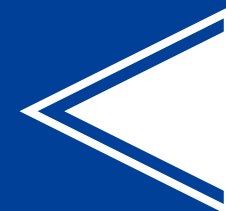




# Product Sales Manual



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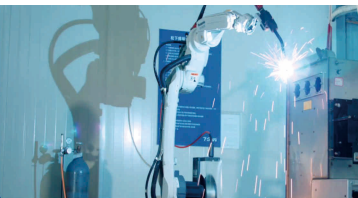
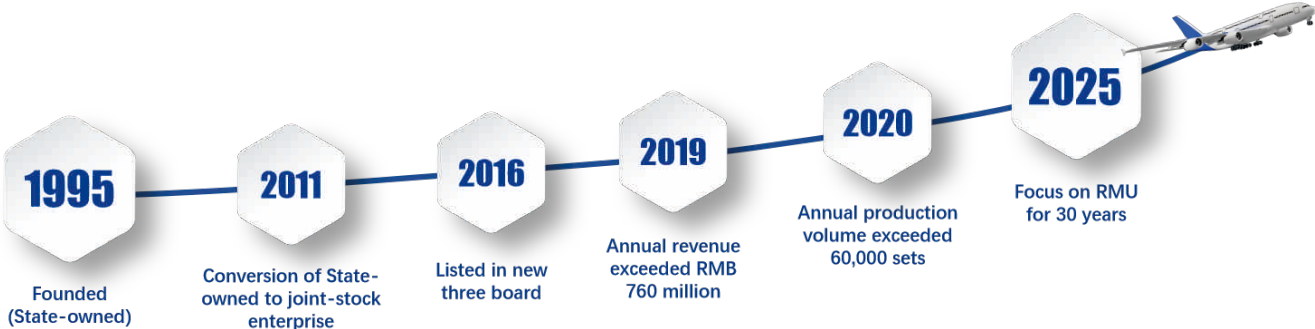
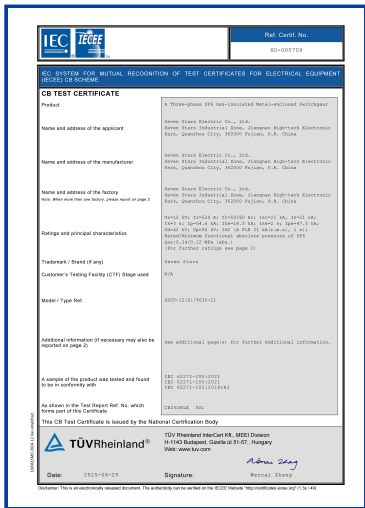
Tel:0086-18876299919

Website:<https://www.tianchielectric.com>



Company Profile

- Three production bases,covering areas more than 120,000 square meters
- National-level Specialized\*Sophisticated\*Unique\*Innovative Enterprise
- Famous Chinese Brand,High-tech enterprises
- Products approved by TUV type report



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# SF6 Insulated RMU — 12-24kV



## Functional Characteristics

- 1. Configure a cable test port to perform the test without removing the cable <selectable>
- 2. Extendable, a variety of combinations are available.
- 3. Manual and electric operation is optional which can realize remote operation and control.
- 4. Suitable for indoor and outdoor application scenarios.
- 5. Compact structure, suitable for small space places.
- 6. Ambient temperature :Max. +50℃, Min. -40℃.
- 7. Installation altitudes 2000 meters(above 2000 meters needs extra explanation).

Item	Technical Parameters	
Rated voltage ( <i>Ur</i> )	12 kV	24kV
Rated continuous current ( <i>Ir</i> )	630 A	630 A
Rated power-frequency ( <i>fr</i> )	50/60 Hz	50/60 Hz
Rated power frequency withstand voltage ( <i>Ud</i> )	42/48 kV	65 /79kV
Rated lightning impulse withstand voltage ( <i>Up</i> )	95/110 kV	125 /145kV
Rated short-circuit breaking current ( <i>Isc</i> )	21 kA	21 kA
Rated short-circuit making current ( <i>Ima</i> )	54.6 kA	54.6 kA
Rated short-time withstand current (Main circuit/earthing switch) ( <i>Ik</i> )	21 kA	21 kA
Rated peak withstand current (Main circuit/earthing switch) ( <i>Ip</i> )	54.6 kA	54.6 kA
Rated duration of short-circuit (Main circuit/earthing switch) ( <i>tk</i> )	4 s	4 s
Cable-charging breaking current ( <i>Ic</i> )	25 A	25 A
Line-charging breaking current ( <i>Il</i> )	10 A	10 A
Earthing switch classification	M1, E2	M1, E2
Partial discharge quantity	≤20 pC	≤20 pC
Applicable altitude	≤2000 m	≤2000 m
Rated operating sequence : Auto reclosing duty	O-0.3 s-CO-180 s-CO	O-0.3 s-CO-180 s-CO
Internal arc classification	AFLR 21 kA 1 s	AFLR 21 kA 1 s

Note:Rated short-time withstand current can reach to 25KA

# SF6 Insulated RMU — 33-40.5kV



Items		Unit	Parameters	
Rated voltage		kV	33	40.5
Rated current		A	630	630
Rated frequency		Hz	50	50
Rated impulse withstand voltage	Phase to phase,phase to ground	kV	95	95
	Isolating distance		118	118
Rated lightning impulse withstand voltage	Phase to phase,phase to ground	kV	185	185
	Isolating distance		215	215
Power frequency withstand voltage of secondary circuit		V	2000	2000
Rated short-term withstand current (4s)		kA	20	20
Rated peak withstand current		kA	50	52
Rated short-circuit closing current (peak)		kA	50	52
Rated short-circuit opening current		kA	20	20
Rated operating sequence			0-0.3s-CO-180s-CO	0-0.3s-CO-180s-CO
Mechanical life	Circuit breaker	Times	10000	10000
	Isolating switch		3000	3000
	Grounding switch		3000	3000
Protection rating			Ip67 Gas box IP4X Cabinet	Ip67 Gas box IP4X Cabinet
Gas insulation			SF 6	SF 6
Rated gas filling pressure(gauge pressure at 20℃)		MPa	0.02	0.02
Minimum functional gas pressure(gauge pressure at 20℃)		μL/L	≤150	≤150
Annual gas leakage rate		Year	≤0.01%	≤0.01%
Internal arc classification			AFLR 20kA 1 s	AFLR 20kA 1 s

## Product Overview

33-40.5kV SF6 gas-insulated AC metal-enclosed switchgear (C-GIS) uses low-pressure SF6 gas as the main insulating medium. It is a new type of switchgear that accepts or distributes electrical energy and can control, protect, measure, monitor, and communicate the normal operation and fault conditions of the power system. It has broad application prospects in the fields of green new energy power generation and grid connection, power distribution system upgrade and transformation, rail transportation, and overseas exports.

## Product Features

- High-voltage components use low-pressure SF6 gas for insulation, sealed in a stainless steel shell to block dirt, moisture, and contaminants, enhancing insulation reliability with anti-aging and anti-corrosion features.
- Compact structure: utilizes vacuum switch technology for stable breaking performance, long life span, and a horizontally arranged arc extinguishing chamber, ensuring compactness, superior performance, and high reliability.
- Maintenance-free: features inner cone plug-in technology for cable, arrester, and PT connections, with a dual gas chamber design separating the three-position switch and circuit breaker, meeting State Grid standards for one-button sequential control.
- Simple installation: solid insulated busbars eliminate the need for SF6 gas handling (e.g., vacuuming, inflation) during installation or expansion, simplifying on-site setup.
- Intelligent configuration: equipped with an intelligent control unit to monitor circuit breakers, disconnectors, springs, and gas pressure, enabling automated relay protection and operation control.

# Dry Air Insulated RMU — 12kV



## Functional Characteristics

- 1.Use environmentally friendly gas (dry air) as insulating medium.
- 2.Extensible,a variety of combination is available.
- 3.Manual and electric operation is optional, which can realize remote operation and control.
- 4.Suitable for indoor and outdoor application scenarios.
- 5.Compact design, suitable for small space, limited places.
- 6.Ambient temperature：Max.+50℃,Min.-40℃.
- 7.Installation altitudes 2000 meters (above 2000 meters needs extra explanation )

Item	Unit	Technical Parameters
Rated voltage $(U_r)$	kV	12
Rated continuous current $(I_r)$	A	630
Rated power-frequency $(f_r)$	Hz	50/60
Rated power frequency withstand voltage $(U_d)$	kV	42/48
Rated lightning impulse withstand voltage $(U_p)$	kV	95/110
Rated short-circuit breaking current $(I_{sc})$	kA	21
Rated short-circuit making current $(I_{ma})$	kA	54,6
Rated short-time withstand current (Main circuit/earthing switch) $(I_k)$	kA	21
Rated peak withstand current (Main circuit/earthing switch) $(I_p)$	kA	54,6
Rated duration of short-circuit (Main circuit/earthing switch) $(t_k)$	s	4
Cable-charging breaking current $(I_c)$	A	25
Line-charging breaking current $(I_l)$	A	10 A
Earthing switch classification		M1, E2
Partial discharge quantity	pC	≤20
Applicable altitude	m	≤2000
Rated operating sequence：Auto reclosing duty		O-0.3 s-CO-180 s-CO
Internal arc classification		AFLR 21 kA 1 s

# Dry Air Insulated RMU — 24kV



Items		Unit	Parameters
Rated voltage		kV	24
Rated current		A	630
Rated frequency		Hz	50
Rated impulse withstand voltage	Phase to phase,phase to ground	kV	65
	Isolating distance		79
Rated lightning impulse withstand voltage	Phase to phase,phase to ground	kV	125
	Isolating distance		145
Power frequency withstand voltage of secondary circuit		V	2000
Rated short-term withstand current(4s)		kA	20
Rated peak withstand current		kA	52
Rated short-circuit closing current (peak)		kA	52
Rated short-circuit opening current		kA	20
Rated operating sequence			0-0.3s-CO-180s-CO
Mechanical life	Circuit breaker	Times	10000
	Isolating switch		3000
	Grounding switch		3000
Protection rating			IP67 Gas box /IP4X Cabinet
Gas insulation			Dry air
Minimum functional gas pressure (gauge pressure at 20℃)		MPa	0.09
Gas micro-moisture content (ambient temperature 20℃)		μL/L	≤150
Annual gas leakage rate		Year	≤0.01%
Internal arc classification			AFLR 20kA 1 s

## Product Overview

24kV Environmental Gas Insulation Metal Closure Switching Equipment (C-GIS uses dry compressed air (D-AIR) as an environmentally-friendly switch equipment for insulating medium. It not only reduces the total construction cost, but also helps reduce environmental load. Affected by the environment, it is fully used in maintenance products to be widely used in power system city network reconstruction, power distribution stations and load center power stations, petrochemical industries, steel industry and mining.

## Product Features

- The switching equipment adopts dry compressed air (D-AIR) as the insulating medium, which has no effect on the environment and is a green environmental protection product;
- The insulation characteristics are not affected by altitude, moisture, and dirt;
- Laser welding and omit age leakage to ensure the gas tightness and long-term weather resistance of the gas tank;
- Silicon rubber plug connection to realize the plug and expansion of high-pressure components and the cabinet;
- Smart remote control, monitoring unit and integrated digital relay.



# Solid Insulated RMU — 12-24kV



Item		Unit	Parameters	
Rated Voltage		kV	12	24
Rated Current		A	630	630
Frequency		Hz	50/60	50/60
Rated Short-time Frequency Withstand Voltage	Phase to Phase, Phase to Earth	kV	42	65
	Isolation Fracture	kV	48	79
Rated Lightning Impulse Withstand Voltage	Phase to Phase, Phase to Earth	kV	95	125
	Isolation Fracture	kV	110	145
Rated Short-time Withstand Current and Duration		kA/s	21/4	20/4
Internal arc classification		kA/s	21/1	20/1

## Functional Characteristics

1. Extensible, a variety of combination is available.
2. Manual and electric operation is optional, which can realize remote operation and control.
3. Suitable for indoor and outdoor application scenarios.
4. Compact design, suitable for small space, limited places.
5. There is a visual observation window in the isolation position to observe the isolation and grounding positions
6. It is less affected by temperature and altitude.



# Semi-insulated RMU— 12-24kV



Item		Unit	Parameters	
Rated Voltage		kV	12	24
Rated Current		A	630	630
Frequency		Hz	50/60	50/60
Rated Short-time Frequency Withstand Voltage	Phase to Phase, Phase to Earth	kV	42	65
	Isolation Fracture	kV	48	79
Rated Lightning Impulse Withstand Voltage	Phase to Phase, Phase to Earth	kV	95	125
	Isolation Fracture	kV	110	145
Rated Short-time Withstand Current and Duration		kA/s	21/4	20/4
Internal arc classification		kA/s	21/1	20/1

Note:Rated short- time withstand current can reach to 25KA

## Functional Characteristics

1. The switch part is sealed in SF6 gas, remaining live parts are exposed to the air and protected by insulating sleeves or partitions.
- 2.Extensible, a variety of combination is available.
3. Suitable for indoor and outdoor application scenarios.
4. Compact structure, modular design, easy operation, convenient maintenance, lower maintenance costs.
5. Manufacturing cost and purchase price is lower than fully insulated ring main unit, high cost performance.



RMU Gas Tank— 12-24kV

SF6/Dry Air Insulated Tank



Item		Unit	Parameters		
Rated Voltage		kV	12	17.5	24
Rated Current		A	630		
Frequency		Hz	50/60		
Continuous current test			1.1 Ir		
Rated Short-time Frequency Withstand Voltage	Phase to Phase, Phase to Earth	kV	42	42	65
	Isolation Fracture	kV	48	48	79
Rated Lightning Impulse Withstand Voltage	Phase to Phase, Phase to Earth	kV	95	95	125
	Isolation Fracture	kV	110	110	145
Rated Short-time Withstand Current and Duration		kA/s	21/4	21/4	20/4
Rated peak withstand current		kA/s	54.6	54.6	52
Internal Arc Classification		kA/s	AFLR 21/1	AFLR 21/1	AFLR 20/1
Annual gas leakage rate			≤0.01%		

RMU Switch & Mechanism— 12-24kV



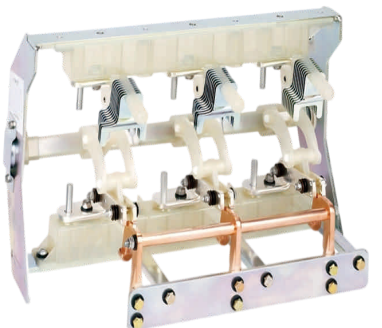
Upper Isolation  
Circuit Breaker Switch

Rated Frequency (Hz):  
50 / 60  
Rated Current (A):  
630  
Rated Short-Time Withstand Current (kA):  
20/21  
Rated Peak Withstand Current (kA):  
50/63



Lower Isolation  
Circuit Breaker Switch

Rated Frequency (Hz):  
50 / 60  
Rated Current (A):  
630  
Rated Short-Time Withstand Current (kA):  
20/21  
Rated Peak Withstand Current (kA):  
50/63

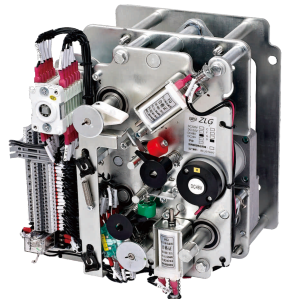


Load Breaker Switch

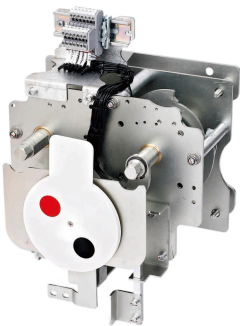
Rated Frequency (Hz):  
50 / 60  
Rated Current (A):  
630  
Rated Short-Time Withstand Current (kA):  
20/21  
Rated Peak Withstand Current (kA):  
50/63

Solid/Semi Insulated Tank

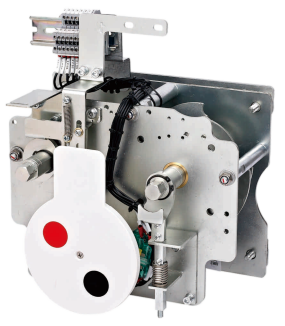
Item		Unit	Parameters	
Rated Voltage		kV	12	24
Rated Current		A	630	
Frequency		Hz	50/60	
Continuous current test			1.1 Ir	
Rated Short-time Frequency Withstand Voltage	Phase to Phase, Phase to Earth	kV	42	65
	Isolation Fracture	kV	48	79
Rated Lightning Impulse Withstand Voltage	Phase to Phase, Phase to Earth	kV	95	125
	Isolation Fracture	kV	110	145
Rated Short-time Withstand Current and Duration		kA/s	21/4	20/4
Rated peak withstand current		kA/s	54.6	52
Internal Arc Classification		kA/s	AFLR 21/1	AFLR 20/1



Circuit Breaker  
Operating Mechanism



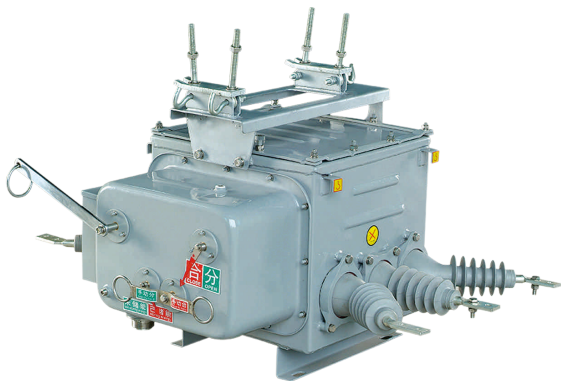
Upper Isolation  
Operating Mechanism



Lower Isolation  
Operating Mechanism



ZW20 Pole-mounted Vacuum Circuit Breaker

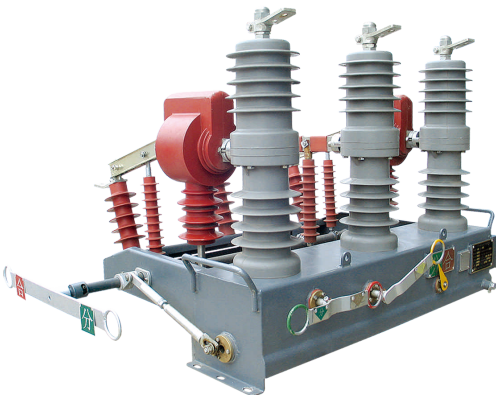


Item		Unit	Parameters	
Rated Voltage		kV	12	24
Rated Current		A	630	630
Frequency		Hz	50/60	50/60
Rated Short-time Frequency Withstand Voltage	Phase to Phase	kV	42	65
	Phase to Earth	kV	48	79
Rated Lightning Impulse Withstand Voltage	Phase to Phase	kV	75	125
	Phase to Earth	kV	85	145
Rated Short-circuit Breaking Current		kA	20/25	20/25

- 1. Vacuum arc extinguishing chamber, SF6 gas as insulating medium.
- 2. Good sealing performance, the use of silicone rubber sleeve, excellent external insulation performance.
- 3. Automatic inter phase short-circuit fault, automatic removal of single-phase grounding fault, fast location of the fault point.

ZW32 Pole-mounted Vacuum Circuit Breaker

Item		Unit	Parameters	
Rated Voltage		kV	12	24
Rated Current		A	630	630
Frequency		Hz	50/60	50/60
Rated Short-time Frequency Withstand Voltage	Phase to Phase	kV	42	65
	Phase to Earth	kV	48	79
Rated Lightning Impulse Withstand Voltage	Phase to Phase	kV	75	125
	Phase to Earth	kV	85	145
Rated Short-circuit Breaking Current		kA	20/25	20/25



- 1. Vacuum arc extinguishing, stable switching performance .
- 2. Built-in micro spring mechanism, low energy consumption in opening and closing .
- 3. Outdoor epoxy resin or silicone rubber shell, high and low temperature resistance, aging resistance
- 4.It can be matched with the controller to realize distribution automation.

Disconnecting Switch

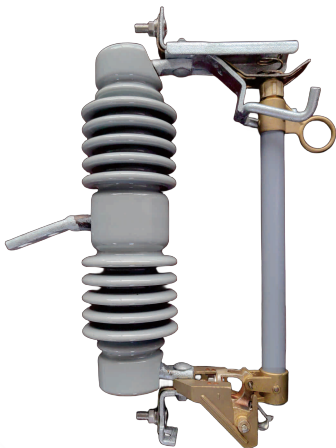


Item		Unit	Parameters		
Rated Voltage		kV	12		
Rated Current		A	200	400	630
Frequency		Hz	50/60		
Rated Short-time Frequency Withstand Voltage	Phase to Phase	kV	50		
	Phase to Earth	kV	60		
Rated Lightning Impulse Withstand Voltage	Phase to Phase	kV	95		
	Phase to Earth	kV	110		
Rated Short-time Withstand Current and Duration		kA/s	25/4		
Rated Peak Short-circuit Current		kA	40/50		

- 1. Special locking design, reliable spring mechanism, will not occur off the buckle phenomenon.
- 2. Unique structural design can make the switch close with the static contact tightly and will not melt, burn out or cause dents due to over current.
- 3. Not easily affected by electric field strength and frequency.
- 4. Silicone rubber, epoxy resin, and ceramic materials available.

Drop-out Fuse

Item	Parameters		
Rated Voltage	12kV	24kV	40.5kV
Rated Continuous Operating Current	100/200A	100/200A	100/200A
Frequency	50/60Hz	50/60Hz	50/60Hz
Breaking Current	12.5KA/100A 16KA/200A	10KA/100A 12.5KA/200A	8KA/100A 10KA/200A
Industrial Frequency Withstand Voltage (dry test/wet test)	35/30kV	35/30kV	100/80kV
Lightning Impulse (dry test/wet test)	125/150kV	150/165kV	185/200kV
Creepage Distance	≥372mm	≥600mm	≥1012mm



- 1. With advantages of flexible application, easy installation, maintenance-free and long service life;
- 2. Able to cut off the load current easily and safely with an ordinary operating lever;
- 3. Not easily affected by electric field strength and frequency.
- 4. Silicone rubber and ceramic materials available.





## Cable Accessory Series

- 10–40.5kV Cable Connector
- 1–40.5kV Cable terminal
- 10–40.5kV Cable Intermediate Joint
- 6–10kV Lightning Arrester



### Functional Characteristics

Liquid silicone rubber has excellent UV and ozone resistance, as well as the best climate and aging temperature resistance, constant hydrophobicity and transfer, excellent fire resistance and high temperature resistance; it also has a highly elastic unrestricted reserve period of 50° C.



### operation condition

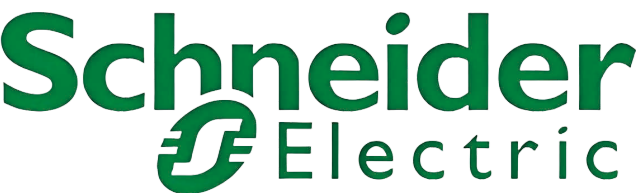
The good elasticity of silicone rubber makes the interference fit between the accessories and the cable core insulation layer, ensuring the tight combination between the cable core insulation layer and the accessories, thus ensuring the sealing of the interface. The ambient temperature can reach -50° C to +50° C.



### application filed

The unique spacing design of the rain-proof skirt not only increases the specific creepage distance of the product, but also improves the ability to prevent pollution flashover.

# Cooperation partners



Powering Business Worldwide



中国南方电网  
CHINA SOUTHERN POWER GRID

First Class Supplier of State Grid Corporation  
of China and China Southern Power Grid

# Certificates

