutual inductance which connects isolated switch's line terminal. The circuit breaker room also is equipped with the pressure release channel, if internal electric arc it occurs, the gas passable exhaust channel released the pressure through exhaust channel.

2 Bus bar room is behind, upside cabinet body. In order to reduce the cabinet body altitude, bus bar room shows itself like the word “品” supported by the 7350N anti-curved intensity porcelain insulator. Bus bar connects with upside insulated switch's line terminal. Bus bar room in neighboring two cabinets can be isolable.

3 The cable room is behind and below the cabinet body. The supporting

Insulator inside the cable room may be equipped with the voltage monitor device. The electric cable fixes on the support. When the main line is used to connect, this room is connecting cable room. The relay room is upside and in front of the cabinet body. The installing panel inside the cable room can install each kind of the relay. There are terminal supporters inside. The door of the cable room can be installed indication instrument, the signal part and other twice parts. The top can be installed twice small bus bar.

4 circuit breaker's drive mechanism is installed face and left side of the breaker. Above it is isolated switch's operation and the interlocking mechanism. The switch cabinet is the two-sided maintenance. The front is twice component checking and repairing relay room and breaker, maintaining the drive mechanism, interlocking mechanism and transmission parts; the back is repairing the main bus bar and cable terminal. There is head lamp inside the breaker. The downside of front door is equipped with bus bar connected by copper paralleling with cabinet. The section is $4 \times 40\text{mm}$.

5 mechanical interlocking: In order to prevent the load from turning on and off the isolated switch and the circuit breaker by mistake, prevent from isolating with charge and earthed switch with charge and turning on the knife switch. The switch cabinet uses the corresponding mechanical interlocking. The mechanical interlocking movement principle as follows:

(1) power-cut operation (operation - examination)

The switch cabinet is in the working position, namely the upside and downside isolated switch, the circuit breaker are at turn-on condition, the front and back door has been locked and at electriferous condition, at this time, the small handle was in the working position.

First, turn the breaker off, insert the small handle into downside isolated operation hole, then pull to the isolated turn-off position from down to up. Then take the handle down, insert the handle into upside isolated operation hole, pull to the isolated turn-off position from up to down. Then take the handle down and insert it into switch hole, push from down to up to make the switch turn off. At this time, pull the small handle to the “examination and repair condition. Then open the front door first, then open the back door, the power cut operation finish, the examiner maintain and repair the breaker and the cable room.

(2) Power transmission operation (examination repair - movement)

If examination repair operation has finished, the power transmission is needed, its operation procedure as follows:

Close the back door, after the key is taken out, close the front door, pull the small handle from “the examination repair” position to disjunction and closedown” position, at this time the front door is locked, the circuit breaker cannot be turned on. Insert the operation handle to the earthed switch operational hole, push the upside isolator to the turn on position from down to up, take the operation handle out and insert into the downside isolating operational hole, pull the downside isolator to the turn-on operation from down to up and take the operational handle out, pull the small handle to the operation position, at this time, turn the breaker on.

6 Product's external dimensions and the structure chart (see chart 1, chart 2, chart 3)

XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

图 1 XGN2-12 外形尺寸及结构图 Diagram 1 Outline size and structure of XGN2-12 type

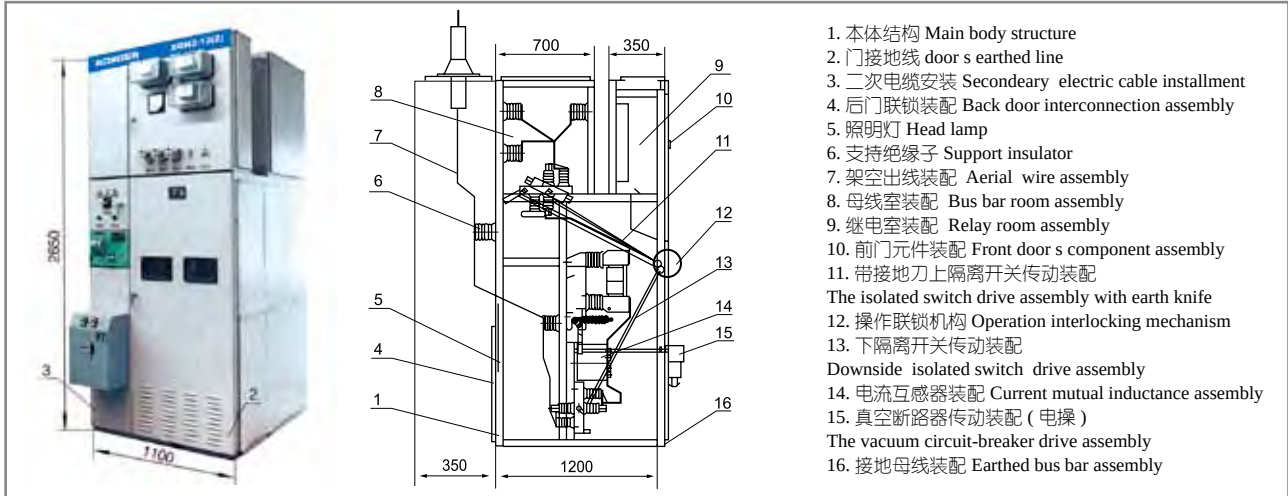


图 2 XGN2-12 大电流柜外形结构图 (配备 ZN28A 系列真空断路器) Diagram 2 Outline structure of XGN2-12 heavy current cabinet (equipped with ZN28A series vacuum circuit breaker)

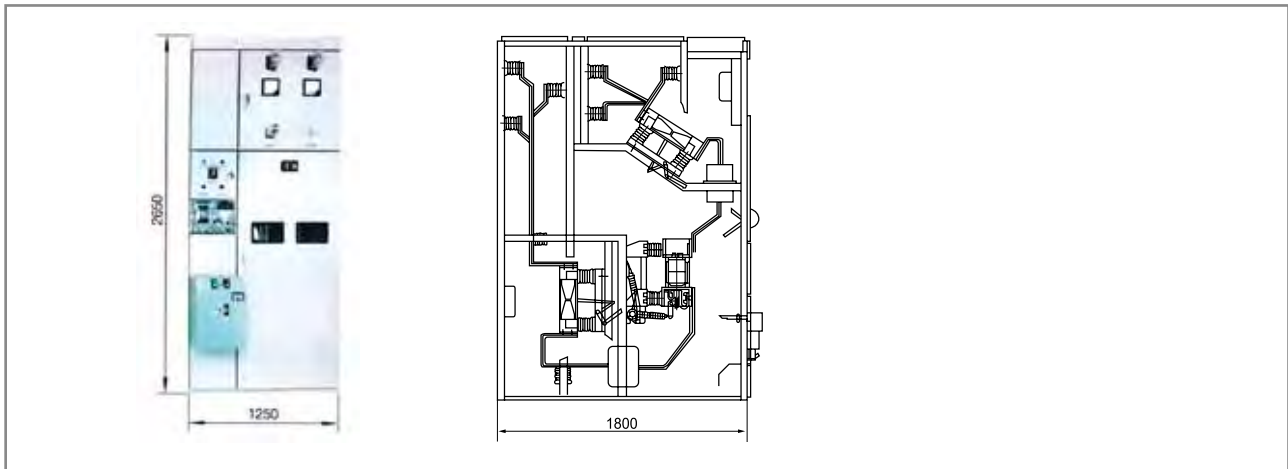
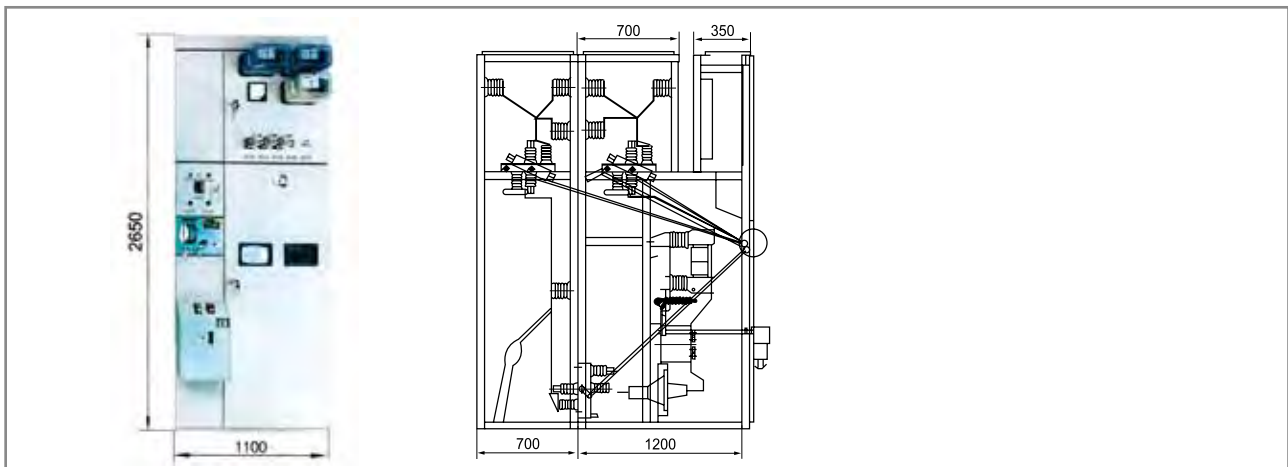


图 3 XGN2-12 旁路电缆出线柜外形结构图 Diagram 3 Outline structure of XGN2-12 bypass cable outgoing cabinet



XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

图 4 XGN2-12 型安装尺寸图 Diagram 4 Mounting size of XGN2-12 type

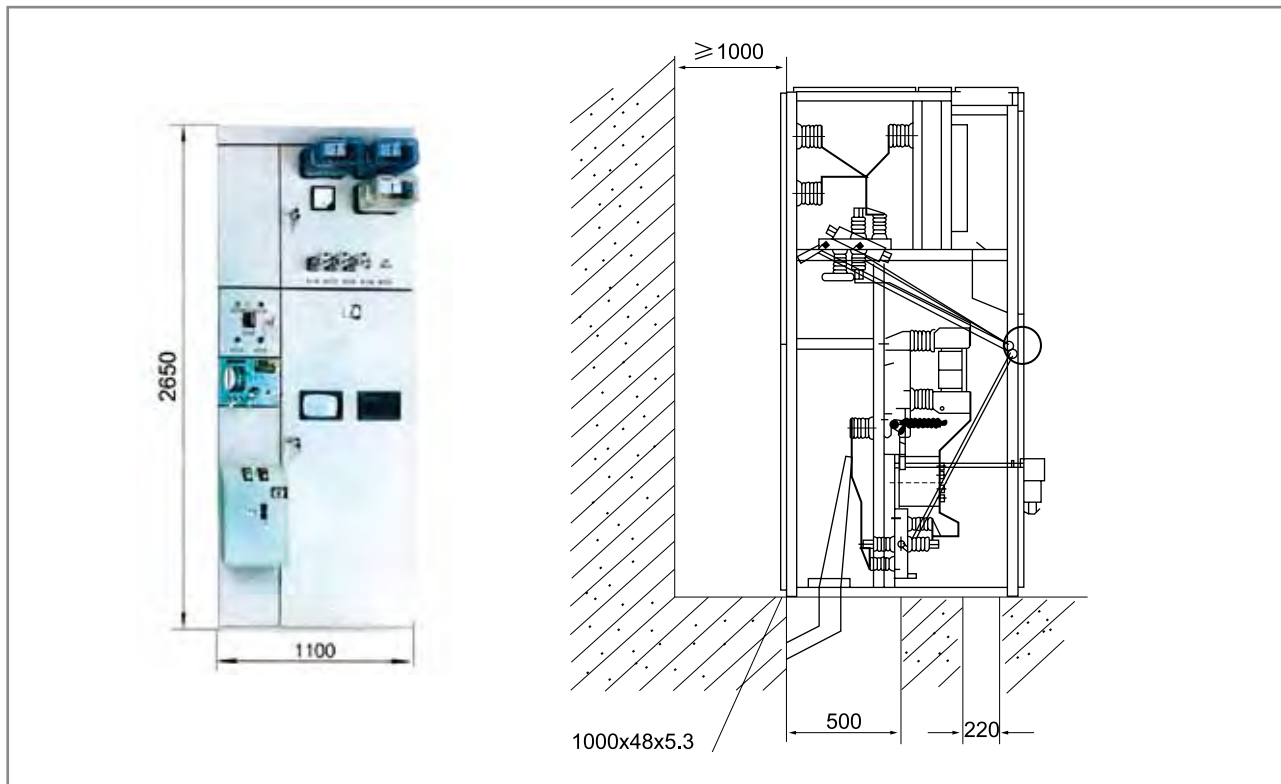
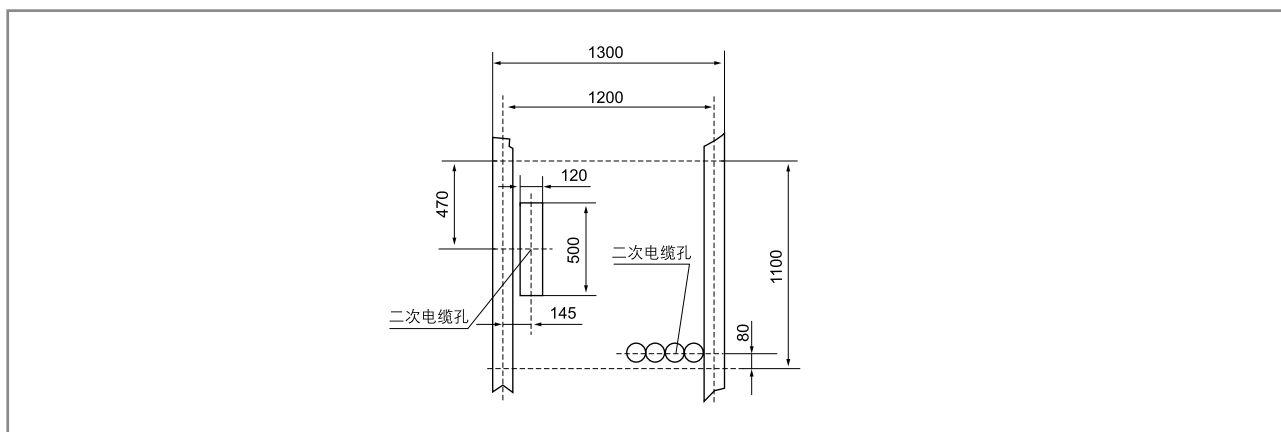


图 5 XGN2-12 型安装尺寸图 Diagram 5 Mounting size of XGN2-12 type



XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

一次线路图，方案组合示例 Primary circuit diagram, scheme combination example

38	44	50	29	52	29	29	53	46	30
630-1000A		630-1000A		630-1000A		630-1000A		630-1000A	
架空进线、计量 Aerial incoming line, metering		架空进线、计量 Aerial incoming line, metering		架空进线、带避雷器 Aerial incoming line with arrester		电缆进线带 PT Cable incoming band		母线联络 Bus interconnection	

一次线路方案 Primary circuit scheme

主电路方案编号 Main circuit scheme number		01	02	03	04	05
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN □ -10 Rotary isolating switch	1	1	1	1	2
	电流互感器 LZZJ-10 Current transformer		1	2	3	
	真空断路器 Vacuum circuit breaker	1	1	1	1	1
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₉ Operating mechanism	1	1	1	1	1
	接地开关 JN □ -1 Grounding switch	1	1	1	1	
带电显示装置 Charged displaying device		1	1	1	1	1
最大工作电流 (A)Max. working current		600;3000				
备注 Remark		电缆出线 Cable outgoing				

XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

主电路方案编号 Main circuit scheme number		06	07	08	09	10
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN □ -10D Rotary isolating switch	1	1	1		
	电流互感器 LZZJ-10 Current transformer	1	2	3		1
	真空断路器 Vacuum circuit breaker	1	1	1	1	1
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₉ Operating mechanism	1	1	1	1	1
	旋转式隔离开关 GN □ -10 Rotary isolating switch	1	1	1	2	2
	接地开关 JN □ -10 Grounding switch	1	1	1	1	1
	带电显示装置 Charged displaying device	1	1	1	1	1
最大工作电流 (A)Max. working current		630;3000				
备注 Remark		电缆进出线 Cable ingoing/outgoing				

主电路方案编号 Main circuit scheme number		11	12	13	14	15
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN □ -10D Rotary isolating switch					
	电流互感器 LZZJ-10 Current transformer	2	3		1	2
	真空断路器 Vacuum circuit breaker	1	1	1	1	1
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₉ Operating mechanism	1	1	1	1	1
	旋转式隔离开关 GN □ -10 Rotary isolating switch	2	2	1	1	1
	接地开关 JN □ -10 Grounding switch			1	1	1
	带电显示装置 Charged displaying device	1	1	1	1	1
最大工作电流 (A)Max. working current		630;3000				
备注 Remark		电缆进出线 Cable ingoing/outgoing		架空出线 Aerial outgoing line		

XGN2-12 箱型固定式金属封闭开关设备

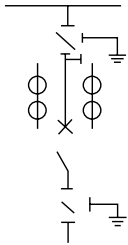
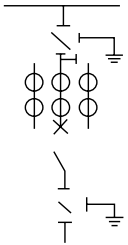
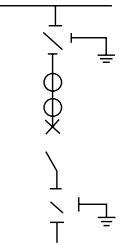
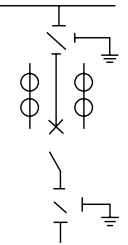
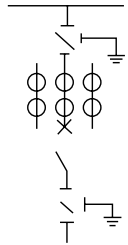
Box fixed type metal-enclosed switchgear

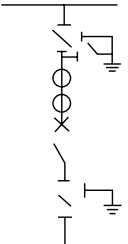
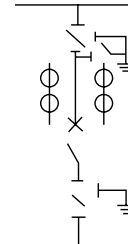
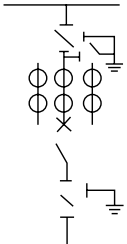
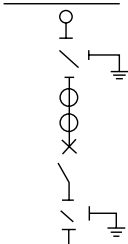
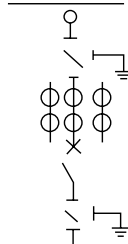
主电路方案编号 Main circuit scheme number		16	17	18	19	20
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN □ -10 Rotary isolating switch	1	2	2	2	2
	电流互感器 LZZJ-10 Current transformer	3		1	2	3
	真空断路器 Vacuum circuit breaker	1	1	1	1	1
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₇ Operating mechanism	1	1	1	1	1
	接地开关 JN □ -10 Grounding switch	1				
	带电显示装置 Charged displaying device	1	1	1	1	1
最大工作电流 (A)Max. working current		630;3000				
备注 Remark		电缆出线 Cable outgoing		架空进出线 Aerial inging/outgoing line		

主电路方案编号 Main circuit scheme number		21	22	23	24	25
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN □ -10D Rotary isolating switch	1	1	1	1	
	电流互感器 LZZJ-10 Current transformer		1	2	3	1
	真空断路器 Vacuum circuit breaker	1	1	1	1	1
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₉ Operating mechanism	1	1	1	1	1
	旋转式隔离开关 GN □ -10 Rotary isolating switch	1	1	1	1	2
	带电显示装置 Charged displaying device	1	1	1	1	
最大工作电流 (A)Max. working current		630; 3000				
备注 Remark						

XGN2-12 箱型固定式金属封闭开关设备

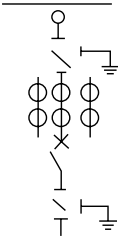
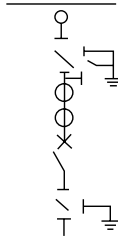
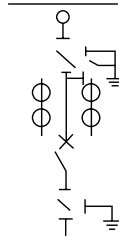
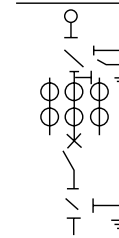
Box fixed type metal-enclosed switchgear

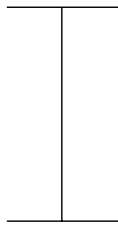
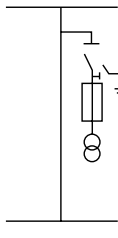
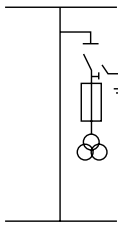
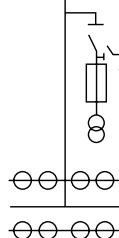
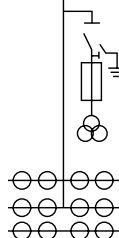
主电路方案编号 Main circuit scheme number		26	27	28	29	30
主接线图 Main wire connection diagram						
	旋转式隔离开关 GN □ -10D Rotary isolating switch	2	2	2	2	2
	电流互感器 LZZJ-10 Current transformer	2	3	1	2	3
	真空断路器 Vacuum circuit breaker	1	1	1	1	1
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₉ Operating mechanism	1	1	1	1	1
最大工作电流 (A)Max. working current		630;3000				
备注 Remark						

主电路方案编号 Main circuit scheme number		31	32	33	34	35
主接线图 Main wire connection diagram						
	旋转式隔离开关 GN □ -10D Rotary isolating switch	1	1	1		
	电流互感器 LZZJ-10 Current transformer	1	2	3	1	2
	真空断路器 Vacuum circuit breaker	1	1	1	1	1
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₉ Operating mechanism	1	1	1	1	1
主接线图 Main wire connection diagram	旋转式隔离开关 GN □ -10 Rotary isolating switch	1	1	1	2	2
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

主电路方案编号 Main circuit scheme number		36	37	38	39	40
主接线图 Main wire connection diagram						
	旋转式隔离开关 GN □ -10D Rotary isolating switch		1	1	1	
	电流互感器 LZZJ-10 Current transformer	3	1	2	3	
	真空断路器 Vacuum circuit breaker	1	1	1	1	
	操作机构 CD ¹⁸ ₁₉ 或 CT Operating mechanism	1	1	1	1	
	旋转式隔离开关 GN □ -10 Rotary isolating switch	2	1	1	1	
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

主电路方案编号 Main circuit scheme number		41	42	43	44	45
主接线图 Main wire connection diagram						
	隔离开关 GN24-10D Isolating switch		1	1	1	1
	高压熔断器 RN2-10 High voltage fuse		1	1	1	1
	电压互感器 JDZ Voltage transformer		2		2	
	电压互感器 JDZJ Voltage transformer			3		3
	电流互感器 LFZJ Current transformer				1	3
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

主电路方案编号 Main circuit scheme number		46	47	48	49	50
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	隔离开关 GN24-10D Isolating switch	1		1	1	1
	避雷器 Arrester	1				
	高压熔断器 RN2-10 High voltage fuse			1	1	1
	电压互感器 JDZ Voltage transformer			2		
	电压互感器 JDZJ Voltage transformer				3	3
	电流互感器 LFZJ Current transformer					2
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

主电路方案编号 Main circuit scheme number		51	52	53	54	55
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN24-10D Rotary isolating switch	1	1	1	1	1
	高压熔断器 RN2-10 High voltage fuse	1		1	1	1
	电压互感器 JDZ Voltage transformer			2		2
	电压互感器 JDZJ Voltage transformer	3			3	
	避雷器 Arrester		3			
	电流互感器 LFZJ Current transformer	3				2
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

XGN2-12 箱型固定式金属封闭开关设备

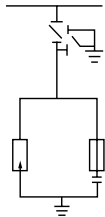
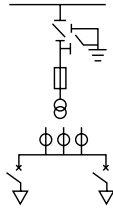
Box fixed type metal-enclosed switchgear

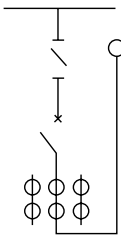
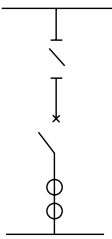
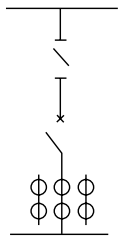
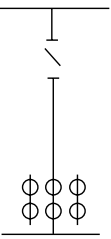
主电路方案编号 Main circuit scheme number		56	57	58	59	60
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	隔离开关 GN24-10D Isolating switch	1	1			
	高压熔断器 RN2-10 High voltage fuse	1				
	电压互感器 JDZJ Voltage transformer	3				
	避雷器 Arrester		3			
	电流互感器 LFZJ Current transformer	3				
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

主电路方案编号 Main circuit scheme number		61	62	63	64	65
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	隔离开关 GN24-10D Isolating switch	1	1	1	1	1
	高压熔断器 RN2-10 High voltage fuse					
	电压互感器 JDZ Voltage transformer	2			2	
	电压互感器 JDZJ 或 JSJW Voltage transformer		3 或 1			3 或 1
	避雷器 FS 或 FZ Arrester			3	3	3
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

XGN2-12 箱型固定式金属封闭开关设备

Box fixed type metal-enclosed switchgear

主电路方案编号 Main circuit scheme number		66	67	68	69	70
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN □ -10 Rotary isolating switch	1	1			
	避雷器 FS Arrester	3				
	高压熔断器 RN2 High voltage fuse	3				
	高压熔断器 RN1 High voltage fuse		3			
	电容 BWF18 Capacitor	3				
	电力变压器 SL Power transformer		1			
	电流互感器 LMZ1-0.5 Current transformer		3			
	自动开关 DZ12-60 Automatic Switch		6			
最大工作电流 (A)Max. working current		630;1000				
备注 Remark						

主电路方案编号 Main circuit scheme number		71	72	73	74	75
主接线图 Main wire connection diagram						
主电路方案编号 Main circuit scheme number	旋转式隔离开关 GN □ -10 Rotary isolating switch	1	1	1	1	
	电压互感器 LZJ1-10 Voltage transformer	3	1	3	3	
	真空断路器 Vacuum circuit breaker	1	1	1		
	操作机构 CD ¹⁰ ₁₇ 或 CT ⁸ ₁₉ Operating mechanism	1	1	1		
	带电显示装置 Charged displaying device					
最大工作电流 (A)Max. working current		2000;3000				
备注 Remark		架空进出线 Aerial ingoing/outgoing line				

GG-1A(FZ)-12Z 智能型高压开关柜

Intelligent HV switchgear cabinet



用途 Application

GG-1A(FZ)-12Z 智能型固定式高压开关柜适用于 3.6~12KV 电压等级、采用单母线和单母线分段主接线方式的电网变电所、工矿企事业单位、码头、油田、铁路、住宅小区等用刻高压变电所中作为受电和馈电及大型电动机的控制和保护用,由于本公司在原 GG-1A 开关柜的基础上对该型开关柜进行了“五防”、“无油化”、和智能型的改造,使该型开关柜更适合老式变电所改造和升级。

GG-1A (FZ) the -12Z intellective and fixed type high-voltage switch cabinet is suitable for inputting and outputting electricity and control and protection of the large-scale electromotor in electrical network transformer substation、mining business, the wharf, the oil field, the railway station, the residential district and other high pressure transformer substations where adopting the single bus bar and the single bus bar subsection as the main wiring way on the 3.6~12KV voltage degree Because this company have transformed “five prevention”, “without oil”, and “the intelligence” on the switch cabinet on the basis of the original GG-1A switch cabinet, making it possible to transform and promote the old style transformer substation.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Parameters
额定电压 Rated voltage	kV	3.6 7.2 12
额定电流 Rated current	A	630 1000 1250
额定短路开断电流 Rated short circuit opening current	kA/4S	20 25 31.5
额定短路关合电流 (峰值)	kA	50 63 80
Rated short circuit breaking current (peak value)		
工频耐压 (相同、相对地 / 断口)	kV/1min	42/48
Line frequency endurable voltage (same, to the earth/fracture)		
雷电冲击耐受电压 (相同、相对地 / 断口)	kV	75/85
Light shocking yendurable voltage (same, to the earth/fracture)		
二次工频耐压 Twice line frequency endurable voltage	kV/1min	2
额定操作顺序 Rated operation order		0-0.3S-C0-180S-C0

结构特点 Structural feature

GG-1A(FZ)-12Z 智能型固定式高压开关柜系开启式结构,基本骨架由角钢和钢板弯制焊接而成,开关柜总体由主柜和遮栏柜组成,主柜部分被母线隔板分为两段,上段为母线和隔离开关、接地开关,中部为断路器、互感器,下部为电缆出线室。正面左上为继电器室,下部为端子室,本柜有完善的“五防”闭锁功能。

GG-1A (FZ) the -12Z intellective fixed type high-voltage switch cabinet is starting type structure, the basic skeleton is curved and welded by the angle steel and the steel plate .In general, The switch cabinet is composed of the main cabinet and fence cabinet. The main cabinet is partially divided by the bus bar s partition board into two sections. The upside is the bus bar and the isolator switch, the earthed switch, the middle is the circuit breaker, the mutual inductor, the bottom is electric cable outing room. The frontage on the left is the relay room, lower part is the terminal room. This cabinet has the perfect function of “five prevention”

REGGD 交流低压固定式成套开关设备

AC LV fixed type switchgear



概述 General

REGGD 交流低压固定式成套开关设备适用于发电厂、变电站、厂矿企业等电力用户的交流 50Hz，额定工作电压 380V，额定电流至 3150A 以下的配电系统中作为动力、照明及配电设备的电能转换、分配和控制之用。

该产品具有分断能力高、动热稳定性好、电气方案灵活、组合方便、系列性实用性强、结构新颖、防护等级高等特点。

REGGD 交流低压配电柜符合 IEC439 《低压成套开关设备和控制设备》及 GB7251.1 《低压成套开关设备》等标准。

REGGD AC LV fixed type switchgear is applicable to the distribution system with AC 50Hz, rated working voltage 380V, rated current to 3150A below in power station, substation, plant enterprise etc., used for power transfer, distribution and control for power, lighting and distribution devices.

The product has characteristics of high breaking capacity, fine dynamic and thermal stability, flexible electric project, convenient combination, better serial practicability, novel structure and high protection grade etc.

It accords with the standards IEC439 “Low voltage complete switch device and control device” and GB7251.1 “Low voltage complete switch device” etc.

特点 Characteristics

1. REGGD 交流低压配电柜的柜体采用通用柜形式。构架用 8MF 冷弯型钢局部焊接组装而成。构架零件及专用配套零件由型钢定点生产厂配套，以保证柜体的精度和质量。通用柜的零部件按模块原理设计，并有 20 模的安装孔，通用系数高。
2. 充分考虑到柜体运行中的散热，在柜体上下两端均有不同数量的散热槽孔。
3. 按现代工业产品造型设计要求，采用黄金分割比的方法设计柜体外形和各部分的分割尺寸，使整柜美观大方。
4. 柜门用转轴式活动铰链与构架相连，安装、拆卸方便。门的折边处均嵌有一根山型缘胶条，关门时门与构架之间的嵌条有一定的压缩行程，能防止门与柜体直接碰撞，也提高了门的防护等级。
5. 装有电器元件的仪表门用多股软铜线与构架相连。柜内的安装件与构架间用滚花螺钉连接，整柜构成完整的接地保护电路。
6. 柜体顶盖在需要时可拆除，便于现场主母线的装配和调整，柜顶的四角装有吊环，用于起吊和装运。
7. 柜体的防护等级为 IP30，用户可根据环境的需要在 IP20~IP40 之间选择。

1. The body of REGGD AC LV fixed type switchgear adopts universal cabinet type. Framework is assembled with 8MF cold bending bar steel through part welding. Framework components and special mating elements are matched by bar steel pointed manufactory for ensuring the precision and quality of cabinet. Components of universal cabinet is designed according to module principle, and with 20 modulus mounting hole and high universal coefficient.

2. Completely in view of the heat rejection during cabinet running. Heat rejection slots of different quantities are installed in upper and underside both ends of cabinet.

3. According to the requirements on mold design for modern industry products, adopting the method of golden mean ratio to design cabinet outline and parting dimensions of each part, to make the whole cabinet beautiful and decent.

4. Cabinet gate is connected with framework with rotation axis type movable hinge. With convenient installation and disassembly. One mount type rubber strip is set in edge fold of gate. Filler rod between gate and framework has certain compression stroke when closing the gate. It can prevent gate from impacting cabinet directly and also advance the protection grade for gate.

5. Connect the meter gate set with electrical components with framework by multistrand soft copper wire. Connect the mounting pieces inside the cabinet with framework by knurled screws. The whole cabinet constructs complete earthing protective circuit.

6. Top cover of cabinet can be disassembled if necessary for convenience to the assembly and adjustment for main bus bar at site. Four squares of cabinet are set with slinger for hoisting and shipping.

7. Protection grade of cabinet: IP30. User can choose within IP20~IP40 according to environmental requirements.

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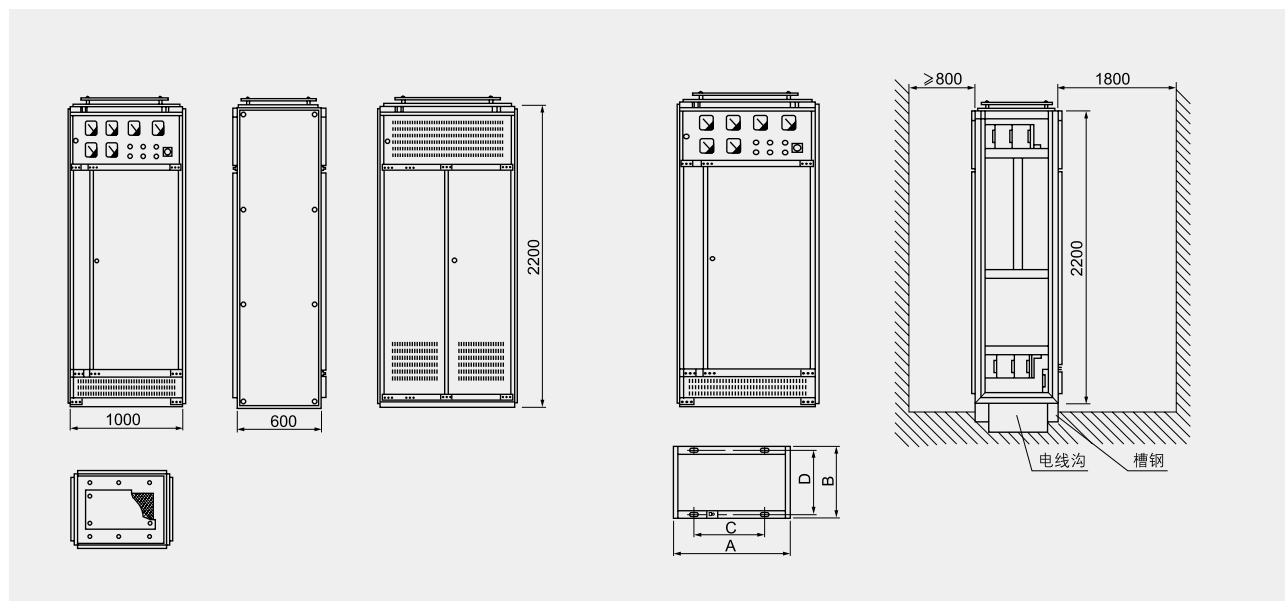
主要技术参数 Main technical parameters

型号 Type	额定电压 Rated voltage (V)	额定电流 Rated current (A)	额定短路 开断电流 (kA) Rated short circuit breaking current	额定短时 耐受电流 (kA) Rated short time withstand current	额定峰值 耐受电流 (kA) Rated peak withstand current
REGGD1	380	1000 600(630) 400	15	15(1S)	30
REGGD2	380	1500 1600 1000	30	30(1S)	63
REGGD3	380	3150 (2500) 2000	50	50(1S)	105

正常使用环境条件 Conditions for normal operating environment

1. 周围空气温度不高于 +40℃，不低于 -5℃，并且 24h 内其平均温度不高于 +35℃。
2. 户内安装使用，使用地点的海拔高度不超过 2000 米。
3. 周围空气相对湿度在最高温度 +40℃ 时不超过 50%，在较低温度时允许有较大的相对湿度，例如 +20℃ 时为 90%，应考虑到温度变化，可能会偶然产生凝露的影响。
4. 设备安装时与垂直面的倾斜度不超过 5°。
5. 设备安装在无剧烈震动和冲击的地方，以及不足以使电器元件受到腐蚀的场所。
6. 用户有特殊要求时可与制造厂协商。
1. Ambient air temperature: -5℃ ~ +40℃ and the average temperature should not exceed +35℃ in 24h.
2. Install and use indoors. Altitude above sea level for operation site should not exceed 2000M.
3. Relative humidity should not exceed 50% at max temperature +40℃. Higher relative humidity is allowed at lower temperature. Ex. 90% at +20℃. But in view of the temperature change, it is possible that moderate dews will produce casually.
4. Installation gradient not exceed 5°.
5. Install in the places without fierce vibration and shock and the sites insufficient to erode the electrical components.
6. Any specific requirement, consult with manufactory.

内部结构 Interior structure



产品代号 Product code	A	B	C	D
REGGD06	600	600	450	556
REGGD06A	600	800	450	756
REGGD08	800	600	650	556
REGGD08A	800	800	650	756
REGGD10A	1000	600	850	556
REGGD10A	1000	800	850	756
REGGD12	1200	800	1050	756

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方案组合示例 Demonstration of composite scheme

方案编号 Scheme number	01			02			03			04			05			06			
主电路方案图 Main circuit scheme diagram																			
用途 Purpose	受电 Electrification			受电 Electrification			受电 Electrification			受电 Electrification			受电 Electrification 馈电 Feeding			受电 Electrification			
主电路方案图 Main circuit scheme diagram	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1000/31				1			1			1			1					
	HD13BX-600/31					1			1			1			1				
	HD13BX-400/31						1			1			1			1	2	2	2
	DW15-1000/3[] 电动												1						
	DW15-630/3[] 电磁													1					
	DW15-400/3[] 电磁														1				
	CJ20-400/3																2		
	CJ20-250/3																		
	CJ20-160/3																		2
LMZ1-0.66[]/5										1	1	1	3	3	3	2			
LMZ3-0.66[]/5																	2	2	
(LMZ1-0.66[]/5)																			
柜宽 mm Cabinet width	600	600	600	1000	800	800	1000	800	800	600	600	600	800	800	800	800	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600

方案编号 Scheme number	07	08	09	10	11	12												
主电路方案图 Main circuit scheme diagram																		
用途 Purpose	受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection					
主电路电气元件 Electrical element of main circuit	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C		
	HD13BX-1000/31	1			1			1			1			2				
	HD13BX-600/31		1			1			1			1			2			
	HD13BX-400/31			1			1			1			1			2		
	DW15-1000/3[] 电动				1			1			1			1				
	DW15-630/3[] 电磁					1			1			1			1			
	DW15-400/3[] 电磁								1			1			1			
LMZ3-0.66[]/5				3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)		
(LMZ1-0.66[]/5)																		
柜宽 mm Cabinet width	600	600	600	800	800	800	1000	800	800	1000	800	800	1000	800	800	1000	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600

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方案编号 Scheme number	13			14			15			16			17			18		
主电路方案图 Main circuit scheme diagram																		
用途 Purpose	受电 Electrification 联络 Interconnection			受电 Electrification 备用 Backup			受电 Electrification 备用 Backup			受电 Electrification 备用 Backup						受电 Electrification		
型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
HD13BX-1000/31	2															1		
HD13BX-600/31		2															1	
HD13BX-400/31			2															
HS13BX-1000/3(41)				1			1			1								
HS13BX-630/3(41)					1			1			1							
HS13BX-400/3(41)						1			1			1						
DW15-1000/3[] 电动	1			1			1			1						1		
DW15-630/3[] 电磁		1			1			1			1			1			1	
DW15-400/63[] 电磁			1			1			1			1						
LMZ1-0.66[]/5	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)				3(4)	3(4)	
LMZ3-0.66[]/5																		
柜宽 mm Cabinet width	1000	800	800	1000	800	800	1000	800	800	1000	800	800				1000	800	
柜深 mm Cabinet depth	600	600	600	600	600	600	600	600	600	600	600	600				600	600	

方案编号 Scheme number	19			20			21			22			23			24			
主电路方案图 Main circuit scheme diagram																			
用途 Purpose							联络 Interconnection			联络 Interconnection 馈电 Feeding			联络 Interconnection			馈电 Feeding 备用 Backup			
主电路电器元件 Electrical element of main circuit	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1000/31							2			2								
	HD13BX-600/31								2			2							
	HD13BX-400/31									2			2						
	HS13BX-1000/31(41)																1		
	HS13BX-600/31(41)																	1	
	DZ10-630[]P/3[]																1		
	DZ10-250[]/3[]																	1	
	DZ10-100[]/3[]										2	2							
JDG-0.5 380/100W												2							
RTO[]							2(3)	2(3)	2(3)										
LMZ1-0.66[]/5							3	3	3							3			
LMZ3-0.66[]/5										2	2	2					3		
柜宽 mm Cabinet width							1000	800	800	1000	800	800					600	600	
柜深 mm Cabinet depth							600	600	600	600	600	600					600	600	

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方案编号 Scheme number	25	26	27	28	29	30
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding 备用 Backup	馈电 Feeding 备用 Backup	馈电 Feeding 备用 Backup	联络 Interconnection 备用 Backup 馈电 Feeding	联络 Interconnection 备用 Backup 馈电 Feeding	
主电路电器元件 Electrical element of main circuit	型号规格 Model specification	A B C	A B C	A B C	A B C	A B C
	HD13BX-1000/31			1	1	
	HD13BX-600/31			1	1	
	HD13BX-400/31				1	1
	HS13BX-1000/31(41)		1	1	1	
	HS13BX-600/31(41)	1	1	1	1	
	HS13BX-400/31(41)	1	1	1	1	
	HS13BX-200/31(41)		1			1
	DZ10-250[1/3]	2	1	4	2	2
	DZ10-100[1/3]		1	2		2
	LMZ1-0.66[1/5]			4	4	4
	LMZ3-0.66[1/5]	2	2	2	2	2
柜宽 mm Cabinet width	600	600	600	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600

方案编号 Scheme number	31	32	33	34	35	36
主电路方案图 Main circuit scheme diagram						
用途 Purpose			联络 Interconnection	联络 Interconnection 馈电 Feeding	联络 Interconnection	馈电 Feeding 备用 Backup
主电路电器元件 Electrical element of main circuit	型号规格 Model specification	A B C	A B C	A B C	A B C	A B C
	HD13BX-1000/31		1	1	1	
	HD13BX-600/31			1		1
	HD13BX-400/31			1	1	
	HD13BX-200/31			1		
	DZ10-630P/3[]		1			
	DZ10-250/3[]		1	2	4	4
	DZ10-100/3[]			2	4	4
			1			6
	LMZ1-0.66[1/5]		1	2	2	4
	LMZ3-0.66[1/5]		1	2	2	4
	(LMZ3D-0.66[1/5])					
柜宽 mm Cabinet width			600	600	600	800
柜深 mm Cabinet depth			600	600	600	600

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方案编号 Scheme number	37	38	39	40	41	42
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding
型号规格 Model specification	A B C	A B C	A B C	A B C	A B C	A B C
HD13BX-1000/31				2	2	2
HD13BX-600/31	2		2	2	2	2
HD13BX-400/31		2		2	2	
DW15-630/3[] 电磁						1
DW15-400/3[] 电磁						1
DZ10-250/3[]	2	2	4			
DZ10-100/3[]		2	4			
RTO-[]				6 6 6	12 12 12	3 3
LMZ3-0.66[]/5	2	6	4			
(LMZ3D-0.66[]/5)	2	6	4	2 2 2	4 4 4	4 4
LJ-[]				2 2 2	4 4 4	4 2
柜宽 mm Cabinet width	800	600	800	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600

方案编号 Scheme number	43	44	45	46	47	48
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding	馈电 Feeding		馈电 Feeding		馈电 Feeding
型号规格 Model specification	A B C	A B C	A B C	A B C	A B C	A B C
HD13BX-600/31	1			2		
HD13BX-400/31		1				3
HD13BX-200/31	1	3				
DW15-630/3[] 电磁	1					
DW15-400/3[] 电磁		1				
CJ20-630/3				1		
CJ20-250/3				1		6
CJ20-63/3						18
RTO-[]	3	9		6		
JDG-0.5 380/100V	2(3)	2(3)				
(LMZ3D-0.66[]/5)	3	2		2		
LJ-[]	1	2		2		800
柜宽 mm Cabinet width	800	800		800		600
柜深 mm Cabinet depth		600		600		

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方案编号 Scheme number	49	50	51	52	53	54
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding			照明 Illumination		
型号规格 Model specification	A	B	C	A	B	C
HD13BX-600/31				1		
HD13BX-400/31	2				1	
HD13BX-200/31						1
HR5-630/3[]						1
HR5-400/3[]					1	
HR5-200/3[]						1
HG2-160						12
CJ20-160/3	2					
CJ20-63/3	4					
RTO-[]	18			12	12	12
SG-[]						
LMZ3-0.66[]/5				4	4	4
(LMZ3D-0.66[]/5)						
柜宽 mm Cabinet width	800			800	800	800
柜深 mm Cabinet depth	600			600	600	600

方案编号 Scheme number	55	56	57	58	59	60
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding			照明 Illumination		
型号规格 Model specification	A	B	C	A	B	C
HR5-200/3[]				2		
HR5-100/3[]					2	
CJ10-100/3				4	4	
CJ10-60/3						4
CJ10-40/3						
JR16-150/3D				2	2	2
JR16-60/3D					4	
(LMZ3D-0.66[]/5)				2	2	4
LJ[]				2	2	
柜宽 mm Cabinet width	800			800	800	800
柜深 mm Cabinet depth	600			600	600	600

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AC LV fixed type switchgear

方案编号 Scheme number	01			02			03			04			05			06			
主电路方案图 Main circuit scheme diagram																			
用途 Purpose	受电 Electrification			受电 Electrification			受电 Electrification			受电 Electrification			受电 Electrification 馈电 Feeding						
主电路电气元件 Electrical element of main circuit	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1500/30				1			1			1			1					
	HD13BX-1000/31					1			1			1			1				
	HD13BX-600/31															1			
	DW15-1600/3[] 电动													1					
	DW15-1000/3[] 电动														1				
	DW15-630/3[] 电动															1			
	LMZ1-0.66[]/5										1	1		3	3	3			
	(LMZ3D-0.66[]/5)																		
柜宽 mm Cabinet width	600	600	600	1000	1000		1000	1000		800	800		800	800	800				
柜深 mm Cabinet depth	600	600	600	600	600		600	600		600	600		600	600	600				

方案编号 Scheme number	07	08	09	10	11	12										
主电路方案图 Main circuit scheme diagram																
用途 Purpose	受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection						
主电路电器元件 Electrical element of main circuit	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1500/30	1			1			1			2			2		
	HD13BX-1000/31		1			1			1			2			2	
	DW15-1600/3[] 电动				1			1			1			1		
	DW15-1000/3[] 电动					1			1			1			1	
	LMZ1-0.66[]/5 (LMZ3D-0.66[]/5)				3(4)	3(4)		3(4)	3(4)		3(4)	3(4)		3(4)	3(4)	
柜宽 mm Cabinet width	600	600		800	800		1000	1000		1000	1000		1000	1000		
柜深 mm Cabinet depth	600	600		600	600		600	600		600	600		600	600		

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AC LV fixed type switchgear

方案编号 Scheme number	13	14	15	16	17	18										
主电路方案图 Main circuit scheme diagram																
用途 Purpose	受电 Electrification			受电 Electrification 备用 Backup			受电 Electrification 备用 Backup			受电 Electrification 备用 Backup			受电 Electrification			
主电路元件 Electrical element of main circuit	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1500/30	2														
	HD13BX-1000/31		2												1	
	HS13BX-1000/31(41)				1			1			1					
	DW15-1600/3[] 电动	1													1	
	DW15-1000/3[] 电动		1		1			1			1			1		
	LMZ1-0.66[]/5 (LMZ3D-0.66[]/5)	3(4)	3(4)		3(4)			3(4)			3(4)			3(4)	3(4)	
柜宽 mm Cabinet width	1000	1000		1000			1000			1000				1000	1000	
柜深 mm Cabinet depth	600	600		600			600			600				600	600	

方案编号 Scheme number	19	20	21	22	23	24			
主电路方案图 Main circuit scheme diagram									
用途 Purpose				联络 Interconnection	联络 Interconnection 馈电 Feeding	联络 Interconnection	馈电 Feeding 备用 Backup		
型号规格 Model specification	A	B	C	A	B	C	A	B	C
HD13BX-1500/30				2			2		
HD13BX-1000/31					2			2	
HS13BX-1000/31(41)									1
HS13BX-600/31(41)								1	
HS13BX-400/31(41)									1
DW15-630/3[] 电磁								1	
DW15-400/3[] 电磁								1	
DW15-200/3[] 电磁									1
DZX10-400/3[]					2				
DZX10-200/3[]						2			
NT-[]				3	3				
JDG-0.5 380/100V				2(3)	2(3)				
LMZ1-0.66[]/5							2		
LMZ3-0.66[]/5								2	
柜宽 mm Cabinet width				1000	1000		1000	1000	
柜深 mm Cabinet depth				600	600		600	600	

REGGD 交流低压固定式成套开关设备

AC LV fixed type switchgear

方案编号 Scheme number	25	26	27	28	29	30
主电路方案图 Main circuit scheme diagram						
用途 Purpose	联络 Interconnection 备用 Backup	联络 Interconnection 备用 Backup	联络 Interconnection 备用 Backup	联络 Interconnection 馈电 Feeding 备用 Backup	联络 Interconnection 馈电 Feeding 备用 Backup	
型号规格 Model specification	A	B	C	A	B	C
HD13BX-600/30					1	
HS13BX-1000/31(41)	1			1		
HS13BX-600/31(41)		1			1	
HS13BX-400/31(41)			1			1
DZX10-400/3[]	2					
DZX10-200/3[]		2		4	2	
DZX10-100/3[]			2	4	2	4
LMZ1-0.66[]/5	2			3	3	3
LMZ3-0.66[]/5		2	2	4	4	4
柜宽 mm Cabinet width	600	600	600	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600

方案编号 Scheme number	31	32	33	34	35	36
主电路方案图 Main circuit scheme diagram						
用途 Purpose	联络 Interconnection 馈电 Feeding 备用 Backup	联络 Interconnection 馈电 Feeding 备用 Backup	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding
型号规格 Model specification	A	B	C	A	B	C
HD13BX-1500/30				1		
HD13BX-1000/31				1		
HD13BX-600/31		1			1	
HD13BX-400/31				1		1
HS13BX-600/31(41)	1					
DW15-630/3[]			2			
DZX10-400/3[]				2		
DZX10-200/3[]				2	4	
DZX10-100/3[]	4				2	4
LMZ1-0.66[]/5			2		3	3
LMZ3-0.66[]/5		4		2	2	4
(LMZ3D-0.66[]/5)						
柜宽 mm Cabinet width		800	800	800	800	800
柜深 mm Cabinet depth		600	600	600	600	600

REGGD 交流低压固定式成套开关设备

AC LV fixed type switchgear

方案编号 Scheme number	37	38	39	40	41	42
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding
型号规格 Model specification	A B C	A B C	A B C	A B C	A B C	A B C
HD13BX-1000/31	2		2		2	
HD13BX-600/31		2		2		1
HD13BX-400/31			2		2	1
DW15-630/3[] 电磁	2		2			
DWX15-630/3[] 电磁		2		2		
DZX10-400P/3[]			2	2		
DZX10-400/3[]			2			
DZX10-200/3[]				2	4	
NT-[]				6	6	6
LMZ1-0.66[]/5	2	2	2	6	12	12
LMZ3-0.66[]/5				2	4	4
(LMZ3D-0.66[]/5)				2	2	2
LJ-[]				2	4	4
柜宽 mm Cabinet width	800	800	800	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600

方案编号 Scheme number	43	44	45	46	47	48
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding	馈电 Feeding
型号规格 Model specification	A B C	A B C	A B C	A B C	A B C	A B C
HD13BX-600/30		1			2	
HD13BX-400/31		1				2
HD13BX-200/31			3			3
DWX15-630/3[]		1				
CJ20-630/3				1		
CJ20-250/3				1	1	
CJ20-160/3					1	
CJ20-63/3						4
NT-[]		3	9	6	6	12
JDG-0.5 380/100V		2(3)	2(3)			12
(LMZ3D-0.66[]/5)		3	2	2	2	4
LJ-[]		1	2	2	2	4
柜宽 mm Cabinet width		800	800	800	800	800
柜深 mm Cabinet depth		600	600	600	600	600

REGGD 交流低压固定式成套开关设备

AC LV fixed type switchgear

方案编号 Scheme number	49	50	51	52	53	54
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding	馈电 Feeding	照明 Illumination	照明 Illumination	照明 Illumination	照明 Illumination
主电路元件 Electrical element of main circuit	型号规格 Model specification	A B C	A B C	A B C	A B C	A B C
	HD13BX-1000/30	2				
	HD13BX-600/31		2	1		2
	HD13BX-400/31			1	1	
	HR5-630/3[]					
	HR5-400/3[]				1	
	HG2-160					
	DZ10-630P/3[]		2		1	12
	CJ20-630/3		2			
	CJ20-250/3	2				
	CJ20-160/3		2			
	CJ20-63/3	4	4			
	NT-[]	18	18	12	18	18
	SG-[]				1	1
	LMZ3-0.66[]/5			4	6	
	(LMZ3D-0.66[]/5)		6			
	LJ-[]		2			
柜宽 mm Cabinet width	800	800	800	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600

方案编号 Scheme number	55	56	57	58	59	60
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding		馈电 (电动机) Feeding (motor)	馈电 (电动机) Feeding (motor)	馈电 (电动机) Feeding (motor)	馈电 (电动机) Feeding (motor)
主电路元件 Electrical element of main circuit	型号规格 Model specification	A B C	A B C	A B C	A B C	A B C
	HD13BX-600/31	1				
	HD13BX-400/31		1			
	HR5-200/3[]			2		
	HR5-100/3[]			2	4	4
	CJ20-100/3	4	4	2	4	4
	CJ20-63/3			2	4	4
	CJ20-40/3				3	4
	JR16-150/3D		2	4	2	2
	JR16-60/3D				3	2
	NT-[]	12	12			
	LMZ1-0.66[]/5	3	3			
	(LMZ3D-0.66[]/5)			2	4	4
	LJ-[]	4	4	2	4	4
柜宽 mm Cabinet width	800	800	800	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600

REGGD 交流低压固定式成套开关设备

AC LV fixed type switchgear

方案编号 Scheme number	01	02	03	04	05	06
主电路方案图 Main circuit scheme diagram						
用途 Purpose	受电 Electrification 联络 Interconnection			受电 Electrification 联络 Interconnection		
型号规格 Model specification	A	B	C	A	B	C
隔离插头 3200A Isolating plug						
隔离插头 2500A Isolating plug						
隔离插头 2000A Isolating plug						
ME-3205 电动 Motor	1			1		
ME-2505 电动 Motor		1			1	
ME-2500 电动 Motor			1			1
HR5-100/3[]						
JDC-0.5/380/100V						
LMZ2-0.66[]/5	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
(LMZ3D-0.66[]/5)						
柜宽 mm Cabinet width	1000	800	800	1200	1000	1000
柜深 mm Cabinet depth	800	800	800	800	800	800

方案编号 Scheme number	07	08	09	10	11	12
主电路方案图 Main circuit scheme diagram						
用途 Purpose	馈电 Feeding			馈电 Feeding		
型号规格 Model specification	A	B	C	A	B	C
HD13BX-1000/30				1		
HD13BX-600/31					1	
HD13BX-400/31						1
HR5-400/3[]				1	1	2
HR5-200/3[]						4
HR5-100/3[]				1	1	4
ME-630 电动	2					
DWX15C-630/3[] 电磁		2				
DWX15C-400/3[] 电磁			2			
DZX10-630P/3[]				1		
DZX10-400/3[]					1	
DZX10-200/3[]						1
CJ20-600/3[]		2		1		
CJ20-400/3[]			2		1	
CJ20-160/3[]						1
JDG-0.5 380/100V				2(3)	2(3)	2(3)
(LMZ3D-0.66[]/5)	6	6	6	3	3	4
LJ-[]	2	2	2	1	1	1
柜宽 mm Cabinet width	1000	1000	1000	800	800	800
柜深 mm Cabinet depth	800	800	800	600	600	600

REGGD 交流低压固定式成套开关设备

AC LV fixed type switchgear

方案编号 Scheme number	13	14	15	16	17	18											
主电路方案图 Main circuit scheme diagram																	
用途 Purpose	馈电 Feeding			馈电 Feeding			馈电 Feeding			馈电 Feeding			馈电 Feeding				
主回路中电气元件 Electrical element of main circuit	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	
	HR5-630/3[]				2												
	HT5-400/3[]	2				2		2									
	HT5-200/3[]		2				2	1	2		2			2			
	HR5-100/3[]	1	1	3					1		2			3	5		
	CJ20-400/3				2												
	CJ20-250/3					2											
	CJ20-160/3						2	1			2			2			
	CJ20-100/3								1						2		
	JDG-0.5 380/100V	2(3)	2(3)	2(3)													
(LMZ3D-0.66[]/5)	2	2	2	2	2	3	3	3		4			5	5			
LJ-[]	2	2	2	2	2	3	3	3		4			5	5			
柜宽 mm Cabinet width	800	800	800	800	800	800	800	800		800			800	800			
柜深 mm Cabinet depth	600	600	600	600	600	600	600	600		600			600	600			

方案编号 Scheme number	19	20	21	22	23	24										
主电路方案图 Main circuit scheme diagram																
用途 Purpose	馈电 Feeding	馈电 Feeding	馈电 Feeding		馈电 Feeding 照明 Illumination											
主电路电气元件 Electrical element of main circuit	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1000/31	2														
	HD13BX-600/31		2			2										
	DWX15-630/3[] 电磁	2														
	DWX15-400/3[] 电磁		2													
	DZX10-400P/3[]					2										
	DZX10-200P/3[]							4								
	CJ20-400/3					2										
	CJ20-160/3							4								
	HG2-160											12				
	(LMZ3D-0.66[]/5)	6	6			6		4								
	LJ-[]	2	2			2		4								
	柜宽 mm Cabinet width	800	800			800		800				1000				
	柜深 mm Cabinet depth	800	600			600		600				600				

REGGD 交流低压固定式成套开关设备

AC LV fixed type switchgear

方案编号 Scheme number	25			26			27			28			29			30			
主电路方案图 Main circuit scheme diagram																			
用途 Purpose	馈电 (电动机)Feeding (motor)			馈电 (电动机)Feeding (motor)			馈电 (电动机)Feeding (motor)			馈电 (电动机)Feeding (motor)			照明 Illumination			照明 Illumination			
主电路方案图 Main circuit scheme diagram	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1000/31													1			1		
	HD13BX-600/31														1			1	
	HD13BX-400/31															1			
	HR5-200/3[]	2																	
	HR5-100/3[]		2	2	4	4	4	5	5	5	4	4	4						
	B105(或 B170)	2						2	2		4	4							
	B85		2		4	2				2			4						
	B45(或 B165)			2		2	4			3	4		4						
	B37							3	3			4							
	T105(或 T170)	2						2	2		2	2							
	T85(或 T105)		2		4	2				2			2						
T45(或 T105)			2		2	4			3	2		2							
T45(或 T25 T16)							3	3			2								
NT-[]														12	12	12	18	18	18
LMZ3-0.66[]/5														4	4	4	6	6	6
(LMZ3D-0.66[]/5)	2	2	2	4	4	4	5	5	5	4	4	4							
LJ-[]	2	2	2	4	4	4	5	5	5										
柜宽 mm Cabinet width	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
柜深 mm Cabinet depth	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600

方案编号 Scheme number		GGJ1-01			GGJ1-02			GGJ2-01			GGJ2-02								
主电路方案图 Main circuit scheme diagram																			
用途 Purpose		无功补偿 Reactive compensation			无功补偿 Reactive compensation			无功补偿 Reactive compensation			无功补偿 Reactive compensation								
主电路方案图 Main circuit scheme diagram	型号规格 Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
	HD13BX-1000/30							1	1	1	1	1	1						
	HD13BX-400/31	1	1	1	1	1	1												
	LMZ2-0.66[]/5	3	3	3	3	3	3	3	3	3	3	3	3						
	AM3-32	30	24	18	30	24	18	30	24	18	30	24	18						
	FYS-0.22	3	3	3	3	3	3	30	3	3	3	3	3						
	CJ16-32[]	10	8	6	10	8	6	10	8	6	10	8	6						
	JR16-60/32	10	8	6	10	8	6	10	8	6	10	8	6						
	DWB-2N	1	1	1				1	1	1									
	BCMJJ0.4-16/3	10	8	6	10	8	6	10	8	6	10	8	6						
	(BW0.4-6/3)	(10)	(8)	(6)	(10)	(8)	(6)	(10)	(8)	(6)	(10)	(8)	(6)						
柜宽 mm Cabinet width		1000	800	800	1000	800	800	1000	800	800	1000	800	800						
柜深 mm Cabinet depth		600	600	600	600	600	600	600	600	600	600	600	600						

REGCK(L) 低压抽出式开关柜成套开关设备

LV withdrawable switchgear cabinet



概述 General

REGCK(L) 低压抽出式开关柜成套开关设备适用于交流 50Hz, 额定工作电压 380V 的低压配电系统。它包含动力中心 (PC) 和电动机控制中心 (MCC) 的功能, 各项技术参数均达到国家标准, 具有结构先进、外形美观、电气性能高、防护等级高、安全可靠、维护方便等特点, 是冶金、石油、化工、电力、机械、轻纺等行业低压供电系统理想的配电装置。本产品符合 IEC-439、GB7251.1 标准。

REGCK(L) LV withdrawable switchgear cabinet is applicable to the low voltage distribution system with AC50Hz, rated working voltage 380V. It contains power center (PC) and motor control center (MCC) functions. Each technical parameter all reaches national standards. With characteristics of advanced structure, beautiful appearance, high electric performance, high protection grade, reliable and safe and easy to maintain. It is the ideal distribution device for low voltage power supply system in metallurgy, petroleum, chemical, power, machinery and light weaving industries etc. The product accords with standards IEC-439, GB7251.1.

特点 Characteristics

1. REGCK(L)1、REGCJ1 为拼装式组合结构, 基本骨架采用专用型材, 拼装而成。
2. 柜体骨架, 零件尺寸以及开孔尺寸按基本模数 $E=25\text{mm}$ 变化。
3. 在 MCC 方案中, 柜内部分成五个区域 (室): 水平母线区、垂直母线区、功能单元区、电缆室、中性接地母线区。各区互相隔离, 保证线路正常运行, 有效防止故障扩大。
4. 由于框架的所有结构均以螺钉紧固连接而成, 避免了焊接变形和应力, 提高了精度。
5. 零部件通用性强, 适用性好, 标准化程度高。
6. 功能单元 (抽屉) 的抽出、插入为杠杆操作, 加上配置滚动轴承操作轻便、可靠。

1. REGCK(L)1 and REGCJ1 are assemble type combined structure. The basic skeleton is assembled by adopting special bar steel.
2. Cabinet skeleton, component dimension and starter size change according to basic modulus $E=25\text{mm}$.
3. In MCC project, parts in cabinet are divided into five zones (compartment): horizontal bus bar zone, vertical bus bar zone, function unit zone, cable compartment, and neutral earthing bus bar zone. Each zone is separated mutually for circuit's normal running and effectively preventing fault expansion.
4. As all structures of framework are connected and firmed by bolts, so it avoids the welding distortion and stress, and upgrades the precision.
5. Strong general performance, well applicability and high standardization degree for components.
6. Draw-out and insert of function unit (drawer) is lever operation, which is easy and reliable with rolling bearing.

正常使用环境条件 Conditions for normal operating environment

1. 海拔高度不超过 2000 米。
2. 周围空气温度不高于 $+40^{\circ}\text{C}$, 不低于 -5°C , 并且 24h 内平均温度不高于 $+35^{\circ}\text{C}$ 。
3. 大气条件: 空气清洁, 相对湿度在温度为 $+40^{\circ}\text{C}$ 时不超过 50%, 在温度较低时允许有较高的相对湿度, 例如 $+20^{\circ}\text{C}$ 时为 90%。
4. 没有火灾、爆炸危险、严重污染、化学腐蚀及剧烈震动的场所。
5. 与垂直面倾斜不超过 5° 。
6. 控制中心适于以下温度的运输和储存过程: $-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$, 在短时间内 (不超过 24h) 不超过 $+70^{\circ}\text{C}$ 。

1. Altitude above sea level should not exceed 2000M.
2. Ambient air temperature: $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ and the average temperature should not exceed $+35^{\circ}\text{C}$ in 24h.
3. Air condition: With clean air. Relative humidity should not exceed 50% at $+40^{\circ}\text{C}$. Higher relative humidity is allowed at lower temperature. Ex. 90% at $+20^{\circ}\text{C}$.
4. Places without fire, explosive danger, serious pollution, chemical corrosion and fierce vibration.
5. Installation gradient not exceed 5° .
6. Control center is suitable to the transportation and store with following temperature: $-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$, in short time (within 24h) it should not exceed $+70^{\circ}\text{C}$.

REGCK(L) 低压抽出式开关柜成套开关设备

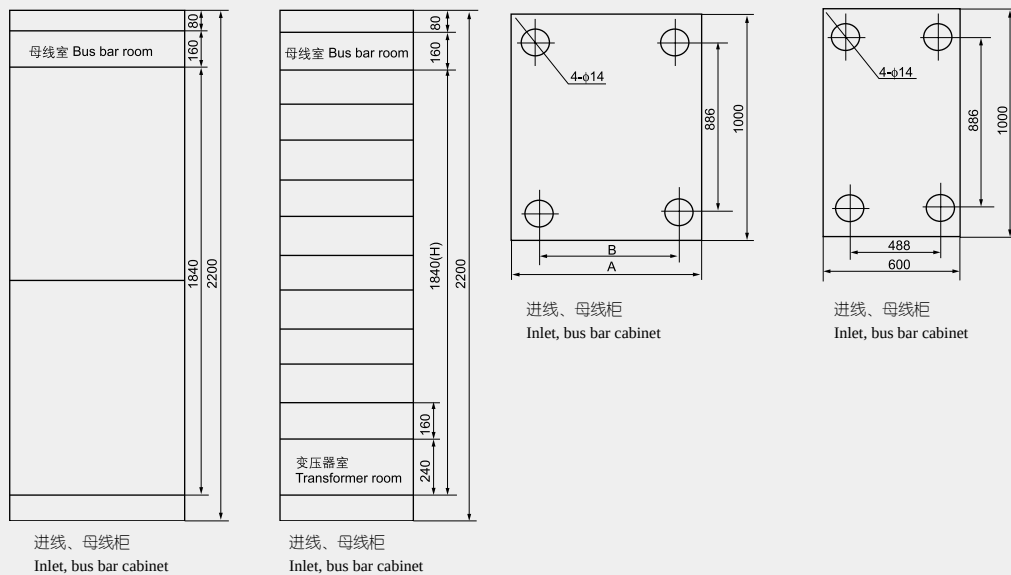
LV withdrawable switchgear cabinet

主要技术参数 Main technical parameters

防护等级 Protection grade	IP40、IP30
额定工作电压 Rated working voltage	AC、380(V)
频率 Frequency	50Hz
额定绝缘电压 Rated insulation voltage	660V
工作条件 Working conditions	
环境 Environment	室内 Indoors
海拔高度 Altitude	≤ 2000m
环境温度 Ambient temperature	-5℃ ~+40℃
在储存、运输条件下，最低温度为 The min temperature under store and transportation	-30℃
相对湿度 Relative humidity	≤ 90%
控制电动机容量 (kW) Capacity of control motor (kW)	0.4~155

额定电流 (A) Rated current (A)	
水平母线 Horizontal bus bar	1600、2000、3150
垂直母线 Vertical bus bar	630、800
主电路触头接插件 Contact connector of main circuit	200、400
馈电电路 Supply circuit	1600
最大电流 Max current	PC 柜 cabinet 630
受电电路 Power receiving circuit	MCC 柜 cabinet 1000、1600、2000、2500、3150
额定短时耐受电流 (kA) Rated short time withstand current (kA)	
有效值 Virtual value	50、80
峰值 Peak value	105、176
工频耐压 (V/1min) Line frequency withstand voltage(V/1min)	2500

内部结构 Interior structure



PC 柜 PC cabinet	2200 × 600(800、1000) × 1000
MCC 柜 MCC cabinet	2200 × 600 × 1000
抽屉高度 Height of drawer	160 240 320 400 480 560 640
受电或馈电 Power receiving or feeding	600 486
受电或母联 Power receiving or bus bar connection	800 686
受电或母联 Power receiving or bus bar connection	1000 886

注：出线柜可组合功能单元的 H 为 1600，若不用公用电源时，可达 1840。
Note: "H" of combined function unit of outlet cabinet is 1600. If not using public power, it will achieve 1840.

REGCS 低压抽出式成套开关设备

LV withdrawable switchgear



概述 General

REGCS 低压抽出式成套开关设备（以下称装置）是原国家机械部、电力部联合设计组根据行业主管部门、广大电力用户及设计单位的要求研制出的符合国情、具有较高技术性能指标、能够适应电力市场发展需要并可与现有引进产品竞争的低压抽出式开关柜。该装置一九九六年七月在上海通过了两部联合主持的鉴定，受到生产制造单位和电力使用部门的重视和肯定。

该装置适用于发电厂、石油、化工、冶金、纺织、高层建筑等行业的配电系统。在大型发电厂、石化系统等自动化程度高，要求与计算机接口的场所，作为三相交流 50(60)Hz，额定工作电压 380V，额定电流 4000A 及以下的发、供电系统中的配电、电动机集中控制、无功功率补偿使用的低压成套配电装置。该装置符合 IEC439-1 和 GB7251.1 标准。

REGCS LV withdrawable switchgear(hereinafter referred to as device) is developed according to the requirements from industry competent department, numerous electric users and design unit by original state mechanical department, united design group of power department. It conforms to national conditions and with higher technical performance index, and adapts the demands for power market development and able to compete with available imported products. The device passed the authentication jointly presided by two departments in July 1996 in Shanghai. It obtains the recognition and affirmation from manufacturing unit and power consumer construction.

The device is applicable to the distribution system of power station, petroleum, chemical engineering, metallurgy, weaving and tall building industries etc. In the places with high automaticity and need computer to joint, such as large-scale power station and petrochemical industry system etc, it is the low voltage complete distribution device used in the generating and power supply system with three-phase AC50(60)Hz, rated working voltage 380V, rated current 4000A and below for distribution, motor central control and reactive power compensation. The device accords with standards IEC439-1 and GB7251.1.

特点 Characteristics

1. 主构架采用 8MF 型钢，型钢的二侧面分别有模数 20mm 和 100mm 的 $\phi 9.2$ mm 安装孔，内部安装灵活方便。
2. 主构架装配形式设计为两种，全组装式结构和部分（侧框和横梁）焊接式结构，供用户选择。
3. 装置的各功能室相互隔离，其隔室分为功能单元室、母线室和电缆室。各室的作用相对独立。
4. 水平主母线采用柜后平置排列方式，以增强母线抗电动力能力，是使装置的主电路具备高短路强度能力的基本措施。
5. 电缆隔室的设计使电缆上下进出均十分方便。
1. Main framework adopts 8MF bar steel. Both sides of bar steel is installed with $\phi 9.2$ mm mounting hole with modulus 20mm and 100mm. Inner installation is flexible and easy.
2. Two types of assembly form design for main framework, full assembly structure and partial (side frame and cross rail) welding structure for user selection.
3. Each function compartment of device is separated mutually. The compartments are divided into function unit compartment, bus bar compartment and cable compartment. Each one has relative independent function.
4. Horizontal bus bar adopts cabinet back level placed array pattern for enhancing the capacity of resisting electrodynamic force for bus bar. It is the basic measure for obtaining high short circuit strength capacity for main circuit.
5. Cable compartment design makes cable outlet and inlet up and down convenient.

主要技术参数 Main technical parameters

主电路额定电压 (V) Rated voltage of main circuit		
交流 AC	380(400)、(660)	母线额定短时耐受电流 (kA/1s) Rated short time withstand current of bus bar
辅助电路额定电压 (V) Rated voltage of auxiliary circuit		50、80
交流 AC	220、380(400)	母线额定峰值耐受电流 (kA/0.1s) Rated peak withstand current of bus bar
直流 DC	110、220	105、176
额定频率 (Hz) Rated frequency	50(60)	工频试验电压 (V/1min) Line frequency test voltage
额定绝缘电压 (V) Rated insulation voltage	660(1000)	主电路 Main circuit
额定电流 (A) Rated current		2500
水平母线 Horizontal bus bar	≤ 4000	辅助电路 Auxiliary circuit
垂直母线 (MCC) Vertical bus bar	1000	1760
		母线 Bus bar
		三相四线制 Three-phase four-wire system
		A.B.C.N
		三相五线制 Three-phase five-wire system
		A.B.C.PE.N
		防护等级 Protection grade
		IP30、IP40

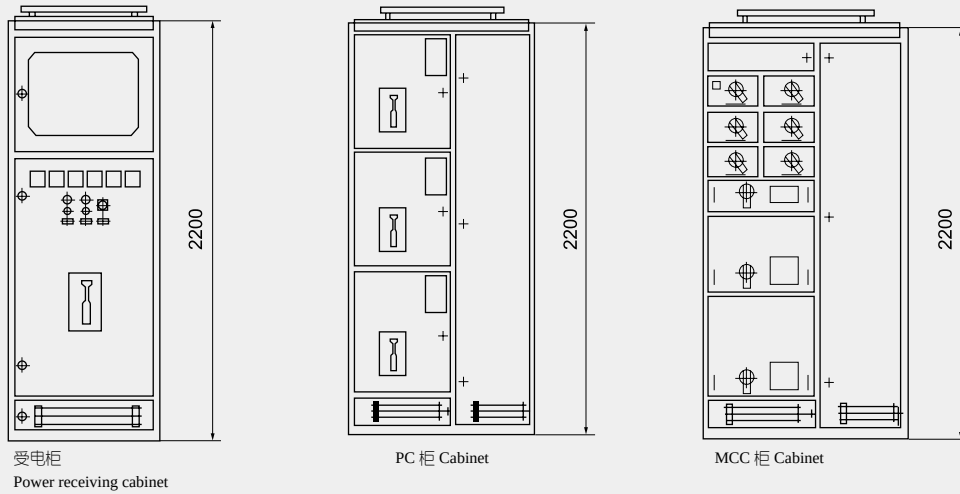
正常使用环境条件 Conditions for normal operating environment

1. 周围空气温度不高于 +40℃，不低于 -5℃，并且 24h 内平均温度不高于 +35℃。
2. 相对湿度在最高温度时不超过 50%，在较低温度时允许有较高的相对湿度，例如 +20℃时为 90%，但应考虑到温度变化，有可能会偶然地产生适度的凝露。
3. 海拔高度不超过 2000 米。
4. 安装倾斜不超过 5°。
5. 没有粉尘，腐蚀性气体和雨水侵袭的户内。
1. Ambient air temperature: -5℃ ~+40℃ and the average temperature should not exceed +35℃ in 24h.
2. Relative humidity should not exceed 50% at max temperature. Higher relative humidity is allowed at lower temperature. Ex. 90% at +20℃. But in view of the temperature change, it is possible that moderate dews will produce casually.
3. Altitude above sea level should not exceed 2000M.
4. Installation gradient not exceed 5°.
5. Indoor without dust, corrosive gas and rain water attack.

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LV withdrawable switchgear

内部结构 Interior structure



高 H	2200									
宽 W	400		600		800			1000		
深 D	800	1000	800	1000	600	800	1000	600	800	1000

一次线路方案 primary wire scheme diagram

主电路方案 Main circuit scheme	01							02							03							04						
单线图 Line diagram																												
用途 Purpose	受电 (上进线) Electrification (upper incoming line)							受电 (下侧进线) Electrification (lower incoming line)							受电 (电缆进线) Electrification (lower incoming line)							联络 Interconnection						
规格序号 Specification serial No	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G
短时耐受电流 / 瞬时耐受电流 (kA)	80/176							80/176							80/176							80/176						
Short time withstand current / instantaneous withstand current	50/105							50/105							50/105							50/105						
	30/63							30/63							30/63							30/63						
额定电流 (A) Rated current	4000	3150	2500	2000	1600	1000	630	4000	3150	2500	2000	1600	1000	630	2500	2000	1600	1000	630			4000	3150	2500	2000	1600	1000	630
主回路元件 Main electrical appliance	AH-40C	1						1														1						
	AH-30CH		1						1														1					
	AH-25C			1						1					1									1				
	AH-20C				1						1					1									1			
	AH-16B					1						1					1									1		
	AH-10B						1						1					1									1	
	AH-6B							1						1					1									1
																			1									
SDL- □															(1)	(1)	(1)	(1)	(1)									
SDH- □ □ /5	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)								
柜宽 mm Cabinet width	800(1000)			600				800(1000)			600				800			600				1000			800			
柜深 mm Cabinet depth	1000			800				1000			800				800			800				1000			800			
占地小室高度 mm Occupied cabinet height																												

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主电路方案 Main circuit scheme	05	06	07	08
单线图 Line diagram				
用途 Purpose	母线转接 Bus adaptation	馈电 Feeding	双电源手动切换 Manual switch-over of dual power supply	双电源手动切换 Manual switch-over of dual power supply
规格序号 specification serial No.		A B C	A B	A B C D E F G
短时耐受电流 / 瞬时耐受电流 (kA)		50/105	50/105	50/105
Short time withstand current / instantaneous withstand current		30/63	30/63	30/63
额定电流 (A) Rated current		1600 1000 630	1000 630	1000 630
主电路电器元件 Main electrical appliance	AH-16B	1	1	1
	AH-10B	1	1	1
	AH-6B	1	1	1
	QPS-1000		1	1
	QPS-630			1
		(1) (1) (1)		
	SDL- □			
	SDH- □ □ /5	1(3) 1(3) 1(3)	3(4) 3(4)	3(4) 3(4)
柜宽 mm Cabinet width	400(600)	1000	1000	1000
柜深 mm Cabinet depth	800(1000)	800(1000)	800	800
占用小室高度 mm Occupied cabinet height		640		

备注: 1.AH 是主断路器, 也可选用其它性能更先进或进口中 F、MT 系列断路器。AH is master circuit breaker, it can also choose imported F, MT series or circuit breaker with more advanced performance.
2.01、02、04 方案如 PE+N 需进入电源柜时需用括号内尺寸。01, 02, 04 scheme, e.g.: When the PE+N needs to enter power cabinet, the width size adopts the one in the bracket.
3.SDL、SDH 是 BGCS 柜专用电流互感器。SDL 和 SDH 是 special current transformers for BGCS cabinet.

主电路方案 Main circuit scheme	09	10	11	12
单线图 Line diagram				
用途 Purpose	双电源切换 Manual switch-over of dual power supply	馈电 Feeding	馈电 Feeding	限流电抗器 Current limiting reactor
规格序号	A B	A B C D	A B C	C
短时耐受电流 / 瞬时耐受电流 (kA)	50/105	50/105	50/105	
Short time withstand current / instantaneous withstand current	30/63	30/63	30/63	
额定电流 (A) Rated current	400 250	630 400 250 160	400 200 100	600
主电路电器元件 Main electrical appliance	QSA-630	1		
	QSA-400	1		
	QSA-250		1	
	QSA-160		1	
	限流电抗器 600A 0.0084Ω/φ			3
	B370,LR1,CJ35			
	B250,LR1,CJ35			
	TG400BD,CM1-400M,TM30		1	
	TG225BD,CM1-225M,TM30		1	
	TG100BD,CM1-100M,TM30		1	
	SDL- □	(1) (1) (1) (1)	(1) (1) (1)	
	SDH- □ □ /5	1(3) 1(3) 1(3) 1(3)	1(3) 1 1	
柜宽 mm Cabinet width	800(1000)	1000	800(1000)	600
柜深 mm Cabinet depth	600	800(1000)	600	800
占用小室高度 mm Occupied cabinet height	480 × 2	480 320	240(160)	

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主电路方案 Main circuit scheme				13				14				15							
单线图 Line diagram																			
				电压互感器 Voltage transformers				电压互感器 Voltage transformers				电压互感器 Voltage transformers							
				规格序号 Specification serial No															
				额定电流 (A) Rated current															
主回路接线图 Main electrical appliance				QSA-63				1				1							
				NT00- □				3											
				JDG-0.5 380/100				2				2							
				JSGW-0.5												1			
				SDH- □ □ /5															
柜宽 mm Cabinet width				(不占间隔，装在受电柜内或 05 方案转接柜内接在分支母线上)															
柜深 mm Cabinet depth																			
占用小室高度 mm Occupied cabinet height																			

备注：馈线方案可以加装零序保护，零序电流互感器装入电缆隔室。

Remark: feed line scheme can be equipped with zero-phase sequence protection with zero-phase sequence current transformer installed in cable chamber.

主电路方案 Main circuit scheme		16							17							18							19						
单线图 Line diagram																													
用途 Purpose		电动机 (不可逆) Motor (irreversible)							电动机 (不可逆) Motor (irreversible)							电动机 (不可逆) Motor (irreversible)							电动机 (不可逆) Motor (irreversible)						
规格序号 Specification serial No		A	B	C					A	B							A	B	C										
最大控制电机功率 (kw) Max. control power		100	75	55					35	75						7.5	100	75	55										
主电路方案 Main electrical appliance	QSA-250	1															1												
	QSA-160		1															1											
	QSA-125			1					1										1										
	HH17-63								1																				
	NT00- □														3														
	B250,LC1,CJ35	1															2												
	B170-105,LC1,CJ35		1	1														2	2										
	B85 或 LC1-D80								1																				
	B45 或 LC1-D32								1																				
	B16 或 LC1-D18														1														
	T85,LR1								1																				
	TSA45,LR1									1																			
T16,LR1		1	1	1											1		1	1	1										
SDL- □		(1)	(1)	(1)					(1)	(1)					(1)		(1)	(1)	(1)										
SDH- □ □ /5		3	3	3					1	1					1		3	3	3										
柜宽 mm Cabinet width		800(1000)							800(1000)							800/2(1000/2)							800(1000)						
柜深 mm Cabinet depth		600							600							600							600						
占用小室高度 mm Occupied cabinet height		480							320							160							480						

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主电路方案 Main circuit scheme	20										21										22										23									
单线图 Line diagram																																								
用途 Purpose	电动机 (可逆) Motor (reversible)										电动机 (可逆) Motor (reversible)										电动机 (不可逆) Motor (irreversible)										电动机 (不可逆) Motor (irreversible)									
规格序号 specification serial No	A	B																			A	B	C								A	B	C							
最大控制电机功率 (kw) Max. control power	37	15											7.5								100	75	55							37	15	7.5								
主电路方案 Main electrical appliance	QSA-125	1																																						
	HH17-63		1																																					
	NT00- □												3																											
	CM1-400LTG-400BD,TM30																				1																			
	CM1-225M,TM30																					1	1																	
	CM1-100M,TG-100BD,TM30																														1	1								
	NZMS4,TM30																																1							
	B250,LC1,CJ35																				1																			
	B170-105,LC1,CJ35																					1	1																	
	B85 或 LC1-D80	2																													1									
	B45 或 LC1-D32		2																													1								
	B16 或 LC1-D18												2																				1							
	T85,LR1	1																													1									
	TSA45,LR1		1																													1								
	T16,LR1												1								1	1	1									1								
	SDL- □	(1)	(1)										(1)								(1)	(1)	(1)																	
	SDH- □ □/5	1	1										1								3	3	3																	
柜宽 mm Cabinet width	800(1000)										800/2(1000/2)										800(1000)										800(1000) 800/2(1000/2)									
柜深 mm Cabinet depth	600										600										600										600 600									
占用小室高度 mm Occupied cabinet height	480										160										480 320										240 160									

主电路方案 Main circuit scheme		24										25																													
单线图 Line diagram																																									
用途 Purpose		电动机(可逆)Motor (reversible)										电动机(可逆)Motor (reversible)																													
规格序号 specification serial No.		A	B	C								A	B	C																											
短时耐受电流 / 瞬时耐受电流 (kA)		50/105										50/105																													
Short time withstand current / instantaneous withstand current		30/63										30/63																													
最大控制电机功率 (kw)Max. control power		100	75	55								37	15	7.5																											
主电路方案 Main electrical appliance		CM1-400L 或 TG-400BD,TM30	1																																						
		CM1-225M,TM30		1																																					
		CM1-100M,TG-100BD,TM30											1	1																											
		NZMS4,TM30																																1							
		B250,LC1,CJ35	2																																						
		B170-105,LC1,CJ35																																							
		B85 或 LC1-D80											2																												
		B45 或 LC1-D32												2																											
		B16 或 LC1-D18																																2							
		T85,LR1											1																												
		TSA45,LR1												1																											
		T16,LR1	1	1	1																													1							
		SDL- □	(1)	(1)	(1)								(1)	(1)	(1)																										
		SDH- □ □ /5	3	3	3								1	1	1																										
柜宽 mm Cabinet width		800(1000)										800(1000) 800/2																													
柜深 mm Cabinet depth		600										600 1000/2																													
占用小室高度 mm Occupied cabinet height		480 320										240 160																													

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主电路方案 Main circuit scheme	26	27	28	29
单线图 Line diagram				
用途 Purpose	Y- △启动 Start	Y- △启动 Start	Y- △启动 Start	Y- △启动 Start
规格序号 Specification serial No.	A B	A B	A B	A B
短时耐受电流 / 瞬时耐受电流 (kA)	50/105	50/105	50/105	50/105
Short time withstand current / instantaneous withstand current	30/63	30/63	30/63	30/63
最大控制电机功率 (kw)Max. control power	160 90	37 15	160 90	37 15
Main electrical appliance 主电路电器	QSA-400~250			
	QSA-125			1
	HH17-63			
	NT3- □	3 3		1
	TG-400BD,TM30	1		
	CM1-225M,TG-225BD,TM30	1		
	CM1-100M,TG-100BD,TM30		1 1	
	B370+B250,LC1,CJ35		2+1	
	B250+B170,LC1,CJ35		2+1	
	B85 或 LC1-D80			3
	B45 或 LC1-D80		3	
	T85,LR1		1	3
	TSA45,LR1		1	1
	T16,LR1	1 1	1 1	1 1
	SDL- □	(1) (1)	(1) (1)	(1) (1)
	SDH- □ □ /5	3 3	3 3	1 1
柜宽 mm Cabinet width	1000	800(1000)	800(1000)	800(1000)
柜深 mm Cabinet depth	800(1000)	600	600	600
占用小室高度 mm Occupied cabinet height	1120 960	320	800	320

主电路方案 Main circuit scheme	30	31	32
单线图 Line diagram			
用途 Purpose	无功补偿 (主柜) Reactive compensation(master cabinet)	无功补偿 (主柜) Reactive compensation(master cabinet)	公共电源 Common power supply
规格序号 Specification serial No.	A B C	A B C	
最大补偿容量 (kw)Max. compensation capacitance	160 128 96	160 128 96	
Main electrical appliance 主电路电器	QA-400	1 1 1	
	am-32	30 24 18	
	NT00- □		3
	JBK3-400		1
	B30C	10 8 6	
	T45,LR1	10 8 6	
	BCMJ-0.4-16-3	10 8 6	
	SDH- □ □ /5	3 3 3	
柜宽 mm Cabinet width	1000 800	1000 800	
柜深 mm Cabinet depth	800(1000)	800(1000)	
占用小室高度 mm Occupied cabinet height			

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概述 General

REMNS 低压抽出式成套开关设备（以下简称为装置）是参考瑞士 ABB 公司 MNS 系列低压开关柜并加以综合改进后用标准模件生产制造的产品。本装置适用于交流 50Hz，额定工作电压 660V 及以下的系统。作为各种发电、输电、配电、电能转换和电能消耗设备的控制设备，能广泛应用于各工矿企业、大楼宾馆、市政建设等低压配电系统中。除一般陆用外，经过特殊处理后，还可以用于海上石油钻采平台和核电站中。

本装置符合国际标准 IEC439-1，国家标准 GB7251.1。

REMNS LV withdrawable switchgear (hereinafter referred to as device) is manufactured by standard module through consulting MNS series low voltage switch cabinet of Switzerland ABB Company, and synthetically improved. The device is applicable to the system with AC 50Hz, rated working voltage 660V and below, used as control device for various power generation, transmission, distribution, power transfer and power consumption device. It is widely used in low voltage distribution system of various mining enterprise, tall building and hotel, municipal construction etc. Besides the general land use, after special disposal, it also can be used for marine petrol drill taken platform and nuclear power station.

The device accords with international standard IEC439-1 and national standard GB7251.1.

特点 Characteristics

1. 设计紧凑：以较小的空间能容纳较多的功能单元。
2. 结构通用性强，组装灵活，以 25mm 为模数的 C 型型材能满足各种结构型式、防护等级、使用环境的要求。
3. 采用标准模块设计：分别可组成保护、操作、转换、控制、调节、测定、指示等标准单元。用户可根据需要任意选用组装，以 200 余种零件可以组成不同方案的柜架结构和抽屉单元。
4. 安装性好：大量采用高强度阻燃型工程塑料组件，有效加强防护安全性能。
5. 技术性能高：主要参数达到国内先进水平。

1. Compact design: Contain more function units with less space.
2. Strong versatility for structure, flexible assembly. C type bar section of 25mm modulus can meet the demands of various structure and type, protection grade and operating environment.
3. Adopt standard module design, can be combined into protection, operation, transfer, control, regulation, measurement, indication etc such standard units. User can choose assembly according to requirement at will. Cabinet structure and drawer unit can be formed with more than 200 components.
4. Fine security: Adopt high strength antflaming type engineering plastic pack in large quantity to effectively enhance the protective safety performance.
5. High technical performance: Main parameters reach the advanced level at home.

主要技术参数 Main technical parameters

额定工作电压 (V) Rated working voltage	额定绝缘电压 (V) Rated insulation voltage	额定工作电流 (A) Rated working current		额定短时耐受电流 有效值 (IS)/ 峰值 (kA) Virtual value (IS)/peak value (kA) of rated short time withstand current		外壳防护等级 IP30、IP40 Protection grade of shell
		水平母线 Horizontal bus bar	垂直母线 Vertical bus bar	水平母线 Horizontal bus bar	垂直母线 Vertical bus bar	
380、660	660、1000	630-5000	800-2000	50-100/ 105-250	60/130 -150	外形尺寸高 × 宽 × 深 Outline dimension H × W × D 2200 × 600(800、1000) × 800(1000)

垂直母线额定工作电流：

单面或双面操作的抽出式 MCC 为 800A，柜深 1000mm 单面操作的 MCC 为 800~2000A。

Rated working current of vertical bus bar:

Draw-out type MCC with single side or double sides operation: 800A. MCC with 1000mm depth and single operation: 800~2000A.

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正常使用环境条件 Conditions for normal operating environment

1. 周围空气温度不高于 +40℃，不低于 -5℃，并且 24h 内其平均温度不高于 +35℃。
2. 大气条件：空气清洁，相对湿度在最高温度 +40℃时不超过 50%，在较低温度时允许有较高的相对湿度，例如 +20℃时为 90%，但应考虑到温度变化，有可能会偶然产生适度的凝露。
3. 海拔高度不超过 2000m。
4. 本装置适应于以下温度的运输和储存过程：-25℃至 +55℃的范围之间，在短时间内（不超过 24h）可达 +70℃，在这些极限温度下装置不应遭到任何不可恢复的损伤，而且在正常的条件下应能正常工作。
5. 如果上述使用条件不能满足时，应由用户和制造厂协商解决。
6. 当本装置使用于海上石油钻采平台和核电站时，应另签订技术协议。

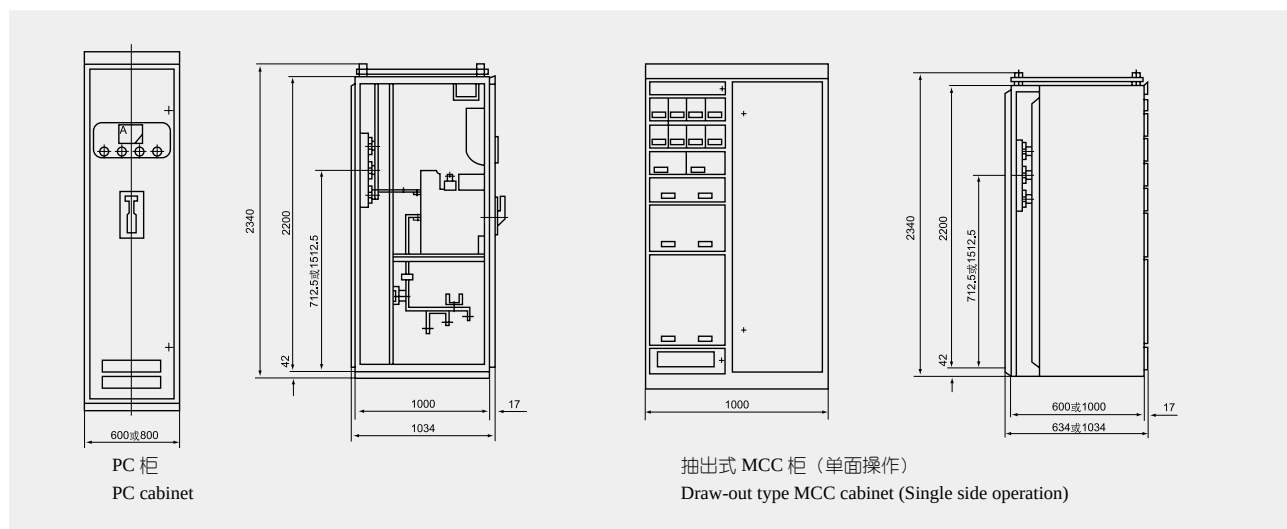
1. Ambient air temperature: -5℃ ~+40℃ and the average temperature should not exceed +35℃ in 24h.
2. Air condition: With clean air. Relative humidity should not exceed 50% at +40℃. Higher relative humidity is allowed at lower temperature. Ex. 90% at +20℃. But in view of the temperature change, it is possible that moderate dews will produce casually.
3. Altitude above sea level should not exceed 2000M.
4. The device is suitable to the transportation and store with following temperature :-25℃ ~+55℃, in short time (within 24h) it reaches +70℃. Under the limiting temperature, device should not suffer damage that can't recover, and it can works normally under normal conditions.
5. If the above operating conditions not meet user's demand. Consult with manufactory.
6. Technical agreement should be signed additionally if the device is used for marine petrol drill taken platform and nuclear power station.

结构特征 Structure characteristics

装置的基本柜架为组合式装配结构，柜架的基本结构件都经过镀锌处理，通过自攻锁紧螺钉或 8.8 级方角螺丝紧固互相结合成基本柜架，再按方案变化需要，加上相应的门、封板、隔板、安装支架，以及母线、功能单元等零部件，组装成一台完整的装置。装置内零部件尺寸，隔室尺寸实行模数化（模数单位 e=25mm）。

The basic cabinet of device is combined assembly structure. Basic structural pieces of cabinet is zinc plated, connected and firmed into basic bracket through self tapping locking screw or 8.8 grade square corner screw. According to the change demand of project, additionally add corresponding gate, closing board, baffle plate, installation support and the components of bus bar, function units, to assemble a complete set of device. Perform modulus to interior component and compartment size (Modulus unit e=25mm).

内部结构 Interior structure



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一次回路方案图 Primary circuit scheme diagram

方案编号 Scheme number	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
一次方案 Primary scheme																				
柜宽 (mm) Cabinet width	400	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000	
设备室高 Equipment chamber height	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	
最大工作电流 (A) Max. working current	1500	1500	2300	3150	1500	3200	4000	1600	3200	4000	2000	3200	4000	2000	3000	3600	1500	3200	4000	
主要设备 Main equipment	ME1605 F1-1600 M16 BHG-60II	ME630~ ME1605 BHG-100	ME2000~ ME2505 BHG-100	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	ME3200~ ME2505 BHG-120II	
用途 Purpose	电缆进线或出线 Cable incoming or outgoing																			

方案编号 Scheme number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
一次方案 Primary scheme																				
柜宽 (mm) Cabinet width	400/600	800	1000	400/600	800	1000	600	800	1000		600	800	1000	600	800	1000	600	800	1000	
设备室高 Equipment chamber height	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	
最大工作电流 (A) Max. working current	1500	2300	3150	1500	3000	4000	1600	3200	4000		2000	3200	4000	2000	3200	3600		3200	4000	
主要设备 Main equipment	ME630~ ME1605 M16 BHG-60II	ME2000~ ME2505~ BHG-100	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	ME2000~ ME2505~ BHG-120	
用途 Purpose	柜顶进线 Incoming/outgoing line of cabinet top																			

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方案编号 Scheme number	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
一次方案 Primary scheme																				
柜宽 (mm) Cabinet width	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800
设备室高 Equipment chamber height	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E
最大工作电流 (A) Max. working current	1500	2300	3150	1600	3200	4000	1600	3200	4000	1600	3200	4000	1600	3200	4000	1600	3200	4000	1600	3200
主要设备 Main equipment	ME630~ ME1605 BHG-100	ME2000~ ME2505 BHG-100	ME3200 ME3205 BHG-120	AH-6B~ AH-16B BHG-100	AH-20CH~ AH-30CH BHG-100	AH-40C BHG-120II	M08~ M32 BHG-120	M20~ M16 BHG-120	M40 BHG-120II	F1-1250 ~F1-2000 BHG-100	F2-2000 ~F4-3200 BHG-100	F5-4000 BHG-120	F1-1250 ~F1-1600 4极开关 BHG-100	F2-2000~ F2-3000 4极开关 BHG-120	F4-3200~ F4-3600 4极开关 BHG-120	F4-3200 F4-3600 4极开关 BHG-120	F4-3200 F4-3600 4极开关 BHG-120	M28 至 M32 4极开关 BHG-120II	M40 4极开关 BHG-120	M40 4极开关 BHG-120
用途 Purpose	母联 Bus connection																			

方案编号 Scheme number	61	62	63	64	65	66	67	68	69	70	71	72	73	74
一次方案 Primary scheme														
柜宽 (mm) Cabinet width	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
设备室高 Equipment chamber height	8E/4	8E/2	8E	16E	24E	8E/4	8E/2	8E	16E	24E	8E	16E	8E	8E
最大工作电流 (A) Max. working current	30	50	100	300	600	30	50	200	300	500	100	300	100	200
主要设备 Main equipment	S503-LV10-40 或 NC100L- BHG-30	S503-LV10- GV63 或 NC100L- BHG-30	TC30B TG100B BHG-30	TC225B TG400B BHG-40	TG600B BHG-40	NT-40 KG64B 或 HH17	NT-40 KG60B 或 HH17 BHG-30	NT-00-1 SMP60-1 BHG-40	NT-2 SMP-2 BH-40	NT-3 SMP-3 BH-60	QSA-63 QSA-125 BHG-40	QSA-250 QSA-400 BHG-60	DCHRI-00 125A BHG-40	DCHRI-1 250A BHG-40
用途 Purpose	馈线 Feed line													

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方案编号 Scheme number	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
一次方案 Primary scheme																				
柜宽 (mm) Cabinet width	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
设备室高 Equipment chamber height	16E	16E	8E/4	8E/2	8E/4	8E/2	8E/4	8E/2	8E	16E	24E	24E	8E/2	8E	16E	24E	8E	16E	24E	24E
最大工作电流 (A) Max. working current	300	500	7.5	15	7.5	15	7.5	15	45	75	160	15	37	65	110	7.5	15	55	110	110
主要设备 Main equipment	DCHR1-2 400A BHG-60	DCHR1-1 630A BHG-60	S503 B16-B25 BHG-30	S503 B37-B45 BHG-30	NC100L B16-B25 BHG-30	NC100L B37-B45 BHG-30	NC100L B16-B25 BHG-30	S503 B16-B25 BHG-30	S503 或 NC100L B16-B25 BHG-30	TG-100B B65-B105 BHG-40	TG-225B B65-B105 BHG-40	TG-400 EH370 BHG-40	S503 B16-45 T16-TSA45 BHG-30	TG-100B B65-85 T105 BHG-40	TG-225B B105-170 T250 BHG-40	TG-400B B250 T250 BHG-40	S503 B16 T16 BHG-30	TG-100B B37 TSA45 BHG-30	TG-225B B45-85 T105 BHG-40	TG-225 B105-170 T170 BHG-40
用途 Purpose	馈线 Feed line	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	可逆 Reversible	可逆 Reversible	可逆 Reversible	Y/△	Y/△	Y/△	Y/△

方案编号 Scheme number	95	96	97	98	99	100	101	102	103	104	105	106	107
一次方案 Primary scheme													
柜宽 (mm) Cabinet width	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
设备室高 Equipment chamber height	8E/4	8E/2	16E	24E	24E	8E/2	8E	24E	24E	8E/2	8E	16E	16E
最大工作电流 (A) Max. working current	7.5	22	55	110	160	15	30	65	100	7.5	15	55	90
主要设备 Main equipment	NT-00 KG64B B16 T16 或 HH17 BHG-30	NT-00 KG64B B25-45 T25-45 或 HH17 BHG-30	QSA-250 B65-170 T105-170 BHG-40	QSA-400 B170-250 T170-250 BHG-40	QSA-400 B250-370 T250-370 BHG-40	NT-00 KG64B B16-45 T16-45 或 HH17 BHG-30	QSA-125 B65-85 T105 BHG-30	QSA-250 B105-170 T105-170 BHG-40	NT-2 B250 T250 BHG-40	NT-00 B16 T16 BHG-30	QSA-125 B25-45 TSA45 BHG-30	QSA-160 B45-B85 T105 BHG-40	QSA-400 B105-170 T105-170 BHG-40
用途 Purpose	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	不可逆 Irreversible	可逆 Reversible	Y/△	Y/△	Y/△	Y/△

REMNS 低压抽出式成套开关设备

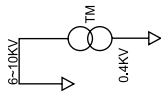
LV withdrawable switchgear

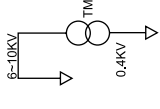
方案编号 Scheme number	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123
一次方案 Primary scheme																
柜宽 (mm) Cabinet width	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	400	600	600	800	600
设备室高 Equipment chamber height	72E	72E	72E	72E	72E	72E	72E	72E	32E PC	间隔 8E	32EMCC	72E	72E	72E	7E	16E
最大工作电流 (A) Max. working current	1600 × 2	1600 × 2	1600 × 2	1600 × 2	1600 × 2	630 × 3	630 × 3	630 × 3	630	2500	4000	2000	4000			
主要设备 Main equipment	ME630~ ME1605 (3P~4P) BHG-80	M08~ M10 (3P~4P) BHG-80	F1250~ F1600 (3P~4P) BHG-80	M08~ M1600 (3P~4P) BHG-80	M08 BHG-80	F1250 BHG-80	630 × 3	630 × 3	AH630 或 M08 或 F1250 BHG-80	按高度 8E 或 165Emcc 方案选出组 合	BHG-100 BHG-120 或用户自备	4000	2000	DS862-2 DX962-2 DT862-2 (最多安 装 8 只)	DS862-2 DX962-2 DT862-2 (最多安 装 12 只)	DT862-3 只
用途 Purpose	电缆进线或出线 Cable incoming or outgoing										计量 Metering		母联 Bus connection			计量

方案编号 Scheme number	124	125	126	127	128	129	130	131
一次方案 Primary scheme								
柜宽 (mm) Cabinet width	600	800	600	800	600+200	600+400	600+200	600+400
设备室高 Equipment chamber height	72E	72E	72E	72E	72E	72E	72E	72E
最大工作电流 (A) Max. working current	(8 × 16)128	(12 × 16)192	(8 × 16)128	(12 × 16)192	(8 × 16)128	(16 × 16)256	(8 × 16)128	(16 × 16)256
主要设备 Main equipment	QSA-400 NT 或 RT20 B30C BHG-40 BCM13 (10~16KVAR)	QSA-400 NT 或 RT20 B30C BCM13 (10~16KVAR)	QSA-400 NT 或 RT20 B30C BCM13 (10~16KVAR)	QSA-400 NT 或 RT20 B30C BHG-40 BCM13 (10~16KVAR)	DCHRI-2 DCHRI-3 B30C BHG-40 BCM13(10~16KVAR)	DCHRI-3 NT 或 RT20 B30C B30C BHG-40 BCM13(10~16KVAR)	DCHRI-3 NT 或 RT20 B30C BCM13(10~16) BHG-40	DCHRI-3 NT 或 RT20 B30C BCM13(10~16) BHG-40
用途 Purpose	自动控制补偿柜 automatic control compensation cabinet				补容柜 Compensation cabinet			

REMNS 低压抽出式成套开关设备

LV withdrawable switchgear

方案编号 Scheme number	132	133	134	135	136	137	138	139	140	141	142	143
一次方案 Primary scheme												
装置容量 (KVA) Device capacity	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500
外形尺寸 (高 × 宽 × 深) Dimensions (height × width × depth)	2200 × 1800 × 1200	2200 × 2200 × 1400	2400 × 2400 × 1600	2600 × 2600 × 1600	2200 × 1800 × 1200	2200 × 2200 × 1400	2400 × 2400 × 1600	2600 × 2600 × 1600	2200 × 1800 × 1200	2200 × 2200 × 1400	2400 × 2400 × 1600	2600 × 2600 × 1600
主要设备 Main equipment	SCB-200/10 SCB-250/10 SCB-315/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10 SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10 SCB-1000/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10 SCB-1000/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10
用途 Purpose	电缆下进，下出 Cable lower incoming, lower outgoing											

方案编号 Scheme number	144	145	146	147	148	149	150	151	152	153	154	155
一次方案 Primary scheme												
装置容量 (KVA) Device capacity	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500
外形尺寸 (高 × 宽 × 深) Dimensions (height × width × depth)	2200 × 1800 × 1200	2200 × 2200 × 1400	2400 × 2400 × 1600	2600 × 2600 × 1600	2200 × 1800 × 1200	2200 × 2200 × 1400	2400 × 2400 × 1600	2600 × 2600 × 1600	2200 × 1800 × 1200	2200 × 2200 × 1400	2400 × 2400 × 1600	2600 × 2600 × 1600
主要设备 Main equipment	SCB-200/10 SCB-250/10 SCB-315/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10 SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10 SCB-1000/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10 SCB-1000/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10
用途 Purpose	母排侧进，电缆下出 busbar side incoming, cable lower outgoing											

说明 Instruction:

1. 变压器及进出线方式可根据需要另行选择。The transformer and its outgoing and incoming line can be chosen according to requirement.
2. 还有载流装置时，外形尺寸按500mm或加深400mm，具体与制造商协商。When on-load voltage tapping is installed, the width of outline dimension should be widened by 500mm or deepened by 400mm, please negotiate with factory for details.
3. 产品说明及图例供参考，随着时间的推移，有可能不断修改，不再另行通知，请您与我们联系。The instruction and diagram reference will be updated successively as the times goes by, and we will not notice separately, please contact our company.

REMGB 电机软启动柜

Soft start cabinet for motor

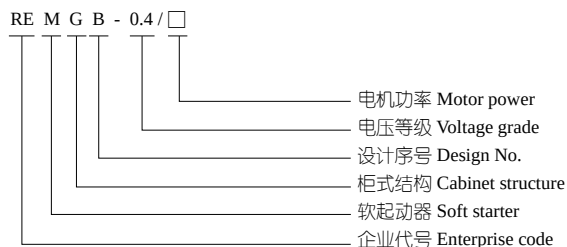
概述 General

REMGB 数字式软启动器是我公司专为用户设计制造的高新技术产品。结构简单、使用方便、安全可靠、功能齐全、启动电流小、体积小、节能、高寿命。它能克服传统的 Y-△ 启动、自耦变压器启动、电阻降压启动所带来的缺陷。如高冲击电流、转矩的冲击。克服了体积庞大、线路复杂、能耗高、维修率高缺点，是传统启动器的理想换代产品。

REMGB digital soft starter is the high and new technology product designed and manufactured by our company for users. It has features of simple structure, easy operation, secure and reliable, complete functions, small starting current, small, energy-saving and long-life. It overcomes the defects brought by traditional Y-△ start, self-coupling transformer start and resistance step-down start, such as high impulse current and impulse from torque. It is the ideal changing generation product for traditional starter by overcoming the defects of big, complex circuits, high power consumption and high maintenance rate etc.



产品型号及含义 Product type and meaning



主要技术参数 Main technical parameter

型号 Type	功率 (kW) Power	额定电流 (A) Rated current	外形尺寸 (mm) Outline dimension						重量 (Kg) Weight
			A	B	C	D	E	F	
REMGB-15~30	15,17,22,30	32,37,54,75	1000	500	350	35	250	440	
REMGB-37~75	37,45,55,75	86,97,130,155	1400	600	430	35	345	390	
REMGB-90	90	180	1600	660	530	35	440	500	90
REMGB-110	110	220	1600	660	530	35	440	500	90
REMGB-132	132	260	1600	660	530	35	440	500	120
REMGB-160	160	318	1600	660	530	35	440	500	120
REMGB-225	225	460	1600	660	530	35	440	500	145
REMGB-250	250	490	1800	660	530	35	500	450	145
REMGB-320	320	630	1800	660	530	35	500	450	170
REMGB-400	400	790	2000	800	600	35	400	610	200
REMGB-500	500	980	2000	800	600	35	400	610	200
REMGB-600	600	1100	2000	800	600	35	400	610	200
REMGB-810	810	1400	2000	800	600	35	400	610	200

RE-GZDW 直流电源屏

Direct-current Power Supply Panel

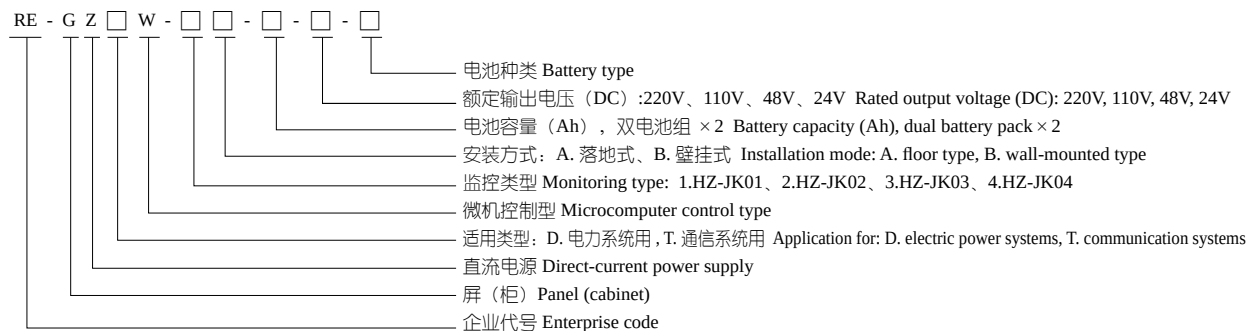


概述 General

新一代微机控制型直流电源系统 RE-GZDW/GZTW 系列采用一体化模块结构设计，主要由监控模块、整流模块、绝缘监测模块、电池巡检模块、交直流监测模块、开关量监测模块、降压模块、配电单元、蓄电池和柜体组成，具有配置灵活、性能稳定、界面友好、操作简单、管理智能等特点。广泛适用于各类发电厂、变电站（所）、移动通信基站、工矿企业、电气化铁路、机场、港口以及高层建筑、住宅小区等领域，可作为高压开关、机电保护、自动装置、通信设备、程控交换机、电力载波机等设备的操作和控制电源。

This new generation of microcomputer controlled direct-current power supply panel RE-GZDW/GZTW series adopts integrated module structure, is mainly composed of monitoring module, rectifier module, insulated monitoring module, battery inspection module, AC/DC monitoring module, switching value monitoring module, step-down module, distribution unit, storage battery and cabinet body, is featured with flexible configuration, stable performance, friendly interface, simple operation, intellectualized management, etc. The products are widely applied to various power plants, transformer substations, mobile communication station, industrial and mining enterprises, electrified railways, airports, havens, high-rise buildings, residential areas, etc, also can be used as operating and control source of high-voltage switch, electromechanical protection, automatic device, communication equipment, SPC exchange, electric carrier and other equipment.

型号定义 Model definition



行业标准 Trade standards

DL/T459—2000 电力系统直流电源柜订货技术条件;	DL/T459-2000 Specifications of D.C supply cabinet in power system
DL/T637—1997 阀控式密封铅酸蓄电池订货技术条件;	DL/T637-1997 Specification for order of the valve regulated sealed lead-acid batteries
DL/T724—2000 电力系统蓄电池直流电源装置运行与维护技术规程;	DL/T724-2000 Specification of operation and maintenance of battery DC power supply equipment for electric power system
DL/T781—2001 电力用高频开关整流模块;	DL/T781-2001 High frequency switching converter module in power system
DL/T856—2004 电力用直流电源监控装置;	DL/T856-2004 DC electrical source supervisor for electric power
DL/T857—2004 发电厂、变电站蓄电池用整流逆变设备技术条件;	DL/T857-2004 Specification of rectification inversion equipment for battery of power plant and substation
DL/T5044-2004 电力工程直流系统设计技术规程;	DL/T5044-2004 Technical code for designing DC system of power projects
DL/T5120-2000 小型电力工程直流系统设计规程。	DL/T5120-2000 DC System design code for small electric power project

适用范围 Scope of application

微机控制型直流电源屏 RE-GZDW 是专为各种不同容量用户设计的一体化电源屏。系统主要由监控模块、整流模块、交直流监测模块、绝缘监测模块、电池巡检模块、开关量监测模块、降压模块构成，具有性能稳定、界面友好、操作简单、管理智能等特点。

适用于不同电压等级的变电站、发电厂、工矿企业、电气化铁路以及高层建筑等领域，可作为高压开关、继电保护、自动装置的操作电源和控制电源。

This microcomputer controlled direct-current power supply panel RE-GZDW-1/2/3/4 is an integrated power supply panel especially designed for users of different capacity. The system is mainly composed of monitoring module, rectifier module, AC/DC monitoring module, insulated monitoring module, battery inspection module, switching value monitoring module, step-down module, is featured with stable performance, friendly interface, simple operation, intellectualized management, etc.

The products are applicable to transformer substations of different voltage class, power plants, industrial and mining enterprises, electrified railways, high-rise buildings, etc, also can be used as operating and control source of high-voltage switch, relay protection and automatic device.

RE-GZDW 直流电源屏

Direct-current Power Supply Panel

系统特点 System characteristics

- 1) 两路交流输入自动切换，确保系统正常运行；
 - 2) 输入电压范围宽，电网适应性强；
 - 3) 采用高频开关电源技术，模块化设计，N/1 热备份，可靠性高；
 - 4) 整流模块采用带电热插拔，日常维护方便快捷；
 - 5) 高精度动态均流，可自主、主控或受控运行；
 - 6) 监控可选用液晶屏、触摸屏、彩色触摸屏，大屏幕图文显示，界面友好丰富，操作简单方便；
 - 7) 监控实时对系统运行实施全面监测和控制，可进行系统设置、信息查询，也可通过后台监控和远程监控对系统实施“遥测、遥控、遥信、遥调”四遥功能，实现无人值守；
 - 8) 监控可自动对蓄电池电压、充放电电流及蓄电池温度补偿精确管理，具有过欠压、过温告警及故障告警，确保蓄电池工作在最佳状态，延长蓄电池的使用寿命；
 - 9) 具备手动、自动调压功能及支路绝缘检测功能；
 - 10) 可靠的防雷和高度的绝缘防护措施，确保系统和人身安全；
 - 11) 提供 RS232、RS485 两种通讯接口，和 RTU、CDT、MODBUS 三种电力部标准通讯规约选择；
 - 12) 备有扩展接口可接入外部其它设备；
 - 13) 可采用一套监控系统，双组蓄电池、双组充电装置，母线分段，实现双组蓄电池独立充放电管理。
- 1) Two circuits of alternating-current input transfer automatically, ensuring normal running of system;
 - 2) Wide input voltage range, strong power grid adaptability;
 - 3) Adoption of high-frequency switching power supply technology, modularized design, N+1 hot standby, high reliability;
 - 4) The rectifier module adopts live hot plug, convenient and quick daily maintenance;
 - 5) High-accurate dynamic current sharing; independent, controlling or controlled running is available;
 - 6) LCD screen, touch screen and colorized touch screen are available for selection, big screen with images and characters, has friendly interface, simple and convenient operation;
 - 7) The monitor will carry out all-around monitoring and control to the running of system, it can realize system setting, information query, as well as “remote measurement, remote control, remote signaling, remote adjustment” four-remote function to the system through background monitoring and remote monitoring, realize unattended operation;
 - 8) The monitor is able to control the voltage of storage battery, charging/discharging current and temperature compensation of storage battery accurately, has over/under-voltage and over-temperature alarm as well as fault alarm, ensuring optimum state of storage battery, prolong the service life of storage battery;
 - 9) Functions of manual and automatic voltage regulation, as well as branch insulation detection;
 - 10) Reliable lightning proof and excellent insulating protection measures, guaranteeing safety for system and person;
 - 11) RS232 and RS485 two communication interfaces, and RTU, CDT, MODBUS three types of communication protocols issued by Ministry of Electric Power for selection;
 - 12) With expansion interface, can switch in other external equipment;
 - 13) It can realize two groups of storage battery independent charging and discharging management by adopting a set of monitoring system, two groups of storage battery, two groups of charging device and bus segment.

注：可根据用户需求添加事故信号或预告信号报警功能和逆变电源、直流变换模块进行 DC/AC、DC/DC 转换。具体功能操作详见系统配置模块说明。

Note: It can be equipped with accident signal or distant signal alarm functions and inverter power, direct-current conversion module to carry out DC/AC and DC/DC conversion if it is required. See system configuration module description for detailed functions and operations.

主要技术参数 Main technical parameters

项目 Item	参数指标 Parameter index
额定输入电压 Rated input voltage	380VAC ± 20% 220VAC ± 20%
额定输出电压 Rated output voltage	220VDC、110VDC
额定输出电流 Rated output current	6A、10A、12A、20A、30A、40A、50A、60A、70A、80A、90A、 100A、120A、130A、150A、180A、200A、260A、300A、……
蓄电池容量 Capacity of storage battery	7Ah、10Ah、20Ah、38Ah、65Ah、100Ah、150Ah、200Ah、300Ah 500Ah、600Ah、800Ah、1000Ah、1500Ah、2000Ah、……
稳压精度 Accuracy of voltage stabilization	≤ ± 0.5%
稳流精度 Accuracy of current stabilization	≤ ± 0.5%
纹波系数 Ripple coefficient	≤ ± 0.1%
电网频率 Frequency of power grid	50Hz ± 10%
功率因素 Power factor	≥ 0.95% (满载输出) Full-load output
绝缘强度 Insulating strength	>10MQ、2kVAC 一分钟无闪络，无击穿 No flashover or breakdown for 1min
工作方式 Working mode	连续长期运行 Long term continuous running
冷却方式 Cooling mode	智能温控型风冷、高效自然冷却 Intelligent temperature-control type air cooling, high-efficient natural cooling
可闻噪音 Audible noise	≤ 50dB

XL-21 型动力配电柜

Power distribution cabinet

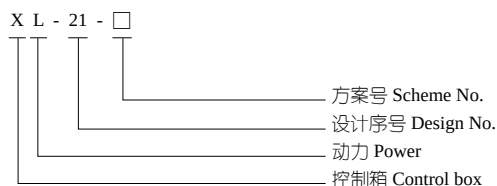


概述 General

XL-21 型低压动力配电柜适用于发电厂及工矿企业中，在交流电压 500 伏及以下的三相四线或三相五线系统作动力配电之用。XL-21 型低压动力配电柜系户内装置靠墙安装，屏前检修。外壳用钢板弯制而成，刀开关操作手柄于箱前右柱上部，可以作为切换电源之用。可根据用户需要，选用不同型号，不同电流等级的断路器，满足不同用户的需求。

XL-21 Type low voltage power distribution cabinet is applicable to power station and industrial and mining enterprise, used for power distribution in three-phase four-wire or three-phase five-wire system with AC 500V and below. It is installed indoors and near the wall. Repair before shield. Shell is bent with steel plate. Knife switch operation handle is installed to the upside of right column of cabinet front, can be used for switching power. Choose different types and circuit breakers with different current grades according to user's specific requirements.

产品型号及含义 Product type and meaning



主要技术参数 Main technical parameter

项目 Item	单位 Unit	参数 Parameters
额定工作电压 Rated working voltage	V	AC380、AC660
额定频率 Rated frequency	Hz	50/60
额定短时耐受电流 (1s) Rated short time withstand current (1s)	kA	50
额定峰值耐受电流 Rated peak withstand current	kA	105
介电强度 Dielectric strength	V/1min	2500
额定绝缘电压 Rated insulation voltage	V	660
防护等级 Protection grade		IP30/IP40
外形尺寸 (宽 × 深 × 高) Outline dimension (W × D × H)	mm	600(800、1000) × 350(400、600) × 1600(1800)

JXF(JFF) 控制箱

Control box



用途 Application

JXF(JFF) 型控制箱是一种安装控制元件，按要求组合成各种控制功能的控制、配电箱，它的特点是采用整块底板，根据客户安装元件尺寸的要求，自行设计安装，它适用于额定电压为 220V 或 380V，负载单回路电流不大于 400A 的三相三线或三相五线的终端电路中，作为对用电设备进行二次和远程控制，对用电设备的过载、短路、过电压漏电起保护作用的一种成套装置。可广泛用于港口、机场、工厂、商业区、住宅区和工矿企业等。

本厂产品符合 GB7251.1。

JXF(JFF) type is a control box equipped with control components and is combined with various control functions according to requirements. It adopts massive bottom plate and designed and installed according to user's installation component dimensions. It is applied to the single phase three wire or three phase five wire terminal circuits with rated voltage of 220V or 380V, and load single loop current not exceed 400A. It is a complete set used for performing secondary and long distance control for electrical equipments and protecting electrical equipments against overload, short circuit, over voltage and leakage. The product is widely used at port, airport, factory, business zone, residential area and industrial and mining enterprises.

The product conforms to GB7251.1.

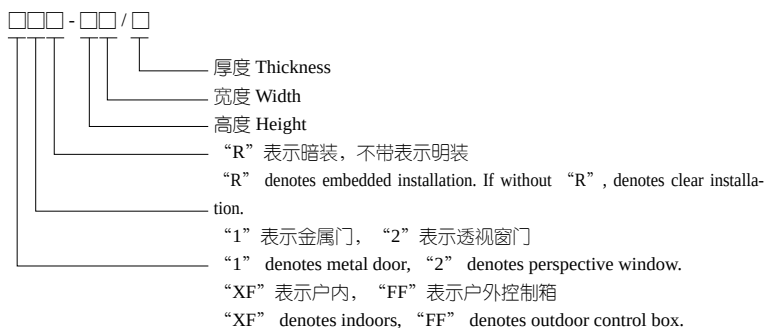


主要结构特点 Main structural characteristics

JXF(JFF) 型控制箱主要结构部件有箱体、上盖、底板和电器开关元件等，内装开关元件可由客户提供的功能要求拟定。为方便上下面接线，加开关孔（尺寸为 180×85），出厂时加橡皮密封，需要进出线时由客户自行拆卸安装。箱体分为明装（挂墙）和暗装（嵌墙）两种，颜色以荣尔灰为主。

JXF(JFF) type control box is composed of cabinet, top cover, bottom plate and electrical switch components etc. The built-in switch components can be decided according to user's function requirements. For the convenient connection for top and under side, switch hole is equipped(size: 180×85). It is with rubber sealing after leaving factory. User can dismantle and install by self when inlet and outlet is required. Two types of cabinets: clear installation (hanging on the wall) and embedded installation (built in the wall). Color: mainly Ronger Gray.

产品型号及含义 Product type and meaning



主要技术参数 Main technical parameters

额定工作电压: 230V 400V

额定工作电流: 400A

额定短路分断能力: 80kA

外壳防护等级: IP55

Rated working voltage: 230V 400V

Rated working current: 400A

Rated short circuit breaking capacity: 80kA

Protection grade of shell: IP55

户外工地移动箱、户外防雨箱、非标箱

Outdoor worksite movable box, outdoor rainproof box, nonstandard box



用途 Application

户外工地移动箱、户外防雨箱、非标箱适用于两网改造、变电所、工矿、企业的低压配电系统作配电、电容补偿、电能转换、计量分配与控制保护用。

户外工地移动箱、户外防雨箱、非标箱是根据电力部主管上级，广大农村电力用户及设计部门的要求，为满足不断发展的电力市场对增容、动力集中控制、方便安装维修、短事故处理时间等需要，本着安全、经济、合理、可靠的原则设计的新型综合配电箱。产品具有分断、接通能力高、动热稳定性好、操作简单、使用安全可靠、结构新颖、防护等级高等特点，是理想的电网改造首选产品。

符合标准

GB7251.1 《低压成套开关设备和控制设备第一部分：型式试验和部分型式试验成套设备》

IEC60439-1 《低压成套开关设备和控制设备第一部分：型式试验和部分型式试验成套设备》

Outdoor worksite movable box, outdoor rainproof box and nonstandard box are used for distributing, capacitance compensation, energy transfer, measuring distribution and control protection for the low voltage distribution system of two-network reconstruction, power substation, industry and mining, enterprise etc.

Outdoor worksite movable box, outdoor rainproof box and nonstandard box are the new type integrated distribution boxes designed upon safe, economic, reasonable and reliable principle, according to the requirements of main authorities of power dept. and numerous rural power users, to satisfy the demands of capacity increasing, power central control, easy for install and maintain, and short accident disposal time etc. along with the constantly developing power market. The products have characteristics of high breaking and getting ability, fine dynamic and thermal stability, simple installation, reliable and safe operation, novel structure and high protection grade etc., are the ideal and preferred products for electric network reconstruction.

Complied standards:

GB7251.1 "Part 1 of low voltage complete switch device and control device: Type test and partial type test for complete equipments"

IEC60439-1 "Part 1 of low voltage complete switch device and control device: Type test and partial type test for complete equipments"

使用工作条件 Working conditions

海拔高度不超过 2000m。

周围空气温度不超过 +40℃，及不低于 -20℃，24 小时内平均温度不得高于 +35℃，超过时需根据实际情况降容运行。

装置应安装在无剧烈震动和冲击以及不足使电器元件受到不应有腐蚀的场所。

装置安装时与垂直面的倾斜度不超过 5°。

周围空气相对湿度在温度为 +40℃ 时不超 50%，在较低温度时，允许有较大的相对湿度（例如 +20℃ 是为 90%），便应考虑到由于温度的变化形成凝露的影响。

Altitude should not exceed 2000m.

Ambient temperature: -20℃ ~ +40℃, the average temperature should not exceed 35℃ in 24h, if exceed, run by decreasing capacity according to practical situation.

Install in the places without fierce vibration and shock and the sites insufficient to erode the electrical components.

Installation gradient not exceed 5°.

Relative humidity should not exceed 50% at max temperature +40℃. Higher relative humidity is allowed at lower temperature. Ex. 90% at +20℃. But in view of the temperature change, it is possible that moderate dews will produce casually.

主要结构特点 Main structural characteristics

户外工地移动箱、户外防雨箱、非标箱采用优质冷轧钢板或不锈钢板折弯点焊组成，外壳环氧树脂静电喷塑，造型美观大方，可起到防锈作用。

装置按三相五线制和三相四线制设计。

户外型箱顶部有防雨盖，防雨盖采用人字型斜坡设计，顶部不存水，箱体正面有可开启门，门开启后可操作内部开关、更换、检修仪表、箱体留有透气孔，以便内部水气的散发。

Outdoor worksite movable box, outdoor rainproof box and nonstandard box are structured by bending and spot welding through adopting high quality cold-rolled steel sheet or stainless plate. The shell is static spray molded by epoxy resin. With beautiful and decent appearance, and it can prevent rusting.

The device is designed according to three phase five wire system and three phase four wire system.

The top of outdoor box has rainproof cover. It is incline designed according to the Chinese character "ren", the top of it will not store water. The face of cabinet has a wicket for starting. After opening the wicket, inner witch can be operated, and also can replace and test meters. Riser vents are equipped with the cabinet for shedding the interior steam.

主要技术参数 Main technical parameters

名称 Name	单位 Unit	数据 Data
主电路额定电压 Rated voltage of main circuit	V	AC: 220, 380
辅助电路额定电压 Rated voltage of auxiliary circuit	V	AC: 220, 380
额定频率 Rated frequency	Hz	50
额定绝缘电压 Rated insulation voltage	V	600
额定电流 Rated current	A	≤ 630
防护等级 Protection grade		IP43

REPZ30 配电箱 (箱体)

Distribution box (box body)



概述 General

REPZ30 配电箱 (箱体) 是一种安装宽度为 9mm 整数倍数的模数化电器的终端配电装置, 箱体和面板是由金属材料折弯焊接而成, 面板上嵌有透明小门; 安装分明装和暗装两种。箱内装有绝缘座、接地、接零端子和顶帽形导轨, 上、下、底部均开有进出线孔。

REPZ30 配电箱 (箱体) 适用于安装宽度为 9mm 模数、有导轨卡的电器元件; 线路原理为 380V/220V 三相五线制、单相三线制的简单控制电路。

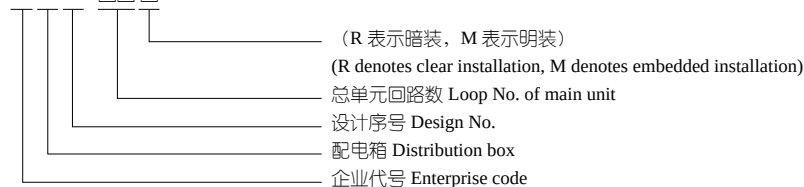
REPZ30 配电箱 (箱体) 符合 GB7251.3 标准。

REPZ30 Distribution box (cabinet) is a terminal distribution device of integral and multiple modularization electrical equipment with mounting width 9mm. Cabinet and panel are bent and welded by metal material. Transparent wicket is set in panel. Installation has clear installation and embedded installation. Insulation base, earthing, zero connecting terminal and top cap shaped guide rail are equipped inside box. Top, midside and bottom part all set with inlet and outlet hole.

REPZ30 Distribution box (cabinet) is applicable to the electrical components with mounting width 9mm modulus and guide card. Principle for circuit is 380V/220V three-phase five-wire system and single-phase three-wire simple control circuit.

REPZ30 Distribution box (cabinet) accords with GB7251.3.

RE PZ 30 - □ □ □



技术参数 Technical parameters

1. 工频耐压: 2000V/1min Line frequency withstand voltage: 2000V/1min
2. 接地直流电阻: 不大于 0.05Ω Earthing DC resistance: not exceed 0.05Ω
3. 绝缘直流电阻: 不小于 0.05Ω Insulation DC resistance: not lower than 0.05Ω
4. 防护等级: IP30 Protection grade: IP30

若超出以上条件, 请与制造商协商, 并达成专门的协议。

If beyond the above conditions, please contact the manufactory for reaching a special agreement.

安装方式及条件 Installation mode and condition

1. 安装分暗装和明装两种: Installation has clear and embedded installation:
暗装: 安装于空心墙壁; Clear installation: Install in hollow wall;
明装: 安装于不可燃墙壁。Embedded installation: Install in nonflammable wall.
2. 安装过程中的温度范围: -25℃ ~+60℃; Temperature range during installing: -25℃ ~+60℃ ;
3. 房屋建筑过程中的最高温度: +60℃。Max temperature during building construction: +60℃ .

安装方法 Installation method

打开小门, 将小门框上左右两颗螺丝拧下, 取下面板, 便可安装电器元件和成套接线。安装接线完毕, 将面板盖上并拧紧门框上的螺丝即可。

Open the wicket, back off the two screws left and right on wicket frame, take the panel, then install the electrical components and complete connection. After installation and connection, cover the panel and fasten the screws on wicket frame.

安全保护 Security protection

箱体内装入电器元件通电使用过程中, 一定要保证箱体可靠接地。

Surely guarantee the reliable earthing for cabinet during the process of electrical components are set in cabinet and energized for use.

REPZ40 电表计量箱 (箱体)

Electric meter measuring box (cabinet)



适用范围 Application range

产品用于交流 50~60 赫兹 500 伏以下单相二线、三相三线、三相四线的动力，照明及电动机控制电路的保护装置，适用于工业和民用建筑，工矿企业建筑高层大厦、车站、医院、住宅等现代建筑配电装置。The product is applicable to the power, lighting and protection device of motor control circuit with single-phase two-wire, three-phase three-wire and three-phase four-wire and AC50~60Hz 500V below. It is used in the distribution devices for modern buildings, such as industrial and civil architecture, high-rises for industrial and mining enterprises, station, hospital and residence etc.

产品结构 Product structure

产品分明装和暗装（嵌入）式两种。箱体、箱盖由钢板或不锈钢板折弯而成。箱体设计将带电部位安全遮闭，打开小盖可操作自动开关。箱体的表面采用环氧树脂粉末涂料经静电喷涂处理，美观耐用。There are clear installation and embedded installation (insert) for the product. Cabinet and cabinet cover is bent with steel plate or stainless plate. Charged part is completely shielded for cabinet design. Open the small cover and the automatic switch can be operated. Surface of cabinet adopts epoxy resin powder coatings through electrostatic spray finishing, beautiful and durable.



使用环境 Operating environment

1. 安装高度不超过海拔 2000 米。
 2. 周围介质温度不超过 40℃ 及不低于 -5℃，且 24 小时内的平均温度不超过 35℃。
 3. 相对湿度：在周围空气温度为 +40℃ 时，不超过 50%，在较低温度下可有较高的相对湿度（如在 25℃ 时为 90%），并考虑到温度变化允许产生适度的凝露。
 4. 无明显剧烈振动，冲击和颠簸的场所。
 5. 无爆炸危险的场所，且介质中无足以腐蚀和破坏绝缘的气体 and 导电尘埃。
 6. 设备安装时与垂直面的倾斜度 ≤ 5°。
1. Altitude for installation should not exceed 2000m.
 2. Ambient temperature: -5℃ ~ +40℃, the average temperature should not exceed 35℃ in 24h.
 3. Relative humidity: not exceed 50% at +40℃. Higher relative humidity is allowed under lower temperature (Ex. 90% at 25℃). Moderate dews will produce because of temperature change should be considered.
 4. Places without obvious fierce vibration, shock and bump.
 5. Places without explosive danger and gas and conductive dust that may erode and damage insulation at certain content in the medium.
 6. Gradient with vertical surface for installation ≤ 5°.

REPZ40 系列电表计量箱 REPZ40 series electric meter measuring box

RE PZ 40 □ - □

- 户数 Door No.
- M 表示明装 R 为暗装
M denotes clear installation. R denotes embedded installation.
- 设计序号 Design No.
- 终端组合电器 Terminal combined electrical equipment
- 企业代号 Enterprise code

QHX 双电源专用机箱系列

Special casing for double power series



▲ 成套装置 Complete set



◀ 元器件轻松安装
Easy installation
for components



▲ 机箱的材料转变
Transition for
casing material



▲ 双电源专用机箱
Special casing for double power

QHX 系列产品
QHX series products



QHX-125



QHX-250



QHX-400



QHX-1000

DFW8-12/630 SF6 六氟化硫负荷开关电缆分接箱

Cable branch box with SF6 load switch



适用范围 Applicable range

DFW8-12/630 系列带负荷开关的电缆分接箱，采用 SF6 气体绝缘的三工位负荷开关，开关进出线由套管引出，外接美式可欧式全绝缘电缆接头，适用于 3-12kV 地下电缆配电系统。该分支箱既保留了传统分支箱的优点，又具有环网柜的部分优点，是城网改造的理想设备。

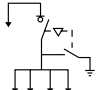
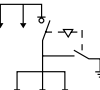
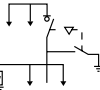
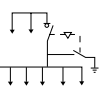
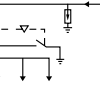
DFW8-12/630 series cable branch box with load switch adopts SF6 gas-insulated three-position load switch, with external American/European-style full-insulation cable joint, the inlet and outlet wires of switch are led out from the sleeve. Suitable for underground distribution system of 3-12kV, it is the ideal equipment for renovation of urban power grid, not only retains the advantages of traditional branch boxes, but also possesses some merits of ring main units.

主要技术参数 Main technical parameters

额定电压 Rated voltage (kV)	额定电流 Rated current (A)	额定频率 Rated frequency (Hz)	额定短路 关合电流 (kA) Rated short circuit breaking current	额定短时 耐受电流 (kA) Rated short time withstand current	额定峰值 耐受电流 (kA) Rated peak withstand current
12	630	50	50	25(1s)	50

操作机构 Operation mechanism	额定转移电 流 A Rated transfer current	1min 工频耐 受电压 kV 1min power frequency with stand voltage	雷电冲击耐 受电压 kV Lightning impulse with stand voltage	机械寿命次 Mechanical life (times)	SF6 气体标准充 气压力 (20℃) BAR Standard charged pressure of SF6 gas (20℃)	SF6 气体年 泄露率 % Annual leak age ratio of SF6 gas
AC/DC220V、 AC/DC110V、 DC48V、 DC24V、	1800	42 48	95 110	2000 次	0.4	≤0.1

DFW8-12/630 型常用方案号 Common scheme No.

编号	01	02	03	04	05	06
接线方案						
编号	07	08	09	10	11	12
接线方案						
编号	13	14	15	16	17	18
接线方案						
编号	19	20	21	22	23	24
接线方案						
编号	25	26	27	28	29	
接线方案						

DFW2-12/630 可触摸电缆分支箱 (欧式)

Touchable cable branch box (European style)

结构特点 Structural feature



1. 硅橡胶预制式插件结构, 全绝缘、全密封;
 2. 防尘、防潮、防水、耐腐蚀、适用户内外各种运动行环境;
 3. 扩展性强、进出线从 2 路到 8 路, 灵活组合, 满足多种接线要求;
 4. 免维护、体积小、结构紧凑、安装便捷、外形美观;
 5. 独特的应力锥结构, 将应力控制和硅橡胶一体化结构有效解决电缆外屏蔽切断处电场应力;
 6. 产品有不可触摸式 CJB 和触摸式 CJK 供选择;
1. Silicon rubber prefabricated connector structure, full insulation, full seal;
 2. With functions of proofing the dust, wetness, water and corrosion, it is suitable for indoor and outdoor various environment;
 3. Strong extendability, the inlet and outlet wires from 2 circuits to 8 circuits can be combined flexibly to meet various requirements for connection;
 4. Maintenance free, small volume, compact structure, convenient installation, nice appearance;
 5. Unique stress cone structure, integrated with silicon rubber structure can control the stress of electric field at the cutting of cable external shield.
 6. The product has two selections: non-touchable CJB and touchable CJK.

主要技术参数 Main technical parameters

额定电压 Rated voltage (kV)	长期最高 工作电压 kV	额定电流 Rated frequency (A)	额定动稳电 流 (峰值) Hz	额定频率 Rated current (A)	额定热稳 定电流 kA	工频耐 压 kV	雷电冲击 耐压 kV
10	15	630	50	20/25	50	45	150



连接点电 阻 $\mu\Omega$ Contact resistance	导体工作 温度 $^{\circ}\text{C}$ Working temperature of conduc- tor	局部放 电 Partial discharge PC/kV	潮湿试验 Dampness test kV/h	适用电缆类 型 Applicable cable type	适用电缆截 面 mm^2 Applicable cable sectional area	适用环境温 度 $^{\circ}\text{C}$ Applicable environment temperature	适用海拔 高度 m Applicable altitude
$\leq 40\mu\Omega$	$\leq 95^{\circ}\text{C}$	$\leq 10\text{PC}/13\text{kV}$	11kV/100h 通过	XLPE	25~400 mm^2	$-40^{\circ}\text{C} \sim 50^{\circ}\text{C}$	$\leq 3000\text{m}$

DFW2-12/630 型常用方案号 Common scheme No.

编号	01	02	03	04	05	06
接线 方案						
编号	01	02	03	04	05	
接线 方案						



DFW2-12/630 型可触摸电缆分接箱附件 Touchable cable branch box



图 2 高压带电显示器装置

Fig. 2 High voltage charged display

母线槽

Bus ways

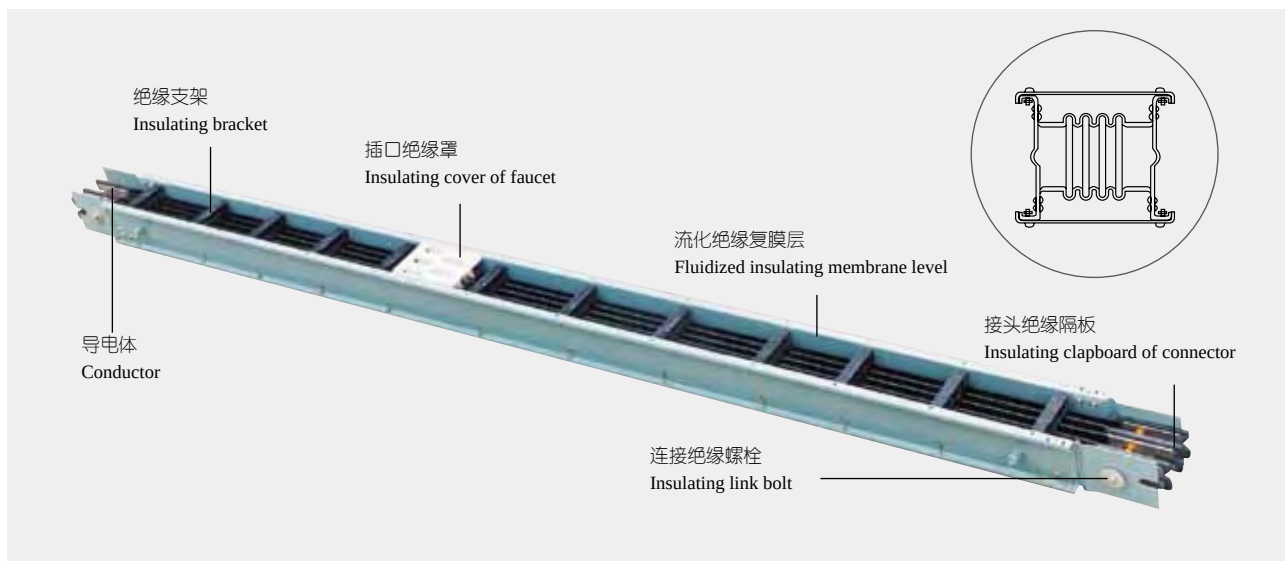
概述 General

本母线结合空气型与密集型母线槽的优点，改进设计的新型母线槽，母线采用流化复膜绝缘与用绝缘支架各相隔开，形成间隙的空气介质绝缘新技术，具有双重绝缘的特点，并具有结构紧凑，体积小，输送电流大，绝缘性能好，互换通用性强，供电安全可靠，施工安装方便等优点。主要适用于高层建筑及工矿企事业单位中输送额定电压在 660V 以下的供配电设备。

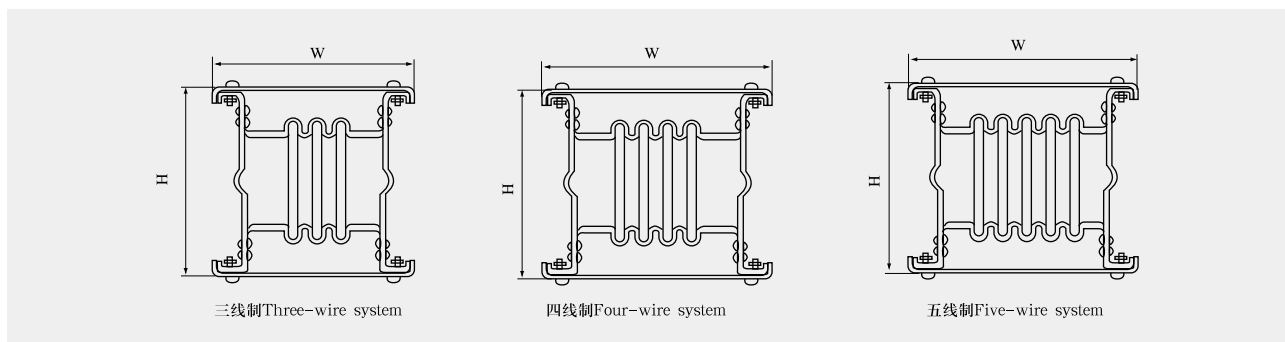
The bus lines absorb the advantages of air type and dense type busways, and design new type bus ways. The bus lines adopt new technology of fluidized membrane insulation which will be blocked off for each other by insulating bracket and then form clearance air medium insulation. The bus lines are characterized on the advantages of duplex insulation, compact structure, small bulk, heavy transfer current, good insulating performance, strong crossing-over performance, safe and reliable power supply, convenient construction and installation etc. They are mainly applied to power supply and distribution equipment trasportating rated voltage below 660V for high-level buildings, industrial and mining enterprise.

代号 Code	名称 Name	代号 Code	名称 Name
A	直线段母线槽 Straight line segment busways	LC	L 型垂直接头 Model L upright connector
S	终端母线槽 Terminal busways	TS	T 型水平接头 Model T level connector
Z	终端盖 Terminal cover	TC	T 型垂直接头 Model T upright connector
SS	十字水平接头 Cross level connector	ZC	Z 型垂直接头 Model Z upright connector
SC	十字垂直接头 Cross upright connector	P	膨胀节接头 Expansion knob connector
ZS	Z 型水平接头 Model Z level connector	BY	变容量接头 Variable capacitance connector
LS	L 型水平接头 Model L level connector	SH	进线箱 Inlet box

母线槽结构示意图 Sketch map of bus ways structure



母线结构、规格尺寸表 Table of bus structure & specification



母线槽

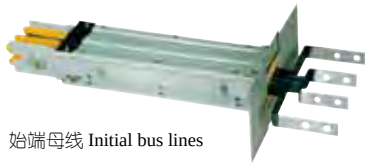
Bus ways

主要性能 Main performance

电气间隙 Electric clearance	爬电距离 Electric climbing distance	防护等级 Fence grade	介电强度 Dielectric strength	绝缘电阻 Insulation resistance
≥ 13	≥ 21	IP41	5000V	≥ 500MΩ

技术参数 Technical parameters

额定电流 Rated current (A)	电阻 Resistance $R \times 10^{-6} \Omega/m$	阻抗 Impedance $Z \times 10^{-6} \Omega/m$	电压降 Voltage drop V/m	短路强度 $t=1s$ KA(峰值) Short strength $t=1s$ KA(peak value)
250	94.4	105.5	0.023	35
400	70.8	83.2	0.036	50
630	73.0	72.4	0.076	70
800	61.4	69.8	0.085	75
1000	46.9	53.8	0.081	85
1250	35.2	40.6	0.073	100
1600	26.9	31.0	0.075	115
2000	21.0	24.1	0.073	125
2500	17.2	19.7	0.074	135
3150	12.1	16.5	0.074	150
4000	10.5	12.1	0.073	150



始端母线 Initial bus lines

始端母线的连接尺寸可与任何型号开关柜，变压器配接。
The connecting dimensions of initial bus lines are fit for various switch cubicle and transformer.



变容量节 Variable capacitance knob



T 型垂直接头
Model T upright connector



L 型水平带始端接头 Model L Initial level connector



L 型水平接头 Model L upright connector



L 型垂直接头
Model L upright connector

母线槽安装连接法 Installation and connection means of busways

母线槽系螺栓连接法，任何人都能轻而易举地进行连接操作，但扭紧接头螺栓是母线连接的保证，630A 以下母线力矩必须达到 8kg，800A 以上力矩必须达到 12kg，紧固后的检验要求用 0.01mm 塞尺检查。

Busways adopt the means of bolts connection, so everyone can easily connect them. But screwing connecting bolts is the guarantee of bus lines connection, bus moment with current 630A below must reach 8kg, current 800A above reach 12kg, and the checking tool after fastening should be clearance gauge of 0.01mm.



XQJ 系列电缆桥架

Cable tray

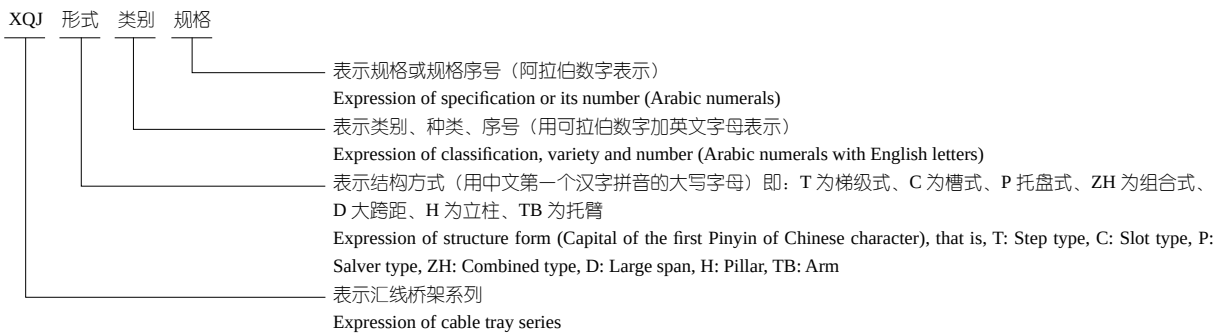
用途 Application

XQJ 系列电缆桥架适用于电压在 10 千伏以下的电力电缆，控制电缆及照明的配线等室内、室内架空电缆过桥、隧道的敷设。
XQJ series cable tray is suitable for the layout of power cables, control cables and lighting wires of 10KV below indoors, overhead and in the channel.

特点 Features

XQJ 系列电缆桥架具有品种全、应用广。结构轻且强度大、造价低、施工简单、配线灵活、安装标准美观等特点。
XQJ 系列电缆桥架可适用任何建筑结构的安装；可随工程管道架空敷设，楼板、梁下吊装、室内外墙壁、柱壁、隧道、电费沟壁的侧装及露天立柱墩台的安装。
XQJ 系列电缆桥架可在水平及垂直方向上进行多层次的转角、调高、变径，及利用 L 形、T 字形、十字形等多种分支接头进行任意方向的分支敷设。
This series of cable trays is featured with complete variety, wide range of applicable, light and firm structure, low construction cost, simple construction, flexible wiring, standard and nice installation;
This series of cable trays is suitable for installation of any construction structure, is available in overhead layout with engineering pipeline, floor and beam hoisting, side installation of indoors and outdoors wall, column, channel, tunnel and installation of open pillar.
This series of cable trays can also be adjusted in different corners, height and diameter in horizontal and vertical directions, meanwhile, branch layout in any direction can be conducted with various branch joint like the L-shaped, T-shaped, cross-shaped, etc..

电缆桥架的型号表示方法 Model description



XQJ-C-01, ANXQJ-C-01A 槽式耐火桥架

Slot type fireproof tray

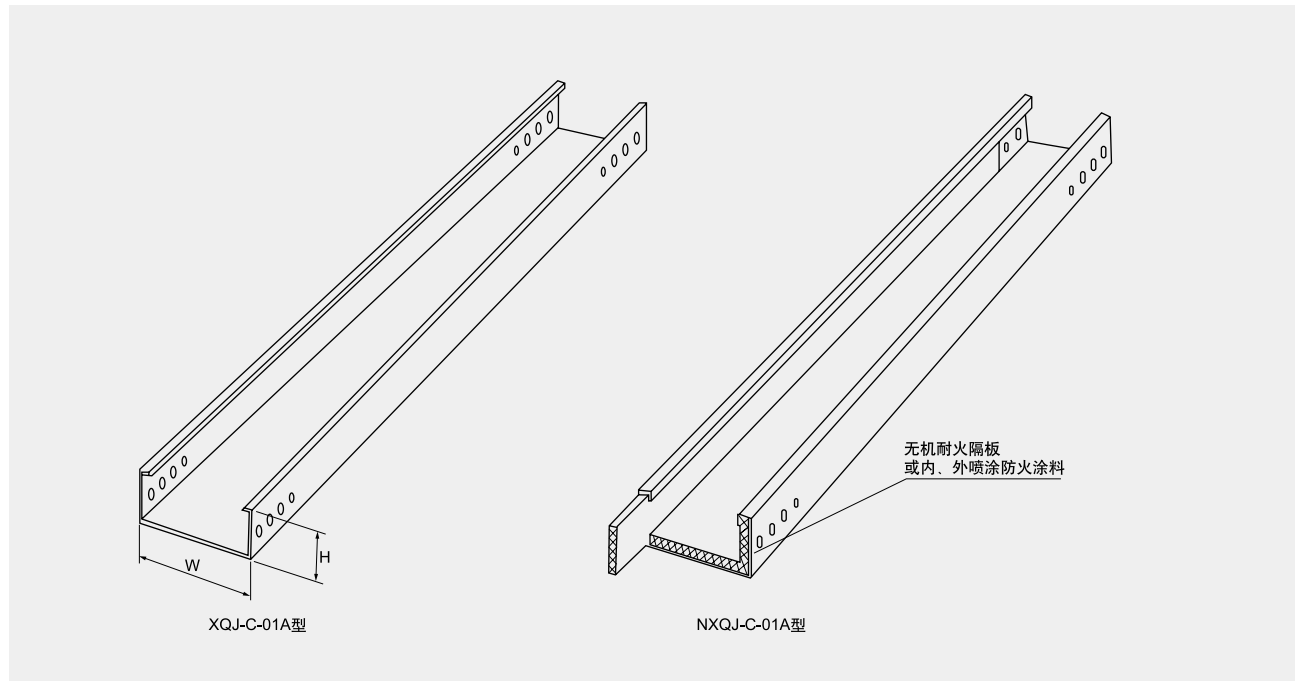
适用范围 Applicable range

槽式桥架是一种封闭性较好的桥架。它较适用于敷设计算机电缆、通信电缆及其它高效系统的控制电缆等，其除具有较强的通用性，别对控制电缆的屏蔽干扰和腐蚀环境中的电缆保护都有较好的效果。

桥架表面处理分：喷塑、电镀锌、电镀锌 + 喷塑、热浸镀锌等。

Slot type fireproof tray is the one with the perfect seal. It is suitable for the layout of computer cable, communicating cable and other high-efficiency system control cables. Besides the strong general purpose, it can take great effect on withstanding the shielding interference of control cables and protecting the cables in the corrosive environment.

The surface of tray is handled by plastic spraying, galvanizing, galvanizing with plastic spraying, hot dip galvanizing, etc..



外形尺寸表 Outline of size

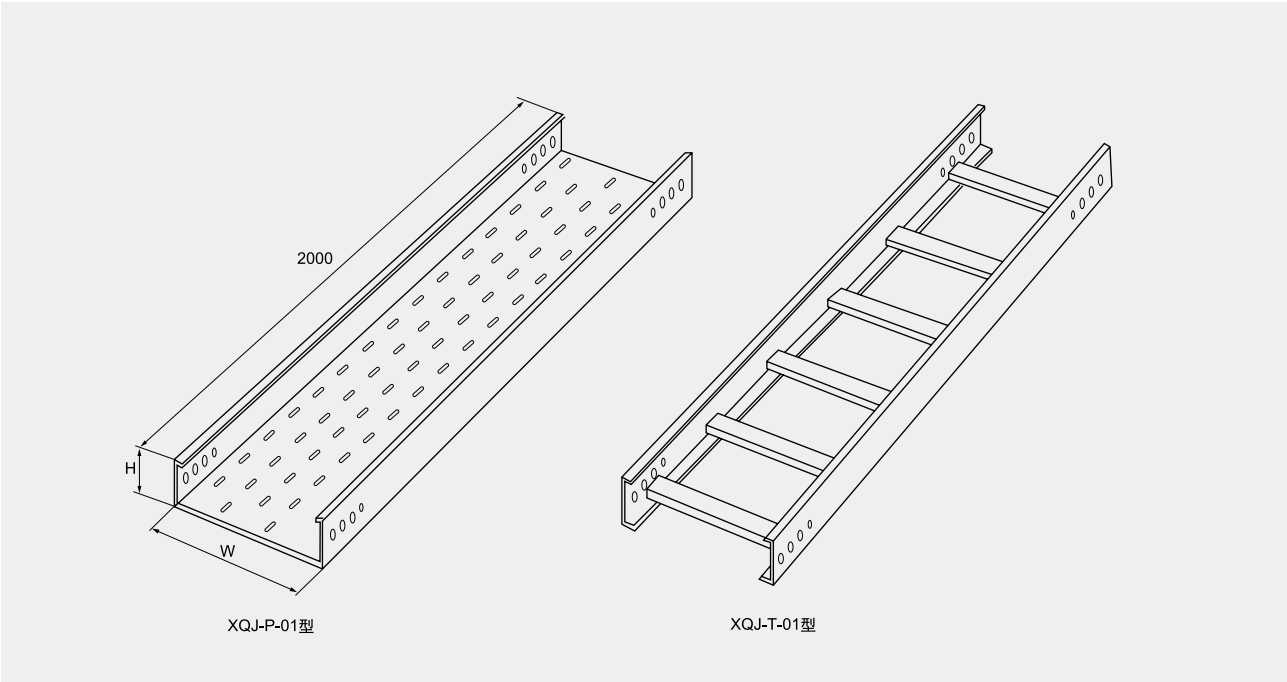
型号 Model	宽度 W	高度 H	备注 Remark
XQJ(NXQJ)-C-01A-1	50	25	1、NXQJ-C-01A 型规格 W × H 从 200 × 100 起 2、表中没有的规格，用户如需要可来图或文字说明
XQJ(NXQJ)-C-01A-2	100	50	
XQJ(NXQJ)-C-01A-3	150	75	
XQJ(NXQJ)-C-01A-4	200	100	
XQJ(NXQJ)-C-01A-5	250	125	
XQJ(NXQJ)-C-01A-6	300	100	1. NXQJ-C-01A type tray covers the specification from 200 × 100 (W × H) 2. If user needs the specification that is not listed in the table, please provide the drawing or the detailed information.
		150	
		200	
XQJ(NXQJ)-C-01A-7	400	100	
		150	
		200	
XQJ(NXQJ)-C-01A-8	500	100	
		150	
		200	
XQJ(NXQJ)-C-01A-9	600	100	
		150	
		200	
XQJ(NXQJ)-C-01A-10	800	100	
		150	
		200	

XQJ-P-01, XQJ-T-01 托盘式、梯级式桥架

Tray type and ladder type trays

适用范围 Applicable range

托盘式及梯级式桥架具有电缆容量大，散热性好等特点。桥架表面处理分：喷塑、电镀锌 + 喷塑、热浸镀锌等。
Tray type and ladder type trays have features like large capacity of cable and perfect heat emission. The surface of tray is handled by plastic spraying, galvanizing with plastic spraying, hot dip galvanizing, etc..



外形尺寸表 Outline of size

型号 Model	宽度 W	高度 H	备注 Remark
XQJ-P(T)-01-6-2	200	60	1、桥架备有护罩需要时在订货中说明 2、表中没有的规格，用户如需要可来图或文字说明 1. If need the shield, please indicate while placing an order 2. If user needs the specification that is not listed in the table, please provide the drawing or the detailed information.
XQJ-P(T)-01-10-2	200	100	
XQJ-P(T)-01-15-2	200	150	
XQJ-P(T)-01-6-3	300	60	
XQJ-P(T)-01-10-3	300	100	
XQJ-P(T)-01-15-3	300	150	
XQJ-P(T)-01-6-4	400	60	
XQJ-P(T)-01-10-4	400	100	
XQJ-P(T)-01-6-5	400	150	
XQJ-P(T)-01-10-5	500	60	
XQJ-P(T)-01-10-5	500	100	
XQJ-P(T)-01-15-5	500	150	
XQJ-P(T)-01-6-6	600	60	
XQJ-P(T)-01-10-6	600	100	
XQJ-P(T)-01-15-6	600	150	
XQJ-P(T)-01-6-8	800	60	
XQJ-P(T)-01-10-8	800	100	
XQJ-P(T)-01-15-8	800	150	

REGCK(L) 抽出式低压开关柜框架

Low voltage draw-out type switch cabinet

概述 General

REGCK(L) 抽出式低压开关柜框架，是我公司自行研究和开发的低压抽屉式框架。

柜体为组合装配式结构，骨架采用 KB 型材（即 C 型材）组装而成，柜架的全部结构件均通过自攻螺钉连接，按南非要加装门、面板、隔板、支架及抽屉部件，以便组合成完整的开关柜框架。

柜架及部件安装孔按模数 E=25mm 变化，安装灵活、方便、实用、经济。

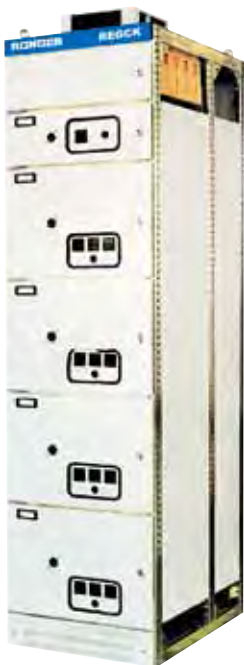
抽屉单元有 1/2 单元、200mm、300mm、400mm、500mm、600mm 等系列高度，根据各回路电流等级不同所占有抽屉单元高度，抽屉有效安装高度 1800mm。

REGCK(L) low voltage draw-out type switch cabinet is researched and developed by ourselves.

The cabinet body is knockdown, the skeleton is assembled by the KB type material (namely the C type material). The cabinet complete structural element is connected through the tapping screw. A gate, a panel, a clapboard, the support and the drawer part are installed according to South Africa in order to assemble the integrate switch cabinet frame.

The cabinet body and the part installment hole are vary with the modulus E=25mm, the installment is flexible, convenient, practical, economical.

The drawer unit has 1/2 cell, 200mm, 300mm, 400mm, 500mm, 600mm and other series altitude. Choose different the drawer unit altitude according to various loop current rank, the drawer's maximum installment altitude is 1800mm.



REGGD 固定式低压开关柜柜架

Low voltage fixed type switch cabinet

概述 General

柜架采用 8MF 型开口型钢，型钢的二侧分别有模数为 20mm 和 100mm 的安装孔，柜架内部安装灵活方便；

柜架装配形式设计为两种，全组装式结构和部分（侧框和横梁）焊接式结构，供用户选择；元器件均采用固定安装固定接成。

The cabinet body is made of the 8MF type openended profiled bar, the two sides of the profiled bar has the 20mm and 100mm installment hole respectively, the cabinet body's interior installment is flexible and convenient

The cabinet assembly form is designed into two kinds: the entire assembly type structure and partial (side frame and crossbeam) welds type structure for user's choice.

The component is installed immovably.

使基本框架的安装 The installment of the basic frame

左侧框 1，右侧框 2，横梁 5（共四根），由 24 只 M10 内六角螺钉连接成 GGD 基本框架（图 1）。

注意：带有接地的一要横梁应安装在前下方（图 2）。四只角支架 29 将横梁和左右侧框进一步加固（图 5）。

Left-sided frame 1, right-sided frame2, crossbeam5(four pieces altogether), GGD basic frame is connected by twenty four M10 interior six angle bolts (refer to chart 1)

Caution: the crossbeam earthed should be installed at front-and down (refer to chart2). Four angle supports 29 further reinforce the crossbeam and right-sided and left-sided frames.

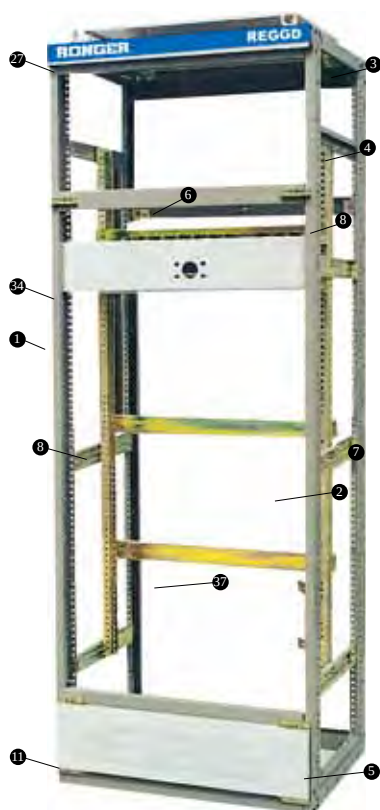


图 1

门横梁、刀开关旋钮安装梁的安装

Door's crossbeam, the installment of sword switch revolving installment beam

上方二根门横梁 6(前后各一根)，安装位置为自上往下第 20、23 个安装孔 (间距为 20mm)，由螺钉通过联接件 30，将门横梁和左、右侧框连接；前面下的一根门横梁安装位置为自下往上数第 10、13 个安装孔 (间距为 20mm) 由螺钉通过联接件 30 和左、右侧框连接 (图 2、图 3)。

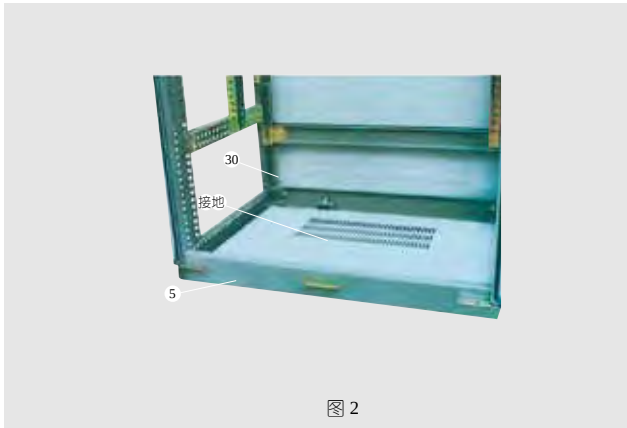
刀开关旋转安装梁 24，安装位置为自上往下数第 29、31、33 个安装孔，由螺钉经垫板 24 和左、右侧框连接 (图 6)。

Place two door crossbeams 6 above (one in front and the other back), install them into the 20th, 23rd installment holes from the top down (the spacing is 20mm),pass through the connection piece 30 by the bolt, connect the door crossbeam with the right-sided frame and left sided beam; the door crossbeam in front is placed into the 10, 13 installment holes(space is 20mm),connect the connection piece 30 with the right and left frame through bolts.(see the charter 2 and 3).

Sword switch revolving installment beam 24 is placed into 29th ,31st ,33rd installment holes. Connect the mat 24 with the right and left frame through bolts.

REGGD 固定式低压开关柜框架

Low voltage fixed type switch cabinet



REGGD 安装索引表 REGGD installment's index table

名称 name	单位 Unit	数量 No.	备注 Remark
左侧框 left-sided frame	片 Piece	1	8MF
右侧框 right-sided frame	片 Piece	1	8MF
侧上横梁 above-sided crossbeam	根 Radix	2	
上母线安装梁 up-sided bus bar installment girder	根 Radix	2	
横梁 crossbeam	根 Radix	4	其中一根含接地部件 one including earthed pieces
门横梁 door's crossbeam	根 Radix	3	
纵横梁 vertical crossbeam	根 Radix	8	
内立柱 1600 interior standing columniation 1600	根 Radix	2	镀锌 Zinc-gilt
(内六角) 定位螺钉 $\phi 10 \times 30$ interior six angles bolts used for orientation $\phi 10 \times 30$	套 Set	24	镀锌 Zinc-gilt
上通风窗 above net window	块 Piece	1	
下通风窗 below net window	块 Piece	1	
仪表门 instrument's door	块 Piece	1	
左后门 left sided back door	块 Piece	1	
右后门 right sided back door	块 Piece	1	
左前门 left sided front door	块 Piece	1	
右前门 right sided front door	块 Piece	1	
底板 motherboard	块 Piece	1	按组配 Assemble according to each group
侧板或隔板 side board or clapboard	根 Radix	4	镀锌 Zinc-gilt
顶盖支柱 top cover's support	块 Piece	1	含活动网板 including movable net board
顶板 1 top board 1	块 Piece	1	
顶板 2 top board 2	块 Piece	1	

名称 name	单位 Unit	数量 No.	备注 Remark
挂钩螺套 pothook snail shell	只 Piece	6	镀锌 Zinc-gilt
GMS-1/2 门锁 GMS-1/2 door lock	套 Set	2	镀锌 Zinc-gilt
端子板支架 terminal plate's support	只 Piece	2	镀锌 Zinc-gilt
底板支架 motherboard's support	只 Piece	4	镀锌 Zinc-gilt
眉头 brows	根 Radix	2	含眉端板
门密封条“凸”型 door's airproof seal “凸” type	米 Meter	20	
三角支架 triangle support	只 Piece	4	镀锌 Zinc-gilt
联接件 link piece	只 Piece	6	镀锌 Zinc-gilt
支架“单” support “single”	只 Piece	9	镀锌 Zinc-gilt
支架“双” support “double”	只 Piece	9	镀锌 Zinc-gilt
吊环 flying rings	只 Piece	4	镀锌 Zinc-gilt
刀开关旋转安装梁 sword switch revolving installment beam	根 Radix	1	
上下门轴 door's upper and down spindle	套 Set	5	
刀开关安装梁 sword switch installment beam	根 Radix	2	镀锌 Zinc-gilt
断路器安装梁 breaker installment beam	根 Radix	2	镀锌 Zinc-gilt
锁杆 pole lock top	根 Radix	4	镀锌 Zinc-gilt
眉端板 terminal plate	只 Piece	4	
滚花螺钉 $\phi 8 \times 25$ like-flower rolled bolt $\phi 8 \times 25$	只 Piece	65	镀锌 Zinc-gilt
滚花螺钉 $\phi 5 \times 16$ like-flower rolled bolt $\phi 5 \times 16$	只 Piece	30	镀锌 Zinc-gilt
门轴芯 door's axes	只 Piece	5	镀锌 Zinc-gilt

RCAD 自动化控制系统

Automatic control system

概述 General

我公司开发的 RCAD 小型 PLC 逻辑控制器的第二代产品，并创造性地开发出其辅助单元 语音模块 MUL，优先打破了沉寂的自动化控制行业，使自动控制和语音电话有机地融为一体，实现了电话遥控、语音报警、自动拨号的功能，使整个自动控制变得有声有色，同时支持近 程和远程通讯联网和监控功能。

RCAD series miniature programmable logical controller (PLC) is our second generation of products, with the innovatively-developed auxiliary unit phonetic module, first breaking the silence of automation control industry, it presents the perfect combination of automatic control and phonetic telephone, realizing the functions like telephone remote control, tone alarm and automatic dialing and making the automatic control be more wonderful, meanwhile, it supports the short and far-distance communication network and monitoring function.



RSR 自动化控制系统

Automatic control system

概述 General

RSR 系列 PLC 为我公司开发的小型逻辑控制器的第三代产品，在保留了 RCAD 系列的功能外，更附加了低成本的小型人机界面 (HMI) 的功能，可直接在 HMI 面板上修改各种控制 参数，充分满足了程序的设计者和机器的使用者的各取所需，相得益彰，同时还在这个小型 人机界面上奉送了 64 个功能按键，极大地降低用户使用工业按钮的成本，同时在参数修改和按键使用上附加了密码保护功能，避免了无关者非法使用带来的隐患。

RSR series miniature programmable logical controller (PLC), as our third generation of products, has the low-cost miniature human-machine interface (HMI) functions besides the function of RCAD, user can alter the control parameters in the HMI panel, therefore, it fully meets the demands of both program designer and machine user, meanwhile, there are 64 functional keys in this miniature human-machine interface, therefore, it can lower the utility cost of industrial button to the large extent, in addition, the parameter alteration and button are provided with the password protection function, to avoid the hidden danger of illegal use.

RSR 与 PC 连接



RSR 与 EHC 连接



RSR 与 EHC 连接 (2)



RSR 超级柔性连接



水电站综合自动化监控系统

Comprehensive automatic monitoring system for hydraulic power plant

概述 General

水电站综合自动化监控系统引进了美国 AE 微机保护测控装置，同时综合运用了自动控制技术、网络通讯技术，使系统功能齐全、可靠，配置灵活、经济，用户操作方便，应用于水电站机组的保护、控制、测量、监视，并可与梯级调度中心通信，完成遥测、遥信、遥控、遥调功能，实现水电站“无人值守”或“少人值守”及水电站安全经济运行。从各方面满足了用户的需求。系统由电站控制层和现地控制保护层等组成。电站控制层能实现数据采集和处理，实时控制和调节，安全运行监视，屏幕显示，事故处理指导和恢复指导，数据通信，键盘操作，电站设备运行维护管理，系统诊断，软件开发及培训等功能。现地监控保护层将实现数据采集与处理，安全运行监视，实时控制调节，设备故障保护，事件顺序检测，数据通信，系统自诊断等主要功能。同时电站综合自动化系统设置必要的硬件和软件，使运行人员能在各控制层之间选择控制权，对无控制权的控制设备进行闭锁。

Comprehensive automatic monitoring system for hydraulic power plant introduces American AE microcomputer-based protective monitoring device and integrates the automatic control technology with network communication technology, due to such device and technology, the system has the complete and reliable function, flexible configuration, economy and convenience for user operation. It is used for protection, control, measurement and monitoring of hydraulic power plant unit as well as communication with the cascade dispatching center, to realize the function of remote sensing, remote signaling, remote control and remote regulation, and arrive the aim of “nobody on duty” or “few on duty” as well as safe and economical operation of hydraulic power plant. It is able to meet the user demands in different respects. The system is composed of power station control layer and field monitoring protective layer. Hereinto, the power station control layer can finish the data collection and processing, real-time control, monitoring of safe operation, screen display, accident handling guide and recovering guide, data communication, keyboard operation, operation and maintenance management of power plant equipment, system diagnosis, software development, training and so on. The field monitoring protective layer can realize data collection and processing, monitoring of safe operation, real-time control, protection of equipment fault, event order detection, data communication, system self diagnosis etc.. Meanwhile, the system is provided with the necessary hardware and software, which can help operator to select the control right among the control layers and to lock the control equipment without control right.

系统特点 Features

- ★开放性 -- 系统遵守国际标准如：IEEE802.3 IEC60870-5-103, IEC60870-5-104。
 - ★安全性 -- 系统能满足长时间连续稳定可靠运行的要求。
 - ★功能完备 -- 系统将发电站、输变电和调度部门联系在一起，信息共享，有效地提高了综合自动化水平。
 - ★实时性 -- 实时数据实时显示，数据库数据自动更新，历史数据库保存完备。
 - ★用户界面友好 -- 界面简捷、直观、方便用户特别是不太熟悉计算机的用户使用。
 - ★经济 -- 简化了二次回路设计，节约了控制电缆，缩小了控制室面积，具有良好的经济效益。
-
- ★ Openness—The system adheres to the international standards such as IEEE802.3 , IEC60870-5-103 , IEC60870-5-104, etc.
 - ★ Safety—The system can meet the requirements of long-time continuous reliable operation.
 - ★ Complete functions—The system helps the hydraulic power station, power transmission and transformation department and dispatching department connect each other, to reach the information share and effectively improve the comprehensive automation level.
 - ★ Real time—It has the data real-time display, automatic update of data and complete storage of historical database.
 - ★ Friendly user interface—It provides the simple and visual interface that can take the convenience for user, especially for user who is unfamiliar with the computer.
 - ★ Economy—It simplifies the design of secondary circuit, reduces the utility of control cable and area of control chamber, with the good economic benefit.

水电站综合自动化监控系统

Comprehensive automatic monitoring system for hydraulic power plant

系统配置 Configuration



水电站综合自动化系统方案 Typical scheme for Comprehensive automatic monitoring system for hydraulic power plant

A 型：中档型，用于中小型机组

A. 水机自动控制屏(LCU)采用平面电脑, 机组控制 PLC 采用中/小型模块机, 配置高性能以太网 CPU 模块

B. 系统通讯网络采用以太网或 RS-485 现场总线

C. 监控主机（硬件采用当前主流高档配置）采用单机或双机热备用系统

B 型：高档型，用于中大型机组

A. 水机自动控制屏 (LCU) 采用一体化工控机, PLC 采用大型模块机, 主 CPU 采用双机热备 冗余用配置, 配置双以太网通讯接口

B. 通讯网络采用 100M 高速光纤以太网, 双通讯网络, 除配置双机操作人员工作站, 同时配置工程师工作站及通讯管理机。

C. 监控主机（硬件采用当前主流高档配置）采用多计算机系统，配置双网卡

C 型：经济型，用于小型机组

A. 水机自动控制屏省去平面电脑

B. 通讯网络采用 RS-485 现场总线

C. 监控主机（硬件采用当前主流高档配置）采用一台计算机。

A: Mid-class type, for middle and small-size unit

A. Automatic control panel (LCU) of hydraulic machine uses the planar computer, PLC for unit control employs the mid/small-size modular unit and high-performance Ethernet interface CPU module

B. The system communication network employs the Ethernet or RS-485 field bus.

C.The monitoring mainframe (the hardware uses the current mainstream high-class configuration) adopts the single or double hot backup system

B: High-class type, for middle and large-size unit

A. Automatic control panel (LCU) of hydraulic machine uses the integrated industrial-control machine, PLC adopts the large-scale modular machine, and main CPU employs the double hot backup and redundancy configuration and double-Ethernet communication interface.

B. The communication network employs 100M high-speed fiber Ethernet, it is the dual communication network, equipped with the engineer's workstation and communication manager besides the dual-unit operator's workstation.

C.The monitoring mainframe (the hardware uses the current mainstream high-class configuration) adopts the multi-computer system and double-network card.

C: Economical type, for small-size unit

A. The automatic control panel for hydraulic machine dispenses with planar computer

B. Communication network adopts the RS-485 field bus.

C.The monitoring mainframe (the hardware uses the current mainstream high-class configuration) adopts one computer.

变电站综合自动化系统

Comprehensive automatic system for transformer substation

概述 General

变电站综合自动化系统按无人值班设计，能保证在无人值班的条件下系统安全可靠运行。可广泛应用于城网、农网及工矿企业的电力系统，作保护、控制、测量、监视之用，并有与调度中心通信的接口，完成遥测、遥信、遥控、遥调等功能。

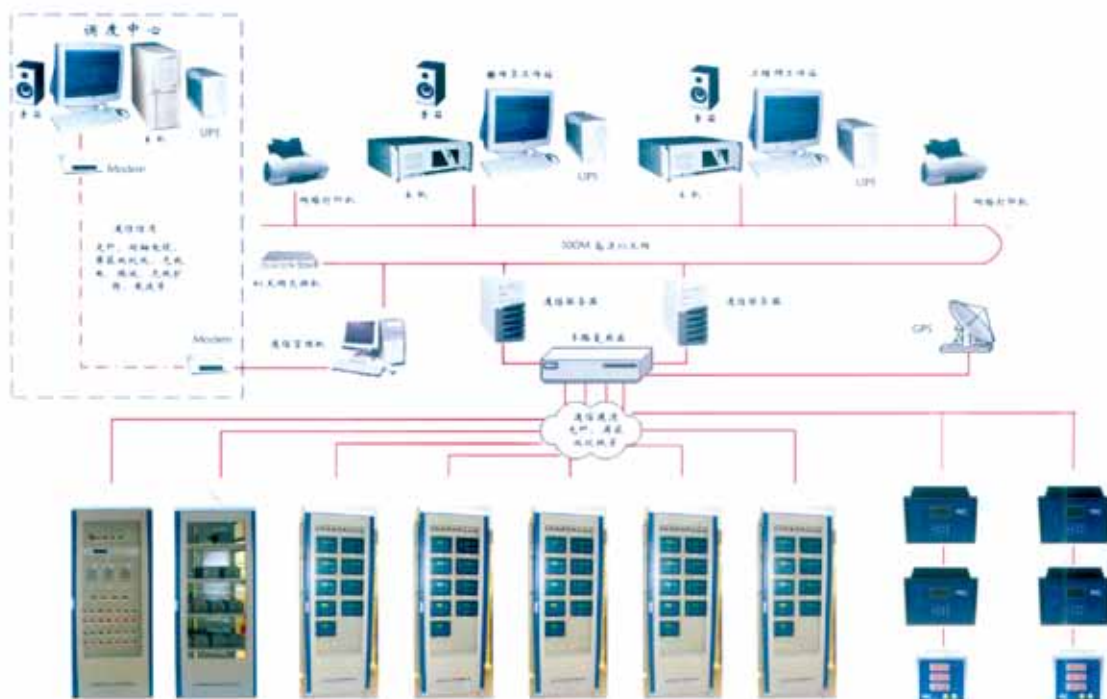
Comprehensive automatic system for transformer substation is designed according to the "nobody on duty" mode, that is, it can guarantee the system runs reliably if nobody is on duty. Having been widely used for electric power systems of urban grid, rural grid and industrial and mining enterprises, to take the effect of protection, control, measurement and monitoring, it has the interface communicating with the dispatching center, to realize the function of remote sensing, remote signaling, remote control and remote regulating.

系统特点 Features

- ★基于二层 Client/Server（客户机/服务器）模式的分布式网络结构，系统配置灵活易于扩充和升级。
- ★主站系统采用开放性、实时性、分布式的支持平台 Windows2000，具有可持续开发的环境。
- ★网络拓扑结构为高速 Ethernet 以太网，传输速率为 100Mbps。
- ★功能强大的各种保护，可用于城网、农网及工矿企业的电力系统各种规模的枢纽变、终端变。
- ★不同的用户等级各自具有相应的操作权限，越操作权限输入时，系统的“自动禁止机制”将有效防止人为误操作。
- ★先进的数据库技术，数据存取快速，查询、统计功能丰富，标准的数据访问接口。可方便地与各种 MIS 系统、EMS/DMS 系统接口。
- ★报表生成器功能强大，可方便地生成日报、月报、年报以及用户自定义等各种报表，并支持各种商用数据库记录和字段级实时无缝读写操作和过程级访问。
- ★用户界面友好、直观、简洁，画面丰富多彩，简便快捷的页面浏览、面向对象的直观操作。
- ★丰富的规约的解释库，支持各种规约。
- ★双通道自动切换、同步/异步自适应调整，采用调制解调器为核心的电力调度通道装置。
- ★采用智能化通信管理装置，大大提高了系统的实时响应能力和响应速度。
- ★在线远程维护，及时高效率的售后服务和技术支持。在线远程维护，及时高效率的售后服务和技术支持。

- ★ It has the distributing type network structure based on two-layer Client/Server mode, with the flexible configuration that takes the convenience for expanding and upgrading.
- ★ The master station system employs the opening, real-time and distributing type supporting platform Windows 2000, which has the sustainable development environment.
- ★ The network topological structure is high-speed Ethernet, whose transmission ratio can hit 100Mbps.
- ★ Strong functional protection can be used for various pivot transformers and terminal transformers in electric power system of urban grid, rural grid and industrial and mining enterprises.
- ★ The different user classes are provided with the corresponding operation authorities, if the input is beyond the operation right limitation, the system function "automatic forbidden system" can effectively prevent the operator false operation.
- ★ It has the advanced database technology, fast data access, abundant enquiry and statistical function and standard data access interface that can connect with interfaces of MIS system, EMS/DMS system and so on.
- ★ The report builder has the strong functions that can establish kinds of reports such as the daily report, monthly report, yearly report or report defined by user and supports different commercial database records and field-level real-time read-write operation and process level access.
- ★ It provides friendly, visual and simple user interface, rich and colorful picture, simple and fast page browsing as well as visual operation oriented to the objects.
- ★ Abundant protocol interpretation center, supporting kinds of protocols
- ★ With two-channel automatic shift and synchronous/asynchronous adaptive adjustment, it adopts the electric power dispatching channel unit taking the modem as the core.
- ★ Due to the utilization of intelligent communication manager, it is improved greatly in real-time response ability and response speed.
- ★ It also has the on-line remote care that provides the timely high-efficiency after-sale service and technology support.

典型结构 Typical structure



自来水厂集散控制系统

Distributed control system for water works

概述 General

自来水厂集散控制系统专门面向自来水厂设计的自动监控系统，该系统上层软件包基于最先进的 HI/SCADA 平台，具有高性能的控制策略生成器组件，Internet 浏览监控功能。底层控制单元采用新型的高性能 PIC 模块、高品质 PLC 可编程序控制器、抗干扰嵌入式操作系统软件包，保证了设备的稳定可靠性。系统能实时监测自来水厂（泵房、PH 检测、余氯、浊度、出水压力、SCD 仪、进水流量、出水流量、变电站、井房、鼓风机房等机电设备的电流、电压、功率、泵抽水流量、电机温度、泵故障信息等，对絮凝、沉淀（澄清）、过滤、加药、加氯等）污水厂（泵房、沉淀池、水解池、变电站、脱水机房、井房、SBR 池、鼓风机房等机电设备的电流、电压、功率、泵抽水流量、电机温度、泵故障信息，栅格水位、水温度、PH 检测、泥位值，流量；机电设备启停情况等信息），实时对水厂内出现的异常情况进行模糊分析，确认后及时进行设备保护和报警。

Distributed control system for water works is an automatic monitoring system specially designed for water works, the upper software package of this system is based on the most advanced HI/SCADA platform, with the high-performance strategy-control builder components and Internet browsing monitoring function; and the lower controlling unit uses the new type of high-performance PIC module, high-quality programmable logical controller (PLC) and anti-interference embedded type operation system software package, all these guarantee the reliability of equipment.

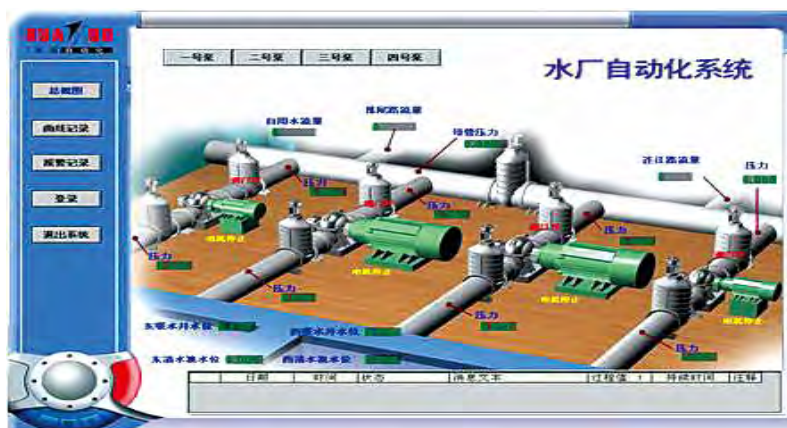
This system can realize the real-time monitoring for water works (pump room, PH detection, residual chlorine, turbidity, water delivery pressure, SCD instrument, water inlet flow, water outlet flow, power transformation and distribution station, well room, blower room, current, voltage and power of electromechanical equipment, pump suction flow, motor temperature, pump fault information, filtering of flocculent and deposition, medicine addition and chlorine addition, etc.) as well as sewage factory (current, voltage, power, pump suction flow, motor temperature, pump fault information, grid water level, water temperature, PH detection, clay level value and start and stop information of electromechanical equipment in pump room, sand basin, hydrolysis pool, transformer substation, dewatering machine room, well room, SBR pool, blower room and so on), to give the real-time blurry analysis about the abnormal situation of water works and to execute the equipment protection and alarm in time after making the confirmation.

系统特点 Features

- ★可实时采集进出厂水流量、PH 值、浊度值、加矾加氯量等参数。
- ★可实现格栅、取水泵、电动阀、搅拌机、加药、加氯、变配电设备等设备的状态检测和控制。
- ★可动态显示整个工艺流程的中貌图和分貌图、设备的状态和各种参数值。
- ★可实现故障报警显示，并进行统计分析、打印存档等报警处理。
- ★可实现日常的数据处理、存贮、信息查询以及管理报表的输出等工作。
- ★硬件系统的高精度及高可靠系统采用高性能 PLC，通讯主干线可采用采用光纤或无线通信。
- ★配置 Access，SQL，Server，Oracle，Dbase，可以建立历史数据库，对各数据库进行建档分析、处理，输出各种所需的生产报表、报文。
- ★软件模块化结构，便于参数设置、修改，适用于各种复杂的工艺流程。
- ★数据自动容错处理系统能自动处理非正常数据，智能判断设备状态，自动剔除干扰数据。
- ★系统具有防雷、防潮、抗干扰能力。系统工控机通讯端口、PLC 通讯端口、传感器供电均可以加防雷电设备，保证系统即使在强雷区仍能正常运行。
- ★包含设备文档管理系统，方便用户随时了解设备各种资料。
- ★低价位 GSM 区域网集中管理，这种方式比传统的布线联网费用更低，维护更简单。
- ★设备维护自动提示系统，能设置设备维护的周期，维护部件，当设备到达规定的维护时间后，系统自动提示，方便维护人员。
- ★Internet 控制方式，为适应现代控制需要，系统开发基于 Internet 控制版本，使用户能通过浏览器软件，即可对现成设备进行访问控制。

- ★ It can acquire the real-time collection of the parameters like flow of water incoming and outgoing the plant, PH value, turbidity, alum addition and chlorine addition, etc.
- ★ It can realize the state detection and control of equipment like the grid, water pump, electrically-operated valve, blender, medicine adding equipment, chlorine adding equipment, power transformation and distribution equipment, etc..
- ★ It is able to display the general situation diagram and separate situation diagram of the whole technical process, equipment state and kinds of parameters.
- ★ It can display the fault alarm, and perform the statistical analysis as well as printing and storage.
- ★ It also can realize the daily data processing, storage, information enquiry and management report output.
- ★ In the hardware system, the high-accuracy and high-reliability system adopts high-performance PLC, the communication trunk line uses the optical fiber or wireless communication.
- ★ It is equipped with Access, SQL, Server, Oracle and Dbase, the historical database is available, different databases may be filed, analyzed and proceeded, what's more, the production report and message may be output according to kinds of demands.
- ★ It is designed with the soft modular structure, which facilitates the setup and amendment of the parameters, suitable for various complex technical processes.
- ★ The data automatic fault-tolerance processing system can process the abnormal data automatically, judge the equipment state intelligently and delete the interference data automatically.
- ★ The system has the lightning protection, dampness prevention and interference resistance. Its industrial control machine communication interface, PLC communication interface and sensor power supply also can be equipped with the lightning-proof equipment, to ensure the system can run reliably even if it is mounted in the strong-lightning area.
- ★ It includes the equipment file management system that facilitates the enquiry of information.
- ★ It provides the low-price GSM region networking centralized management, which brings the lower wiring and networking expense and simpler maintenance compared with the traditional mode.
- ★ Automatic prompt system for equipment maintenance can set the maintained period and maintained parts of equipment, when the equipment reaches the specified maintenance time, the system gives the automatic prompt, so it takes convenience for the maintenance.
- ★ Internet control mode: To meet the demand of modern control, the system development is based on Internet control edition, which can help user perform access control for the existing equipment through the browser software.

典型结构 Typical structure



火电站综合自动化系统

Comprehensive automatic system for power plant

概述 General

火电站综合自动化系统，是在总结多年从事发电厂项目的工程经验，充分考虑到用户需求和目前我国发电厂自动化水平现状的基础上开发的新一代发电厂运行控制 及其综合自动化系统。该系统是计算机技术、微机保护技术、现场总线技术及网络通讯技术在发电厂自动化系统的集中应用，系统的总体方案采用符合国际开放系统标准的全分布式结构，以工控计算机为监控系统平台，依托 微机保护测控装置和 PLC 可编程控制器，实现发电厂电气系统的保护、测量、运行控制（近控和远控）、事故追忆、故障诊断、故障信息管理、电气性能优化、报表打印等功能的综合自动化系统。在发电机的运行控制方面具有并列操作 控制、并网后的发电运行控制、停机解列操作控制，以及对于企业热电厂（或自备电厂）在与系统解列后的稳频 / 稳压控制功能，可以实现发电厂网控室的“无人值班”远方计算机监控功能。

Comprehensive automatic system for power plant is a new generation of systems developed with many years of engineering experience engaged in project of power plant, and it is also designed according to the user demands and current situation of Chinese automation level. The system can realize the collective application of computer technology, microcomputer protection technology, field bus technology and network communication technology in the power plant automatic system, it s general scheme uses the full distributed structure complying with the national opening system standard, it takes the industrial-control computer as the monitoring system platform, and relies on microcomputer protective monitoring device and programmable logical controller (PLC), to realize the function of protection, measurement, operation control (short and long-distance control), accident memory, fault diagnosis, fault information management, electric performance optimization, report printing for power plant electrical system. In the respect of motor operation control, it has the functions of paratactic operation control, power generation operation control after incorporating in power network, shutdown splitting operation control as well as frequency and voltage stabilization control after the enterprise power plant (or self-provided power plant) splits from the system. It also can realize the “unattended” remote computer monitoring function for power plant network control room.

系统特点 Features

★本系统采用分层分布式网络体系结构，分间隔层和站控层两层控制系统。微机保护测控装置以及负责发电机运行控制的 PLC 可编程控制器为间隔层设备，前置通讯机及后台上位系统为站控层设备。

★将负责发电机运行控制的 PLC 可编程控制器纳入本系统，使发电厂保护、监控系统与发电机运行控制系统有机结合，实现发电厂完善的综合自动化系统。

★通过前置通讯机或专设的通讯服务器与 DCS 通讯，将本系统接入到 DCS 系统，取消所有综合自动化系统与 DCS 的硬接线。

★后台监控系统提供强大的图形界面和数据处理功能。软件系统采用结构化、模块化设计，具有极高的可靠性、稳定性、灵活性和可扩展性。

★用不同的功能模块完成自动化的各种功能，各个模块互相独立，有机组合各个功能模块，可以方便实现用户的个性化要求。

★参数数据库和历史数据库采用大中型的关系数据库 (Microsoft SQL Server)，能够可靠、方便地管理参数数据和历史数据，扩展性强

★ The system employs the layered distributed network system structure divided into spacer layer and station control layer. Hereinto, the spacer layer includes microcomputer protective monitoring device and programmable logical controller (PLC) used for operation control of generator, and the station control layer contains the equipment like pre-communication set and background upper system.

★ The application of programmable logical controller (PLC) used for generator operation control brings the organic combination of power plant protection, monitoring system and generator operation control system and realizes the perfect comprehensive automatic system of power plant.

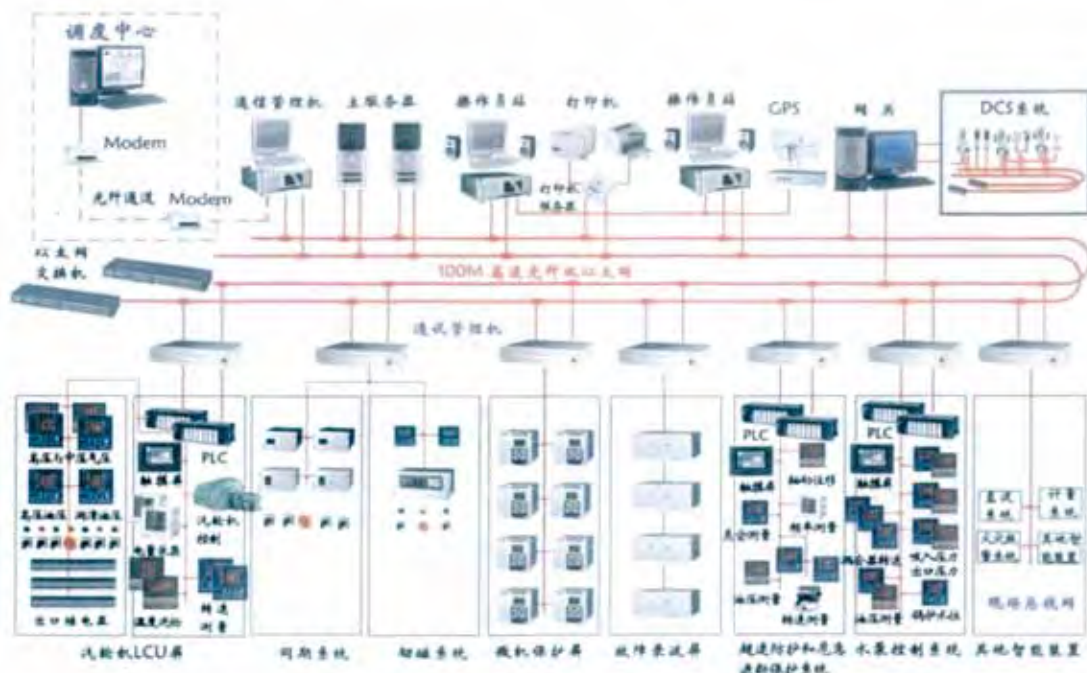
★ Through the communication of pre-communication set or special communication sever with DCS, the system is connected into the DCS, thus, the hard wires that connect the comprehensive automatic system with DCS are canceled.

★ The background monitoring system has strong graphical interface and data processing function. And, the software system employs the structuring and modular design, with the ultra-high reliability, stability, flexibility and expandability.

★ The various functions for comprehensive automation may be realized with the different functional modules, the modules are independent each other, the organic combination of functional modules can meet the customer individual requirements.

★ The parameter database and historical database adopt the large and small-size relational databases (Microsoft SQL Sever) with the strong expansibility, which facilitate the management of parameter data and historical data.

典型结构 Typical structure



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