1. 概 述 General

XGNS8-12 系列开关柜是一种可扩展的环保气体绝缘金属封闭开关设备，电压等级为 12kV。一次高压所有的带电部分完全密封在由 3mm 厚不锈钢板焊接而成的气箱内，体积小巧。整个开关装置不受外部环境的影响，可以确保运行安全可靠，并实现了免维护。通过插接式扩展母线 ,实现任意组合 ,达到全模块化。适合终端用户或网络节点的要求 ,同时满足各种配电开闭所、箱式变电站、电缆分支箱的需要，具有结构紧凑、安全可靠、寿命长、免维护等特点。

XGNS8-12 series switchgears are environment-friendly gas-insulated metal-enclosed switchgears which are extensible and with a rated voltage of 12kV. All live parts with primary high voltage are fully sealed inside the gas chambers that are welded by 3mm thick stainless steel plates, reducing the overall volume of the equipment. The switchgear runs stably, free from the affecting from ambient environment and without the need of maintenance. The product achieves full modular–arbitrary combination– through plug-in extensible bus, making it suitable for requirements of end users and meeting the needs of various network nodes, box-type substations and power cable branch boxes. And the products are featured with compact structure, safe and reliable operation, long service life and little maintenance.

2. 产品特点 Product Features

- 绿色环保；
- 不使用 SF_6 气体绝缘作为灭弧及绝缘，全氮气绝缘，真空灭弧；
- 只使用可重复使用或可回收使用的材料。

- Environment Protection ;
- Fully nitrogen insulation and vacuum arcing, not using SF_6 gas insulation as arcing and insulation ;
- Only using reusable or recyclable materials .

3. 结构优点 Structure Advantages

- 所有一次带电部分及主要传动元件完全密封于金属封闭气箱中，所有隔室的设计均遵循外部可安全触摸的理念；
- 柜体设计紧凑，占地面积小，最小柜体尺寸仅为 400mm；
- 模块化设计，扩展一个或多个功能单元的产品只需通过在主母线上添加可扩展固体母线即可实现，固体母线完全绝缘和屏蔽，并且可在现场扩展安装；
- 标准的燃弧通道设计，一旦内部燃弧万一发生，开关可通过泄压通道引导内部燃弧泄压，可为工作人员提供最大的安全性，并尽可能控制故障范围，将开关设备其余隔室的破坏降到最低；
- 使用安全、方便；
- 操作面板清晰、简单易懂；
- 用户操作界面及电缆接线均位于柜体前端，方便用户运行维护；
- 通过前面板观察窗可观察隔离开关接地与隔离位置；

- 密封隔室设计有效避免误入带电间隔；
- 完善的机械及电气互锁，有效避免误操作；
- 电缆安装空间大，便于安装；
- 免维护，运行成本低；
- 采用免维护的真空断路器或真空负荷开关；
- 一次高压元件永久密封于气箱内；
- 无需 SF_6 压力检查；
- 用真空断路器替代熔断器 + 负荷开关的变压器保护方式，保护性能更好，可靠性更高，能耗极低，减少运行维护费用，并可实现电网的自我修复功能，真正实现电网的配电自动化功能。

- All primary live parts and main transmission components are fully sealed inside metal enclosed gas chamber, and all compartments are designed to ensure safe touches from the outside;
- The cabinet is designed with a compact structure and a small floor area; and the minimum part is only 400mm;
- Modular design, adding extensible solid bus to extend one or more functional units, solid bus fully insulated and shielded, available for on-site extension installation;
- Standard arc-channel design, once internal arcing event occurs, internal arcing can be guided through voltage releasing channels to ensure the safety of operation personnel and limit the fault consequences, reducing the damage to other compartments;
- Safe and convenient operation;
- Operator panel is clear and easy to understand;
- Operation interface and cable connections are located on the front side of the cabinet, making it easy for operation and maintenance;
- Through front observation window, grounding conditions and isolation positions can be observed;
- The design of sealed compartments can effectively avoid entering when it is in electrifying state;
- Complete mechanical and electrical interlocks, effectively avoiding faulty operations;
- Large cable installation space, easy for installation;
- Maintenance-free, low operating costs;
- Use vacuum circuit breakers or vacuum load switches that are maintenance-free;
- Primary high voltage components are permanently sealed inside the gas chamber;
- Without the need for SF_6 pressure check;
- Replacing the mode of fuses and transformers with vacuum circuit breakers for transformer protection has better protection performance-higher reliability, lowest energy consumption and lower operation and maintenance costs, and can achieve the self-repair function of power grid, achieving the function of automatic power distribution.

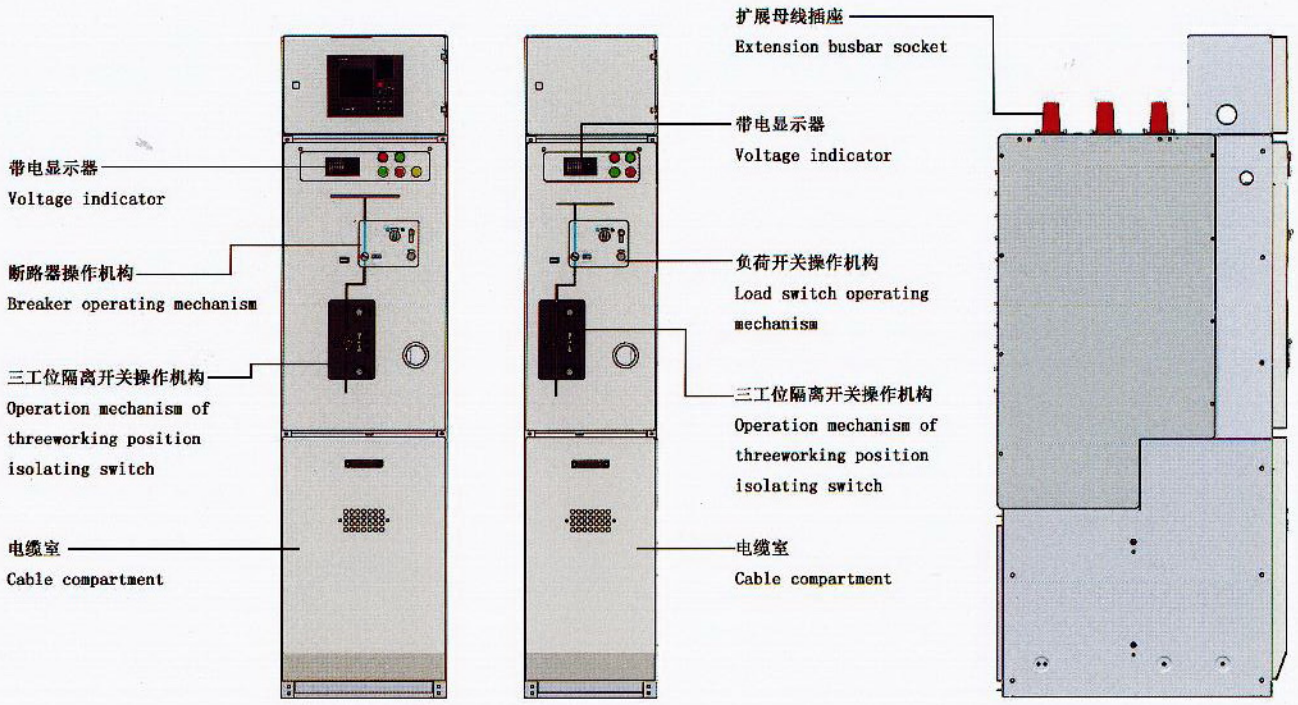
8. 技术数据 Technical Data

负荷开关柜、断路器柜的电气参数 Electrical Parameters Of Load Switch And Circuit Breaker

序号 S/N	名称 Name	单位 Unit	参数 Parameter	
			C：负荷开关柜 C：Load switch	V：断路器柜 V：Circuit breaker
1	额定电压 Rated voltage	kV	12	
2	额定电流 Rated current	A	630	630/1250
3	额定频率 Rated frequency	Hz	50	
4	1min 工频耐受电压（有效值）（相间、对地 / 断口）1min power frequency withstand voltage（RMS）（phase to phase，to earth/Disconnector）	kV	42/48	
5	雷电冲击耐受电压（有效值）（相间、对地 / 断口）Lightning impulse withstand voltage（RMS）（phase to phase，to earth/Disconnector）	kV	75/85	
6	额定短时耐受电流 / 短路持续时间 Rated short time withstand current/ time of duration	kA/s	20/4、25/4	20/4、25/4
7	额定峰值耐受电流 Rated peak withstand current	kA	50、63	50、63
8	额定短路关合电流（峰值）Rated short circuit making current（peak）	kA	50、63	50、63

序号 S/N	名称 Name	单位 Unit	参数 Parameter	
			C：负荷开关柜 C : Load switch	V：断路器柜 V : Circuit breaker
9	额定短路开断电流 Rated short circuit breaking current	kA		20、25
10	额定电缆充电开断电流 Rated cable charging breaking current	A	25	
11	额定操作顺序 Rated operation sequence			O-0.3s-CO-180s-CO
12	机械寿命 Mechanical endurance class	次 Times	10000	
13	三工位隔离开关机械寿命 Mechanical endurance class 3-position disconnector	次 Times	5000	
14	充气壳体防护等级 Protection degree of gas-filled tank	IP	67	
15	机构室、仪表室、电缆室防护等级 Protection degree of mechanism compartment、instrument compartment and compartment	IP	4X	
16	内部燃弧等级（IAC） Internal arc classification（IAC）	kA/s	25/0.5	
17	额定绝缘气体 N2 工作压力（0m，20℃，表压） Rated working pressure of insulation medium N2，0m，20℃，gauge	MPa	0	
18	年漏气率 Leakage rate per year	MPa	≤0.1%	

9. 标准柜型 Standard Type



V柜 V cabinet　C柜 C cabinet

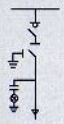
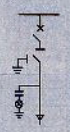
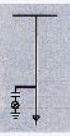
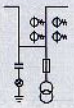
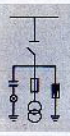
10. 断路器的继电保护 Protection Of Circuit Breaker Cabinet

- XGNS8-12 断路器柜用于变压器、电机、总线及线路保护的功能。
- XGNS8 提供了的保护方式为断路器 + 继电器保护。
- 继电器保护方式有两种：自供电数字继电器型、微机保护监控装置。

- XGNS8-12 circuit breaker cabinet is used for protection of transformer , motor , main circuit and feeder lines.
- XGNS8 is protected with both circuit breaker and relay.
- The relay protection has two variants, i.e. self-powered digital relay and microprocessor protection monitor.

11. 标准柜型及使用选型 Standard Cabinet Explanation And Selection

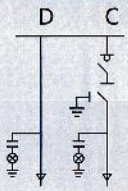
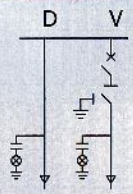
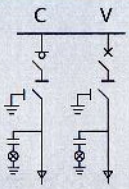
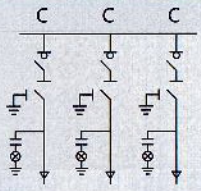
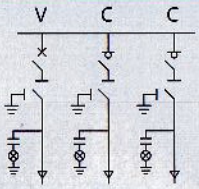
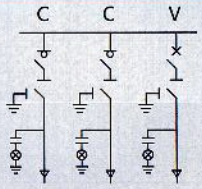
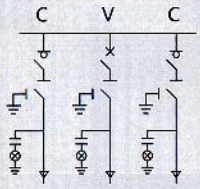
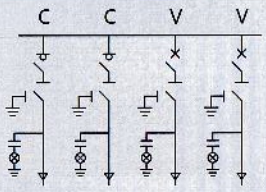
11.1 单箱式柜型 Single Panel Model

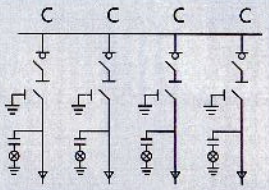
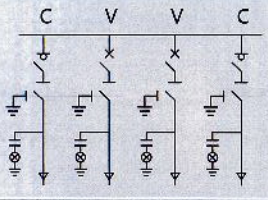
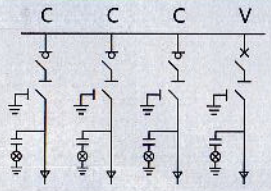
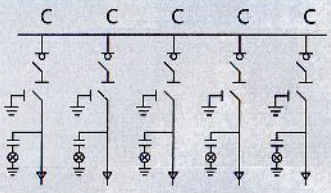
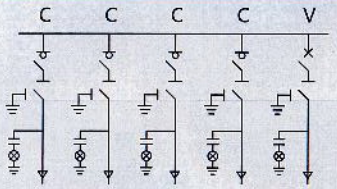
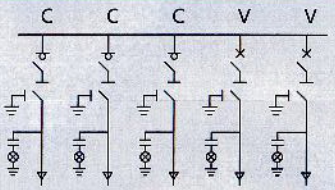
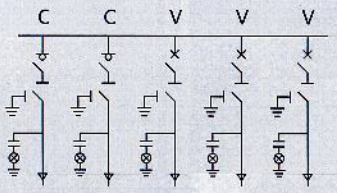
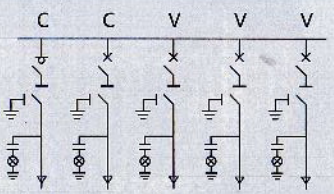
序号 No.	型号 Type	名称 Panel	一次方案图 Primary Diagram	外形尺寸 Dimension (W×D×H mm)	备注 Remark
1	XGNS8-C	负荷开关柜 Load break switch panel		400×890×2000	接通或断开进出线电缆与母线的连接，可使进出线电缆三相同时接地，并具有带负荷关合能力 For switching on or off between in/out Cable and busbar,Three phases of in/out Cable enable earthing at the same time,and capable of on-load making
2	XGNS8-V	断路器柜 Circuit breaker panel		400×890×2000 500×890×2000	用于出线柜 (线路、电机、变压器保护) 400mm：额定电流 630A 500mm：额定电流 1250A For outgoing panel (protection for feeder , motor and transformer) 400mm : Rated current 630A 500mm : Rated current 1250A
3	XGNS8-B	母线分段柜 Busbar subsection panel		550×890×2000	用于母线的联络，可扩展为断路器方式 For busbar connection and subsection , two extendible options (load break switch and circuit breaker)
4	XGNS8-D	提升柜 Hoisting panel		400×890×2000	用于进出线电缆的连接 For cable connection , two options (gas isolated and air isolated)
5	XGNS8-M	计量柜 Metering panel		650×890×2000	用于电能计量 For metering power consumption
6	XGNS8-PT	PT 柜 PT panel		600×890×2000	监测本段母线电压、提供失压信号 For monitoring voltage of busbar , providing voltage lose signal
7	XGNS8-P	电源柜 Power panel		500×890×2000	提供电源 Provide power

11.2 共箱式柜型 Block Model

我们提供以下 16 种标准组合：

There are 16 kinds of standard combination model for selection as below :

方案号 Scheme No.	01	02
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	800×890×2000	800×890×2000
方案号 Scheme No.	03	04
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	800×890×2000	1200×890×2000
方案号 Scheme No.	05	06
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	1200×890×2000	1200×890×2000
方案号 Scheme No.	07	08
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	1200×890×2000	1600×890×2000

方案号 Scheme No.	09	10
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	1600×890×2000	1600×890×2000
方案号 Scheme No.	11	12
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	1600×890×2000	2000×890×2000
方案号 Scheme No.	13	14
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	2000×890×2000	2000×890×2000
方案号 Scheme No.	15	16
一次接线图 Primary Line		
宽 × 深 × 高 W×D×H	2000×890×2000	2000×890×2000

备注：1. 若开关手动操作，去掉仪表室，整体高度为 1900mm. 2. 如有其它需求，请与我们联系。

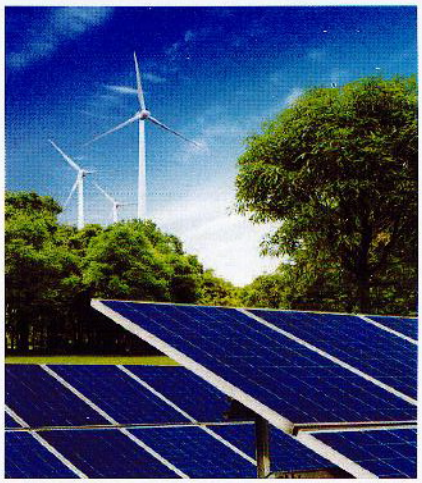
Remark : 1. If the switch is under manual operation, the instrument room shall be removed, and the overall height is 1900mm. 2. If any other requirement , please contact us.

12.3 验收试验及投入运行前的准备工作 Acceptance Test And Preparations Before Operation

试验项目 Test Items

- 外观检查。
- 主回路电阻测量。
- 元件试验。
- 主回路绝缘试验。
- 辅助回路绝缘试验。
- 联锁试验。

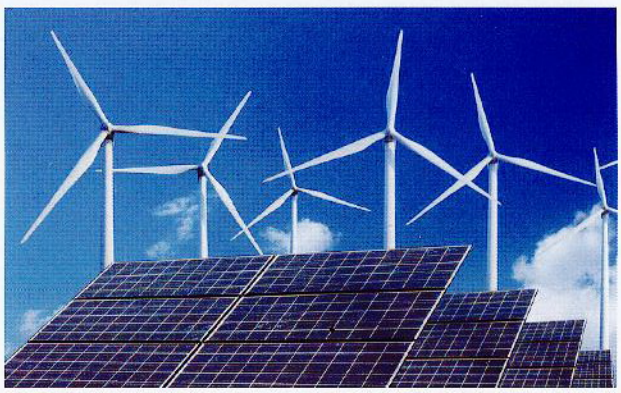
- Appearance check.
- Main circuit resistance measuring.
- Component test.
- Main circuit insulation test.
- Auxiliary circuit insulation test.
- Interlock test.



投入运行准备工作 Preparations Before Commissioning

- 接通控制、信号、照明等电源。
- 在其他开关设备的负荷开关、隔离开关、真空开关等处于分闸状态时，给主母线送电，按规定操作程序使进线柜投入运行。
- 依次合上馈线柜断路器，检查电流表是否正确。

- Turn on the power supply of control , signal , and lighting.
- When the load switch , ddisconnector and vacuum switch in other switchgears are in opening state , transmit power to the main busbar , and put the incoming cabinet into operation according to the specified operation procedure.
- Turn on the circuit breakers of the outgoing cubicle in turn , check the ammeter.



12.4 维护与检修 Maintenance And Overhaul

维护项目和周期如下：

巡视检查：对运行中的充气柜进行外观检查，主要检查设备有无异常情况，并做好各种参数纪录。

定期检查：每年进行一次，或按实际情况而定。充气柜处于全部或部分停电状态下，专门组织的维修检查，充气壳体内部无需检查，仅对充气壳体外部的操作机构、辅助开关等进行全面检查和维护。

临时性检查：负荷开关、断路器达到规定的开断次数或累计开断电流值时；当发现有异常现象或充气柜内部发生故障时；应及时与制造厂协商返修或更换。

The maintenance project and cycle are as follows :

Patrol and inspection : inspect the appearance of the running gas-filled cabinet, notably inspect whether there is anything wrong with the equipment and make parameter record.

Periodic inspection : once a year , or decided according to the actual situation.the inspection is arranged when the gas-filled cabinet is total or partial power cut. it is unnecessary to check the internal part of the gas-filled enclosure.

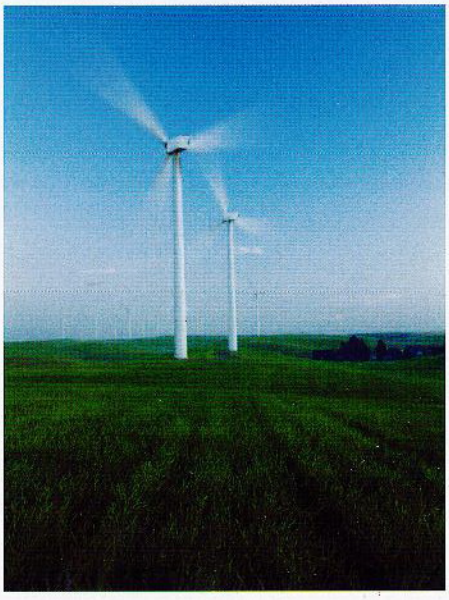
Interim inspection : when a load switch or a breaker reaches the specified breaking times or the accumulative breaking current; when any abnormality is found or there is any failure in an inflatable switchgear. negotiate with the manufacturer for timely repair or replacement.

13. 运输与保管 Transportation And Storage

- 产品经出厂检验合格后可进行包装和发运。
- 包装时，产品用螺栓固定在底盘上，运输过程，只准直立放置，不准倒置、倾翻、翻滚、掉下。
- 产品在安装前，应以原包装存放在库房中，如不能入库房，应防雨淋，防受潮，不得随意拆卸电器元件及零部件。

- After passing the factory test , the products can be packed and shipped , When packing , the products should be fixed on
- the chassis by bolt.During the transportation , the products can only stand on end and should not roll over or drop down.
- Before installation , the original packages of the products should be kept in the storage , If they can not be put in the storage , they should protect against rain and moisture.The electrical components and spare parts should not be dismounted at discretion.

14. 随机文件 Attached Document



- 产品合格证
- 产品说明书
- 二次施工接线图
- 技术协议中规定的其他文件
- 装箱单

- Certificate of approval for the products.
- Instructions of the products.
- Secondary construction wiring diagram.
- Other documents specified in the technical protoco.
- Packing list.

15. 订货须知 Notes Order

- 主接线方案编号及单线系统图，平面布置图。
- 二次回路原理图，端子排列图，如端子无排列图时按制造厂规定。
- 电缆及电缆终端应在订货时确定其规格、型号。
- 开关柜使用在特殊环境条件，应在定货时提出并与制造厂协商。
- 需要备件、附件时，应提出其名称和数量。

- Major connection scheme number and single line systematic diagram , layout chart.
- Secondary circuit schematic diagram , Terminal arrangement diagram , if not include , according to the specification of the manufacturer.
- Cable and cable termination,s specification and type should be confirmed when ordering.
- If the switchgear is used in special environment , the customer should negotiate with the manufacturer when ordering.
- If spare parts or accessories are in need , the customer should speak out its name and quantity.

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