科迅安电气
KE XUN AN DIAN QI

YB□-12/0.4-630

户外预装式变电站（欧式）

Outdoor prefabricated
Substation (European type)

YB □-12/0.4-630 outdoor prefabricated substations (European style) are widely used in urban power grid renovation, residential communities, high-rise buildings, industrial and mining, hotels, shopping malls, airports, railways, oil fields, docks, highways, and temporary electrical facilities, both indoors and outdoors.

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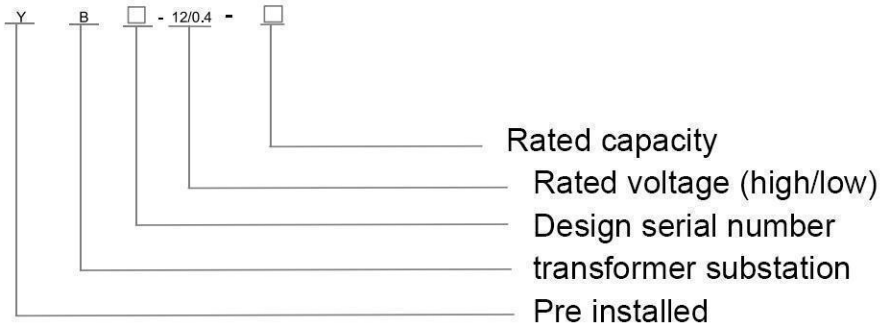
型号含义 Moedl meaning



使用条件 Working conditions

- The altitude does not exceed 2000m;
- Environmental temperature: -25 ℃~+40 ℃;
- Relative temperature: At 25 ℃, the daily average value shall not exceed 95%, and the monthly average value shall not exceed 90%:
- Installation location: A place without fire, explosion hazards, conductive dust, chemical corrosive gases, and severe vibrations. If the above conditions are exceeded, users can negotiate with our company

功能特点 Function features

- High voltage switchgear, distribution transformers, low-voltage switchgear, energy metering equipment, and reactive power compensation devices are combined according to a certain scheme, and the complete set is strong;
- Complete high and low voltage protection, safe and reliable operation, and simple maintenance;
- Small footprint, low investment, short production cycle, and convenient mobility;
- Flexible and diverse wiring schemes;
- Unique structure: The unique honeycomb structure has a double-layer (composite plate) outer shell that is sturdy, heat-insulating, ventilated, aesthetically pleasing, and has a high level of protection. The outer shell materials include stainless steel alloy, aluminum alloy, cold-rolled plate, and color steel plate;
- Diverse types: universal, villa, compact, and more;
- The high-voltage ring main cabinet can be equipped with network automation terminals (FTUs) to achieve reliable detection of short circuits and single-phase grounding faults, and has the "four remote" function for easy upgrading of distribution network automation

变压器 Transformer

The intelligent integrated substation adopts low loss, oil immersed, fully sealed S9, S10, and S11 series transformer, and can also choose resin insulated or NOMEX paper insulated environmentally friendly dry-type transformers. The bottom can be equipped with a small car, and the transformer can be easily accessed and exited.

高压侧 High voltage side

The high-voltage side of intelligent integrated substations is generally protected by a load switch fuse combination electrical device. After one phase of the fuse is fused, the three-phase linkage is tripped. The load switch can be selected in various forms such as compressed air, vacuum, and sulfur hexafluoride, and can be equipped with an electric operating mechanism to achieve automatic upgrading; The fuse is a high-voltage current limiting fuse with an impact device, which is reliable in operation and has a large breaking capacity. The main technical parameters are shown in the table below. For transformers above 800KVA, vacuum circuit breakers such as ZN12, ZN28, and VS1 can be used for protection.

低压侧 Low voltage side

The low-voltage side main switch adopts universal or intelligent circuit breakers for selective protection: the outgoing switch adopts a new type of plastic shell switch with small volume and short arc, up to 30 circuits; The intelligent automatic tracking device is free of charge, with two switching methods available for users to choose from: contact and contactless.

执行标准 Execution standards

This product meets the following standards:

GB/T17467-1998 《High voltage/low voltage prefabricated substations》

DL/T537-93 《Technical Conditions for Ordering 6-35KV Box Substation》

负荷开关技术参数 Technical parameters of load switch

Project	Unit	FKN12-12 Load switch	FZN25-12 Vacuum load switch
Rated voltage	KV	10	
Maximum working voltage	KV	12	
Rated frequency	HZ	50	
Rated current	KA	630	
Rated breaking load current	A	630	
Thermal stable current (effective value)	KA/S	20/2	20/4
Dynamic stable current	KA	50	50
Short circuit making current (peak)	KA	50	50
Number of full load interruptions	Times	20	10000
Mechanical lifespan	Times	2000	10000
1min power frequency withstand voltage	K V	42	42
Lightning impulse voltage (relative and ground)	KV	75	75

负荷开关技术参数 Technical parameters of load switch

Model		Rated voltage（KV）	Breaking current (A)	Breaking current (A)	Rated current of melt (A)
UK models	Chinese model				
SDL※J	XRNT-12	12	40	31.5	6.3、10、16、20、31.5、40
SFL※J		12	100	31.5	50、63、71、80、100
SKL※J		12	125	31.5	125

Model	Release form	Rated current of release (A)	OnV/Off Capability KA（AC380）
DW15-630	Thermal electromagnetic or electronic properties	315、400、630	40
DW15-1000	Thermal electromagnetic or electronic properties	630、800、1000	50
DW15-1600	Thermal electromagnetic or electronic properties	1600	50
DW15-2500	Thermal electromagnetic or electronic properties	1600、2000、2500	60
CW1-2000	Intelligent	630 、800、1000、1250、1600、2000	65
CW1-3200	Intelligent	2000、2500、3200	100

一次方案 Primary plan

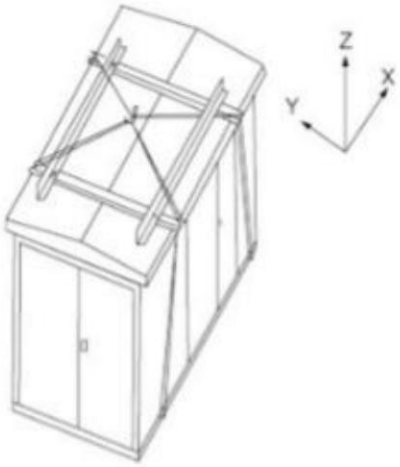
Substation primary plan (refer to attached figure)

Typical scheme example diagram
Typical scheme example diagram (refer to the attached figure).

Foundation and layout plan

Substation foundation diagram (refer to attached diagram);

Substation layout (refer to the attached diagram),
users can choose according to their needs



Product lifting diagram

安装，使用与维护 Installation, Use, and Maintenance

In terms of installation, acceptance, handover testing, operation and maintenance of intelligent integrated substations, in addition to the various regulations required by the power department, attention should be paid to the following matters:

◆ Users should carefully inspect the goods according to relevant regulations when receiving them. For products that are not installed immediately, they should be stored in appropriate places according to normal usage conditions.
◆ The product should be lifted using a dedicated lifting tool at the bottom, as shown in the product lifting diagram.
◆ The product is placed horizontally on a pre made foundation, and then the gap between the product base and the foundation is sealed with cement mortar to prevent rainwater from entering the cable room. The high and low voltage cables are connected through the bottom sealing plates of the high and low voltage rooms.
◆ After the product is installed in place, reliable grounding should be done. The two main grounding terminals on the channel steel of the power station base, the neutral point of the transformer and the outer shell, and the pile head under the lightning arrester should be grounded separately by the installation department. All grounding devices should use a total of one set, and their grounding resistance should be less than 4 ohms.
◆ After installation or maintenance, the product should undergo the following inspections and tests before being put into operation:

★ Whether the substation is clean;
★ Whether the operating mechanism is flexible;
★ Whether the main electrical appliances are flexible and reliable in making and breaking;
★ Whether the on/off of electrical auxiliary contacts is reliable and accurate;
★ Whether the operation of the meter and relay is accurate and error free;
★ Whether the transformation ratio and wiring polarity of instruments and transformers are correct;
★ Are all electrical installation nuts tightened and installed securely and reliably
★ Whether the busbar wiring is good, and whether the supporting insulators and clamps are installed reliably;
★ Whether the setting value of the electrical appliance meets the requirements, and whether the specifications of the fuse core are correct;
★ Whether the contacts of the main electrical appliances and auxiliary circuits meet the requirements of the electrical schematic.

◆Maintenance

★ All components in the product are maintained according to their respective technical requirements:
★ If the selected transformer is oil immersed, at least one oil sample analysis inspection should be conducted annually according to regulations:
★ After 20 on load or 2000 off load opening and closing operations of the high-voltage side switchgear in operation, the condition of the contacts and the degree of loss of the arc extinguishing device should be checked. If any abnormalities are found, they should be repaired or replaced in a timely manner;
★ After the low-voltage switchgear trips automatically, the cause of the trip should be checked and analyzed. Only after the fault is eliminated can it be put back into operation.
★ Lightning arresters should undergo a preventive test once a year before the arrival of the thunderstorm season;
★ Note: The product comes with a packing list, certificate of conformity, installation and operation manual, electrical wiring diagram, and instructions for the main components and equipment used in this product, key operation tools, and spare parts provided according to the agreement.

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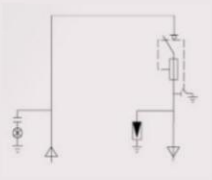
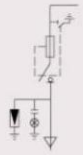
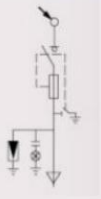
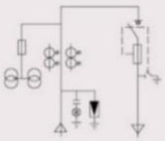
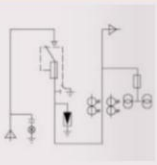
技术方案图例 Technical solution legend

Plan number		01	02	03
主回路单线图 Main circuit single line diagram				
用途 Use To		Terminal type cable inlet/primary outlet	Terminal type (reverse) incoming line	Terminal type overhead incoming line
柜型 Cabinet type		HXGN-12	HXGN-12	HXGN-12
Selection of primary equipment	Vacuum circuit breaker VS1. Zn28			
	Load switch FN, FZN, FLN	1	1	1
	Isolation switch GN			
	FUSE XRNT	3	3	3
	Fuse RN2			
	Lightning arrester HY5W	3	3	3
	Charged display GSN	1	1	1
	Current transformer LZZBJ			
	Voltage transformer JDZ			

Plan number		04	05	06
主回路单线图 Main circuit single line diagram				
用途 Use To		Terminal type vacuum circuit breaker incoming line	Terminal incoming line metering \ primary outgoing line	Terminal type cable inlet/outlet
Cabinet type		XGN66-12	HXGN-12	HXGN-12
Selection of primary equipment	Vacuum circuit breaker VS1. Zn28	1		
	Load switch FN, FZN, FLN		1	1
	Isolation switch GN	2		
	FUSE XRNT		3	3
	Fuse RN2		3	3
	Lightning arrester HY5W	3	3	3
	Charged display GSN	1	1	1
	Current transformer LZZBJ	2	2	2
	Voltage transformer JDZ		2	2

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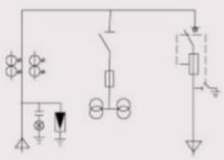
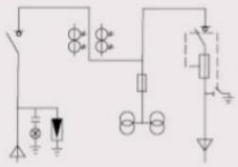
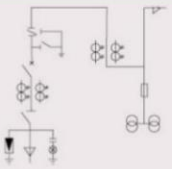
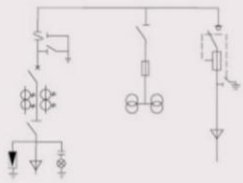
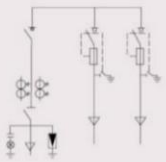
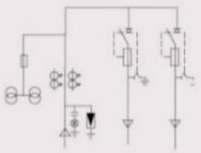
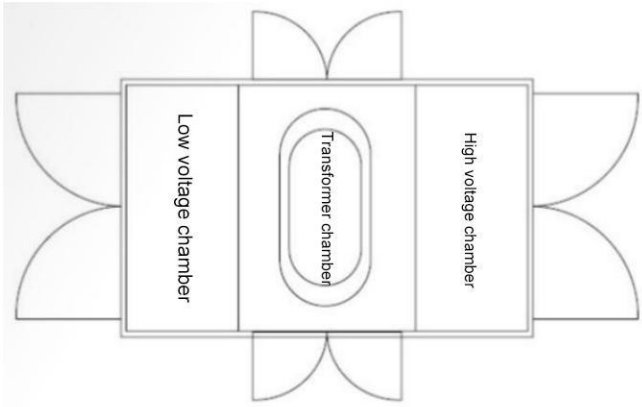
技术方案图例 Technical solution legend

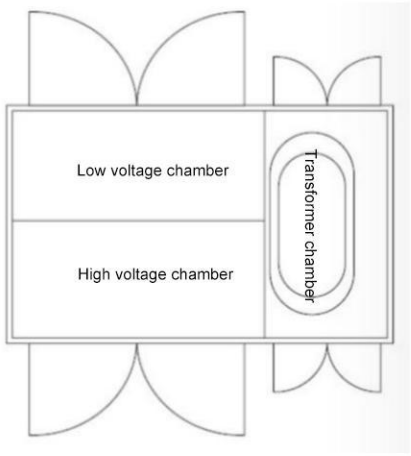
Plan number		01	02	03
Main circuit single line diagram				
Use TO		Terminal type incoming line metering \ PT \ primary outgoing line	Terminal type primary inlet/metering /primary outlet	Terminal incoming line metering/ secondary outgoing line
Cabinet Type		HXGN-12	HXGN-12	XGN66-12
Selection of primary equipment	Vacuum circuit breaker VS1. Zn28			1
	Load switch FN, FZN, FLN	1	2	
	Isolation switch GN	1		2
	FUSE XRNT	3	3	3
	Fuse RN2	3	3	3
	Lightning arrester HY5W	3	3	3
	Charged display GSN	1	1	1
	Current transformer LZZBJ	2	2	4
	Voltage transformer JDZ	2	2	2

Plan number		04	05	06
Main circuit single line diagram				
Use TO		Terminal type circuit breaker incoming /PT/primary outgoing line	Terminal type primary inlet/secondary outlet	Terminal incoming line metering /secondary outgoing line
Cabinet Type		HXGN66-12 HXGN-12	HXGN-12	HXGN-12
Selection of primary equipment	Vacuum circuit breaker VS1. Zn28	1		
	Load switch FN, FZN, FLN	1	3	2
	Isolation switch GN	3	1	
	FUSE XRNT	3	6	6
	Fuse RN2	3		3
	Lightning arrester HY5W	3	3	3
	Charged display GSN	1	1	1
	Current transformer LZZBJ	2	2	2
	Voltage transformer JDZ	2		2

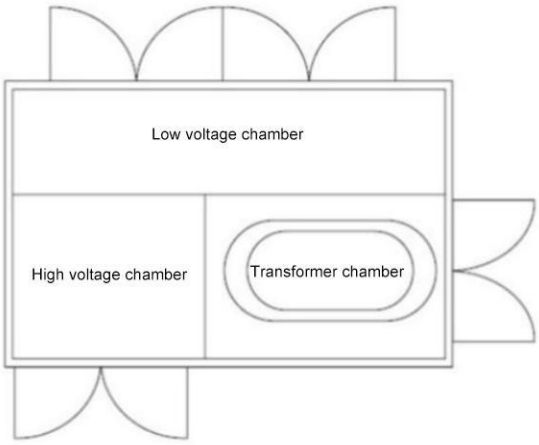
变电站平面布置图 Substation layout plan



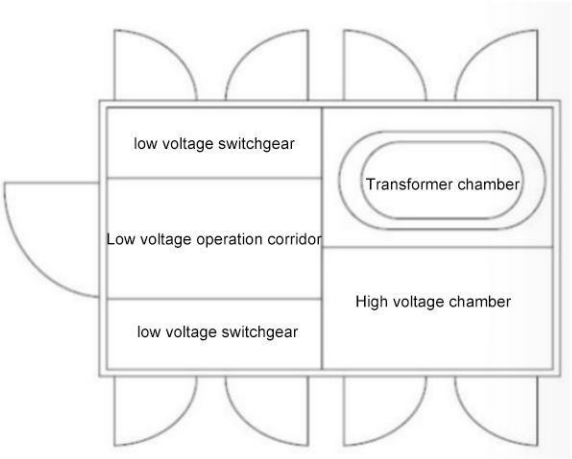
Equipment arrangement and distribution diagram 1



Equipment arrangement and distribution diagram 2



Equipment arrangement and distribution diagram 3



Equipment arrangement and distribution diagram 4

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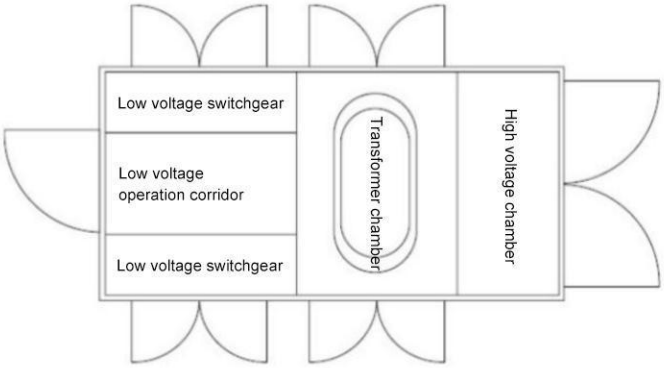
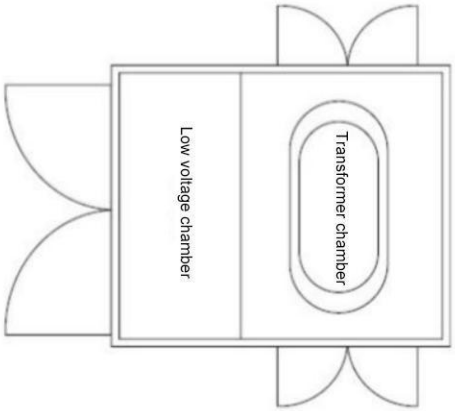
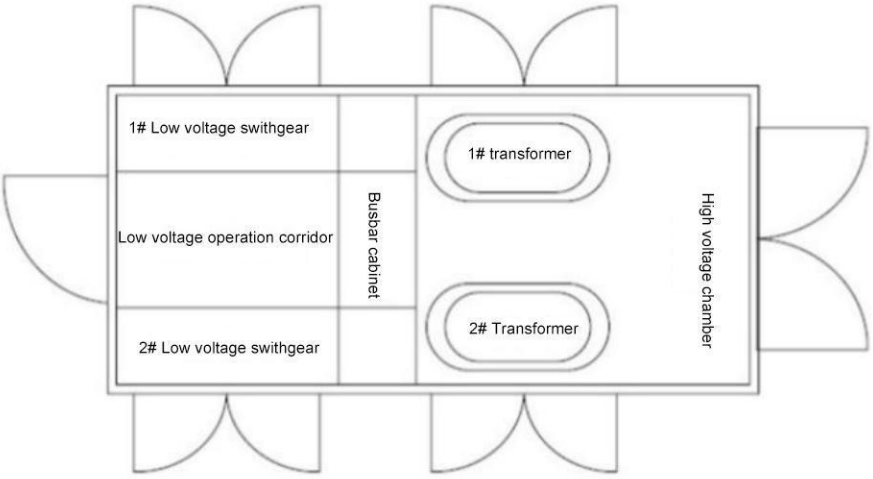
变电站平面布置图 Substation layout plan



“目”字型结构带压走廊
"Mu" - shaped structure with pressure corridor



简易型箱变不带高压室
Simple box transformer without high-voltage chamber



“目 ”字型结构两台变压器
"Mu" - shaped structure with two transformers