

GPR1.1 Series

Dry Air Insulated Ring Main Unit (Environmentally friendly and intelligent)





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Human quests for transcendence, with transcendence we make progress, when the pursuit of unlimited become a belief, our dream began to realize.

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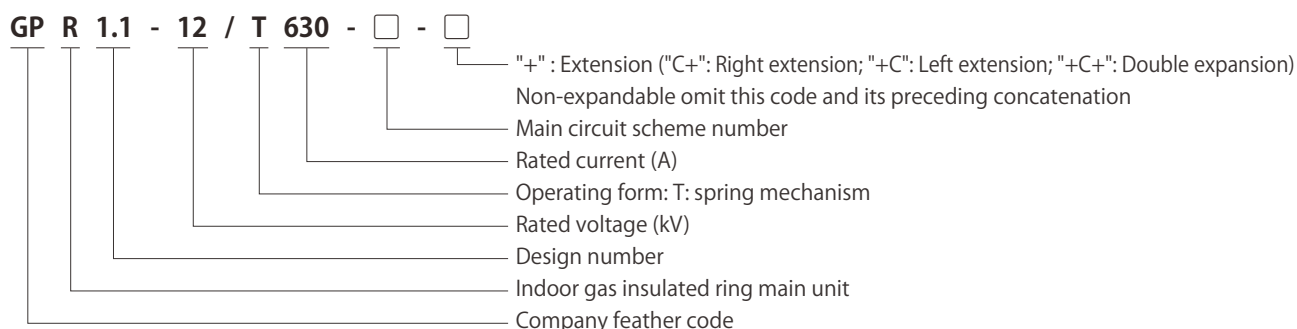
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01 Product overview

The GPR1.1 series dry air insulated ring main unit switchgear (hereinafter referred to as GPR1.1 ring main unit) is a new generation of small, intelligent, and environmentally friendly ring main unit switchgear with international level, developed according to the needs of the construction and renovation of the distribution network in the new era. Its technology draws on the technical advantages of SF₆ fully insulated ring main unit at home and abroad. Through electromagnetic field simulation analysis, dry air is used as the insulation medium, combined with vacuum arc extinguishing technology, completely replacing SF₆ gas and retaining the technical advantages of SF₆ fully insulated ring main unit. Realizing zero emissions of SF₆ is a new generation of green and environmentally friendly products.

1.1 Product model and meaning



1.2 Scope of application

GPR1.1 ring main unit is suitable for three-phase AC 50/60Hz power systems with a voltage range of 3.6~12kV. It is used for receiving and distributing electrical energy and is widely used in oil-free, safe and reliable small distribution stations, switch stations, urban residential areas, airports, power plants, power grids, petrochemicals, metallurgy, railways, tunnels, and high-rise buildings. It is particularly suitable for industrial and mining enterprises, mountainous areas, plateaus, etc Various places with harsh environmental conditions such as coastal areas and polluted environments.

1.3 Environmental conditions of use

- Altitude: Less than 3000m;
- Ambient temperature: Maximum +40℃ , Minimum -25℃ ; The daily average temperature does not exceed +35℃ ;
- Relative humidity: The average daily relative humidity does not exceed 95%, and the average monthly relative humidity does not exceed 90%;
- Earthquake intensity: Not exceeding 8 degree;
- Use in environments that can withstand dust, moisture, and short-term immersion in water.

Note: When the actual use environment conditions are inconsistent with the above conditions, please consult with our company.

1.4 Standards and specifications

IEC 60694:2002 Common Technical Requirements for High Voltage Switchgear and Controlgear Standards

IEC 60298: 1990 AC Metal Enclosed Switchgear and Controlgear above 1kV and below 52kV

IEC 60265-1:1998 High Voltage Load Switches Part 1: Load Switches with Rated Voltage above 1kV and below 52kV

IEC 62271-100:2012 High Voltage AC Circuit Breakers

IEC 62271-102:2012 High Voltage AC Isolating and Earthing Switches

GB/T 3906-2006 3.6kV~40.5kV AC Metal Enclosed Switchgear and Controlgear

GB/T 11022-2011 Common Technical Requirements for High Voltage Switchgear and Controlgear Standards

GB/T 1984-2014 High Voltage AC Circuit Breakers

GB/T 3804-2017 3.6kV~40.5kV High Voltage AC Load Switch

GB/T 1985-2014 High Voltage AC Isolation and Earthing Switches

1.5 Advanced technology

- **Non polluting:** Using specially treated dry air as insulation medium, green and environmentally friendly.
- **Miniaturization:** Compact and compact, occupying less than a quarter of the traditional product area, saving land.
- **Visualization:** There is a visual window corresponding to the three-station isolation and earthing switch, which can visually observe the isolation break and earthing status, improving the safety of use.
- **Zero gauge pressure:** The internal dry air pressure is consistent with atmospheric pressure, and there is no gas pressure on the gas tank, greatly reducing the risk of air leakage.
- **High performance:** The internal electromagnetic field balancing technology is used to evenly distribute the electric field inside the gas tank, achieving stable operation and ensuring electrical performance in dry air.
- **Safety:** Adopting mechanical interlocking device with "five prevention" locking function; Install a pressure relief device at the bottom of the gas tank to protect the safety of operators in front of the cabinet.
- **Maintenance-free:** The interior of the switchgear is filled with dry air, and the gas pressure is at atmospheric pressure. The components inside the gas tank are maintenance free for 30 years, greatly reducing the cost of comprehensive investment and having significant economic benefits.

1.6 Technical performance

1.6.1 Functional structure composition

The GPR1.1 ring main unit is composed of small and compact functional units. The functional unit consists of the following parts:

- **Stainless steel sealed gas tank enclosure**
Load switches, earthing switches, circuit breakers, busbars, etc. can be installed in the enclosure.
- **Cable box**
It can be connected to the grid or transformer through the interface.
- **Secondary instrument box**
- **Operating mechanism box**

1.6.2 Sealed gas insulation system

In the GPR1.1 ring main unit, dry air is used as the insulation medium inside the sealed stainless steel box.

- The stainless steel metal gas tank is equipped with a good earthing device to ensure the safety of the operator.
- Advanced automatic welding equipment ensures the sealing performance of the gas tank when it is working.
- The gas tightness of the gas chamber is strictly inspected before leaving the factory, and the performance is reliable and the service lifetime of more than 30 years is guaranteed.
- All components in the gas tank are maintenance-free within 30 years of service lifetime.

1.6.3 Advanced electric field technology

- **Electromagnetic field balancing technology**
By adopting advanced electric field optimization technology, the electric field inside the gas tank is evenly distributed, achieving stable operation and ensuring electrical performance in dry air.

1.6.4 Breaking current capability

The load switch of GPR1.1 ring main unit is grade E3/M2, and the circuit breaker is grade E2/M2, that is:

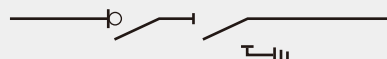
- When the load switch has a rated current and a load power factor of 0.7, it can perform "closing/opening" operations 100 times; when the circuit breaker has a rated short-circuit breaking current, it can break a total of 30 times.
- The load switch is designed to meet 10,000 mechanical "closing/opening" operations, and the circuit breaker is designed to meet 10,000 mechanical "closing/opening" operations.

1.6.5 Feature selection

GPR1.1 RMU can provide 1 to 4 functions selected by the user to form a ring main unit and can also be used as a transformer feed switch.

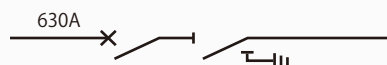
● Load switch

C



● 630A Circuit breaker

D



● Riser unit

L



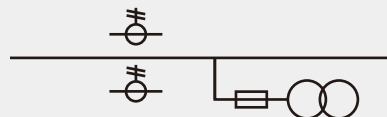
● Connection unit

F



● Metering unit

M



1.6.6 Function combination

The combination forms of GPR1.1 ring main unit are CC, CCC, CCCC, FC, FCC, FCCC, FD, FDD, FDDD, CD, CCD, CCDD, CCDD. GPR1.1 ring main unit is a compact switch cabinet that can be configured with up to 4 modules in the same gas tank Switch cabinets with more than 4 modules must use expansion busbars to connect the switch cabinets to achieve a semi-modular structure; A fully modular configuration can also be achieved by using expansion buses between all modules. Through different combinations of functional modules, simple to complex power distribution solutions can be formed to meet various configuration requirements in secondary substations and switching stations.

1.7 Technical parameters

Table 1 GPR1.1 ring main unit technical parameters

No.	Item			Unit	Data	
					Load switch	Cicuit breaker
1	Rated voltage			kV	12	
2	Rated frequency			Hz	50/60	
3	Main bus rated current			A	630	
4	Rated current			A	630	
5	Rated breaking current			kA	/	20
6	Rated short circuit making current (peak value)			kA	50	
7	Rated short-time withstand current (peak value)			kA	20	
8	Rated short circuit duration			s	4	
9	Rated peak withstand current			kA	50	
10	Rated active load breaking current			A	630	/
11	Rated closed loop breaking current			A	630	/
12	Rated short-circuit cable charging breaking current			A	30	/
13	Rated insulation level	1min power frequency withstand voltage	Phase to phase, Phase to earth	kV	42	
			Across the isolating distance	kV	48	
		Lightning impulse withstand voltage	Phase to phase, Phase to earth	kV	75	
			Across the switch distance	kV	85	
			Across the isolating distance	kV	85	
14	Auxiliary circuit and control circuit (1min power frequency withstand voltage)			kV	2	
15	Rated gas pressure (20°C gauge pressure)			MPa	0.039	
16	Pressure tolerance level of the gas-filled compartment			MPa	≤ 0.05	
17	Gas medium				Dry air *	
18	Moisture content of gas-filled compartment (20° C)			μ L/L	≤ 150	
19	0.02MPa (relative air pressure) Annual leakage rate			%	≤ 0.05	
20	Gas tank maintenance cycle			year	30 (maintenance free)	
21	Rated operating sequence				O-0.3s-CO-180s-CO	
22	Mechanical life	Circuit breaker switch		times	≥ 10000	
		Load switch			≥ 10000	
		Isolating switch			≥ 3000	
		Earthing switch			≥ 3000	

Note:

*Other insulating gases can be filled according to customer requirements, and the internal insulation capacity will be significantly improved.

02 The structure of the cabinet

GPR1.1 ring main unit mainly consists of two parts: the cabinet and the sealed stainless steel gas tank. The cabinet is divided into several parts such as the operating mechanism box, cable box, and secondary instrument box. Each functional unit and the cable box are separated into independent compartments by metal plates without interfering with each other. It can effectively prevent a fault in a single compartment from affecting other compartments and control the fault scope to the maximum extent. The busbar, load switch, circuit breaker, connecting conductor, etc. are all installed in a sealed stainless steel gas tank, using dry air as the insulating medium, with small size and simple structure.

The protection level of the GPR1.1 RMU enclosed is IP3X (IP4X is optional), and the protection level of the stainless steel gas tank is IP67.

The GPR1.1 ring main unit enclosed and the partitions of each functional unit compartment are made of high-quality cold-rolled steel plates that are bent and formed by CNC machine tools and other equipment, and are assembled with high-strength rivets, nuts and bolts, and have high mechanical strength, and excellent corrosion resistance. Compared with similar equipment, it has the advantages of high precision, light weight, high mechanical strength, and beautiful appearance. At the same time, due to the modular design, the versatility and interchangeability of parts are improved, which can effectively shorten the processing cycle and reduce Production area. The cabinet surface spraying process adopts the world's most advanced electrostatic powder automatic spraying production technology, which has the advantages of beautiful topcoat, strong adhesion, corrosion resistance, high hardness, anti-aging, and good gloss and color retention.

2.1 Cabinet

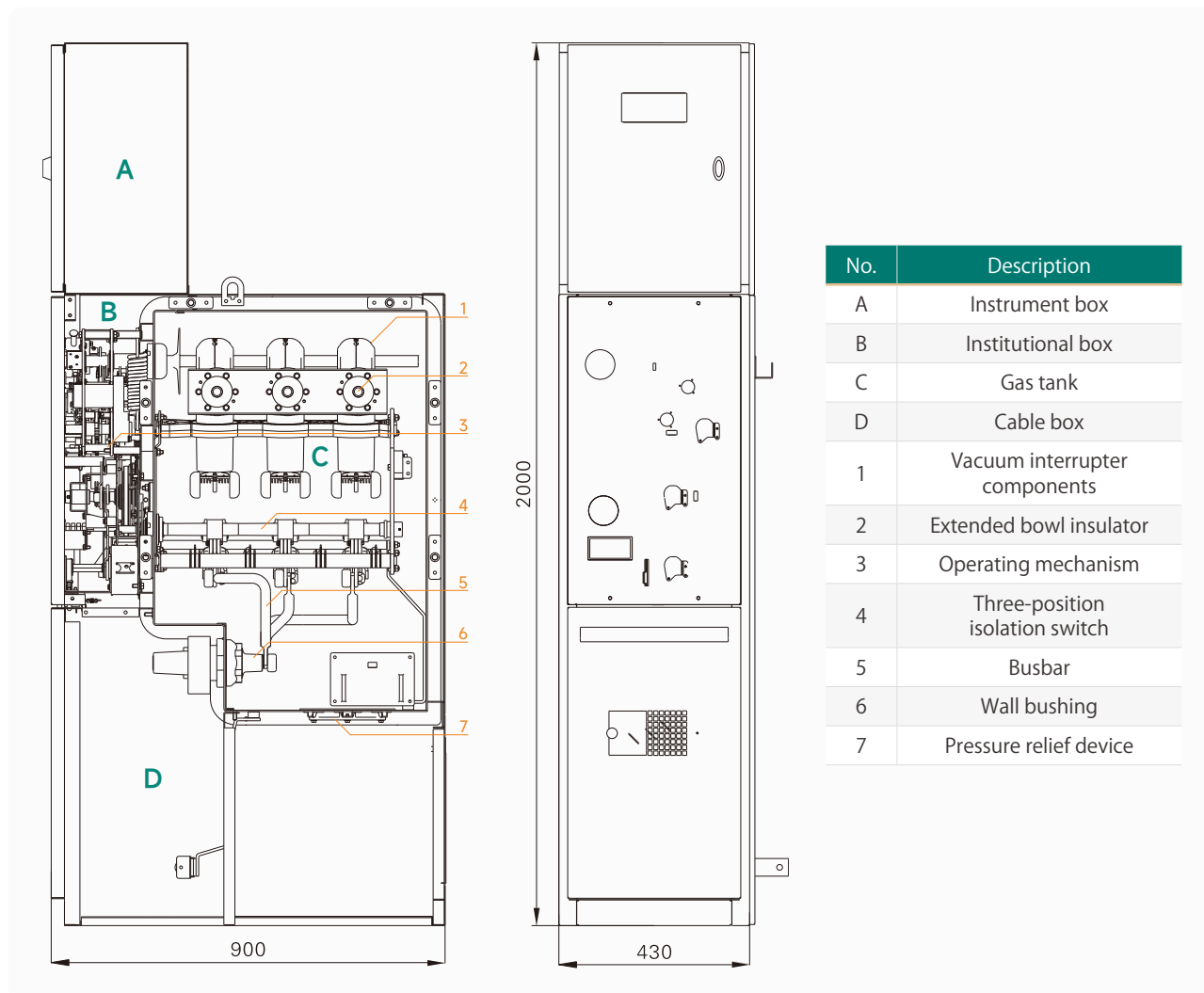


Figure 2-1 Structural diagram of switch cabinet cable inlet and outlet cabinet

2.1.1 Operating mechanism

The operating mechanism box is located in the front and middle part of the GPR1.1 ring main unit. Its height has been verified by ergonomics, which is labor-saving and convenient, and is suitable for operation. The operation panel (see Figure 2-2) simulates the busbar and can reliably display the three positions of the switch: closed, open, and earthed. The operating mechanism adopts spring energy storage type, and the operating speed is stable and not affected by the size of manpower.

The electrical and mechanical operating mechanisms (see Figure 2-3 and Figure 2-4) are located on the back of the operation panel.

- **Closed: The moving contact is controlled by a snap-action operating mechanism:**

- For load switches, apart from controlling the movement of moving contacts, there is no energy storage function.
- For circuit breakers, when the contacts are closed, the operating mechanism can store energy at the same time.

- **Disconnection: To disconnect the switch, just press the opening button of the quick-action operating mechanism to open the switch.**

The circuit breaker and load switch are disconnected by:

- Button operation implementation. ▪ Fault trip implementation.

- **Earthing:**

The specially designed operating handle is inserted into the earthing switch operating hole to close or open the earth contact.

The floor switch operating hole is locked through the interlocking stopper:

- When the switch is in the open position, the earthing switch operating hole is opened.
- When the switch is in the closed position, the floor switch operating hole is locked.

- **Switching device status indicator:**

- Mounted directly on the drive shaft.
- The three states of the switch device can be clearly indicated by the indicator.

- **Operating handle:**

The operating handle and mechanism have a unique design structure to prevent the load or earth switch from being opened again immediately after closing.

- **Locking device (see Figure 2-4):**

The locking device (see Figure 2-5) can add 1, 2 or 3 padlocks, namely the operating shaft of the load switch or circuit breaker, the operating shaft of the earthing switch and the opening button, which can prevent misoperation (i.e. used for locking).

2.1.2 Live indicator device

- The live indicator (see Figure 2-6) is installed on each functional unit to indicate the live status of the cable.
- It can be equipped with five-proof function according to user needs.

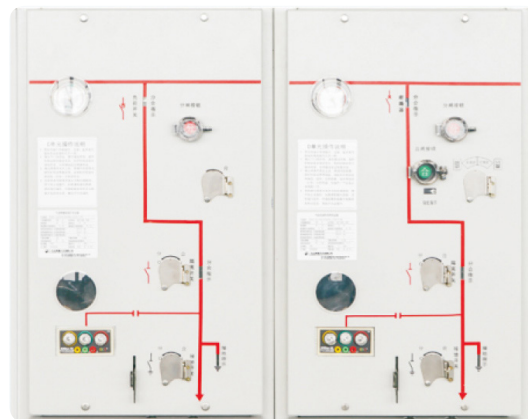


Figure 2-2 Operating mechanism panel

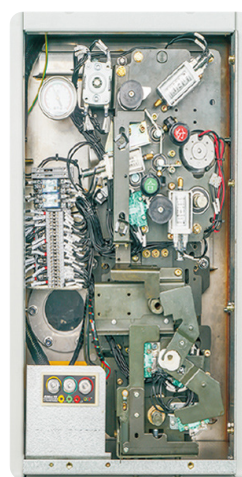


Figure 2-3
Circuit breaker operating mechanism

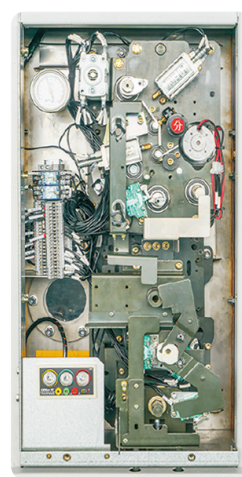


Figure 2-4
Load switch operating mechanism

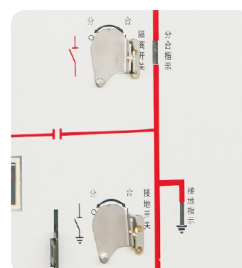


Figure 2-5 Locking device

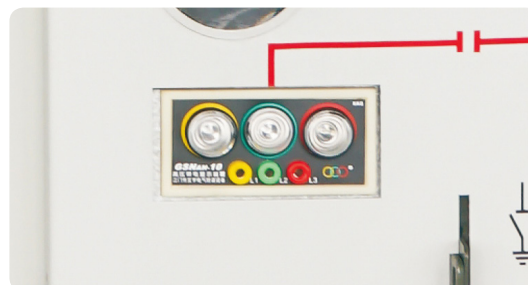


Figure 2-6 Live indicator device

2.1.3 Electric operating mechanism

- There are many choices for the operating power supply of the electric operating mechanism (see Figure 2-7). The optional power supplies are: DC24V, DC48V, DC110V, and DC/AC220V.
- Generally, a manual operating mechanism is configured, and the installation position of the electric operating mechanism is reserved. If the user needs, an electric operating mechanism can be configured at any time.

2.1.4 Trip device

In the switch unit, the operating mechanism of the switch device is equipped with mechanical and electrical tripping devices (see Figure 2-8).

- Circuit breaker unit**
 - Electrical tripping device**
The operating mechanism is equipped with a tripping coil, which can be connected to an external electrical tripping or protection device tripping contact to open the circuit breaker.
- Load switch unit**
 - Electrical tripping device**
A tripping coil is installed in the operating mechanism, which can be connected to an external electrical trip to open the load switch.

2.1.5 Secondary instrument box

The upper part of the GPR1.1 ring main unit is the secondary instrument box (see Figure 2-9):

- Reserve each port for user wiring and spare contact output.
- The wiring of each control loop has been connected at the factory.

2.1.6 Cable box

The front and lower part of the GPR1.1 ring main unit is the cable box (see Figure 2-10):

- Connected to the power grid or transformer through cable interface.
- The cable box sealing plate and the earthing switch, load switch and circuit breaker can be mutually locked by adding locking devices to ensure the safety of maintenance personnel.
- The cable boxes of each functional unit are separated by metal partitions, which effectively prevents faults in a single compartment from affecting other compartments.
- An observation window is installed on the sealing plate of the cable box to facilitate operation and maintenance.

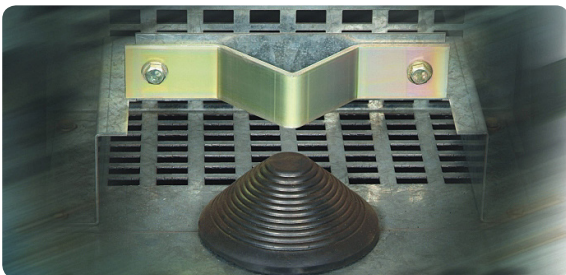


Figure 2-10 Cable box

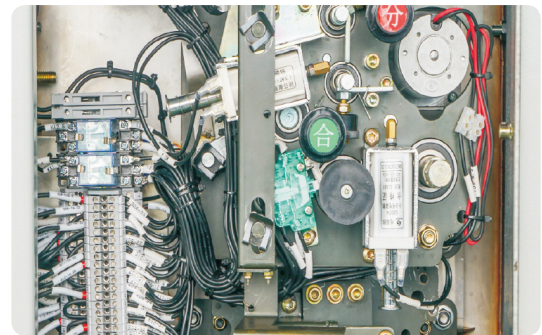


Figure 2-7 Electric operating mechanism

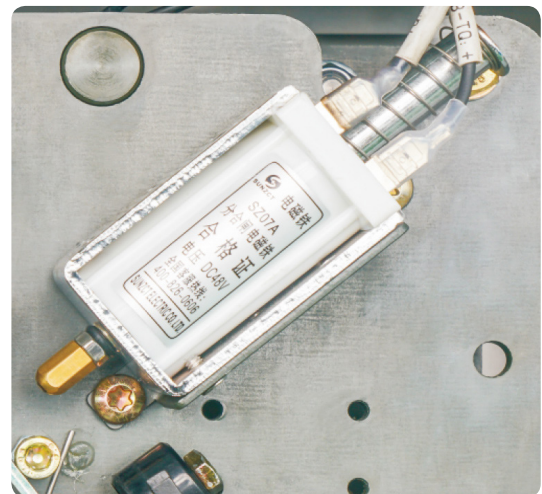


Figure 2-8 Electrical tripping device



Figure 2-9 Secondary instrument box

2.2 Gas tank

2.2.1 Switch device

The switch device (see Figure 2-11) has a unique structure and advanced technology:

- The movable contact of the three-position switch device has three positions: closing, opening and earthing during the rotation movement. The mechanical interlocking of the mechanism eliminates the possibility of simultaneous closing of the load switch or circuit breaker and the earthing switch.
- The earthing switch has the short-circuit closing capability that complies with the standards.
- The switch device has dual functions of isolating and breaking.
- The size of the earthing conductor matches the grid.
- Both load switches and circuit breakers adopt vacuum arc extinguishing technology.
- After conducting a 20kA, 1s type test, the equipment can meet the IAC AFL level judgment standards specified in Appendix A of GB3906-2006.

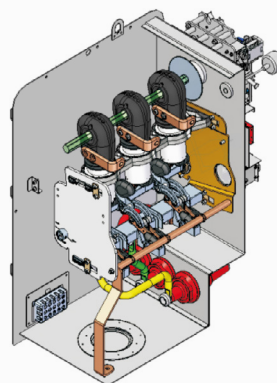


Figure 2-11 Switch device

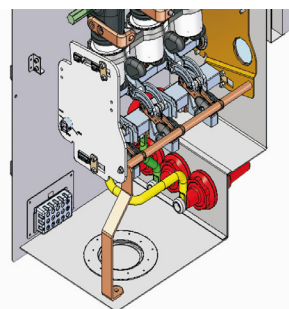


Figure 2-12 Visual isolation earthing bus system

2.2.2 Isolated earthing system

Humanized and visible isolation earthing system (see Figure 2-12):

- The panel has a mechanical linkage earthing switch position indication system and clear analog indication marks.
- There is a transparent visualization window on the panel of the switch cabinet. After the three-station isolation switch is operated, the status of the isolation and earthing switches can be visually seen through the transparent observation window on the mechanism box panel.

2.2.3 Sealed gas tank

The main primary components and busbars (see Figure 2-13) are installed in a sealed stainless steel box, which is strong, reliable and has strong environmental adaptability. The chance of internal failure is minimal.

- The air box is filled with dry air at normal pressure, and the electric field is uniformly designed to fully meet the insulation performance requirements and greatly reduce the risk of air leakage.
- The sealed air box has undergone strict inspection and has a long life, ensuring reliable operation within 30 years.
- All components in the air box are maintenance-free for 30 years.
- Gas box welding adopts advanced equipment and automatic welding technology.

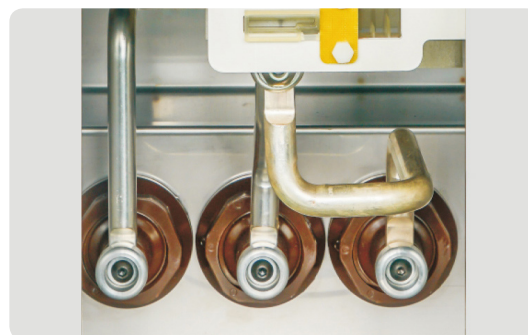


Figure 2-13 Busbar

2.2.4 Internal arc withstand capability

The air box is made of high-quality stainless steel plates that are bent and welded and can withstand internal arcing under rated short-circuit current to ensure personal safety.

- The instantaneous overpressure generated by the internal combustion arc can be blasted through the pressure relief device located at the bottom of the metal enclosed (see Figure 2-14), and the fault gas is sprayed to the rear or below of the GPR1.1 ring main unit.
- The front of the GPR1.1 ring main unit is not affected and does not cause any danger to the operator.



Figure 2-14 Pressure relief device

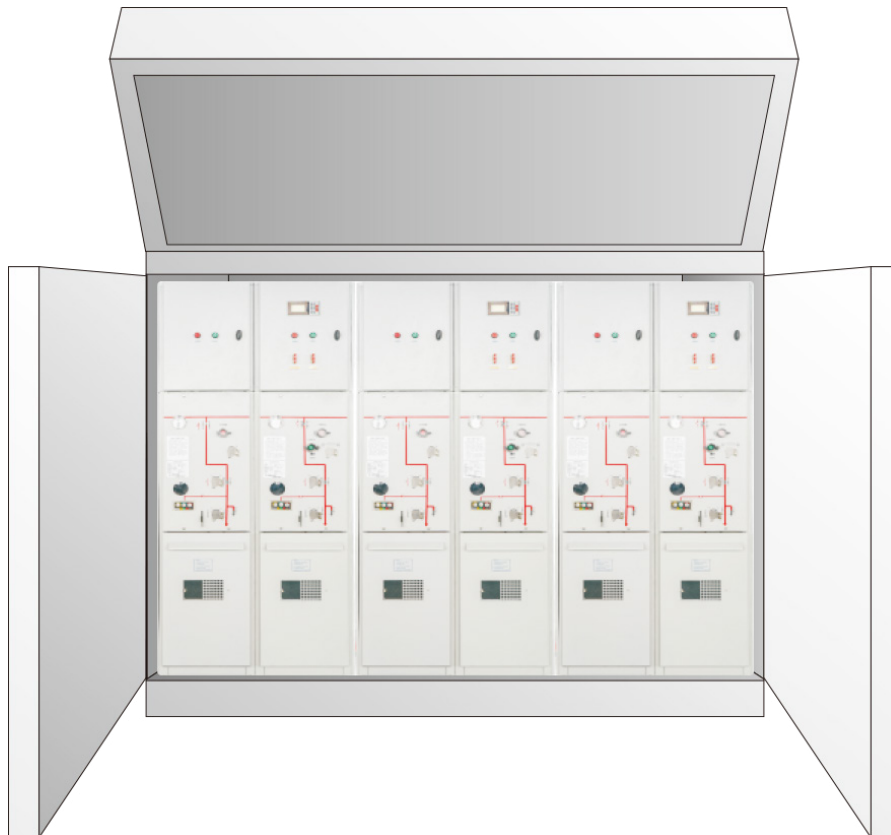
3.1 GPR1.1 Ring main unit expandable series

- The expandable series of GPR1.1 ring main unit allows your power grid to be easily and safely expanded while retaining all the advantages of fixed switch cabinets.
- The scalable series of GPR1.1 ring main unit can be expanded on-site through cabinet merging operation without any gas treatment, special tools, or any basic special preparation work.
- The expandable series of GPR1.1 ring main unit can work in the harshest environment just like the non-expandable series.



3.2 Outdoor application series

- Supporting outdoor boxes and corresponding accessories can be provided to make the GPR1.1 ring main unit conveniently used in outdoor occasions and meet your various use needs.
- The GPR1.1 ring main unit used outdoors can be equipped with electric operating mechanism, remote operation, control, and communication systems according to the usage requirements to realize the automation function of the power distribution network.
- Outdoor box-type structure (see Figure 3-1), small footprint, small civil engineering work, short construction period, and small operation and maintenance workload.



4.1 Outline dimensions

4.1.1 Non-extended type (see Figure 4-1)

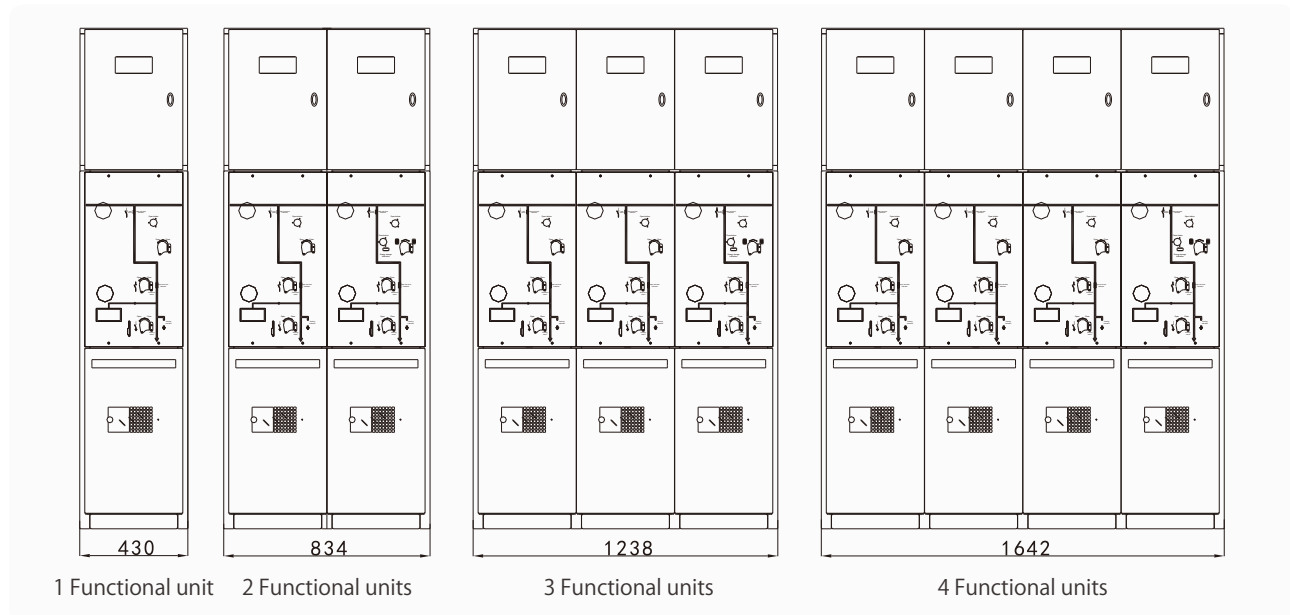


Figure 4-1 Non-extended type

4.1.2 Extended type (see Figure 4-2)

The external dimensions of the expandable type of GPR1.1 ring main unit are basically the same as those of the non-expandable type.

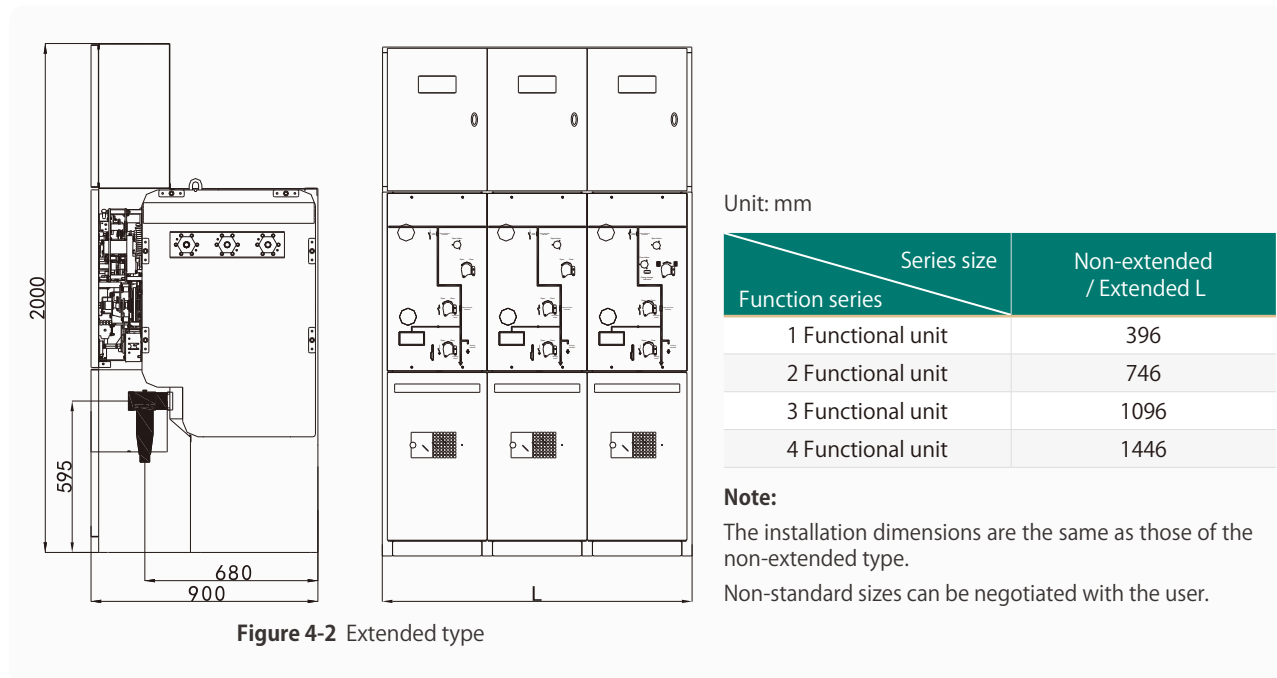


Figure 4-2 Extended type

4.2 Weight

C	D	DC	DF	CF	CDC
140	140	280	195	185	420
CCC	CDD	DCDC	DCCC	CCCC	DDDC
420	420	560	560	560	560

Unit: kg

Note: The weight of the non-extended type and the expandable type of GPR1.1 RMU is basically the same, with a fluctuation of ± 5 kg.

4.3 Additional raised base

GPR1.1 ring main unit can be installed on a raised base with a height of 272~450mm (see Figure 4-3).

- Adding a raised base can simplify civil construction, reduce the depth of cable trenches, and even eliminate cable trenches when the cable bending radius allows.
- The raised base can be directly fixed on the ground.

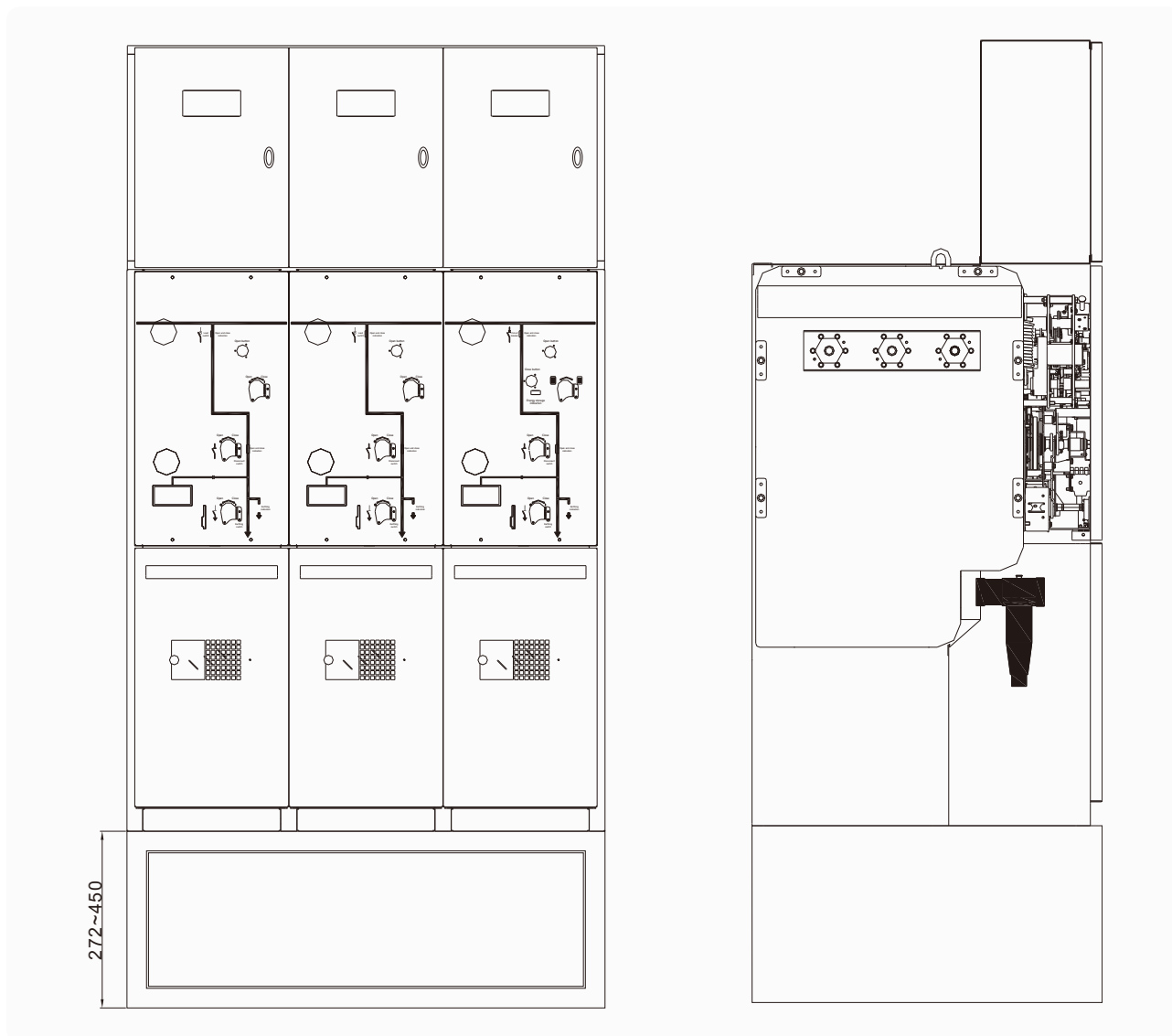


Figure 4-3 Raising the base

4.4 Installation dimensions

4.4.1 Ground installation

Unit: mm

Fixed by mounting code or mounting beam to:

- On the ground with cable trenches or cable trays
- On cement base
- On the anchor bolts
- On metal base

(See Figure 4-4, Figure 4-5) as shown:

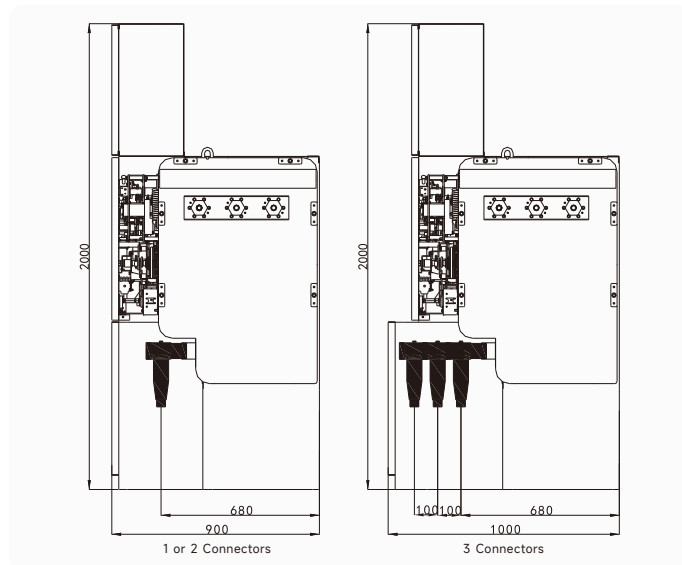


Figure 4-4 Cable connector diagram

Function series \ Series size	L	L1
1 Functional unit	430	390
2 Functional unit	834	794
3 Functional unit	1238	1198
4 Functional unit	1642	1602

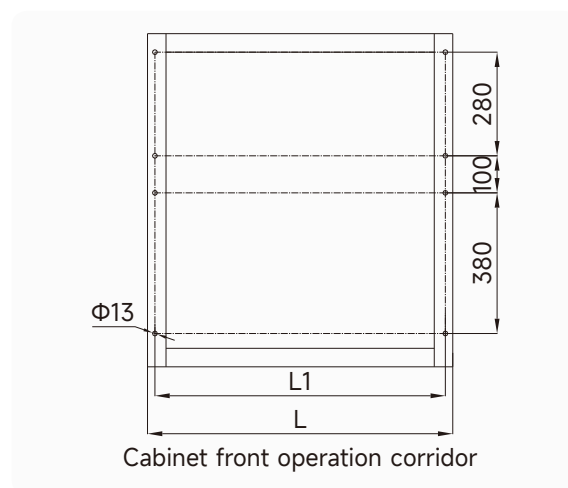
Note: Non-standard sizes can be negotiated with the user.

Figure 4-5 Installation dimension drawing

4.4.2 Installation against the wall

Use the mounting beam to fix it on the wall (see Figure 4-6).

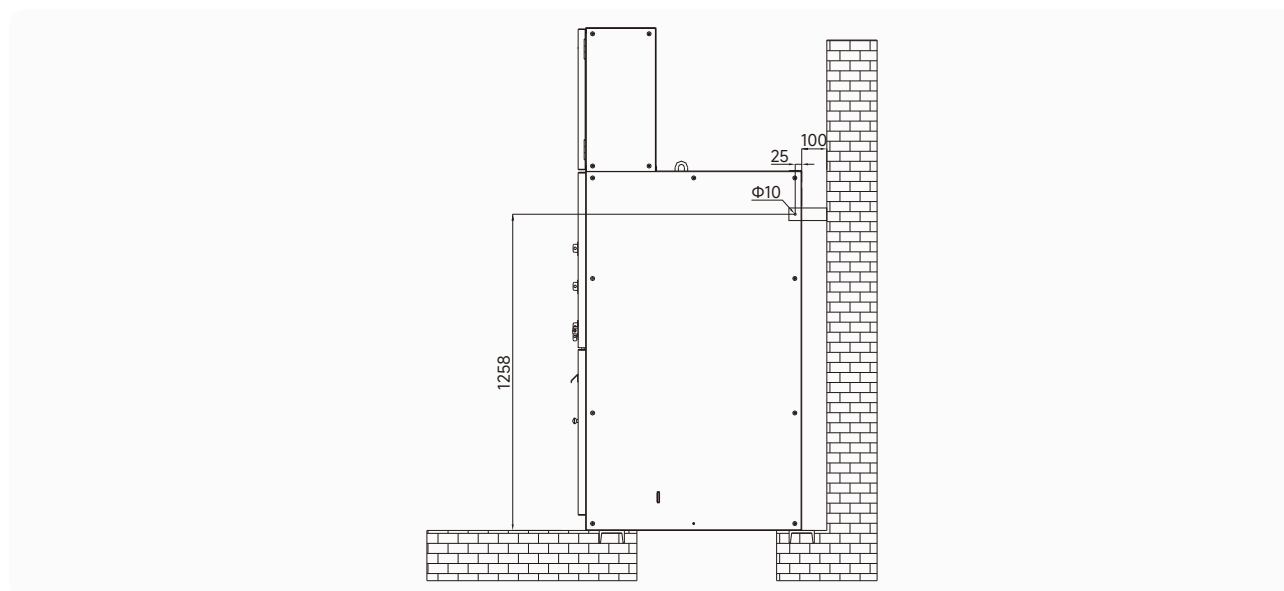
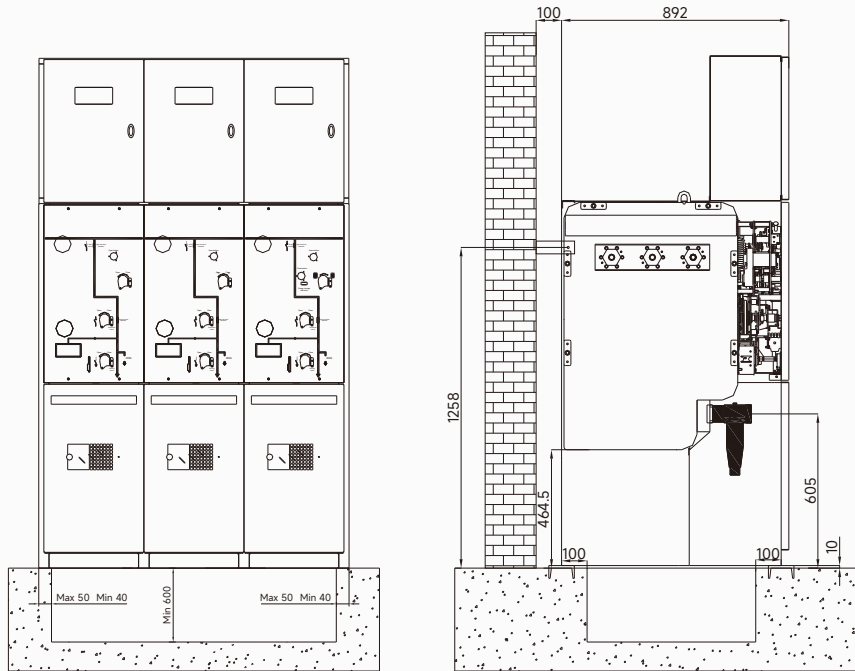


Figure 4-6 Installation against the wall

4.5 Schematic diagram of cable trench construction

4.5.1 Cables can pass from the front, back, left and right (see Figure 4-7).



Note: If there is no cable trench designed, a raised base can be used.

Figure 4-7 Schematic diagram of cable trench construction

4.6 Cable installation method

- The center of the cable head must be consistent with the center of the casing to ensure that the casing is not subject to mechanical stress (see Figure 4-8).
- The length of each cable must be adjusted appropriately (especially the three-core cable).
- After installing the cable, confirm that the stress on the bushing is less than 300N or is not stressed.

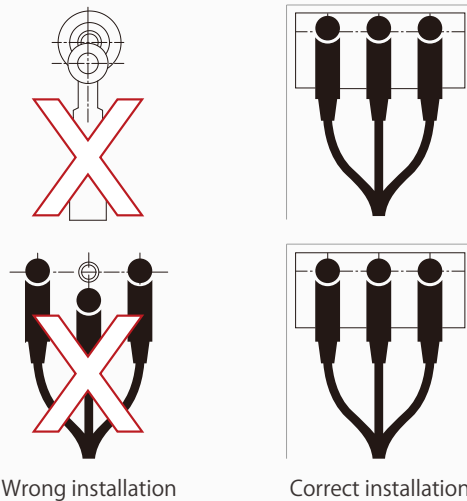


Figure 4-8 Schematic diagram of cable trench construction

4.7 Consider installation against internal arc faults

4.7.1 The gas inside the air box is discharged to the bottom of the high-pressure chamber

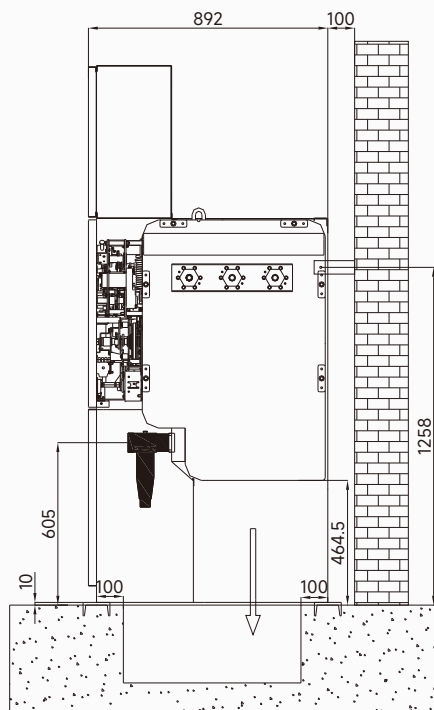


Figure 4-9 Schematic diagram of cable trench construction

4.7.2 The gas inside the air box is discharged to the rear of the high-pressure chamber

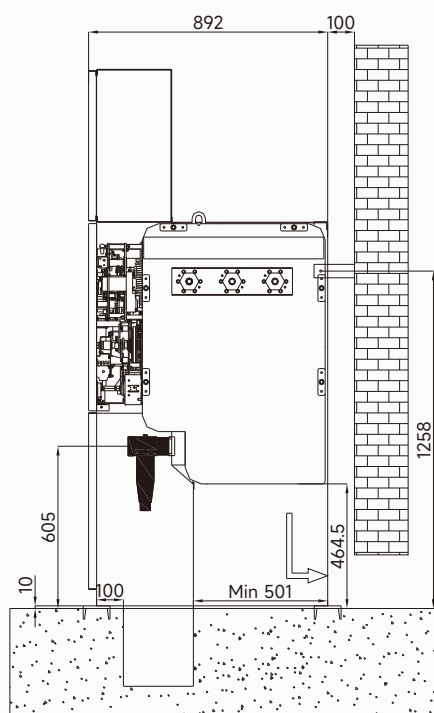
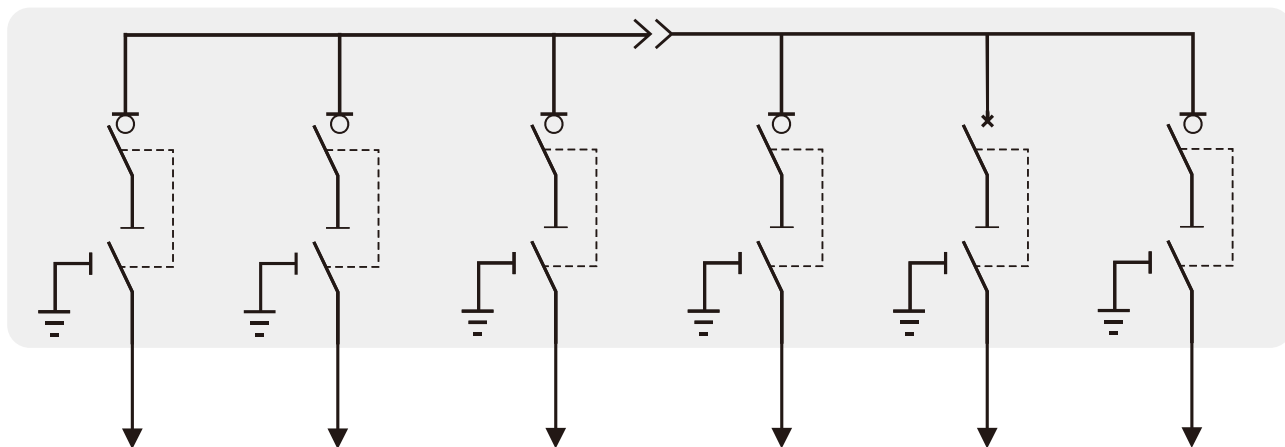


Figure 4-10 Cable trench construction drawing

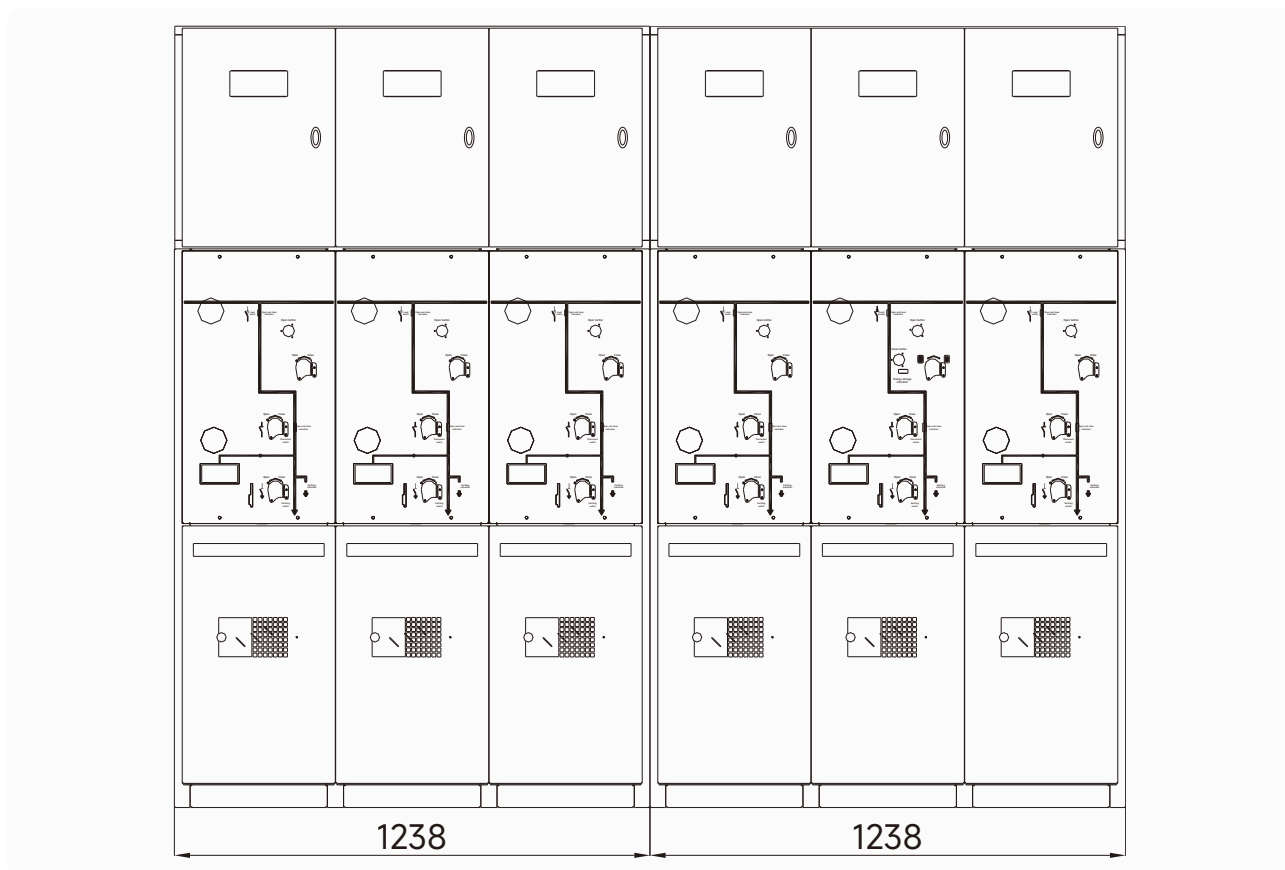
4.8 Line-up size

GPR1.1 Ring main unit combination example: CCC + CDC.

CCC + CDC Primary diagram:



CCC + CDC Line-up layout:



4.9 Selection of bushings and cables

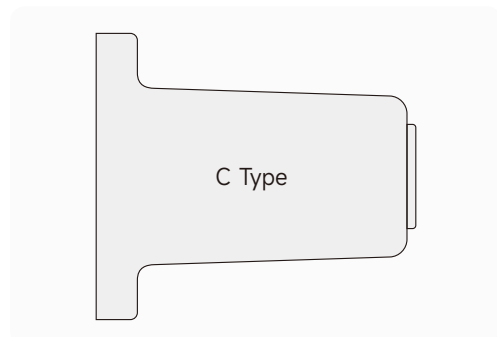
4.9.1 Overview

The shape, size and connection of GPR1.1 bushings meet the IEC 60137 standard definition, and 100% of epoxy resin bushings must pass power frequency withstand voltage and partial discharge tests. When the current flows through the bushing and enters the main circuit of the fully sealed air box, the insulation between the live components and the frame is ensured.

4.9.2 Bushing type

● Type C (see Figure 4-12):

630A: 20kA 4s and 50kA peak (bolt-on type, M16 bolt)
Specifications - $\Phi 46 / \Phi 56 / 91.5 / M16$



4.9.3 Cable selection

- Working voltage: Cable voltage and grid voltage
- Cable type: Aluminum and copper
- Cross section (unit: mm²)
- Insulation diameter
- Cable form: Single core and three core
- Insulation type: Dry type and oil-immersed type (non-drip type)
- Shielding type
- Metal-clad

4.10 Protection and intelligence

The protection relay adopts a self-powered microcomputer protection device, which is specially designed for the application of ring main unit systems. It is a protection relay that can be self-powered by CT. The protection device has inverse time limit and definite time limit protection characteristics, and has three-stage combined overcurrent and earth fault protection function, especially for use in switchboards with circuit breakers and very small rated output currents. It can be used in busbar, line, distribution transformer and other protection situations.

The distribution network automation device can be configured according to user requirements to realize the function of intelligent distribution network.

4.10.1 Current transformer

The protection system can be configured with a variety of CT with different current ranges. According to the primary current of the system, the following CT can be selected:

Correspondence table between current and CT models

CT Model	Primary current range
LZCT-10 100/1 or 100/5	16-80A
LZCT-10 200/1 or 200/5	80-250A
LZCT-10 600/1 or 600/5	250-600A



Figure 4-14 Protection relay

4.10.2 Protection functions

● Phase current overcurrent protection and phase-to-phase fault protection

Provides inverse-time phase-to-phase protection when the phase current exceeds a certain multiple of the rated value, depending on the current level and selected characteristics.

The minimum trip time of the protection system can reach 40ms.

● Earth fault protection

● Fault value record

The built-in fault value record is used to store the data of the last 100 fault events, and the following fault information can be obtained:

- Protection unit causes tripping or externally triggered tripping
- Tripping current value or earth fault current between phases

4.10.3 Intelligent functions

GPR1.1 ring main unit has "three remote" connections. After configuring the distribution automation terminal, it can realize remote signaling, telemetry, remote control, and protection logic (conventional protection, voltage and current type feeder automation, and intelligent distributed feedback line automation) functions.

5.1 Verification and testing

- Check whether the fasteners are loose and tighten if found.
- Manually operate the isolating switch, circuit breaker, mechanism interlocking device, etc. 5 times each. It should be flexible and free of jamming, and the movements should be accurate and the procedures correct.
- Check whether the mechanical characteristics meet the specified technical parameter requirements. The operation test must be carried out according to the specified maximum operating voltage and minimum operating voltage. The opening and closing should be normal.
- Check whether the control loop wiring meets the requirements of the drawing. When the main loop is not energized, perform an action test on the control loop energized and it should comply with the requirements of the control loop wiring diagram.
- Main circuit resistance measurement: Measure the main circuit resistance of the isolating switch and circuit breaker in the cabinet respectively, and the measured values should comply with their respective regulations. The measurement method adopts the DC voltage reduction method, and measures the voltage drop through 100A DC current.
- Control loop insulation test: Apply a power frequency voltage of 2000V between the control loop and the enclosed. There should be no breakdown discharge for 1 minute. When there are electronic components in the control loop, the test voltage shall be mutually agreed upon by our company and the user.
- Main circuit insulation test: Apply a power frequency withstand voltage of 42kV between phases, phases to earth and vacuum circuit breaker isolation intervals. There should be no breakdown or flashover for 1 minute.

5.2 Maintenance and inspection

GPR1.1 ring main unit complies with IEC 60694 standards and can work for 30 years under normal operating conditions.

The GPR1.1 ring main unit should be opened/closed at least once every three years. The status of the mechanism (including contamination, corrosion and lubrication) and the cleaning of the observation window (contamination) should be checked every five years. The battery should be replaced every four years (If equipment is available).

In addition, the following points should be noted:

- Check the operating mechanism and interlocking conditions, and they should meet the "five prevention" locking requirements.
- Check the earth loop outside the air box and the earth wire through the door to ensure its conductive continuity.
- Check whether the control circuit connection is good, whether there are any abnormalities in the control circuit contacts, and perform necessary processing.
- Check the fasteners of each part and tighten them in time if they are loose.
- Main circuit power frequency withstand voltage test: The test voltage value is 0.8 times the value specified in GB/T 11022-2011.

5.3 Packaging, transportation and storage

The following points should be noted during transportation and storage of GPR1.1 ring main unit:

- Do not overturn, invert or suffer severe vibration to prevent cabinet deformation and paint damage.
- Should be stored in a dry, ventilated room or a dry place protected from rain, snow, wind and sand.
- Do not disassemble parts at will.
- Any operation that may damage the sealing performance of the air box is prohibited.

5.4 Product complete set of documents and ordering instructions

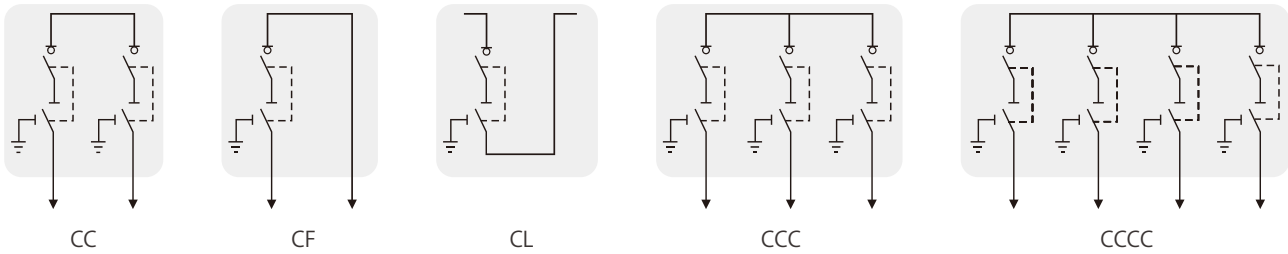
Product complete set of documents:

- Product certificate
- Product packing list
- Product factory test report
- Installation and user manual
- Control circuit wiring scheme

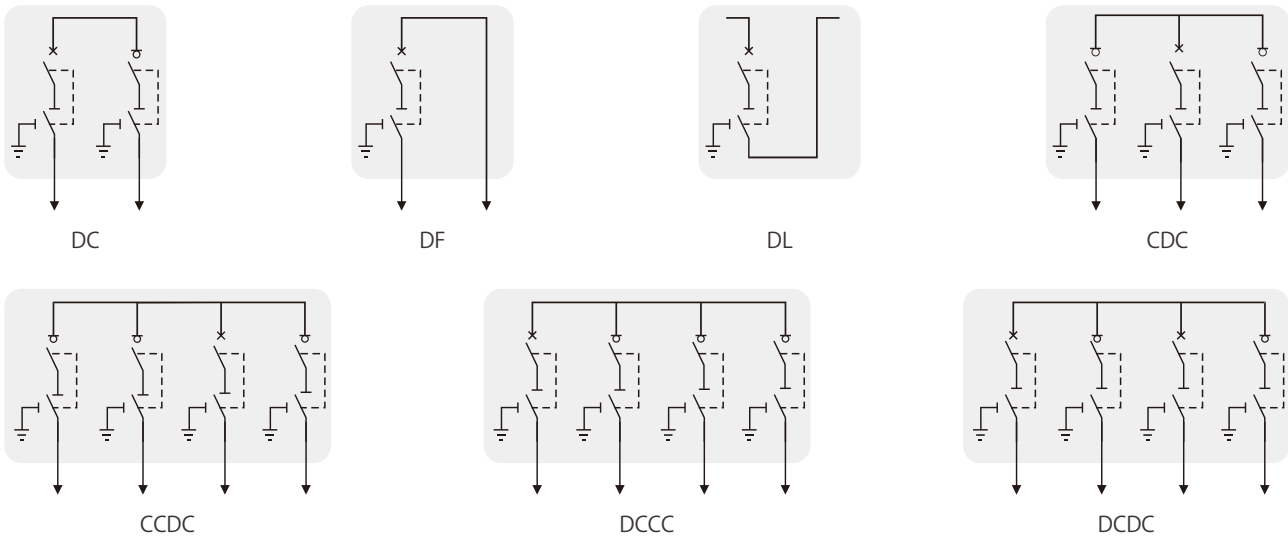
Ordering instructions:

- Main circuit wiring scheme, main circuit diagram and arrangement diagram
- Electrical equipment summary table
- When the switchgear cabinet is used in a special environment, it should be mentioned when ordering.
- Non-standard design can be carried out according to user requirements
- If you need other or additional accessories, please indicate the type and quantity.

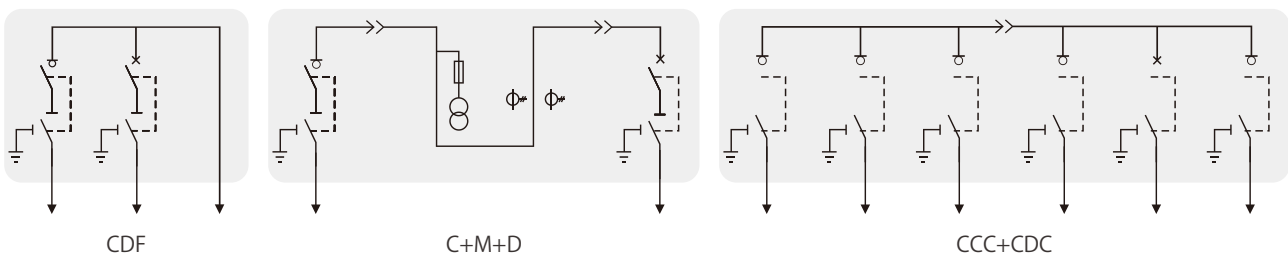
6.1 Network node load switch



6.2 Network node 630A circuit breaker



6.3 Other combination solutions



Note: The above are typical combined loop solutions. Any other combined loop solution can also be provided according to user requirements.

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Zhejiang Greenpower Electric Co., Ltd
Zhejiang GreenPower I&E Co., Ltd
Professional Power Equipment Provider

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GreenPower

Contact us



www.sinogp.com



gp@sinogp.com



0577 8550 0968



+86 189 8978 2765



No.827 Wenzhou Avenue, Wenzhou,
Zhejiang, 325011, P. R. China