CEEPOWER
A Part of CEEPOWER

PT CEEPOWER LISTRIK INDONESIA

Ring Main Unit Series

Product Manual

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Ceepower Introduction

3 + Billion
RMB in Assets

1,000 +
Employees

200 +
Patents & Software Copyrights

30 +
Global Markets

Ceepower Co., Ltd. (Stock Code: 300062), founded in 1999 and listed on the Shenzhen Stock Exchange in 2010, is the first GEM(Growth Enterprise Market) company in Fuzhou, with total assets exceeding 3 billion RMB.

Guided by the mission of "Innovate in Energy, Serve Society through Industry", Ceepower has focused for over 26 years on power technology R&D and the production, sales, and service of intelligent transmission and distribution equipment. It operates multiple wholly owned and equity-holding subsidiaries, with business covering smart grid, rail transit, and renewable energy. Its products are exported to more than 30 countries and regions.

The company has established a modern headquarters integrating R&D and marketing functions, along with a smart manufacturing base covering an area of approximately 180,000 m^2. Ceepower holds over 200 patents and software copyrights, with contributions to both national and industry standards.

In response to global carbon reduction goals, Ceepower is developing intelligent power systems that support the integration of renewable energy and efficient grid upgrades. With continuous innovation and a growing global presence, Ceepower is committed to becoming a trusted provider of smart power solutions worldwide.

ELE-12/24kV SF_6 Insulated Ring Main Unit

ELE Series Overview

With urbanization accelerating and reliability demands rising, overhead lines are being replaced by underground cables, and indoor substations by outdoor ring main units. SF_6 insulated switchgear (SF_6 RMU or C-GIS), with its compact size, maintenance-free design, and resistance to harsh environments, is widely used in high-reliability power systems such as city centers, industrial zones, airports, and highways.

Ceepower's ELE series SF_6 gas-insulated RMUs are manufactured in dedicated facilities using advanced European technology. The series ensures stable quality and reliable delivery. Since its launch in 2005, it has been widely recognized and trusted by customers.

Technological Highlights

- All HV live components are sealed in a welded stainless steel tank, fully isolated from the environment to ensure safe, reliable, and maintenance-free operation.
- Gas tank made of 3mm 304 stainless steel with advanced welding for improved gas tightness and appearance.
- Compact design allows easy installation in limited spaces.
- Fully insulated and shielded extension busbars ensure high safety and reliability.
- Modular block structure enables flexible configuration to meet various distribution needs.
- Helium mass spectrometer leak test ensures leakage rate <0.01% per year; tank life exceeds 30 years.
- Reliable mechanism: load break switch rated for 5,000 operations; vacuum circuit breaker rated for 10,000 operations.
- Load break switch–fuse combination unit supports transfer current of 12kV, 1750A; 24kV, 1400A.

Advanced Manufacturing Equipment and Techniques

High Manufacturing Precision
Advanced laser cutting and CNC punching, shearing, and bending equipment ensure high dimensional accuracy and stable quality of the sealed tank.

Reliable Component Quality
Key components such as bushings, pressure gauges, and operating shafts undergo 100% helium leak testing and X-ray non-destructive testing. Insulators are also tested for partial discharge to ensure reliability.

Advanced Welding Equipment and Process
Equipped with Japanese robotic welding systems, the automated process ensures stable weld quality, minimal heat-affected zone, no deformation, high precision, and clean seams.

Superior Technical Performance
The company's internal standard for gas leakage is <0.01% per year, outperforming the national standard of <0.1%. Type tests at Xi'an High Voltage Apparatus Research Institute measured leakage rates as low as <0.005%.

Comprehensive Testing
After gas filling, each sealed tank undergoes 100% leak testing as part of factory inspection to ensure sealing integrity.

Naming Rule

ELE - 12(24) - 630(1250)A / □

- Combination Scheme Code
- Rated Current: 630A or 1250A
- Rated Voltage: 12kV or 24kV
- Switch Model

Operation Environment

Ambient Temperature:
Maximum: +40°C
Minimum (indoor): –40°C

Ambient Humidity:
⩽95% (24-hour average)
⩽90% (monthly average)

Altitude: ≤1000 m

Atmospheric Conditions:
Unaffected by pollution, dust, corrosive or flammable gases, or smoke.

Seismic Intensity: ≤ Magnitude 8

**Note: For altitudes exceeding 1000 meters, please contact Ceepower.*

Standard Compliance

GB/T 3906 – AC Metal-Enclosed Switchgear and Controlgear for Rated Voltages from 3.6kV to 40.5kV
GB/T 11022 – Common Specifications for HV Switchgear and Controlgear Standards
GB 1984 – HV AC Circuit Breakers
GB 1985 – HV AC Disconnectors and Earthing Switches
GB 3804 – HV AC Load Break Switches (3.6kV to 40.5kV)
GB 16926 – HV AC Load Break Switch-Fuse Switch Combinations
GB 4208 – Degrees of Protection Provided by Enclosures (IP Code)
GB 311.1 – Insulation Coordination for HV Power Transmission and Transformation Equipment
GB 3309 – Mechanical Tests for HV Switchgear at Ambient Temperature
GB 11023 – Test Method for Gas-Tightness of HV Switchgear Using SF_6 Gas
GB/T 8905 – Guide for Gas Management and Detection in SF_6 Electrical Equipment
GB 5832.2 – Determination of Trace Moisture in Gas — Dew Point Method
DL/T 404 – AC Metal-Enclosed Switchgear and Controlgear for Rated Voltages from 3.6kV to 40.5kV (Electric Power Industry Standard)
DL/T 593 – Common Specifications for HV Switchgear and Controlgear (Electric Power Industry Standard)

12kV/24kV Series Specifications

12kV SF_6 Insulated Ring Main Unit

	Load Break Switch Cabinet	Fuse Switch Combination Cabinet	Circuit Breaker Cabinet
Rated Voltage	12 kV	12 kV	12 kV
Rated Frequency	50 Hz	50 Hz	50 Hz
Rated Current	630 A	125 A*	630/1250 A
Rated Power Frequency Withstand Voltage (1 min)	42/48 kV	42/48 kV	42/48 kV
Rated Lightning Impulse Withstand Voltage (peak)	75/85 kV	75/85 kV	75/85 kV
Electrical Endurance	E3	E3	E2
Mechanical Endurance	5000 Times	5000 Times	10000 Times
Rated Short-Circuit Breaking Current	—	31.5 kA*	20/25/31.5 kA
Rated Short-Circuit Making Current (peak)	50/63 kA	80 kA*	50/63/80 kA
Rated Transfer Current	—	1750 A	—
Rated Peak Withstand Current (main & earthing circuit)	50/63 kA	—	50/63/80 kA
Rated Short-Time Withstand Current (2 s, earthing circuit)	20/25 kA	—	20/25/31.5 kA
Rated Short-Time Withstand Current (4 s, main circuit)	20/25 kA	—	20/25/31.5 kA
Internal Arc Classification	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s
Rated Operating Pressure at 20°C	0.03 MPa	0.03 MPa	0.03 MPa
Minimum Operating Pressure at 20°C	0.02 MPa	0.02 MPa	0.02 MPa
Enclosure Ingress Protection	IP41	IP41	IP41
Gas Compartment Ingress Protection	IP67	IP67	IP67
Gas Leakage Rate	⩽0.01%/year	⩽0.01%/year	⩽0.01%/year
Cabinet Width	375 mm	420 mm	420/500/600 mm
Cabinet Depth (excluding Door)	750 mm	750 mm	750 mm
Cabinet Height	1950/2050 mm	1950/2050 mm	1950/2050 mm

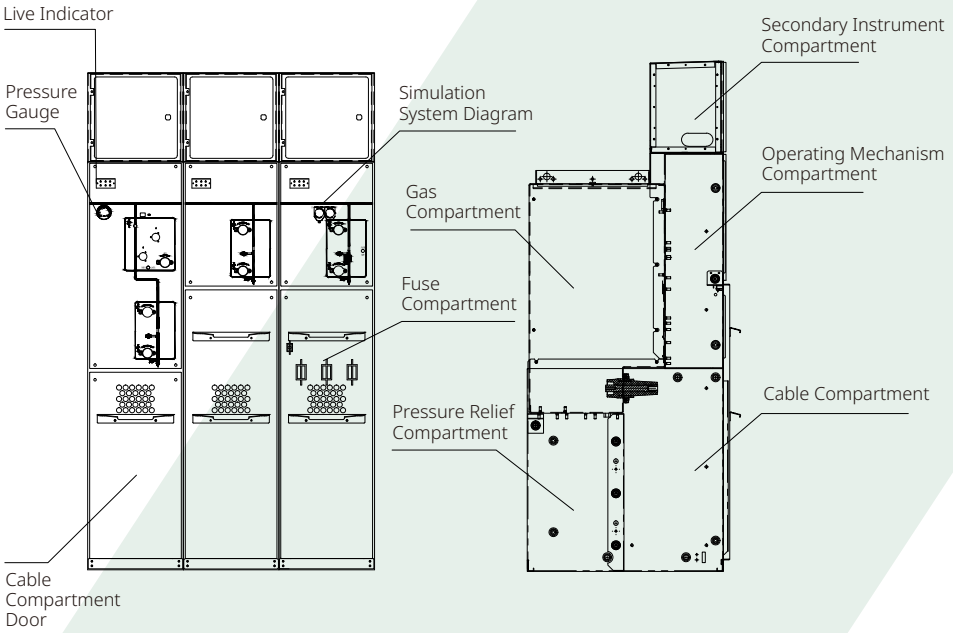
** Limited by high-voltage fuse*

24kV SF_6 Insulated Ring Main Unit

	Load Break Switch Cabinet	Fuse Switch Combination Cabinet	Circuit Breaker Cabinet
Rated Voltage	24 kV	24 kV	24 kV
Rated Frequency	50 Hz	50 Hz	50 Hz
Rated Current	630 A	125 A*	630 A
Rated Power Frequency Withstand Voltage (1 min)	65/79 kV	65/79 kV	65/79 kV
Rated Lightning Impulse Withstand Voltage (peak)	125/145 kV	125/145 kV	125/145 kV
Electrical Endurance	E3	E3	E2
Mechanical Endurance	5000 Times	5000 Times	10000 Times
Rated Short-Circuit Breaking Current	—	31.5 kA*	20 kA
Rated Short-Circuit Making Current (peak)	50 kA	80 kA*	50 kA
Rated Transfer Current	—	1400 A	—
Rated Peak Withstand Current (main & earthing circuit)	50 kA	—	50 kA
Rated Short-Time Withstand Current (2 s, earthing circuit)	20 kA	—	20 kA
Rated Short-Time Withstand Current (4 s, main circuit)	20 kA	—	20 kA
Internal Arc Classification	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s
Rated Operating Pressure at 20°C	0.03 MPa	0.03 MPa	0.03 MPa
Minimum Operating Pressure at 20°C	0.02 MPa	0.02 MPa	0.02 MPa
Enclosure Ingress Protection	IP4X	IP4X	IP4X
Gas Compartment Ingress Protection	IP67	IP67	IP67
Gas Leakage Rate	≤0.01%/year	≤0.01%/year	≤0.01%/year
Cabinet Width	375 mm	420 mm	420 mm
Cabinet Depth (excluding door)	750 mm	750 mm	750 mm
Cabinet Height	1950/2050 mm	1950/2050 mm	1950/2050 mm

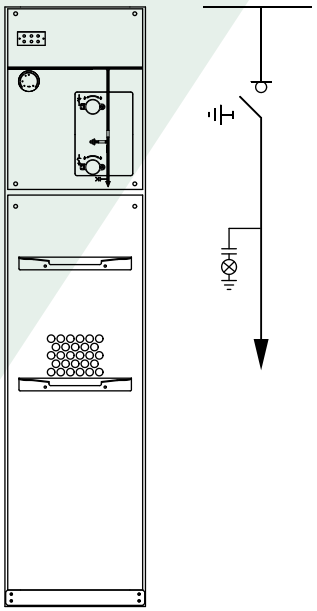
** Limited by high-voltage fuse*

Structure Diagram



Product Solutions
(Optional Unit)

C Unit: Three-Position Load Break Switch ELE-12(24)



Standard Configuration

· 630A busbar

· Three-position load break switch/earthing switch

· Three-position switch with single-spring operating mechanism

· Load break switch and earthing switch position indicator

· Interlocking cam for switch function

· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)

· Capacitive voltage indicator with live display function

· SF_6 gas pressure gauge (one gauge per gas compartment for shared gas tank design)

· Earthing busbar

· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Provision for external busbar extension

· Provision for side connection extension

· Motorized operation for load break switch (DC 24/48/110/220V, AC 110/220V)

· Short-circuit and earth fault indicator

· Ring-type current transformer and ammeter

· Touch-proof cable termination

· Rear-mounted surge arrester or double cable termination at cable bushing

· Key interlock

· Incoming cable electric interlock (DC 24/48/110/220V, AC 110/220V)

· Auxiliary contacts:

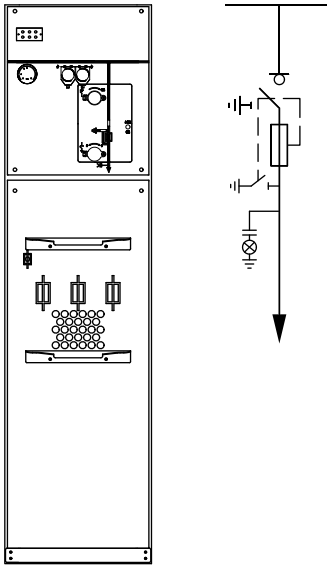
  · Load break switch position: 2NO + 2NC

  · Earthing switch position: 2NO + 2NC,

  · Pressure gauge with signal output: 2NO

· Secondary devices can be installed in the LV compartment at the top of the switchgear

T Unit: Load Break Switch & Fuse Switch Combination ELE-12(24)



Standard Configuration

· 630A busbar

· Three-position load break/earthing switch-fuse combination unit with mechanically interlocked earthing switch at both fuse ends

· Three-position switch with dual operating mechanisms

· Load break switch and earthing switch position indicator

· Fuse holder

· Fuse status indicator

· Interlocking cam for switch function

· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)

· Capacitive voltage indicator with live display function

· SF_6 gas pressure gauge (one gauge per gas compartment for shared gas tank design)

· Earthing busbar

· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Provision for external busbar extension

· Provision for side connection extension

· High-voltage fuse for transformer protection (refer to fuse selection table)

· Motorized operation for load break switch (DC 24/48/110/220V, AC 110V/220V)

· Shunt trip (DC 24/48/110/220V, AC110V/220V)

· Short-circuit and earth fault indicator

· Ring-type current transformer and ammeter

· Touch-proof cable termination

· Rear-connected surge arrester at cable bushing

· Key interlock

· Auxiliary contacts

  · Load break switch position: 2NO + 2NC

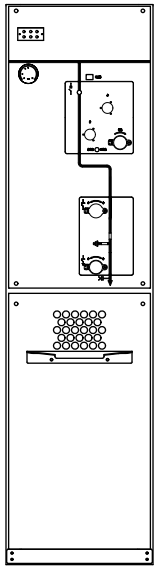
  · Earthing switch position 2NO + 2NC,

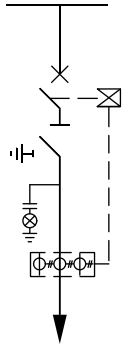
  · Pressure gauge with signal output: 2NO

  · Fuse blown indicator: 1NO

· Secondary devices can be installed in the LV compartment at the top of the switchgear

V Unit: Three-Position Vacuum Circuit Breaker ELE-12(24)





Standard Configuration

· 630A busbar

· Vacuum circuit breaker

· Vacuum circuit breaker with spring operating mechanism

· Three-position switch

· Operating mechanism for three-position switch

· Position indicator for vacuum circuit breaker and three-position switch

· Mechanical interlock between vacuum circuit breaker and three-position switch

· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)

· Capacitive voltage indicator with live display function

· SF_6 gas pressure gauge (one gauge per gas compartment for shared gas tank design)

· Earthing busbar

· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Self-powered protection device

· Integrated relay protection device

· Two-position disconnector

· Provision for external busbar extension

· Provision for side connection extension

· Motorized operation for vacuum circuit breaker (DC 24/48/110/220V, AC 110V/220V)

· Closing coil (DC 24/48/110/220V, AC 110V/220V)

· Trip coil (DC 24/48/110/220V, AC 110V/220V)

· Short-circuit and earth fault indicator

· Ring-type current transformer and ammeter

· Touch-proof cable termination

· Rear-mounted surge arrester at cable bushing

· Key interlock

· Incoming line live-earth interlock device (DC 24/48/110/220V, AC 110V/220V)

· Auxiliary contacts

  · Vacuum circuit breaker status: 8NO + 8NC

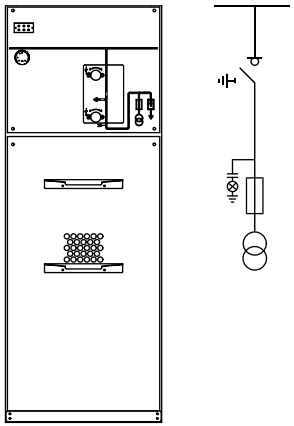
  · Disconnector position: 2NO + 2NC

  · Earthing switch position: 2NO + 2NC

  · Pressure gauge with signal output: 2NO

· Secondary devices can be installed in the LV compartment at the top of the switchgear

Cp Unit: Voltage Transformer with Load Break Switch ELE-12(24)



Standard Configuration

· Voltage transformer JSZV16-10R/20R (1 unit) and voltmeter

· Three-position load break/earthing switch

· Three-position switch with single-spring operating mechanism

· Load break switch and earthing switch position indicator

· Interlocking cam for switch function

· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)

· PT connection cable and cable connector

· Capacitive voltage indicator with live display and live-line interlock function

· Earthing busbar

· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Voltage transformer JSZV10R (1 unit)

· Two-position load break switch

· Provision for external busbar extension

· Provision for side connection extension

· Motorized operation for load break switch (DC 24/48/110/220V, AC 110V/220V)

· Surge arrester

· Auxiliary contacts

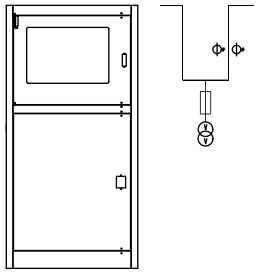
  · Load break switch position: 2NO + 2NC

  · Earthing switch position: 2NO + 2NC

  · Pressure gauge with signal output: 1NO

· Secondary devices can be installed in the LV compartment at the top of the switchgear

M Unit: Measuring Unit ELE-12(24)



**This unit is an air-insulated module*

Standard Configuration

· 630A busbar

· Current transformer LZZBJ9-10 (2 units) / LZZBJ9-24 current transformer

· Voltage transformer SJDZ-10 (2 units) / LZZBJ9-24 current transformer

· High-voltage fuse for voltage transformer protection

· Top-mounted busbar extension bushing

· Capacitive voltage indicator with live display and live-line interlock function

· Electromagnetic lock

· Earthing busbar

· Energy meter mounting bracket

Optional Configuration

· Provision for external busbar extension

· Current transformer (3 units)

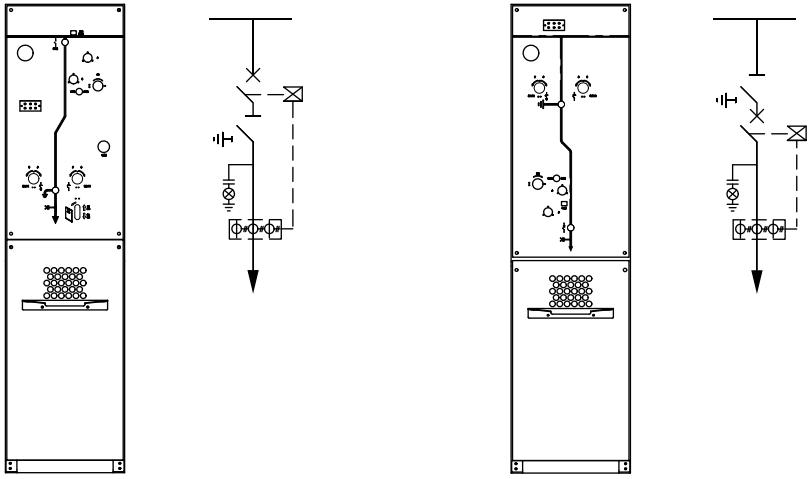
· Voltage transformer (3 units)

· Surge arrester

· Secondary devices can be installed in the LV compartment at the top of the switchgear

· Energy meter

Z Unit: Three-Position Vacuum Circuit Breaker ELE-12(24)



Standard Configuration

· 1250A busbar
· Vacuum circuit breaker
· Vacuum circuit breaker with spring operating mechanism
· Three-position switch
· Operating mechanism for three-position switch
· Position indicator for vacuum circuit breaker and three-position switch
· Mechanical interlock between vacuum circuit breaker and three-position switch
· Outgoing cable sleeve with 1250A sensor function (horizontally mounted at the front)
· Capacitive voltage indicator with live display function
· SF_6 gas pressure gauge (one gauge per gas compartment for shared gas tank design)
· Earthing busbar
· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Self-powered protection device
· Integrated relay protection device
· Two-position switch
· Provision for external busbar extension
· Provision for side connection extension
· Motorized operation for vacuum circuit breaker (DC 24/48/110/220V, AC 110V/220V)
· Closing coil (DC 24/48/110/220V, AC 110V/220V)
· Trip coil (DC 24/48/110/220V, AC 110V/220V)
· Short-circuit and earth fault indicator
· Ring-type current transformer and ammeter
· Touch-proof cable termination
· Rear-mounted surge arrester at cable bushing
· Incoming line live-earth interlock device (DC 24/48/110/220V, AC 110V/220V)
· Auxiliary contacts
  · Vacuum circuit breaker status: 4NO + 4NC
  · Disconnector position: 2NO + 2NC
  · Earthing switch position: 2NO + 2NC
  · Pressure gauge with signal output: 2NO
· Secondary devices can be installed in the LV compartment at the top of the switchgear

ELN Sustainable Dry Air Insulated Ring Main Unit

- ELN Series Overview
- 12kV Series Specifications
- Structural Diagram
- Product Solutions

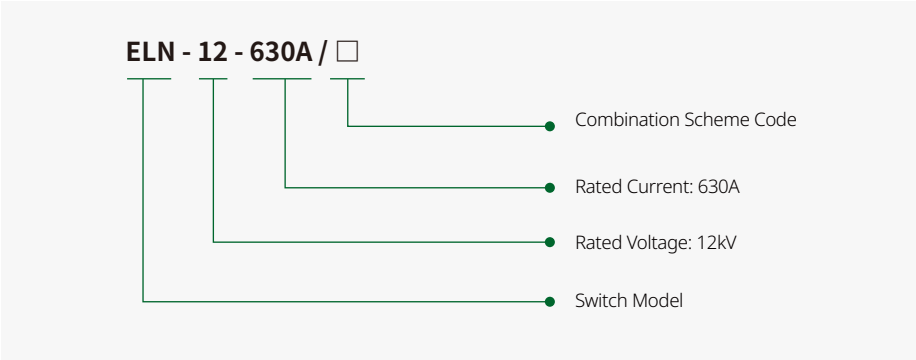
ELN Series Overview

The ELN-12 is an eco-friendly air-insulated ring main unit (RMU) launched by Ceepower in 2016. Based on years of operating experience with the ELE series, it retains the structural framework of the original ELE-12, enclosing live components such as switches and busbars in a welded stainless-steel gas tank. It uses dry air as the insulating medium, offering several advantages over traditional RMUs.

Eco-friendly gases provide excellent insulation and arc-extinguishing performance, ensuring safe and stable operation. They also reduce environmental impact, aligning with modern demands for green and sustainable development.

The ELN-12 features a compact design, small footprint, and high protection level, making it suitable for harsh environments and easy to install and maintain. With ongoing technological advancements, it also supports intelligent functions such as remote monitoring and fault diagnosis, enhancing system reliability and operational efficiency.

Naming Rule



Operation Environment

Ambient Temperature:
Maximum: +40°C
Minimum (indoor): –40°C

Ambient Humidity:
⩽95% (24-hour average)
⩽90% (monthly average)

Altitude: ≤1000 m

Atmospheric Conditions:
Unaffected by pollution, dust, corrosive or flammable gases, or smoke.

Seismic Intensity: ≤ Magnitude 8

**Note: For altitudes exceeding 1000 meters, please contact Ceepower.*

Standard Compliance

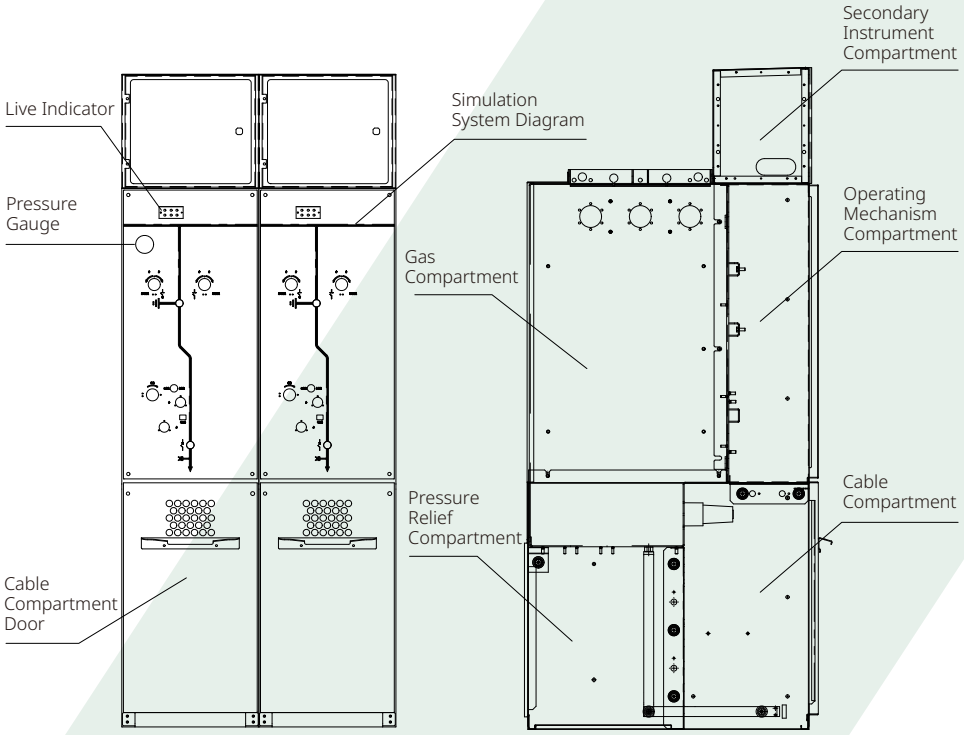
GB/T 3906 – AC Metal-Enclosed Switchgear and Controlgear for Rated Voltages from 3.6kV to 40.5kV
GB/T 11022 – Common Specifications for HV Switchgear and Controlgear Standards
GB 1984 – HV AC Circuit Breakers
GB 1985 – HV AC Disconnectors and Earthing Switches
GB 3804 – HV AC Load Break Switches (3.6kV to 40.5kV)
GB 16926 – HV AC Load Break Switch-Fuse Combinations
GB 4208 – Degrees of Protection Provided by Enclosures (IP Code)
GB 311.1 – Insulation Coordination for HV Transmission and Transformation Equipment
GB 3309 – Mechanical Tests on HV Switchgear at Ambient Temperature
GB 11023 – Test Methods for Gas-Tightness of HV Switchgear Using SF_6 Gas
GB/T 8905 – Guide for Gas Management and Detection in SF_6 Electrical Equipment
GB 5832.2 – Determination of Trace Moisture in Gases – Dew Point Method
DL/T 404 – AC Metal-Enclosed Switchgear and Controlgear for Rated Voltages from 3.6kV to 40.5kV (Electric Power Industry Standard)
DL/T 593 – Common Technical Requirements for HV Switchgear and Controlgear Standards(Electric Power Industry Standard)

12kV Series Specifications

12kV ELN Series Ring Main Unit

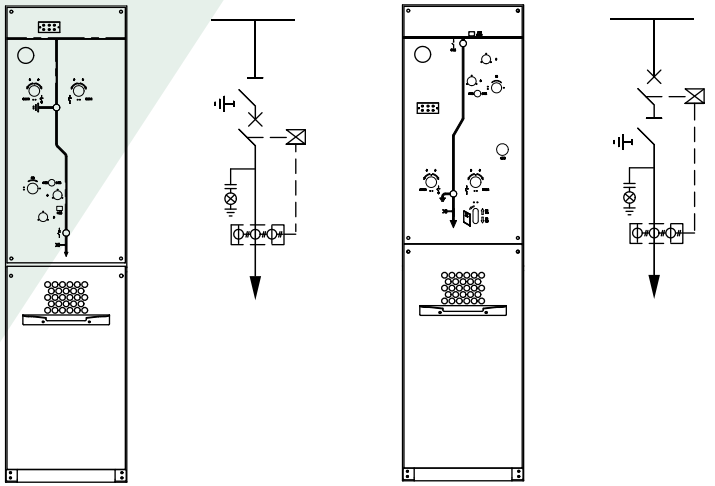
	Load Break Switch Cabinet	Circuit Breaker Cabinet	PT Isolation Cabinet
Rated Voltage	12 kV	12 kV	12 kV
Rated Frequency	50 Hz	50 Hz	50 Hz
Rated Current	630 A	630 A	630 A
Rated Power Frequency Withstand Voltage (1min)	42/48 kV	42/48 kV	42/48 kV
Rated Lightning Impulse Withstand Voltage (peak)	75/85 kV	75/85 kV	75/85 kV
Electrical Endurance	—	E2	—
Mechanical Endurance	10000 times	10000 times	5000 times
Rated Short-Circuit Breaking Current	—	20/31.5 kA	—
Rated Making Current (peak)	50 kA	50/80 kA	50 kA
Rated Peak Withstand Current (main & earthing circuit)	50 kA	50/80 kA	50 kA
Rated Short-Time Withstand Current (2 s, earthing circuit)	20 kA	20/31.5 kA	20 kA
Rated Short-Time Withstand Current (4s, main circuit)	20 kA	20/31.5 kA	20 kA
Internal Arc Classification	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s
Rated Operating Pressure at 20°C	0.02 MPa	0.02 MPa	0.02 MPa
Minimum Operating Pressure at 20°C	0.01 MPa	0.01 MPa	0.01 MPa
Enclosure Ingress Protection	IP4X	IP4X	IP4X
Gas Compartment Ingress Protection	IP67	IP67	IP67
Gas Leakage Rate	⩽0.01%/year	⩽0.01%/year	⩽0.01%/year
Cabinet Width	420 mm	420/600 mm	600 mm
Cabinet Depth (excluding door)	850 mm	850 mm	850 mm
Cabinet Height	2000 mm	2000 mm	2000 mm

Structure Diagram



Product Solutions
(Optional Unit)

V Unit: Three-Position Vacuum Circuit Breaker ELN-12



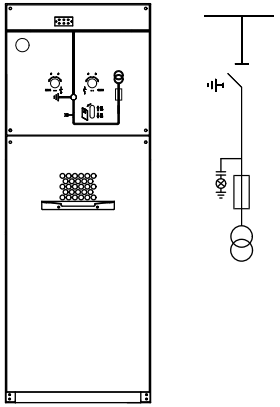
Standard Configuration

· 630A busbar
· Vacuum circuit breaker
· Vacuum circuit breaker with spring operating mechanism
· Three-position switch
· Operating mechanism for three-position switch
· Position indicator for vacuum circuit breaker and three-position switch
· Mechanical interlock between vacuum circuit breaker and three-position switch
· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)
· Capacitive voltage indicator with live display function
· Gas pressure gauge (one gauge per gas compartment for shared gas tank design)
· Earthing busbar
· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Self-powered protection device
· Integrated relay protection device
· Two-position disconnector
· Provision for external busbar extension
· Provision for side connection extension
· Motorized operation for vacuum circuit breaker (DC 24/48/110/220V, AC 110V/220V)
· Closing coil (DC 24/48/110/220V, AC 110V/220V)
· Trip coil (DC 24/48/110/220V, AC 110V/220V)
· Short-circuit and earth fault indicator
· Ring-type current transformer and ammeter
· Touch-proof cable termination
· Rear-mounted surge arrester at cable bushing
· Incoming line live-earth interlock device (DC 24/48/110/220V, AC 110V/220V)
· Auxiliary contacts
  · Vacuum circuit breaker status: 4NO + 4NC
  · Disconnector position: 2NO + 2NC
  · Earthing switch position: 2NO + 2NC
  · Pressure gauge with signal output: 2NO
· Secondary devices can be installed in the LV compartment at the top of the switchgear

Cp Unit: Voltage Transformer with Load Break Switch ELN-12



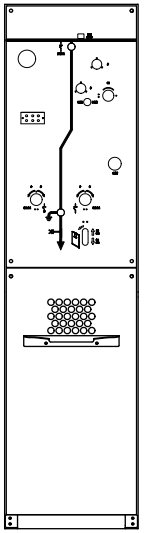
Standard Configuration

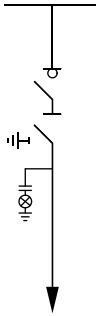
· 630A busbar
· Voltage transformer and voltmeter
· High-voltage fuse for voltage transformer protection
· Disconnector
· Operating mechanism for disconnector
· Disconnector position indicator
· Connection cable and cable termination
· Capacitive voltage indicator with live display and live-line interlock function
· Electromagnetic lock

Optional Configuration

· Voltage transformers (2 units)
*Only one voltage transformer configuration can be selected between this scheme and the standard scheme
· Busbar extension bushing
· Surge arrester
· 24V DC charging module and batteries (2 × 12V, 24Ah)
· Secondary devices can be installed in the LV compartment at the top of the switchgear

C Unit: Three-Position Load Break Switch ELN-12





Standard Configuration

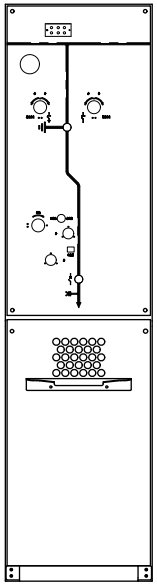
· 630A busbar
· Load break switch and three-position disconnector/ earthing switch
· Three-position switch with spring operating mechanism
· Position indicator for load break switch/disconnector/ earthing switch
· Interlocking cam for switch function
· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)
· Capacitive voltage indicator with live display function
· Gas pressure gauge (one gauge per gas compartment for shared gas tank design)
· Earthing busbar
· Interlock between earthing switch and lower front door of the cable compartment

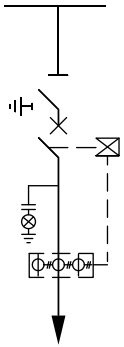
Optional Configuration

· Provision for external busbar extension
· Provision for side connection extension
· Motorized operation for load break switch (DC 24/48/110/220V, AC 110V/220V)
· Short-circuit and earth fault indicator
· Ring-type current transformer and ammeter
· Touch-proof cable termination
· Rear-mounted surge arrester or double cable termination at cable bushing
· Incoming line live-earth interlock device (DC 24/48/110/220V, AC 110V/220V)

· Auxiliary contacts
  · Load break switch position: 2NO + 2NC
  · Disconnector position: 2NO + 2NC
  · Earthing switch position: 2NO + 2NC
· Pressure gauge with signal output: 2NO
· Secondary devices can be installed in the LV compartment at the top of the switchgear

Z Unit: Three-Position Vacuum Circuit Breaker ELN-12





Standard Configuration

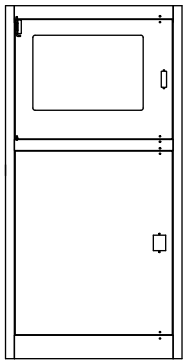
· 1250A busbar
· Vacuum circuit breaker
· Vacuum circuit breaker with spring operating mechanism
· Three-position switch
· Operating mechanism for three-position switch
· Position indicator for vacuum circuit breaker and three-position switch
· Mechanical interlock between vacuum circuit breaker and three-position switch
· Outgoing cable sleeve with 1250A sensor function (horizontally mounted at the front)
· Capacitive voltage indicator with live display function
· Gas pressure gauge (one gauge per gas compartment for shared gas tank design)
· Earthing busbar
· Interlock between earthing switch and lower front door of the cable compartment

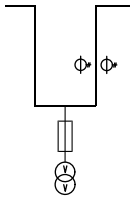
Optional Configuration

· Self-powered protection device
· Integrated relay protection device
· Two-position switch
· Provision for external busbar extension
· Provision for side connection extension
· Motorized operation for vacuum circuit breaker (DC 24/48/110/220V, AC 110V/220V)
· Closing coil (DC 24/48/110/220V, AC 110V/220V)
· Trip coil (DC 24/48/110/220V, AC 110V/220V)
· Short-circuit and earth fault indicator
· Ring-type current transformer and ammeter
· Touch-proof cable termination
· Rear-mounted surge arrester at cable bushing
· Incoming line live-earth interlock device (DC 24/48/110/220V, AC 110V/220V)

· Auxiliary contacts
  · Vacuum circuit breaker status: 4NO + 4NC
  · Disconnector position: 2NO + 2NC
  · Earthing switch position: 2NO + 2NC
· Pressure gauge with signal output: 2NO
· Secondary devices can be installed in the LV compartment at the top of the switchgear

M Unit: Measuring Unit ELN-12





Standard Configuration

· 630A busbar
· Current transformer LZZBJ9-10 (2 units) / LZZBJ9-24 current transformer
· Voltage transformer SJDZ-10 (2 units) / LZZBJ9-24 current transformer
· High-voltage fuse for voltage transformer protection
· Top-mounted busbar extension bushing
· Capacitive voltage indicator with live display and live-line interlock function
· Electromagnetic lock
· Earthing busbar
· Energy meter mounting bracket

Optional Configuration

· Provision for external busbar extension
· Current transformers (3 units)
· Voltage transformers (3 units)
· Surge arrester
· Secondary devices can be installed in the LV compartment at the top of the switchgear
· Energy meter

VSS-12 Solid Insulated Ring Main Unit

- VSS Series Overview
- 12kV Series Specifications
- Structural Diagram
- Product Solutions

VSS Series Overview

The VSS series solid insulated ring main unit (RMU) uses solid insulation as the main insulating medium. Three-phase vacuum interrupters are embedded in epoxy resin using APG technology. The integrated three-position switch (isolation/earthing) adopts a coaxial rotary mechanism and is connected via flexible links to form a fully insulated and sealed unit, assembled with insulated busbars and connectors for safe, condensation-resistant, and fully groundable operation.

Designed for modern smart grids, the RMU features full insulation, sealing, modularity, and compactness. The common enclosure structure prevents phase-to-phase faults and improves maintenance efficiency while eliminating SF_6 gas and gas tank components. This avoids explosion risks and harmful gas emissions, offering a truly environmentally friendly solution.

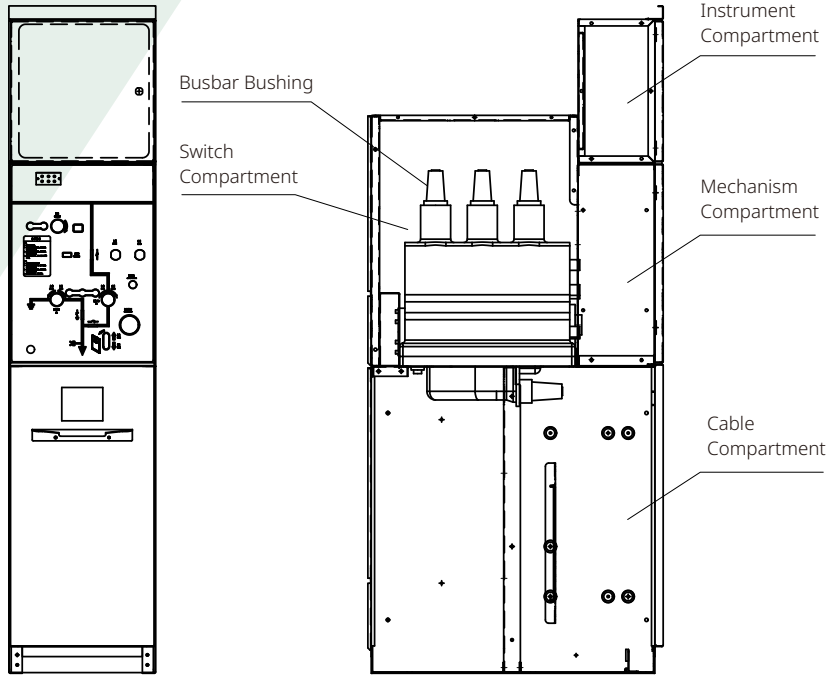
Compared to SF_6 RMUs, it provides stronger adaptability to harsh environments—such as extreme cold, high altitudes, humidity, and sandstorms. It supports online monitoring of insulation, temperature rise, and mechanical conditions, meeting smart grid requirements.

12kV Series Specifications

12kV Solid Insulated Ring Main Unit

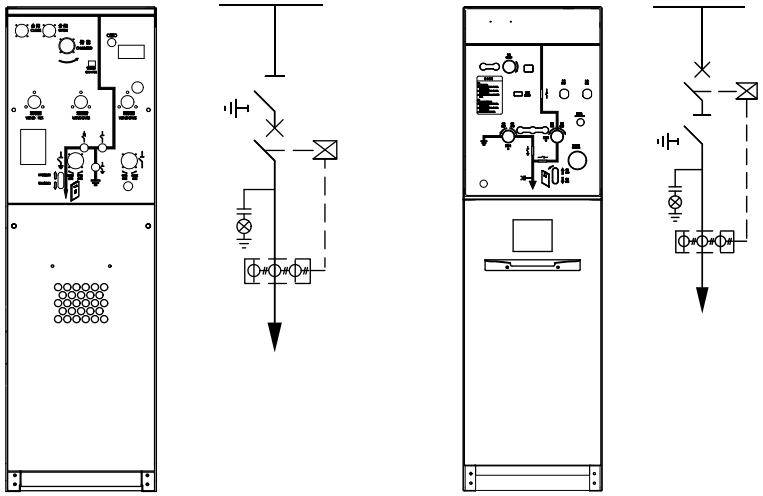
	Load Break Switch Cabinet	Circuit Breaker Cabinet	PT Isolation Cabinet
Rated Voltage	12 kV	12 kV	12 kV
Rated Frequency	50 Hz	50 Hz	50 Hz
Rated Current	630 A	630 A	630 A
Rated Power Frequency Withstand Voltage (1min)	42/48 kV	42/48 kV	42/48 kV
Rated Lightning Impulse Withstand Voltage (peak)	75/85 kV	75/85 kV	75/85 kV
Electrical Endurance	—	E2	—
Mechanical Endurance	10000 times	10000 times	5000 times
Rated Short-Circuit Breaking Current	—	20 kA	—
Rated Making Current (peak)	50 kA	50 kA	50 kA
Rated Peak Withstand Current (main & earthing circuit)	50 kA	50 kA	50 kA
Rated Short-Time Withstand Current (2s, earthing circuit)	20 kA	20 kA	20 kA
Rated Short-Time Withstand Current (4s, main circuit)	20 kA	20 kA	20 kA
Internal Arc Classification	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s	AFLR, 20 kA, 1 s
Enclosure Ingress Protection	IP4X	IP4X	IP4X
Cabinet Width	420/440 mm	420/440 mm	600 mm
Cabinet Depth (excluding door)	875/850 mm	875/850 mm	875/850 mm
Cabinet Height	1700/2000 mm	1700/2000 mm	1700/2000 mm

Structure Diagram



Product Solutions
(Optional Unit)

V Unit: Three-Position Vacuum Circuit Breaker VSS-12



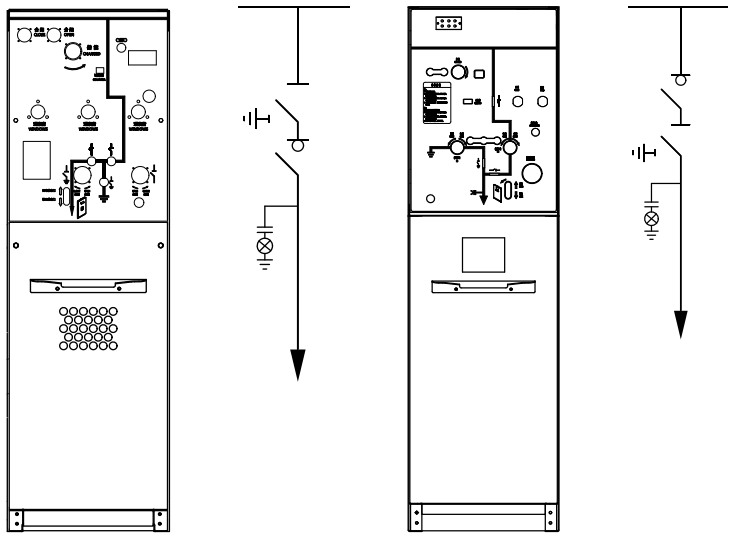
Standard Configuration

· 630A busbar
· Vacuum circuit breaker
· Vacuum circuit breaker with spring operating mechanism
· Three-position switch
· Operating mechanism for three-position switch
· Position indicator for vacuum circuit breaker and three-position switch
· Mechanical interlock between vacuum circuit breaker and three-position switch
· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)
· Capacitive voltage indicator with live display function
· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Integrated relay protection device
· Two-position switch
· Provision for external busbar extension
· Motorized operation for vacuum circuit breaker (DC 24/48/110/220V, AC 110V/220V)
· Closing coil (DC 24/48/110/220V, AC 110V/220V)
· Trip coil (DC 24/48/110/220V, AC 110V/220V)
· Short-circuit and earth fault indicator
· Ring-type current transformer and ammeter
· Touch-proof cable termination
· Rear-mounted surge arrester at cable bushing
· Incoming line live-earth interlock device (DC 24/48/110/220V, AC 110V/220V)
· Auxiliary contacts
  · Vacuum circuit breaker status: 4NO + 4NC
  · Disconnector position: 2NO + 2NC
  · Earthing switch position: 2NO + 2NC
· Secondary devices can be installed in the LV compartment at the top of the switchgear

C Unit: Three-Position Load Break Switch VSS-12



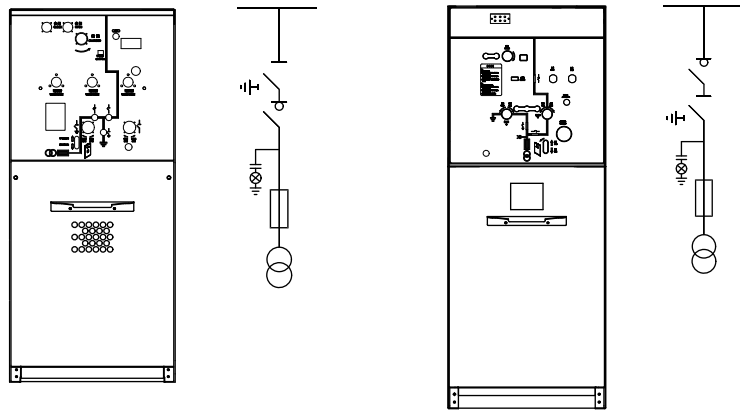
Standard Configuration

· 630A busbar
· Load break switch and three-position disconnector/earthing switch
· Three-position switch with spring operating mechanism
· Position indicator for load break switch/disconnector/earthing switch
· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)
· Capacitive voltage indicator with live display function
· Interlock between earthing switch and lower front door of the cable compartment

Optional Configuration

· Provision for external busbar extension
· Motorized operation for load break switch (DC 24/48/110/220V, AC 110V/220V)
· Short-circuit and earth fault indicator
· Ring-type current transformer and ammeter
· Touch-proof cable termination
· Rear-mounted surge arrester or double cable termination at cable bushing
· Incoming line live-earth interlock device (DC 24/48/110/220V, AC 110V/220V)
· Auxiliary contacts
  · Load break switch position: 2NO + 2NC
  · Disconnector position: 2NO + 2NC
  · Earthing switch position: 2NO + 2NC
· Secondary devices can be installed in the LV compartment at the top of the switchgear

Cp Unit: Voltage Transformer with Load Break Switch VSS-12



Standard Configuration

· 630A busbar
· Voltage transformer and voltmeter
· High-voltage fuse for voltage transformer protection
· Load break switch and three-position disconnector/earthing switch
· Three-position switch with spring operating mechanism
· Position indicator for load break switch/disconnector/earthing switch
· Outgoing cable sleeve with 630A sensor function (horizontally mounted at the front)
· Interlock between earthing switch and lower front door of the cable compartment
· Capacitive voltage indicator with live display and live-line interlock function

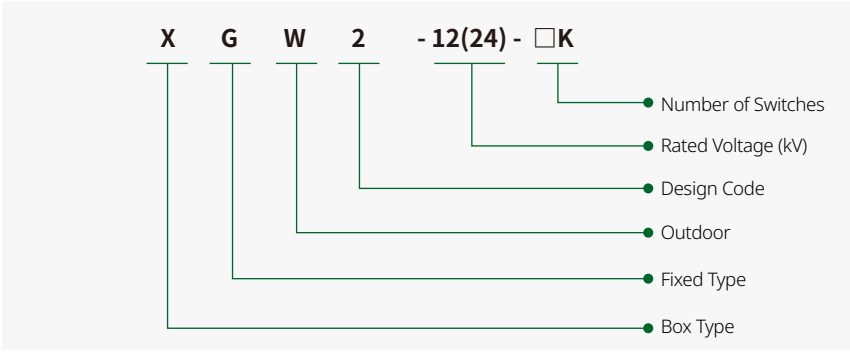
Optional Configuration

· Voltage transformer (1 unit)
· Voltage transformers (2 units)
*Only one voltage transformer configuration can be selected between this scheme and the standard scheme
· Busbar extension bushing
· Surge arrester
· 48V DC charging module and batteries (4 × 12V, 20Ah)
· Secondary devices can be installed in the LV compartment at the top of the switchgear

XGW2 Series Ring Main Box (Outdoor RMU)

Comprising ELE, ELN, or VSS series ring main units housed in a robust outdoor enclosure

Naming Rule



Operation Environment

Ambient Temperature:
Maximum: +40°C
Minimum (indoor): –40°C
**24H Average Temperature ⩽ 35°C*

Ambient Humidity:
⩽95% (24-hour average)
⩽90% (monthly average)

Installation Site:
Free from explosion or fire hazards, chemical corrosion, and severe vibration.

Enclosure Ingress Protection: IP43

**Note: For special conditions, please contact Ceepower.*

Standard Compliance

GB 3804 – HV AC Load Break Switches (3.6kV ~ 40.5kV) (IEC 60265-1, MOD)
GB 1984 – HV AC Circuit-Breakers
GB 16926 – HV AC Load Break Switch-Fuse Switch Combinations (Eqv IEC 60420)
GB 1985 – HV AC Disconnectors and Earthing Switches (IEC 62271-102, MOD)
GB 3906 – AC Metal-Enclosed Switchgear and Controlgear for Rated Voltages from 3.6kV to 40.5kV (IEC 62271-200, MOD)
Q/GDW 10-324 – Technical Specification for 20kV MV Ring Main Units
GB/T 12706.4 – Power Cables with Extruded Insulation and Their Accessories for Rated Voltages from 1kV to 35kV
GB/T 11022 – Common Specifications for HV Switchgear and Controlgear Standards (Eqv IEC 60694)
GB/T 11023 – Test Method for Gas-Tightness of HV Switchgear Using SF_6 Gas
GB 4208 – Degrees of Protection Provided by Enclosures (IP Code) (Eqv IEC 60529)
GB/T 5582 – Pollution Classification of External Insulation for HV Power Equipment (Neq IEC 507)
DL/T 404 – Ordering Technical Requirements for Indoor HV AC Switchgear (Neq IEC 60298)

Features

- Enclosure available in stainless steel, GRC, etc., with good mechanical strength.
- Color can be customized to match surroundings; color code must be specified when ordering.
- Roof slope ⩾ 5°, with rain hood.
- Interior top designed for efficient condensation drainage.
- Louvers are positioned to facilitate natural ventilation.
- Reliable sealing system prevents moisture, small animals, dust, and sand from entering; includes animal-proof mesh and weather protection features.
- The door includes sealing strips and a robust handle, ensuring mechanical strength.
- Ingress Protection Grade: IP43.
- The enclosure shall be equipped with a dedicated grounding conductor firmly connected to the grounding system.

Representative Projects

State Grid Fujian Electric Power Co., Ltd.

2024 First Centralized Framework Bidding for Material Agreement Inventory

2024 Second Centralized Framework Bidding for Material Agreement Inventory

2023 First Additional Framework Bidding for Distribution Material Agreement Inventory

2023 Second Framework Bidding for Distribution Material Agreement Inventory

State Grid Jiangxi Electric Power Co., Ltd.

2024 First Framework Bidding for Distribution (Provincial Grid) Material Agreement Inventory

2023 Third Framework Bidding for Distribution (Provincial Grid) Material Agreement Inventory

2023 Fourth Special Material Public Bidding

2022 First Framework Bidding for Distribution (Provincial Grid) Material Agreement Inventory

2022 Second Framework Bidding for Distribution (Provincial Grid) Material Agreement Inventory

State Grid Hunan Electric Power Co., Ltd.

2024 First Framework Bidding for Distribution Material Agreement Inventory

State Grid Tianjin Electric Power Company

2024 First Public Bidding for Distribution Material Agreement Inventory

State Grid Wuhan Power Supply Company

2023 Material Bidding for Supporting Power Supply Projects in New Residential Developments

State Grid Zhejiang Electric Power Co., Ltd.

2021 Second Framework Bidding for Distribution Material Agreement Inventory

State Grid Henan Electric Power Company

2021 Second Framework Bidding for Distribution Material Agreement Inventory

State Grid Heilongjiang Electric Power Co., Ltd.

2024 First Supplementary Public Bidding for Distribution Material Agreement Inventory

2021 Framework Bidding for Distribution Materials for Four Coal Cities Utility Upgrades

China Southern Power Grid Company

2023 First Batch Framework Bidding for Distribution Equipment

2022 Second Batch Framework Bidding for Distribution Equipment

Guizhou Power Grid Co., Ltd.

2021 First Batch Provincial Centralized Procurement of Primary Substation Equipment (Framework Bidding)

Railway Construction Projects (Owner-Supplied Materials under China Railway Group Management)

2024 Batch 1 – Chongqing to Jiangjin Section of Chengdu–Chongqing Railway Reconstruction

2024 Batch 2 –

· New Chaohu–Ma'anshan Intercity Railway

· Xiong'an New Area to Xinzhou High-Speed Railway (Hebei Section)

· Xiong'an to Xinzhou High-Speed Railway (Xiongbao Section)

2024 Batch 3 – Tianfu to Chaoyanghu Section of Sichuan–Tibet Railway into Chengdu Hub

2024 Batch 2 – Luobu–Ruoqiang Railway

2023 Batch 6 – Owner-Supplied Materials

2023 Batch 1 – Owner-Supplied Materials

2022 Batch 11 – Owner-Supplied Materials

2022 Batch 8 – Owner-Supplied Materials

2022 Batch 2 – New Guiyang–Nanning Railway (Guangxi Section, excluding Nanning Hub)

2021 Batch 11 – New Fuzhou–Xiamen Passenger Dedicated Railway

2021 Batch 9 –

· New Chengdu–Lanzhou Railway (Chengdu to Chuanzhusi Section)

· Jining–Datong–Yuanping Passenger Railway (Jining to Datong Section)

· Baotou–Yinchuan High-Speed Railway (Baotou to Huinong, Inner Mongolia Section) Station Reconstruction & "Four-Electric" Works

· Zhengzhou–Jinan Railway (Shandong Section) "Four-Electric" Integration Project, Lot ZJSDSG-1

· Second Tender for Batch 11 Material Procurement

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CEEPOWER
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