Product catalogue https://www.cnrockwill.com

OMR Type

Outdoor Gas Insulated Ring Main Unit

12kV...17.5kV...24kV...

Good insulation performance, compact structural design
High protection level, fully sealed and fully insulated structure
Fast operation performance, high degree of intelligence
Good environmental protection performance, and convenient installation

Comply with IEC / CEI /GB/JB/DL standards
Provided customized manufacture
Whole solutions for design, assembly, test...
Accountable solution for safety and reliability
Wide range offering, easy business and convenient installation

Rockwill Group is one of the leading high technical enterprises professional deals in medium high voltage switchgear and components develop, manufacture and sales.

Located in Wengyang Industrial Zone, Wenzhou, used to known as Yueqing Real Electric Works (Registered in 1986), we have more than 20 years experiences in Medium & high voltage field. We strategically cooperate with worldwide high reputation medium& high voltage switchgear manufacturer and research institute, successfully developed series of medium voltage mutually; filled the blank in China.

We also teamed up with province grade intelligence high voltage switch laboratory, together developed new generation intelligence simultaneous technical vacuum switch, electronic current transformer, digital integrated substation etc. through the cooperation we obtain plenty achievements and build up experience technical team. Plentiful talent backup, advanced production equipment, perfect quality control system and reverse inspection procedure are powerful guarantee of our reliable product quality and high reputation.

We have always insisted the faith on grow together with customers, and to provide a safe, simply, green and efficient medium & high voltage switchgear and components.

ROCKWILL®, China. Provide with best support.
If you have any question please consult below:
Email: rockwell@rockwill.com Tel: +86 (577) 27869969
https://www.cnrockwill.com/

ROCKWILL® Electric strives to bring our customers the latest technology and competitive pricing and best service for distribution automatic.

OMR is a ring main unit for the secondary distribution network. RMU(OMR) can be supplied as a 3 or 4-way standard configurations with additional equipment according to customer specification. OMR can be supplied in 10 different configurations (Such as CVC, CCV, CVV, CFF, CCC, VVV, etc) .

It is flexible, modular compact switchgear, they represent a complete solution for 12/24 kV secondary distribution networks. OMR have identical user interfaces.

OMR is a completely sealed system with a stainless steel tank containing all live parts and switching functions. A sealed steel tank with constant atmospheric conditions ensures a high level of reliability as well as personnel safety and a virtually maintenance-free system.

The OMR concept offers a choice of either switch-fuse combination or circuit-breaker with relay for protection of the transformer. OMR can be supplied with an integrated remote control and monitoring unit.

Note: Available modules of(OMR) are: C: Cable load switch module (disconnecting switch) F: Load-fuse switch combination module V: Circuit breaker, disconnecting switch combination module

Service environment

Air Max temperature:	-20℃ ~ +45℃
Humidity:	Monthly average 95%; Daily average 90%
Altitude above sea level	Max 2500m

Ambient air not apparently polluted by corrosive and flammable gas, vapor etc.No frequent violent shake

Insulation technology:

High - quality insulating gases (such as SF6, N2 or mixed gases) are used as insulating media, providing excellent insulation performance. Compared with traditional air insulation, insulating gases have higher insulation strength, which can effectively reduce electrical clearance and creepage distance, making the equipment structure more compact. Meanwhile, insulating gases are not affected by environmental factors such as humidity and dust, and can maintain stable insulation performance in harsh environments, ensuring the reliable operation of the equipment.

Sealing technology:

It is equipped with a high - grade sealing structure, using high - quality sealing materials and advanced sealing processes to ensure the cabinet's tightness. The fully sealed design can effectively prevent external moisture, dust, small animals, etc. from entering the cabinet, avoiding damage to internal electrical components and extending the service life of the equipment.

Protection technology:

It has a high protection level (such as IP54 or above). The cabinet is made of high - quality metal materials with an anti - corrosion treatment on the surface, having good anti - corrosion performance and being adaptable to various harsh outdoor environments. In addition, it is equipped with complete protection devices against lightning and over - voltage, improving the anti - interference ability and safety of the equipment.

Modular design technology:

The modular design concept is adopted. Each functional module (such as the incoming line module, outgoing line module, metering module, PT module, etc.) is relatively independent and can be flexibly combined according to actual needs. This design method makes the configuration of the gas - insulated switchgear more flexible and diverse, meeting the needs of different users and various application scenarios. At the same time, the modular design facilitates the installation, commissioning and maintenance of the equipment. When a module fails, it can be replaced separately, reducing maintenance time and costs.

Operating mechanism technology:

It is equipped with high - performance operating mechanisms, such as spring operating mechanisms or permanent - magnet operating mechanisms. Spring operating mechanisms have the advantages of simple structure, high reliability and large operating force, meeting the requirements of frequent operations. Permanent - magnet operating mechanisms feature fast action speed, high reliability and maintenance - free operation, and are relatively advanced operating mechanisms. These operating mechanisms can achieve fast and accurate switching - on and switching - off operations, improving the response speed and reliability of the equipment.

Intelligent technology:

It is equipped with intelligent monitoring devices that can monitor electrical parameters (such as voltage, current, power, etc.), temperature, humidity, gas pressure and other information inside the cabinet in real - time, and upload the data to the monitoring center through communication interfaces for remote monitoring and management. At the same time, functions such as fault diagnosis and early warning can be realized to detect potential equipment faults in advance, improving the operational reliability and maintenance efficiency of the equipment.

Insulation and arc - extinguishing principle:

The gas - insulated switchgear is filled with insulating gases such as SF6, N2 or mixed gases. These insulating gases have high insulation strength and can form a good insulation barrier between live parts, effectively preventing current leakage and electrical breakdown. When a fault (such as a short - circuit) occurs in the circuit and an arc is generated, the insulating gas decomposes rapidly in the arc - extinguishing chamber, absorbs the arc energy, cools the arc, and makes the arc extinguish quickly.

Circuit control principle:

Load switch: The load switch is used to connect and disconnect the load current under normal conditions. During the normal operation of the power system, the load switch can connect or disconnect the power supply and the load as needed to meet different power consumption requirements.

Circuit breaker: In addition to connecting and disconnecting the load current under normal conditions, the circuit breaker can also automatically cut off the fault current when a short - circuit, overload or other faults occur in the circuit.when a short - circuit fault occurs in the line, the short - circuit current will make the tripping device of the circuit breaker act and cut off the circuit within a few milliseconds to prevent the fault from expanding.

Isolating switch: The isolating switch is mainly used to isolate the power supply to ensure the safety of maintenance personnel.

Metering and protection principle：

Protection function: The gas - insulated switchgear is usually equipped with metering components such as current transformers and voltage transformers.when an over - current fault occurs in the circuit, the over - current protection device detects that the current exceeds the set value and quickly sends a tripping signal to make the circuit breaker trip and cut off the fault current.
Metering function： The gas - insulated switchgear is usually equipped with metering components such as current transformers and voltage transformers. The current transformer is used to measure the current in the circuit, and the voltage transformer is used to measure the voltage in the circuit. These transformers convert high - voltage and large - current into low - voltage and small - current for use by metering instruments (such as watt - hour meters) to achieve accurate metering of electric energy.

Intelligent control principle:

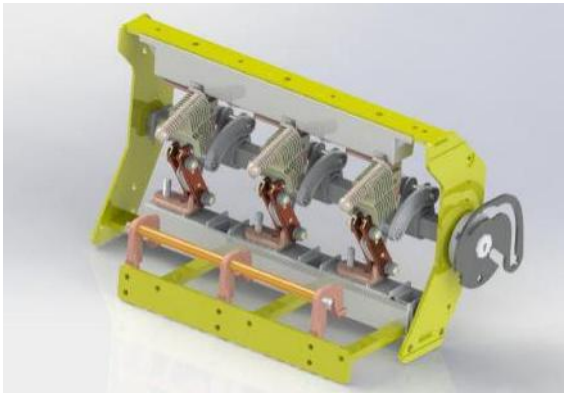
Modern outdoor standing gas - insulated switchgears usually have intelligent functions. By installing intelligent monitoring devices, the electrical parameters (such as voltage, current, power factor, etc.), temperature, humidity, gas pressure and other information inside the cabinet can be monitored in real - time. These data are uploaded to the monitoring center through communication interfaces (such as Ethernet interfaces, RS485 interfaces, etc.) to realize remote monitoring and management. At the same time, the intelligent monitoring device can also analyze and process the data according to preset rules to realize functions such as fault diagnosis and early warning. For example, when the intelligent monitoring device detects that the temperature inside the cabinet is too high or the gas pressure is too low, it will send an early - warning signal in time to remind the maintenance personnel to check and handle it.

Wide selection of reliable quality switching products is available, the load break switch, vacuum circuit breaker.

Load break switch:

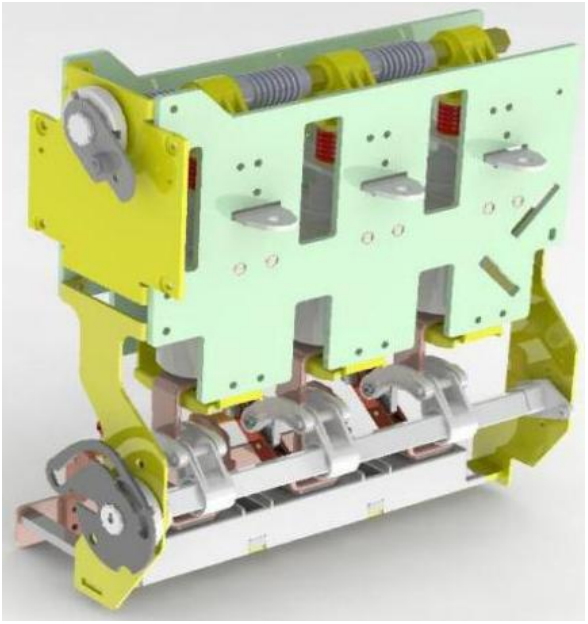
The load break switch is a 3-position switch disconnector and earthing switch, using SF6 gas as an arc quenching medium, the switch positioning is close-open-earthed. In the open position, the switch satisfies the disconnector requirements.

3-position load break switch (closed, open and earthed) spring mechanism consists of single spring and double spring operatingmechanism. Among them, the double spring operating mechanism used in switchgear unit can realize the automatic tripping trip.



Vacuum circuit beaker:

OMR Vacuum circuit breaker has vacuum chambers as interrupters of the current. In series with theCircuit breaker main circuit is connected a 3-position disconnector/earthing switch. The operation between vacuum circuit breaker and disconnector /earthing switch is mechanically interlocked. Compact, simple structures and safe operation.



Gas pressure/density meter:

Density meter with Low voltage pressure alarm

General density meter

Each tank of RMU is equipped with density meter to monitor the gas pressure inside. The pointer of the meter is in the green area, that means the normal pressure in the gas tank, if the pointer is in the red zone, it means the pressure of the tank islow.

It is required to periodically inspect the density meter, to ensure the pressure in the normal range. Additionally, density meters with low pressure alarm is also available as an option. The meter is provided as the customer specified.

Type C Bushing:

The connection of the HV-cables is made by cable Type C bushings. See right side picture.

The Type C bushings are made of cast resin epoxy with moulded-in conductors.

This C type is used together with full-screened elbow cable connectors which is an ideal solution for areas with humidity or condensation problems is achieved.

Voltage indicator:

Each unit is equipped with voltage indicator with phase check

outlet, which feature:

Stable performance, High brightness,

Wide viewing angle, long life.

Fault indicator:

Fault indicator is provided as an option.

Fault indicator for detection of a short circuit, single phase

earth fault.

Accurate detection and clear indication.

Note: Above components of RMU is standard equipped, any special requirement pls consult us.

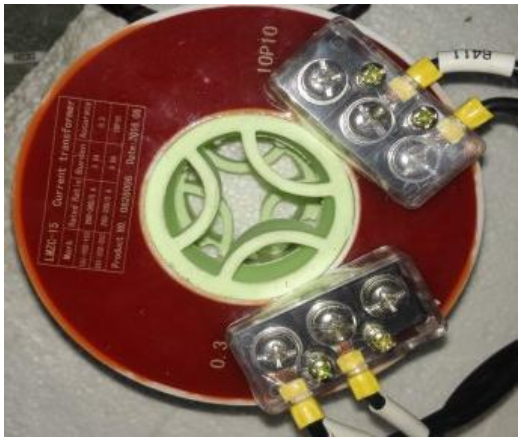
Elbow cable connector and relevant accessories:

a)Frontal Elbow Cable connectors

b)Copper conductors c)Press cores d)Copper lugs e)Additional back cable connector optional f)Additional elbow connector type surge arrester optional.

Current Transformer:

CT can provide measurement and protection functions. For RMU, specific requirements shall be provided by users .



a) The current transformer has three type: open type, sealed type and bushing type.

b) Installed on external cable bushings when need bushing type CT; the open type or sealed type CT directly installed on cable.

c) CT should be earthed reliable and open circuit of secondary side is not allowed, or it will lead to severe damage to the equipment and even dangers to the individuals.

Protection relay:

RP260 protection device is numerical protection relay with self-powered. Able to measure, protect and trip RMU

a) OC/EF protection b) Fault report

c) Under Voltage /Over Voltage protection

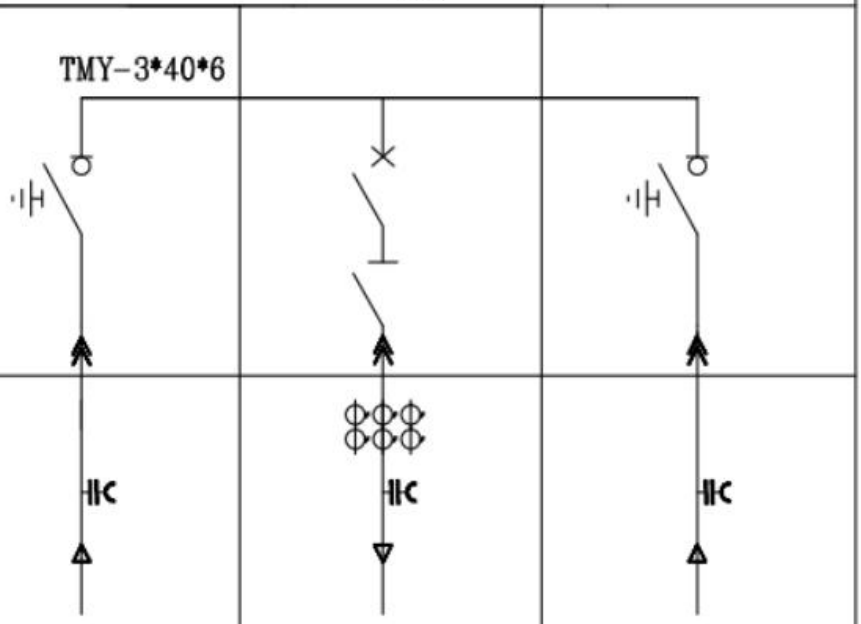
d) Frequency protection e) Other required is discussable.

Operating Handle:

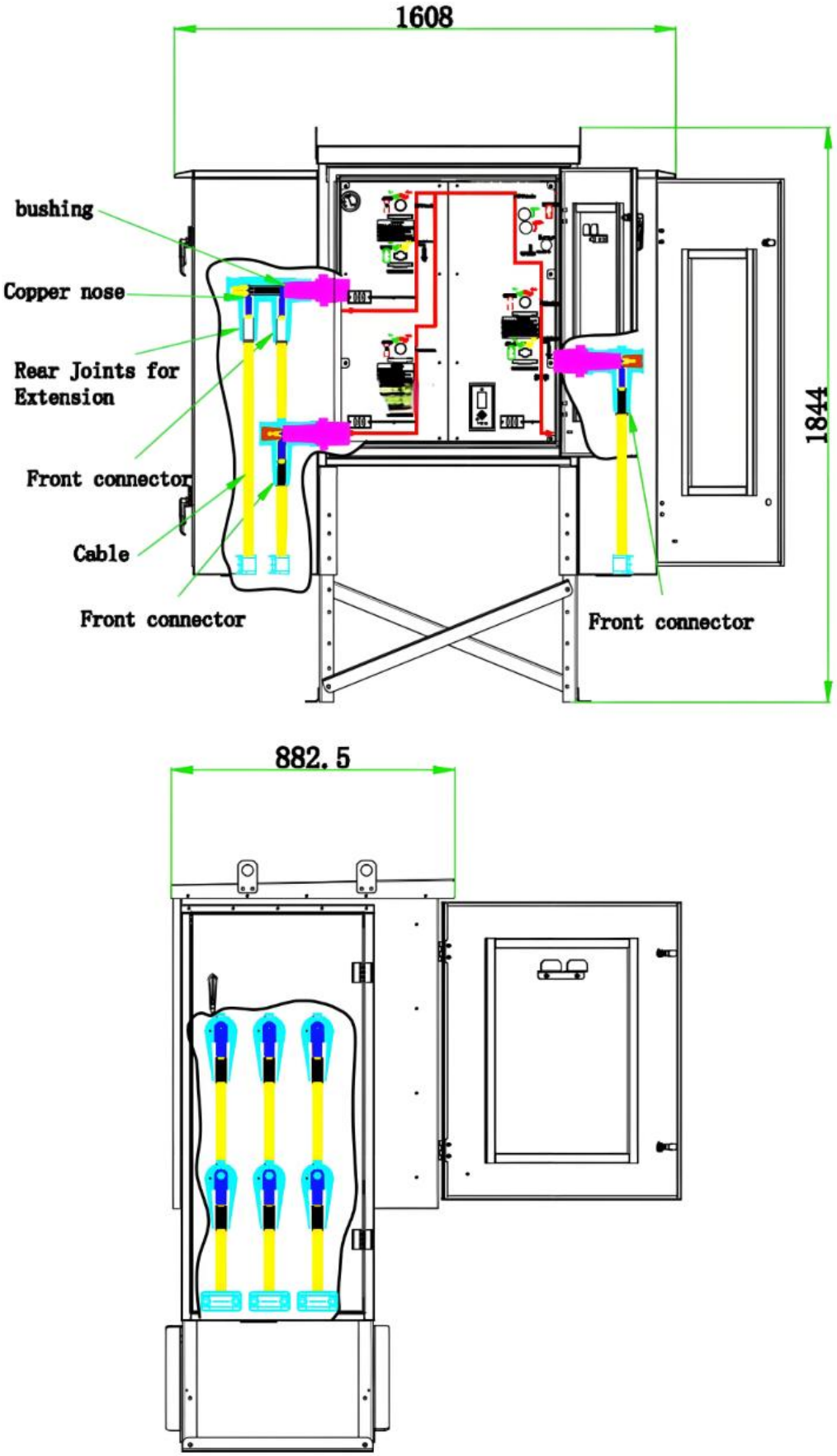
The operating handle has two sides for both Load break switch, circuit breaker and earthing switch manual operation.

No	Item	Unit	Load Break Switch		Circuit Breaker	
1	Rated voltage	kV	12/17.5	24	12/17.5	24
2	Rated current	A	630			
3	Rated frequency	Hz	50/60			
4	1min Power frequency withstand voltage	kV	38/45	55	38/45	55
5	Lightning impulse withstand voltage	kV	75/95	125/150	75/95	125/150
6	Rated transfer current	A	1700	1400		
7	Rated active load and close circuit breaking current	A	630/1250			
8	Rated cable charge breaking current	A	50&10			
9	Rated short circuit breaking current	kA			20	16
10	Rated short circuit making current (peak)	kA	6	50	63	50
11	Short time (2s) withstand current, load switch/earth	kA	25/20	20/20	25/20	20/20
12	Rated withstand current (peak)	kA	63	50	63	50
13	Mechanism life	Times	3000		10000	3000

The floor must be well leveled and unit must be fixed on the anchor bolts in accordance with the number of modules or units to ensure thedimensional drawing.

SF6 Gas-filled cabinet		CVC				
OMR-12 (12KV) Single line diagram						
Purpose		1#Incomer		Outgoing		2#Incomer	
Main components	LBS RMR12C-630A/20KA	Manual	1	Manual	1	Manual	1
	VCB RMR12V-630A/25KA			Manual	1		
	CT LMZK-12			250/1 0.5/5P10 2.5VA	3		
	Voltage Indicator	L-6	1	L-6	1	L-6	1
	Self power relay protection			RP260	1		
	Cable front joint	QJ-15/630A	3	QJ-15/630A	3	QJ-15/630A	3
	Cable Size	3 x 120		3 x 120		3 x 120	
W*H*D [mm]		1515*1854*898					

Single Line Diagram on 3 Leg Outdoor RMU (CVC)



Structure Diagram on 3 Leg Outdoor RMU (CVC)

Field service operation and warranty issues:

ROCKWILL® can provide competent, well trained field service representatives to provide technical guidance and advisory assistance for the installation, overhaul, repair and maintenance of ROCKWILL® equipment, processes and systems.

ROCKWILL® service Tel: +86 (577) 27869969
Email: rockwell@rockwill.com
Or check the website information: https://www.cnrockwill.com/