

NXRING

Gas-insulated RMU



THE POWER OF ENGINEERING

Belief in the power of technical engineering

Be the master of knowledge, become the leader of technology and manufacturing engineering, achieve the sustainable development of the enterprise, and continuously meet the needs of power users.



NXRING

Cabinet Character

Overview



NXRING is an indoor type metal-enclosed single bus switch gear that is insulated with SF6 gas and fully meets type test requirements. It is suitable for the secondary power distribution system of the public power grid and the power distribution system in the industrial and other fields. Its compactness and modular expansion make it an excellent cabinet for secondary power distribution applications.



Compact



The strong insulation performance of SF6 gas makes the cabinet structure particularly compact. It can be applied to public power grids or power distribution rooms of new projects, and can also be used in places with particularly high space requirements. Eg: Switch station Box transformer high voltage incoming unit Terminal Transformer Incoming Unit

Economic



Low cost during the operation; Modular design saves resources; Small area; Circuit breaker controls short circuit current load switch controls the load current Low operate cost due to general protection and intelligent control

Safe



Type-tested cabinets meet the harsh power environment Fully insulated and fully enclosed design The role of the pressure relief channel for the internal arc Voltage display; Grounding capability and Operational Lockout Cable joint heating monitoring is optional

Convenient



The simple interface makes the cabinet easy to use; Modular plug-in expandable design Extensible Design Ample cable room space for easy installation Standardized merging method, convenient merging Standardized outer cone bushing cable connection The height of the outer cone sleeve is the same Easy and reliable operation of interlocking and locking Double-sided expansion can be reserved

Weather resistance



The design of fully insulated and fully sealed stainless steel gas tight welding gas box, SF6 gas sealed insulation, and fully shielded and fully insulated design of expansion bus and cable connection make the primary live part of NXRING gas insulated switchgear free from the influence and interference of the external environment. For example: damp contaminated dust Small animals Condensation Other external objects, etc It can be used with outdoor box

Maintenance free



Maintenance-free fully sealed air box and shielded cable terminal design, maintenance-free design concept ensures that the cabinet is easy to use in the service life cycle, and one-time part is maintenance-free. No supplemental air required for the entire life cycle. Expansion, replacement, installation and other operations do not require SF6 gas work. No need for lubrication and adjustment during the life of the circuit breaker/load switch operating mechanism

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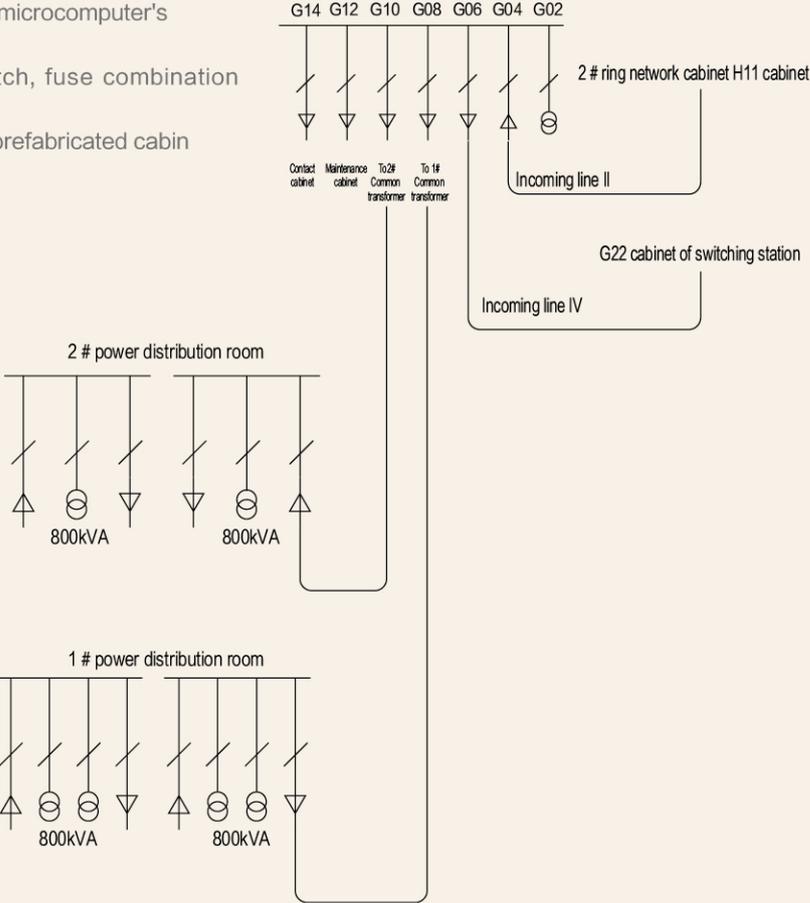
Application

System condition

- Rated frequency: 50Hz
- Norminated Voltage: 10kV
- Maximum operate voltage: 12kV
- System Neutral Grounding Method: Small resistance grounded, ARC grounded and ungrounded

Transformer distribution and protection functions

- The circuit breaker scheme cooperates with the microcomputer's transformer protection function
- Transformer protection function of load switch, fuse combination appliance supporting fuse
- Application of prefabricated box substation and prefabricated cabin substation



Application scenarios

It is used in secondary distribution of public distribution network, infrastructure, photovoltaic, industry, wind turbine tower, offshore oil platform and other fields.



Compact Secondary substation



Wind power



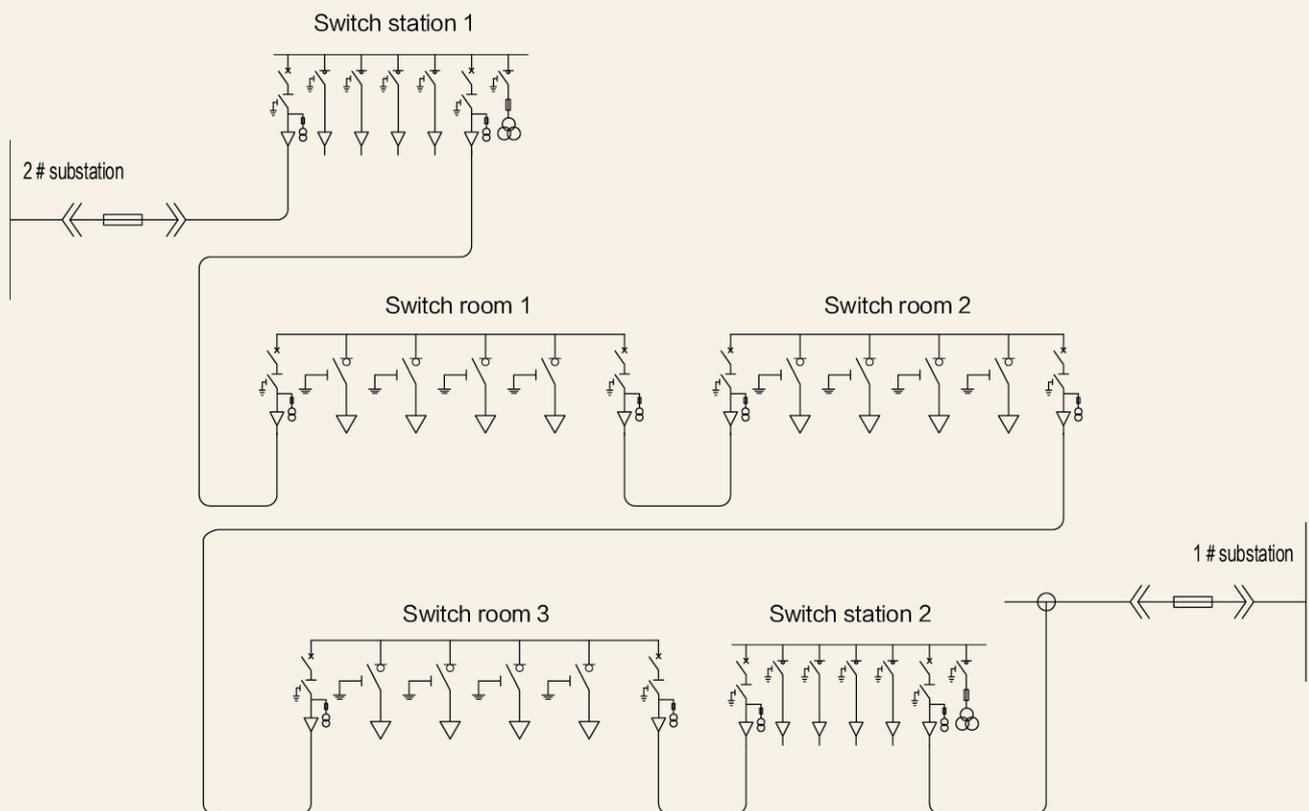
Hotels, CBD, Office building



Metro

Line distribution function of secondary distribution network

Tree Power Supply and Ring Power Supply,
Secondary distribution function distribution
network automation segmentation, restoration,
isolation function switching station
Cable branch box with switch



NXRING

Standard

Relevant standards



The design and manufacture of NXRING conform to China's national GB standards and the relevant IEC standards of the International Electrotechnical Commission. The same applies to the standards cited in this manual. Including but not limited to the following aspects of switchgear design and manufacture, switchgear breaking, isolation, insulation, partial discharge performance

- Transformer
- Low voltage control equipment
- Power supply
- SF6 gas
- Cable
- Wire
- Fuse
- Graphics and Symbols
- Test
- Electrical terminology

Hertzman has been committed to meeting the high quality standards of users for many years, and has passed the following certifications:

- ISO 9001: 2000
- ISO 14001: 2004
- OHSAS 18001
- CNAS



NXRING conforms to existing Chinese National Standards and IEC standards¹

1. The standardized customized version of NXRING State Grid meets the standardized customization requirements of the State Grid Corporation of China.
2. The NXRING automation complete equipment version meets the requirements of China Southern Power Grid Corporation's SF6 fully insulated circuit breaker cabinet automation complete equipment standard.
3. Corresponding compliance products can be customized according to the regulatory requirements of different countries.

| Equipment | IEC standard | GB/Tstandard |
|--|------------------------------|---------------------------|
| Switch equipment | IEC 62271-200 IEC 62271-1 | GB/T 3906 GB/T 11022 |
| In case of internal failure | IEC 62271-200 | GB/T 3906 |
| Grounding switch | IEC 62271-102 | GB/T 1985 |
| isolating switch | IEC 62271-102 | GB/T 1985 |
| load switch | IEC 62271-103 | GB/T 3804 |
| Load switch fuse group | IEC 62271-105 | |
| Breaker | IEC 62271-100 | GB/T 1984 |
| Current Transformer | IEC 60044-1 | GB/T 1208 |
| voltage transformer | IEC 60044-2 | GB/T 1207 |
| High voltage live display device | IEC 61958 | DL/T 538 |
| Voltage detection system | IEC 61243-5 | |
| Protection against accidental contact, Foreign objects and waterproof installation | IEC 60529 IEC 60364 | GB/T 4208 GB50169-2006 |
| Operation of electrical equipment | EN 50110 | GB/T 26164.1 |

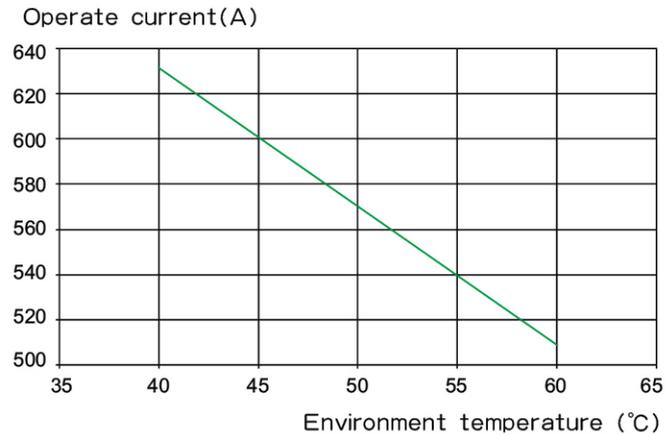
NXRING

Parameter

Product quality standard and management

- ISO quality assurance system
- Advanced Technology and processing
- Robot welding process and air tightness detection
- Switch running-in and switch characteristic detection
- Insulation test
- Partial discharge test
- Resistivity Test
- Complete control and protection test

Temperature derating table



Operating condition

| Indoor | Satisfied IEC62271-1,GB/T11022-2011 |
|--|--|
| Environment temp. | From -25° C to +40° C (Optional: -25° C) Average over 24 hours: +35° C |
| Maximum installation separation (altitude) | 1000m |
| Insulating gas | SF6 |
| Rated pressure | 1.45bar(at+20° C) |

Parameter

| | Load switch | Combination appliances | v a c u u m circuit breaker |
|--|-------------|------------------------|-----------------------------|
| Rated voltage kV | 12 | 12 | 12 |
| Power frequency withstand voltage kV | 42 | 42 | 42 |
| Lightning impulse withstand voltage kV | 75 | 75 | 75 |
| Rated current A | 630 | Fuse rated current | 630 |
| Breaking capacity kA | 20 | | 20 |
| Closed-loop breaking current A | 630 | | |
| Cable charging breaking current A | 135 | | |
| Ground fault breaking current A | 200 | | - |
| Out-of-phase earth fault breaking kA | 17.32 | | - |
| Short circuit breaking current kA | 20 | By fuse | 25, 20 |
| Closing ability kA | 63 | By fuse | 63, 50 |
| Short-time withstand current kA/s: | 20/4 | | 25/4, 20/4 |
| Mechanical life times | 5000 | 3000 | 10000 |
| Mechanical Operation Sequence | | | O - 0.3s - CO - 180s - CO |

NXRING

Parameter

Protection class

- Electrical main circuit: IP67
- Fuse compartment: IP67
- Actuator: IP4X (Optional: IP67 Actuator Protection)
- Cable compartment (with compartment door closed): IP4X
- Low pressure box: IP4X
- Overall housing: IP4X
- Overall housing: IK07

Structural properties

Separator PM class (metal separator)

Loss of Continuity Category LSC2

Accessible category AGB3906 closed place conditions, authorized people

The main circuit compartment is not accessible

Low pressure compartment accessible

The cable compartment is accessible when the latch is unlocked

The fuse compartment is accessible when the latch is unlocked

Internal arc rating

IAC A FLR 31.5KA 1S

Safety design

Air Tightness Guarantee with Robotic Welding Process and Ammonia Tested IP67protection

All primary circuits are fully sealed

Fully insulated, fully enclosed, fully shielded design

For internal arcing in extreme cases, the internal arcing level of 31.5KA/1S can be discharged through the bottom or the rear to the top through the pressure relief valve of the air box.

If there is air leakage, the relay of the air pressure strap will lock the operating mechanism to prevent the accident expanding.

Natural interlocking design of three-position load switch

The grounding switch has the ability to make short-circuit to ground

Well grounding design

There is a mechanical interlock between the cabinet door, circuit breaker, load switch, and grounding switch

Door closing operation design

Configure a padlock to prevent operation of the load switch

Configure a padlock to prevent grounding switch operation

Configure a padlock to prevent the opening operation

Voltage live display isolated from main circuit



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Cabinet design

Low pressure room

circuit breaker/load switch

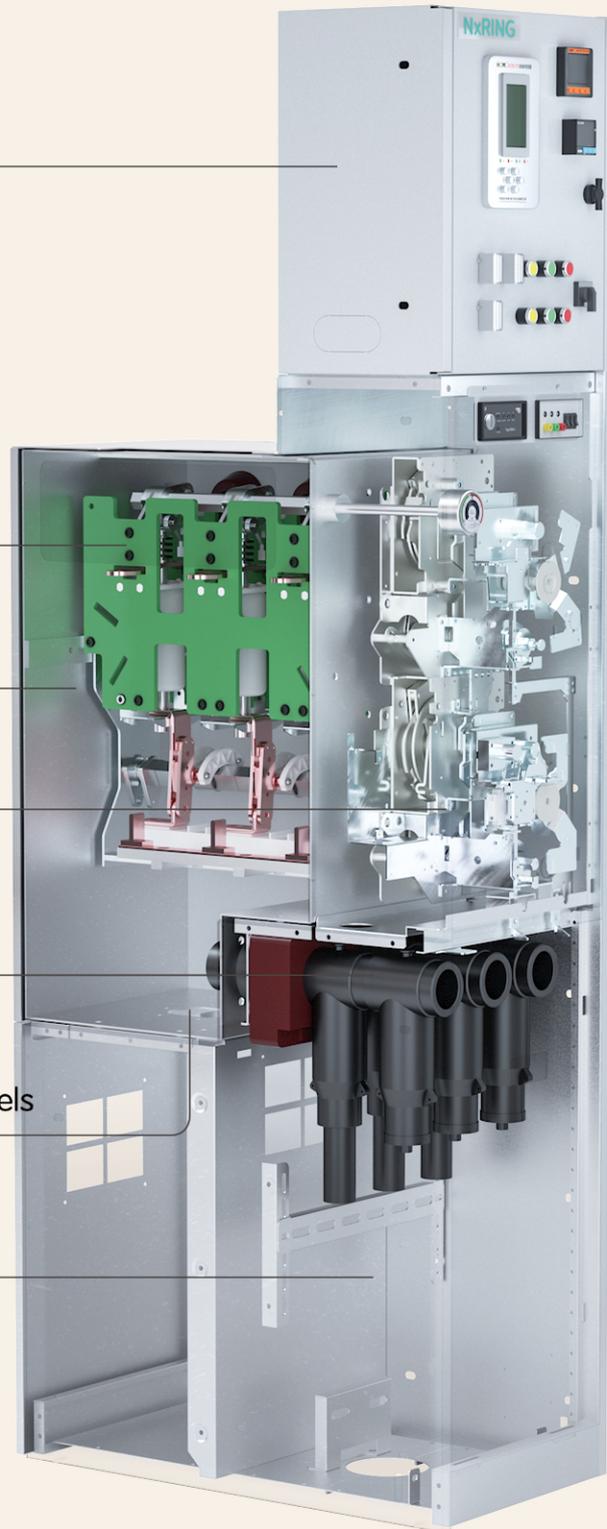
Air box

Operating mechanism

Cable head/cable bushing

Pressure Relief Valves and Channels

Cable room



Metal plate Process

The air box adopts 3.0mm, S304 stainless steel plate through CNC sheet metal process, automatic stud welding, robot welding and other precision machining processes.

Cabinet door panel cold-rolled steel plate and spray surface treatment process.

The enclosure protection grade is IP4X, and the air box grade is IP67

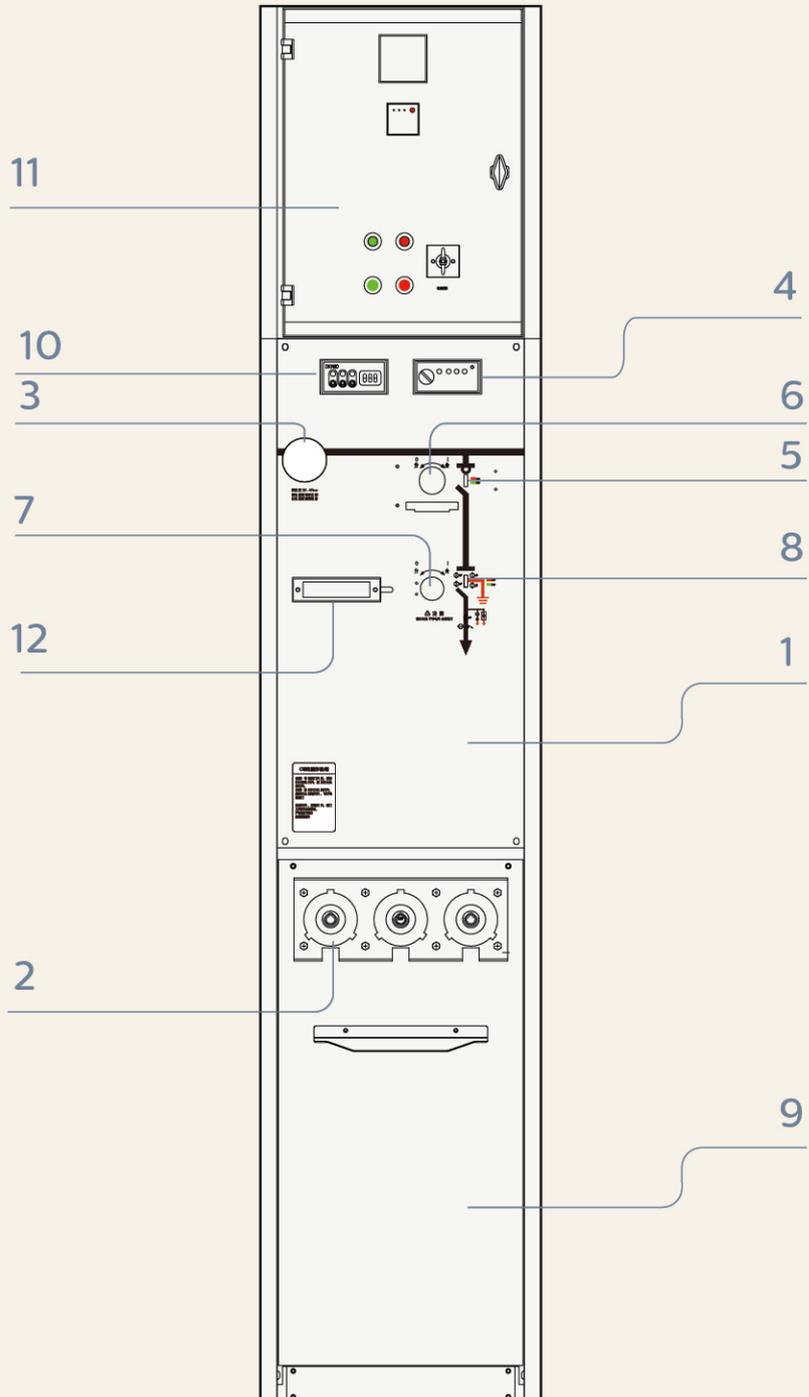
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HMI

- 1.Cabin
- 2.Switch inlet sleeve
- 3.SF6 barometer
- 4.Fault indicator
- 5.Switch position indication
- 6.Load switch operating hole
- 7.Grounding switch operation hole
- 8.Ground position indication
- 9.cable room
- 10.Charged Display
- 11.Low pressure and control room

HMI

load switch unit NXRING-F



F Unit Operation Instructions

Switch on: Cable compartment door closed, turn off the ground switch counterclockwise, Clockwise load switch storage energy, Green button closes the load switch

Switch off: The red button off the load witch, turn on the ground switch clockwise, the cable compartment door open

There is a mechanical interlock between the load switch, grounding switch and cabinet door. F unit must store energy before turn the load switch on

Forced operations are strictly prohibited.
Follow the procedure.

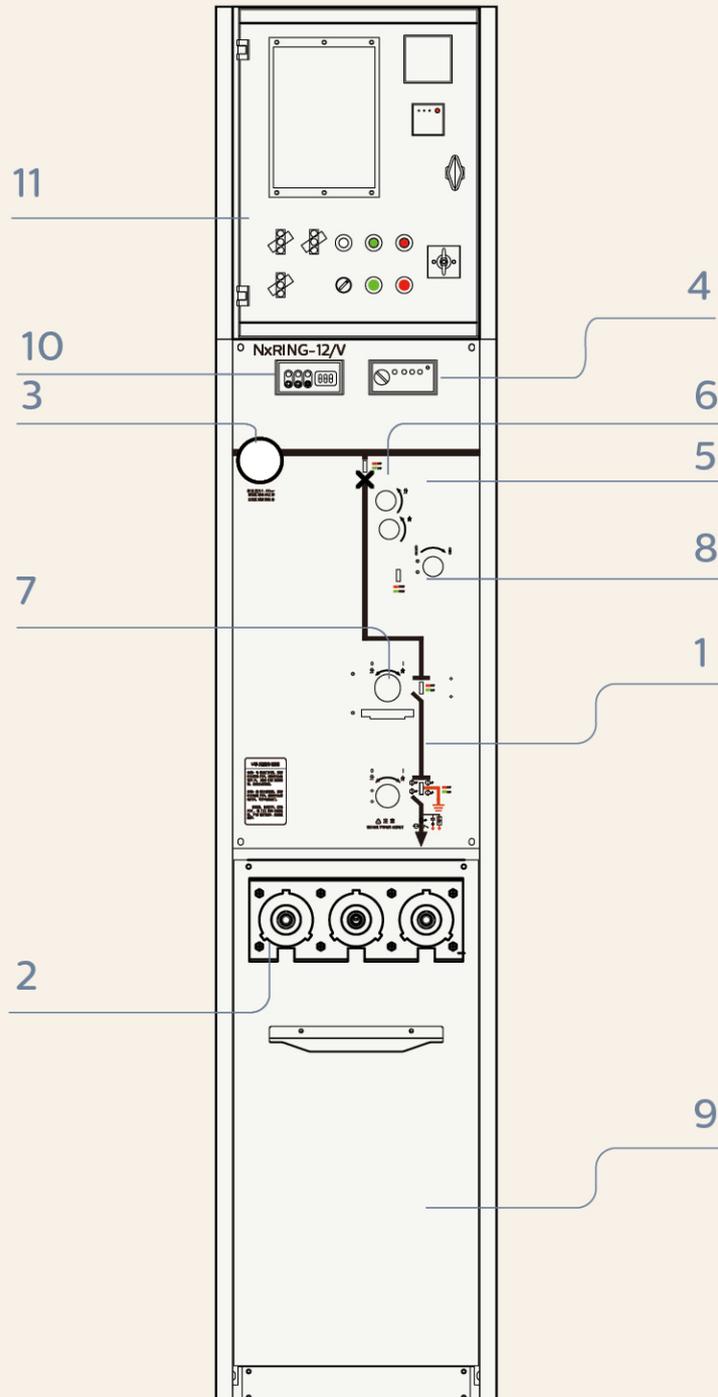
NXRING

HMI

- 1.Cabin
- 2.Switch inlet sleeve
- 3.SF6 barometer
4. Fault indicator
- 5.Switch position indication
6. Load switch operating hole
- 7.Grounding switch operation hole
- 8.Ground position indication
- 9.cable room
- 10.Charged Display
- 11.Low pressure and control room

HMI

Vacuum circuit breaker unit NXRING-V



V Unit Operation Instructions

Switch on: The cable compartment door is closed, the grounding switch is opened counterclockwise, closed the isolating switch clockwise, Clockwise to charge the circuit breaker, turn the knob to close the circuit breaker.

Switch off : Turn the knob to open the circuit breaker, open the isolating switch counterclockwise, close the grounding switch clockwise, and open the cable compartment door.

There are mechanical interlocks between circuit breakers, isolating switches, grounding switches, and cabinet doors.

Forcible operation is strictly prohibited, operate according to regulations. Forced operations are strictly prohibited.

Follow the procedure.

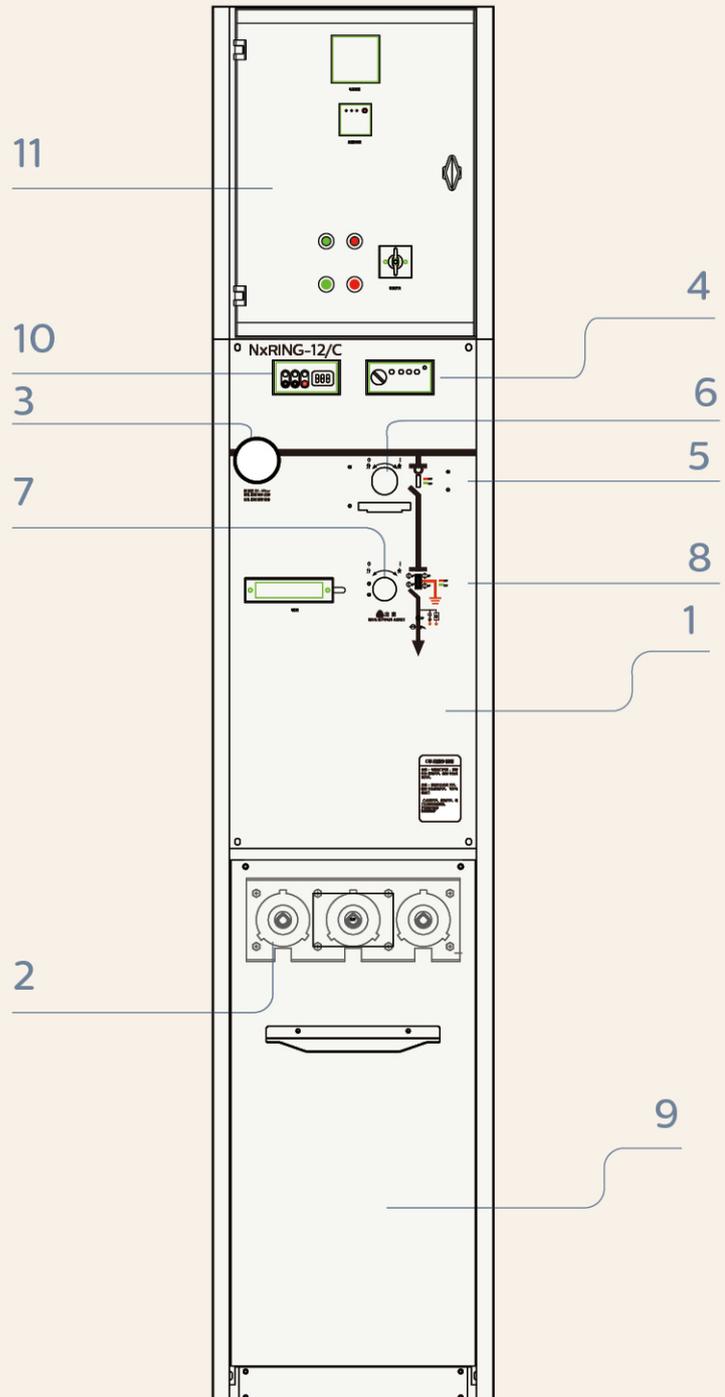
NXRING

HMI

- 1.Cabin
- 2.cable sleeve
3. SF6 barometer
- 4.Fault indicator
- 5.Switch position indication
6. Load switch operating hole
- 7.Grounding switch operation hole
- 8.Ground position indication
- 9.Cable room
- 10.Charged Display
- 11.Low pressure and control room

HMI

load switch unit NXRING-C



CUnit Operation Instructions

Switch on: The cable compartment door is closed, the grounding switch is opened counterclockwise, and the load switch is closed clockwise.

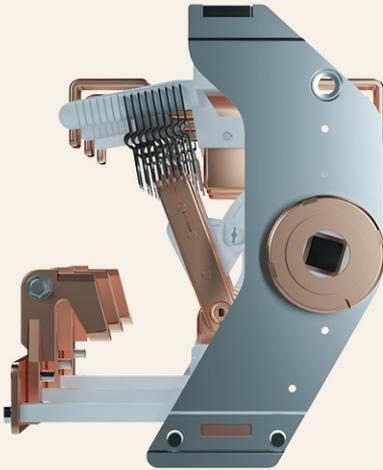
Switch off: Turn off the load switch counterclockwise, turn on the grounding switch clockwise, and open the cable compartment door

There is a mechanical interlock between the load switch, grounding switch and cabinet door.

Forced operations are strictly prohibited. Follow the procedure.

NXRING

Mechanical interlock



Three-position load switch

NXRING cabinet functional interlock and interlock device meet GB/T 3906 and IEC 62271-200 standards

Mechanical interlock can effectively prevent mis-operation

The structure of the three-position switch can prevent mis-operation

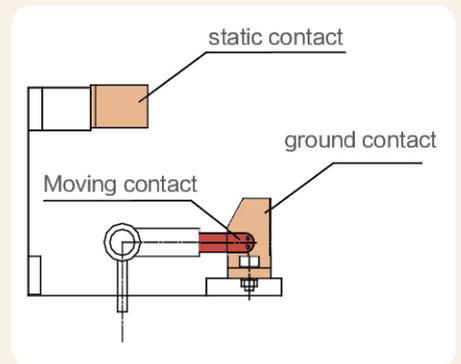
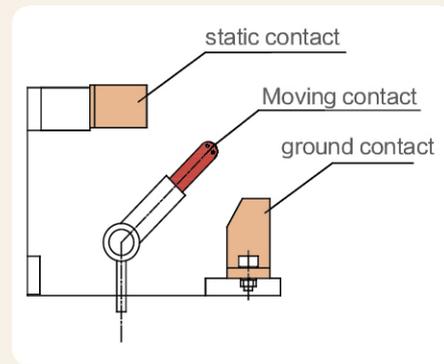
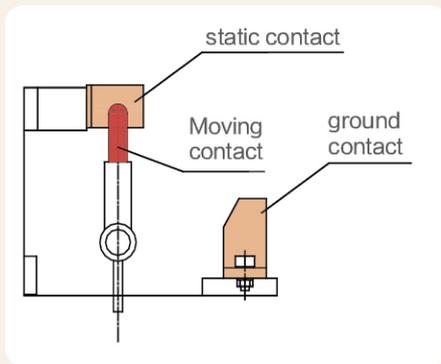
Door and compartment interlock to prevent live access to cable terminations and high voltage fuses.

Padlock device prevents unauthorized operation

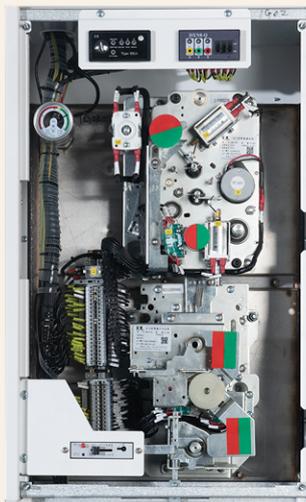
Three-position switch

The natural interlock design of the three-position load/earth switch and the natural interlock design of the three-position isolation earth switch completely eliminate the possibility of operating procedure errors.

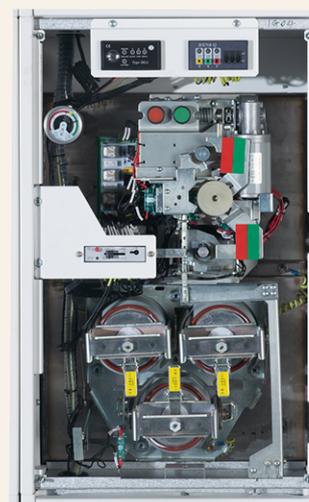
Three switch position states



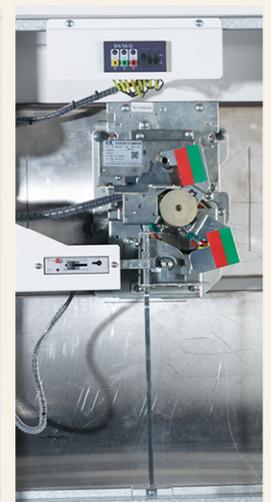
locking mechanism



V operating mechanism



F operating mechanism



C operating mechanism

NXRING

Mechanical interlock

C-LOCK mechanical program lock

C-LOCK mechanical program lock device is used to establish the interlocking relationship between separated (non-mechanically connected) components or equipments

C-LOCK key interlock device

R-AIR can be equipped with C-LOCK key interlocking device to realize functional interlocking of the system.

The load switch (circuit breaker) is interlocked by two locks and one key. Cabinet A and cabinet B are equipped with key interlocking devices respectively, but one key is configured. The key is configured on the cabinet unit to be closed. When the unit is closed, the key cannot be removed or rotated; When the other cabinet has no key, the operating shaft cannot operate. Thus, the "two locks and one key" interlocking function is realized, that is, cabinet A and cabinet B can only close one of them.

The load switch (circuit breaker) is interlocked with three locks and two keys. Cabinet A, cabinet B and cabinet C are equipped with key interlocking devices respectively, but one key is configured. The key is configured on the cabinet unit to be closed. When the two units are closed, the key cannot be removed or rotated; When the other cabinet has no key, the operating shaft cannot operate. Thus, the "three locks and two keys" interlocking function is realized, that is, cabinet A, cabinet B and cabinet C can only be closed the two of three.

The load switches (circuit breakers) of different cabinets are interlocked with the grounding switches by two locks and one key, and the outgoing cables of cabinet A and cabinet B are interconnected. According to the system function requirements, the two cabinets are respectively equipped with two locks and one key for interlocking, respectively locking their load switches (circuit breakers) and grounding switches, to prevent one cabinet from closing the grounding switch of the other cabinet by mistake when the load switches (circuit breakers) of one cabinet are not disconnected; This function can evolve other functions required by the system function according to the above logic.

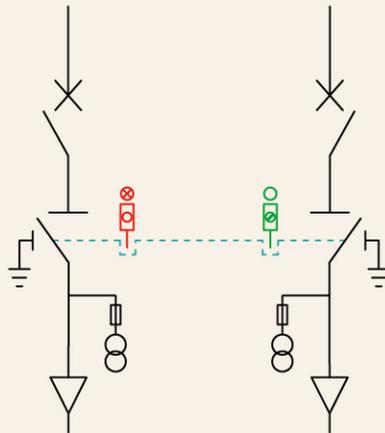
The switchgear cabinet and the transformer are interlocked by two locks and one key. The grounding switch of the switchgear cabinet and the protective door of the transformer outer chamber are respectively equipped with a key interlock device, but one key is configured. When the grounding switch is in the opening state, the key cannot be removed or rotated, and the protective door of the transformer outer chamber cannot be opened without a key. Thus, the "two locks and one key" interlocking function is realized to prevent the door from accidentally opening and touching the transformer when the primary side of the transformer is not grounded.

C-LOCK interlocking application

C-LOCK key interlock device

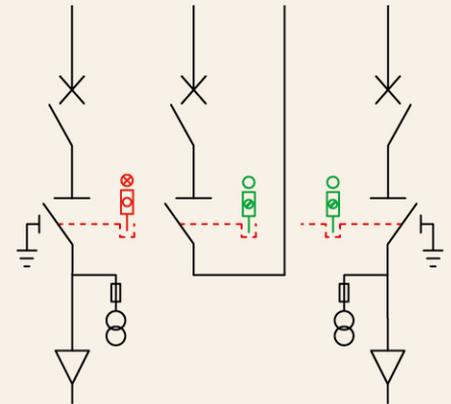
V circuit breaker cabinet
Interlocking of two incoming lines (two locks and one key)

When the disconnecting switch of 1 # incoming switch is disconnected at the time position, turn the key to lock the knife switch off, and operate the 2 # incoming knife switch to close position after taking out the key, it is allowed to close the 2 # switch.



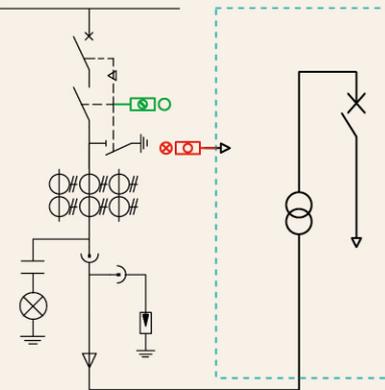
V circuit breaker cabinet
Two incoming lines+contact cabinet interlock (Three locks and two keys)

When the disconnecting switch of 1 # incoming switch is disconnected at the time position, turn the key to lock the knife switch opening, and operate the incoming knife switch of the contact cabinet to the closing position after taking out the key, then it is allowed to close the contact switch.



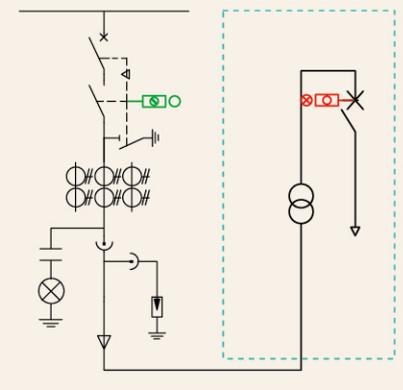
Locking transformer door of circuit breaker cabinet (two locks and one key)

When the V cabinet is in the OFF position and the disconnector is in the ON position, turn the key to lock the grounding position. Only after the key is taken out the transformer reticular door can be opened for maintenance.



Circuit breaker cabinet locks the low-voltage side circuit breaker of transformer (two locks and one key)

When the circuit breaker at the low-voltage side is disconnected, turn the key to lock the low-voltage circuit breaker position. After the key is taken out to prevent reverse power transmission at the low-voltage side, the high-voltage side disconnecting switch can be operated.

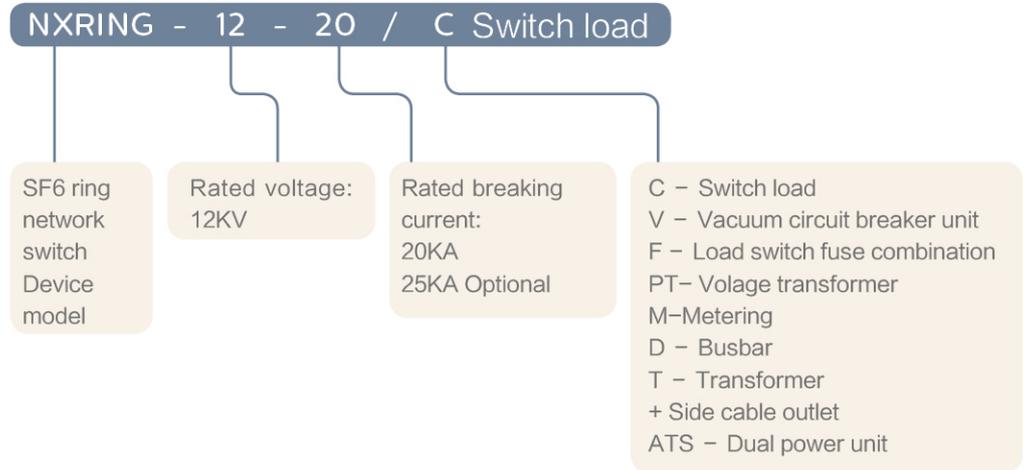


- ⊗ □ Keyless equipment locking status
- □ Unlock status of keyed equipment

NXRING

Standard unit

Model Definition



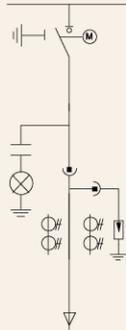
NXRING standard unit

| C | Load switch unit | width = 400 mm (optional 375,420,500mm) |
|-----|---|---|
| D | Cable connection unit without grounding knife | Width = 325 mm(optional 375,400,420mm) |
| F | Load switch fuse combination | Width = 400 mm(optional 375,420,500mm) |
| V | Vacuum circuit breaker unit | Width = 400 mm(optional 375,420,500mm) |
| M | Metering unit | Width = 650 mm(optional 700,750,800mm) |
| PT | voltage transformer unit | Width = 500 mm(optional 600mm) |
| T | Transformer unit | Width = 750mm Width adjusts to transformer container size |
| + | side cable outlet | Width = 400 mmmm (Same as C) |
| ATS | Dual power unit | Width = 800 mm(2*400=800mm) |

NXRING

Standard unit

load switch unit NXRING-C

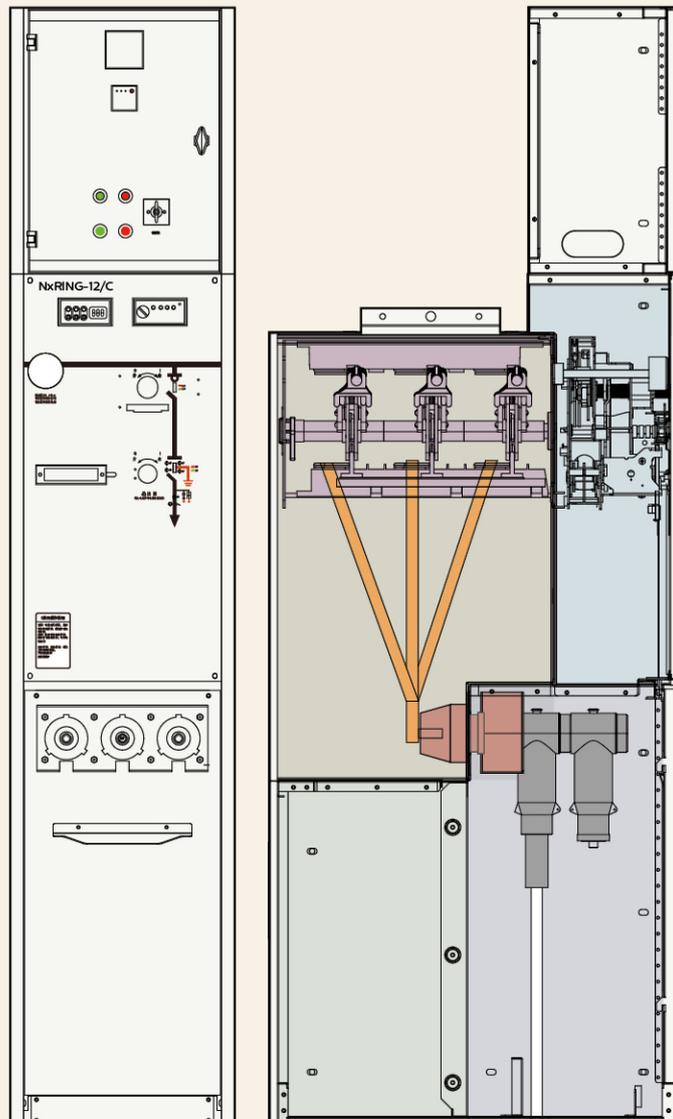


Standard configuration

- EAS-C Three position Operating device for independent operation of load/ground switch and load ground switch
- 630A bus bar
- c-type cable bushing / sensor with capacitive voltage live indicator
- Cable head
- Live display
- SF6 baromete r (1 per box)
- Ground bus bar
- Earthing switch and cabinet door interlock
- Standard cable comp artment door
- Standard padlock
- Temperature and humidity controller and drying device

Optional

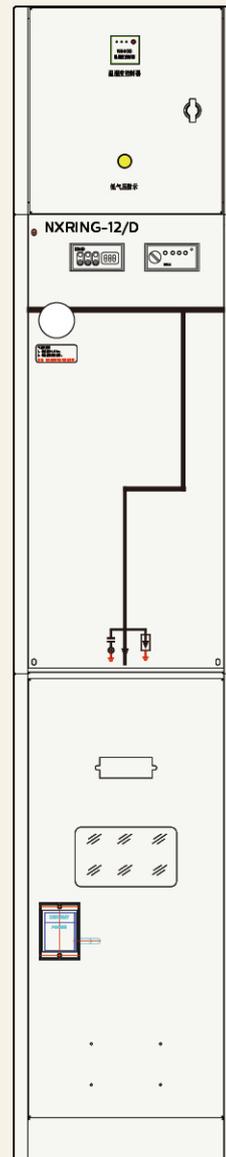
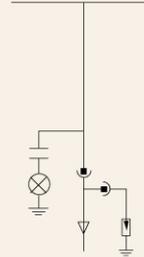
- Expansion bus (Top expansion busbar, side expander, air type connection sleeve)
- Electric operating mechanism and control circuit
- Short circuit and ground fault indicators
- Current transformers and instruments
- lightning arrester
- Double cable head
- Cable head temperature measuring device
- Standard 350mm low pressure chamber
- Elevated 450mm low pressure box
- Protruding 100mm thick cable room door
- Cable door with infrared thermometer window



NXRING

Standard unit

Busbar unit NXRING-D



Standard configuration

- 630A Busbar
- Type c cable bushing / live indicator sensor with capacitive voltage
- Cable head
- Live display
- SF6 barometer (1 per box)
- Ground busbar
- Grounding switch and cabinet door interlock
- Standard cable compartment door

- Standard padlock
- Temperature and humidity controller and drying device

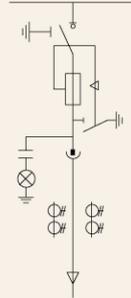
Optional

- Expansion busbar
(Top expansion busbar, side expander, air type connection sleeve)
- Short circuit and ground fault indicators
- Current transformers and instruments
- Lightning arrester
- Double cable head
- Cable head temperature measurement device
- Standard 350mm low pressure chamber
Elevated 450mm low pressure box
- Protruding 100mm thickened cable compartment door
- Cable door with infrared thermometer window

NXRING

Standard unit

Fuse unit NXRING-F

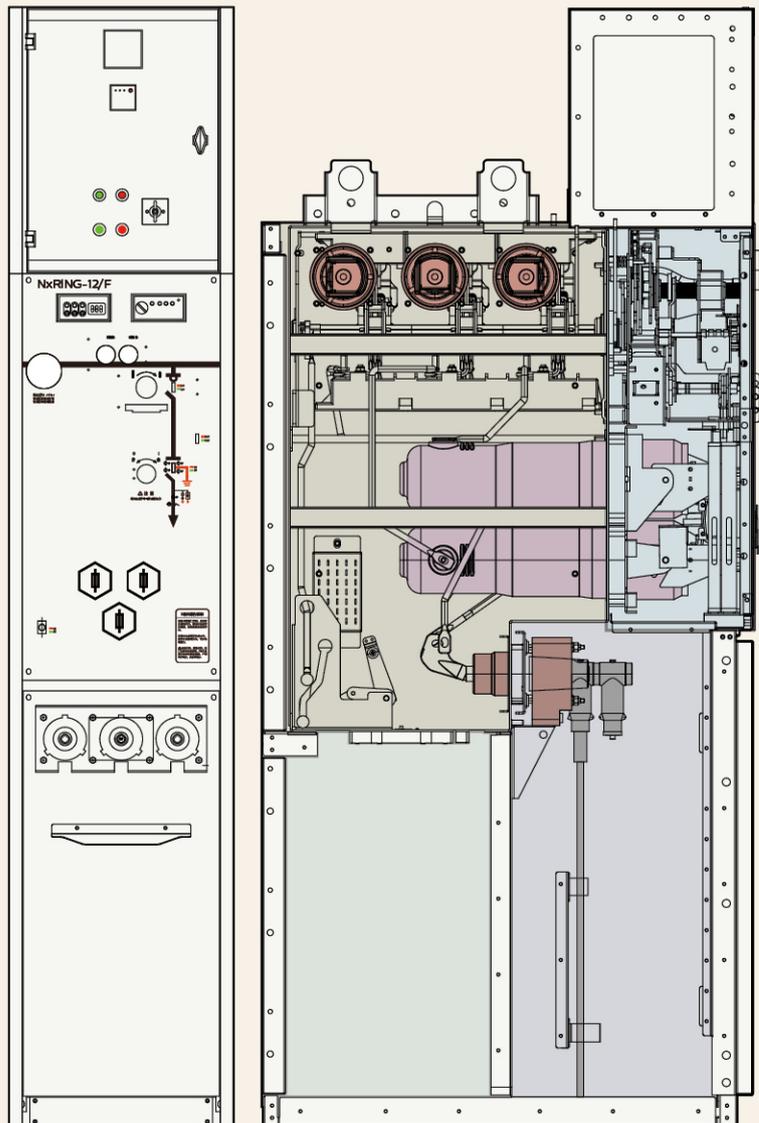


Standard configuration

- EGIS –F load switch fuse combination electrical and load / grounding switch operating mechanism independently operated
- 630A busbar
- Fuse cartridge/fuse
- Type c cable bushing / live indicator sensor with capacitive voltage
- Cable head
- Live display
- SF6 barometer (1 per box)
- Ground busbar
- Grounding switch and cabinet door interlock
- Standard cable compartment door
- Standard padlock
- Temperature and humidity controller and drying device

Optional

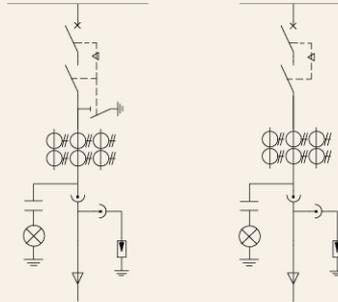
- Expansion busbar (Top expansion busbar, side expander, air type connection sleeve)
- Short circuit and ground fault indicators
- Current transformers and instruments
- Lightning arrester
- Double cable head
- Cable head temperature measurement device
- Standard 350mm low pressure chamber Elevated 450mm low pressure box
- Protruding 100mm thickened cable compartment door
- Cable door with infrared thermometer window



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Standard unit

circuit breaker unit NXRING-V

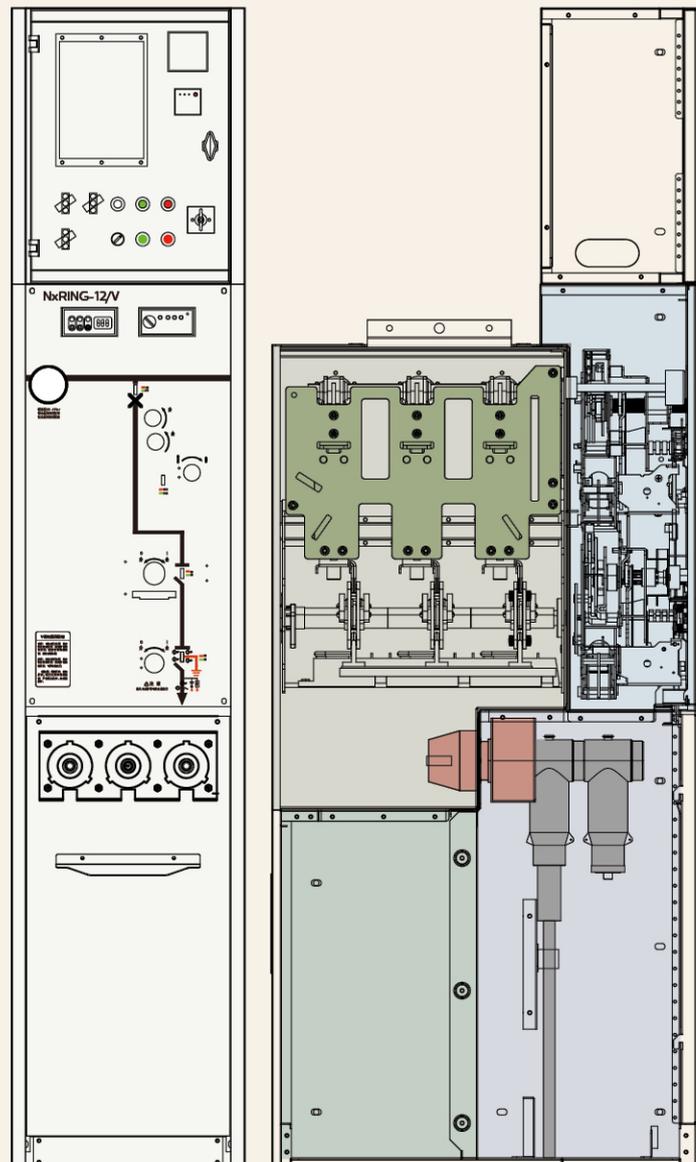


Standard configuration

- VHZ vacuum circuit breaker and two-position circuit breaker operating mechanism
- EAIS-G three-position isolation earthing switch and load/earthing switch operate independently of the operating mechanism.
- Interlocking and Indication of Circuit Breaker and Three-Station Isolation Grounding Switch Mechanism
- 630A busbar
- MIC300 microcomputer protection
- Type c cable bushing / live indicator sensor with capacitive voltage
- Cable head
- Live display
- SF6 barometer (1 per box)
- Ground busbar
- Grounding switch and cabinet door interlock
- Standard cable compartment door
- Standard padlock
- Temperature and humidity controller and drying device

Optional

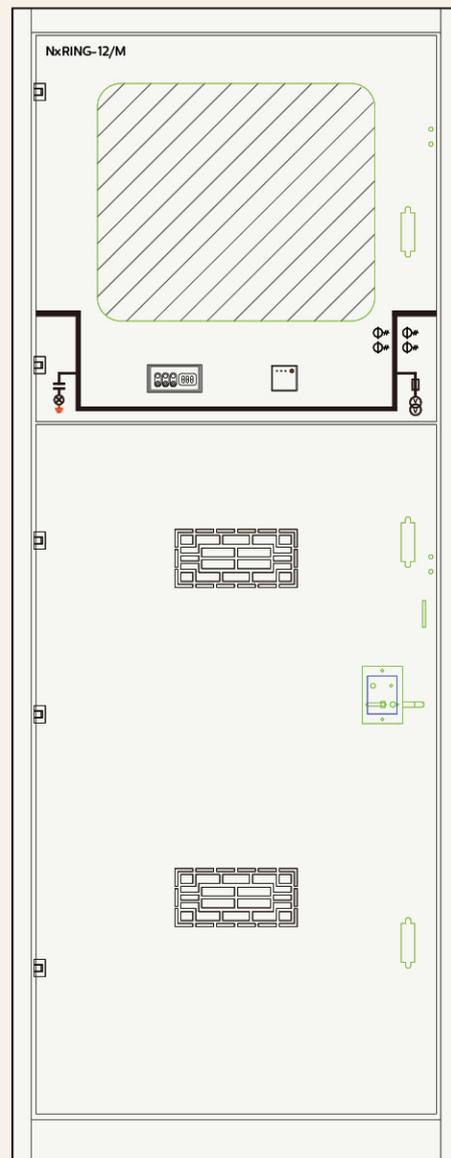
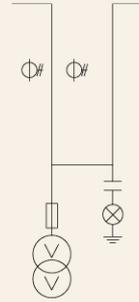
- Expansion busbar
(Top expansion busbar, side expander, air type connection sleeve)
- Short circuit and ground fault indicators
- Current transformers and instruments
- Lightning arrester
- Double cable head
- Cable head temperature measurement device
- Standard 350mm low pressure chamber
Elevated 450mm low pressure box
- Protruding 100mm thickened cable compartment door
- Cable door with infrared thermometer window
- C-LOCK key interlock device



NXRING

Standard unit

Metering unit NXRING-M



Standard configuration

- 2 metering current transformers
- 2 metering voltage transformers
- 630A busbar
- Air connection bushing / sensor with capacitive voltage live display
- Meter
- Live display
- Ground busbar
- Electromagnetic lock
- Standard cable compartment door
- Temperature and humidity controller and drying device
- Transformer dimension standard DIN 42600 standard

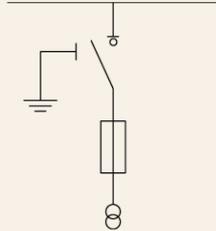
Optional

- 3 metering current transformers
- 3 metering voltage transformers meter

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Standard unit

PTunit NXRING-PT

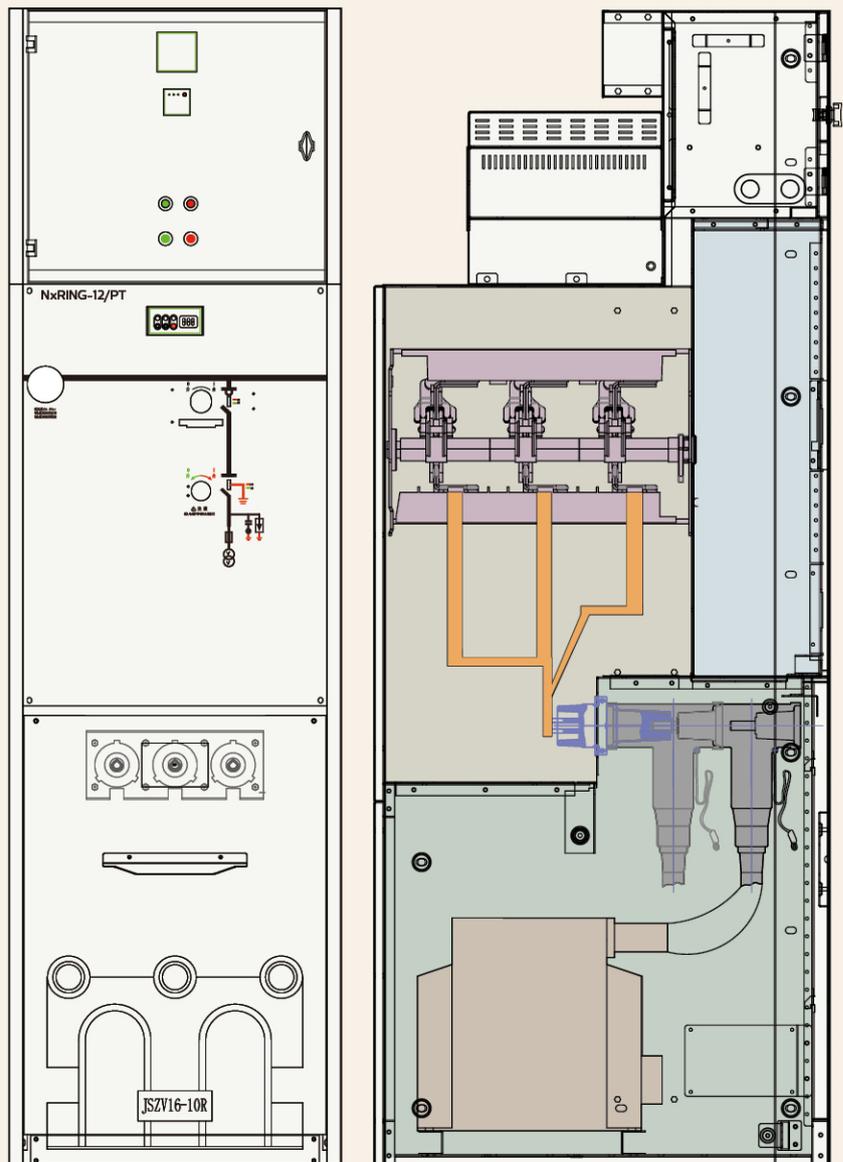


Standard configuration

- EAIS-C three-position load/earth switch and operating mechanism for independent operation of load/earth switch
- Type c cable bushing / live indicator sensor with capacitive voltage
- PT with protective fuse
- Pre-assembled fully insulated cable glands and cables
- Voltmeter
- Live display
- SF6 barometer (1 per box)
- Ground busbar
- Grounding switch and cabinet door interlock
- Standard cable compartment door
- Standard padlock
- Temperature and humidity controller and drying device

Optional

- Expansion bus
(Top expansion busbar, side expander, air type connection sleeve)
- Lightning arrester
- Standard 350mm low pressure chamber
Plus release 450mm low pressure box
- Protruding 100mm thickened cable compartment door
- Cable door with infrared thermometer window
- DC operating system



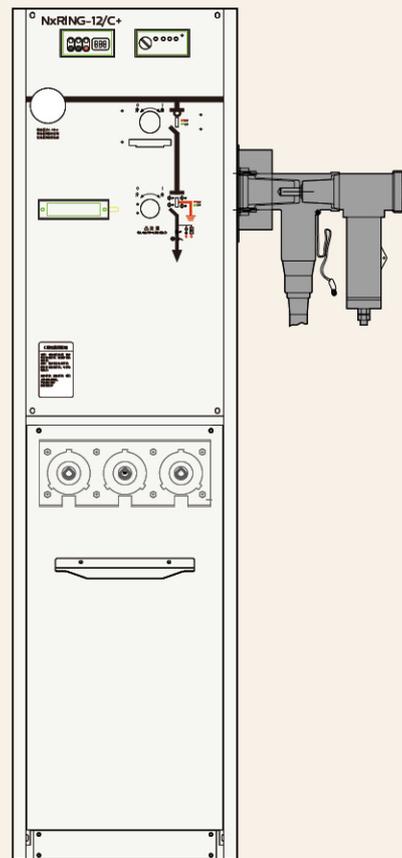
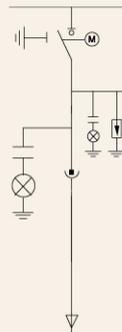
Cable side outlet unit NXRING-C+

Standard configuration

- EAIS-C three-position load/earth switch and operating mechanism for independent operation of load/earth switch
- 630A busbar
- Lower C-type cable bushing / sensor with capacitive voltage live indicator
- Side Outlet Type C Cable Sleeve / Live Display Sensor with Capacitive Voltage
- Cable head
- Live display
- SF6 barometer (1 per box)
- Ground busbar
- Grounding switch and cabinet door interlock
- Standard cable compartment door
- Standard padlock
- Temperature and humidity controller and drying device

Optional

- C-type cable sleeve on the right side is matched with multi-channel cable head (such as 3-channel is C+++)
- C-type cable sleeve on the left side is matched with multi-channel cable head (such as 3-channel is +++C)
- Electric operating mechanism and control circuit
- Short circuit and ground fault indicators
- Current transformers and instruments
- lightning arrester
- Double cable head
- Cable head temperature measuring device
- Protruding 100mm thickened cable compartment door
- Cable door with infrared thermometer window



NXRING

Standard unit

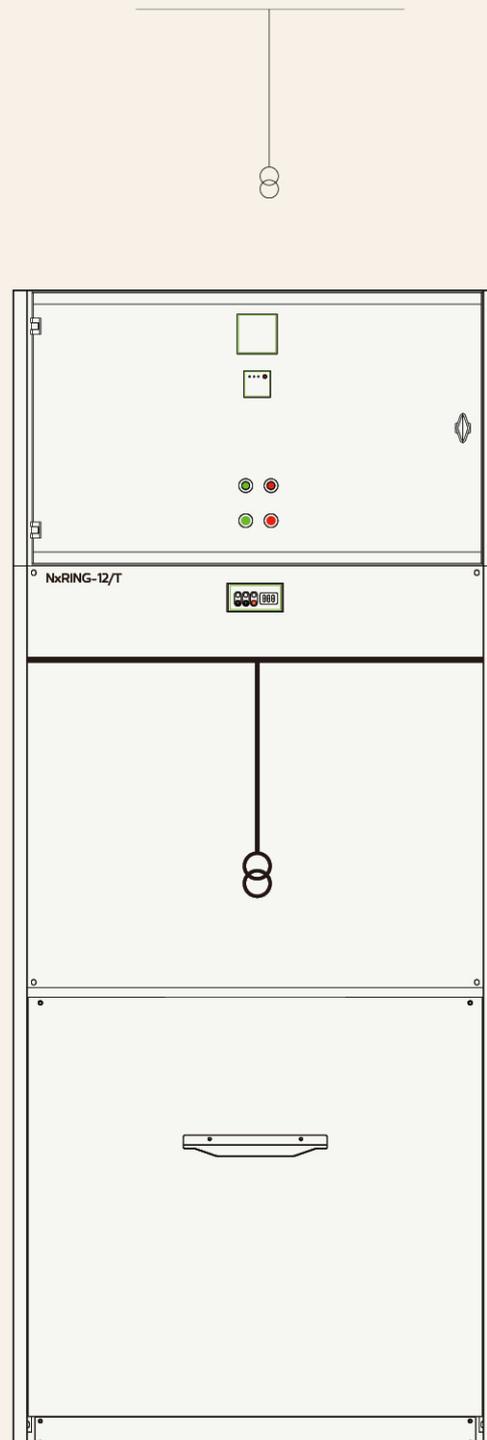
Standard configuration

- Air connection sleeve
- Transformer
- Live display
- Ground bus
- Electromagnetic lock
- Standard cable compartment door
- Temperature and humidity controller and drying device

Optional

- Cabinet door with infrared thermometer window

Transformer unit NXRING-T



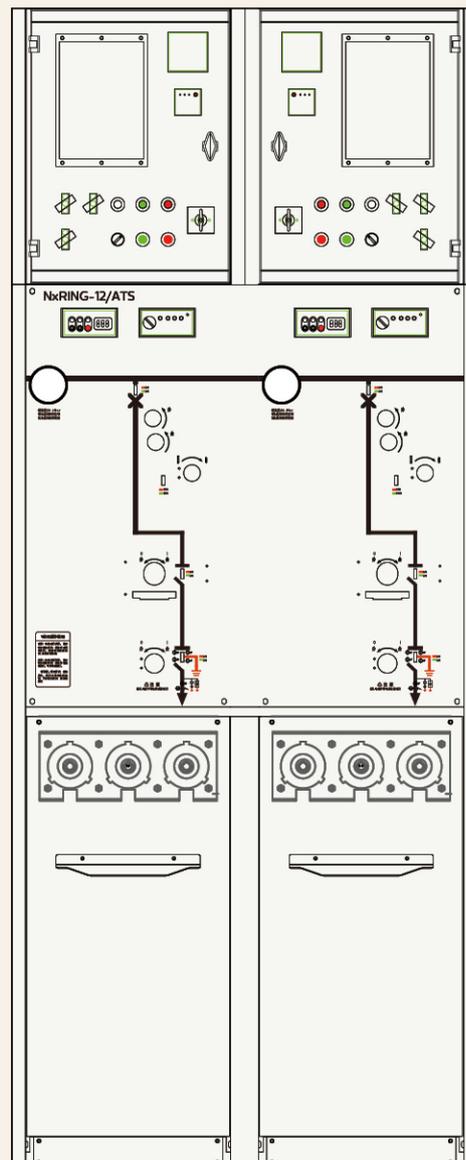
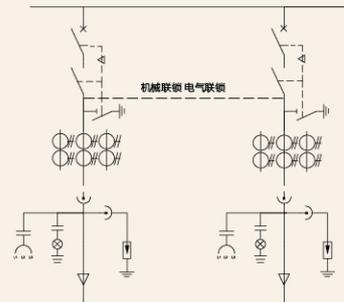
Standard configuration

- Two sets of VHZ vacuum circuit breaker and operating mechanism
- EAIS-G three-position isolating earthing switch and load/earthing switch independently operated operating mechanism
- Interlock of circuit breaker and three-position isolation earthing switch mechanism and mechanical interlock of indicating COGEAR type dual power supply mechanism
- Voltage sensor
- Current Transformer
- 630A busbar
- MIC500-663G is equipped with self-casting protection measurement and control device
- Type c cable bushing / live indicator sensor with capacitive voltage
- cable head
- Live display
- SF6 barometer (1 per box)
- Ground busbar
- Earthing switch and cabinet door interlock
- Standard cable compartment door
- Standard padlock
- Temperature and humidity controller and drying device
- Standard 350mm low pressure chamber

Optional

- Expansion busbar
(Top expansion busbar, side expander, air type connection sleeve)
- Short circuit and ground fault indicators
- Voltage transformer
- Current Transformer
- Meter
- Compensator
- Double cable head
- Cable head temperature measuring device
- Release type 450mm low pressure chamber
- Protruding 100mm thickened cable compartment door
- Cable door with infrared thermometer window

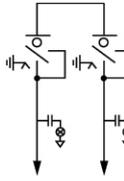
Dual power unit NXRING-ATS



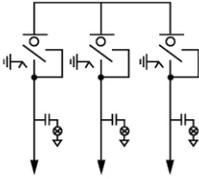
NXRING

Combination unit

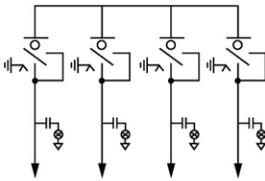
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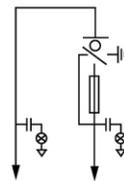
CCC



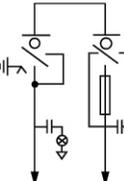
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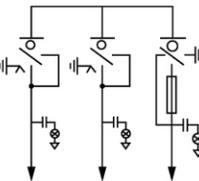
DF



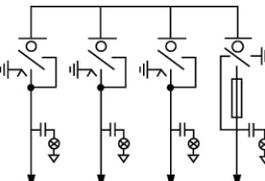
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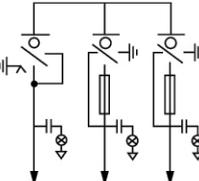
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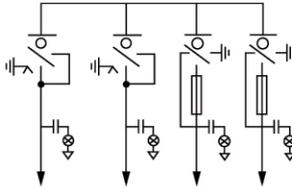
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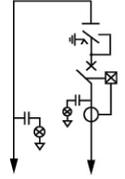
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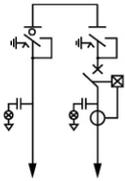
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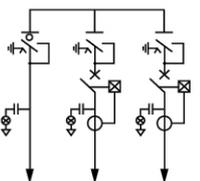
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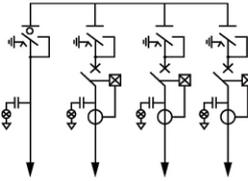
CV



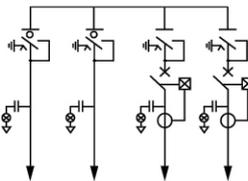
CW



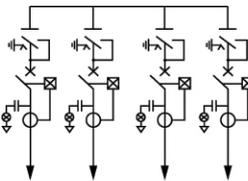
CWW



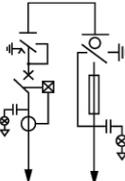
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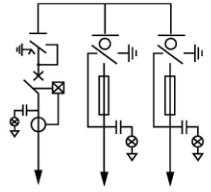
VVV



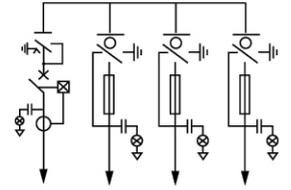
VF



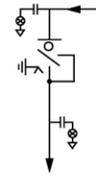
VFF



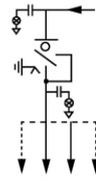
VFFF



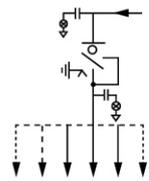
C+



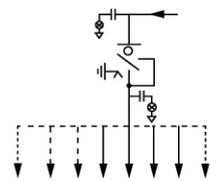
C++



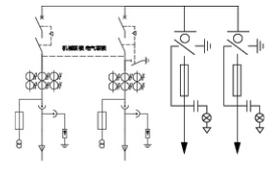
C+++



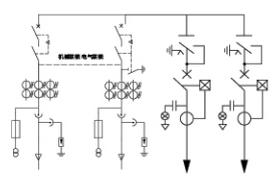
C++++



ATSFF



ATSW

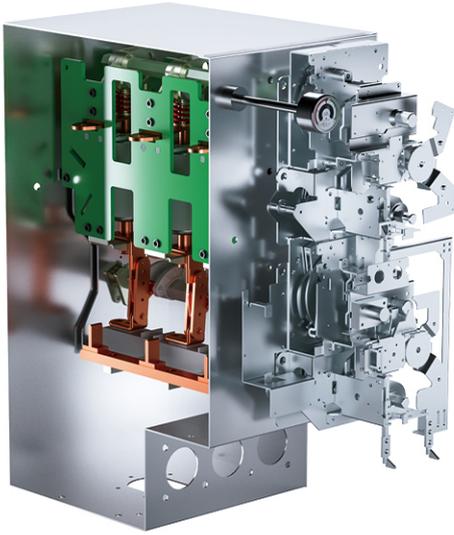


NXRING

Compartment

air box

Hermetic sealing of primary components
IP67, Not affected by the environment, with
pressure relief valve SF6 gas insulation , annual
aeration rate,; 0.01% 3mmStainless steel. The
mechanism is located outside the gas chambe



cable room

cable room
Cables and Sleeves
IP4X when closed
Optional door with infrared window



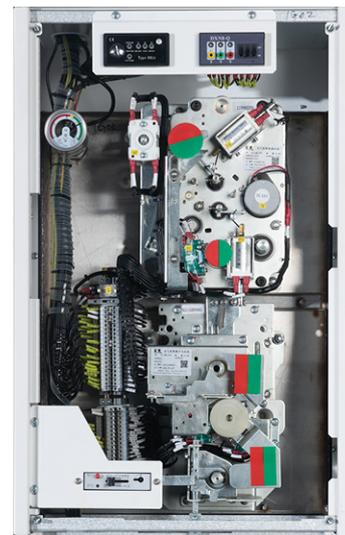
low pressure chamber

When the secondary components such as
control and measurement are installed, the
protection level is IP4X when the door is closed
Optional heightening type



mechanism compartment

Install the actuator and latch
IP4X when closed
Manual mechanical operation
The operating mechanism can be optionally equipped with
IP65 protection grade

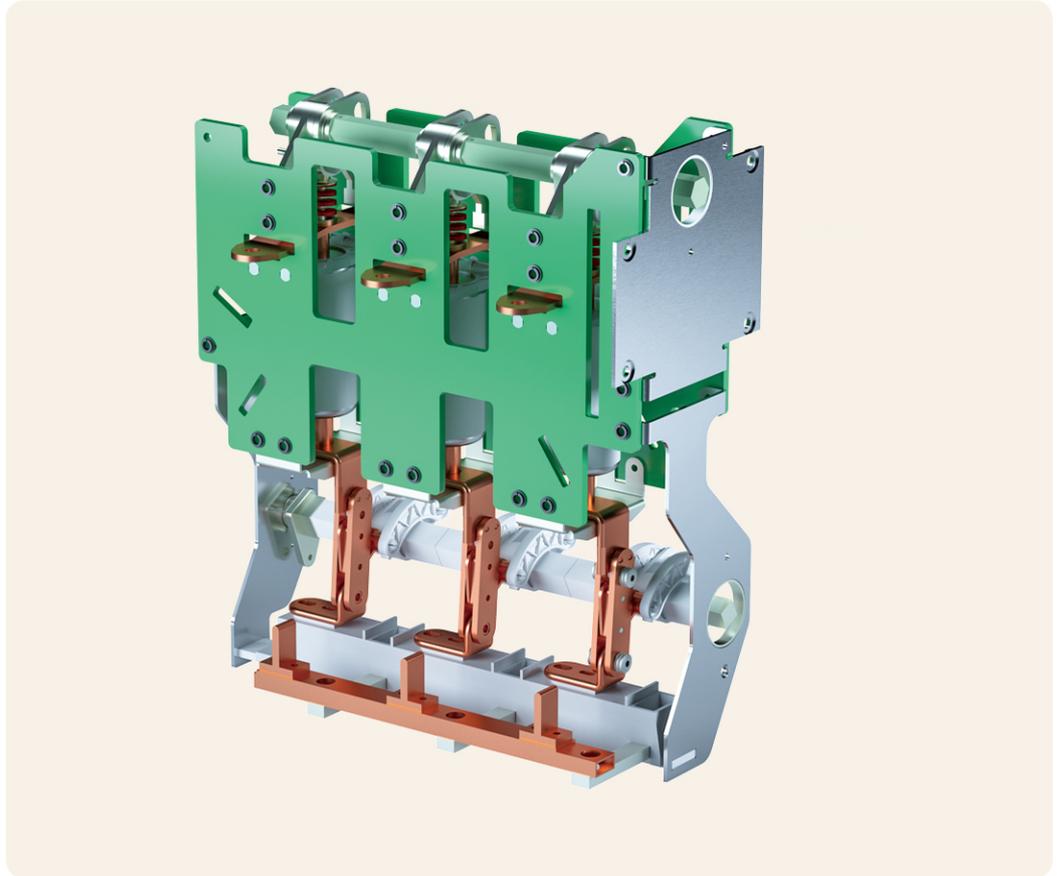


NXRING

Primary element

Circuit breaker and operating mechanism

- VHZ port vacuum circuit breaker and EAIS port three-position isolation grounding switch supporting related mechanisms and interlocks
- Airtightly welded in the gas box, the SF6 gas in the gas box assumes the insulating function, and the vacuum arc extinguishing chamber assumes the arc extinguishing function.
- The connection with the external operating mechanism adopts the way of air-tight welding and dynamic fit
- Vacuum circuit breaker operating mechanism
- Isolation grounding switch operating mechanism
- Mechanical interlock
- Electric, control voltage DC48V, AC/DC110V, AC/DC220V, AC380V The mechanism opening and closing speed has nothing to do with the operating speed
- Energy storage type operating mechanism, mechanical button opening and closing operation
- configure shunt tripping device
- Configuration 4 open 4 closed auxiliary contacts
- Comply with IEC 62271-100 GB/T 1984
- It can switch rated current, load current, overload current, open and close short-circuit current, It can also disconnect capacitive loads such as no-load transformers and overhead line cables at a certain distance.



Main technical parameters

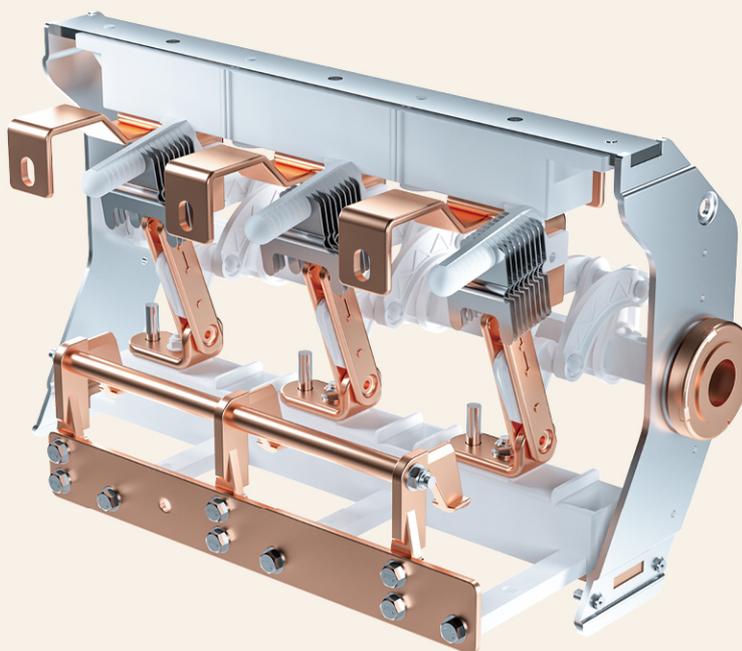
| Item | Unit | Value | Remarks |
|--|-------------|-----------------------------------|---------------------------------------|
| Rated voltage | kV | 12 | |
| Rated frequency | Hz | 50 | |
| Rated current | A | 630 | |
| Rated short-circuit breaking current | kA | 20, 25 | |
| Rated peak withstand current (peak) | | 50, 63 | |
| Rated short-time withstand current (4s) | | 20, 25 | |
| Rated short-circuit making current (peak) | | 50, 63 | |
| 1min power frequency withstand voltage | kV | 42/48(Alternate, ground/fracture) | SF6gas |
| Lightning impulse withstand voltage | | 75/85(Alternate, ground/fracture) | SF6gas |
| Rated short-circuit current breaking times | 次 | 30 | |
| Mechanical life | $\mu\Omega$ | ≤ 30 | Circuit breaker |
| Main circuit resistance | | ≤ 65 | Circuit breaker plus isolating switch |

NXRING

Primary element

Load switch and operating mechanism

- E AIS type load switch adopts the design of one body with the earthing switch
- Open–close–earth three–position design, no interlock required
- Contacts are in SF6 gas in the gas box, The SF6 gas in the gas box undertakes the functions of insulation and arc extinguishing.
- Manual and electric operation control voltage DC48V, AC/DC110V, AC/DC220V, AC380V
- Comply with IEC62271–103 GB/T 3804
- The connection with the external operating mechanism adopts the way of air–tight welding and dynamic fit
- The opening and closing speed of the mechanism has nothing to do with the operating speed, and has the ability to break and close the no-load current and rated current of the power system.



Main technical parameters

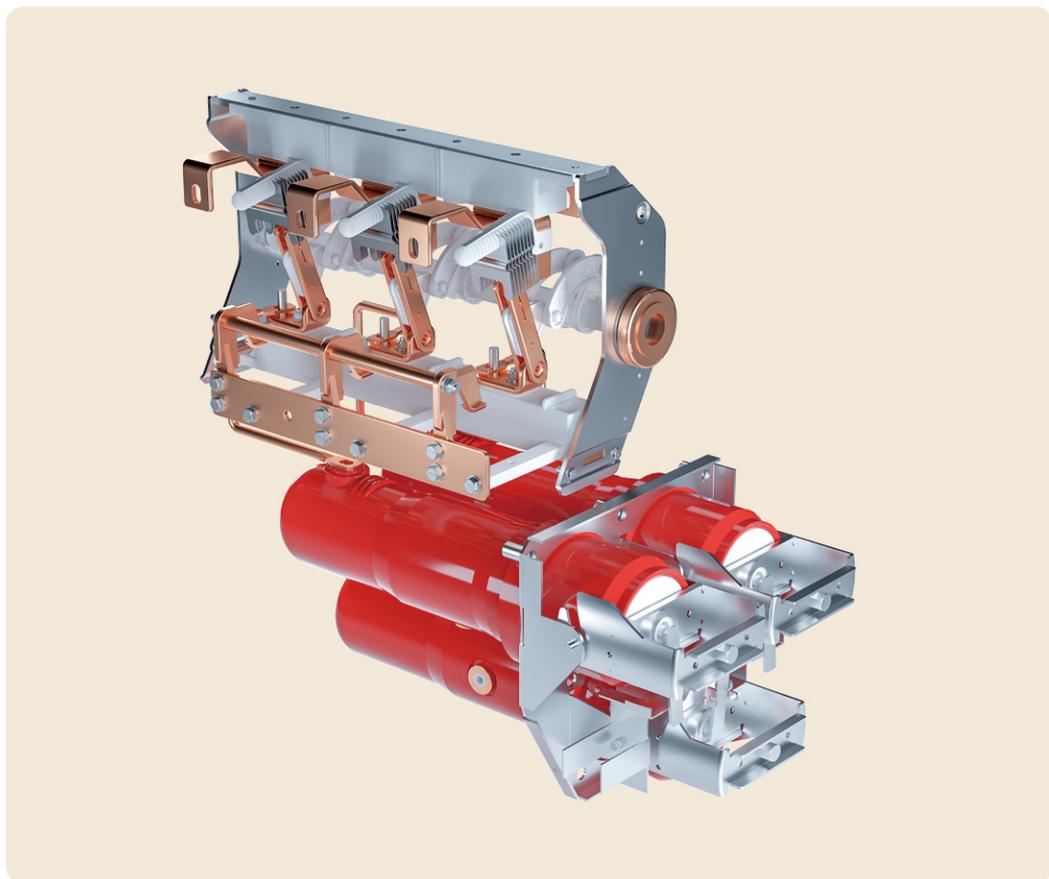
| Item | Unit | Value | Remarks |
|---|-------------|-----------|---------|
| Rated voltage | kV | 12 | |
| Rated frequency | Hz | 50 | |
| Rated current | A | 630 | |
| Rated short–time withstand current (4s) | kA | 20 | |
| Rated peak withstand current (peak) | | 50 | |
| Rated short–circuit making current (peak) | | 50 | |
| Rated active load breaking current | A | 630 | |
| Rated closed–loop breaking current of distribution line | A | 630 | |
| Rated cable charging breaking current | A | 135 | |
| 1min power frequency withstand voltage | kV | 42/48 | SF6 gas |
| Lightning impulse withstand voltage | | 75/85 | SF6 gas |
| Mechanical life | Times | 5000 | |
| Main circuit resistance | $\mu\Omega$ | ≤ 35 | |

NXRING

Primary element Main

Load switch fuse combination and operating mechanism

- The combination of load switch and fuse is used as transformer short-circuit protection and overload protection.
- Fuse size DIN43625 standard, swing needle IEC/EN60282-1 standard, tripping energy 1 ± 0.5 joules
- The load switch complies with IEC/EN62271-105, GB Jin 16926 standard
- The fuse can only be replaced when the fuse cartridge is double grounded .
- The opening and closing speed of the mechanism has nothing to do with the operating speed
- The energy storage type operating mechanism, the mechanical button opening and closing operation, the striker action can trip the energy storage mechanism.
- Configure shunt tripping device
- Manual and electric operation, control voltage DC48V, AC/DC110V, AC/DC220V, AC380V
- When using the striker to open the switch,it can break the transfer current.When the shunt release is used for opening operation, it can break the switching current. When any phase of the smasher acts, the three phases act at the same time.
- The fuse compartment door can only be opened when the earthing switch is normally closed.
- The earthing switch can only be opened when the fuse door is properly closed and locked
- Both the upper and lower ports of the fuse have earthing switches.
- The fuse is outside the gas box
- When one-phase fuse is blown, all threephase fuses must be replaced at the same time.
- When the one-phase fuse is blown, the three-phase load switch trips



Main technical parameters

| Item | Unit | Value | Remarks |
|---|--------------|--------------|---------|
| Rated voltage | kV | 12 | |
| Rated frequency | Hz | 50 | |
| Rated current | A | Fuse current | |
| Rated short-time withstand current (4s) | kA | 20 | |
| Rated peak withstand current (peak) | | 50 | |
| Rated short-circuit making current (peak) | | 50 | |
| Rated active load breaking current | A | 630 | |
| Rated short-circuit breaking current | kA | 31.5 | |
| Rated transfer current | A | 1750 | |
| Equipped with the maximum current of the fuse | A | 125 | |
| 1min power frequency withstand voltage | kV | 42/48 | SF6gas |
| Lightning impulse withstand voltage | | 75/85 | SF6gas |
| Mechanical life | Times | 3000 | |
| Main circuit resistance | $\mu \Omega$ | ≤ 300 | |

NXRING

Transformer Protection

Transformer Protection

NXRING's transformer protection adopts two methods: microcomputer protection and fuse protection.



MIC300 series protection measurement and control device

Microcomputer protection is suitable for circuit breaker V unit. The main role of microcomputer protection, monitoring and monitoring.

Transformer overload, short circuit and other fault protection, ground fault protection. Installed in a low-voltage box, collecting signals through current transformers or sensors.

| | |
|----------------------------|---|
| Working power | AC/DC: 85~265V; can be specially customized DC24V, DC48V, etc. |
| Exchange volume collection | 8-way, PT/4-way, and 8-way voltage in parallel; other protections are 4-way current, 4-way voltage |
| Switch value acquisition | 8, which are defined non-electrical quantities, and are ordinary switching quantities after being turned off during protection switching. |
| Relay export | 6, of which 2 are alarm/trip signal outlets. |
| 485 communication port | 1 channel, Modbus-RTU standard protocol. |
| Anti-jump circuit | Not included |

MIC300 Protection setting

| Serial number | Code | Fixed Name | Setting value | Setting value description | Remarks |
|---------------|--------|---|---------------|---|---|
| 00 | | Protection value sets | 1~3 | 1 | Normally 1 |
| 01 | Kv1 | Primary PT ratio/10 | 0.01~300.00 | Set according to voltage level | If 10kV is set to 10 |
| 02 | Ki1 | Primary PT ratio/10 | 0.01~300.00 | Transformer ratio/10 | If 300/5 is set to 6 |
| 03 | Idz0 | Current speed cut-off value speed limit value | 0.1~100A | Secondary rating 4~8 times | Less than the total load value of the superior |
| 04 | Idz1 | Time-limited speed off delay | 0.1~100A | Secondary rating 3~4 times | |
| 05 | Tzd1 | Overcurrent setting | 0~100s | 0.20~0.40S | The incoming line delay is less than the previous level |
| 06 | Idz2 | Overcurrent delay | 0.1~100A | Secondary rating 1.5~3 times | Usually 2 times setting |
| 07 | Tzd2 | Overload setting | 0~100s | 0.30~0.50S | The incoming line delay is less than the previous level |
| 08 | Idz3 | Overload delay | 0.1~100A | Secondary rated value 1~1.2 times | |
| 09 | Tzd3 | Zero-sequence overcurrent stage 1 setting | 0~100s | Usually the delay does not exceed 10S | The protection sampling can be set according to the requirements, |
| 10 | I0dz1 | Zero-sequence overcurrent stage I delay | 0.1~100A | 10A/zero cross ratio | and the sampling does not exceed 7A |
| 11 | T10zd1 | Zero-sequence overcurrent stage II setting | 0~100s | 0.00~0.10S | shorter time |
| 12 | I0dz2 | Zero sequence overcurrent stage II delay | 0.1~100A | 9~10A/ zero cross ratio | Protection sampling does not exceed 7A |
| 13 | T10zd2 | Zero-sequence overcurrent III section setting | 0~100s | 0.10~0.30S | longer time |
| 14 | I0dz3 | Zero sequence overcurrent III segment delay | 0.1~100A | 8~9A/zero cross ratio | Protection sampling does not exceed 7A |
| 15 | T10zd3 | Zero sequence overcurrent setting | 0~100s | 0.30~0.50S | longer time |
| 16 | I0dz4 | Zero sequence overcurrent delay | 0.01~100A | 6~8A/zero cross ratio | |
| 17 | T10zd4 | Line no voltage threshold | 0~100s | Greater than 0.50S | Can be set upon request |
| 18 | Udz0 | Line voltage threshold | 0.00 - 120V | 5~30V | Usually 30V |
| 19 | Udz1 | Line No-Flow Threshold | 0.00 - 120V | 30~50V | The pressure value must be greater than |
| 20 | Idz4 | Line flow threshold | 0.00 - 6A | 0.05 or more | the no pressure value greater than zero drift |
| 21 | Idz5 | Prepared for automatic | 0.00 - 6A | 0.10~0.50 is better | Large load can be set above 0.1A |
| 22 | Btzd0 | jumping into the line delay | 0~100s | 0.10~0.50 is better | Can be set upon request |
| 23 | Btzd1 | Closing circuit breaker delay | 0~100s | The default is 5S. If the closing time of the circuit breaker or load switch is long, the setting value is the actual closing | Can be set upon request |
| 24 | Tjx1 | Check signal delay | 1.00~20.00S | time plus 5S. | It is used when the self-switching protection drives the closing outlet. |
| 25 | TKZDX | Control loop disconnection delay | 0~100s | 10~20S | Usually no modification is required. higher than the switch contact closing time |

NXRING

Transformer protection

NXRING transformer protection adopts microcomputer protection mode.

The microcomputer protection is applicable to the overload, short circuit and other fault protection of transformer under the function of microcomputer protection, monitor-controlling and monitoring of circuit breaker in V unit. The grounding fault protection is installed in the low-voltage cabinet, and signals are collected through current transformers or sensors



MIC500 Series Protection and Monitoring Device

MIC500 is applicable to the line protection and measurement and control devices of ungrounded system, resistance grounding system and direct grounding system of the operating power system. It can be installed in a panel or locally in the low-voltage chamber of the V cabinet.

Protect information function

Remote viewing of device description.
Remote viewing of equipment parameter settings.
Remote viewing and modification of protection settings and area codes.
Remote viewing, remote controlling and local on/off functions of soft pressing plate status.
Remote view of device protection input status.
Remote viewing of device operation status (including the status of protective action elements, self-inspection alarm information, etc.).
Reset the device signal remotely

Communication function

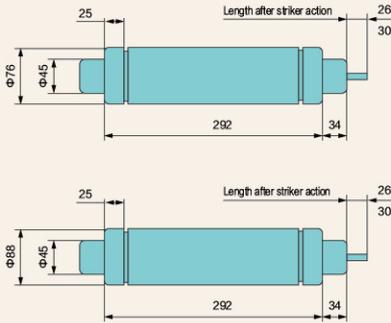
Communication interface:
22-way Ethernet port
1-way 485 port
Communication protocol:
Network 103 communication protocol,
MODBUS RTU protocol.

MIC500 protection setting

| Fixed value serial number | Fixed value name | Setting menu | Setting value ---setting reference |
|---------------------------|--|--------------|------------------------------------|
| 01 | Quick break setting | 0.1~100A | |
| 02 | Time limit quick break setting | 0.1~100A | |
| 03 | Time limit quick break delay | 0~100s | |
| 04 | Overcurrent setting | 0.1~100A | |
| 05 | Overcurrent delay | 0~100s | |
| 06 | Overload setting | 0.1~100A | |
| 07 | Overload delay | 0~100s | |
| 08 | Fixed value of 0 phase overcurrent section I | 0.00~100A | The actual setting can't exceed 6A |
| 09 | Delay of 0 phase overcurrent section I | 0~100s | |
| 10 | Fixed value of 0 phase overcurrent section II | 0.00~100A | The actual setting can't exceed 6A |
| 11 | Delay of 0 phase overcurrent section II | 0~100s | |
| 12 | Fixed value of 0 phase overcurrent section III | 0.00~100A | The actual setting can't exceed 6A |
| 13 | Delay of 0 phase overcurrent section III | 0~100s | |
| 14 | 0phase overcurrent setting | 0.00~100A | The actual setting can't exceed 6A |
| 15 | 0 phase overcurrent delay | 0~100S | |
| 16 | Overvoltage setting | 50~600V | |
| 17 | Overvoltage delay | 0~100s | |
| 18 | Low voltage setting | 30~400V | |
| 19 | Low voltage delay | 0~100s | |
| 20 | Current lockout low voltage setting | 0 -100A | |
| 21 | Busbar insulation monitoring setting | 0.1~100V | |
| 22 | Busbar insulation monitoring delay | 0~100s | |
| 23 | Under frequency load shedding setting | 35~64.99HZ | |
| 24 | Under frequency load shedding delay | 0~100s | |
| 25 | Reclosing current free setting | 0.1~5A | |
| 26 | Reclosing delay | 0~100s | |
| 27 | PT disconnection delay | 0~100s | |
| 28 | Control circuit disconnection delay | 0~100s | |

NXRING

Transformer Protection



Fuse protection

- Fuse protection is suitable for load switch–fuse combination appliance F unit.
- Unit F of the load switch–fuse combination appliance adopts a current–limiting highvoltage fuse as the current protection of the transformer.
- When the current–limiting high–voltage fuse is blown, the needle action will trigger the load switch that has stored energy, causing it to trip and cut off the circuit.
- The current–limiting and voltage–isolating fuses are installed in fully protected fuse cartridges with end caps for easy replacement and maintenance.
- When one–phase fuse is blown, all three–phase fuses must be replaced at the same time.
- If the user chooses the fuse, the technical standard should be selected according to IEC60282–1 (with a striker), the size standard should be according to DIN43625, and it should be noted that according to the IEC60282–1.6.6 standard, the breaking capacity must meet the conditions of the most distant system voltage (Breaking current including system boost at ground fault and phase–to–phase short–circuit
- The fuse can withstand 1.3 times the rated current of the transformer for at least 10 hours, and can break within 2 hours at 1.5 times the rated current of the transformer
- Transformer protection IEC60787 standard

Fuse size

| SFLAJ/XRNT | I _r (A) | L(mm) | Φ(mm) | weight(kg) |
|------------|--------------------|-------|-------|------------|
| Ur(kV) | 10~25 | 292 | 50.5 | 1.2 |
| 12 | 31.5~40 | 292 | 55 | 1.8 |
| | 50~125 | 292 | 76 | 3.2 |

Fuse selection

Fuse–Transformer Comparison Table

| 100% | Transformer rated capacity (kVA) | | | | | | | | | | | | | | | | |
|--------|----------------------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------|
| UN(kV) | 25 | 50 | 75 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 7.2kV |
| 3 | 16 | 25 | 25 | 40 | 40 | 50 | 50 | 80 | 100 | 125 | 160 | 160 | | | | | |
| 33 | 16 | 25 | 25 | 40 | 40 | 50 | 50 | 63 | 80 | 100 | 125 | 160 | | | | | |
| 4.15 | 10 | 16 | 25 | 25 | 40 | 40 | 50 | 50 | 63 | 80 | 100 | 125 | 160 | | | | |
| 5 | 10 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 50 | 63 | 80 | 100 | 125 | 160 | | | |
| 55 | 6 | 16 | 16 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | 80 | 100 | 125 | 160 | | | |
| 6 | 6 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 50 | 80 | 100 | 125 | 160 | 160 | | |
| 6.6 | 6 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 50 | 63 | 80 | 100 | 125 | 160 | | |
| 10 | 6 | 6 | 10 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 50 | 80 | 80 | 125 | 125 | 12kV |
| 11 | 6 | 6 | 10 | 16 | 16 | 25 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | 80 | 100 | 125 | |
| 12 | 6 | 6 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 100 | 125 | |
| 13.8 | 6 | 6 | 10 | 10 | 16 | 16 | 25 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | 80 | 100 | 17.5kV |
| 15 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 100 | |
| 17.5 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | 80 | |
| 20 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 63 | 24kV |
| 22 | 6 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | |
| 24 | 6 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | |

Fuse transformer comparison table

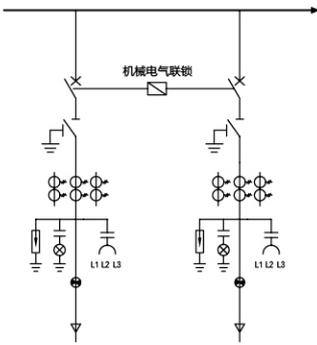
| 100% | Transformer rated capacity (kVA) | | | | | | | | | | | | | | | | |
|--------|----------------------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--------|
| UN(kV) | 25 | 50 | 75 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 7.2kV |
| 3 | 16 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | | | | | | |
| 33 | 16 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 80 | 100 | 125 | | | | | | |
| 4.15 | 10 | 16 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 80 | 100 | 125 | | | | | |
| 5 | 10 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 80 | 125 | 160 | | | | |
| 55 | 6 | 16 | 16 | 25 | 25 | 25 | 40 | 50 | 50 | 80 | 80 | 100 | 125 | 160 | | | |
| 6 | 6 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | | | |
| 6.6 | 6 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | | | |
| 10 | 6 | 10 | 10 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 50 | 80 | 80 | 125 | | 12kV |
| 11 | 6 | 6 | 10 | 16 | 16 | 25 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | 80 | 100 | 125 | |
| 12 | 6 | 6 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 100 | 125 | 17.5kV |
| 13.8 | 6 | 6 | 10 | 10 | 16 | 16 | 25 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | 80 | 100 | |
| 15 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 80 | 100 | |
| 17.5 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | 80 | 24kV |
| 20 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | 63 | |
| 22 | 6 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 50 | 50 | 63 | |
| 24 | 6 | 6 | 6 | 6 | 10 | 10 | 16 | 16 | 16 | 25 | 25 | 25 | 40 | 40 | 50 | 63 | |

The numbers in this table are based on the use of XRNT type fuses at a maximum 20% overload and under normal operating conditions.

NXRING

Dual power system

R-AIR-ATS



R-AIR 为 better guarantees the power supply continuity of important loads and secondary distribution network systems, and provides dual power switching solutions. It has the function combination and setting of dual power supply automatic switching and automatic recovery, dual power delay automatic switching without automatic recovery, dual power delay automatic switching and automatic recovery, two incoming lines and one bus tie automatic switching, which can meet the needs of users in different application scenarios. demand to ensure the continuity of power supply.

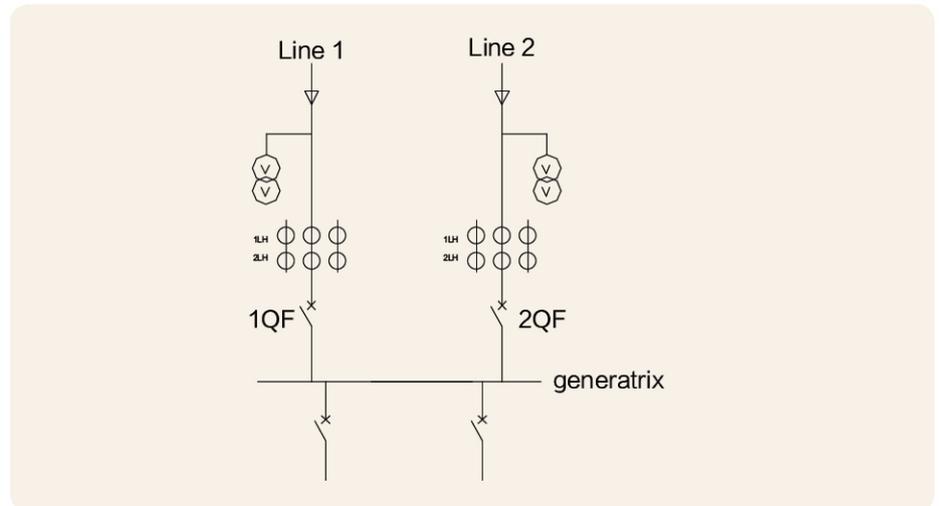
- | | |
|---|------------------------------|
| Voltage sensor | Overcurrent protection |
| mechanical lock | automatic phase verification |
| millisecond switching | Delay function |
| Intelligent BZT device | clock |
| automatic charge and automatic recovery | communication |
| Quick cut and limited time quick cut | |

Two-way incoming line power auto-charging logic

The automatic charge logic of the two-way incoming power supply is considered as the main supply line of line I. If line II is used as the main supply line, adjust accordingly.

Dual power ATS

Switching between two medium voltage network power supplies. 2 working modes (can be selected from the MIC500 unit)



1、1QF automatic charge and automatic recovery or 2QF automatic charge and automatic recovery mode

If line 1 is the main supply line (1QF), and line 2 is in the hot standby state (2QF), when there is a voltage loss on line 1, the ATS will switch to the standby line 2QF after a delay T1 after the MIC500 judges it. (1QF open, 2QF closed). If line 1 restores the voltage, the ATS will return to the main line (2QF open, 1QF closed) after a delay (T2).

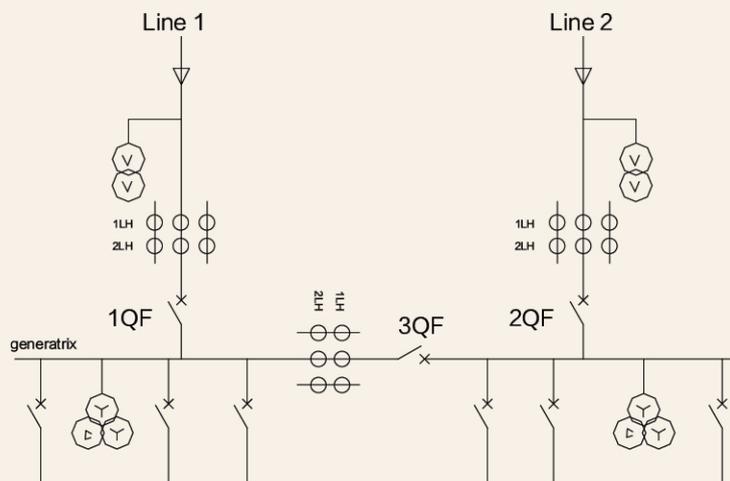
If line 2 is the main supply line (2QF), and line 1 is in the hot standby state (1QF), when there is a voltage loss on line 2, the ATS will switch to the standby line 1QF after a delay T1 after being judged by the MIC500. (open 2QF, close 1QF). If line 2 restores the voltage, the ATS will return to the main line (1QF open, 2QF closed) after a delay (T2).

2、1QF,2QF mutual mapping mode

This mode does not distinguish between primary and backup operation. If line 1 is the power supply line (1QF) at this time, line 2 is in the hot standby state (2QF). If there is a voltage loss on line 1 (1QF), the ATS will switch to the standby line 2QF (open 1QF, close 2QF) after a delay T1 after the MIC500 judgment. If line 1 regains voltage, the ATS will not return to the main line.

If line 2 is a power supply line (2QF) at this time, line 1 is in a hot standby state (1QF). If there is a voltage loss on line 2 (2QF), the ATS will switch to the standby line 1QF after a delay T1 after being judged by the MIC500 (2QF is disconnected, 1QF is closed). If line 2 regains voltage, the ATS will not return to the main line.

Busbar connection ATS



Power switching between 2 incoming lines (1QF and 2QF) and bus tie switch (3QF). 4 working modes (can be selected from the MIC500 unit)

1. Mode 1 self-switching and self-recovery (1QF closed state, 2QF open state, 3QF closed state)

Line 1 with full load, 1QF closed state, 2QF open state, 3QF closed state. If line 1 is the main supply line (1QF), and line 2 is in the hot standby state (2QF), when there is a voltage loss on line 1, the ATS will switch to the standby line 2QF after a delay T1 after being judged by the MIC500. (open 1QF, close 2QF). If line 1 restores voltage, the ATS will return to the main line after a delay (T2) (2QF open, 1QF closed).

2. Mode 2: self-switching and self-recovery (1QF open state, 2QF closed state, 3QF closed state)

Line 1 with full load, 1QF open state, 2QF closed state, 3QF closed state. If line 2 is the main supply line (2QF), and line 1 is in the hot standby state (1QF), when there is a voltage loss on line 2, the ATS will switch to the standby line 1QF after a delay T1 after being judged by the MIC500. (open 2QF, close 1QF). If line 2 restores voltage, the ATS will return to the main line (1QF open, 2QF closed) after a delay (T2). The above mode 1 and mode 2 can choose the dual-switching mode regardless of the active and standby mode.

If line 1 is a power supply line (1QF) at this time, line 2 is in a hot standby state (2QF). If there is a voltage loss on line 1 (1QF), the ATS will switch to the standby line 2QF after a delay T1 after being judged by the MIC500 (open 1QF, close 2QF). If line 1 regains voltage, the ATS will not return to the main line.

If line 2 is a power supply line (2QF) at this time, line 1 is in a hot standby state (1QF). If there is a voltage loss on line 2 (2QF), the ATS will switch to the standby line 1QF after a delay T1 (disconnect 2QF, close 1QF) after being judged by the IC500. If line 2 regains voltage, the ATS will not return to the main line.

3. Mode 3 self-switching and self-recovery (1QF closed state, 2QF closed state, 3QF open state)

Line 1 carries the corresponding busbar load, and Line 2 carries the corresponding busbar load. That is, 1QF is closed, 2QF is closed, and 3QF is open. When there is a voltage loss on line 1, the ATS will switch to the standby line 2QF after a delay T1 after being judged by the MIC500. (1QF open, 3QF closed). If line 1 restores the voltage, the ATS will return to the main line after a delay (T2) (open 3QF, close 1QF).

4. Mode 4 self-switching and self-recovery (1QF closed state, 2QF closed state, 3QF open state)

Line 1 carries the corresponding busbar load, and Line 2 carries the corresponding busbar load. That is, 1QF is in position, 2QF is in position, and 3QF is divided. When there is a voltage loss on line 2, the ATS will switch to the standby line 1QF after a delay T1 after being judged by the MIC500. (open 2QF, close 3QF). If line 2 restores the voltage, TS will return to the main line after a delay (T2) (open 3QF, close 2QF).

NXRING

Power collection and measurement

HiCVT electronic voltage sensor

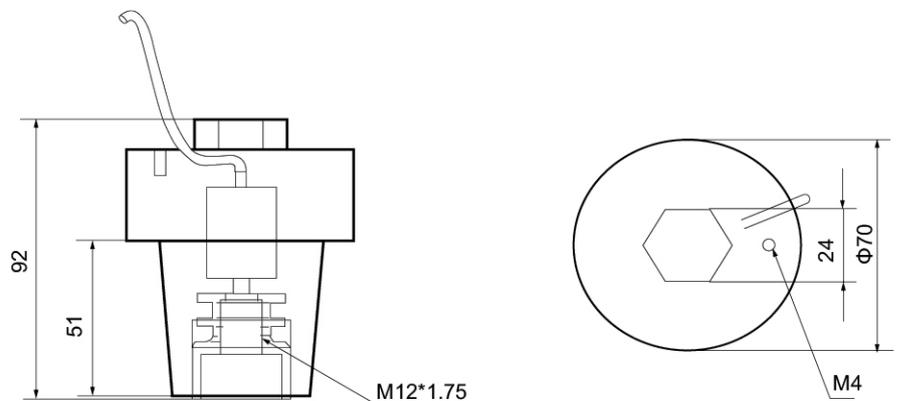
Comply with IEC60044-8 standard
 Matching connection with cable pulling plug
 Capacitive voltage divider technology
 Collect three-phase voltage
 Collect zero sequence voltage

Three-phase independent sensor
 Configuring Low Voltage Signal Modulators
 There are no shortcomings such as saturation, ferromagnetic resonance, and secondary open circuit of electromagnetic transformers.
 No fuse protection required
 Wide input range

Voltage Indicator Adaptation Capacitor Parameter Table

| Rated voltage class (kV) | Rated phase voltage | | | | Adapted sensor capacity (pF) |
|--------------------------|---------------------|----------------------|--|--|------------------------------|
| | Working voltage (V) | Working current (uA) | Phase-to-phase voltage when the phases between test points match (V) | Phase-to-phase voltage (V) when the test points do not match | |
| 3.6 | 80-100 | 117 | <Ac30 | > Ac60 | 185 (± 15) |
| 7.2 | 80-100 | 196 | | | 150 (± 15) |
| 12 | 80-100 | 250 | | | 115 (± 15) |
| 12 | 60-100 | 32-65 | | | 15-30 |
| 24 | 80-100 | 348 | | | 80 (± 10) |
| 40.5 | 80-100 | 330 | | | 45 (± 10) |

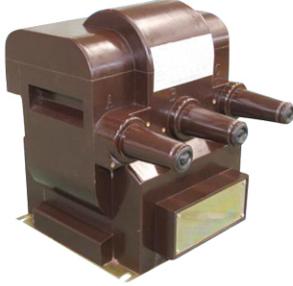
| Parameter category | Technical indicators |
|---|---|
| Voltage level | 10kV |
| Primary input voltage | 10KV $\sqrt{3}$ (Phase voltage) 6.5V/3(zero sequence voltage) |
| Secondary output voltage | 3.25V/ $\sqrt{3}$ |
| Accuracy class (three-phase voltage) | 0.5 |
| Accuracy level (zero sequence voltage) | 1 |
| Rated frequency | 50Hz |
| Insulation level (1min power frequency withstand voltage) | 42kV |
| Lightning impulse withstand voltage (peak) | 75kV |
| Partial Discharge | $\leq 10\text{pC}$ 14.4kV |
| Executive standard | IEC 60044-7; GB/T20840.7-2007; GB/T20840.1-2010 |
| Rated load | $\geq 5\text{M}\Omega$ |



NXRING

Power collection and measurement

voltage transformer



Comply with GB/T20840.1 and standard IEC61869-1, 3 standards

Electromagnetic induction single-phase
Electromagnetic induction three-phase, Y/delta connection
Pluggable
Fuse protection
Capacity optional 1KVA, 2KVA, 3KVA, etc.

Technical Data Sheet

| Name | Unit | parameter | parameter |
|--------------------------------------|------|--|-------------------------------------|
| Structure type | - | Epoxy resin casting insulation type | Epoxy resin casting insulation type |
| Rated voltage | kV | 12 | 12 |
| Rated frequency | Hz | 50 | 50 |
| Primary side voltage | kV | 10 | 10 |
| Secondary side voltage | V | Busbar PT: $\frac{100}{\sqrt{3}} / \frac{220}{\sqrt{3}} / \frac{100}{\sqrt{3}}$ | incoming line PT: 100/220 |
| Rated Capacity | VA | busbarPT:30/300/100 | incoming line PT: 500 |
| output capacity | KVA | 1 | 1 |
| impedance | - | 15% (3i<VA) | 15% (3kVA) |
| precision | lv | busbarPT:1/313P | incoming line PT: 1/3 |
| Fuse Type | - | XRNP-12 | XRNP-12 |
| Rated current of fuse | A | 1 | 1 |
| PT cabinet group screen requirements | | PT adopts busbar PT or incoming PT in two forms: 1) When the busbar PT adopts the Y/Y sequence port delta or VV wiring PT fixed form to be installed in an independent group cabinet, it is equipped with an isolating switch and a replaceable fuse. 2)The incoming line PT adopts two incoming lines and two groups of three-phase PT (optional VV wiring or YY wiring). When the fixed form independent group cabinet is installed on the upper and lower floors, the two groups of PTs are divided into two independent compartments, and the PT incoming cables are arranged in a dislocation with independent passage compartments. The secondary grounding wire can be separated (when one PT is overhauled, it will not affect the live running of the other PT). 3)The door of the incoming PT cabinet should be equipped with an observation window and an electromagnetic lock. If the PT is powered on, the cabinet door cannot be opened. If the PT is not powered, the cabinet door can be opened. | |

NXRING

Power collection and measurement

Current Transformer



Comply with IEC-60044-1 "Current Transformer"



Technical Data Sheet



| S/N | CONTENT | UNIT | Three-phase CT parameters | Zero sequence CT parameters |
|-----|----------------------------|------|--|--|
| 1 | Rated voltage | V | 12 | 12 |
| 2 | Rated frequency | HZ | 50 | 50 |
| 3 | Ratio | A | Entry and exit cabinet: 600/5 (protection, measurement) Distribution cabinet: 600/5 (protection), 200/5 (measurement) | 100/5 or 20/1 (customized) |
| 4 | Accurate class combination | lv | 10P20 (protection), 0.5 lv (measurement) | 0-5 A error <=3% 5-60 A error <=5% 100/5:60A-600A error less than 10% The error changes linearly, and the secondary output is required to be >=3A 20/1: 60A-120A, and the error is less than 10%. The error changes linearly, and the secondary output is required to be >=3A |
| 5 | Capacity | VA | >= 2.5 | When CT ratio is 20/1, >= 0.5; CT transformation ratio >= 2.5 at 100/5 |
| 6 | Others | | Configure three-phase protection CT, measuring CT and independent zero sequence CT, and independently collect three-phase current and zero sequence current The CT shall be of casing type, and the zero sequence CT shall be of through center or open type. | |

Metering current transformer



| S/N | Content | Unit | Data | |
|-----|-------------------|------|---|------------|
| 1 | Voltage | kV | Rated voltage | 10 |
| | | | Maximum voltage | 12 |
| | | | Rated short-time power frequency withstand voltage (root mean square value) | 42/30,(28) |
| | | | Rated lightning impulse withstand voltage (peak) | 75,(60) |
| 2 | Rated frequency | Hz | 50 | |
| 3 | Ratio | A | 10~750/5 | |
| 4 | level of accuracy | 1v | 0.2S | |
| 5 | secondary load | VA | Rated load >= 15, lower limit load 3.75 | |

current sensor

Rogowski coil
Comply with IEC60044-8 standard

There are no shortcomings such as saturation, ferromagnetic resonance, and secondary open circuit of electromagnetic transformers. Wide input range
Output 0-10mV signal

NXRING

Consolidation method

The NXRING full-insulation method has two ways: side expansion connection and top expansion connection. When it is combined with air-insulated cabinets such as metering cabinets, the air-insulated side expansion type can be used.

The side expansion connection is suitable for occasions with high requirements on the ground foundation and limited cabinet height; the top expansion connection is convenient for later replacement. For the reserved expansion port, the later expansion unit must follow the principle that the current of the main bus with the newly added circuit does not exceed 630A.

Fully insulated cabinet side expansion connector method

Cabinet-type modular connection device

Complies with standards IEC60137 and DIN EN 50181

Optional side expansion connector when ordering

On-site installation, cabinet combination, replacement, etc., do not require SF6 gas related technical processes.

The cabinet can be configured on the left, right and both sides of the cabinet.

Contains copper conductor connections and silicone rubber insulation.

The fixed parts and moving parts of the copper conductive connectors have a certain allowable margin in the axial direction.

Silicone rubber insulation has a pressure tolerance within a certain range.

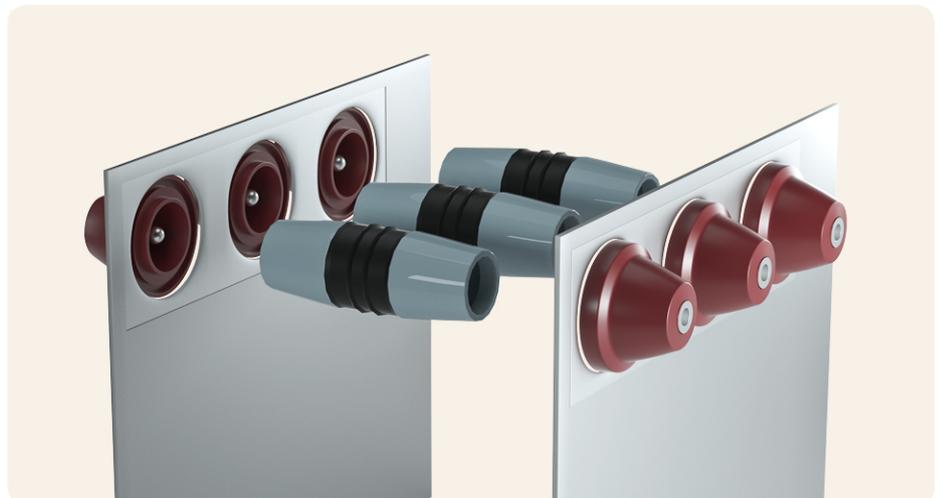
The silicone rubber piece has a shielding layer and connecting wires, and must be connected to the ground reliably during installation.

Primary busbar paralleling through side expansion connectors

Positioning screws to achieve accurate positioning of adjacent cabinets

The spacer bolts between the cabinets ensure the preset gap between adjacent cabinets, and at the same time ensure that the pressure bearing of the expander is within the preset range.

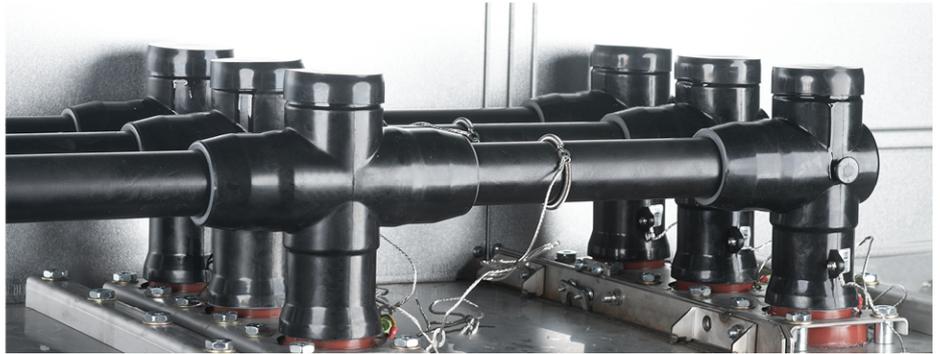
The reserved side busbars must be installed with shielded insulating plugs, and must be equipped with metal protective side sealing plates with warning signs.



NXRING

Consolidation method

Fully insulated top extension busbar



C type outer cone bushing

Complies with standards IEC60137 and DIN EN 50181

Cabinet-type modular connection device

Optional top extension busbar when ordering

On-site installation, cabinet merging, replacement, etc., do not require SF6 gas-related technical processes. The top casing of the cabinet air box is matched.

Contains copper conductor busbars and silicone rubber insulation.

The silicone rubber parts have shielding layers and connecting wires, and must be connected to the ground reliably during installation.

The primary busbar is combined with the cabinet through the top extension connector.

The busbar is a customized type, which must be customized strictly according to the center distance of adjacent casings.

Air Insulated Side Cable/Busbar Connection Sleeve Method

Complies with standards IEC60137 and DIN EN 50181

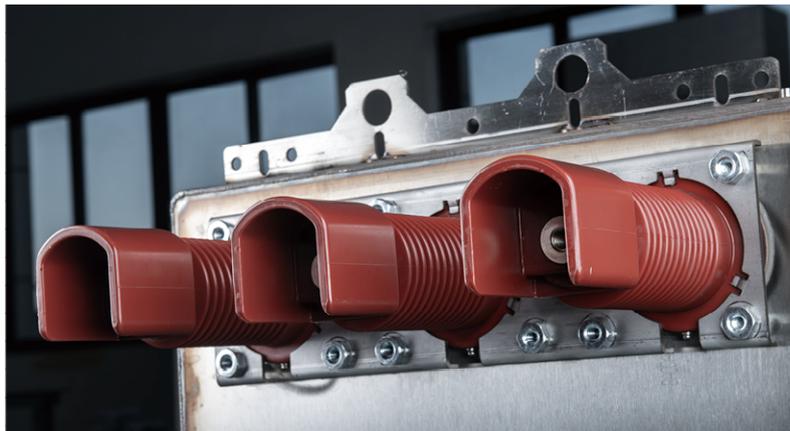
with insulating cover

Applicable to ordinary air-insulated cable terminals

Suitable for hard copper busbars (for metering cabinets, etc.)

Cable mounting bolt specification M16

Pre-installed live display supporting voltage sensor

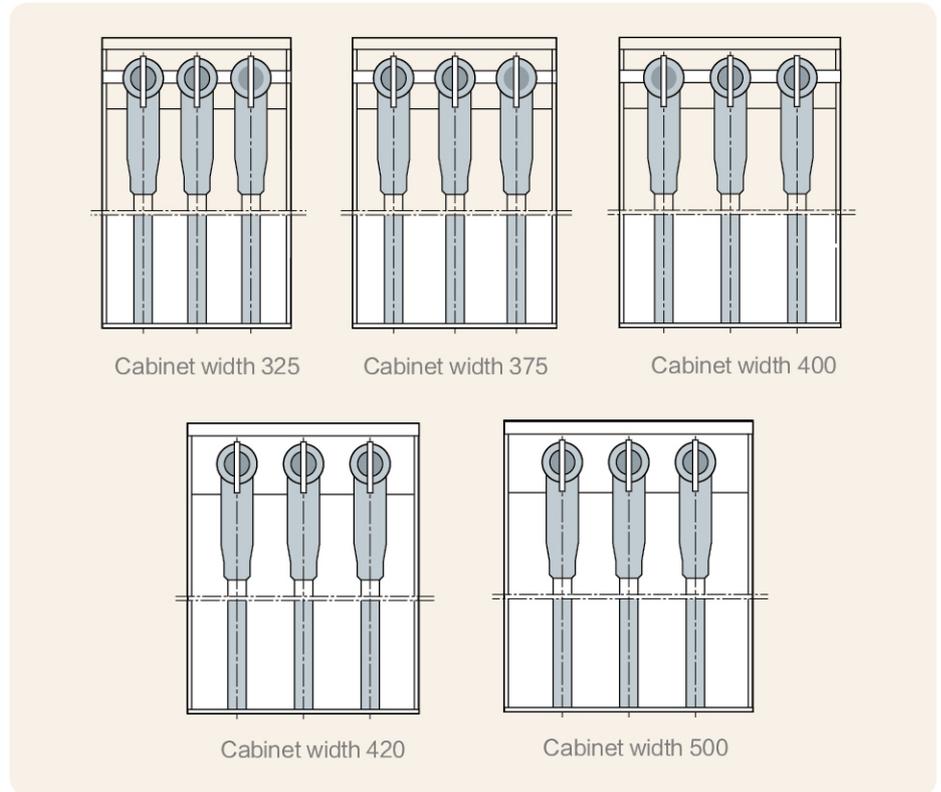


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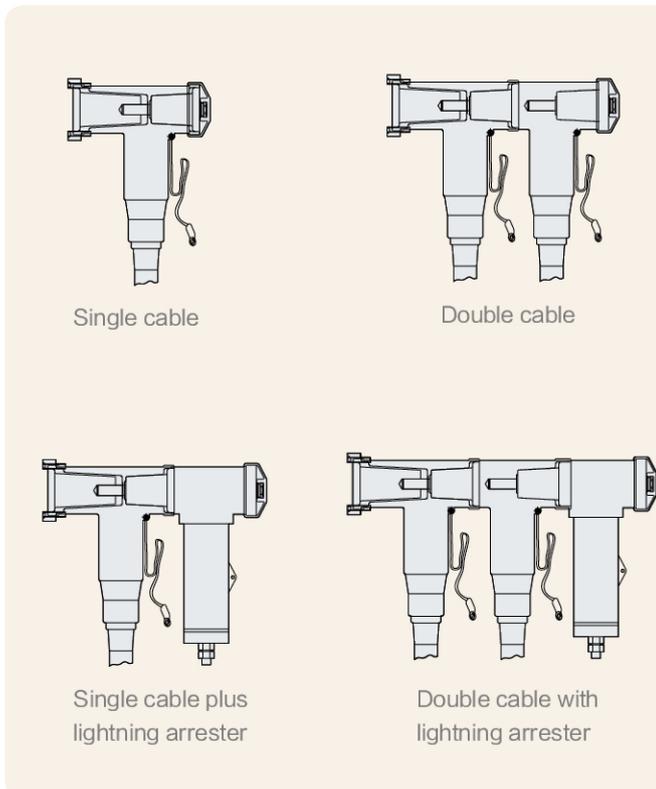
Cable compartment and cable connection

Cable room layout

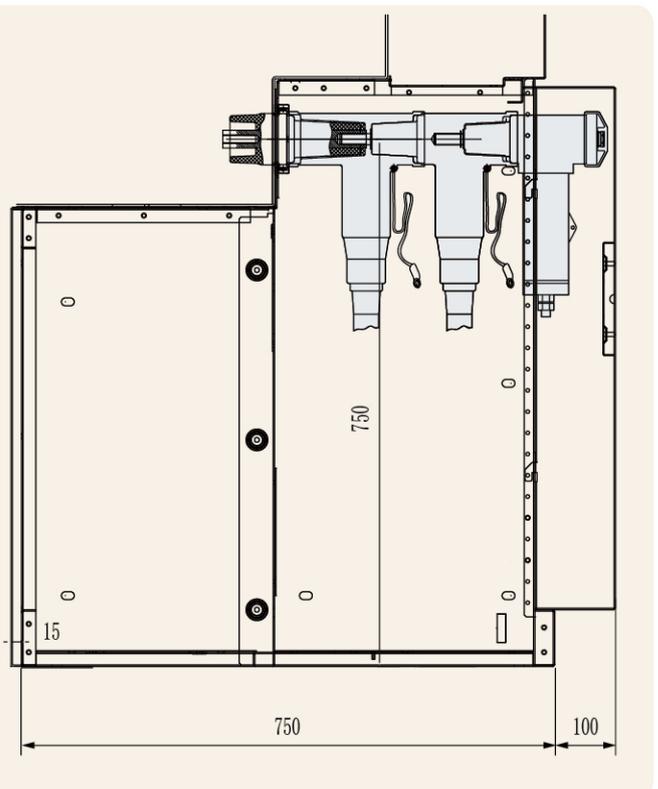
- The cable compartment door can only be opened when the isolation is disconnected and grounded
- Cable head matching IEC60137 standard C-type cable gland
- Matching M16 bolts
- Suitable for elbow cable head
- Suitable for T-cable head
- Standard cable bracket
- Optional cable glands
- Optional protruding cable door (when the depth of the cable room needs to be increased).
- Optional cable door with infrared temperature measurement observation port
- For single cable
- For double cables
- Configurable plug-in snow protector
- Standard cable height 750mm
- (Central point of bushing to cable compartment bottom plate)
- Insulation cap (cover) for reliable grounding is provided when there is no cable head installed
- When the cable enters the cable, it must be equipped with a rear cable sub-cabinet (backpack), and the depth of the cable-attached cabinet is 240mm.



Cable head combination



Deepened cable compartment door



NXRING

Cable compartment and cable connection

connection sleeve

Cable head connection sleeve

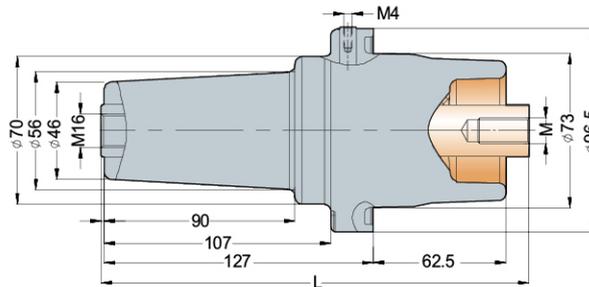


Comply with DIN EN 50181 standard, IEC60137 standard definition

C type outer cone cable bushing
Standard current 630A and 1250A two specifications
Suitable for elbow and T cable glands
Cable mounting bolt specification M16
Pre-installed live display supporting voltage sensor
Meet the withstand voltage and partial discharge test

Technical parameter

| | |
|--------------------------------------|---|
| Power frequency withstand voltage | 48kV/min |
| Partial Discharge | 13.2kV \leq 5pC、26.4kV \leq 5pC |
| Rated current | 630A/1250A |
| Capacitance value | 18 \pm 2PF |
| Equipped sealing ring specifications | ϕ 73*06 (Inner Diameter * Wire Diameter) |



Side outlet cable branch connection sleeve



Comply with DIN EN 50181 standard, IEC60137 standard definition

C type outer cone cable bushing
Standard current 630A
Suitable for elbow and T cable glands
Second line out
Three line out
Four line out
Cable mounting bolt specification M16
Pre-installed live display supporting voltage sensor
Meet the withstand voltage and partial discharge test

NXRING

Cable compartment and cable connection



T-cable connector

Compliant with IEC 60502
GB/T12706-2008 standard
GB/T4109-1999 standard
IEEE592-1990 standard

Applicable to C type outer cone cable bushing
Standard current 630A and 1250A two specifications
Cable mounting bolt specification M16
Insulation and protection are made of EPDM rubber
Double-layer shielding inside and outside, zero potential on the surface of the cable head

Technical parameter

| | |
|---|--------------------------|
| Rated voltage | 15kV |
| Applicable sleeve type | C type |
| Power frequency withstand voltage (AC) | 39kV/5min |
| Partial Discharge | 15kV, $\leq 10\text{pC}$ |
| Impulse voltage (10 times for positive and negative polarities) | 95kV |
| Shield resistance | $\leq 5000\Omega$ |
| Applicable cable cross section | 25-630mm ² |

Structure size

| Rated current (A) | 630 | 1250 |
|---------------------------------------|---------|---------|
| Cable specification(mm ²) | 25-300 | 400-630 |
| Outer diameterL (mm) | 71-108 | 79 |
| Height H (mm) | 242 ± 5 | 272 ± 5 |

Cable

7.2-17.5KVcopper core, aluminum core cable
single core, three cores
XLPE insulated cable, armored XLPE insulated cable

NXRING

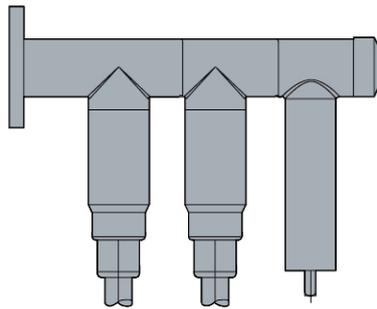
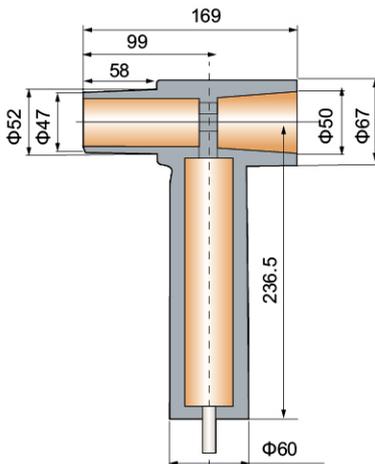
Cable compartment and cable connection

Plug-in arrester

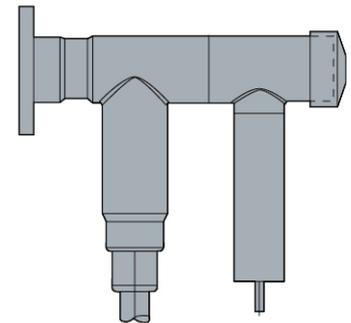


Comply with GB11032-2010 standard

Insulation and protection are made of EPDM rubber
Using high-performance zinc oxide resistor chip core, it has the characteristics of excellent nonlinear volt-ampere characteristics, good steep wave response, strong current capacity, etc.
Suitable for 6/10kV, 8.7/10kV, 8.7/15kV voltage levels



Assembly drawing of front plug, rear plug and arrester



Front plug and arrester assembly drawing

Technical parameter

| Content | Unit | Parameter |
|--|------|-----------|
| Rated voltage | kV | 17 |
| Continuous operating voltage | kV | 13.6 |
| Nominal discharge current | kA | 5 |
| Residual voltage under steep surge current (1/5 μ s 5kA) | kV | ≤ 51.8 |
| Current residual voltage under lightning impulse (8/20 μ s 5kA) | kV | ≤ 45 |
| Residual voltage under operating inrush current (30/60 μ S 500A) | kV | ≤ 38.3 |
| DC 1mA reference voltage (kV) | kV | ≥ 24 |
| Drowning current mt(A) under 75% DC 1mA reference voltage | A | ≤ 50 |



Cable head temperature monitoring device

Built-in online monitoring device plug

The system consists of wireless temperature measurement device for equipment plug, intelligent gateway (or communication management machine) and DAVID-Cloud platform. In the plug wireless temperature measurement device, the wireless temperature measurement sensor is installed inside the plug to directly monitor the easy hot spots at the lap joint of the cable. The monitored temperature information is transmitted to the wireless temperature measurement device in real time through wireless, the wireless temperature measurement device collects the temperature data to the intelligent gateway through the RS485 interface and the standard Modbus-RTU protocol. The intelligent gateway subscribes the data to the cloud platform through the wireless 4G or wired network, and the cloud platform analyzes and judges to realize intelligent monitoring without any duty.

NXRING

Attachment

Charged Displays and Sensors



Comply with IEC61243-5 standard
Panel type live display
With 485 communication
Voltage indication
The live indicator has the function of electricity inspection and secondary phase verification, and the red LED flashes.

When the operating voltage is applied, the live indicator flashes to ensure that it is clearly visible in bright or dark environments, and reminds the staff to pay attention to the live equipment.
The output voltage is between 20V and 36V.
The live indicator can be replaced live.
The live indicator is a plug-in indicator light



cable fault indicator

Short circuit or ground fault indication
Short circuit or ground fault location
Ring network power supply and distribution network
Radiated power distribution network
Neutral grounding system

Internal three-phase composite ground Optional with cable temperature test
Optional models with 485 communication for distribution automation
Optional models with fiber optic communication for distribution automation.

Technical parameter

| | |
|----------------------------------|---|
| Applicable voltage level | 6-35kV |
| Applicable load | 0-600A |
| Applicable lead current | $I \leq 1000A$ |
| Applicable wire path | $25mm^2 \leq d \leq 300mm^2$ |
| Action response time | $0.06S \leq T \leq 3S$ |
| Static power | $\leq 10 \mu A$ |
| Action reset time | 6、8、12、24、36hours optional |
| Use ambient temperature | $-40^{\circ}C \leq T \leq 75^{\circ}C$ |
| number of actions | > 4000 Times |
| Ground fault limit start value | 50A (The specific number can be communicated with the manufacturer) |
| Short-circuit fault pickup value | 800A |

SF6Gas Density Meter



Display the air pressure in the air box and configure the electrical contacts
Switch configuration SF6 gas density relay with scale value.
Reserved inflation valve, SF6 gas complies with relevant regulations of GB12022
The SF6 gas pressure gauge has auxiliary contacts, and performs alarm and low-pressure opening and closing locking functions when the air pressure is low.

| | |
|--------------------------|-----------------------------------|
| External dimensions | Φ64 |
| Measuring range | Customized |
| Measurement accuracy | Grade 1.6 |
| Protection class | IP65 |
| Working environment | $-40 \sim +60^{\circ}C$ |
| Leak rate | $1 \times 10^{-8} mbar \cdot l/s$ |
| Shell material | 304 |
| Pressure sensing element | Bourdon tube |
| Pressure port | Customized |

NXRING

Attachment

Operating power

System operating power

Depending on the needs of the system, NXRING can adopt various secondary control loop and operating mechanism power supply modes such as PT power supply, power distribution room DC power supply, power distribution room AC power supply, and distributed DC power supply.

DC power supply

Distributed direct current can be used as the power supply for the secondary control circuit of the switchgear and the operating mechanism.

DC220V, DC110V, DC48V and other DC voltage specifications.

The battery capacity can be configured according to the system requirements, commonly used are 20AH, 40AH and so on. With charge and discharge power management function, with communication function. The power module is installed in the upper space of the PT cabinet.

Standard battery pack and power module

| Content | Unit | Parameters |
|-----------------------------------|------|---------------------|
| Battery pack type or model | | Lead-acid batteries |
| Battery rated voltage | V | 48 |
| Battery rated capacity | Ah | 40 |
| Power Module Instantaneous Power | W | 500 |
| Power Module Rated Input Voltage | V | AC220/DC48 |
| Power Module Rated Output Voltage | V | DC48 |

Handle



NXRING

Grounding

Meet the requirements of GB/T 50064–2014. The metal parts that may be touched, such as the shell, switchgear shell, etc., are reliably grounded. Ground conductors and ground connections are rated for short elbow and peak withstand currents for ground loops.

- According to the DL/T404 standard, the maximum short-time withstand current that the grounding circuit can withstand is not less than 87% of the rated shorttime withstand current of the main circuit.
- All parts in the main circuit that are specified or need to be accessible by people are reliably grounded and comply with the regulations in DL/T 621;
- The grounding busbar is provided with no less than two terminals connected to the grounding system, and there are obvious grounding signs;
- The main circuit is provided with a reliable copper ground terminal suitable for specified fault conditions. The copper terminal and the grounding system of the equipment are connected by M12 bolts, and the contact area is not less than 160mm²
- All ground connection points are marked with the protective grounding symbol specified in GB/T 5465.2, and the part of the metal casing connected to the grounding system can be regarded as a grounding conductor;
- Prefabricated cable accessories and cable head are coated with semi-conductive shielding layer and reliably grounded
- The surface of side extender or top insulated busbar between cabinets is coated with semi-conductive shielding layer and reliably grounded
- Reliably connected to the metal shell and grounded after connection;
- The grounding conductor adopts copper busbar. Under the specified grounding fault conditions, when the rated short-circuit duration is 2s, the current density shall not exceed 110A/mm²
- The ground bus extends out of the housing for easy connection to the basic ground electrode
- The housing of each functional unit is connected to the ground conductor
- The secondary control instrument room is provided with a dedicated independent grounding conductor

Ground busbar parameters

| Content | Unit | Unit Parameters |
|---|-----------------|-----------------|
| Material | | Copper |
| Rated short-time withstand current and duration | kA/s | 20/4 |
| Rated peak withstand current | kA | 50 |
| Conductor cross section | mm ² | 160 |

NXRING

Outdoor box



NXRING outdoor switch station is composed of NXRING gas-insulated switchgear and control equipment assembled with outdoor box. The box body can be made of stainless steel, aluminum-zinc-coated steel plate, SMC, GRC cement and other materials to meet the outdoor application requirements of weather resistance, corrosion resistance and high protection. The box body process adopts the form of components, riveted or bolted. The overall protection level is IP4X. A convection channel is set inside the box, which has the effects of heat insulation, cooling and ventilation.

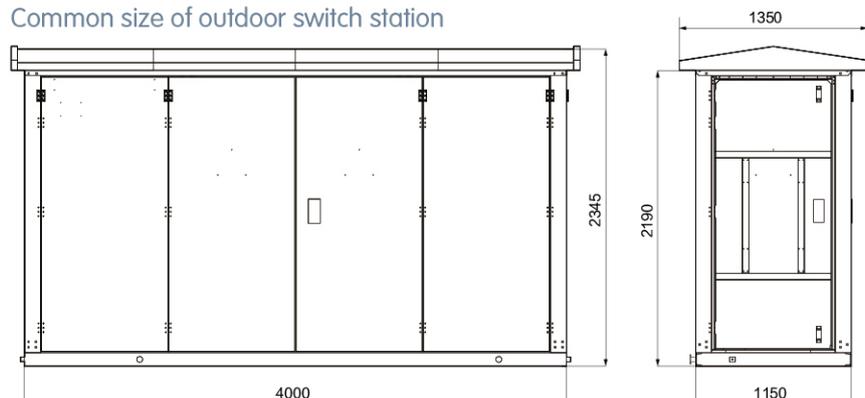
Top cover design drainage slope $\geq 3^\circ$

Optional cable sealing plug can effectively prevent moisture intrusion of cable trenches

Adopt outdoor special padlock, optional smart padlock

Easy to hoist and install

Common size of outdoor switch station



Outdoor box width: The sum of the width of a single ring network cabinet + DTU width (standard 600mm) + reserved space (400mm)

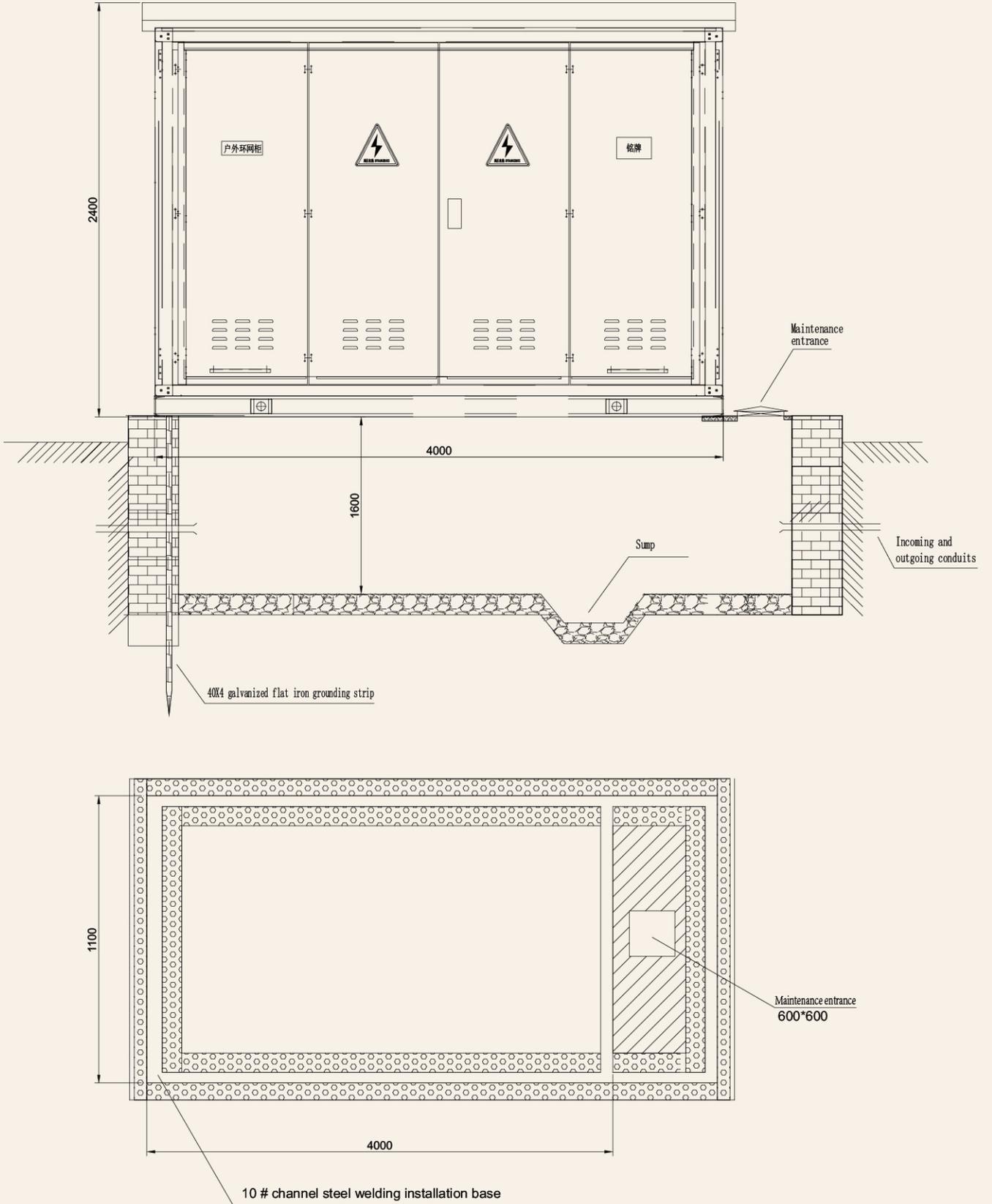
Outdoor box height: <2450mm

Outdoor box depth: 1150mm

NXRING

Outdoor Box

Basic diagram of outdoor box



NXRING

Distribution network automation solution

Distribution network automation solution

Based on the requirements of distribution network automation, NXRING can be equipped with a distribution automation system. The system consists of a comprehensive measurement and control communication unit and multiple independent protection measurement and control units (one protection measurement and control unit corresponds to one interval).

The protection measurement and control unit is equipped with protection and measurement and control function modules. It is responsible for realizing the functions of remote signaling, telemetry, remote control, and protection logic (conventional protection, voltage and current feeder automation, intelligent distributed feeder automation) at the corresponding interval, and realizes information interconnection with the integrated measurement and control communication unit through the data busbar.

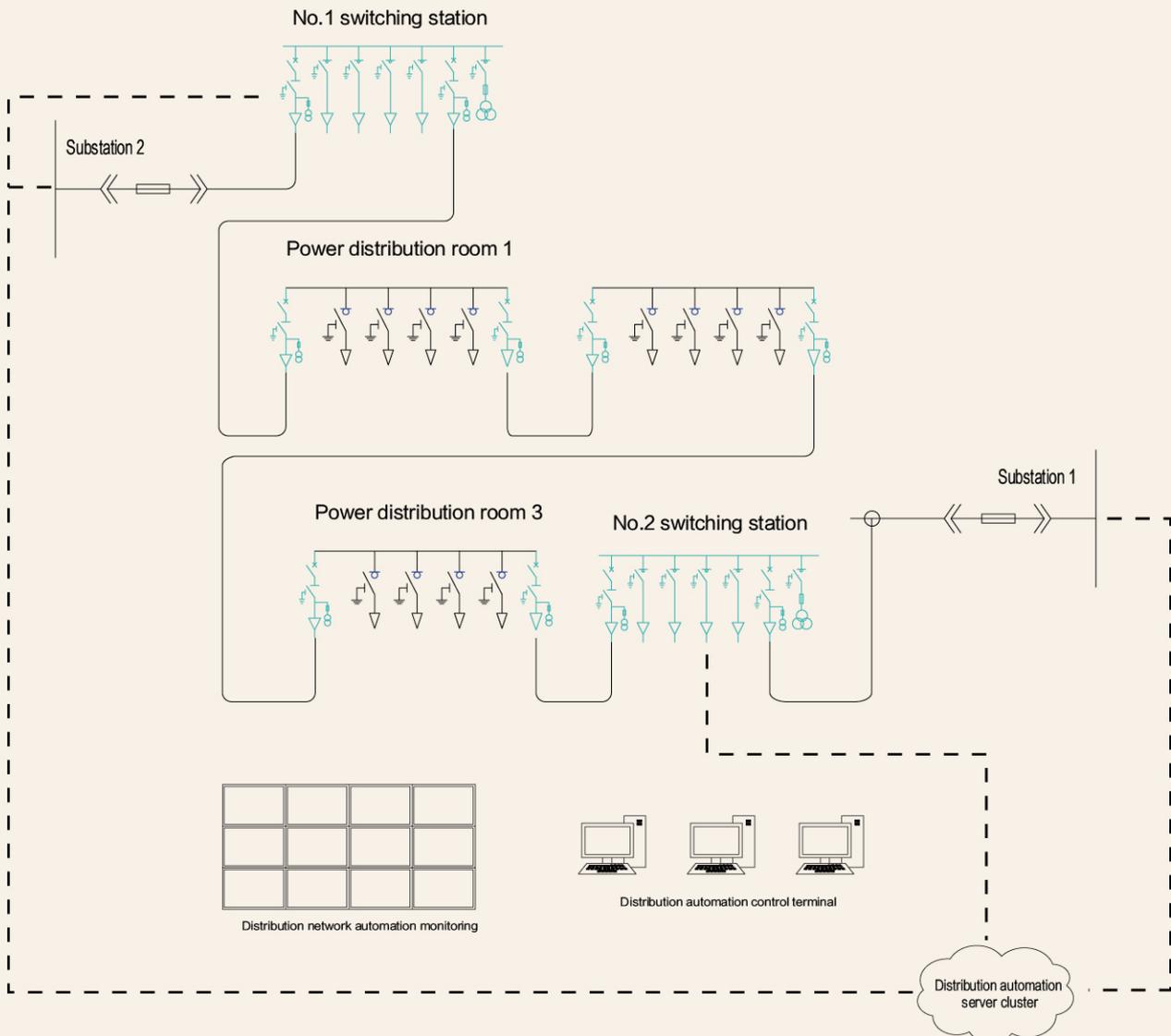
The automation can realize the collection and transmission of the following data: circuit breaker position, knife switch position, remote/local selection control switch position, protection (including quick-break, separable phase and segmental overcurrent, grounding) action, reclosing action, device fault (Terminal abnormality or failure), spring not charged, control circuit disconnection, temperature and humidity out-of-limit signal, DC system monitoring, SF6 low air pressure alarm signal and other signals, and send them to the main station of distribution automation.

It can collect busbar voltage (U_{ab} , U_{bc} , $3U_0$), current (I_a , I_b , I_c , $3I_0$), and two incoming line voltages and currents, to realize the calculation of active power, reactive power and power factor; short circuit in case of feeder failure Current, zero sequence current or zero sequence voltage.

Receive and execute remote control commands from the distribution automation master station to achieve fault isolation and recovery of nonfaulty areas, and improve power supply reliability.

The communication protocol supports the relevant technical standards of State Grid, China Southern Power Grid and IEC.

The application in the power grid can also adopt communication protocols such as IEC61850/Modbus DNP V3.0.

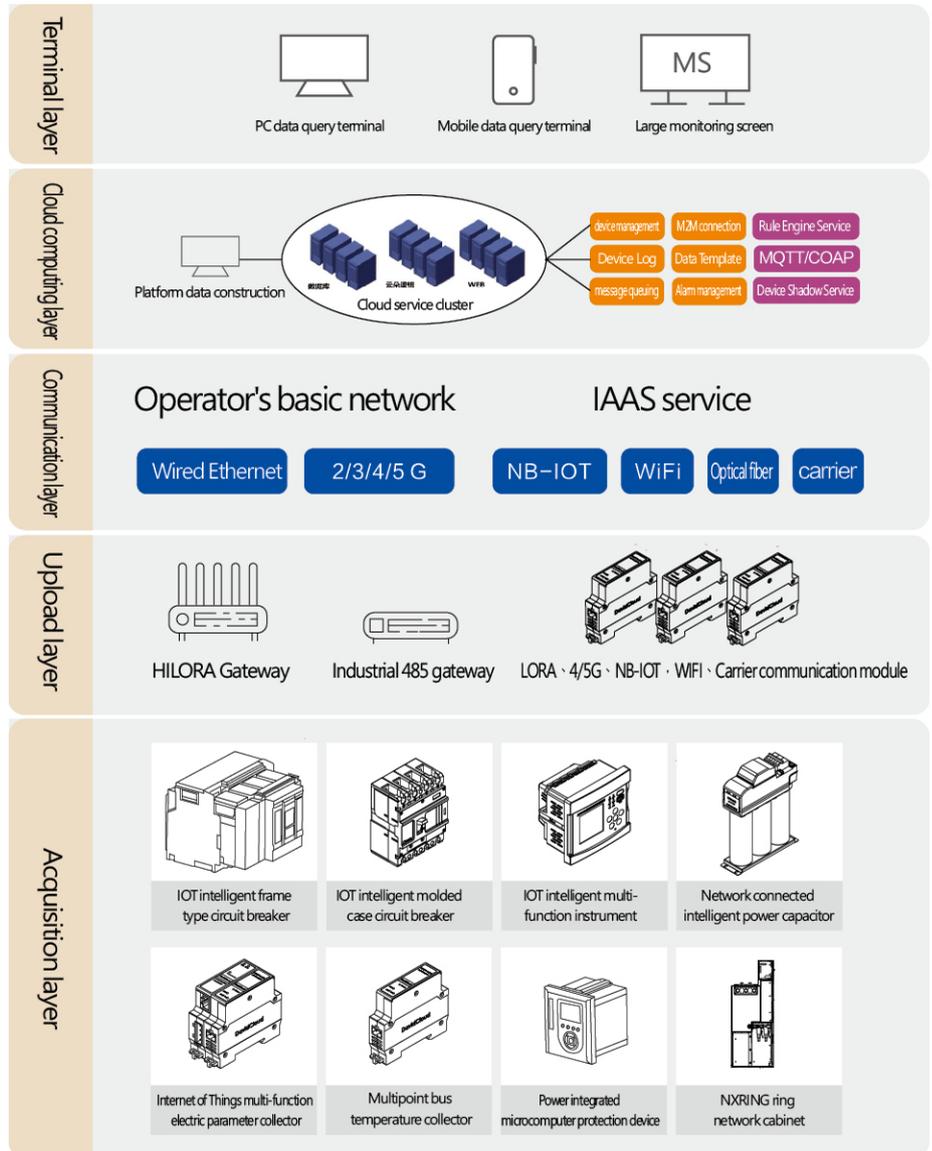


NXRING

Smart Power Distribution Solution

DAVID CLOUD intelligent power distribution management platform based on IoT technology and cloud computing

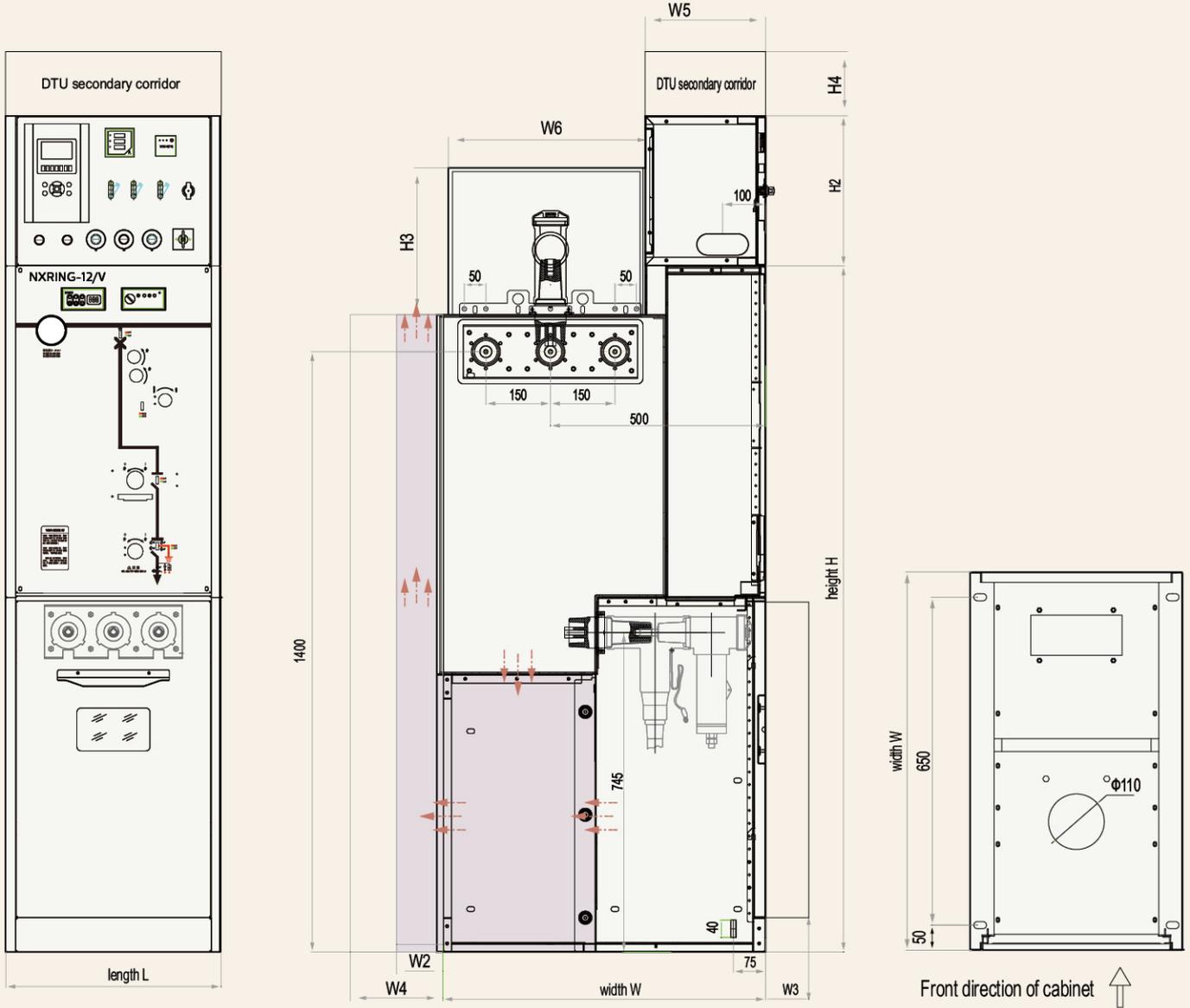
DAVIDCLOUD power generation and maintenance cloud intelligent operation and maintenance system is an overall package solution for intelligent operation and maintenance of power equipment based on Internet of Things technology, cloud computing technology and edge computing technology. It adopts wireless transmission physical sensor and wireless transmission power collector. The data is collected and calculated by the edge computing terminal and communicated to the cloud computing center. Taking the DAVIDCLOUD system of the cloud platform as the operation center, through the application of professional operation and maintenance knowledge and the implementation of service capabilities, the overall security reliability and operation efficiency of equipment and systems are improved. NXRING is the main component of medium voltage power distribution of DAVIDCLOUD power generation and maintenance cloud intelligent operation and maintenance system.



NXRING

Dimensions

Outline dimension drawing

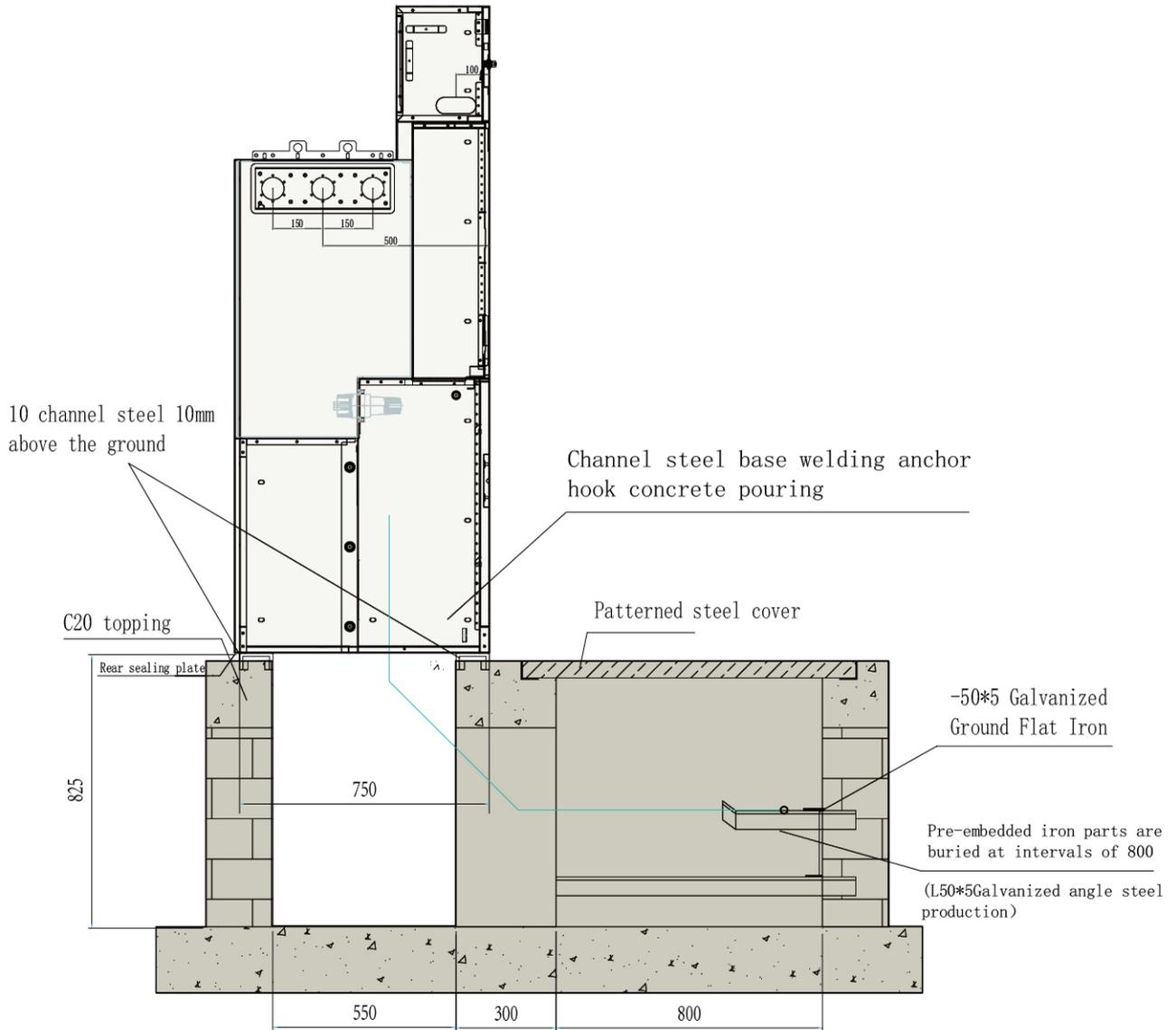


| Standard | length L | width W | height H | H2 | H3 | H4 | W2 | H3 | W4 | W5 | W6 |
|----------|-------------------|---------|----------|----------|-----|-----|-----|-----|-----|-----|-----|
| C | 400 (375,420,500) | 750 | 1600 | 350(450) | 380 | 120 | 120 | 100 | 240 | 360 | 470 |
| V | 400(375,420,500) | 750 | 1600 | 350(450) | 380 | 120 | 120 | 100 | 240 | 360 | 470 |
| F | 400(375,420,500) | 750 | 1600 | 350(450) | 380 | 120 | 120 | 100 | 240 | 360 | 470 |
| D | 325(375,400,420) | 750 | 1600 | 350(450) | 380 | 120 | 120 | 100 | 240 | 360 | 470 |
| M | 750(700,750,800) | 750 | 1600 | 350(450) | 380 | 120 | 120 | | 240 | 360 | 470 |
| PT | 500(600) | 750 | 1600 | 350(450) | 380 | 120 | 120 | 100 | 240 | 360 | 470 |
| T | 750 | 750 | 1600 | | | | | | | | |
| + | 400(同C方案) | 750 | 1600 | 350(450) | 380 | 120 | 120 | 100 | 240 | 360 | 470 |
| ATS | 800(2*400=800) | 750 | 1600 | 350(450) | 380 | 120 | 120 | 100 | 240 | 360 | 470 |

Remarks: When the cable is fed upwards, only the lower pressure relief channel can be used.

NXRING Installation

Installation dimension



Raised base

The switchgear can be equipped with an independent raised base to be used in field scenes without cable trenches or special occasions. The height of the base is H=200mm, 300mm, 400mm optional; special specifications can be customized when ordering.



NXRING

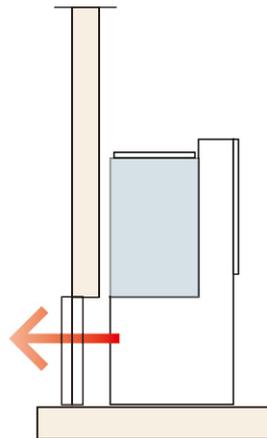
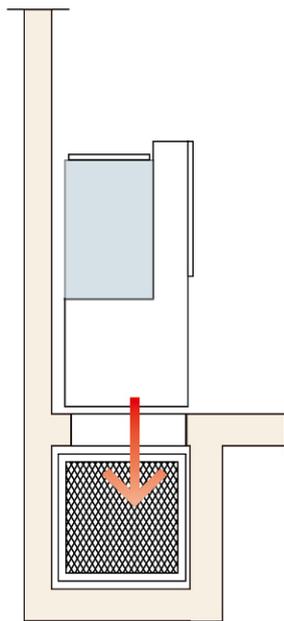
pressure relief channel

In line with the national standard GB/T 3906 standard, IEC/EN62271-200 standard

Through the bottom plate of the cabinet, the pressure is released downward to the cable trench. The size of the cable trench must be no less than the cross-sectional area as shown in the figure.

Through the pressure relief channel at the rear of the cabinet, the pressure is released upward, and the pressure absorption device is equipped. The power distribution room must meet the size not less than the size shown

Switchgear installation, pressure relief channel downwards (standard) or backwards (optional)



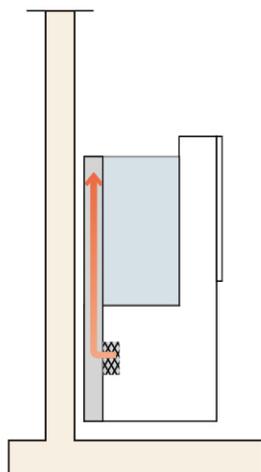
1. Ground hole
2. Pressure release direction
3. Metal network board (provided on site)
4. Pressure-resistant bottom plate (dividing plate used when working with cables)
5. Pressure absorbing device with pressure relief channel

The total hole size is not less than 0.5m
The pressure relief channel is at the rear of the open cabinet, the minimum height of the power distribution room

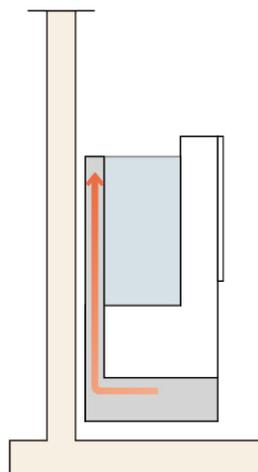
Switchgear height 1950mm

power distribution room height ≥ 2300 mm

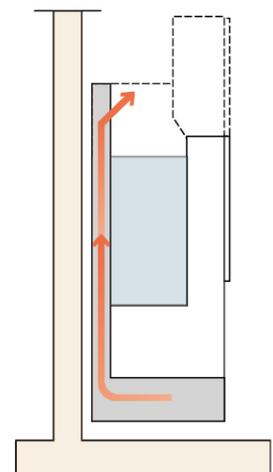
The switchgear discharges the pressure upward through the rear pressure relief channel (optional)



The switchgear discharges the pressure upwards through the base and the rear pressure relief channel (optional)



Wall mounted, excluding metering cabinet



Metering cabinets mounted away from the wall, or against the wall

NXRING

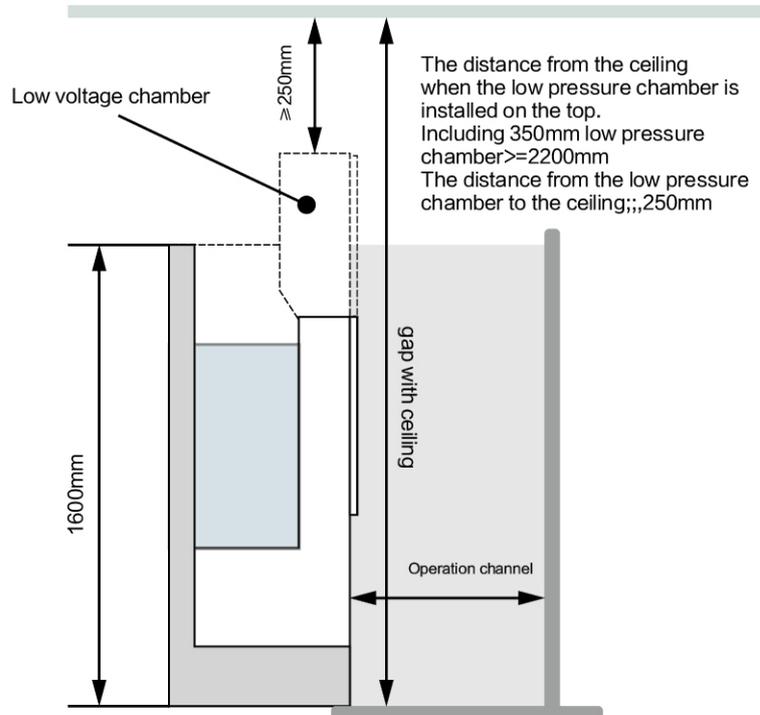
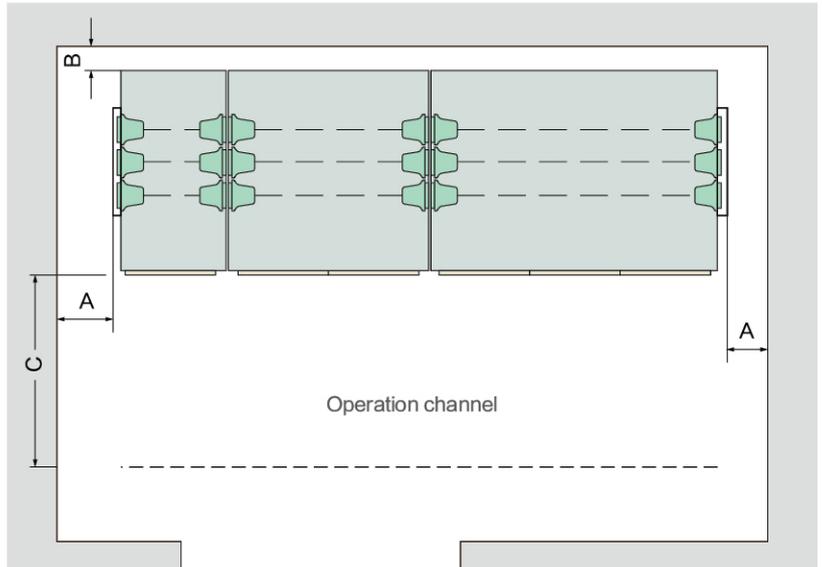
Installation space

NXRING Installation space

Top view

Functional units and distances

| Functional units and distances | | Spacing (mm) | |
|--------------------------------|--|-------------------------------------|-----|
| A | The distance between the side panel and the wall of the spare side expansion end cabinet | 500 | |
| B | The distance between the rear panel and the wall when installed against the wall | Relieve pressure towards the bottom | 20 |
| | | Relieve pressure towards the top | 100 |
| | | Relieve pressure towards the back | 140 |
| C | Cabinet front channel | > 1000mm | |



NXRING

Environmental friendly

Environmental protection

- Environmentally friendly design to reduce the impact of products on the environment
 - Reduce greenhouse gases
 - Strengthen environmental management and environmental safety
 - Provide renewable energy support and promote green and clean energy
 - Reduce the consumption of materials and energy in the manufacturing process
 - Comply with all ecological environment requirements during use
- The whole life cycle follows the provisions of the 1S014001 standard environmental management system
 - Manufacturing without the use of materials known to be chemically and environmentally hazardous
 - End of product life cycle, some materials can be recycled
 - End of product life cycle, some non-recyclable and some materials are environmentally friendly
- Product without fluid material
 - Metal can be recycled
 - Thermosets and thermoplastics
 - No toxic materials

SF6 gas recovery

The insulating gas used in NXRING is about 0.2% of the total weight of the switchgear. After the switchgear is used up, the gas is safely discharged and recycled through the gas valve and recovery device.

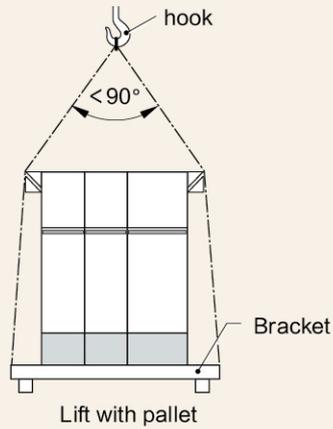
Recycling and dismantling

| Type | Recycling subject | Method |
|---------------------------|----------------------------------|------------------------------------|
| SF6 gas | Manufacturers | recovery, storage and regeneration |
| Steel and Stainless Steel | local renewable resource company | Shredding, sorting and recycling |
| Non-ferrous metals | local renewable resource company | Shredding, sorting and recycling |
| Epoxy resin | local renewable resource company | General solid waste treatment |
| Thermoplastic | local renewable resource company | recycling for secondary use |
| Protective equipment | local renewable resource company | recycle and destroy |
| Cable | local renewable resource company | Sheath and wire separation |

NXRING

Hoisting

shipment

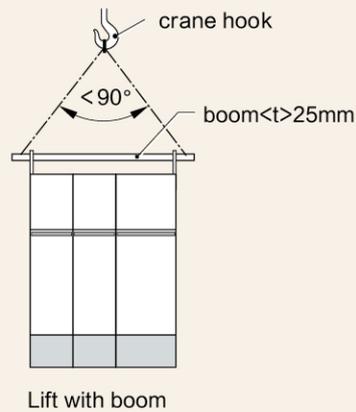


vertical handling

When transporting by forklift, it must be transported with a bottom bracket

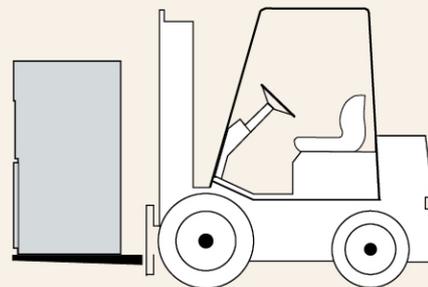
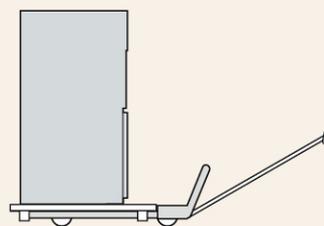
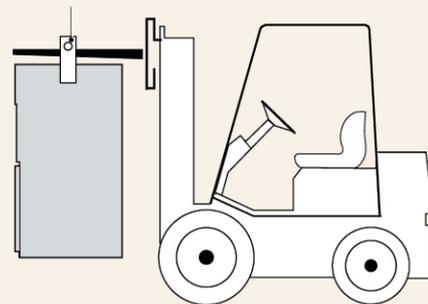
When hoisting, the sling angle is less than 90°

Do not directly lift the spliced switchgear



Boom $\Phi 25\text{mm}$

(Pay attention to the weight of the switch cabinet and the counterweight of the forklift)

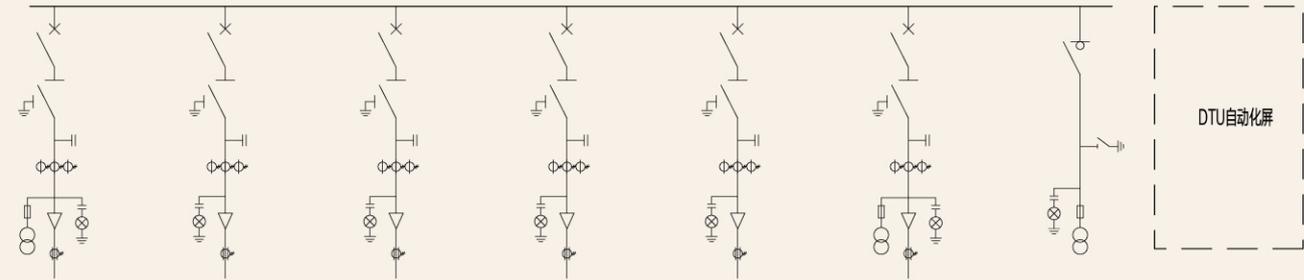


Storage

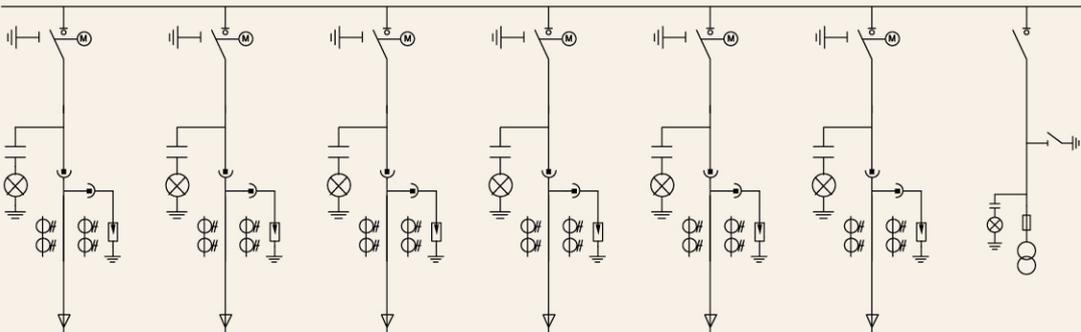
The following situations are strictly prohibited:

- roll over
- upside down
- vibrate
- Fire source
- stacking
- rain
- moist

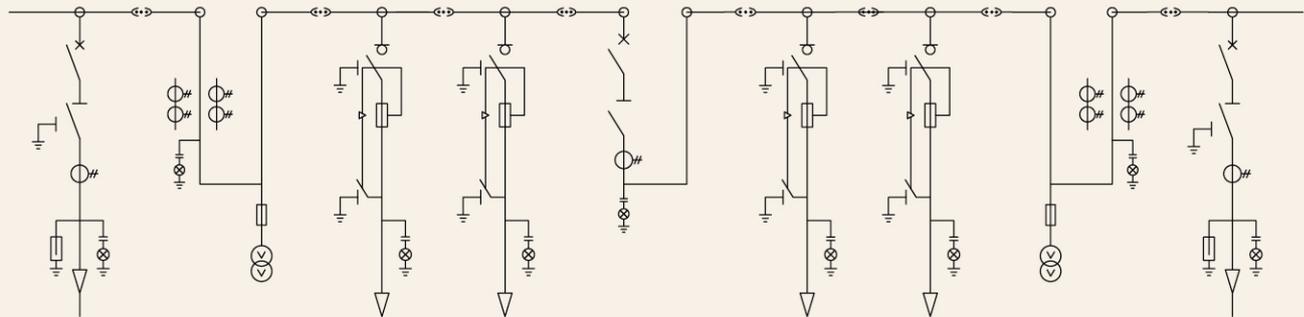
Typical application of distribution automation switching station



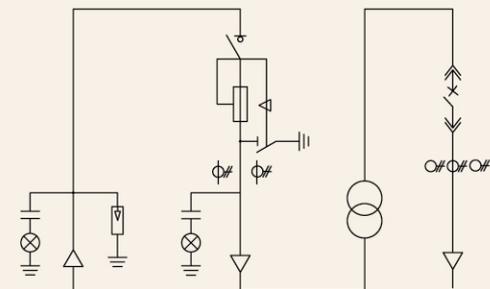
Typical application of grid switching station



Typical application of double incoming line with contact belt metering



Typical Application of Transformer Incoming Line





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