GE Energy
Industrial Solutions

WORLDWIDE PARTNER

SecoRMU

New Compact Gas Insulated Ring Main Unit

GE imagination at work

GE

GE is a diversified organization covering a myriad of market segments, including infrastructure, finance and media. From energy, water, transportation and health to access to money and information, GE serves customers in more than 100 countries and employs more than 300,000 people worldwide.

The company traces its beginnings from Thomas A. Edison, who established the Edison Electric Light Company in 1878. In 1892, a merger of Edison General Electric Company and Thomson-Houston Electric Company created the General Electric Company. GE is the only company listed in the Dow Jones Industrial Index today that was also included in the original index in 1896.

Industrial Solutions

GE Industrial Solutions – a division of GE Energy Group, is a global leading provider in power distribution, offering a wide range of products which include medium and low voltage power distribution equipments and components, and motor & control systems that are safe, reliable and offer high performance. Its innovative solutions can improve energy efficiency and environmental impact in power plants, power grids, oil & gas, mining, industrial manufacturing, rail transportation, commercial buildings, residential houses, alternative energy and many other industries.

GE is one of the worldwide partners of the Olympic Games. In 2008, GE assisted Beijing with this tremendous event, which was unprecedented in scale and first-class in its use of science and technology, offering a series of innovative solutions and products for around 400 Olympic infrastructure projects, covering fields in electricity distribution, lighting, security, water processing, benefiting some 37 Olympic venues and 168 commercial buildings. GE also brought its experiences to the 2010 Expo in Shanghai, Asia Games in Guangzhou, Vancouver Olympic Games and will continue through to the London 2012 Olympic Games.

WORLDWIDE PARTNER

USA PROUD PARTNER

BRITISH OLYMPIC ASSOCIATION PROUD PARTNER

torino 2006 WORLDWIDE PARTNER

Beijing 2008 WORLDWIDE PARTNER

FORTUNE 2010 WORLD'S MOST ADMIRED COMPANIES Industry Champion -- Ranked #1

2010 America's and World's Most Admired Companies

BusinessWeek

2009 Best Global Brand

FINANCIAL TIMES

2008 World's Most Respected Companies

BusinessWeek

2010 World's most innovative companies

BARRON'S

《BARRON'S》

2008 Most Respected Global Company

World's Best R&D COMPANIES

《R&D》

2007 World's Best R&D Companies

SecoRMU
Series Switchgear General

The traditional type of distribution adopts mainly radiation style to lay out power supply system, the combination style of radiation type and tree-style as a supplement. As a result of multi-users to connect to one power cord like letters Ts, any occurrence such as power line maintenance or failure will lead to all users' power off that are connecting on the power line of electricity. It is so poor reliability. Ring type and multi-loop distribution of regional opening and closing station and secondary substation model is widely used in the current to assign the power load to each terminal. The box-type ring main unit can act its functions as the branch, sub-section and sub-connection so has been used very widely.

SecoRMU series of ring main unit is one of such kind of SF6 gas insulated metal-enclosed switchgear. All kinds of functional units are made of such main units as load-break switch unit, switch &fuse unit, the unit with vacuum circuit breaker and etc. They are with the completely enclosured, all modular, and can be any combination of the characteristics of the extendibility freely, in order to provide customers a series of compact, safe, reliable, high performance and real ease of maintenance-free products. They are widely used in transformation of urban and rural lines, power distribution stations, wind power generation, steel, petrochemicals, highways, docks, such as industrial enterprises, as well as municipal construction, commercial buildings, such as civil construction area.

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Safe and reliability

SecoRMU adopts SF6 gas with a strong electronegativity and excellent dielectric insulation characteristics, and the insulation strength in sulphur hexafluorideis is as about 2-3 times as in air in the condition of uniform electric field. SF6 is non-toxic, tasteless, and non-flammable, and has excellent arc-control performance and cooling characteristics, all that makes it impossible for load switches to extinguish its electric arc quickly and reliably after breaking its current.

Small and compact

Excellent dielectric insulation characteristics of SF6 gas makes it impossible for SecoRMU to be smaller, less weight, more compact to save a lot of place and area for customers, as well as excellent performance and reliability.

Advanced and flexible

SecoRMU series of ring main unit adopts international advanced design concepts and production-test methods so that the whole series of simple structure, flexible operation, reliable interlock, together with the use of advanced sensor technology and the latest microprocessor-based protection devices, we can provide a variety of technical solutions to meet different user requirements.

Modular design/All enclosure/Extendible

SecoRMU series of ring main unit is a new generation of compact modular switchgear. Their gas boxes are made of 3mm thick stainless steel plate by laser welding. Circuit breakers, load switches and bus bars as well as all high-voltage portions, are all sealed in the gas boxes filled with SF6 gas. There are two modular structures, individual unit and common box unit all of this series products. Each module has its own separate functions and respective metal shell, and can be extended left side or right side freely.
Facility and reliability of splicing between SecoRMU series of ring main units and cables ensure that each of the unit of different solutions should be connected safely. Cables round into the units are also with a simple connection, fast and reliable.

Environmental adaptability

SecoRMU series of ring main unit are designed gas-tight structure, one conductive system is fully independent to operate in the environment filling with SF6 gas, therefore are not subject to external environment impact (such as Gel, dirty, salt spray, small animals and chemicals, etc.). Truly maintenance-free, applies to all kinds of bad places, and have a strong waterproof ability, gas tank and fuse tank are up to IP67 class of protection. SecoRMU series provide users with a reliable electricity system, as well as economical operation and maintenance costs

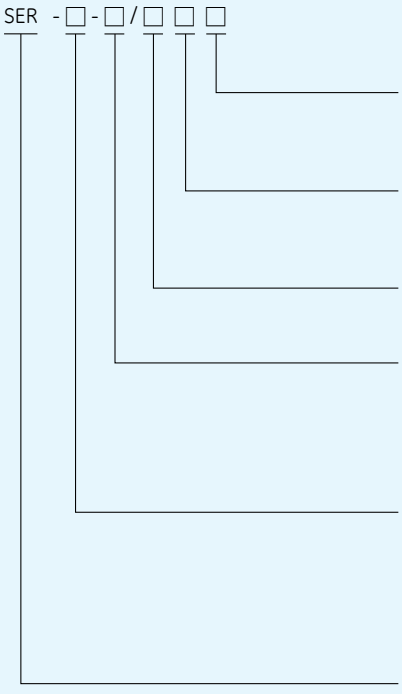
Standards

IEC62271-200:2003	AC metal-enclosed switchgear and control gear for rated voltages above 1kV and up to and including 52 kV
IEC60265-1:1998	Switches for rated voltages above 1 kV and less than 52 kV
IEC62271-100:2006	High-voltage alternating-current circuit-breakers
IEC62271-105-2002	Alternating current switch fuse combinations
IEC60282-1:1985	High Voltage Fuses –Part 1 Current limiting fuses
IEC62271-102-2002	High-voltage alternating-current Disconnector and earthing Switches
IEC62271-1:2007	The Common specifications for high-voltage switchgear and control gear standards
IEC376-1971	Specification and acceptance of new Sulphar Hexafluoride

Environmental Conditions

Environmental temperature	-25° C~+40° C
Humidity	Maximum of daily average relative humidity ≤95%, maximum of monthly average relative humidity≤90%.
Height above sea level	≤1000meters (It is necessary for users to inquire manufacturers when using the product at more than 1000 meters above sea level.)
Special conditions: According to IEC60694 standard, the ender users must consult with manufacturers to reach a consensus for the special requirements under special or non-normal operating conditions. If the running condition is especially severe, it is essential to consult with manufacturers and suppliers.	

Product type



Cable's entrance or exit mode
L:left entrance-exit R: right entrance-exit
LR: both sides entrance-exit NA:non entrance-exit

Extension mode
I: left extendible D: right extendible
ID: both sides extendible NA: not extendible

Rated current
630: 630A rated current 1250: 1250A rated current

Rated voltage
12: 12kW rated voltage 24: 24kV rated voltage 17: 17.5kV rated voltage

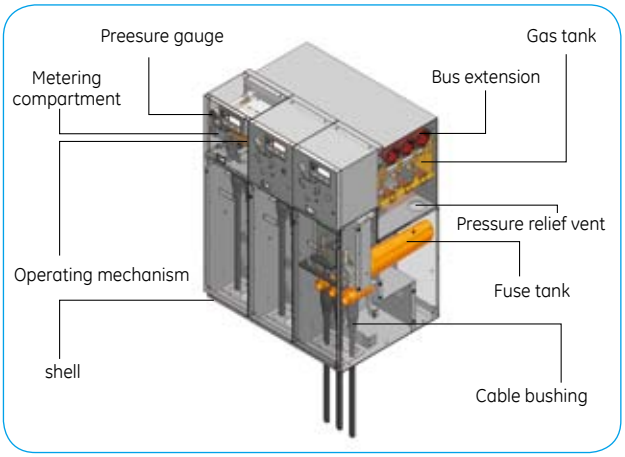
Type of ring main unit
K: load switch unit T: load switch-fuse combined unit
V: vacuum circuit breaker unit B: bus bar piggy back unit C1/C2: bus bar lift unit*
M1/M2: measurement unit* PT1/PT2: PT unit*
(Common box ring main unit is combined frddly by individual ring main units. For example, KT denotes a two-unit common box ring main unit made of one load switch unit and one load swith-fuse combined unit)

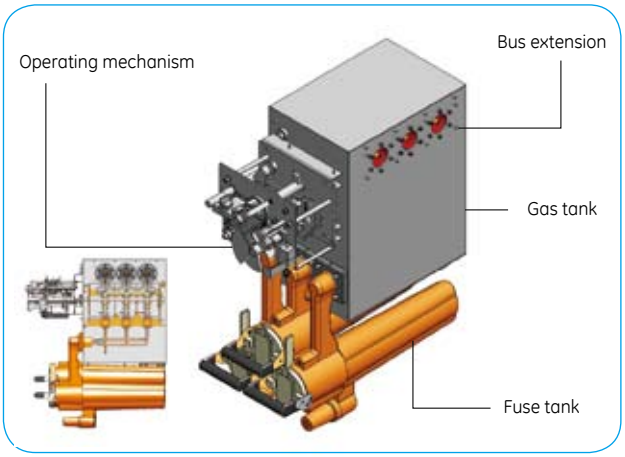
Prodect type

For example:
SER-V-12/630IR is a vacuum circuit breaker unit with 12kV rated voltaged and 630A rated current, left extendible, right entrance-exit cable mode
SER-KKT-12/630DL is a three-unit common box ring main unit, made of two load switchgear units and one load switch-fuse combined unit, with 12kV rated voltage and 630A rated current, right extendlble, left entrance-exit cable mode

*Note: C1/M1/PT1 Air insulated adopted
C2/M2/PT2 SF6 gas insulated adopted

Structure





Advanced Design

Fuse warehouse chamber integration

The three-phase in-out cables and fuse tank are into one casting. Triangular distributions were arranged, compact and easy to install. For Installed out of the gas tank, the fuse combination unit's gas tank is as the same size as the load break switch unit's, lessen the gas tank leakage dots, convenient for usage and maintenance

SecoVac-R circuit breakers

Three-phase in one, horizontal disposal, compact structure and convenient installation. Circuit breaker gas tank is perfectly the same wide as other functional units. High-voltage live part is completely isolated from outside environment to avoid any adverse environmental impacts.

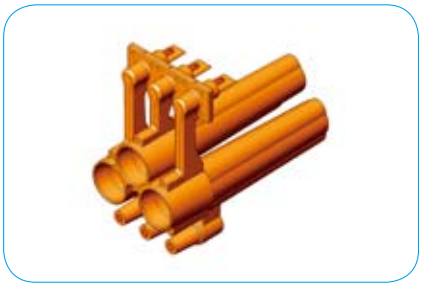
Modular design

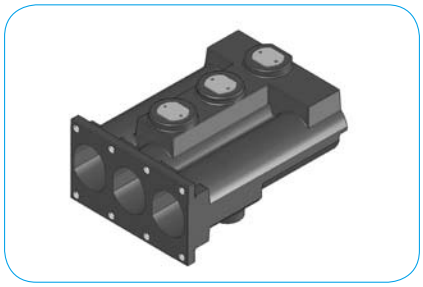
SecoRMU series ring main unit is based on load break switch unit, fuse combination unit, circuit breaker unit, bus tie unit, as well as other special functional modules. Any unit is extendible to each other and can extend or connect by bus connectors. Dimensions of all units are the same, that is, width × depth × height is 350 × 800 × 1380mm.

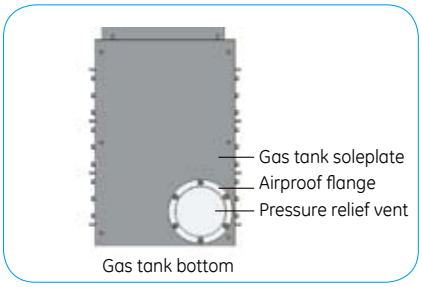
The load break switch unit, the switch fuse unit can be any combined of modules to form a combination of common box-type unit. One gas tank can be installed up to five functional units in it, any of which is fully consistent with to the individual functional unit on the internal structure and performance.

Pressure relief vent

Each SecoRMU gas tank has a pressure relief vent. Pressure relief vent will be opened to safely drain its pressure-airflow into the pressure relief pipeline at its the back or bottom (depending on user requirements) in case of arcing fault occurs in the gas tank, functions as pressure relief (its rated bursting point set at the two standard atmosphere)







Excellent Equipments and Craftworks

CNC laser cutting

German TRUMPF's CNC laser cutting and stamping complex molding machining centers, sheet metal processing accuracy of up to 0.05mm, to ensure that the gas tank assembly gap is less than 0.1mm.

CNC laser weld

German TRUMPF's three-dimension five-axis CNC laser automatic welding system protected within helium gas, to ensure the highest standards of gas tank welding quality, to ensure the air tightness and identity, the annual leakage rate is less than 0.02%.

CNC epoxy resin pressure molding

The German HEDRICH company's CNC epoxy resin vacuum mixture /pressure molding system produced SecoVac-R vacuum circuit breakers, fuse tanks, exit bushings, bus tie socket, insulators such as epoxy resin insulating components, to provide the perfect insulation performance

CNC silica rubber pressure molding

Swiss company VOGEL's CNC silica rubber mixture / pressure molding system, produces bus bar connectors, cable bushings and terminal plug covers such as silica rubber insulating components.

Automatic helium gas leak hunting

German SEILER's automatic helium gas leak hunting equipment, accurate detection of gas tank leakage rate, to ensure that gas leakage rate is less than 0.02% / year, to ensure that the gas tank effective working life is longer than 30 years.

Partial discharge Lab

In the top-class entire Shielding partial discharge laboratory, using the German Powev Diagnosix company's partial discharge detector, to partial test of products to ensure products' high quality.

Technical Data

SecoRMU Technical Data

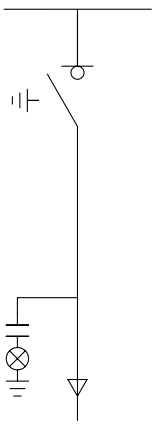
ITEM	Unit	LBS Unit	LBS & Fuse	VCB Unit	Bus Tie Unit
Rated Voltage	kV	12/17.5/24	12/17.5/24	12/17.5/24	12/17.5/24
Rated power Freq withstand voltage (1 min):	kV	42/50/50	42/50/50	42/50/50	42/50/50
Rated power Freq withstand voltage (1 min): Across isolating distance	kV	48/60/60	48/60/60	48/60/60	48/60/60
Rated lightening impulse withstand voltage: kV peak	kV	95/125/125	95/125/125	95/125/125	95/125/125
Rated lightening impulse withstand voltage: Across isolating distance	kV	110/145/145	110/145/145	110/145/145	110/145/145
Rated frequency	Hz	50/60/60	50/60/60	50/60/60	50/60/60
Rated current	A	630	*(1)	630,1250	630
Rated short-circuit breaking current	kA			20,25*(2)	
Rated short time withstand current 3s	kA	20		20,25	20
Rated peak value withstand current	kA	50		50,63	50
Making current (peak value)	kA		*(1)		
Rated transfer current	A		1800/930		
Rated active load-breaking current	A	630	630		630
Rated closed loop breaking current	A	630	630		630
5% rated active load breaking current	A	31.5	31.5		31.5
Weight	kg	160	180	200	160
Mechanism endurance/Operations		5000	5000	10000	5000
Stainless steel thickness of gas tank	mm	3.0			
SF6 Gas pressure	Mpa	0.03			
Ratio of leakage every year	<0.02%				
Arc-control test		20kA 1s			
Immersion test		12kV 24hours(30kpa under water)			
Protection class		Gas tank			
Fuse chamber		IP67			
RMU		IP3X			

*(1)Note: Rated current and closing current (peak value) of swith fuse units are no bigger than the values of the fuses assembled in.

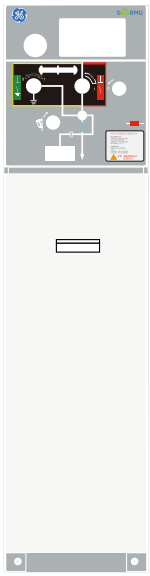
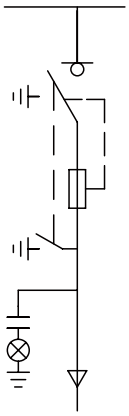
*(2)Note: Withstand time is 1s.

SecoRMU Individual Ring Main Unit

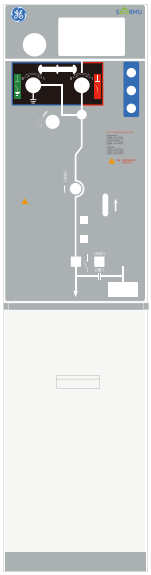
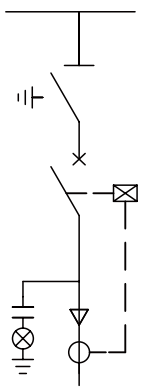
SER-K Load-Break Switch Unit

Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
 	SER-K Load-break switch unit 350 × 800 × 1380 (width × depth × height) /160kg	• Three position load break switch • Spring operation mechanism • Load break switch and earth switch position indicator • Live display • SF6 gas pressure meter • 630A bus bar • earthing busbar • earth switch and gate/ operation shaft interlock • outlet-wire bushing with sensor function • panel padlock device	• Outlet-wire left and/or right • Extendible left and/or right • electrical operation mechanis mDC24/48/110/220V,AC110/220V • short fault and earth fault indicator • Ring CT and Ampere meter lightning arrester • Dual cable head • Load break switch position auxiliary contact 3NO+3NC • Earth switch position auxiliary contact 2NO+2NC	Switch on or off the connections of cable and busbar, can position in-out cables three phase earthing at the same time, can function shorting open and close

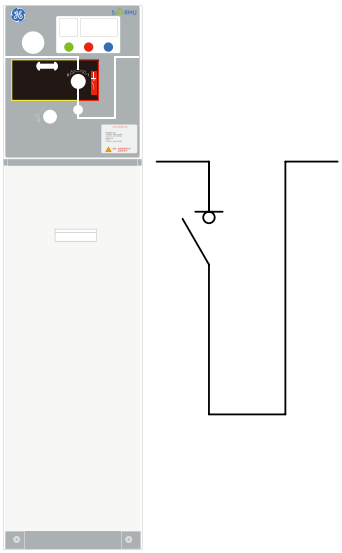
SER-T Switch & Fuse Unit

Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
 	SER-T Switch & fuse unit 350 × 800 × 1380 (width × depth × height) /180kg	• Three position load break switch • Spring operation mechanism • Load break switch and earth switch position indicator • Triangle fuse tank subassembly (without the fuse itself) • Live display • SF6 gas pressure meter • 630Abus bar • Earthing bus bar • Earth switch and gate/ operation shaft interlock • Outlet-wire bushing with sensor function • panel padlock device	• Outlet-wire left and/or right • Extendible left and/or right • Electrical operation mechanism DC24/48/110/220V, AC110/220V • Dispart winding DC24/48/110/220V, AC110/220V • Short fault and earth fault indicator • Ring CT and Ampere meter • Lightning arrester • Dual cable head • Load break switch position auxiliary contacts 3NO+3NC • Earth switch position auxiliary contact 2NO+2NC • Fuse status auxiliary contact 1NO • Fuse (See transformer-fuse table)	Use to control and protection of transformers less than 1250kVA (refer us for above 1600 kVA)

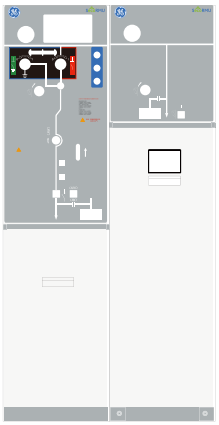
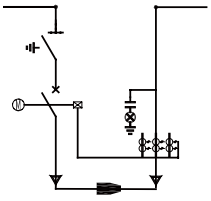
SER-V Vacuum Circuit Breaker Unit

Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
 	SER-V Vacuum circuit breaker unit 350 × 800 × 1380 (width × depth × height) /200kg	• Three position insulating / earthing switch • 630A/1250A vacuum circuit breaker • Vacuum circuit breaker operation mechanism • Vacuum circuit breaker and three position insulating switch mechanism interlock and position indicator • Live display • SF6 gas pressure meter • 630A/1250Abus bar • Earthing bus bar • Earth switch and gate/ operation shaft interlock • Outlet-wire bushing with sensor function • Panel padlock device • Relay and protection CT	• Outlet-wire left and/or right • Extendible left and/or right • Vacuum circuit breaker electrical operation mechanism DC24/48/110/220V,AC110/220V • Close winding DC24/48/110/220V,AC110/220V • Dispart winding DC24/48/110/220V,AC110/220V • Ring CT and Ampere meter • Lightning arrester • Dual cable head • Vacuum circuit breaker position auxiliary contact 4NO+4NC • Insulating switch position auxiliary contact 2NO+2NC • Earth switch position auxiliary contact 1NO+1NC	Using in protecting circuitry, electric machines and transformers

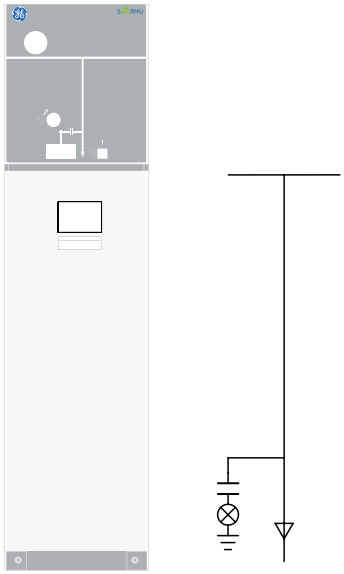
SER-B Bus Tie Unit

Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
	SER-B Unit Bus tie Unit 350 × 800 × 1380 (width × depth × height) /160kg	• Two position load break switch • Operation mechanism • Switch position indicator • SF6 gas pressure meter • 630Abus bar • Earthing busbar • Panel padlock device	• Outlet wire left and/or right • Extendible left and/or right • Load break switch electrical operation mechanism DC24/48/110/220V, AC110/220V • Load break switch position auxiliary contact 3NO+3NC	Joint of busbars

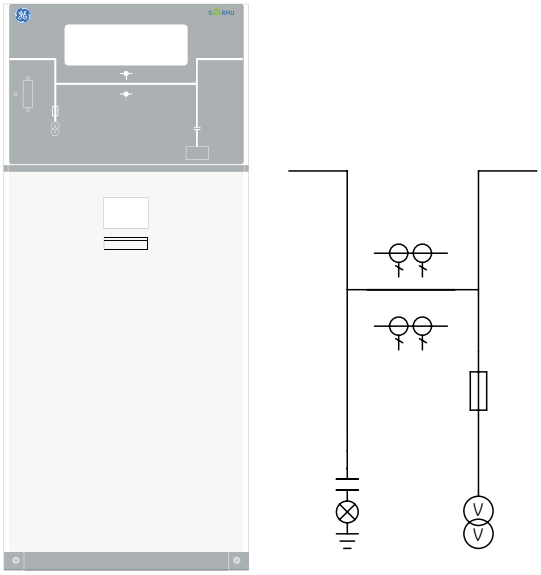
SER-V+SER C1 Vacuum Circuit Breaker & Bus Tie Unit

Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
 	SER-V+SER-C1Vacuum Circuit Breaker& Bus Tie Unit 700 × 800 × 1380 (width × depth × height) /300kg	• Three position insulating/earthing switch • 630Avacuum circuit breaker • Vacuum circuit breaker operation mechanism • Vacuum circuit breakerand three position insulating switch mechanism interlock and position indicator • Live display • SF6gas pressure meter • 630A bus bar • Earthingbusbar • Earthing switch and gate/operation shaft interlock • Interlock of vacuum circuit breaker operation mechanism and insulating switch operation mechanism • Outlet-wire bushing withsensor function • Panel padlock device • Delay and protection CT	• Vacuum circuit breaker electrical operation mechanism DC24/48/110/220V, AC110/220V • Close winding DC24/48/110/220V, AC110/220V • Dispart winding DC24/48/110/220V, AC110/220V • Ring CT and Ampere meter • insulating switch position auxiliary contact 2NO+2NC • Earth switch position auxiliary contact 1NO+1NC • Cable connector for busbar connector	Using in protecting circuitry, electric machines, transformers and busbar connector

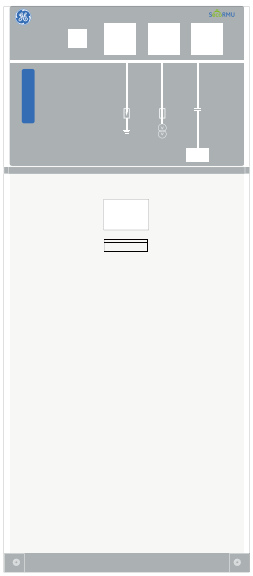
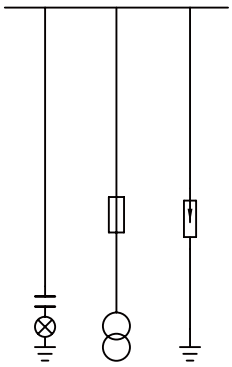
SER-C Bus Bar Lift Unit

Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
	SER-C Bus bar lift unit 350 × 800 × 1380 (width × depth × height) /100kg	• 630Abus bar • live display • Earthing bus bar	• C1adopts air insulating • C2 adopts SF6 gas insulating	To connect in-out cables

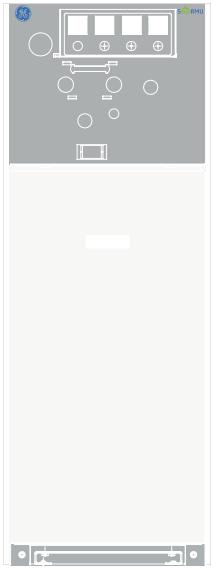
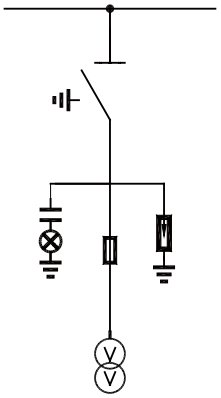
SER-M Metering Unit

Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
	SER-M Metering Unit 350 × 800 × 1380 (width × depth × height) /180kg	• 630A bus bar • 2 pieces of CT • 2 pieces of PT • Fuse for protecting PT • Live display	• 3 pieces of CT • 3 pieces of PT • Lightning arrester • 1 piece of active kilowatt-hour meter • 1 piece of reactive kilowatt-hour meter	Using in computation of electricity

SER-PT PT Unit

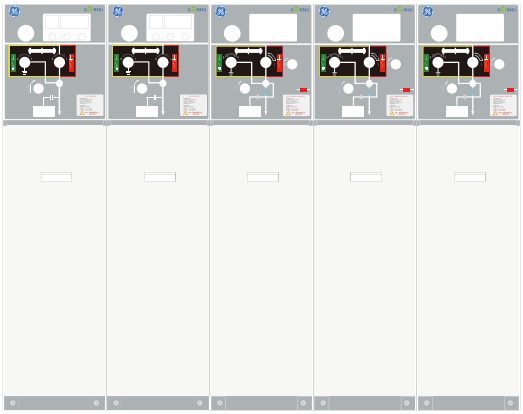
Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
 	SER-PT PT unit 350 × 800 × 1380 (width × depth × height) /180kg	• 630A bus bar • 2 piece of potential transformers • Fuse for protecting PT • 1 piece of voltmeter • Lightning arrester • Live display	• 3 pieces of potential transformers • Insulating switch	To inspect busbar voltage, provide voltbroken signal

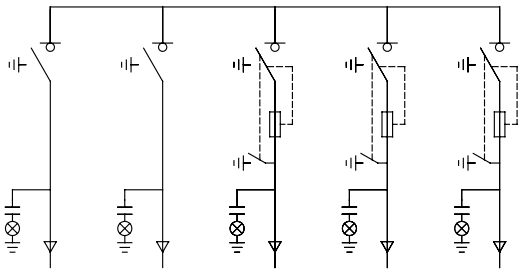
SER-KPT Insulating Switch & PT Unit

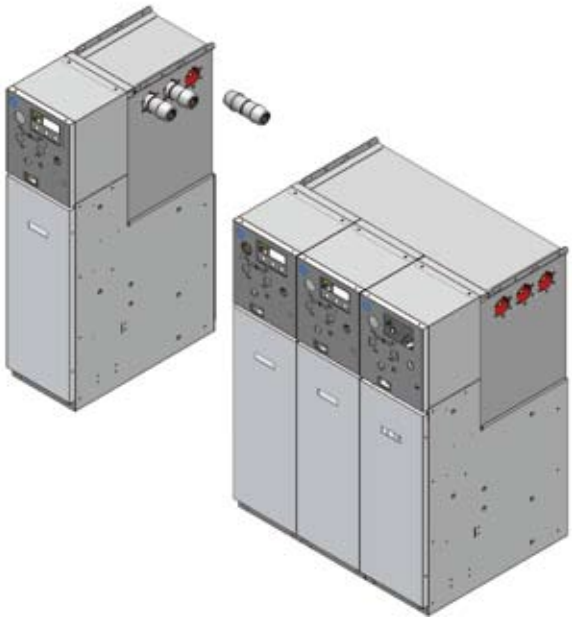
Scheme	Model dimension/ weight	Standard Configuration	Options	Remark
 	SER-KPT Insulating Switch & PT Unit 480/600 × 800 × 1380 (width × depth × height) /300kg	• Three position insulating switch • Spring operation mechanism • Position indicator of insulating switch and earthing switch • Live display • SF6 gas pressure meter • 630Abus bar • Earthingbusbar • Earthing switch and gate/operation shaft interlock • Enter-wire bushing with sensor function • Panel padlock device • 2 PT • Fuse for protecting PT • Voltmeter	• Outlet-wire left and/ or right • Electrical operation mechanism DC24/48/110/220V, AC110/220V • Short fault and earth fault indicator • Lightning arrester • PT cable connector • Insulating switch position auxiliary contacts 3NO+3NC • 3 PT • Earth switch position auxiliary contact2NO+2NC	To inspect busbar voltage, provide voltage signal

Common Gas Tank Ring Main Unit

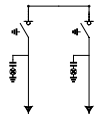
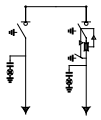
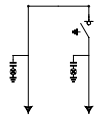
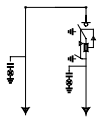
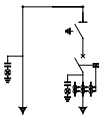
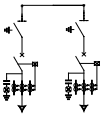
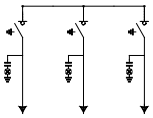
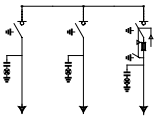
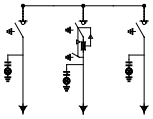
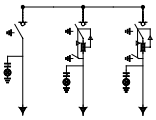
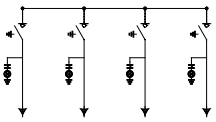
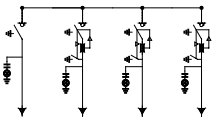
Compact project with several individual units in one gas tank called common gas tank ring main unit is also applied. There can be up to 5 units combinations in one gas tank abide by customers' need. All kinds of combinations are not only extendible but also connectable with other individual unit and common gas tank unit.

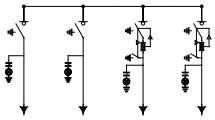
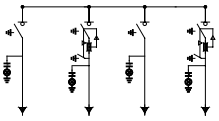
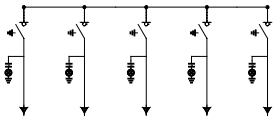
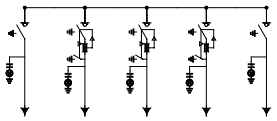
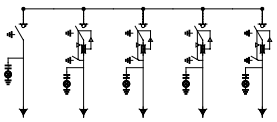
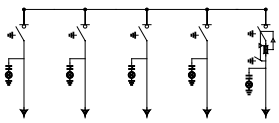
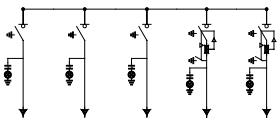
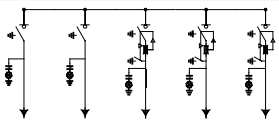






SecoRMU Common Gas Tank Style

No.	Model	Primary scheme diagram	Dimensions (mm)
1	SER-KK		700 × 800 × 1380
2	SER-KT		700 × 800 × 1380
3	SER-C2K		700 × 800 × 1380
4	SER-C2T		700 × 800 × 1380
5	SER-C2V3		700 × 800 × 1380
6	SER-V3V3		700 × 800 × 1380
7	SER-KKK		1050 × 800 × 1380
8	SER-KKT		1050 × 800 × 1380
9	SER-KTK		1050 × 800 × 1380
10	SER-KTT		1050 × 800 × 1380
11	SER-KKKK		1400 × 800 × 1380
12	SER-KTTT		1400 × 800 × 1380

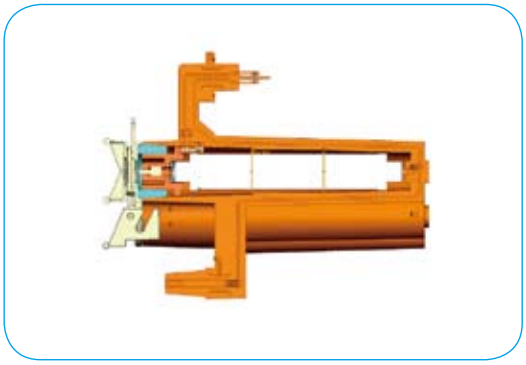
No.	Model	Primary scheme diagram	Dimensions (mm)
13	SER-KKTT		1400 × 800 × 1380
14	SER-KTKT		1400 × 800 × 1380
15	SER-KKKKK		1750 × 800 × 1380
16	SER- KTTTK		1750 × 800 × 1380
17	SER-KTTTT		1750 × 800 × 1380
18	SER-KKKKT		700 × 800 × 1380
19	SER-KKKTT		1050 × 800 × 1380
20	SER-KKTTT		1050 × 800 × 1380

SecoRMU Protect Functions
Transformer/wiring protection

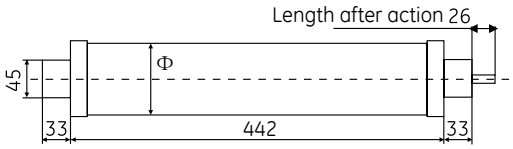
SecoRMU series ring main unit provides two modes of protections of transformers

Load switchgear-Fuse combined Unit:

When any of fuses fuses out, the firing pin will trigger the spring energy-store mechanism of load break switch so that the load breaker immediately switches to cut off the loop current.
Transformer and fuse matching selection of type, see the table.



Fuse dimensions:



＜63A, Φ=51mm
⩾63A, Φ=76mm

Transformer-fuse table

Rated Voltages(kV)	Rated Capability of Transformers (kVA)												
	50	**100**	**160**	**200**	**250**	**315**	**400**	**500**	**630**	**800**	**1000**	**1250**	**1600**
6~7.2	16	25	30	40	50	63	100	100	100	-	-	-	-
10~12	10	15	20	25	32	40	50	63	80	80	100	100	125*
13.8	6	10	16	20	25	32	32	50	50	50	63	80	-
15~17.5	6	10	16	20	25	25	32	40	50	50	63	80	-
20~24	6	10	10	16	16	20	25	32	40	40	40	50	80

*Consult with us please.

Cooperation of Relay system and circuit breaker unit

When vacuum circuit breaker is adopted as protection type of transformer and circuitry, SEG WICI self-powered relay system is a choice to provide short-circuit protection, over-current protection and earth fault protection.

- Definite time over-current and shorting protection (ANSI 50/51)
- Normal inverse curve over-current protection and definite time short current instantaneous break protection (ANSI50/51)
- Definite time earth over-current protection (ANSI 50N/51N)

WIC1 is a kind of digital relay by CT-powered whose structure is compact and whose connection is simple and safe. It has high immunity to electromagnetic interference.

SecoRMU can also be customized with other relay system installed such as GE MIFII. GE MIFII should be installed in the low-voltage tank on the top of RMU unit, and configure the external power supply.

Protection and Control

- Delay of phase-earth instantaneous over current component
- Thermal image protection
- "N" option for Single-phase or earth
- ANSI, IEC, IAC, EPTAR-C standard, Normal inverse characteristic curve
- Circuit breaker control (off-on positions)
- Four times automatic reclosure
- Cooling load startup components
- Configurable circuit breaker failure function
- Configurable I/O
- 6 outputs: for tripping, auto-test and alarming, 4 auxiliary outputs

Surveillance

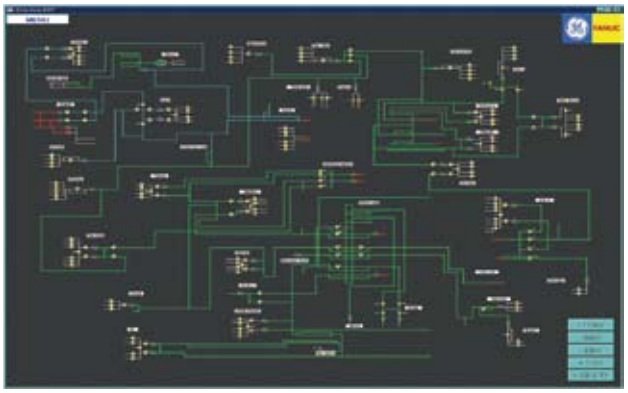
- 32 event log
- Fault recorder including analog signals and digital signals
- KI2 counter for circuit breaker maintenance
- Each phase current measurement
- Screen displays the last 5 tripping information

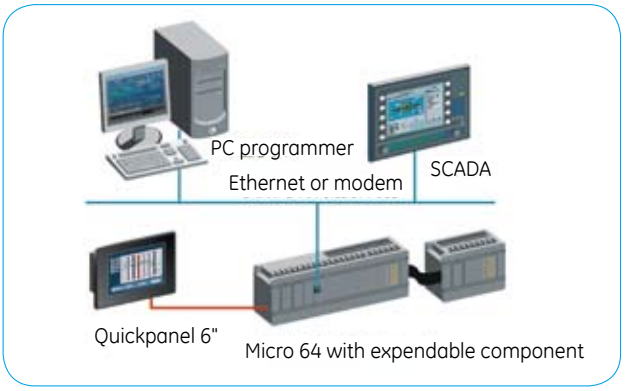
User Interface

- EnerVista for setup and surveillance
- 2 * 16-byte LCD display
- 6 LED lights, rear RS485 interface
- Front panel is RS232 interface, rear is RS485 interface, support MODBUSRTU and IEC60870-5-103 Statute

Distribution Automation Module

SecoRMU can also configure the GE Fanuc Series PLC to help the realization of device management, fault alarm, load monitoring, telecommunications and network architecture, so as to enhance the quality and supply reliability of electricity.





Mini-size VersaMax Micro PLC ensures modular design flexibility and provides a large number of embedded features. They are including up to 28 I / O points (expandable to 170), two built-in serials, rapid scan cycle time, a strong powerful instruction set of guiding devices, as well as major memory which allows you to double choices when programming. All these features are included in a solid modular design module, user-friendly, with a long-term durability. This integration logic controller can be compiled to provide users with a wide range of applications with all the necessary control.

Main features of RTU

Communications

- Support Modbus Slave and Master
- Report abnormity through the logic control
- Support Ethernet-based Modbus TCP Server
- Support by telephone lines the Modern, using Sixnet (VT Modem 1 and 2) to test port automatic monitoring request of RTU and SNP

Hardware

- A wide range of analog quantity I / O and from 12VDC to AC Discrete I / O, Digital Input (32DI), digital output (12DO) and Analog Input (8AI), two serial ports (RS232, RS485 and USB *)
- Port can support two slave ports, and one master / slave port

CPU support

- Up to 32K data register (Micro 64)
- Write Flash (Micro 64)
- Support floating-point, Micro23, 28 and 64 to support the real-time clock

SecoRMU Accessories

Motor operation mechanism
SecoLBS load switches and vacuum circuit breaker SecoVac-R can be fit function with remote control electric operation, but also the structure and size of the units maintain unchanged.

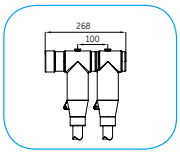
Terminal cover
Special terminal covers can be applied to insulate and seal on both ends of a set of RMUs

Fault indicator
Capacitive voltage indicator indicates whether the busbar or cable Live. The following jack can also be used to check phase. It is also a choice to install the short fault indicator or/and earth fault indicator for fault location.

Pressure meter
The front of each gas tank is equipped with a pressure indicator to facilitate the observation of whether the inside gas pressure is the normal, to ensure the security and reliability of operation.

Operating handle
Using to manual operation

Busbar connector
A special busbar connection is designed delicacy, small connection resistance, connecting reliable and easy installation to complete the expansion of connectivity between units. The design of structure of inner cone, as well as shielding silica gel rubber can seal on the intermediate connecting busbar and terminal busbar bushing to achieve full-sealed, full insulation. It can also be set aside for future expansion.



Cable connectors
Standards：EN50181 DIN47636

- Shielding type（touchable），non-shielding（untouchable）
- Front insert type cable connector，rear insert type cable connector，rear insert type lightning arrester
- Cable section，35mm²~400mm²
- Standard unit can install 2 routes cables at best（Front insert type cable connector + rear insert type cable connector，front insert type cable connector + rear insert type lightning arrester）. Please refer us for 3 routes or above（Non-standard units）.

Outdoor Switch Station

Outdoor RMU station which adopts prefabricated all-metal structure, has high mechanical strength. Its protection class is up to IP33, anti-rain, anti-seepage, anti-small animals.

Good ventilation

Symmetric shutters are open Left & right, up & down. Window-inner line is detachable and thin high-quality net divide

Excellent heat insulation

The coping set double tiers of heat insulation cotton

Anti-dew

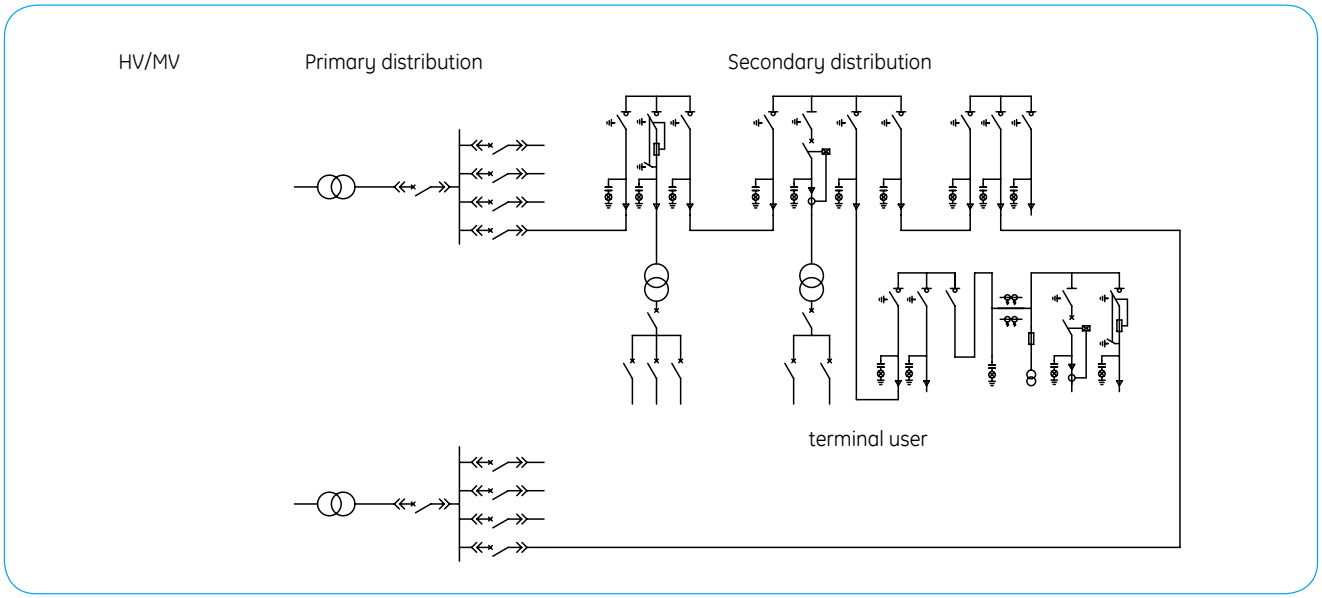
Inclination of the roof is designed greater than 3 degrees. Roof extends the entire station together with good ventilation, to prevent in the box emerging the dew.

Classic	ComposingDimensions(width × depth × height)
3 Units	1350x1200x1750
4 Units	1700x1200x1750
5 Units	2050x1200x1750
6 Units	2400x1200x1750
Metering Unit + 4 Units	2300x1200x1750
Metering Unit + 5 Units	2650x1200x1750
4 Units+Metering Unit + 2 Units	3000x1200x1750

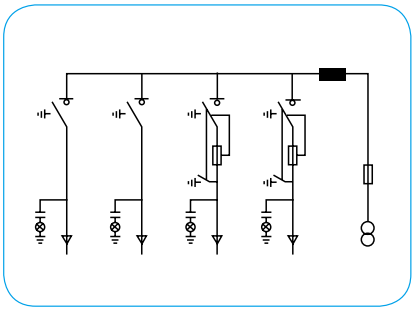
Note: If other special dimension needed, please consult with us.

SecoRMU Series Ring Main Unit Typical Solutions

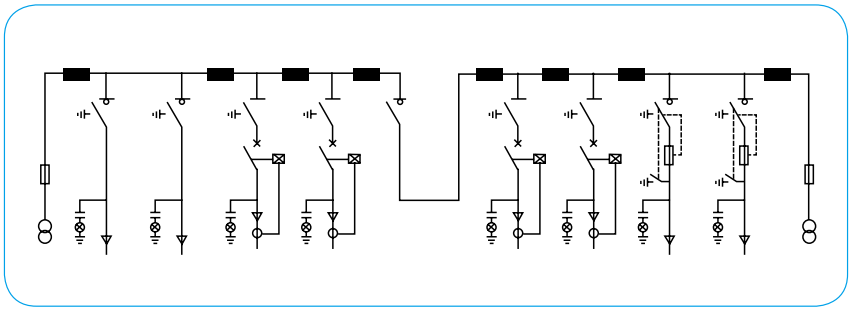
Typical solution designed for ring network



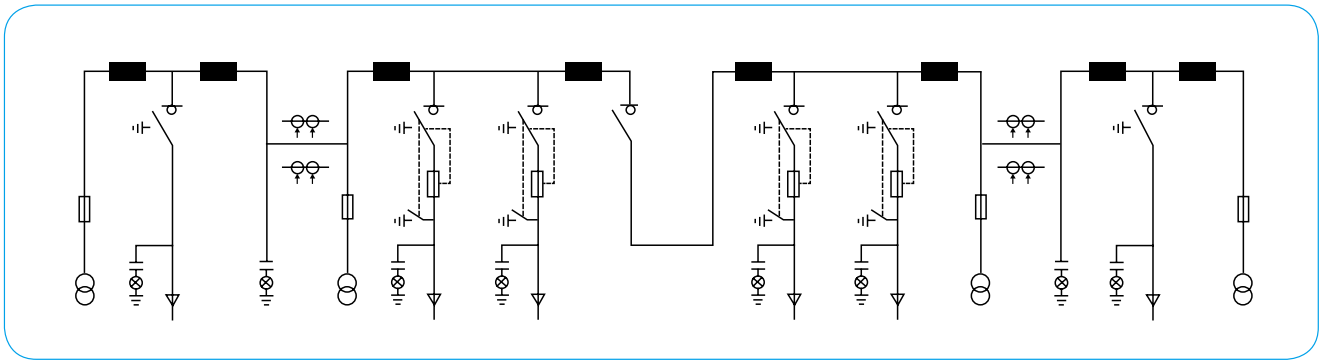
Ring meshwork type transformer protection



Groovy open-close station

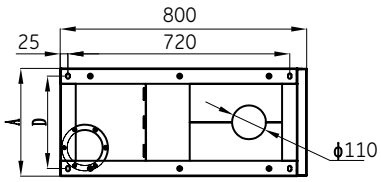


Two in-set wiring as backup each other

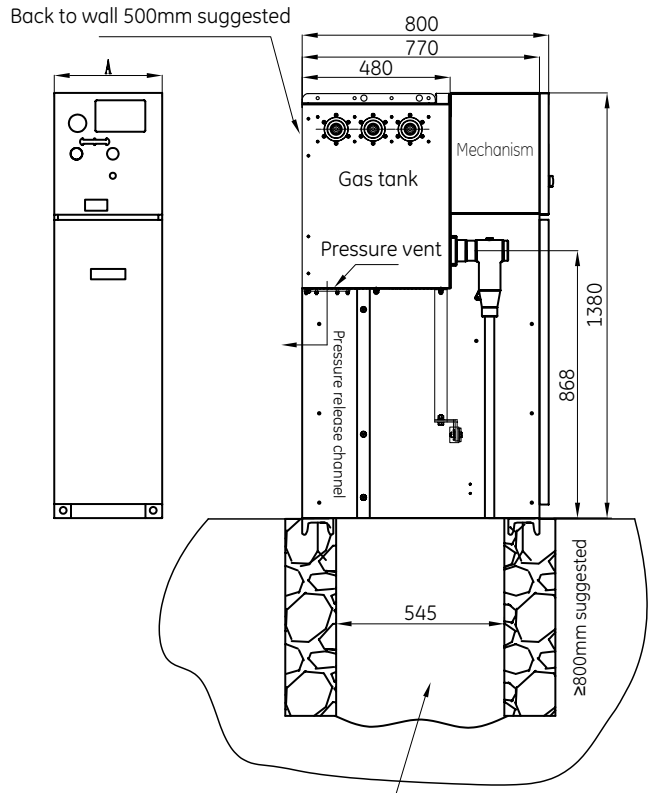


Dimensions and Installation groundwork

Individual unit dimension and installation diagram



Bottom View



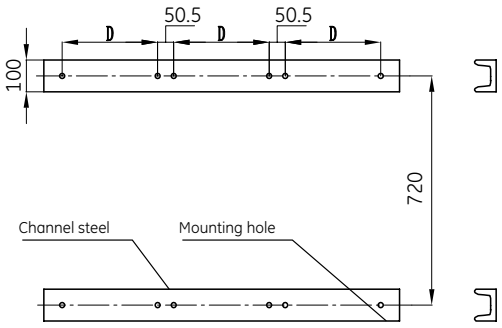
Cable trench sectional view

Unit	K	T	L	B	C	M	PT	P
A	350						600	
D	300						550	

1)Foundation of groundsill is made of two 10# channel irons as shown in the figure

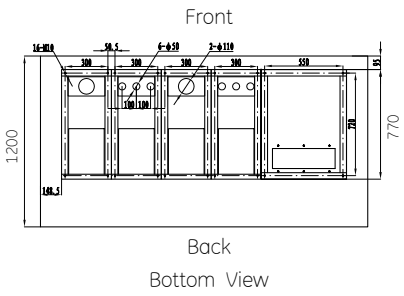
2)Depth of cable trench is determined by actual type of cable and meets the requirements simultaneously

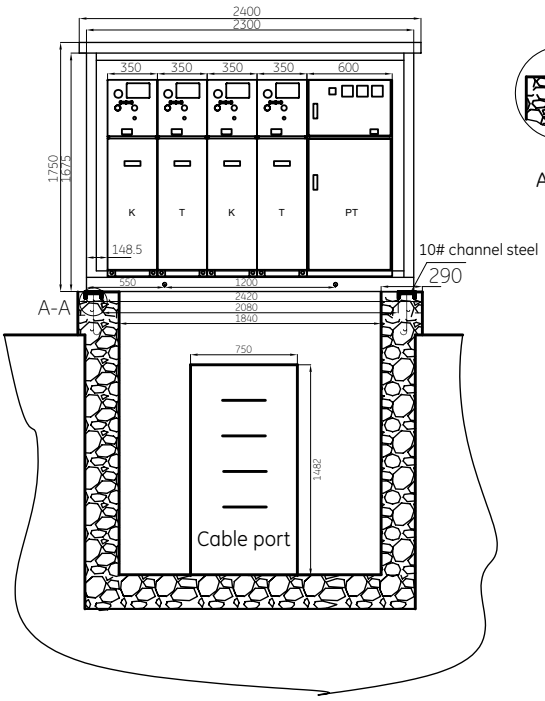
3)All units are the same deep.Distances between holes are the samen 720mm long in both channel irons. It is also aceptable for RMU to fix by spot welding

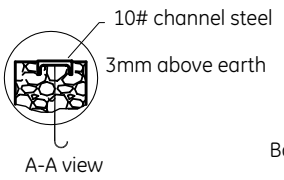


Channel steel vertical view

Outdoor switch station installation diagram







Checking list for SecoRMU Order

Customer									Contact person				
Project									Telephone number				
Address									Fax				
Deliver time									E-mail				
Power supply type⑥									Total quantity				
									Total quantity				
									Total quantity				
Rated voltage		7.2kV☐12kV☐ 5kV☐ 17.5kV☐ 24kV☐							Rated current				630A☐ 1250A☐
Motor voltage		DC24V☐ DC48V☐ DC110V☐ DC220V☐ AC110V☐ AC220V☐											
No.	Type①	Extendible②	In-out cable③	Operation type		Fuse current (A)④	CT/ PT		Relay protection		Cable connector⑤	Quantity (set)⑥	Remark
				Manual	Automatic		2CT/2PT	3CT/3PT	WIC1	MIFII			
Individual RMU													
1	K			☐	☐	/	☐	☐	/	/			
2	T			☐	☐		☐	☐	☐	/			
3	B			☐	☐	/	/	/	/	/	/		
4	V			☐	☐	/	☐	☐	/	☐			
5	C			/	/	/	☐	☐	/	/	/		
6	M			/	/	/	☐	☐	/	/	/		
7	PT			/	/	/	☐	☐	/	/	/		
8	P			/	/		☐	☐	/	/			
No.	Type①	Extendible②	In-out cable③	Operation type		Fuse current (A)④	CT/ PT		Relay protection		Cable connector⑤	Quantity (set)⑥	Remark
				Manual	Automatic		2CT/2PT	3CT/3PT	WIC1	MIFII			
Common gas box RMU													
9	K			☐	☐	/	☐	☐	/	/			
	T			☐	☐		☐	☐	☐	/			
10	C			/	/	/	☐	☐	/	/			
	T			☐	☐	/	☐	☐	☐	/			

No.	Type①	Extendible②	In-out cable③	Operation type		Fuse current (A)④	CT/ PT		Relay protection		Cable connector⑤	Quantity (set)⑥	Remark
				Manual	Automatic		2CT/2PT	3CT/3PT	WIC1	MIFII			
11	K			☐	☐	/	☐	☐	/	/			
	K	/	/	☐	☐	/	☐	☐	/	/			
	T			☐	☐	/	☐	☐	☐	/			
12	K			☐	☐	/	☐	☐	/	/			
	K	/	/	☐	☐	/	☐	☐	/	/			
	K	/	/	☐	☐		☐	☐	☐	/			
	K			☐	☐		☐	☐	☐	/			
13	K			☐	☐	/	☐	☐	/	/			
	K	/	/	☐	☐	/	☐	☐	/	/			
	T	/	/	☐	☐		☐	☐	☐	/			
	T	/	/	☐	☐		☐	☐	☐	/			
	T			☐	☐		☐	☐	☐	/			
Optional accessories													
14	Name			Quantity			Name			Quantity			
	Operating handle						Check phase apparatus						
	Padlock						Auxiliary contact(1Open 1close)						
	Bus bar connector						Bus bar terminal cover						

Note①:1) K-Load-break switch Unit, T-Switch & fuse Unit, B-Bus tie Unit, V-Unit with vacuum circuit breaker, C-Bus bar lift Unit, M-Metering Unit, PT-PT Unit.

2) Common gas box Units are made of C, T and K units freely, one common gas box unit can hold five individual units at most.

Note②: Give clear indication of extendible style at the end of bus bar please: Select D if right extendible, Select I if left extendible, Select ID style if both sides are extendible.

Note③: When in-out cables are required to connect to the bus bar of the terminal unit: Select R style if connection is right. Select L style if connection is left; Select LR style if both sides are connected. Redline it if neither side is connected.

Note④: You can look up the optional current range of the fuse in the “Transformer-Fuse table”

Note⑤: Give clear indication of the specification of cable head

Note⑥: For example: P+K+M+TT+B+TT+M+K+P, total account is nine, items in the table should be filled in according this solution.

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