

诚信卓越 士林伟业
GOOD FAITH & GREAT SHILIN



开关柜系列 Switchgear Series



江苏士林电气集团有限公司
JIANGSU SHILIN ELECTRIC GROUP CO., LTD.



德者居上 智者居侧 能者居前

Virtue prevails wise are on the side competent are in the forefront



只有站在顾客的角度着想，
才能真正赢得市场。

士林严格按照国家规格的有关标准，
本着方便用户、服务大众的原则，
并根据客户的需求不断创新，
提高整体服务水平，
以优质的服务提升了品牌附加值。

Only from the customer's point of view,
Only in this way can we really win the market.

Shilin strictly conforms to the relevant standards of the national specifications.

In line with the principle of user-friendly and public service,
And constantly innovate according to the needs of customers.
Improve the overall service level.

With high quality service, the added value of the brand has been enhanced.



公司简介

在中国第一个生态环境市，长江中下游第二大岛——江苏省扬中市境内有一家集输配电成套、电力电气、太阳能组件等产品研发、制造、销售、服务于一体的国家级高新技术企业，这就是——江苏士林电气集团有限公司。

公司注册资金 10018 万元，总资产 6 亿元，厂区占地面积 11 万余平方米，建筑面积 8 万平方米。现有员工 1000 余人，其中高级工程师 20 人，工程师 42 人，其他各类专业技术人员 286 人，综合实力年产能 50 亿元，公司通过了 ABS 美国船级社质量管理体系认证、ISO9001 质量体系认证、ISO14001 环境管理体系认证和“CCC”产品强制认证。全部产品均通过了国家或行业最新标准检测，公司连续多年被评为“江苏省明星企业”“江苏省知名企业”、“质量信用 AAA 级”、“重合同、守信用企业”及省市“AAA”资信企业。拥有七十余项国家专利，多项产品获得省和国家的高新技术产品称号，公司自主研发的管型母线获江苏省科学技术奖、江苏省专精特新产品。

江苏士林电气集团有限公司与西门子电气、ABB 电气等企业强强联合，在国内外市场上共同生产和合作经营各类电气产品。长期以来公司以“科技是第一生产力”为指导思想，以不断创新的理念，精益求精的态度，现代化的管理手段，为广大用户专业化制造：高低压配电柜、高压绝缘管母线、风电专用管母线、照明母线、密集型母线槽、IP68 防水、浇注、防腐母线槽、耐火电缆桥架、一次滚压成型环形筋节能高强电缆桥架、支架等系列产品。特别是公司生产的绝缘管母线、浇注防水母线是国内生产规模最大，产品系列最齐全且专利技术在国内处处领先地位的高新技术产品，在工控、供配电等领域享有较高的知名度和市场占有率。

公司先进的创新技术和卓越的品质，成就了“士林品牌”，遍布全国各大城市的营销服务网络，确保了“士林产品”和“士林服务”在行业中的排头兵地位；士林的产品被广泛应用于国内举世瞩目的大型项目——上海世博会、南京青奥会、田湾核电站……士林的用户遍布：高铁、地铁、高速公路、发电系统、造船汽车、工矿石油化工、和政府工程等各项领域并获得一致好评。

“士林电气”始终秉承“专业、品质、共赢”的企业理念，汇集国内外精英才俊，走自主创新发展之路，实现士林电气工程技术和专业化服务技术的双提升，达到士林产品从“士林制造”到“士林创造”的新发展，在中国电气产业中，展示自己的综合实力和高端水平。

公司主要产品有

一、配电类

1. 10KV~35KV 的 KYN61、KYN28、XGN 等系列固定式、手车式高压柜；SLN2X 环保充气柜、SLGIS 充气柜、HXGN-C、F、V 系列环网单元；8PT、MDmax、MNS、GCS、GCK、GGD 等系列高级型低压开关柜。

2. XLC/A 密集型母线槽、CFW 高强封闭母线槽、CMLJ 新型节能母线槽、IP68 防腐防水 DCL 母线、NHJX 金属耐火母线槽、NHSX 树脂耐火母线槽、NHZX 照明耐火母线槽、SL-KB 照明母线槽、GCL 高压共相树脂浇注母线槽、GGM 绝缘管母线、800MW 发电机组离相封闭母线、FGM 风力发电绝缘管母线。

二、桥架类

1. SLJ-DJ 大跨距电缆桥架
2. SLJ-U、T、H 型电缆桥架
3. SLJ-ZBQ 玻璃钢阻燃防腐桥架
4. SLJ-LQJ 铝合金防腐桥架
5. SLJ-HQ 核级桥架
6. NDCH 系列耐火桥架
7. TA 系列船用桥架

公司热烈欢迎与各大设计院所、广大用户和关心和支持士林发展的社会精英真诚合作，携手致力于我国电气事业的发展 and 繁荣。



Company Profile

There is a national high-tech enterprise integrating research & development, manufacture, sale and service of complete set of power transmission and distribution product, electric product, solar energy components and so on in Yangzhong City which is the first ecological city of China, the second largest island in the middle and lower reaches of Yangtze River, Jiangsu province. That is JIANGSU SHILIN ELECTRIC GROUP CO., LTD.

The registered capital of the company is 100.18 million and the total asset is 0.6 billion. The factory covers an area of 110,000 square meters and the building area is 80,000 square meters. There are around 1000 employees, 20 of them are senior engineers, 42 of them are engineers and 286 of them are other kinds of professional technicians. The annual production is 5 billion. The company has passed ABS quality management system certification, ISO9001 quality system, ISO14001 environment management system and CCC. All products passed the test of national or industrial latest standard. The company was awarded as "Star Enterprise of Jiangsu Province", "Well-known Enterprise of Jiangsu province", "AAA of Quality Credit", "Enterprise honoring the contract and keeping the promise" and "AAA" credit. We have more than 70 national patents. A number of products were named as national and provincial high-tech product. The tubular busbar independently researched and developed by our company has won Science and Technology Award of Jiangsu Province and been certified as professional, unique, superior and new product of Jiangsu Province.

Jiangsu Shilin Electrical Equipment Co., Ltd. is strongly associated with Siemens electric, abb electric and other enterprises to jointly produce and cooperate in various electrical products in domestic and foreign markets. Taking "Science and technology are the primary productive force" as the guiding ideology and adhering to the concept of constant innovation, the attitude of keeping on improving and using modernized management method, the company specially produces the following product for users: high & low voltage power distribution cabinet, high-voltage insulating tubular busbar, tubular busbar for wind power, lighting busbar, compact bus duct, pouring waterproof and corrosion proof bus duct with IP68, fire-resistant cable tray, roller forming ring rib, energy saving high-strength cable tray, support and so on. Especially, the insulating tubular busbar and pouring waterproof busbar manufactured by the company are high-tech products that the production scale is largest in China, the series is most complete and the patent technology takes the leading position at home and abroad and have high popularity and market share in the field of industrial control, power supply and distribution.

The advanced innovative technology and excellent quality makes the achievement of "SHILIN brand" and the marketing and service network in all over Chinese big cities guarantees the leading position of "SHILIN product" and "SHILIN service" in this industry. The product produced by SHILIN is widely applied in the national remarkable big projects---Shanghai World Expo, Nanjing Youth Olympic Games, Tianwan Nuclear plant and so on. The users of SHILIN product spreads over high-speed railway, metro, expressway, power generation system, ship building, automobile, mining industry, petroleum, chemical industry, government project and highly praises the product.

SHILIN Electric always adheres to the business concept of profession, high quality and win-win, employs elites at home and abroad, takes the developing way of independent innovation to realize the promotion of electric engineering technology and specialized service technology, reach the new development from "made in SHILIN" to "invent in SHILIN" and show comprehensive strength and high standard in China's electric industry.

The main products of the company are as follows

一、 power distribution product

1. 10kV~35kV KYN61, KYN28, XGN and other series fixed and handcart high voltage cabinets; SLN2X environmental protection inflatable cabinet, SLG13 inflatable cabinet, hxgn-c, F and V series ring network units; 8PT, MDmax, MNS, GCS, GCK, GGD and other series of advanced low-voltage switchgear.

2. XLC/A compact bus duct, CFW high-strength enclosed bus duct, CMLJ new energy-saving bus duct, corrosionproof and waterproof DCL busbar with IP68, NHJX metal fire resistant bus duct, NHSX resin fire resistant bus duct, NHZX lighting fire resistant bus duct, SL-KB lighting bus duct, GCL high-voltage common enclosed bus duct casted with resin, GGM insulating tubular busbar, isolated-phase busbar of 800MW generator unit, FGM wind power generation insulating tubular busbar.

二、 cable tray

1. SLJ-DJ long-span cable tray
2. SLJ-U, TandH cable tray
3. SLJ-ZBQ FRP flame retardant and corrosion proof cable tray
4. LJ-LQJ aluminum alloy corrosion proof cable tray
5. SLJ-HQ uncommon cable tray
6. NDCH fire resistant cable tray
7. TA marine cable tray

Warmly welcome to cooperate with each design institute, user and social elites who support the development of SHILIN to work together for the development and prosperity of our country's electric industry.

诚信为本

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概述 Brief Introduction

气体绝缘金属铠装开关柜由真空断路器，3-工位隔离开关，母线连接系统以及电路保护用电气及机械装置组成。

开关柜适用于额定电压达40.5kV的户内系统。

Gas Insulated Metal-clad Switchgear is an integrated assembly of vacuum circuit breaker, 3-position switch, bus connecting system and control devices coordinated electrically and mechanically for medium voltage circuit protection.

The Switchgear is available at rated voltage up to 40.5kV installed indoor.

- IEC 62271-200 (2003)
- IEC 62271-100 (2003)
- IEC 62271-102 (2001)
- IEC 60694 (2001)
- GB/T 11022-1999
- GB 3906-2006
- GB 1984-2003

正常使用环境条件 Normal Service Conditions

- 海拔不超过1000米；
- 环境空气温度：上限+40°C，下限-25°C；
- 相对湿度：日平均值不大于95%，月平均值不大于90%；
- 地震烈度不超过8度；
- 没有火灾、爆炸危险、严重粉末、化学腐蚀及剧烈振动的场所。
- The altitude is not higher than 1000m
- Environment temperature: upper limit +40°C, lower limit -15°C
- Relative humidity: The daily average relative humidity should not be more than 95% and the monthly average relative humidity should not

be more than 90%.

- Seismic intensity: $\leq 8m$.
- The place where is free from fire, explosion risk, severe pollution, chemical corrosion and severe vibration.

技术参数 Technical Date

型号 Designation of type		SLGIS-S10	SLGIS-S20	SLGIS-S80	SLGIS-S90
额定电压 Rated voltage	kV	24(25.8)	40.5	40.5	27.5
最高运行电压 Maximum operating voltage	kV	24(25.8)	40.5	40.5	27.5
额定工频耐压 Rated power frequency withstand voltage	kV	50 ¹⁾	95	95	95
额定雷电冲击电压 Rated lightning impulse withstand voltage	kV	125	185	185	185
最低功能压力绝对值 20°C All voltage values apply for an insulating gas pressure, absolute, 20°C	kPa	110	110	110	110
额定频率 Rated frequency	Hz	50/60	50/60	50/60	50/60
额定母线电流 Rated busbar current	A	up to 2000 ¹⁾	up to 1250 ¹⁾	up to 2500 ¹⁾	up to 2500 ¹⁾
额定馈线电流 Rated feeder current	A	630/1250/2000 ¹⁾	630/1250 ¹⁾	630/1250/2500 ¹⁾	630/1600/2500 ¹⁾
额定峰值耐受电流 Rated peak withstand current	kA	63	80	80	80
额定短时耐受电流 4s, Rated short time current 4 seconds	kA	25	31.5	31.5	31.5
断路器额定短路开断电流 Rated short circuit breaking current of circuit breaker	kA	25	31.5	31.5	31.5
断路器额定短路关合电流 Rated short circuit making current of circuit breaker	kA	63	80	80	80
额定操作顺序 Rated operating sequence		O - 0.3s - CO - 3min - CO ²⁾			
合闸时间 Closing time	ms	75	60± 5	60± 5	60± 5
分闸时间 Opening time	ms	60	40± 5	40± 5	40± 5
绝缘气体 Insulating gas		N2	SF ₆ ³⁾	SF ₆ ³⁾	SF ₆ ³⁾
额定充气压力, 绝对值 20°C Rated filling pressure, absolute, 20°C	kPa	130	130	130	130
最低操作压力, 绝对值 20°C Minimum operating pressure, absolute, 20°C	kPa	120	120	120	120
辅助回路电压 Rated data: Auxiliary voltage	V	220DC 110 / 125D ⁴⁾			
防护等级 Degree of protection (IEC 60529, DIN VDE 0470): 高压 High voltage live parts 低压 Low voltage compartment		IP 65 IP 4X ⁵⁾	IP 65 IP 4X ⁵⁾	IP 65 IP 4X ⁵⁾	IP 65 IP 4X ⁵⁾
环境温度 Ambient temperature : ⁶⁾ 最高值 Maximum value 最低值 Minimum value	°C	+40 -15	+40 -15	+40 -15	+40 -15
海拔高度 Altitude for erection above sea level	m	可适应高海拔要求 (订货时需注明海拔高度)			
外形尺寸 Dimensions : 高 Height 深 Depth 宽 Width	mm	2300 1720 600 / 650	2300 1445 600/800/1000	2400(2600) ⁷⁾ 1760 600/800	2400(2600) ⁷⁾ 1760 600/800

1) 根据国家标准要求的更高的值
Higher values as per international standards on request

2) 可按客户要求提供其它顺序
Other sequences on request

3) 绝缘气体: 六氟化硫
Insulating gas: sulphur hexafluoride

4) 可按客户要求提供其它辅助电压
Other auxiliary voltages on request

5) 可按客户要求提供更高等级
Higher values on request

6) 可按客户要求适应特殊环境
Special service conditions on request

7) 2600mm是电缆室高度为800mm以上
2600mm for above 800mm of the c
connection compartment

※以上数据如有更改, 恕不另行通知

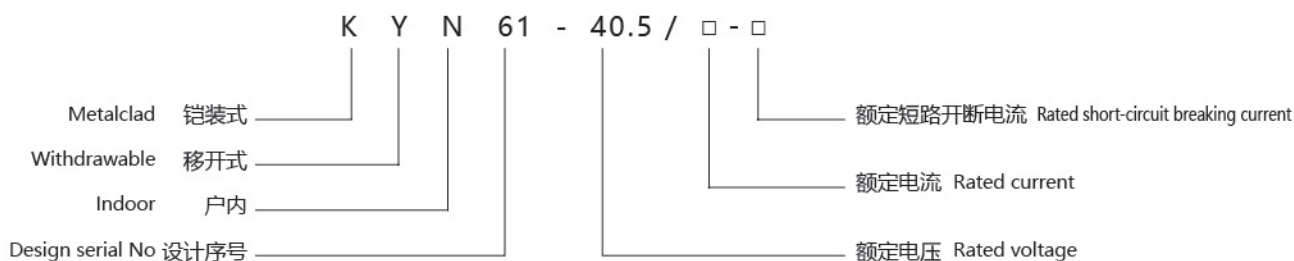
The above technical data may change without prior notice for the quality improvement.



KYN61-40.5金属铠装移开式开关设备（简称：KYN61-40.5开关柜）是公司总结同类产品基础上设计开发的先进户内成套配电设备。适用于三相交流50Hz额定电压为40.5kV的单母线及单母线分段电力系统，具有完善的“五防”功能。主要用于电厂、变电站、工矿企业及高层建筑中，作为接受和分配电能之用，并具有对电路进行控制、保护和监测等功能。

KYN61-40.5 metalclad withdrawable switchgear (YN61-40.5 switch cabinet for short) is a complete set of advanced indoor power distribution equipment designed and developed by our company on the basis of same or similar product. It is applicable to the single busbar and single-busbar sectionalized power system of which the three-phase AC frequency is 50Hz and the rated voltage is 40.5kV. With perfect “five-prevention” functionality, the product is mainly used in the power plants, transformer substations, industrial and mining enterprises and high buildings to receive and distribute electric energy, control, monitor, protect the circuit.

型号含义 meaning type



设计制造标准及规范 design and manufacture standards and specifications

KYN61-40.5开关柜主要符合下列标准和规范，但不限于此：

- IEC62271-200:2003 额定电压1kV以上52kV以下交流金属封闭开关设备和控制设备
- IEC60694-1996 高压开关设备和控制设备标准的共用技术要求
- IEC6056-1987 高压交流断路器
- GB3906-2006 3-35kV交流金属封闭开关设备
- GB/T11022-1999 高压开关设备和控制设备标准的共用技术要求
- GB/T1984-2003 交流高压断路器

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- IEC6056-1987 高压交流断路器
- GB3906-2006 3-35kV交流金属封闭开关设备
- GB/T11022-1999 高压开关设备和控制设备标准的共用技术要求
- GB/T1984-2003 交流高压断路器
- DL/T404-2007 户内交流高压开关柜订货技术条件

KYN61-40.5 Switch cabinets mainly comply with the following standards and specifications, but not limited to:

- IEC62271-200:2003 AC metal enclosed switchgear and control equipment with rated voltage between 1kV and 52kV.
- IEC60694-1996 Common technical requirements for high voltage switchgear and control equipment.
- IEC6056-1987 AC high-voltage circuit breaker.
- GB3906-2006 3-35kV AC metal enclosed switchgear.
- GB/T11022-1999 Common technical requirements for high-voltage switchgear and control equipment.
- GB/T1984-2003 AC high-voltage AC circuit breaker.
- DL/T404-2007 technical specifications for indoor AC high-voltage switch cabinet normal service conditions.

使用条件 Service conditions

正常使用条件

- 环境温度：最高环境温度 +40°C
最低环境温度 -15°C
- 环境湿度：日平均相对 95%及以下
月平均相对 90%及以下
- 安装场所的最大海拔高度 1000m
- 地震烈度不超过8度，没有火灾、爆炸危险，没有严重污秽及化学腐蚀的场所。

Service conditions

- Environment temperature: highest environment temperature +40°C
Lowest environment temperature -15°C
 - Environment humidity: daily average 95% and lower
Monthly average 95% and lower
 - Max altitude of the installation place 1000m
 - Seismic intensity: ≤8m, The place where is free from fire, explosion risk, severe pollution, chemical corrosion and severe vibration.
- special service conditions.

● 特殊使用条件

对于超出上述正常使用条件的特殊使用环境，用户在订货时可向我司垂询，共同协商。例如：当开关柜安装的海拔高度超过1000米时；设备安装在高盐雾、高温或高温环境下时等。

为防止凝露现象的产生，开关柜内设置电加热器。当开关柜处于备用状态时，应及时投入使用。正常工作时，应视实际情况适时投入使用。

● Special service conditions

For the special service environment beyond the above normal service conditions, customers may negotiate with our company when placing

order. For example: The altitude of the place where the switchgear will be installed is more than 1000 meters; Equipment will be installed in high salt spray or high temperature environment, etc.

In order to prevent the condensation phenomenon, the electric heater is set in the switch cabinet. When the switch cabinet is in standby state, it should be put into use in time. When working normally, it should be put into use timely according to the actual situation.

技术数据 Technical data

KYN61-40.5开关柜主要技术参数 Main technical parameters of KYN61-40.5

项 目 Item	单位 Unit	主要技术参数 Main Technical Parameters
额定电压 Rated voltage	kV	40.5
额定绝缘 水平 rated insulation level	1min工频耐压 (有效值) 1min working frequency withstand voltage(effective value)	kV 95
	雷电冲击耐压 (峰值) Lightning impulse withstand voltage(peak value)	kV 185
额定频率 Rated frequency	Hz	50, 60
主母线额定电流 Rated current of main busbar	A	630, 1250, 1600, 2000, 2500*
分支母线额定电流 Rated current of branch busbar	A	630, 1250, 1600, 2000, 2500*
额定短时耐受电流(有效值), 4秒 Rated short-time withstand current(effective value),4 seconds	kA	16, 20, 25, 31.5
额定峰值耐受电流 (峰值) Rated peak withstand current (peak value)	kA	40, 50, 63, 80
操作电源电压 Voltage of operation power supply	V	DC110V/220V, AC220V
外壳防护等级 Protection grade of housing		IP4X
断路器门打开时防护等级 Protection grade when the door of the circuit breaker is open		IP2X

* 需采用强制风冷装置

The forced air cooling device is needed to use.

开关柜外形尺寸及重量 Overall dimensions and weight of switch cabinet

项 目 Item	单位 Unit	主要技术参数 Main Technical Parameters
宽度 W	mm	1200, 1400*, 1600**
深度 D	mm	2800
高度 H	mm	2600
重量 weight	kg	850~1850

* 采用国产真空断路器

** 所用变压器柜宽度

The width of transformer cabinet

Domestic vacuum circuit breaker is adopted

特殊方案条件下, 订货时需向制造厂核实具体开关柜尺寸。

For the special scheme, the specific size of the switch cabinet should be checked with the manufacturer when placing order.

产品概述 Product overview

六氟化硫(SF₆)气体是《京都议定书》中规定的六种温室气体之一，其温室效应是二氧化碳(CO₂)气体的23900倍，在大气中存续的时间为3200年。SF₆气体是高压电器产品的主要绝缘和开断介质，占SF₆气体总排放的80%以上，因此限制和控制SF₆气体的使用和排放，对世界电力工业的发展有着重要的意义。

我公司以低碳经济为可持续发展战略，长期致力于环境友好型中压气体绝缘开关柜研发、生产和销售，在以N₂/SF₆混合气体取代SF₆的N2S/N2X 12~40.5kV系列产品的基础上，开发了SLN2X系列无SF₆气体绝缘开关柜。开关柜采用低压力的氮气(N₂)作为绝缘气体，利用气体和局部固体相结合的界面绝缘技术，首创无SF₆气体绝缘，真正实现了绿色环保的理念。

SF₆ is one of the six green-house effect gases stipulated in Kyoto Protocol, its GWP is 23900 times of carbon dioxide, which can last for around 3200 years in atmosphere. SF₆, as the main insulating and breaking media for HV electrical equipments, its emission has accounted for 80% of the total volume. Hence, it will play an important role for the development of global power industry to limit and control the use and emission of SF₆ gas.

Our company has been very keen on the sustainable development strategy of low carbon and economy, and dedicated for the R&D, manufacture and sale of environmentally friendly MV gas insulated switchgear for long term. On the basis to replace SF₆ by the mixture of N₂ and SF₆ for 12-40.5kV type products, the SLN2X Non-SF₆ gas insulated switchgear has been developed successfully, which has used the low-pressure Nitrogen as insulation gas as well as the combined gas and partially solid interface insulation theology, to innovate the Non-SF₆ gas technology. This has brought the genuine concept of green environmental protection.

产品应用 Product application

产品应用于12kV输变电系统以接受及分配电能，并对电力系统正常运行和故障情况下，实行控制、测量、保护和智能化监控。特别适用于土地资源紧张的大中城市、地下、高层建筑、高海拔地区、高盐雾、高粉尘、高湿地区等环境恶劣的中压系统或变配电站的重大项目工程使用。在有碳排放要求的国家和地区使用更具有经济性。本产品的特点是利用性能稳定、价格低廉、低压力的惰性气体氮气作为主绝缘，充分利用了气体绝缘可预测可告警的特性，以隔绝周围环境对电力设备性能的影响，克服了固体绝缘设备对局部放电的不可控性和不可预测性，可靠性高，使产品免维护，占地面积小，节能、节材、节地。

The product is applied for 12kV T&D power system, receiving, distributing the energy and making the control, measurement, protection and intelligent monitoring during the normal or fault operation of the system, especially for the important projects in the metropolitan with the limited land resources, underground place, skyscraper, as well as severe areas with high altitude, high salt fog, high dust and high humidity. It plays more economic role in those countries which limit the carbon emission. The product is of the high stability, cost efficiency and Nitrogen gas insulation with lower pressure, which has fully utilized the forecast and warning feature of gas, to isolate the influence from the environment by overcoming the uncontrolled and unpredictable of solid insulation to the partial discharge, which enables the product of high reliability, maintenance free, less space occupation, energy saving, material saving and land saving.

正常使用条件 Normal service conditions

- 产品应用遵循GB3906、DL/T404、DL/T593和IEC62271-200的要求；
- 周围空气温度
最高气温：+40℃
最低气温：-25℃
日平均最高温度：+35℃
- 湿度
日相对平均湿度：≤95%
月相对平均湿度：≤90%
日平均水蒸汽压：≤ 2.2×10^{-3} MPa
月平均水蒸汽压：≤ 1.8×10^{-3} MPa
- 海拔高度：≤1000m
周围空气没有明显地受到尘埃、烟、腐蚀性气体和或可燃性气体、蒸汽或盐雾的污染。
- Complying with the following limitation values according to GB3906, DL/T404, DL/T593 and IEC 62271-200;
- Ambient air temperature:
Maximum air temperature: +40℃
Minimum air temperature: -25℃
Daily average maximum temperature: +35℃
- Humidity:
Daily average value of relative humidity: ≤95%
Monthly average value of relative humidity: ≤90%
Daily average value of water vapor pressure: ≤ 2.2×10^{-3} MPa
Monthly average value of water vapor pressure: ≤ 1.8×10^{-3} MPa
- Altitude: ≤ 1000m
The ambient air is not significantly polluted by dust, smoke, corrosive and/or flammable gases, vapours or salt.

特殊使用条件 Special service conditions

本产品也适用于很多特殊使用条件，但根据GB11022，IEC62271-1标准，对于超出上述正常使用条件的特殊要求，应提前向制造商咨询，并经协商同意。如：

- 海拔高度超过1000m
- 更高的环境温度
- 更低的环境温度
- 其他特殊的气候和恶劣环境条件等

The product can also be applied for many special service conditions. In case the service conditions exceed the normal service conditions, which are out of the standard GB 11022 and IEC 62271-1, please consult with the manufacturer in advance for confirmation:

- Altitude higher than 1000m
- Higher environmental temperature
- Lower environmental temperature
- Others special environmental conditions

主要产品特性 Product advantages

环保

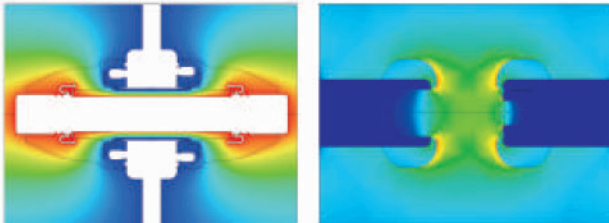
SLN₂X-12kV系列开关柜采用氮气绝缘结合真空开断技术，完全取代SF₆气体，绿色环保。

高性能

内锥套管、三工位开关、固封极柱、母线系统等高压元器件均采用针对氮气绝缘特性的设计：

- 气体间隙绝缘设计
- 界面绝缘设计

使得开关柜绝缘性能优异，所使用氮气最低功能压力低至零表压。低压力设计可以延缓设备泄漏至大气压的时间，由于空气中存在78%的氮气，21%的氧气，使设备绝缘在较长时间内不降低，以保证设备的额定绝缘水平，从容安排停电检查和维修时间，增加设备运行可靠性。



智能化箱变

- 开关柜可安装在新一代智能变电站，形成模块化、集成化和综合智能化设计，并将运输单元与模块单元一体化，以简化现场安装和调试，加快建设速度；
- 每段母线的开关柜可安装在集装箱式的户外预制舱内，以便于母线分段的需要，并便于扩建、母线间联络、标准化和模块化；
- 总体布置极为紧凑，集装箱的布置与变电站总平面布置相适应。



Environment-friendly

Pure nitrogen insulation and vacuum breaking technology have been used on SLN₂X-12kV type switchgear to replace SF₆ completely and realize green house solution.

High-performance

The high-voltage components such as inner-cone bushing, 3-position switch, embedded pole and busbar system etc. have adopted the design specially for nitrogen gas insulation characteristic:

- Gas gap insulation design
- Interface insulation design

This leads the switchgear high insulation performance and function minimum relative gas pressure down to zero. The low-pressure design extends the duration of gas leaking to atmosphere pressure. As 78% components of air is nitrogen, and 21% of the air is oxygen, it will not reduce the insulation level in long time, so as to guarantee the rated insulation level of the switchgear, which provide enough time for the maintenance and repair plan arrangement, and which increase the operation reliability of the equipment.

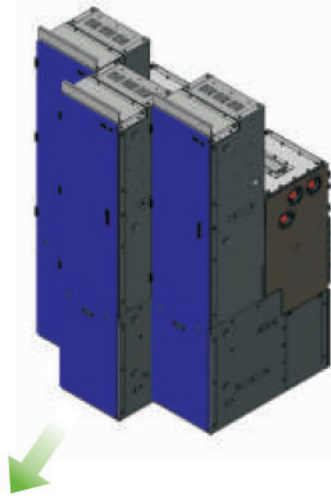
Smart prefabricated substation

- The switchgears can be installed in the new generation prefabricated substation to form the compact, integrated and comprehensively smart design with the modular transportation so as to simply the field installation and commission work for more efficiency;
- The switchgear for every busbar can be installed in the outdoor prefabricated cabinet of container type for the necessary sectionalizing requirements, which will be beneficial for the future extension, liaison, standardization and modularization;
- Compact general arrangement, which is compatible with the overall arrangement of substation.

主要产品特性 Product advantages

中间柜可抽出

- 柜与柜之间用硅橡胶母线连接器连接；
- 无须移动左右两侧的开关柜即可更换中间柜。



模块化设计，可扩展、任意组合

- 提供进线柜、出线柜、母联断路器柜、母联隔离开关柜等各种模块的任意组合、扩展；
- 工厂气箱组装，无需现场处理气体。

安全可靠

- 国际先进的设计理念，世界一流的生产、检测手段，激光焊接、激光切割、氦检漏；
- 气箱采用3mm优质不锈钢板激光焊接而成，高压全封闭结构，适用各种环境，例如高海拔、高湿度、高粉尘等恶劣地区运行；
- 气箱额定充气压力低至0.12MPa（绝对值，20℃），泄漏率小，零表压下保证额定绝缘水平和开断能力；
- 优异的耐腐蚀能力，达1000小时及以上的中性盐雾试验，适应高盐雾环境运行；
- 真空断路器与三工位开关机械、电气连锁，确保工作电流、故障电流的开断与关合均由真空泡完成，使电弧限制在真空灭弧室内，不会导致绝缘气体的劣化；
- 运用高压界面绝缘技术设计，所有高压元器件附件全绝缘插拔式结构；
- 采用智能控制和保护单元，具有强大的控制、保护、测量、通信功能，完全实现配网自动化和智能数字化功能。

The middle panel withdrawable

- Silicon rubber busbar connector is used to connect the panels in between;
- When replacing or maintaining middle panel, other neighbor panels don't need to be taken away.

Modular design, flexible extension and arrangement

- Provide flexible extension and combination between diverse function modules such as incoming, outgoing, sectionalizer, busbar riser panel etc;
- Gas tank assembled in factory, no need to deal with the gas on site.

High safety and reliability

- World advanced designing concept, with world first-class manufacturing and testing facilities, such as laser welding, laser cutting and helium detection system;
- The gas tank is welded by 3mm stainless steel plate by laser technology with the fully enclosed structure, applicable for the severe areas of high altitude, high humidity and high dust etc;
- The rated gas pressure 0.12 MPa (abs. 20 °C) of the gas tank ensures the small leakage rate as well as the insulation level and breaking capability under zero gauge pressure;
- Excellent erosion-resistant capability to pass the salt spray test up to 1000 hours, which is applicable for the high salt fog environment;
- The mechanical and electrical interlocking between vacuum circuit breaker and 3-position switch ensures the breaking and making of the working current and fault current implemented by vacuum interrupter, which limit the arc within the vacuum interrupter, so as to avoid the degradation of insulation gas;
- The HV interface insulation technology is used to ensure all the HV components are fully insulated with plug-in design.
- Smart control and protection unit has fully realized the function of smart automation and digitalization with its strong function on control, protection, measurement and communication.

主要技术参数 Technical specifications

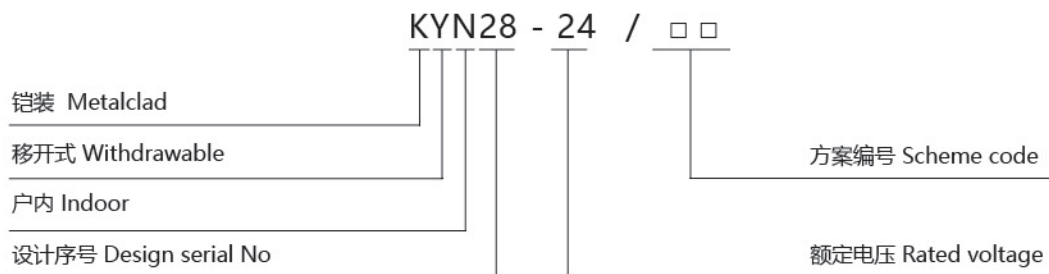
No.	Item	Unit	Data			
1	额定电压 Rated voltage	kV	12			
2	额定电流 Rated current	A	630, 1250	2000, 2500	3150	
3	额定频率 Rated frequency	Hz	50			
4	额定短时工频 耐受电压(有效值) ⁽¹⁾ Rated power frequency withstand voltage (eff.)	相间及对地 Between phases and to earth	42			
		断口间 Across the isolating distance	48			
5	额定雷电冲击 耐受电压(峰值) ⁽¹⁾ Rated lightning impulse withstand voltage (peak)	相间及对地 Between phases and to earth	75			
		断口间 Across the isolating distance	85			
6	额定短路开断电流 Rated short-circuit breaking current	kA	25/31.5/40			
7	额定短路关合电流(峰值) Rated short-circuit making current (peak)	kA	63/80/100			
8	额定短时耐受电流 Rated short-time withstand current	kA	25, 31.5, 40			
9	额定短路持续时间 Rated duration of short-circuit	s	4			
10	额定峰值耐受电流 Rated peak withstand current	kA	63/80/100			
11	额定电缆充电开断电流 Rated cable-charging breaking current	A	25			
12	额定操作顺序 Rated operating sequences		O-0.3s-CO-180s-CO			
13	绝缘气体 Insulation gas		N ₂			
14	额定充气压力(abs.20℃) Rated filling gas pressure	MPa	0.12			
15	报警压力(abs.20℃) Alarm pressure	MPa	0.11			
16	最低工作气压(abs.20℃) Minimum operating pressure	MPa	0.10			
17	年漏气率 Annual leakage rate	%/Y	<0.1			
18	防护等级 Degree of protection	高压部件 High voltage live parts	IP65			
		低压部件 Low voltage compartment	IP4X			
19	辅助回路额定电压 Rated voltage of auxiliary circuit	V	DC24,48,110,220 AC220			
20	辅助回路额定1min工频耐压 Rated power frequency withstand voltage of auxiliary circuit (1min)	kV	2			
21	柜体尺寸 Dimensions	宽 (a) Width	mm	500	800	900
		深 (b) Depth	mm	1050~1400		
		高 (c) Height	mm	≥2300 ⁽³⁾		

注：(1) 绝缘和开断试验在最低工作气压0.1MPa条件下进行(abs.20℃)；
 (2) 根据进出线电缆数量、电流互感器类型及电压互感器连接位置等；
 (3) 根据开关柜功能。

Notes: 1) The insulation level and breaking capability are tested under 0.1MPa of its minimum working pressure (abs. 20℃);
 2) Subjected to the incoming/outgoing cable quantity, CT type and PT connection ect;
 3) Subjected to the panel function.



型号及含义 Type meaning



使用条件 Service Conditions

- 环境温度：上限为+40℃，下限为-10℃；
- 海拔高度：不超过1000m；
- 相对湿度：日平均值≤95%
月平均值≤90%
- 地震烈度：不超过8度。
- 没有火灾，爆炸危险，严重污秽，化学腐蚀及剧烈振动的场所。

注：超出上述环境条件时，请与制造商协商。

- Environment temperature: upper limit +40℃, lower limit -10℃
- Altitude: ≤1000m
- Relative humidity: daily average value ≤95%
- monthly average value ≤90%

- Seismic intensity: $\leq 8m$
- The place where is free from fire, explosion risk, severe pollution, chemical corrosion and severe vibration

Remark: please negotiate with the manufacturer when the above conditions cannot be met.

特点 Features

使用安全性 Safety

- 实现高压室门关闭的情况下进行开关的各种操作;
- 完全金属铠装及封闭, 关门时外壳防护等级IP4X, 有效保障人身安全;
- 良好的主回路绝缘使开关柜结构紧凑, 节省占地面积;
- 适应性广, 易实现各种方案, 满足不同用户需求;
- 手车互换性好, 在柜内移动省力、平稳;
- 电缆室有充裕的空间, 可连接多根电缆, 安装维修方便;
- 机械联锁简单可靠。

• Various operations of the switch can be conducted when the door of high- pressure chamber is closed.

• It is completely metalclad and enclosed, the protection grade of the housing is IP4X when the door is closed, effectively ensuring personal safety.

- Good insulation of the main circuit makes the switch cabinet compact to save floor space.
- With good adaptability, it is easy to implement various schemes to meet different requirements of users.
- The interchangeability of handcart is good. The movement in the cabinet is labor-saving and smooth.
- The cable compartment has enough space, many cables can be connected and it is convenient for installation and maintenance.
- The mechanical interlocking is simple and reliable.

联锁 Interlock

KYN28-24开关柜具有一系列联锁装置, 从根本上防止出现危险局面和可能引起严重后果的操作, 从而有效保证了操作运行人员以及开关柜本身的安全。

开关柜在进行下列操作时, 需满足有关联锁条件, 否则操作将被阻止。

- 把手车部分从试验位置推进到工作位置:

断路器在“分”位置

接地开关在“分”位置

- 把手车部分从工作位置退出到试验位置:

断路器在“分”位置

- 操作断路器:

手车被锁定在试验位置或工作位置

- 操作接地开关:

手车部分锁定在试验位置

电缆室门关闭

KYN28-24 switch cabinet is equipped with a series of interlocking devices that fundamentally prevent dangerous situations and operations that may cause serious consequences, thus effectively ensuring the safety of the operator and the switchgear itself.

When the following operations are being conducted, the relevant interlock conditions shall be met, otherwise the operation will be blocked.

- Push the handcart from the testing position to the working position: the circuit breaker and the earthing switch are at the "breaking" position.

- Pull out the handcart part from the working position to the testing position: the circuit breaker is at the "breaking" position.
- Operate the circuit breaker: the handcart is locked at the testing position or the working position.
- Operate the earthing switch: the handcart is locked at the testing position and the door of cable compartment is closed.

技术参数 Technical parameters

项目 Item	单位 Unit	数据 Data
额定电压 Rated voltage	kV	24
1min工频耐压 1min working frequency withstand voltage	kV	65
雷电冲击耐压 Lightning impulse withstand Voltage	kV	125
额定频率 Rated frequency	Hz	50
主母线额定电流 Rated current of main busbar	A	630, 1250, 1600, 2000, 2500, 3150*
分支母线额定电流 Rated current of branch busbar	A	630, 1250, 1600, 2000, 2500, 3150*
额定短时耐受电流(有效值), 4秒 Rated short-time withstand current(effective value),4 seconds	kA	25, 31.5, 40
额定峰值耐受电流(峰值) Rated peak withstand current(peak value)	kA	63, 80, 100
辅助电源电压 Voltage of auxiliary power supply	V	DC110, 220
外壳防护等级 Protection grade of housing		IP4X
断路器室门打开时防护等级 Protection grade when the door of the circuit breaker compartment is open		IP2X
外形尺寸(宽×高×深) Overall dimensions (W×H×D)	mm	800(1000)×2300×1800
重量 Weight	kg	850~1450

注：架空进出线，柜深度为2180mm

Remark: The depth of the cabinet is 2180mm for the overhead inlet- outlet wires.

结构特点 Structure Features

开关柜由固定的柜体和抽出部分(简称手车)两大部分组成(图1)。柜体的外壳和各功能单元的隔板是采用覆铝锌钢板经数控机床加工成型后用螺栓组装而成。该柜尺寸精确，且不易变形。

开关柜外壳的防护等级为IP4X，断路器室门打开时的防护等级为IP2X，并可根据用户要求组装成单层或双层柜。

真空断路器为免维护型，手车互换性好，配置先进的微机综合保护装置，可实现电力系统综合自动化。

The switch cabinet is composed of two parts: the fixed cabinet body and the withdrawable part (handcart short for) (Figure 1). The housing of the cabinet and the separating plate of each functional unit are made of aluminum and zinc coated steel plates processed and molded by numerical control machine tools and assembled with bolts. The cabinet is accurate in size and not easily deformed.

The protection grade of its housing is IP4X and the protection grade is IP2X when the door of the circuit breaker compartment is open. It can be assembled into single-layer or double-layer cabinet according to user's requirements.

The vacuum circuit breaker is maintenance-free and equipped with advanced microcomputer protection device, which can realize integrated automation of power system. The interchangeability of handcart is good.

开关柜的技术参数

Technical parameters of switch cabinet

项目 Item	单位 Unit	技术参数 Technical parameter
额定电压 Rated voltage	kV	7.2 12
工频耐压 Power frequency withstand voltage	kV	相间、相对地42; 断口48 Phase to phase42, phase to ground48
雷电冲击耐压(峰值) Lightning impulse withstand voltage (peak value)	kV	相间、相对地75; 断口85 Phase to phase75, phase to ground85
额定频率 Rated frequency	Hz	50
额定电流 Rated current	A	630 1250 1600 2000 3150 4000
额定动稳电流(峰值) Rated dynamic current (peak value)	kA	40 50 63 80 100 125
额定开断电流 Rated dynamic current (peak value)	kA	20 25 31.5 40
额定热稳定电流 Rated thermal current	kA	20 25 31.5 40
额定热稳定时间 Rated thermal time	s	4
控制电压 Control voltage	V	DC220/110
防护等级 Protection grade		IP4X
外形尺寸(馈电柜) Overall dimension(feeder cabinet)	mm	800(1000)×1500(1660)×2300
重量 Weight	kg	800-1200

2、断路器技术参数 technical parameters of circuit breaker

序号 Item No	名称 Description	单位Unit	数据 Data
1	额定电压 Rated voltage	kV	12
2	工频耐压(1min) Power frequency withstand voltage	kV	(相间、相对地)42、(断口)48 Phase to phase42, phase to ground48
3	雷电冲击耐压(峰值) Lightning impulse withstand voltage (peak value)	kV	(相间、相对地)75、(断口)85 Phase to phase75, phase to ground85
4	额定电流 Rated current	A	630 1250 1600 2000 3150
5	额定动稳电流(峰值) Rated dynamic current (peak value)	kA	20 25 31.5 40
6	3(4)s 热稳定电流 Thermal current	kA	20 25 31.5 40
7	额定动稳电流(峰值) Rated thermal current(peak value)	kA	50 63 80 100
8	额定短路关合电流(峰值) Rated short-circuit making current(peak value)	kA	50 63 80 100
9	额定操作顺序 Rated operation sequence		分 - 0.3s合分 - 180s - 分合
10	额定短路开断电流开断次数◎ Breaking times of rated short-circuit breaking current	次	50 30
11	额定电流开断次数◎ Breaking times of rated current	次	10000
12	机械寿命 Mechanical life	次	10000
13	额定操作电压 Rated operation voltage	V	DC220/110
14	额定操作电流 Rated operation current	A	DC/2/4
15	全开断时间 Total breaking time	s	≤0.06
16	动、静触头允许磨损累计厚度 Allowable accumulative wear thickness of dynamic and static contact	mm	3
17	重量 Weight	kg	80

3、断路器装配调整参数 Assembly adjustment parameters of circuit breaker

序号 Item No	名称 Description	单位Unit	数据 Data
1	额定电压 Rated voltage	kV	8±0.5
2	工频耐压(1min) Power frequency withstand voltage	kV	3±0.5
3	标准雷电冲击耐压(峰值) Standard lightning impulse withstand voltage (peak value)	kV	≤0.002
4	额定电流 Rated current	A	≤0.002
5	额定动稳电流(峰值) Rated dynamic current (peak value)	kA	0.015-0.030
6	3(4)s 热稳定电流 Thermal current	kA	0.025-0.045
7	额定动稳电流(峰值) Rated thermal current(peak value)	kA	1.0~1.6
8	额定短路关合电流(峰值) Rated short-circuit making current(peak value)	kA	0.5±0.1
9	额定操作顺序 Rated operation sequence		200±3
10	额定短路开断电流开断次数 Breaking times of rated short-circuit breaking current	次 Every time	≤25(35, 55)



概述 Brief Introduction

随着国民经济的快速发展，环网供电方式被广泛采用，对高压环网开关柜及高压负荷开关的需求越来越多。我公司研制开发的HXGN-12(F、R)型高压环网开关柜可配置ABB公司的NAL(F)负荷开关、意大利VEI公司的ISARC系列负荷开关以及FN系列和ZFN系列负荷开关，操作方式采用手动、电动方式或电动、手动双重操作方式以适应在控制内进行远距离操作控制，符合城乡电网建设改造的要求。适合于工厂、高层建筑、住宅区等场所的配电系统，环网供电或双电源辐射供电系统，起接受、分配和保护作用，亦适用于装入箱式变电站中。产品，性能指标符合IEC298、IEC420和GB3906标准的要求。

Along with the rapid development of national economy, the looped network power supply mode has been widely used and there are more and more requirements for high voltage ring main unit and high voltage load switch. NAL(F)load switch made by ABB, ISARC series load switch made by VEI company and FN series and ZFN series load switch can be configured to HXGN-12F(F、R) high voltage ring main unit developed by our company. The operating mode can be manual, electric or manual and electric to fit for remote operation and control, conforming to the requirement of construction and transformation of urban and rural power grid. Functioning as receiving, distribution and protection, it is suitable for the power distribution system, ring network power supply or dual power radiation power supply system of factory, high building and residence area. It also can be installed into the box-type transformer. The product performance indexes conform to requirement of IEC298, IEC420 and GB3906.

正常使用环境条件 Normal Service Conditions

- 海拔不超过1000米；
- 环境空气温度：上限+40℃，下限-25℃；
- 相对湿度：日平均值不大于95%，月平均值不大于90%；
- 地震烈度不超过8度；
- 没有火灾、爆炸危险、严重粉末、化学腐蚀及剧烈振动的场所。
- The altitude is not higher than 1000m
- Environment temperature: upper limit +40℃, lower limit -15℃
- Relative humidity: The daily average relative humidity should not be more than 95% and the monthly average relative humidity should not be more than 90%.
- Seismic intensity: ≤8m.
- The place where is free from fire, explosion risk, severe pollution, chemical corrosion and severe vibration.

技术特性 Technical characteristics

额定电压 Rated voltage	kV	12
额定电流 Rated current	A	400, 630, 1250
额定有功负载开断电流 Rated active load breaking current	A	400, 630, 1250
5%有功负载开断电流 5% Active load breaking current	kA	20, 31.5, 62.5
主回路2s热稳定电流 Thermal stability current in 2s of main circuit	kA	20, 25
额定关合电流 Rated making current	kA	50
额定工频耐受电压 Rated working frequency withstand voltage	kV	42/48
额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	75/85
额定转移电流 Rated transfer current	A	1000
机械寿命 Mechanical life	次	2000
外形尺寸 (宽 * 深 * 高) Overall dimensions(W*D*H)	mm	*

* 配ABB公司NAL(F)负荷开关正面安装为: 800 * 800 * 2200

Equipped with NAL (F) load switch made by ABB, front mounting: 800 * 800 * 2200

* 配ABB公司NAL(F)负荷开关侧面安装为: 650 * 900 * 2200

Equipped with NAL (F) load switch made by ABB, side mounting: 650 * 900 * 2200

* 配VEI公司ISARC及FN11系列负荷开关为: 650 * 900 * 2200

Equipped with ISARC and FN11 series load switch made by VEI Company: 650 * 900 * 2200

* 配ZFN系列及FN16系列负荷开关为: 850 * 850 * 2200

Equipped with ZFN series and FN16 series load switch: 850 * 850 * 2200

产品结构特点 Structure Features

- HXGN-12(F、R)型环网开关柜骨架采用国内外先进技术的型材组装而成;

● 柜体整体结构牢固, 柜体的顶部为母线室, 母线室的前面为仪表室, 之间由金属板隔开, 柜体的中上部为负荷开关安装位置, 下部为电缆进出线和其它元件(如电流、电压互感器)安装位置;

- 柜与柜之间有金属隔板, 母线室之间有绝缘套管, 确保每个供电单元的安全运行;
- 门和终端封板采用静电粉末喷塑。采用上述处理方法和材料使开关柜外壳具备很强的防腐能力;
- 柜体具有完善的防止电气误操作装置;
- 柜体体积小, 占地面积少, 结构紧凑、安全可靠;
- 外壳防扩等级达到IP4X。

- The frame of HXGN-12 (F, R) ring main unit is assembled by profiles with advanced technology at home and abroad.

● The overall structure of the cabinet is firm. The top of the cabinet is the busbar compartment, while the front of the busbar compartment is the instrument room, which is separated from each other by metal plates. The middle upper part of the cabinet is the installation position of load switch, and the lower part is the installation position of inlet and outlet cable and other components (such as current and voltage transformer).

● There are metal separating plates between cabinets and insulation sleeves between cable compartments to ensure the safe running of each power supply unit.

● Door and terminal sealing plate are sprayed with electrostatic powder. Using the above treatment methods and materials makes the housing of switch cabinet have strong anticorrosive performance.

- The cabinet has perfect device which prevents the electrical misoperation.
- The cabinet is small in size, takes little space, compact in structure, safe and reliable.
- The protection grade of housing reaches IP4X.



概述 Overview

XGN₂-12箱型固定式金属封闭开关设备(以下简称开关柜)用于3, 6, 10kV三相交流50Hz系统中作为接受分配电能之用, 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及国际标准IEC298的要求, 并且有两部提出的“五防”闭锁功能。具有结构合理, 安全可靠, 运行操作简便, 检修维护方便等特点, 系10kV级固定式开关设备替代型产品。

本开关柜的主开关可采用ZN28A-10系列真空断路器, 以及其它系列真空断路器。可配用CD10系列电磁和CT19A系列弹簧操动机构。隔离开关采用GN30-10旋转式隔离开关和GN22-10大电流隔离开关系列产品。

Used for receipt and distribution of electric energy, XGN₂-12 box-type fixed metal enclosed switchgear (hereinafter referred to as switch cabinet) is applicable to the 3, 6, 10kV three-phase AC system with 50Hz. It is especially suitable for occasion of frequent operation. The busbar system is single busbar. Also the structure of single busbar with bypass and double busbar can be derived.

The switch cabinet conforms to the national standard (GB3906) and the international standard (IEC298) and has “five-prevention” interlocking function. With features of rational structure, safety and high reliability, easy operation, convenient maintenance, etc., the product is an alternative product of 10KV fixed switchgear.

The master switch of the switch cabinet can use ZN28A-10 series vacuum circuit breaker and other series of vacuum circuit breaker. CD10 series electromagnetism and CT19 series spring operating mechanism can be equipped. The disconnecting switch can use GN30-10 rotary one and GN22-10 large current one.

正常使用环境条件 Normal service conditions

- 环境温度: 上限+40°C
 下限-25°C
- 海拔高度不超过1000m, 当超过1000m时, 可按特殊要求制作;
- 相对湿度: 日平均值不大于95%, 月平均值不大于90%;

- 地震烈度不超过8度;
- 没有火灾、爆炸危险、严重粉末、化学腐蚀及剧烈振动的场所。
- Environment temperature: upper limit +40°C, lower limit -15°C.
- The altitude is not higher than 1000m. When it is higher than 1000m, it can be made according to the special requirements.
- Relative humidity: The daily average humidity should not be more than 95% and the monthly average humidity should not be more than 90%.
- Seismic intensity: ≤8m.
- The place where is free from fire, explosion risk, severe pollution, chemical corrosion and severe vibration.

技术特性 Technical Features

- 断路器及操作机构的技术数据可参见有关断路器及操动机构样本;
- 隔离开关的技术参数见表1, 表2(旋转式隔离开关);
- 接地开关技术数据。

接地开关的技术参数能与相应的隔离开关参数配合, 所以接地开关的动、热稳定电流, 接触压力与相应的隔离开关一致, 但接地开关断口间距离不小于125mm。

- About the technical data of circuit breaker and operating mechanism, please refer to the manual about circuit breaker and operating mechanism.
- The technical parameters of disconnector is shown in table 1 and table2 (rotary disconnector).
- Technical parameters of earthing switch.

The technical parameters of the earthing switch can be matched with that of corresponding disconnector, so the dynamic current, thermal stability current and contact pressure of the earthing switch are same as that of corresponding disconnector but the distance between fractures of the earthing switch is not less than 125mm.

名称 Name		GN30-10/400-12.5 GN30-10/630-20 GN30-10/1000-31.5		
		GN30-10D/400-12.5	GN30-10D/630-20	GN30-10D/1000-31.5
额定电压 Rated voltage	kV	10		
最高工作电压 Max working voltage	kV	12		
额定电流 Rated current	kV	400	630	1000
4s额定热稳定电流 Rated thermal stability current in 4s	kV	12.5	20	31.5
额定动稳定电流 Rated dynamic current	kV	31.5	50	80
额定绝缘水平 Rated insulation level	1.2/50μs雷电冲击耐压 Lightning impulse withstand voltage	kV	75	
	1min工频耐压 1min working frequency withstand voltage	kV	42	



面对全球性挑战的解决方案：SIVACON Solutions to global challenges: SIVACON



SIVACON 8PT是一种由西门子公司最新设计的低压开关柜，它具有断路器技术，固定安装式技术，抽出式技术及插入式设计。

西门子通过与本地优秀的，高水准的低压开关柜生产厂合作，使他们成为生产 SIVACON 8PT 的技术合作伙伴，使得多用途的，通过型式试验的 SIVACON 低压配电装置完完全全地带到了您的身边。

SIVACON 8pt is a low-voltage switchgear newly designed by Siemens. It has circuit breaker technology, fixed installation technology, draw out technology and plug-in technology design.

Siemens cooperates with local excellent and high-level low-voltage switchgear manufacturers to make them become technical partners for the production of SIVACON 8pt, so that the multi-purpose and type tested SIVACON low-voltage distribution devices are completely brought to you.



安全可靠、灵活多样:

通过型式试验的低压开关柜

Safe, reliable, flexible and diverse: Low voltage switchgear passing type test

SIVACON 低压开关柜具有用于建筑行业 and 工业技术领域的标准型结构。

SIVACON 是根据世界市场需要而开发的低压开关柜, 也就是说, 它一方面要考虑到所谓一手包办的标准型解决方案的各项要求, 另一方面, 它又兼顾到当地生产以及由此给财务和生产运行带来的利益。

SIVACON 是向世界各地推广的开关柜, 它可应用在最大额定电流至7400A的各种容量等级的层面上, 它既可采用固定安装式设计, 也可采用抽出式设计。

SIVACON low voltage switchgear has standard structure used in construction industry and industrial technology field.

SIVACON is a low-voltage switchgear developed according to the needs of the world market, that is, on the one hand, it should take into account the requirements of the so-called one handed standard solution, on the other hand, it also takes into account the local production and the benefits brought to finance and production operation.

SIVACON is a switch cabinet popularized all over the world. It can be applied to various capacity levels with the maximum rated current up to 7400a. It can adopt either fixed installation design or withdrawable design.

模块化的设计 Modular design

每台SIVACON 都是完全用标准化和典型化的模块制成。所有模块在质量上都符合西门子评定指标和设计指标。

模块具有多种组合可能性, 从而能满足各种各样的要求。全部采用优质的西门子开关电器就能保证做到使用寿命长和运行可靠性高。

Each SIVACON is completely made of standardized and typical modules. All modules meet the Siemens evaluation index and design index in terms of quality.

Modules have a variety of combination possibilities, so they can meet a variety of requirements. All high-quality Siemens switching appliances can ensure long service life and high operation reliability.

SIVACON 特点 SIVACON features

- 通过型式试验的低压开关柜(TTA)。
- 水平母线统一布置在开关柜的上方。
- 3极和4极水平母线系统其额定电流可至7400A。
- 额定峰值耐受电流 I_{pk} 可至375kA。
- 器件隔室的深度尺寸大, 适用于各种安装。
- 器件隔室可按模数结构分隔成不同的单元。
- 开关柜可单面安装, 也可背靠背安装。
- 进线可采用上进线或下进线。
- 出线电缆可在柜体前部连接或后部连接。
- Low voltage switchgear (TTA) passing type test.
- The horizontal bus is uniformly arranged above the switch cabinet.
- The rated current of 3-pole and 4-pole horizontal bus system can be up to 7400a.
- Rated peak withstand current I_{pk} can be up to 375 Ka.
- The device compartment has a large depth and size, which is suitable for various installations.
- Device compartments can be divided into different units according to module structure.
- The switch cabinet can be installed on one side or back-to-back.
- Upper incoming line or lower incoming line can be adopted.
- Outgoing cables can be connected at the front or rear of the cabinet.

SIVACON 8PT 领导地位参数

让您从容应对各种挑战

SIVACON 8PT 技术参数

通用数据

标准规范	IEC 61439-1&2, IEC TR 61641, IEC 60529
方案应用	配电, 马达控制
配电	至6300A
电容补偿	至550KVAR
马达控制中心	至250KW- 415V/690V

电气参数

额定冲击耐受电压	8KV/12KV
过电压类别	III/IV
额定绝缘电压	690V/1000V
额定工作电压	至 690 Vac (50/60Hz)
水平母线额定电流	至 7400A
垂直母线额定电流	至 2050A
额定短时耐受 (Icw)	
水平母线	至 150KA-1s (峰值 Ipk 至 375KA)
垂直母线	至 80KA-1s (峰值 Ipk 至 180KA)
额定限制短路电流 (Icc)	100KA
内部燃弧故障	50KA-0.3s 690V I _{p arc}
接地系统	TT/IT/TNS/TNC

通讯

通讯协议	Profibus, Profinet, Modbus总线
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机械参数

内部分割形式	至4b
IP防护等级	IP30-IP54
应用环境	IR 3 (室内3)

表面处理

支撑结构	镀锌/粉末喷涂/涂漆
外壳	镀锌/粉末喷涂/涂漆
门	粉末喷涂/涂漆

外形尺寸

高	2200/2600
宽	400/600/800/1000/1200
深	600/800/1000/1200



面对全球性挑战的解决方案：SIVACON 8PT-4000 Solutions to global challenges: SIVACON 8PT-4000

SIVACON 8PT-4000是一种由西门子公司最新设计的新型的低压开关柜，它具有断路器技术、固定安装式技术、插入式熔断器技术设计。

西门子通过与本地优秀的，高水准的低压开关柜生产厂合作，使他们成为生产SIVACON 8PT-4000的“许可生产伙伴”，使得多用途的，通过型式试验的SIVACON 8PT-4000低压开关柜完完全全地来到了您的身边。

SIVACON 8pt-4000 is a new low-voltage switchgear newly designed by Siemens. It has circuit breaker technology, fixed installation technology and plug-in fuse technology design.

Siemens cooperates with local excellent and high-level low-voltage switchgear manufacturers to make them "licensed production partners" for the production of SIVACON 8pt-4000, so that the multi-purpose and type tested SIVACON 8pt-4000 low-voltage switchgear completely comes to you.



安全可靠、灵活多样：

通过型式试验的低压开关柜

Safe, reliable, flexible and diverse: Low voltage switchgear passing type test

SIVACON 8PT-4000低压开关柜具有用于建筑行业 and 配电领域的标准型结构。

SIVACON 8PT-4000是根据世界市场需要而开发的低压开关柜，也就是说，它一方面要考虑到总包工程的标准型解决方案的各项要求，另一方面，它又兼顾到当地生产以及由此给财务和生产运行带来的利益。

SIVACON 8PT-4000是向世界各地推广的开关柜，它可应用在最大额定电流至4000A的各种容量等级的层面上，它既可采用固定安装式设计，也可采用抽出式设计。

SIVACON 8pt-4000 low voltage switchgear has standard structure for construction industry and power distribution field.

SIVACON 8pt-4000 is a low-voltage switchgear developed according to the needs of the world market, that is, on the one hand, it should take into account the requirements of the standard solution of the general contracting project, on the other hand, it also takes into account the local production and the benefits brought to finance and production operation.

SIVACON 8pt-4000 is a switch cabinet popularized all over the world. It can be applied to various capacity levels with maximum rated current up to 4000A. It can adopt fixed installation design or extraction design.

模块化的设计 Modular design

每台SIVACON 8PT-4000都是完全用标准化和典型化的模块制成。所有模块在质量上均符合西门子评定指标和设计指标。

模块具有多种组合可能性，从而能满足各式各样的要求。全部采用优质的西门子开关电器就能保证做到使用寿命长和运行可靠性高。

- 每台设备均通过型式试验来验证安全性及各项质量。
- 西门子开关电器可保证运行可靠性。
- 通过当地生产，供销世界各地。
- 灵活多样，使解决方案具有较高的经济性。

Each SIVACON 8pt-4000 is completely made of standardized and typical modules. All modules meet the Siemens evaluation index and design index in terms of quality.

Modules have a variety of combination possibilities to meet a wide range of requirements. All high-quality Siemens switching appliances can ensure long service life and high operation reliability.

- Each equipment shall pass type test to verify its safety and quality.
- Siemens switchgear ensures operational reliability.
- Supply and marketing around the world through local production.
- Flexible and diverse, making the solution more economical.



数据技术一览表 Data technology list:

标准和规范	通过型式试验的低压成套开关设备(TTA)在内部故障条件下的电弧试验	IEC 60439-1, DIN EN 60439-1(VDE 0660第500部分) IEC 61641, VDE 0660第500部分, 补充2
电气间隙与爬电距离	额定冲击耐受电压(U_{imp})	8 kV
	过电压类别	III
	污染等级	3
额定绝缘电压(U_i)		1000 V
额定工作电压(U_e)		至 690 V
额定电流(I_n) 母线 (3极和4极)	水平主母线	额定电流 至 4000 A 额定峰值耐受电流(I_{pk}) 至 250 kA 额定短时耐受电流(I_{cw}) 至 100 kA, 1s 至 80 kA, 3s
	断路器技术用垂直母线	额定电流 至 3200 A 额定峰值耐受电流(I_{pk}) 至 220 kA 额定短时耐受电流(I_{cw}) 至 80 kA, 1s 至 50 kA, 3s
	固定安装技术用垂直母线	额定电流 至 2800 A 额定峰值耐受电流(I_{pk}) 至 163 kA 额定短时耐受电流(I_{cw}) 至 65 * kA, 1s 至 50 kA, 3s
	条型插入技术用垂直母线	额定电流 至 2100 A 额定峰值耐受电流(I_{pk}) 至 110 kA 额定短时耐受电流(I_{cw}) 至 50 kA, 1s
开关额定电流	断路器	至 3200 A
	电缆馈电回路	至 630 A
内部分隔	形式1至形式4	IEC 60439-1, 第7.7款
表面处理	支撑结构	镀锌/粉末喷涂/喷漆
	外壳	镀锌/粉末喷涂/喷漆
	门	粉末喷涂/喷漆
防护等级	符合IEC 60529, EN 60529	IP 30至IP 54
外形尺寸		高: 2200 宽: 400, 600, 800, 1000, 1600mm 深: 600, 800, 1000, 1200mm

*额定限制短路电流 I_{cc} 至100kA

MDmax®系列低压开关柜 MDmax ® Series low voltage switchgear

产品概述 Product overview

MDmax®系列低压开关柜有多种结构形式，包括ST系列，FC系列，ProC系列等。目前在中国国内电力系统广泛应用的是ST型低压开关柜，它是经过完全型式试验（简称TTA）的组合式多功能低压开关柜，符合GB/T7251.1/12-2013，IEC61439-1/2。电气及机械设计采用模块化原理，通过选用标准元件和标准组件，可满足对柜体方案紧凑性、多样性和灵活性的需求。

MDmax ® Series low-voltage switchgear has a variety of structural forms, including ST series, FC series, proc series, etc. At present, St type low-voltage switchgear is widely used in China's domestic power system. It is a combined multi-functional low-voltage switchgear that has passed the full type test (referred to as TTA) and conforms to gb/t7251.1/12-2013 and iec61439-1/2. The electrical and mechanical design adopts the modular principle. By selecting standard components and standard components, the requirements for compactness, diversity and flexibility of cabinet schemes can be met.



技术标准 Technical standard

MDmax ST是经过完全型式试验（简称TTA）的组合式多功能低压开关柜，符合GB/T7251.1/12-2013，IEC61439-1/2标准。

Mdmax ST is a combined multi-functional low-voltage switchgear that has passed the full type test (referred to as TTA) and conforms to GB/T7251.1/12-2013 and IEC61439-1/2 standards.

产品特点 Product features

- 具有抽屉式、固定分割式、可移式三种功能单元，三种功能单元既可独立成柜，也可以混装成柜。
- 水平母线区顶盖可以拆卸。
- 抽屉式结构，最高可装配36回路，垂直母线电流高达2500A。
- 智能型抽屉可在不降低防护等级的状态下，实现三位置转换。
- 完善的抽屉式电操回路解决方案。
- It has three functional units: drawer type, fixed split type and movable type. The three functional units can be either independent or mixed into cabinets.
- The top cover of horizontal busbar area can be removed.
- Drawer type structure, up to 36 circuits can be assembled, and the vertical bus current is up to 2500A.

- The intelligent drawer can realize three position conversion without reducing the protection level.
- Perfect drawer type electric operation circuit solution.

工作和环境条件

Working and environmental conditions

MDmax ST低压开关柜适用于户内安装的电气设备。

Mdmax ST low voltage switchgear is applicable to indoor electrical equipment.

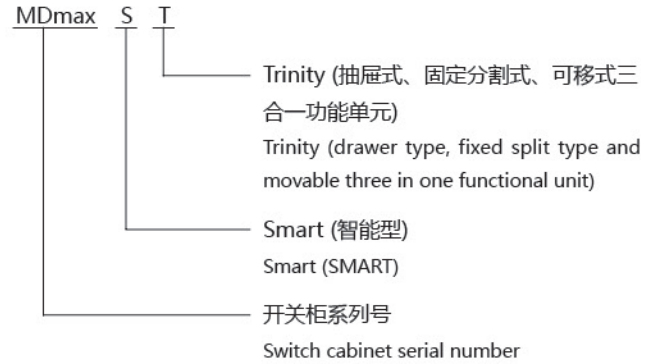
环境温度 Ambient temperature

- 短时最高温度: +40 °C
- 24小时最高平均温度: +35 °C
- 最低温度: -5 °C
- 设备在高于上述环境温度中使用时，应降容运行。
- Short time maximum temperature: +40 °C
- 24-hour maximum average temperature: +35 °C
- Minimum temperature: -5 °C
- When the equipment is used above the above ambient temperature, it shall be operated at reduced capacity.

环境条件 Environment condition

- 正常工作时，气候环境按GB/T7251.1-2013, IEC61439-1的规定。周围环境在40℃时相对湿度为50%。
- 开关柜户内安装地点的条件应符合相应标准的要求。在会产生凝露的场合，开关柜中将采用通风或加热等措施来防止凝露。
- 如开关柜安装在高于海拔2000米以上，设备要相应降容运行。
- During normal operation, the climatic environment shall comply with the provisions of gb/t7251.1-2013 and iec61439-1. The relative humidity of the surrounding environment is 50% at 40℃.
- The conditions of indoor installation site of switch cabinet shall meet the requirements of corresponding standards. In case of condensation, ventilation or heating measures will be taken in the switchgear to prevent condensation.
- If the switch cabinet is installed above the altitude of 2000 meters, the equipment shall be operated with corresponding capacity reduction.

型号定义 Model definition



技术数据 Technical data

标准	通过型式试验的组装式开关柜 (TTA)		GB/T7251.1, IEC61439-1, EN61439-1, EN61439.1, DIN_VDE0660, 第500部分B55486, UTE63-410	
电气参数	额定电压	额定工作电压	400V/690V AC, 3P, 750V DC	
		额定绝缘电压	690V/1000V AC, 3P, 1500V DC	
		额定脉冲耐受电压_Uimp	6/8/12kV	
		过电压等级	II/III/IV	
		污染等级	3	
		额定频率	至60Hz	
	额定电流	主母线	额定电流_Ie	至6300A
			额定峰值耐受电流_Ipk	至220kA
			额定短时耐受电流_Icw	至100kA
		配电母线	额定电流_Ie	至3200A (固定分割式) 至2500A (抽屉式)
额定峰值耐受电流_Ipk			至220kA	
额定短时耐受电流_Icw			至85kA	
结构特性	尺寸	柜体和支件构件	DIN41488	
		模数	U=8E, E=25mm符合DIN 43660	
		高度	2200mm	
		宽度	400, 600, 800, 1000, 1200mm	
		深度	800, 1000, 1200mm	
	内部分隔	内部小室分隔	至Form 4	
	表面防护	骨架	覆铝锌	
		小室隔板及安装板	覆铝锌	
		外壳	电漆亮灰色RAL 7035色标	
	塑料零件	无CFC、阻燃	IEC 60707	
无卤素、自熄		DIN VDE0304第3部分		

结构设计 Structural design

开关柜的功能隔室

开关柜分为四个部分：

- 母线室
- 功能单元室
- 电缆室
- 二次控制线横向接线室

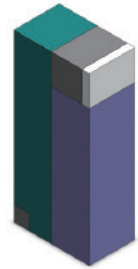
Functional compartment of switchgear

The switchgear is divided into four parts:

- Busbar compartment
- Functional unit room
- Cable room
- Secondary control line transverse wiring room



外壳



后出线

- 母线室
- 功能单元室
- 电缆室
- 二次控制线横向接线室
- Busbar compartment
- Functional unit room
- Cable room
- Secondary control line transverse wiring room

开关柜的尺寸 Dimensions switchgear (mm)

推荐高度	2200
推荐宽度	
固定式结构	400/600/800/1000/1200/1400
抽屉式结构	600
推荐深度	
抽屉式结构	800/1000/1200
可移式结构	800/1000/1200
固定分割式结构	800/1000/1200
标准单元高度	
抽屉式 U型	150/200/300/400/600
抽屉式 S型	200/400/600
可移式	150/200/300
固定分割式	150/200/250/300/350/400/450
标准安装模数间距	25



骨架

框架结构 Frame structure

MDmax ST框架采用自承重框架结构，由双折边的G型材或C型材组装而成，骨架上以25mm为间隔排布模数孔，柜架装配便利而又异常坚固。整个框架由横向和纵向螺栓精确联接，框架结构免维护。骨架、隔板、安装板均采用覆铝锌板制成。

The mdmax st frame adopts a self-supporting frame structure, which is assembled from double folded g-section or C-section. Modular holes are arranged on the frame at an interval of 25mm. The cabinet frame assembly is convenient and extremely firm. The whole frame is accurately connected by horizontal and longitudinal bolts, and the frame structure is maintenance free. The framework, clapboard and mounting plate are made of aluminum zinc coated plates.



支柱

外壳 Enclosure

MDmax ST开关柜的外壳是由电镀和粉末涂料覆盖的钢板制成的，确保了高耐久性。门板、顶板、后板、隔板、侧板用自攻螺钉安装，而最终的柜体结构按防护等级由需求决定。基于常规安全体系的要求，用于调试操作和维护的小室或间隔空间都要求安装各自独立的门板。

The housing of mdmax st switchgear is made of plated and powder coated steel plate to ensure high durability. The door panel, top plate, rear plate, clashboard and side plate are installed with self tapping screws, and the final cabinet structure is determined by the demand according to the protection grade. Based on the requirements of the conventional safety system, each compartment or compartment used for commissioning operation and maintenance requires to install its own independent door panels.

固定分隔方案 Fixed separation scheme

MDmax ST固定分隔结构开关柜，具有结构简单、性能稳定、多回路馈出等特点，适合配电回路的馈出，因固定分隔柜功能单元元件布局特点，固定分隔柜不适用于马达控制回路。

MDmax ST固定分隔柜采用ABB标准的模块化骨架，多回路馈线柜分割形式至少Form3b。元件选择方面，MDmax ST固定分隔开关柜采用标准的插拔式或抽出式元件，使功能单元的一次电联接由ABB公司进行品控保证，进一步增加了产品的稳定性。固定分隔柜可提供600mm及800mm宽度的柜体。与抽屉功能单元相比，固定分隔功能单元可以做到最大电流800A，并且只需占用450mm的安装高度。



Mdmax st fixed partition structure switch cabinet has the characteristics of simple structure, stable performance, multi loop feed out, etc., and is suitable for feed out of distribution circuit. Due to the layout characteristics of functional units of the fixed partition cabinet, the fixed partition cabinet is not suitable for motor control circuit.

Mdmax st fixed partition cabinet adopts ABB standard modular framework, and the division form of multi loop feeder cabinet shall be at least form3b. In terms of component selection, mdmax st fixed partition switchgear adopts standard plug-in or draw out components, so that the primary electrical connection of functional units is guaranteed by ABB quality control, further increasing the stability of the product. The fixed partition cabinet can provide 600mm and 800mm wide cabinets. Compared with the drawer functional unit, the fixed partition functional unit can achieve a maximum current of 800A, and only need to occupy 450mm of installation height.

结构尺寸 Structure size

- 尺寸 (高×宽×深) : 2200 × (600 / 1000) × (600 / 800 / 1000 / 1200) mm。
- 单元小室安装在 600mm 宽的空间。单元小室高度为 E (25mm) 的倍数，可根据额定容量大小而定。标准的功能单元规格有6E、8E、12E、16E、24E。
- 每个元件布置在一个独立的小室，各单元组件之间为分隔形式，相互隔离。
- 采用插入式或抽出式的断路器，固定安装，单元进线通过断路器本体和底座的连结来实现，也可采用固定式断路器，在断路器安装板上加装进线端接插件，从而确保现场更换和维护时安全可靠。



- 该方案可单独排列成柜，也可和抽出式方案混装。

- 柜架内部分成三个互相隔离的小室

- 1) 单元组件装置小室

- 2) 主母线及配电母线的母线小室

- 3) 进出线电缆小室 (可上/下进出线)

- Size (height × wide × Depth): 2200 × (600 / 1000) × (600 / 800 / 1000 / 1200) mm.

- The cell is installed in a 600mm wide space. The height of cell is a multiple of E (25mm), which can be determined according to the rated capacity. Standard functional unit specifications include 6e, 8e, 12e, 16e and 24E.

- Each element is arranged in an independent chamber, and each unit component is separated from each other.

- The plug-in or draw out circuit breaker is used for fixed installation. The unit incoming line is realized through the connection between the circuit breaker body and the base. The fixed circuit breaker can also be used. The incoming line connector is installed on the circuit breaker mounting plate to ensure the safety and reliability during on-site replacement and maintenance.

- The scheme can be arranged into a cabinet separately or mixed with the withdrawable scheme.

- The inner part of the cabinet frame is divided into three isolated compartments

- 1) Unit assembly unit chamber

- 2) Bus compartment of main bus and distribution bus

- 3) Incoming and outgoing cable chamber (up / down incoming and outgoing lines are allowed)

母线系统 Busbar system

- 主母线采用矩形铜母线，三相母线水平安装在柜体顶部。每相按电流等级大小，可选择单片、双拼、三拼、四拼，并可视需要扩展母线小区空间，额定电流最大至6300A。

- 分支母线为矩形铜母线，可视电流大小，灵活选择截面大小，可以单片，亦可以双拼，额定电流最大至3200A。垂直母线区域在开关柜左后侧。

- 接地保护排和中性排安装在开关柜的下方，PE排固定在框架上以保证电气连续性。

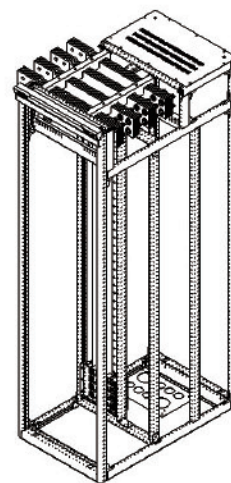
- 有些应用中由于相不平衡或谐波的存在，中性线需要达到相线的100%时，或者进线开关为4极时，中性线可放在主母线区，和主母线平行。

- The main bus adopts rectangular copper bus, and the three-phase bus is horizontally installed on the top of the cabinet. According to the current level of each phase, single chip, double splicing, three splicing and four splicing can be selected, and the space of bus cell can be expanded as required. The maximum rated current is 6300A.

- The branch bus is rectangular copper bus. The section size can be flexibly selected according to the current. It can be single or double connected. The maximum rated current is 3200A. The vertical busbar area is at the left rear side of the switchgear.

- The grounding protection bar and neutral bar are installed under the switchgear, and the PE bar is fixed on the frame to ensure electrical continuity.

- In some applications, due to phase imbalance or harmonic, when the neutral line needs to reach 100% of the phase line, or when the incoming switch is 4 poles, the neutral line can be placed in the main bus area, parallel to the main bus.





1、用途 Application

MNS低压抽出式开关柜(简称开关柜)由动力中心柜(PC)和电动机控制中心柜(MCC)二部分组成。适用于交流50-60Hz, 额定工作电压660V及以下控配电系统。用于发电厂、变电站、工矿企业等电力用户, 作为动力配电, 电动机控制及照明等配电设备的电能转换分配控制之用。

本开关柜除一般陆用外特殊处理后还可用于海上石油钻采平台和核电站中。本开关柜符合IEC60439、VCE0660第500部分和GB7251-05《低压成套开关设备》国家标准, JB/T9661-1999《低压抽出式成套开关设备》行业标准。

MNS low-voltage withdrawable switch cabinet (switch cabinet for short) is composed of PC and MCC. It is applicable to the power control and distribution system of which the frequency of alternating current is 50-60Hz and the rated working voltage is 660V and lower. Used for transformation, distribution and control of electric energy of power distribution equipment, such as power distribution, motor control and lighting equipment, it is used in the power plant, transformer substation, industrial and mining enterprise and other power consumers.

Except for general application on land, the cabinet can also be used in the offshore oil drilling platform and nuclear power station after special treatment. The switch cabinet conforms to the national standard of IEC60439, Part 500 of VCE0660 and GB7251-05 "Complete set of Low-voltage Switchgear" and the industry standard of JB/T9661-1999 "complete set of low-voltage withdrawable switchgear".

2、产品特点 Product Features

- 结构紧凑, 在较小空间内可容纳较多的功能单元, 节省用户投资。
- 柜体能背靠背地排列, 同一柜体可自由组合成固定式和抽出式二种型式。
- 结构通用性强, 组装灵活, 可按工作和环境的不同要求, 设计出相应的防护等级。
- 全部选用标准模块, 系列标准化, 方便工程设计人员选用。
- 设计独特的机械锁定机构, 操作灵活方便, 勿需特殊复杂工具。
- 大量采用高强度阻燃型工程塑料组件, 操作人员人身安全有保障。
- 根据电缆出线方式的不同, 可选择电缆侧出线或后出线两种方案。
- 技术性能高, 主要参数达到当代国际技术水平。

- The structure is compact. Many function units can be put in little space to save investment for users.
- The cabinets can be placed back to back. The same cabinet can be combined into fixed-type and withdrawable type freely.
- The structural commonality is strong and the assembly is flexible. The protection grade can be designed according to the requirement of work and environment.
- Standard modules are used for all products and the series is standardized. It is convenient for project designer to select.
- The mechanical locking mechanism with special design makes the operation flexible and convenient. Do not need special tools.
- A lot of high-strength flame retardant engineering plastic components are adopted to ensure the safety of operators.
- The cable can be led out from the side or the back according to the cable outgoing mode.
- The technical performance is high. Main parameters reach the current international technical level.

3、使用条件 Service Conditions

- 大气条件：空气清洁，相对湿度在最高温度为+40°C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%。应考虑到由于温度变化，有可能会偶然地产生湿度的凝露。
- 海拔高度不超过2000m。
- 本装置适用于以下温度的运输和储存过程：-25°C至+55°C的范围之间，在短时间内（不超过24h）可达+70°C，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的工作。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。
- Atmospheric conditions: The air is clean and the relative humidity cannot exceed 50% when the highest temperature is +40°C. The relative higher humidity is allowed when the temperature is lower. For example: when the temperature is +20 °C and the relative humidity is 90%. The possibility of generating a moderate amount of condensation sometimes because of temperature change should be considered.
- The altitude can not be higher than 2000m.
- The device is suitable for transportation and storage when the temperature is between -25°C and +55 °C and the temperature can reach +70 °C in short time (≤24hours) . The device can not suffer any irreparable damage at these ultimate temperatures and shall operate normally under normal conditions. If the above conditions cannot be met, it shall be settled by the customer and the manufacturer through negotiation.

4、主要技术参数 Main Technical Parameters

额定工作频率(Hz) Rated working frequency		50 60
额定工作电压(V) Rated working voltage		400 690
额定绝缘电压(V) Max working current		690 1000
最大工作电流(A) Rated short-time withstand current	水平母线 Horizontal busbar	6300
	垂直母线 Vertical busbar	1000
额定短时耐受电流(kA) Rated short-time withstand current	水平母线 Horizontal busbar	55-100 / 105-250
有效值(1s) Effective value 峰值(V) Peak value	垂直母线 Vertical busbar	60 / 130-150
外过防护等级 Protection grade of housing		IP30, IP40, IP54
外形尺寸 高×宽×深 Overall dimensions H×W×D		2200×600(800, 1000)×600(800, 1000)

列头柜 Column head cabinet

SL-DPF08 交流精密列头柜 SL-DPF08 AC precision column head cabinet

产品概述 Product overview

SL-DPF08 型智能精密配电系统采用标准的网络机柜结构，使得配电系统能很好的融合到机房环境中，提升了配电系统档次，改变了配电系统形状与众不同，需要隐蔽放置的现状。本系统可实现电源、滤波、监控三合一功能。将通信电源、谐波治理、动态补偿、数据采集、智能监测、预警控制等功能整合到配电系统中，实现对后端设备的安全、稳定、可靠、高效运行。适用于对供电可靠性要求极高的高端不间断供电领域，如通信、金融、医疗、保险、化工、制造、冶金、交通等各种行业的数据中心。

SL-DPF08 intelligent precision power distribution system adopts standard network cabinet structure, which makes the power distribution system well integrated into the computer room environment, improves the grade of the power distribution system, and changes the current situation that the power distribution system is different in shape and needs to be hidden. The system can realize the three in one function of power supply, filtering and monitoring. The communication power supply, harmonic control, dynamic compensation, data acquisition, intelligent monitoring, early warning control and other functions are integrated into the distribution system to realize the safe, stable, reliable and efficient operation of the back-end equipment. It is applicable to high-end uninterruptible power supply fields that require high power supply reliability, such as data centers in various industries such as communication, finance, medical treatment, insurance, chemical industry, manufacturing, metallurgy, transportation, etc.

技术标准 Technical standard

- GB 7251、IEC60439 《低压成套开关设备和控制设备》
- YD/T 939 《传输设备用电源分配列柜》
- YD/T 585 《通信用配电设备》
- YD/T 5083 《电信用设备抗震性能检测规范》
- GB 7251, IEC60439 low voltage switchgear and controlgear assemblies
 - YD/T 939 power distribution cabinet for transmission equipment
 - YD/T 585 communication power distribution equipment
 - YD/T 5083 code for seismic performance testing of telecommunication equipment



工作环境条件 Working environment conditions

- 环境温度：周围空气温度不高于+40°C，不低于-15°C，并且24h 内其平均温度不高于+35°C。

- 环境湿度：空气清洁，相对湿度在最高湿度为+40°C时不超过50%，在较低温度时允许有较高的相对湿度，在+20°C时为90%，但应考虑到由于温度变化，有可能会偶然地产生适度的凝露。

- 海拔高度：不超过2000m；

- 抗震等级：9 度；

- 安装地点：户内，没有火灾和爆炸危险，无严重污秽、化学腐蚀及经常性剧烈振动的场所。

- 如有其他特殊要求，用户应与我公司协商确定允许范围及技术措施。

- Ambient temperature: ambient air temperature is not higher than +40 °C, not lower than -15 °C, and its average temperature within 24h is not higher than +35 °C.

- Ambient humidity: the air is clean. The relative temperature shall not exceed 50% when the maximum humidity is +40 °C. A higher relative temperature is allowed when the temperature is low, and 90% when the temperature is +20 °C. However, due to temperature changes, moderate condensation may occur occasionally.

- Altitude: not more than 2000m;

- Seismic grade: 9 degrees;

- Installation location: indoor, no fire and explosion hazards, no serious pollution, chemical corrosion and frequent violent vibration.

- If there are other special requirements, the user shall negotiate with our company to determine the allowable scope and technical measures.

电气性能 Electrical performance

额定绝缘电压Ui	AC690V
额定工作电压Ue	AC400V
额定输入电流Ie	63A ~ 630A
额定频率	50Hz
过电压等级	III
污染等级	3

结构特点 Structural features

- 组装式或焊接式结构，模块化设计；

- 高密度网孔门设计，具有较高的通风率高，散热效果好；

- 采用标准线槽，电气性能安全、可靠；

- 上下均可进出线，接线方便，可配置维护插座；

- 采用优质板材设计加工，柜体强度高，稳定性好；

- 可预留隔离变压器安装位置，提供扩展接口。

- Modular design of assembled or welded structure;

- High density mesh door design, with high ventilation rate and good heat dissipation effect;

- Adopt standard trunking, with safe and reliable electrical performance;

- Both the upper and lower lines can be accessed, the wiring is convenient, and the maintenance socket can be configured;

- The cabinet is designed and processed with high-quality plates, with high strength and good stability;

- The installation position of isolation transformer can be reserved to provide expansion interface.

外形尺寸 Overall dimension

宽度W(mm)	300,600,800,1000,1200
高度H(mm)	2000,2200,2600
深度D(mm)	400,600,800,1000,1100

注：客户可定制上述尺寸范围之外的产品。

监控系统 Monitoring system

● 全模块化设计，内置两套完全独立的热备份冗余电源系统，每个采集模块独立工作；

● 采用工业级ARM 处理器，技术先进，可靠性高，运算处理能力强；

● 标配7 寸彩色触摸屏，全中文界面，操作便捷；

● 系统内置中文输入法，可自由定义每路输出负载的名称并保存；

● 进线监测：两种三相进线的相电压、线电压、电流、负载比、有功功率、无功功率、功率因素、电能、频率、电压谐波、电流谐波等关键电力参数；

● 出线监测：电压、电流、负载比、功率因素、有功功率、电能等关键电力参数；

● 开关监测：两路进线开关状态、出线开关状态、防雷器状态的实时监测；

● 出线开关监测自动识别未上电的支路，无须将其屏蔽。

● 可采用干接点或湿接点检测模式，每个支路常开或常闭告警在系统菜单中能够单独设定；

● 具有止铃功能，可暂时关闭告警铃声，但不阻塞新的告警事件；

● 电压越限、频率越限、两级电。

● Full modular design, built-in two sets of completely independent hot backup redundant power supply systems, and each acquisition module works independently;

● Industrial ARM processor is adopted, with advanced technology, high reliability and strong computing and processing capacity;

● Standard 7-inch color touch screen, full Chinese interface, convenient operation;

● The system has built-in Chinese input method, which can freely define and save the name of each output load;

● Incoming line monitoring: phase voltage, line voltage, current, load ratio, active power, reactive power, power factor, electric energy, frequency, voltage harmonic, current harmonic and other key power parameters of two three-phase incoming lines;

● Outgoing line monitoring: voltage, current, load ratio, power factor, active power, electric energy and other key power parameters;



● Switch monitoring: real time monitoring of two incoming line switch status, outgoing line switch status and lightning arrester status;

● The outgoing line switch monitoring automatically identifies the branch that is not powered on without shielding it.

● Dry contact or wet contact detection mode can be adopted, and each branch normally open or normally closed alarm can be set separately in the system menu;

● It has the function of stopping the alarm bell, which can temporarily turn off the alarm bell without blocking new alarm events;

● Voltage out of limit, frequency out of limit, two-stage power.

DPF08/09 直流精密列头柜 DPF08/09 DC precision column head cabinet

产品概述 Product overview

DPF08/09 直流精密列头柜采用标准的网络机柜结构，直流智能化配电柜是在吸收国际先进技术基础上，针对机房直流配电设计而开发的测量、告警一体化装置，能完成直流配电屏的监测、保护功能和联网通讯远动功能，实现对后端设备的安全、稳定、可靠、高效运行。

DPF08/09 DC precision column head cabinet adopts the standard network cabinet structure. The DC intelligent distribution cabinet is a measurement and alarm integrated device developed for the DC distribution design of the computer room on the basis of absorbing international advanced technology. It can complete the monitoring, protection and networking communication telecontrol functions of the DC distribution panel, and realize the safe, stable, reliable and efficient operation of the back-end equipment.

技术标准 Technical standard

- YD/T 939-2014 《传输设备用电源分配列柜》
- YD/T 585-2010 《通信用配电设备》
- YDT 2555-2013 《通信用240V直流供电系统配电设备》
- QB-H-008-20126 《336V 直流电源系统》
- YD/T 5083 《电信设备抗震性能检测规范》
- yd/t 939-2014 power distribution cabinet for transmission equipment
- yd/t 585-2010 communication power distribution equipment
- YDT 2555-2013 distribution equipment for 240V DC power supply system for communication
- qb-h-008-20126 336v DC power supply system
- yd/t 5083 code for seismic performance testing of telecommunication equipment

工作环境条件 Working environment conditions

- 环境温度：周围空气温度不高于+40℃，不低于-15℃，并且24h内其平均温度不高于+35℃。
- 环境湿度：空气清洁，相对温度在最高湿度为+40℃时不超过50%，在较低温度时允许有较高的相对温度，在+20℃时为90%，但应考虑到由于温度变化，有可能会偶然地产生适度的凝露。



- 海拔高度：不超过2000m；
- 抗震等级：9度；
- 安装地点：户内，没有火灾和爆炸危险，无严重污秽、化学腐蚀及经常性剧烈振动的场所。
- 如有其他特殊要求，用户应与我公司协商确定允许范围及技术措施。

- Ambient temperature: ambient air temperature is not higher than +40 °C, not lower than -15 °C, and its average temperature within 24h is not higher than +35 °C.

- Ambient humidity: the air is clean. The relative temperature shall not exceed 50% when the maximum humidity is +40 °C. A higher relative temperature is allowed when the temperature is low, and 90% when the temperature is +20 °C. However, due to temperature changes, moderate condensation may occur occasionally.

- Altitude: not more than 2000m;

- Seismic grade: 9 degrees;

- Installation location: indoor, no fire and explosion hazards, no serious pollution, chemical corrosion and frequent violent vibration.

- If there are other special requirements, the user shall negotiate with our company to determine the allowable scope and technical measures.

外形尺寸 Overall dimension

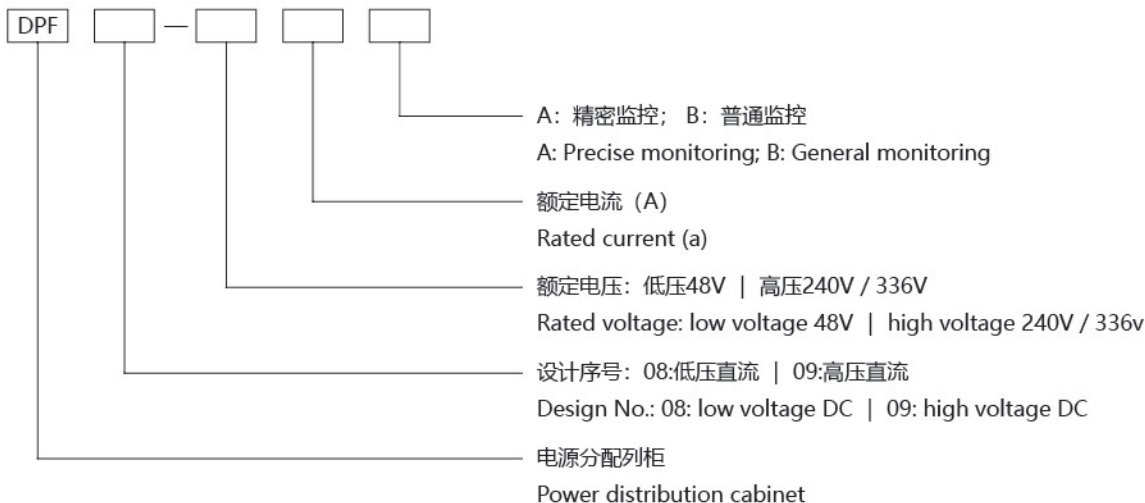
宽度W(mm)	300,600,800,1000,1200
高度H(mm)	2000,2200,2600
深度D(mm)	400,600,800,1000,1100

注：客户可定制上述尺寸范围之外的产品。

结构特点 Structural features

- 采用组装式或焊接式结构，模数化设计；
- 内外两层面板，外面板可采用玻璃门、实心门或高密度网孔门设计；
- 网孔门通风率高，散热效果好；
- 采用标准线槽布线，电气性能安全可靠；
- 上下均可进出线，接线方便；
- 采用优质板材设计加工，柜体强度高，稳定性好。
- Adopt assembled or welded structure and modular design;
- Two layers of inner and outer panels, the outer panel can adopt glass door, solid door or high-density mesh door design;
- Mesh door has high ventilation rate and good heat dissipation effect;
- Adopt standard trunking wiring, with safe and reliable electrical performance;
- Both upper and lower lines can be accessed, and the wiring is convenient;
- The cabinet is designed and processed with high-quality plates, with high strength and good stability.

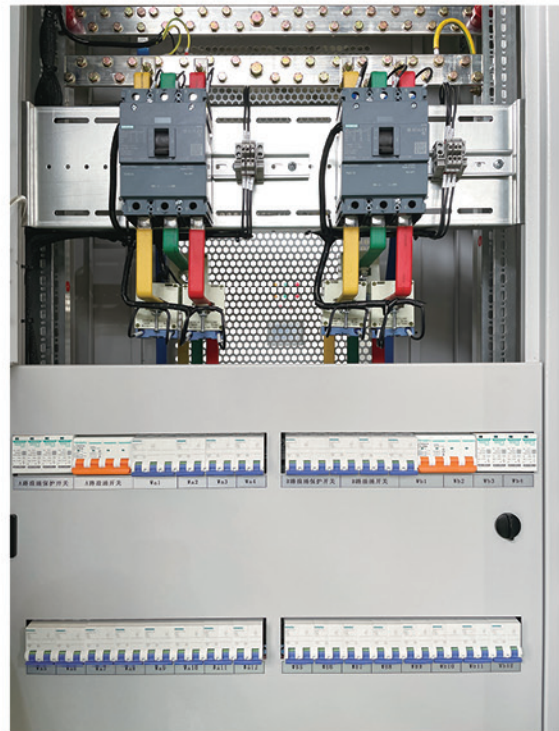
型号定义 Model definition



监控系统 Monitoring system

- 全模块化设计，内置两套完全独立的热备份冗余电源系统，每个采集模块独立工作；
- 采用工业级ARM 处理器，技术先进，可靠性高，运算处理能力强；
- 标配7 寸彩色触摸屏，全中文界面，操作便捷；
- 系统内置中文输入法，可自由定义每路输出负载的名称并保存；
- 进线监测：两种三相进线的相电压、线电压、电流、负载比、有功功率、无功功率、功率因素、电能、频率、电压谐波、电流谐波等关键电力参数；
- 出线监测：电压、电流、负载比、功率因素、有功功率、电能等关键电力参数；
- 开关监测：两路进线开关状态、出线开关状态、防雷器状态的实时监测；
- 出线开关监测自动识别未上电的支路，无须将其屏蔽。
- 可采用干接点或湿接点检测模式，每个支路常开或常闭告警在系统菜单中能够单独设定；
- 具有止铃功能，可暂时关闭告警铃声，但不阻塞新的告警事件；
- 电压越限、频率越限、两级电流越限告警、每个输出支路的告警阈值能够单独设定；

- Full modular design, built-in two sets of completely independent hot backup redundant power supply systems, and each acquisition module works independently;
- Industrial ARM processor is adopted, with advanced technology, high reliability and strong computing and processing capacity;
- Standard 7-inch color touch screen, full Chinese interface, convenient operation;
- The system has built-in Chinese input method, which can freely define and save the name of each output load;
- Incoming line monitoring: phase voltage, line voltage, current, load ratio, active power, reactive power, power factor, electric energy, frequency, voltage harmonic, current harmonic and other key power parameters of two three-phase incoming lines;
- Outgoing line monitoring: voltage, current, load ratio, power factor, active power, electric energy and other key power parameters;
- Switch monitoring: real time monitoring of two incoming line switch status, outgoing line switch status and lightning arrester status;
- The outgoing line switch monitoring automatically identifies the branch that is not powered on without shielding it.
- Dry contact or wet contact detection mode can be adopted, and each branch normally open or normally closed alarm can be set separately in the system menu;
- It has the function of stopping the alarm bell, which can temporarily turn off the alarm bell without blocking new alarm events;
- Voltage out of limit, frequency out of limit, two-stage current out of limit alarm, and the alarm threshold of each output branch can be set separately;





1、前言 Introduction

GCS型低压抽出式开关柜（以下简称装置）是电力工业部、机械工业部以促进我国低压配电行业的技术进步、加速低压配电成套开关设备的更新换代、保护和弘扬我国民族工业为宗旨，于一九九五年委托森源电气有限公司组织两部GCS型低压抽出式开关柜联合设计组（以下简称两部联设计组）完成设计和研制，目前在全国范围内已得到初步肯定和选用。

GCS low-voltage withdrawable switch cabinet (hereinafter referred to as device) is designed and developed by the design group of Ministry of Power Industry and Ministry of Machine-building Industry organized by Senyuan Electric Co., Ltd in 1995 that is entrusted by Ministry of Power Industry and Ministry of Machine-building Industry in order to promote the technical progress of China's low-voltage power distribution industry, accelerate the upgrade of complete set of low-voltage switchgear protect and carry forward China's national industry. At present, the product has received preliminary approval and been used in whole China. Used for transformation, distribution and control of electric energy of power distribution equipment, such as power distribution, motor control and lighting equipment.

2、适用范围 Range of Application

装置适用于发电厂、变电所、石油化工部门、厂矿企业、高层建筑等低压配电系统的动力、配电和电动机控制中心、电容补偿等的电能转换、分配与控制用。

在大单机容量的发电厂、大规模石化等行业的低压动力控制中心和电动机控制中心等电力使用场合时能满足与计算机接口的特殊需要。

装置是根据电力部主管上级，广大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扩容、计算机接口、动力集中控制、方便安装维修、缩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低压抽出式开关柜，产品具有分断、接通能力高、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，可以做为低压抽出式开关柜的换代产品使用。

装置符合IEC60439-1《低压成套开关设备和控制设备》、GB7251《低压成套开关设备》等标准。

Used for transformation, distribution and control of electric energy of power, power distribution, motor control center and capacitance compensation, etc of low-voltage distribution system, the device is applicable to the power plant, transformer substation, petrochemical industry, factory, high building and so on.

This special requirement of interface with computer is met when the product is used in the electricity application area, such as low-voltage control center and motor control center of power plant with large-capacity device and large-scale petrochemical industry.

According to the requirements of the superior in charge of Ministry of Electricity, power consumers and the design Dept, the device is a new type of low-voltage withdrawable switch cabinet designed to meet the needs of the continuous development of power market for increase of power distribution capacity, computer interface, power centralized control, convenience for installation and maintenance, shortening troubleshooting time, based on the safe, economic, reasonable, reliable principle. The product has many features, such as, high making-breaking capacity, good dynamic thermal stability, flexible electric scheme, convenient combination, strong practicability, novel structure and high protection grade. It can be used as update product of low-voltage withdrawable switch cabinet.

The device conforms to the standard of IEC60439-1 "complete set of low-voltage switchgear and control equipment", GB7251 "complete set of low-voltage switchgear" and so on.

3、产品型号及含义 Product Type and Meaning



4、使用条件 Service conditions

- 周围空气温度不高于+40°C，不低于-5°C，并且24h内平均温度不高于+35°C，超过时，需根据实际情况降容运行。
- 户内使用，使用地点的海拔高度不得超过2000m。
- 周围空气相对湿度在最高温度为+40°C时不超过50%，在较低温度时允许有较大的相对湿度，例如+20°C时为90%。但应考虑到由于温度的变化有可能会偶然产生凝露的影响。
 - 装置安装时与垂直面的倾斜度不超过5%，且整组柜列相对平整(符合GBJ232-82标准)。
 - 装置应安装在无剧烈震动和冲击以及不足以使电器元件受到不应有腐蚀的场所。
 - 用户有特殊要求时，可以与制造厂协商解决。
- The ambient air temperature is not higher than +40 ° C, not lower than -5 ° C, and the average temperature within 24 hours is not higher than +35 ° C. If the temperature exceeds +35 ° C, capacity reduction operation shall be conducted according to the actual situation.
- For indoor usage, the altitude of the installation place should not be higher than 2000m.
- The relative humidity of the ambient air cannot exceed 50% when the highest temperature is +40°C. The relative higher humidity is allowed when the temperature is lower. For example: when the temperature is +20 ° C and the relative humidity is 90%. The possibility of generating a moderate amount of condensation sometimes because of temperature change should be considered.
 - When installation, the gradient between the device and the vertical plane shall not exceed 5%, and the cabinet of the whole group is relatively flat (in accordance with GBJ232-82).
 - The device should be installed in the place where is free from severe vibration/ impact and not enough to make the electrical components corrosive.
- If the user has special requirement, please negotiate with the manufacturer.

5、电气性能 Electrical Performance

- 基本电气参数 Basic electrical parameters

a. 额定绝缘电压		交流 660(1000)V
b. 额定工作电压	主电路	交流 380(660)V
	辅助电路	交流 380、220V
		直流 220、110V
c. 额定频率		50(60)Hz
d. 水平母线额定电流		≤4000A
e. 垂直母线额定电流		1000A
f. 额定峰值耐受电流(0.1s)		105、176kA
g. 额定短时耐受电流(1s)		50、80kA
a. Rated insulation voltage		AC 660(1000)V
b. Rated working voltage		Mmain circuit AC 380(660)V
	Auxiliary circuit	AC 380、220V
	DC	220、110V
c. Rated frequency		50(60)Hz
d. Rated current of horizontal busbar		≤4000A
e. Rated current of vertical busbar		1000A
f. Rated peak withstand current(0.1s)		105、176kA
g. Rated short-time withstand current(1s)		50、80kA



概述 Brief Introduction

GCK低压抽出式开关柜由动力配电中心(PC)柜和电动机控制中心(MCC)二部份组成。该装置适用于交流50Hz-60Hz, 额定工作电压660V及以下的控制配电系统。广泛用于发电厂、变电站、工矿企业等电力用户, 作为动力配电、无功补偿、电动机控制及照明等配电设备的电能转换分配控制之用。

本开关柜符合国际标准IEC60439、国家标准GB7251-2005《低压成套开关设备和控制设备》等标准。

该装置有下列明显的特点

- 结构紧凑, 单元柜最多可装18个1/2单元抽屉或9个1单元抽屉, 节省用户投资。
- 结构通用性强, 组装灵活, 以25mm为模数, 各种大小抽出式单元可以任意组合, 以满足系统设计要求。
- 垂直母线及出线有良好的绝缘防护, 从而保证了柜后维修安全可靠。
- 设计独特的机械锁定机构, 有可靠的运行、试验、抽出、隔离四个位置, 安全可靠。
- 抽屉推进机构采用轴承滚动, 相同规格抽屉互换性强。
- 设计方案组合性强, 可自由地组合抽屉式方案和固定分隔式方案。
- 可靠的活门保护系统, 保证了柜前维修的安全性。
- 可根据需要选择三极或四极出线。

GCK low-voltage withdrawable switch cabinet consists of power distribution center(PC) and motor control center(MCC).The device is suitable for the control and power distribution system of which the frequency of alternating current is 50Hz-60Hz and the rated working voltage is 60V and lower. Used for transformation,distribution and control of electric energyof power distribution equipment, such as power distribution, reactive compensation, motor control and lighting equipment, it is widely used in the power plant, transformer substation,industrial and mining enterprise and other power consumers.

The cabinet conforms to the national standard of IEC60439, GB7251-2005 "Complete set of Low-voltage Switchgear and control Equipment" and other standards.

The device has the following distinct features.

- The structure is compact. At most 18 pcs of 1/2 unit drawer or 9 pcs of 1 unit drawer can be installed in the cabinet, saving users' investment.

- The structural commonality is strong and the assembly is flexible. With 25mm as module, various size of withdrawable unit can be combined at will to meet the system design requirement.
- The vertical busbar and outlet wire have good insulation protection, thus ensuring the safety and reliability of maintenance conducting at the back of the cabinet.
- The special designed mechanical locking mechanism has four reliable position: working/testing/drawn-out/isolation. It is safe and reliable.
- The propulsion mechanism of the drawer uses rolling bearing. The exchangeability of drawers with same specification is strong.
- The combinability of the design scheme is strong. Drawer-type scheme and fixed-type scheme can be combined freely.
- The reliable value protection system ensures the safety of maintenance conducting at the front of the cabinet.
- Three-pole or four-pole outgoing line can be selected as required.

型号含义 Model meaning



主要技术参数 Main Technical Parameters

表table 1

额定工作频率(Hz) Rated working frequency		50 60
额定工作电压(V) Rated working voltage		400 690
额定绝缘电压(V) Rated insulation voltage		690 1000
最大工作电流(A) Max working current	水平母线 Horizontal busbar	4000
	垂直母线 Vertical busbar	1000~1500
额定短时耐受电流 rated short-time withstand current 有效值(IS)/峰值(kA) effective value(IS)/peak value(kA)	水平母线 Horizontal busbar	80/176
	垂直母线 Vertical busbar	60/130
外壳防护等级 Protection grade of housing		IP30、IP40
外形尺寸 高×宽×深 Overall dimension H×W×D		2200×600 (800、1000)×800(1000)



前言 Introduction

GGD型交流低压配电柜，是原能源部以促进我国低压配电行业的技术进步、加速低压配电成套开关设备的更新换代为宗旨。于一九九一年下达的技术进步开发项目。由能源部低压成套开关设备联合设计研制组(简称NLS)完成设计和研制。并于一九九二年十月通过了由能源部主持的部级鉴定。目前在全国范围内已广泛使用。

In aim to promote the technical progress of China's low-voltage distribution industry and accelerate the upgrade of complete set of low-voltage switchgear, GGD AC low-voltage power distribution cabinet is a technical progress development project assigned by the Department of Energy in 1991. The design and development is accomplished by the design and development group of complete set of low-voltage switchgear (NLS for short). It passed the ministerial approval held by the Department of Energy in Oct, 1992. Now it is widely used in the whole country.

用途 Application

GGD型交流低压配电柜适用于发电厂、发电站、厂矿企业等电力用户的交流50Hz、额定工作电压380V、额定工作电流至3200A的配电系统，做为动力、照明及配电设备的电能转换、分配与控制之用。

GGD型交流低压配电柜是根据广大电力用户及设计部门的要求，本着安全、经济、合理、可靠的原则设计的新型低压配电柜。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。

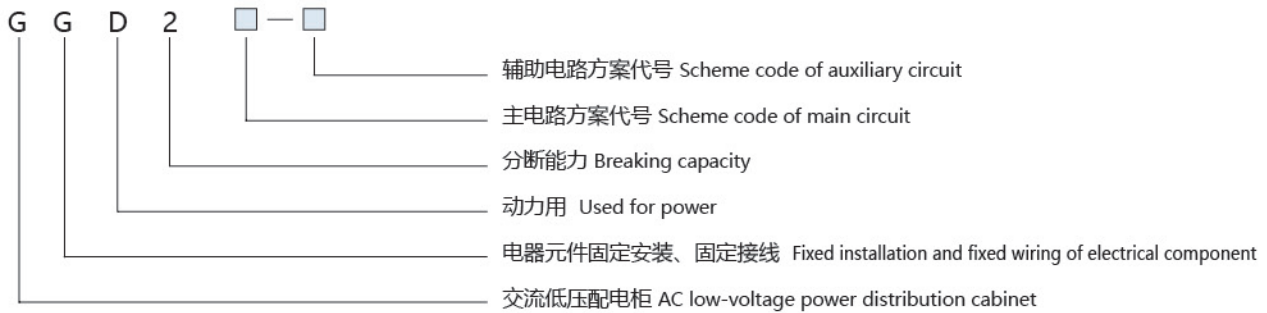
GGD型交流低压配电柜符合IEC60439《低压成套开关设备和控制设备》、GB7251《低压成套开关设备和控制设备》等标准。

Used for transformation, distribution and control of electric energy of power plant, lighting equipment and power distribution equipment, GGD AC low-voltage power distribution cabinet is applicable to the power distribution system of which the frequency of alternating current is 50Hz, the rated working voltage is 380V and the rated working current is to 3200A in the power plant, power station, industrial and mining enterprise and other power consumers.

According to the requirement of power user and design Dept., GGD AC low-voltage power distribution cabinet is a new type of low-voltage power distribution designed on the base of principles of safety, economy, rationality and reliability. The product has the characteristics of high breaking ability, good dynamic and thermal stability, flexible electrical scheme, convenient combination, seriality, strong practicability, novel structure and high protection grade and so on.

GGD AC low-voltage power distribution cabinet conforms to the standard of IEC60439-1 "complete set of low voltage switchgear and control equipment", GB7251 "complete set of low voltage switchgear" and so on.

产品型号及含义 Product type and meaning



1 - 分断能力/Breaking capacity: 15kA

2 - 分断能力/Breaking capacity: 30kA

3 - 分断能力/Breaking capacity: 50kA

使用条件 Service conditions

- 周围空气温度不高于+40°C、不低于-5°C，24h内的平均温度不得高于+35°C。
- 户内安装使用，使用地点的海拔高度不得超过2000m。
- 周围空气相对湿度在最高为+40°C时不超过50%，在较低温度时允许有较大的相对湿度。(例如+20°C时为90%)应考虑到由于温度的变化可能会偶然产生凝露的影响。
- 设备安装时与垂直面的倾斜度不超过5%。
- 设备应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。
- 用户有特殊要求时可与制造厂协商解决。
- The ambient air temperature is not higher than +40 ° C, not lower than -5 ° C, and the average temperature within 24 hours is not higher than +35 ° C.
- For indoor usage, the altitude of the application place should not be higher than 2000m.
- The relative humidity of the ambient air cannot exceed 50% when the highest temperature is +40°C. The relative higher humidity is allowed when the temperature is lower. (For example: when the temperature is +20 ° C and the relative humidity is 90%) The possibility of generating a moderate amount of condensation sometimes because of temperature change should be considered.
- When installation, the gradient between the device and the vertical plane shall not exceed 5%.
- The device should be installed in the place where is free from severe vibration/ impact and not enough to make the electrical components corrosive.
- If the user has special requirement, please negotiate with the manufacturer.

电气性能 Electrical Performance

- 基本电气参数 Basic electrical 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 Rated short-circuit breaking current (kA)	额定短时耐受电流 Rated short-time withstand current (1s)(kA)	额定峰值耐受电流 Rated peak withstand current (kA)
GGD1	380	A	1000	15	15	30
		B	630			
		C	400			
GGD2	380	A	1600	30	30	63
		B	1000			
		C				
GGD3	380	A	3200	50	50	105
		B	2500			
		C	2000			

概述 Overview

本产品采用了国际IEC标准和国家标准设计制造的新型动力配电箱，此产品选用国外进口电器产品，或国内生产比较先进的电器元件。

配电箱适用于工矿企业、商业、服务业，以及民用建筑交流50Hz，电压600V以下的三相三线，三线四线配电系列中作动力或照明配电之用。

适用条件：

①环境温度：周围空气温度不超过+40摄氏度，最低不低于-10摄氏度，并且在24小时内平均温不高于+35摄氏度。

②大气条件：相对温度在最高温度+40摄氏度时不超过50%，温度较低时允许有较高的相对温度。

③没有导电尘埃及可能腐蚀金属和破坏绝缘气体场所。

④没有剧烈振动和颠簸及垂直安装，安装倾斜度不得超过5度。

⑤海拔高度不超过2000米。

This product is a new-type power distribution box which is designed and manufactured according to the international IEC standard and the national standard. This product uses electric apparatus imported from other countries or more advanced electrical apparatus elements produced at home.

Used for power, lighting and power distribution, the distribution box is suitable for three-phase three-wire and three-phase four-wire power distribution system of which the frequency of alternating current is 50Hz and the voltage is below 600V in industrial and mining enterprises, commercial industry, service industry and civil buildings.

Service conditions

① Environment temperature: The ambient air temperature is not higher than +40 °C, not lower than -5 °C, and the average temperature within 24 hours is not higher than +35 °C.

② Atmospheric conditions: The relative humidity cannot exceed 50% when the highest temperature is +40°C. The relative higher humidity is allowed when the temperature is lower.

③ The place where is free from conductive dust and gas that may corrode metal and destroy the insulation.

④ There is no severe vibration or jolt. The installation gradient should not exceed 5°C for vertical installation.

⑤ The altitude is not higher than 2000m.



产品结构 Product structure

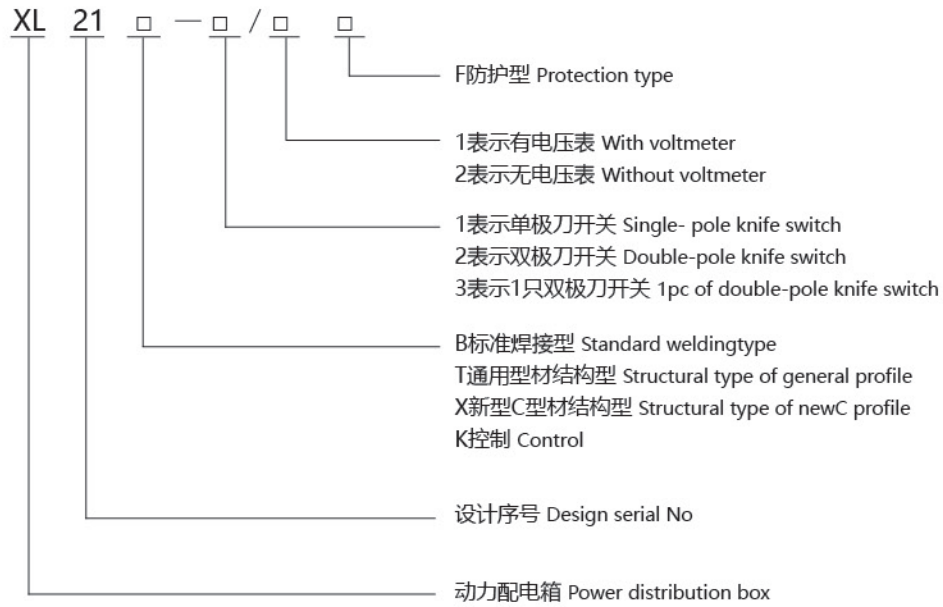
本动力配电箱（柜）系封闭式，外壳一般采用钢板焊接而成，也可用型材组装而成，箱内左右侧壁上焊有电器安装立柱，刀开关操作手柄装在箱前右侧箱门上作为切换电源之用，箱门上可装电压表、电流表、指示灯和操作按钮，打开门可以检修箱内的设备。

箱内设备采用条架式结构安装，安装灵活紧凑，方便维修。

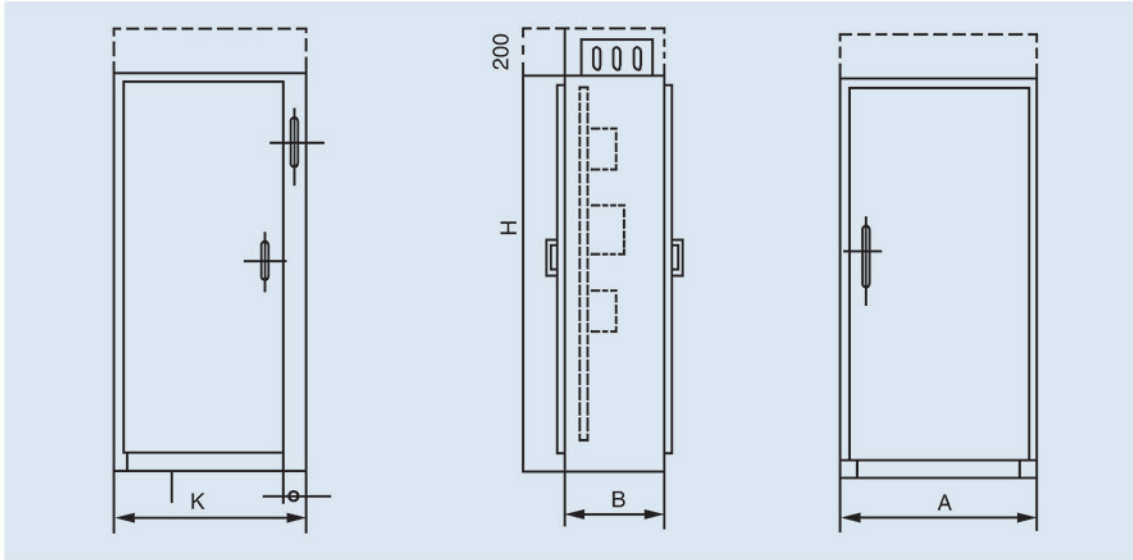
The power distribution box (cabinet) is enclosed. The housing is welded with plates generally and also can be assembled with profile. The electrical installation column is welded on the left and right side wall in the cabinet. Used for switching power supply, the handle of knife switch is installed on the door of the right side. The voltmeter, ammeter, light and operation button can be installed on the door. Open the door and the maintenance of equipment in the cabinet can be conducted.

The equipment in the box adopts the frame structure installation, which is flexible, compact and convenient for maintenance.

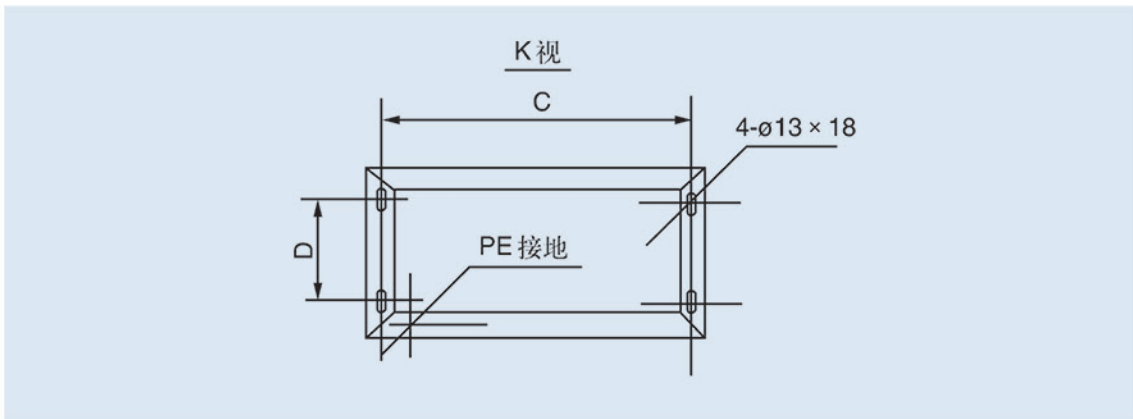
产品型号含义 Product model meaning



外形尺寸(毫米) Overall dimensions(mm)



安装示例 Example of installation



尺寸选择(毫米) Selection of dimensions(mm)

H	A	B	C	D	备注
1700	600	350	550	250	户内用前单门后盖或后门 Rear cover of single front door or backdoor for indoor usage
	700	350	650	250	
	800	350	750	250	
H+200=1900	600	450	550	350	
	700	450	650	350	
	800	450	750	350	

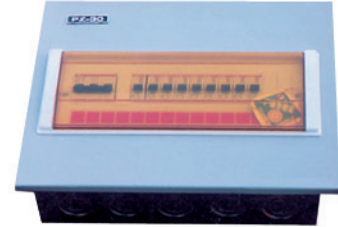
概述 Overview

PZ30型终端电器箱是一种安装终端电器的装置，内部元件全部采用宽度为9mm模数的电器拼装在符合IEC715-87的顶帽形轨道上，壳体采用新材料、新工艺和新造型，结构新颖，电器性能可靠，具有分断能力高，限流特性好，适应国内外用户最新要求。

PZ30型终端电器箱设计依据的标准为GB7251.3-2006，IEC60439.1-8，BS5486.1-86和BS5486.13-86。

PZ30 terminal electric box is one kind of device for installing terminal electric apparatus. All internal components adopt the electric apparatus of which the width is 9mm modulus and are assembled on the hat rail which conforms to IEC715-87m. With new structure, reliable electrical performance, high breaking capacity and good current limiting property, the housing adopts new material, new technology and new modelling to meet the latest requirements of customers at home and abroad.

The design standards of PZ30 terminal electric box are GB7251.3-2006, IEC60439.1-8, BS5486.1-86 and BS5486.13-86.



适用范围 Scope of application

PZ30型终端电器箱，适用于高层建筑，宾馆商场，车站港口，工矿企业及民用住宅等场所，作为线路控制和配电的一种成套装置。适用于额定电压为220V或380V，负载总电流不大于100A单相三线和三相五线的末端电路中，能对用电设备进行控制，对过载、短路、过电压和漏电起保护作用，尤其适用于非专业人员使用。

As one complete set of device for wiring control and power distribution, PZ30 terminal electric box is applicable to the high buildings, hotels, shopping malls, stations and ports, industrial and mining enterprises and civil residential places. It is used in the single-phase three-wire and three-phase five-wire terminal circuit of which the rated voltage is 220V or 380V and the total loading current is not more than 100A to control the electric equipment and protect against overload, short circuit, overvoltage and electric leakage. It is especially suitable for non-professionals.

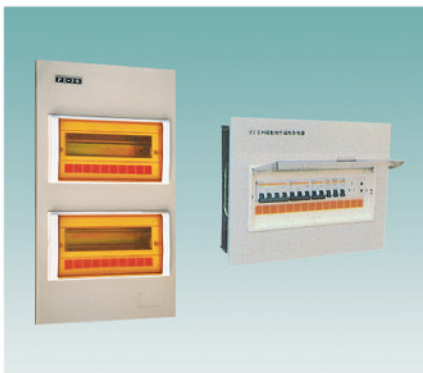
特点 Characteristics

PZ30型终端电器箱，主要结构部件有透明罩、上盖、箱体、安装轨道、母线排、护线罩和电器开关元件等，内装电器开关元件安装于顶帽形轨道上，可根据需要任意组合，拆装方便，开关元件手柄外露，带电及其它部分遮盖于上盖内部，开启门即可方便操作，使用安全，箱体周围及背面均设有进出线敲落孔便于接线。

箱体分为金属型和全塑型二种，既可用于明装式亦可用于暗装式。

The main structural components of PZ30 terminal electric box are transparent cover, upper cover, box, rail, busbar, wire protection cover, electrical switch elements, etc. The electrical switch elements are installed on the hat rail, can be combined at will according to the need and it is convenient to assemble and disassemble. The handle of the switch element is exposed and the live parts and others are covered in the upper cover. Opening the door makes the operation convenient and safe. There are holes for wiring both around the box and the back of the box.

The box body is classified into metal one and plastic one, which can be used for both exposed installation and concealed installation.



主要技术参数 Main technical parameters

规格 Specification	宽 Width	高 Height	深 Depth	规格 Specification	宽 Width	高 Height	深 Depth
PZ30-2	95	150	90	PZ30-15	420	340	90
PZ30-4	130	150	90	PZ30-18	470	340	90
PZ30-6	260	340	90	PZ30-20	340	560	90
PZ30-8	300	340	90	PZ30-24	360	560	90
PZ30-10	340	340	90	PZ30-30	420	560	90
PZ30-12	360	340	90	PZ30-36	470	560	90

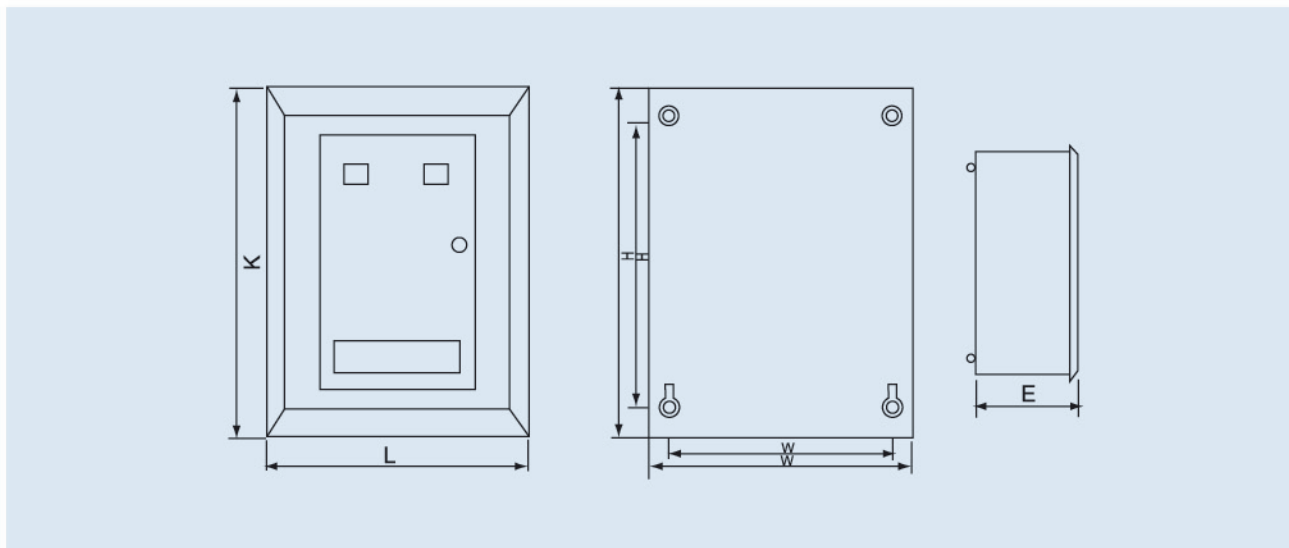
适用范围 Scope of application

PZ40系列电表箱可广泛应用于各类现代建筑、住宅等用户用电计量。分暗装、明装、户外三种类型。面板为铁结构塑料芯嵌装，开关手柄外露，方便操作。框边和箱体可分开安装，拆装方便。暗式铰链，箱体电镀处理。电表观察窗由高强度塑料压制而成，观察用电量更加直接很容易。

PZ40 series electric meter box can be widely used in all kinds of modern buildings, residential and other users for electricity metering and is divided into three types: exposed installation, concealed installation and outdoor installation. The panel is of iron structure embedded with plastic core and the switch handle is exposed for easy operation. The rim and box body can be installed separately, which is convenient to disassemble. Concealed hinges are used and the box body is electroplated. The inspection window is pressed with high-strength plastic, making the observation of electricity consumption easier and directly.



外壳尺寸 (毫米) Dimensions of the housing (mm)



单位/mm

箱体型号及回路 Type of box body and circuit	面板尺寸 Dimension of panel		箱体尺寸(明) Dimension of box body (exposed)			箱体尺寸(暗) Dimension of box body (concealed)			安装尺寸 Installation dimension	
	L	K	W	H	E	W	H	E	W'	H'
一户 1 household	275	425	240	390	160	270	430	160	220	380
二户 2 household	365	425	330	390	160	360	430	160	310	380
三户 3 household	445	425	410	390	160	440	430	160	390	380

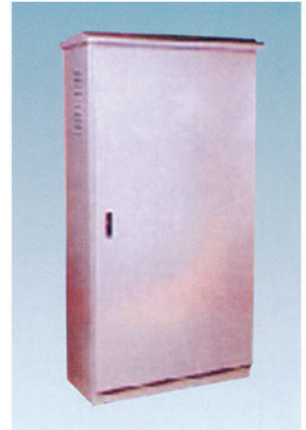
概述 Overview

本产品采用了国际IEC标准和国家标准设计制造，箱内元件选用国外电器产品，或国内生产比较先进的电器元件。

配电箱适用于工矿企业、商业、服务业，以及民用建筑交流50Hz，电压600V以下的三相三线，三线四线配电系列中作动力或照明配电之用。

This product is designed and manufactured according to the international IEC standard and the national standard. The components in the box are the electric product imported from other countries or more advanced electrical apparatus elements produced at home.

Used for power, lighting and power distribution, the power distribution box is suitable for three-phase three-wire and three-phase four-wire power distribution system of which the frequency of alternating current is 50Hz and the voltage is below 600V in industrial and mining enterprises, commerce, service industry and civil building.



结构用途 Structure and application

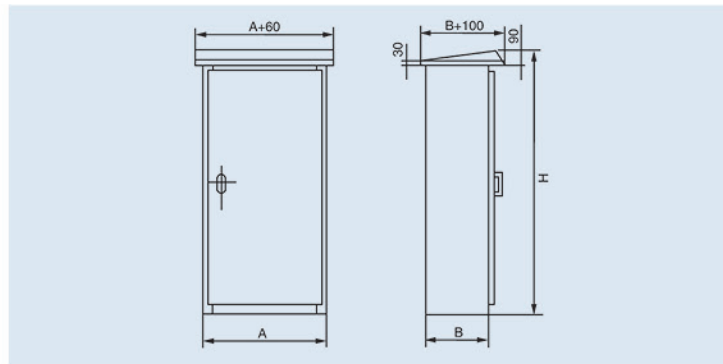
本箱为户外装置。箱顶有防水盖，顶盖与箱体之间留有空隙，便于散热和水分。箱体分内门、外门，外门周边加防水胶条和防水槽，内门可装仪表、灯、按钮和转换开关等。

箱体分落地和悬挂式两种，箱底部开电缆进出线孔。

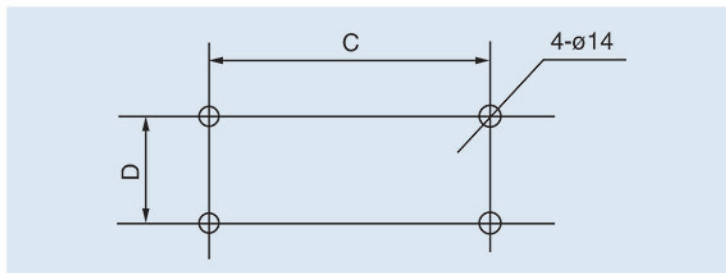
This box is an outdoor device. There is a waterproof cover on the top of the box, and a gap is left between the top cover and the box body for heat dissipation and moisture. The box body is divided into inner door and outer door. The outer door is equipped with waterproof tape and sink. The inner door can be equipped with instrument, lamp, button, transfer switch and so on.

The box body is divided into two types: floor-type and suspension-type. There are wiring holes at the bottom of the box.

外壳尺寸（毫米） Dimensions of the housing (mm)



安装示例 Example of installation



尺寸系列(毫米) Dimension series(mm)

H	A	B	C	D	备注 Remark
1800	700	400	650	300	户外用前单门 Use single front door outdoor
	800		750		
	900		850		

概述 Overview

本产品采用了国际IEC标准和国家标准设计制造的新型动力配电箱，此产品选用国外电器元件，或国内生产比较先进的电器元件。

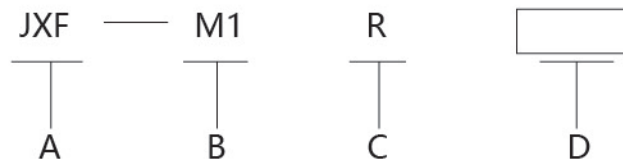
配电箱广泛用于电厂、变电站、工厂、学校、及其它建筑物，为照明设备、电机启动、电机保护、电机插座等配电之用。并提供过载、短路漏电保护。

This product is a new-type power distribution box which is designed and manufactured according to the international IEC standard and the national standard. This product uses electric appliance imported from other countries or more advanced electrical apparatus elements produced at home.

Used to distribute power for lighting device, motor start, motor protection, and motor socket and provide protection against overload, short circuit and electric leakage, the distribution box is widely applied in the power plants, substations, factories, schools and other buildings.



产品型号含义 Product model meaning



A 配电箱型号：JXF系列

Type of power distribution box: JXF series

B 配电箱代号

code of distribution box

照明箱代号： M1 ACM ACP SDB

code of lighting box

光控箱代号： Gk

code of optically-controlled box

远控箱代号： Yk

code of remote control box

时控箱代号： Sk

code of time-control box

事故切换箱代号： QA QD

code of emergency switching box

事故投入箱代号： TA

code of accident input box

插座箱代号： C

code of socket box

密闭开关盒代号： MK

code of enclosed switch box

事故投入箱代号： TD

code of accident input box

检修箱代号： J

code of maintenance box

变压器箱代号： B

code of transformer box

应急电源箱代号： JJ

code of emergency power supply box

逆变器箱代号： N

code of inverter box

开关盒代号： K

code of switch box

按钮盒代号： A

code of button box

密闭插座盒代号： MC

code of enclosed socket box

C 安装方式

R: 暗装

无R: 明装, 或者可户内外明装、暗装的通用壳体

Installation way

concealed installation

No R: exposed installation or general housing that can be exposed installation and concealed installation indoor and outdoor.

D 配置代号(依据实际情况定)

Configuration code(determined by the actual situation).

产品结构 Product structure

本动力配电箱(柜)系封闭式, 外壳一般采用冷轧钢板焊接而成, 也可用型材组装而成, 箱内左右侧壁上可焊电器元件安装立柱, 可也用整块安装板, 采用标准化设计生产, 相同产品可全部互换, 表面喷塑, 采用固定平整, 也可全序号操作, 以上可用电压、电流表指示灯测量及测和用按钮进行操作; 开门即可检测设备, 也可用手用双底板, 使人员不可直接接触导电体, 确保安全。

The power distribution box (cabinet) is enclosed. Generally, the housing is welded by cold rolled steel plates and also can be assembled by profiles. The installation column for electric apparatus elements can be welded on the left and right side of the box and also use whole installation plates. The standardized design and production is adopted. All the same product can be interchanged. The surface is sprayed with plastic, which is fixed and flat. It can be operated with serial number. The above operation can be conducted with the buttons for voltmeter and ammeter indicating light measurement. Open the door to check the device. Double bottom plate also can be used by hand, so that the personnel cannot directly touch the conductive body to ensure safety.



JXF-M1(M2)系列照明配电箱 JXF-M1(M2) series lighting distribution box

用途 Application

广泛用于电厂、变电站、工厂、学校、及其它建筑物，为照明设备、电机、插座等配电，并提供过载、短路、漏电保护。

Used to distribute power for lighting device, motor and socket and provide protection against overload, short circuit and electric leakage, the distribution box is widely applied in the power plants, substations, factories, schools and other buildings.

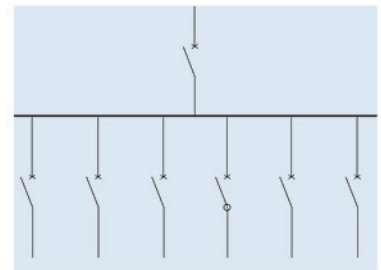
特点 Features

标准化设计、生产，相同产品可全部互换；壳体由冷轧钢板制作，固定平盖、带金属操作窗；表面喷塑。坚实、美观。配置ABB、Schneider或国产优质MCB、RCBO模数化元件，100A进线端子(定制)。安装方式；户内的明装、暗装。暗装箱体采用独特的抽出设计，其盖子与箱体可轻易调节40mm。

安全条例GB7251.3

The standardized design and production is adopted. The same product can be interchanged. With fixed cover and metal operation window, the housing is made of cold-rolled steel plate. The surface is sprayed with plastic, which is firm and beautiful. ABB, Schneider or domestic high-quality MCB, RCBO modular components and 100A inlet terminal (customized) are equipped. The way of installation mode is of indoor exposed installation and concealed installation. The box of concealed installation adopts unique draw-out design, its cover and the body can be easily adjusted by 40mm.

Safety Regulations GB7251.3.



JXF-ACM、ACP系列照明配电箱 JXF-ACM、ACP series lighting distribution box

JXF系列中的ACM及ACP系列单相配电箱采用ABB公司原厂外壳制作，箱内配有中性母排端、接地母排端及DIN导轨，可配合ABB System proM终端保护装置。箱体备有6种标准规格，分别为8位、10位、13位、16位、20位及23位，每一单极开关各占一位。

ACM系列单相配电箱分有挂墙式安装（明箱）及嵌墙式安装（暗箱）两种。全金属外壳，表面采用RAL 7035灰白色环氧树脂静电喷涂，平盖式的设计及暗装门盖螺丝，在不同的安装环境均能显得高雅大方。

ACP系列单相配电箱嵌墙式安装（暗箱），为金属箱底座，箱盖采用优质塑料模压制成。标准的塑料面盖颜色为RAL 7035灰白色配茶色透明塑料活门盖。除标准颜色外，塑料面盖颜色更可按不同的室内家居设计颜色所需而提供。

ACM and ACP series single-phase distribution box of JXF series use the housing made by ABB Company. The box is equipped with neutral busbar terminal, grounding busbar terminal and DIN guide rail and ABB System proM terminal protection device also can be equipped. There are 6 types of standard specification for the box, namely 8, 10, 13, 16, 20 and 23 bits, each single-pole switch occupies one bit.

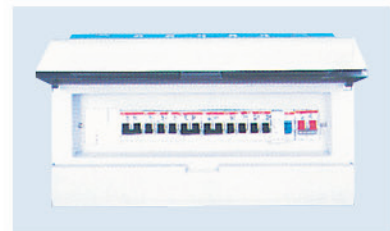
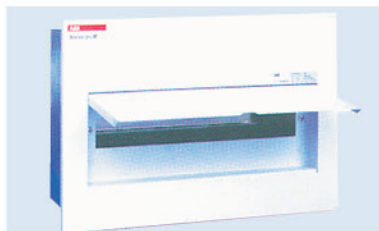
ACM series single-phase distribution box is divided into two types: wall-hung installation (exposed box) and wall-embedded installation (concealed box). The surface of metal housing uses RAL 7035 gray white epoxy resin electrostatic spraying, the flat head design and screw of concealed installation door cover appear elegant in different installation environment.

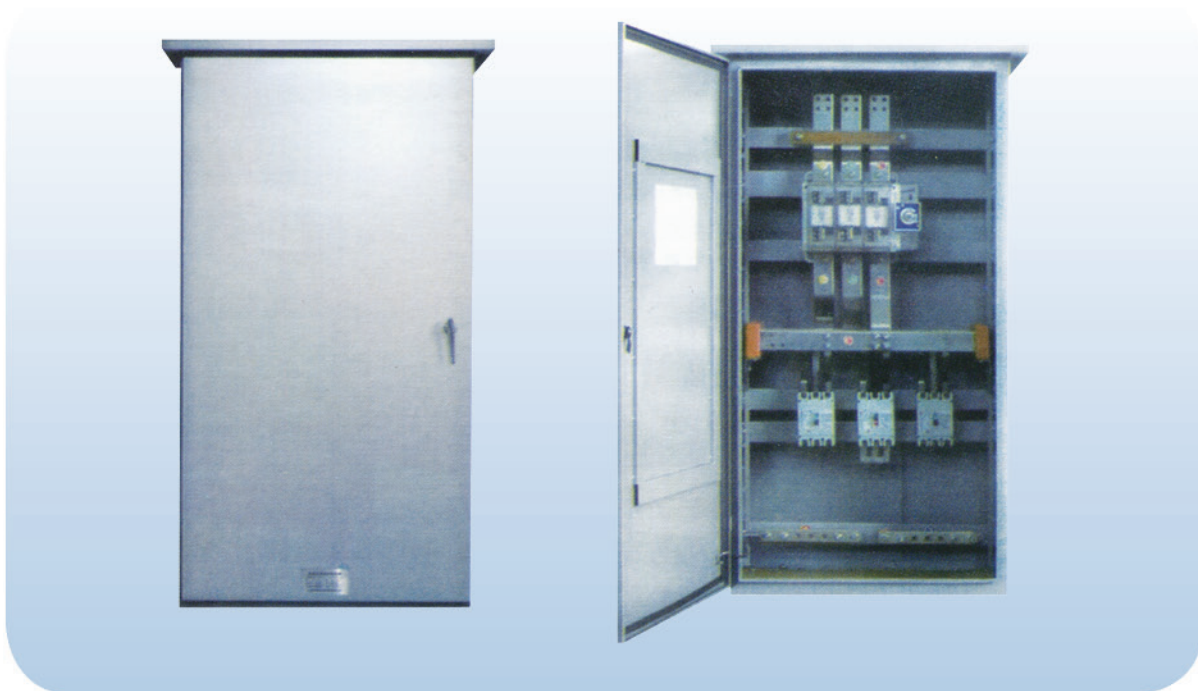
For the wall-embedded installation (concealed box) of ACP series single-phase distribution box (black box), the foundation of the box is metal, the cover is made of high quality plastic. The standard plastic cover is equipped with tawny transparent plastic valve cover and its standard color is RAL 7035 grey white. In addition to the standard color, the color of plastic cover can be provided according to the need of different interior design.

单相配电箱(ACM系列、ACP系列)

Single-phase distribution box(ACM series、ACP series)

型号说明 Type description:





概述 Overview

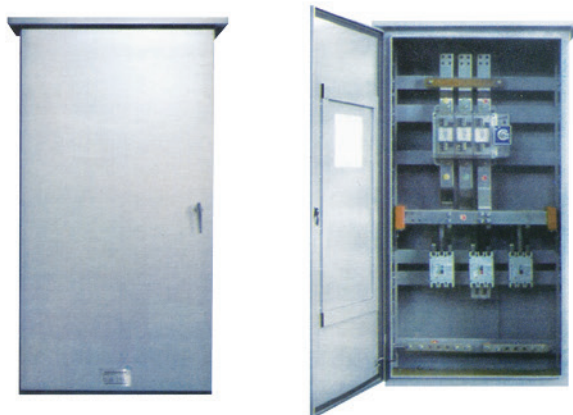
DFW630A低压电缆分支箱，用于交流三相380V/220V，额定频率50Hz，额定电流630A及以下的低压输配电网中，用电缆向其它用户或设备分配电能的成套定型产品。本产品适用于变配电站所、工矿企业、街道（公路）两侧、住宅区、高楼大厦等户外公共场所。在城乡电网建设和城乡电网改造中，是取代架空线路技术支持产品。

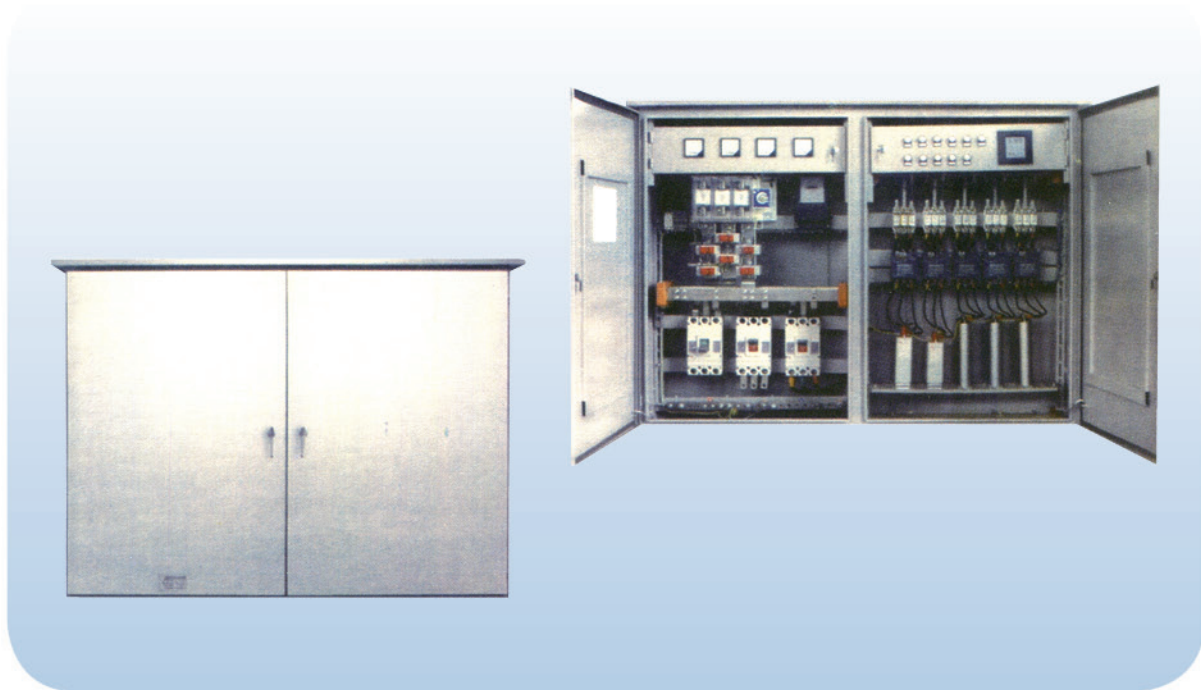
DFW630A low-voltage cable branch box is used in the low-voltage transmission and distribution network of which three-phase alternating current is 380V/220V, the rated frequency is 50Hz and the rated current 630A and below and a complete set of approved product distributing electric energy to other consumers or equipment by cable. This product is applicable to the transformer substations, industrial and mining enterprises, both sides of streets (highways), residential areas, high-rise buildings and other outdoor public places. It is also technical support product which can replace the overhead line in the urban and rural power grid construction and transformation.

技术参数 Technical parameters

额定工作电压 (V) Rated working voltage	AC400V
额定绝缘电压 (V) Rated insulation voltage	690V
主母线额定电流和额定短路耐强度 Rated current of main busbar and rated short-circuit withstand strength	630A、15kA
主开关分断能力 (kA) Breaking capacity of main switch	15kA
出线回路数 Circuits of outgoing wire	3路
外壳防护等级 Protection grade of housing	IP44

接线图 Wiring diagram





概述 Overview

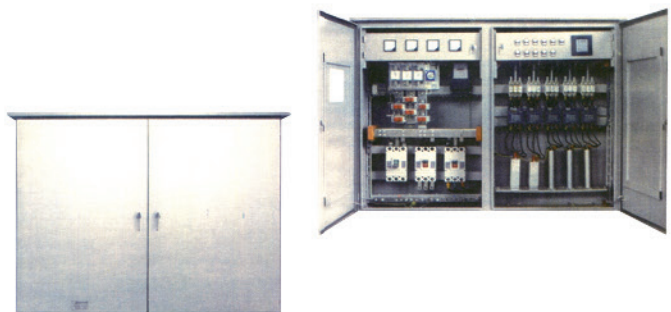
SLJP型交流低压综合配电箱是户外封闭式配电箱，是根据城、农网建设改造的要求，本着经济、合理、安全、可靠的原则而设计的具有多种功能的综合性低压开关成套设备。产品适用于交流50Hz，额定电压400V，额定电流800A及其以下的配电系统。作为电能分配、控制、计量、测量、无功补偿和保护之用的结合低压开关成套设备；具有防护等级高、结构合理、实用性强、节电效果明显等优点，对于保障配电系统安全运行，提高供电质量，具有深远的意义。

SLJP AC low-voltage integrated distribution box is outdoor enclosed one and a complete set of multifunctional comprehensive low-voltage switchgear designed according to the urban and rural network construction and transformation requirements and the principle of economic, reasonable, safe, and reliable. The product is suitable for the power distribution system of which the frequency of alternating current is 50Hz, the rated voltage is 400V and the rated current is 800A and lower. Used for power distribution, control, metering, measuring, reactive compensation and protection, the complete set of low-voltage switchgear has the advantages of high protection grade, reasonable structure, strong practicability and obvious power saving effect, which is of far-reaching significance to guarantee the safe operation of distribution system and improve the power supply quality.

技术参数 Technical parameters

额定工作电压 (V) Rated working voltage	400V
额定频率 (HZ) Rated frequency	50HZ
额定绝缘电压 (V) Rated insulation voltage	690V
额定冲击耐受电压 (kV) Rated impulse withstand voltage	6kV
额定电流 (A) Rated current	800A
外壳防护等级 Protection grade of housing	IP44

接线图 Wiring diagram



工作原理 Working principle

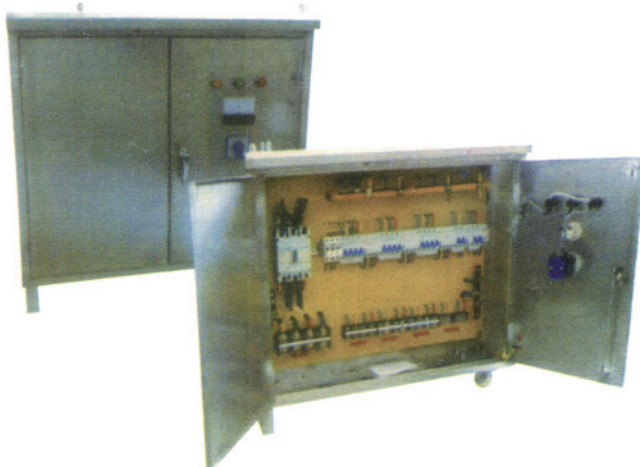
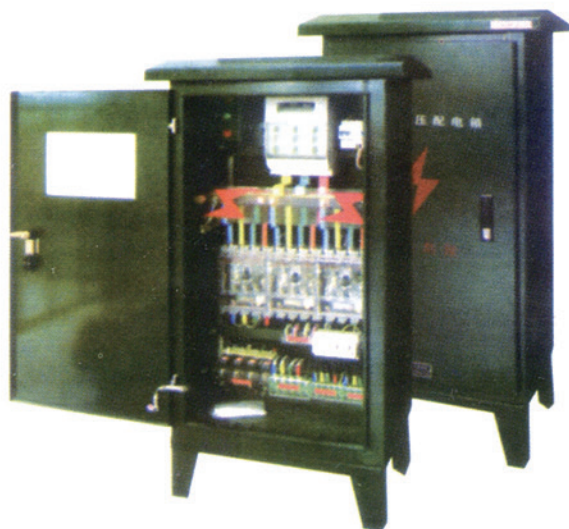
适用配电系统分支电源隔离，控制和短路，过载保护，以及操作，维修安全，方便的需要。

Suitable for the need of isolation, control, short circuit and overload protection, operation, safe and convenient maintenance of branch of power distribution system.

产品特点 Product features

保障配电箱，开关箱安全可靠的运行，以及保障系统三级配电柜和开关箱“一机、一闸、一漏、一箱”制。

Ensure the safe and reliable operation of distribution box and switch box and guarantee the system of "one mechanical equipment, one brake, one leakage protector and one switch box" of three-level distribution cabinet and switch box.



技术参数 Technical parameters

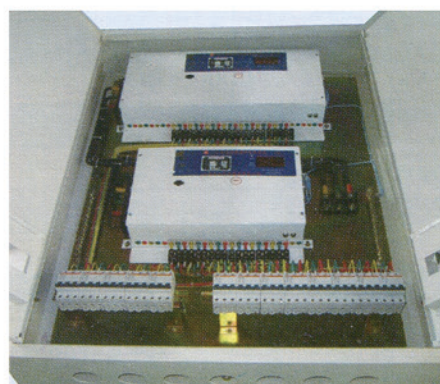
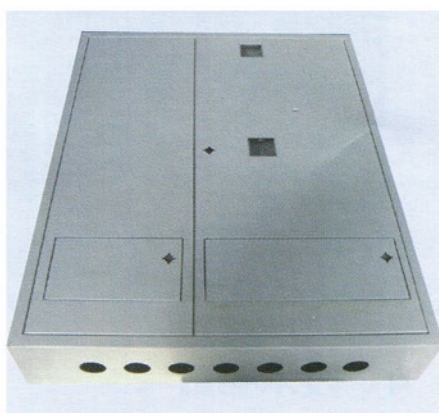
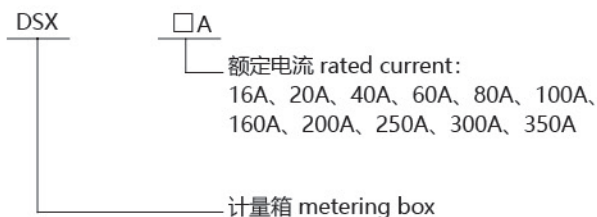
- ★ 进线电源配置: 63A 150A
三相五线 (ABC/N/PE)。
- ★ 总电源开关熔断式隔离开关: (三相式) 型号:
OS250D04N2K,63A, OS250D6N3K,150A,有明显断开点。
- ★ 隔离开关位置: 箱体上部。
- ★ 进线回路电源指示: 三相监视, 半导体节能型。
- ★ 总回路母线: 铜排 (A/B/C/N/PE)。
- ★ 箱体外型尺寸: 1000*600*400mm, 不包括底脚130mm, 与帽檐40mm。
- ★ 箱体材料为不锈钢板, 箱壳2.0mm, 箱腿和内部固定筋架用不锈钢可旋转180°, 铰链安装 (多力锁具) 箱体前后均设门, 长条形平锁防雨帽, 门的背面附体箱电源和原理接线图, 安全使用说明箱体底部7件直径30mm孔, 套绝缘护套, 门后或箱内有熔断器备用安放位置。
- ★ 设备固定支撑: 绝缘子, 护线条 (套热缩管)。
- ★ 内部连线: 绝缘多股软铜线250mm², 绝缘多股接地软铜线 (250mm²*1*798) 进出现或连接线的端部压铜接头, 压接电阻小于0.79Ω。
- ★ 符合国家 (GB) 或IEC标准。
- ★ Incoming power supplyconfiguration : 63A、150A.
three phase five wire (ABC/N/PE) .
- ★ Main power switch fuse disconnecter: (three phase) type.
OS250D04N2K,63A, OS250D6N3K,150A, With obvious disconnecting point.
- ★ Position of disconnecter: top of box body.
- ★ Power supply indicator of incoming circuit: three-phase monitor,semiconductor energy saving type.
- ★ Busbar of main circuit: copper bar (A/B/C/N/PE) .
- ★ Overall dimensions:1000 *600 *400mm, excluding the foot (130mm) and brim (40mm).
- ★ The material of box body is stainless steel and the thickness of housing is 2.0 mm. The stainless steel legs and inner fixed stiffener can be rotated 180 °. There are doors and rectangular flat lock rainproof hat at the front and back of the box which is assembled by hinges (Duoli locks). The wiring diagram of power supply and principle and safety instructions are attached at the back of the door. There are 7 pieces of 30 mm hole with insulation sleeve at the bottom of the box. There is standby installation position for fuses behind the door or in the box.
- ★ Device fixed support: insulators, armour rods (with heat shrinkable tube).
- ★ Inside wiring: Insulation soft multistrand copper wire (250mm²), Insulation soft multistrand grounding copper wire (250mm²*1*798) .Copper connectors are installed at the end of inlet and outlet wire or connection wire by crimping and the crimping resistance is less than 0.79 Ω.
- ★ Conform to national (GB) or IEC standards.

概述 Overview

DSX电表计量箱分暗箱、明装、户外三类，适用于工矿、宾馆、各种民用建筑中，交流50Hz，电压380/220，三相四线或三相五线供电系统，作为负荷用电计量，具有过载、短路、漏电和过压保护。箱体结构设计采用上、下双门加小门结构，操作区与计量区完全隔离，防止窃电，计量电表可选用智能表、普通表、预付费卡表等，进出线断路器可选用塑壳断路器和模数化微型断路器或组合使用。

DSX electric energy metering box is classified into three types: concealed installation, exposed installation and outdoor and is applicable to the industrial and mining enterprises, hotels and various civil buildings. Used for load metering and protection against overload, short circuit, electric leakage and overvoltage, it is suitable for three-phase four-wire or three-phase five-wire power supply system of which the frequency of alternating current is 50Hz and the voltage is 380/220V. The structural design uses the structure of upper door, lower door and small door and the operation area is completely separated from the measuring area to prevent power stealing. The metering meter can be smart one, ordinary one, prepaid card one, etc. The circuit breaker of inlet and outlet wire can be molded case circuit breaker and modular microcircuit breaker or combined ones.

产品型号含义 Meaning of product type



DSX系列电度表箱分类表 DSX series watt hour meter classification table

型号 Type	安装方式 Installation way	特征 Characteristics
DSX	悬挂式或嵌入式 Hung-type or embedded -type	<ul style="list-style-type: none"> ○ 箱体双门结构，电度表装于上门内，可加锁，开关装于下门内，操作方便。 ○ 箱体采用大门上装小门结构，大门可以加锁，用户开小门操作。 ○ 箱体三门结构，总表装在左门内，户表装在右上侧门内，均可加锁，开关在右下侧门内，用户开门操作。 <p>The box adopts double door structure. The watt hour meter is installed in the upper door and can be locked. The switches are installed in the lower door for easy operation. The box body uses the structure that the small door is installed in the big door and the big door can be locked. The user opens the small door for operation. There are three doors for the box body. The master meter is installed in the left door, the household meter is installed in the door at the right upper side, both can be locked and the switch is installed in the door at the right lower side, users open the door to operate.</p>
DSX	悬挂式或嵌入式 Hung-type or embedded -type	<ul style="list-style-type: none"> ○ 箱体为两门结构，可加锁，开关置于电表右侧箱内；采用有预付费处理单元的智能型电表和用电卡；具有电能计量与电费预付功能；并可防止超负荷用电。 ○ 适用于康居工程民用建筑用户的电能计量，单门结构，门可加锁，与RSPZ系列配电箱配套使用。 <p>The box uses two-door structure, which can be locked. The switch is installed in the box at the right side of the electricity meter. The box adopts smart meters with prepaid processing units and CARDS, has the functions of electric energy metering and prepayment of electricity charges and can prevent overload of electricity. It is suitable for the electric energy metering of the civil building users of Kangju project. It is single-door structure, the door can be locked, and can be used with RSPZ series distribution box</p>
DSX	落地式 Floor-type	<ul style="list-style-type: none"> ○ 适用于公寓式建筑和出租写字楼内用户的电能集中管理；另外可根据需要设计安装脉冲电能表，实现计算机管理。 <p>It is applicable to the centralized management of electric energy for the users in apartment buildings and hired office buildings; In addition, the pulse electric energy meter can be designed and installed according to the needs to realize computer management.</p>

概述 Overview

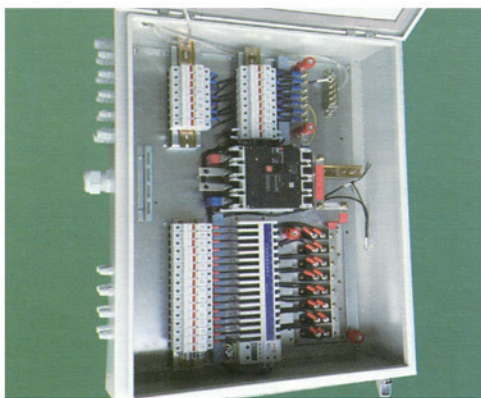
在一个大型的光伏发电系统中，需要数量庞大的光伏电池组件进行串并结合达到需要的电压电流值，以使发电效率达到最高。SL-PV系列智能光伏汇流箱主要作用就是对光伏电池阵列的输入进行一级汇流，用于减少光伏电池阵列接入到逆变器的连线，优化系统结构，提高可靠性和可维护性，SL-PV系列智能光伏汇流箱在提供汇流防雷功能的同时，还可提供光伏电池电流测量、监测光伏电池阵列中电池板运行状态、电池电压、汇流总功率、支路功率、汇流箱防雷器状态采集、直流断路器状态采集、断路器接点输出、带有风速、温度、辐照仪等传感器接口的功能供客户选择，本装置标配RS485接口，可以把测量和采集到的电量数据和设备状态上传到监控系统。



A large photovoltaic power generation system requires a lot of photovoltaic modules to conduct parallel-series combination to reach the required voltage and current value, so as to achieve the highest generation efficiency. The main role of SL - PV series smart convergence box is to converge the input of photovoltaic array. Used to reduce the connection wire that the photovoltaic array gets access to the inverter, optimize the structure of system and improve the reliability and maintainability, SL - PV series smart PV convergence box provides the function of lightning protection current, meanwhile it can provide the function of measuring the photocell current, monitoring the running state of solar panels in photovoltaic array, voltage of cell, the total power of convergence and branch power, collecting the state of lightning protection device of convergence box and AC circuit breaker, output of breaker contact and having sensor interface of wind speed, temperature and irradiance mete . The device is equipped with RS485 interface, which can upload the measured and collected power data and device status to the monitoring system.

执行标准 Executive standards

- ★ CNCACT50001-2011A 《汇流设备技术规范》
Technical specification for convergence equipment
- ★ GB 50797-2012 《光伏电站设计规范》
Design specification for photovoltaic power station
- ★ GB4208-2008 《外壳防护等级》
Protection grade of housing
- ★ GB7251.1-2013 《低压成套开关设备和控制设备 第1部分总则》
Part 1 general rules for complete set of low-voltage switchgear



产品特点 Product features

- ★ 符合《CGC/GF 037: 2014》光伏方阵汇流箱技术规范；
- ★ 防护等级为IP65，满足室内外安装要求；
- ★ 采用霍尔传感器，隔离测量，最大16路输入；
- ★ 采用光伏专用熔断器，耐压DC1kV，熔断电流可选择；
- ★ 可选电压测量功能，最高测量电压DC1kV；
- ★ 可选外部传感器输入接口，可监测辐照、温度、风速等；
- ★ 具有RS485通讯接口，使用ModBus-RTU通讯协议；
- ★ 多种供电方式（DC24V、AC/DC220V、DC880V）可选择，适用于家用屋顶太阳能或专业光伏电站应用；
- ★ 可根据客户需求配用国内外知名品牌厂家的元件。

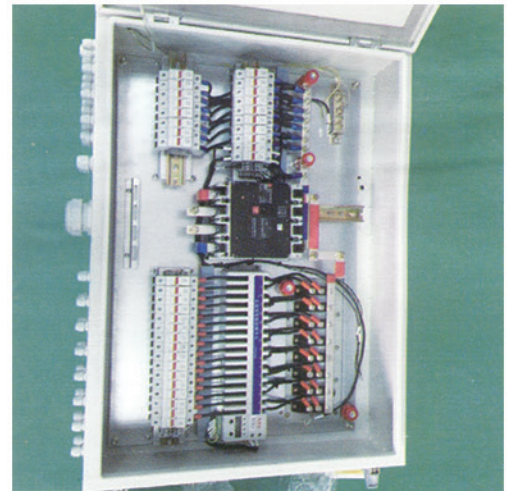
- ★ Conform to CGC/GF037: 2014 technical specification for photovoltaic array convergence box.
- ★ The protection grade is IP 65, which meets the indoor and outdoor installation requirements.
- ★ Use Hall sensor and isolation measurement, maximum 16 input circuits.
- ★ Photovoltaic special fuse is used, the withstand voltage is 1kV(DC) and the fusing current is optional.
- ★ The voltage measurement function is optional and the highest measured voltage is 1kV (DC).
- ★ The external sensor input interface is optional, which can monitor irradiation, temperature, wind speed, etc.
- ★ RS485 communication interface is provided and ModBus-RTU communication protocol is used.
- ★ Many kinds of power supply modes (DC24V, AC/DC220V, DC880V) are optional. It is applicable to the household rooftop solar energy or professional photovoltaic power station.
- ★ The components from famous brand manufacturer at home and abroad can be provided according to customers' requirements.

技术参数 Technical parameters

产品型号 Product type	SL-PV-M4	SL-PV-M8	SL-PV-M12	SL-PV-M16
输入路数 Input circuits	4路	8路	12路	16路
输入范围 Input range	DC±18A			
反应时间 Response time	1s			
测量精度 Measurement accuracy	光伏电池测量0.5级、外部模拟量0.2级 PV measurement: 0.5, external analog: 0.2			
RS485通讯 Communication	RS485/ModBus-RTU协议, 4800/9600/19200/38400bps RS485/ModBus-RTU protocol, 4800/9600/19200/38400bps			
继电器输出 Relay output	2组转换8A/AC250V (8A/DC 30V) 2 groups of conversion			
开关量输入 Digital input	3组外部状态输入 (光耦或干接点方式) 3 groups of external status input(mode of optocoupler or dry contact)			
模拟量输入 Analog input	PT100、DC (4) ~20mA、DC 0~10V			
温度/湿度 Temperature/humidity	工作温度: -25~+60°C, 湿度95%, 无凝露、无腐蚀性气体场所 Working temperature: -25~+60°C, humidity 95% the place free from condensation and corrosive gas			
海拔 Altitude	≤3000m			
绝缘电阻 Insulation resistance	≥100MΩ			
辅助电源 Auxiliary power supply	辅助电源: AC85V~265V或DC300~880V或DC24V (±10%) auxiliary power supply: AC85V~265V or DC300~880V or DC24V (±10%)			
壳体防护等级 Protection grade of housing	IP65			

结构特点与尺寸 Structure features and dimensions

- ★ 内部裸露带电部分采用阻燃、防静电、耐高温的透明罩板防护；
- ★ 进出线断路器平铺于箱体，接线一一对应，降低接错线的可能性；
- ★ 箱体进出线采用高达IP68防护等级的电缆接头；
- ★ 汇流箱内部的导线使用严格按照IEC规范；
- ★ 断路器与箱体底部预留足够大的空间，便于现场接线；
- ★ 采用全铜排可靠连接，表面采用防腐、防氧化能力更强的镀镍处理工艺；
- ★ 采用耐盐雾试验500小时的箱体；
- ★ 可以根据用户要求确定结构型式及外形尺寸。



★ The exposed live part inside is protected by flame retardant, antistatic and high temperature resistant transparent plate.

★ The inlet and outlet wire circuit breaker is tiled in the box, and the wiring corresponds one to one, reducing the possibility of wrong wiring.

★ The inlet and outlet wires of the box are equipped with cable joints with IP68 protection grade.

★ Conductors in the box are used in strict accordance with IEC specifications.

★ Sufficient space is reserved between the circuit breaker and the bottom of the box to facilitate site wiring.

★ All copper bars are used for reliable connection, and the surface is treated by nickel plating process with stronger anti-corrosion and anti-oxidation ability.

★ Adopt the box body which is resistant to salt spray test for 500 hours.

★ The structure type and dimension can be determined according to the user's requirement.

型号说明 Type description

SL - PV - M □ □

输入路数/ input circuits: 4/8/12/16

士林光伏汇流箱系列产品

Shilin PV convergence box series product

应用领域分析 Application analysis

我司的光伏汇流箱具有多种供电方式 (DC880V、AC/DC220V、DC24V) 满足不同应用场合的需求，如：大型光伏电站、分布式发电、家庭屋顶光伏发电、薄膜发电等。通过多汇一的方式，减少了系统连线，提高了系统的可靠性。在大型光伏电站中，汇流箱自带的标准通讯接口可以通过后台软件系统连接，数据上传后，专业维护人员可以实时观察到各个汇流箱的运行状态，如果发生故障，可快速定为故障点。

Our company's photovoltaic convergence box has many kinds of power supply method (DC880V, AC/DC220V and DC24V) to meet the needs of different applications, such as: large-scale photovoltaic power station, distributed power generation, photovoltaic power generation on the household roof, thin film generation, etc. The system connection wire is reduced and the reliability of the system is improved by the method of many converging one. In large-scale photovoltaic power stations, the standard communication interface of the box can be

connected through the background software system. After the data is uploaded, professional maintenance people can observe the running state of each convergence box in real time. If there is a fault, the fault point can be located quickly.

安装与使用 Installation and application

8.1 检查是否有运输损坏

在本产品安装前检查外观是否有破损或变形，同时需检查箱体内部部件是否有松动、脱落或破损情况，如发现有上述异常，请立即停止安装本产品并及时联络本公司，如有可能请提供问题部位照片以便分析处理。

8.2 基本安装要求

本产品的防护等级为IP65，设计安装环境为户外安装，但由于内部安装有较多精密电子元件，故尽量不要放置在潮湿的地方。

Before installation of the product, check if the appearance is damaged or deformed and the internal components is loose, falls off or damaged. If the above abnormalities are found, please stop installing the product immediately and contact the company promptly. If possible, please provide photos in order to analysis.

basic installation requirements

The protection grade of the product is IP65. The designed installation environment is of outdoor installation. However, it should not be put in the damp place as far as possible because a lot of precise electronic components are installed inside.

一、政府基建

Government infrastructure

大连电信局大楼
Dalian telecommunications office building

江苏省政府综合办公室
General office of Jiangsu Provincial Government

江苏省水利厅大楼
Building of Jiangsu Provincial Water Resources Department

江苏省自学考试综合楼
General Building of Jiangsu Provincial Self-Study Examination

上饶市行政中心大楼
Administration center building of Shangrao City

浙江省博物馆
Zhejiang Provincial Museum

南京市公安局101工程
Project 101 of Nanjing Police Station

上海沪南供电综合大楼
General Building of Shanghai Hunan Power Supply

广州总工会大楼
Building of Guangzhou Federation of Trade Unions

湖北襄樊邮电局
Hubei Xiangfan Post Office

湖南长沙新沙邮电局
Hunan Changsha Xinsha Post Office

山东潍坊国土局
Shandong Weifang Land Resource Bureau

山东威海邮电局
Shandong Weihai Post Office

上海世博会
Shanghai World Expo

河南新乡博物馆
Henan Xinxiang Museum

南京国土局
Nanjing Land Resource Bureau

山东武警总队第二支队
The Second Detachment of Shandong Armed Police Corps

二、商业建筑

Commercial Building

南京国展中心
Nanjing National Exhibition Center

上海长城大厦
Shanghai Great Wall Building

江苏华侨国际贸易发展中心
International Trade Development Center of Jiangsu Overseas Chinese

山东新世纪国展中心
Shandong New Century National Exhibition Center

湖北武汉东湖国际会展中心
Hubei Wuhan East Lake International Exhibition Center

大连会议中心
Dalian Conference Center

东莞市恒业物业投资有限公司
Dongguan Hengye Property Investment Co., Ltd

上海东方金融广场
Shanghai Oriental Finance Square

山东寿光富地中心
Shandong Shouguang Fudi Center

南京青奥会
Nanjing Youth Olympic Games

招商局地产（南京）有限公司
China Merchants Real Estate (Nanjing) Co., Ltd

广西柳州阳光100
Guangxi Liuzhou Sunshine 100

西柳中国商贸城
Xiliu China Shopping City

北京国贸大厦
Beijing International Trade Building

北京鸿源大厦
Beijing Hongyuan Building

北京东黎广场
Beijing Dongli Square

北京曼克顿广场
Macton Square, Beijing

广州金利来大厦
Guangzhou Golden Building

珠海凤凰山庄
Zhuhai Phoenix Villa

宁波联盛广场
Ningbo Liansheng Square

三、文化传媒

Cultural Medium

广州日报社
Guangzhou Daily

南京大学
Nanjing University

江西师范大学
Jiangxi Normal University

华中科技大学
Huazhong University of Science and Technology

扬州财政局大学
Yangzhou University of Finance Bureau

扬州市政府大学
Yangzhong University of Government
成都中医药大学
Chengdu University of Traditional Chinese Medicine
江苏国际关系学院
Jiangsu Institute of International Relations
江苏财政技术学院
Jiangsu Colleague of Financial Technology
张家港大学城
Zhangjiagang University Town
北京交通大学
Beijing Jiaotong University
北京舞蹈学院
Beijing Dance Academy
南京市附中树人学校
High School Affiliated to Nanjing Normal University Shuren Campus
张家港大学城
Zhangjiagang University Town
南京师范大学新教学楼
New Teaching building of Nanjing Normal University
苏州外国语学院
Suzhou Foreign Language School
徐州建筑职业技术学院
Jiangsu Vocational Institute of Architectural Technology
江苏自学考试综合楼
General Building of Jiangsu Provincial Self-Study Examination
南京水佐岗小学
Nanjing Shuizaogang Primary School
常州报业传媒大厦
Changzhou Press Media Building

江苏熔盛重工集团
Jiangsu Rongsheng Heavy Industry Group
天津新港船厂
Tianjing Xingang Shipyard
福建泉州船舶有限公司
Fujian Quanzhou Shipping Co., Ltd
江南造船厂
Jiangnan Shipyard
天津华港船厂
Tianjing Huagang Shipyard
浙江东邦造船厂
Zhejiang Dongbang Shipyard
浙江金港船业
Zhejiang Jingang Shipping Industry
辽宁葫芦岛船舶重工
Liaoning Huludao Shipbuilding Industry
浙江舟山金海港
Zhejiang Zhoushan Jinhai Port
江苏海兴船务重工有限公司
Jiangsu Haixing Shipping Heavy Industry Co., Ltd
浙江德兴船舶工业
Zhejiang Dexing Shipping Industry
广州新中国船厂小虎岛造船基地
Xiaohudao shipbuilding base of Guangzhou New China shipyard
启东丰顺船舶重工有限公司
Didong Fenshun shipping Heavy Industry Co., Ltd
舟山长宏国际船舶修造公司
Zhoushan Changhong International Ship Repair and Construction Company
南通太平洋海洋工程有限公司
Nantong Pacific Ocean engineering Co., Ltd

四、造船、汽车 Shipbuilding and Automobile

海南三亚核潜艇基地维修中心
Maintenance Center of Hainan Sanya Nuclear Submarine base
辽宁葫芦岛核潜艇基地维修中心
Maintenance Center of Liaoning Huludao Nuclear Submarine base
江苏启东造船厂
Jiangsu Qidong Shipyard
南通中远造船厂
Nantong Cosco Shipyard
中船长兴造船基地
CSSC Changxing Shipbuilding Base
山海关船舶重工
Shanhaiguang Shipbuilding Industry

五、发电系统 Power Generation System

云南大唐红河发电有限公司
Yunnan Datang Honghe Power Generation Co., Ltd
福建惠安水电安装公司
Fujian Huian Water and Electricity Installation Company
福建建瓯北津水电开发有限公司
Fujian Jianou Beijin hydropower Development Co., Lt
湖北襄樊电厂
Hubei Xiangfan Power Plant
湖南石门电厂
Hunan Shimen Power Plant
新疆鸿雁发电厂
Xinjiang Hongyan Power Plant

新疆库尔勒热电厂
Xinjiang Kuerbo Thermal Power Plant

新疆伊犁热电厂
Xinjiang Yili Thermal Power Plant

内蒙古元宝山电帮
Inner Mongolia Yuanbaoshan Power Plant

内蒙古达拉旗特电厂
Inner Mongolia Dalad Banner Power Plant

云南曲靖电厂
Yunnan Qujing Power Plant

重庆电厂
Chongqing Power Plant

福建寿宁牛头山水电站
Fujian Shouning Niutoushan Hydroelectric Power Station

广西城防港电厂
Guangxi Chengfanggang Power Plant

河南平顶山电厂
Henan Pingdingshan Power Plant

扬州第二发电厂
Yangzhou 2nd Power Plant

苏州望亭电厂
Suzhou Wangting Power Plant

宜兴发电厂
Yixing Power Plant

南通天生港电厂
Nantong Tianshenggang Power Plant

连云港田湾核电站
Lianyungang Tianwan Nuclear Power Plant

准格尔旗伊东热电
Jungar Banner Yidong Thermal Power Plant

广州新塘热电厂
Guangzhou Xintang Thermal Power Plant

贵州北盘江董箐发电厂
Guizhou Beipanjiang Dongqing Power Plant

南海发电一厂
Nanhai First Power Plant

新疆奎屯景疆热电有限公司
Xinjiang Huitun Jingjiang Thermal electric Co., Ltd

恭城澄江水利发电有限公司
Gongcheng Chengjiang Hydropower Generation Co., Ltd

浙江青田三溪口水电站
Zhejiang Qingtian Shanxikou Hydroelectric Power Station

六、城市电力、新能源 Urban Electricity and New Energy

江苏省电力公司
Jiangsu Electric Power Company

安徽省电力公司
Anhui Electric Power Company

河南省电力公司
Henan Electric Power Company

湖北省电力公司
Hubei Electric Power Company

江西省电力公司
Jiangxi Electric Power Company

山西省电力公司
Shanxi Electric Power Company

长沙市电力局
Changsha Electric Power Bureau

常州新誉重工科技有限公司
Changzhou Xinyu Heavy Industry Science & Technology Co., Ltd

吉林新誉新能源技术有限公司
Changzhou Xinyu New Energy Technology Co., Ltd

河北金宏太阳能科技有限公司
Hebei Jinhong Solar Energy Science & Technology Co., Ltd

山东舜亦新能源有限公司
Shandong Shunyi New Energy Co., Ltd

东方电气集团(宜兴)迈吉太阳能有限公司
Dongfang Electric Group(Yixing) Maiji Solar Energy Co., Ltd

江苏中能硅业科技发展有限公司
Jiangsu Zhongneng Silicon Industry Science & Technology Co., Ltd

江苏河海新能源有限公司
Jiangsu Hehai New Energy Co., Ltd

苏州市鼎天节能科技有限公司
Suzhou Dingtian Energy-Saving Science & Technology Co., Ltd

包头市山晟新能源有限公司
Baotou Shansheng New Energy Co., Ltd

七、汽车、电子 Automobile and Electronics

富士康企业集团(深圳、烟台、太原、郑州、南宁、重庆、成都...)
Foxconn Enterprise Group(Shenzhen, Yantai, Taiyuan, Zhengzhou, Nanning, Chongqing, Chengdu...)

陕西中电精泰电子工程有限公司
China Kingtek Electronics Engineering Co., Ltd

紫光捷通电子科技有限公司
Ziguang Jietong Electronic Science & Technology Co., Ltd

上海精奥通信技术有限公司
Shanghai Jingao Communication Technology Co., Ltd

宏华胜精密电子(烟台)有限公司
Honghuasheng Precision Electronics(Yantai) Co., Ltd

路德通电子(北京)有限公司
Ludetong Electronics(Beijing) Co., Ltd

鸿富锦精密工业（深圳）有限公司
Hongfujin Precision Industry(Shenzhen) Co., Ltd
亚翔系统集成科技（苏州）有限公司
L&K Engineering (Shenzhen) Co., Ltd
深圳昌恩电子有限公司
Shenzhen Changen Electronics Co., Ltd
苏州益嘉电子有限公司
Suzhou Yijia Electronics Co., Ltd
南京熊猫电子
Nanjing Panda Electronics
广州丰田
Guangzhou Toyota
上海大众
SVW
江苏久工重型机械股份有限公司
Jiangsu Jiugong Heavy Machinery Co., Ltd
遂宁市东乘车辆有限公司
Suining Dongchen Vehicle Co., Ltd
沈阳华晨宝马新工厂汽车分拨中心
Car Distribution Center of Shenyang BMW Brilliance New Factory
陕西通力专用汽车有限责任公司
Shaaxi Tongli Special Purpose Vehicle Co., Ltd
南阳机车张家港有限公司
Nanyang Locomotive(Zhangjiagang) Co., Ltd

八、医院、酒店 Hospital and Hotel

山东临沂人民医院北城新区医院
Beicheng Hospital of Shandong Linyi People's Hospital
山东日照人民医院
Shandong Rizhao People's Hospital
扬州市中医院
Yangzhou TCM Hospital
南京市人民医院
Hsinking People's Hospital
无锡市第三人民医院
Wuxi Third People's Hospital
镇江江滨医院
Zhenjiang Jiangbin Hospital
广州佰易药业有限公司
Guangzhou Baiyi Pharmaceutical Co., Ltd
绵阳梓潼县人民医院
People's Hospital of Mianyang Zitong County
南京新城市广场酒店
Nanjing New City Plaza Hotel
河西皇冠国际大酒店
Hexi Crown International Hotel

南昌前湖迎宾馆
Nanchang Qianhu Hotel
新疆百花春大酒店
Xinjiang Baihuachun Hotel
新疆天山国际大酒店
Xinjiang Tianshan International Hotel

九、玻璃、钢铁 Glass and Steel

秦皇岛玻璃工业设计院
Qinhuangdao Glass Industry Design Institute
河北迎新玻璃集团
Hebei Yingxin Glass Group
湖北德金玻璃集团
Hubei Dejin Glass Group
河北大光明集团嘉晶玻璃有限公司
Hebei Daguangming Group Jiajing Glass Co., Ltd
杭州建新浮发玻璃工业有限公司
Hangzhou Jianxin Fufa Glass Industry Co., Ltd
沙河德全玻璃有限公司
Shahe Dequan Glass Co., Ltd
石家庄玉晶玻璃有限公司
Shijiazhuang Yujing Glass Co., Ltd
河北鑫磊玻璃有限公司
Hebei Xinlei Glass Co., Ltd
山东台玻集团
Shandong Taiwan Glass Group
安徽蚌埠市汇有玻璃技术有限公司
Anhui Bengbu Huiyou Glass Technology Co., Ltd
南京南宇玻璃制造有限公司
Nanjing Nanyu Glass Manufacturing Co., Ltd
四川成都玻璃厂
Sichuan Chengdu Glass Factory
山东富伦钢铁有限公司
Shandong Fulun Steel Co., Ltd
内蒙古包钢钢联股份有限公司
Inner Mongolia Baogang Ganglian Limited-Liability company
山西太原钢铁厂
Shanxi Taiyuan Steel Co., Ltd
南通宝钢钢铁有限公司
Nantong Baosteel Co., Ltd
南昌洪都钢厂
Nanchang Hongdu Steel Factory

十、化工 Chemical Industry

内蒙古华庆集团煤化有限责任公司
Inner Mongolia Huaqing Group Coal Chemical Co., Ltd
内蒙古华庆集团腾格里精细化工
Inner Mongolia Huaqing Group Tengri Fine Chemicals
绍兴明业化纤有限公司
Shaoxing Mingye Chemical Fiber Co., Ltd
内蒙古化肥厂
Inner Mongolia Chemical Fertilizer Plant
山西河润化肥厂
Shanxi Hejian Chemical Fertilizer Plant
河南安阳化肥厂
Henan Anyang Chemical Fertilizer Plant
淮安淮南化肥厂
Huai'an Huai Nan Chemical fertilizer Plant
河北邢广硅业科技有限公司
Hebei Xingkuang Silicon Industry Science & Technology Co., Ltd
中盐新干盐化工有限公司
New Dry Salt Chemical Co., Ltd of China Salt Industry
四川瑞能硅材料有限公司
Sichuan Ruineng Silicon Material Co., Ltd
泰兴中能远东硅业有限公司
Taixing Zhongneng YuanDong Silicon Industry Co., Ltd
湖北天能福临化工有限公司
Hubei Tianneng Fulin Chemical Co., Ltd
江苏协鑫硅材料科技发展有限公司
Jiangsu Xiexin Silicon Material Science & Technology Development Co., Ltd
江苏中能硅业科技发展有限公司
Jiangsu Zhongneng Silicon Science & Technology Development Co., Ltd

十一、工矿企业 Industrial and Mining Enterprises

泰钢集团岚县矿业有限责任公司
Lanxian Mining Co. LTD of Tisco group
无锡东员机电有限公司
Wuxi Dongyuan Electro machinery Co., Ltd
苏州泰安科技有限公司
Suzhou Taian Science & Technology Co., Ltd
包头铝业有限责任公司
Baotou Aluminum Co., Ltd
江苏久工重型机械股份有限公司
Jiangsu Jiugong Heavy Machinery Co., Ltd

苏州德尔格环保设备有限公司
Suzhou Delge Environmental Protection Equipment Co., Ltd
浙江海宁开关厂
Zhejiang Haining Switch Factory
泰山煤矿机械有限公司
Taishan Coal Mine Machinery Co., Ltd
南通棉花机械有限公司
Nantong Cotton Machinery Co., Ltd
扬州市秦邮特种金属材料有限公司
Yangzhou Qinyou Special Metal Materials Co., Ltd
安徽天长市天桥仪表线缆有限公司
Anhui Tianchang Tianqiao Instrument Cable Co., Ltd
江苏洋河酒厂
Jiangsu Yanghe Winery
荆州市阳金新业机械制造有限公司
Jingzhou Yangjinxinye Machinery Manufacturing Co., Ltd
昆山威立设备技术有限公司
Kunshan Wei Li Equipment Technology Co., Ltd
张家港扬子江冷轧板有限公司
Zhangjiagang Yangzijiang Cold rolling Plate Co., Ltd
常发制冷股份有限公司
Changfa Refrigeration Co., Ltd
河南中州铝厂
Henan Zhongzhou Aluminum Plant
安徽日立挖掘机厂
Anhui Hitachi excavator Factory

十二、其它 Others

南昌印钞厂
Nanchang Banknote Printing Plant
南京造币厂
Nanjing Mint
深圳王老吉饮料厂
Shenzhen Wanglaoji Beverage Factory
广东清远加多宝饮料有限公司
Guangdong Qingyuan Jiaduobao Beverage Co., Ltd
镇江索普集团
Zhenjiang Thorp Group
上海中华铅笔厂
Shanghai Zhonghua Pencil Factory
中交一航局三公司
The Third Engineering Co., Ltd of CCCC First Harbor Engineering Co., Ltd
江西晨鸣纸业
Jiangxi Chenming Paper Industry

中交第四公路工程局有限公司
CCCC Fourth Highway Engineering Co., Ltd
中国建筑股份有限公司
China State Construction Engineering Corporation
山西中铁十启局
China Railway 17th Bureau, Shanxi
中建安装工程公司
Installation Engineering Company of China State Construction
广东省工业设备安装工程公司
Guangdong Industrial Equipment Installation Engineering Co., Ltd
广州市机电安装工程公司
Guangzhou Electromechanical Installation Engineering Co., Ltd
中建五局工业设备安装有限公司
Industrial Equipment Installation Co., Ltd of CCEFB
中国三冶集团电气安装有限公司
Electric Installation Co., Ltd of China Third Metallurgic Group
中交一航局安装工程公司
Installation Engineering Company of CCCC First Harbor Engineering
Co., Ltd
中铁十二局集团电气化工程有限公司
Electrification Engineering Co., Ltd of China Railway 12th Bureau
Group
中核华泰建设有限公司
China Nuclear Huatai Construction Co., Ltd
江苏中大建设集团
Jiangsu Zhongda Construction Group
河北建工集团
Hebei Construction Engineering Group
中国水电建设集团国际工程公司
International Engineering Company of Sinohydro Group
中建四局集团
China Construction Engineering Fourth Bureau Group



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