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Risentric

SHANGHAI RISENTRIC ELECTRIC CO .,LTD

SIVACON 8PT Low-Voltage Switchgear Instruction Manual

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Risentric

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ABOUT RISENTRIC

Shanghai Risentric Electric Co., Ltd. specializes in the research, development, and manufacturing of high- and low-voltage complete switchgear, prefabricated substations, and power transformers, providing comprehensive solutions for power transmission and distribution systems.

COMPANY PROFILE

Shanghai Risentric Electric Co., Ltd., established in 2005, is a national high-tech enterprise specializing in intelligent power transmission and distribution as well as industrial electrical control. The company has been certified to ISO 9001 Quality Management System, ISO 14001 Environmental Management System, and ISO 45001 Occupational Health and Safety Management System, and has been awarded multiple qualifications including “Specialized and Innovative Enterprise.”

All products are designed and manufactured in strict accordance with IEC standards and relevant national regulations. Many products have obtained mandatory certifications such as CCC and CQC, as well as CE certification, ensuring high levels of safety, reliability, and international applicability.

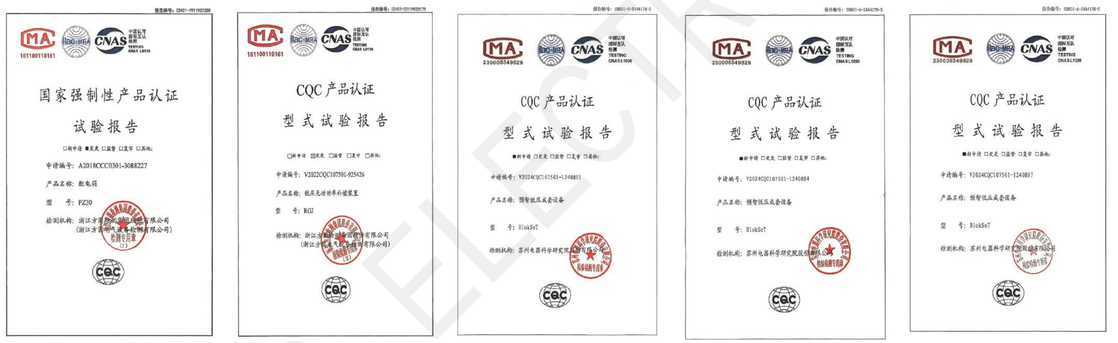
Risentric possesses comprehensive capabilities covering research and development, manufacturing, system integration, and engineering implementation. Its product portfolio includes high- and low-voltage complete switchgear, European- and American-style box-type substations, power transformers, industrial automation control systems, photovoltaic equipment, and related electrical components. These products are widely applied in industries such as power generation, metallurgy, chemical processing, petroleum, transportation, construction, and municipal engineering, continuously delivering stable and reliable products and professional services to customers.

To ensure product quality and manufacturing excellence, the company has introduced advanced flexible production lines from both domestic and international sources, equipped with CNC turret punching machines, CNC bending machines, CNC shearing machines, CNC laser cutting machines, and CNC busbar processing centers, enabling lean manufacturing and full-process quality control.

While continuously strengthening its presence in the domestic market, Risentric actively expands its international business and is committed to becoming a trusted global partner for power transmission, distribution, and industrial electrical solutions.

Technological innovation, quality first, integrity-based service, and win-win cooperation are the core business philosophies of Risentric. The company sincerely welcomes customers worldwide to cooperate and achieve shared success.

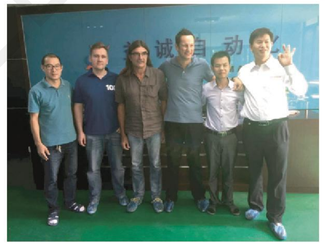
HONORS AND QUALIFICATIONS



OUR PARTNERS

ZF | Schneider Electric | Defond | ABB
MOATECH | BULL公牛 公牛安全插座 | SIEMENS | EUROtronic
SUNON 台湾建准集团 | OMRON 欧姆龙 | CHINT 正泰电器 | HAVELLS
TOSHIBA東芝 | Galanz 格兰仕 | TAILI泰力 | TCL
TONELUCK MICRO | BYD | JINLI | Otter
GLOBAL PMX | PHOENIX MECANO | DELTA | AVC
HAN'S LASER 大族激光 | 徐福記 | vtech | Midea
BOLSTER SYSTEMS | LD | BERPU 贝普 | ZIPPY

Customer service



Technical Achievements

To Realize Automation World With High-advanced Technology

SIVACON 8PT Low-Voltage Switchgear

PRODUCT INTRODUCTION

SIVACON 8PT is a low-voltage switchgear system designed by our company. It incorporates circuit breaker technology, fixed-mounted design, withdrawable unit technology, and plug-in unit design.

High-level cooperation with qualified low-voltage switchgear manufacturers enables them to become “technology partners” for the production of SIVACON 8PT, bringing a versatile and type-tested SIVACON low-voltage switchgear system to your application.

Product Advantages

1 High security

Compliant with IEC standards, providing a high level of electrical safety and personnel protection.

2 High reliability

Use high-quality components, such as circuit breakers and contactors.

3 Flexibility/modularity

It is easy to combine and expand, and can be customized to meet your needs.

4 Economic

High efficiency can reduce energy consumption and save operating costs.

5 Clever

It supports remote monitoring and control, enabling digital power distribution.

Technical Parameters

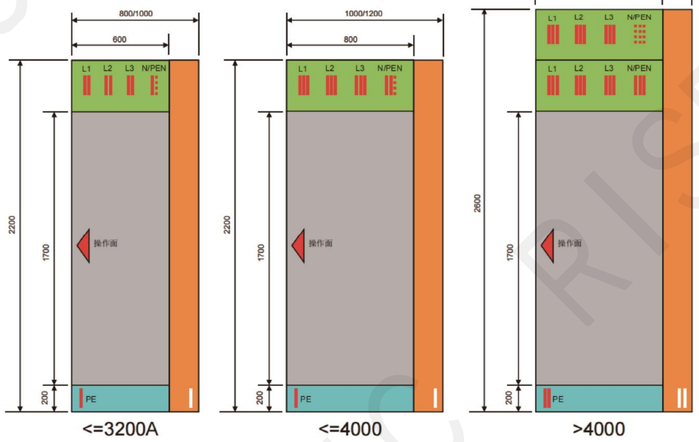
Common Data		
standards and specifications	Low-voltage switchgear and controlgear	IEC60439-1, DINEN60439-1, VDE0660 Part 500
	Test guidelines for arcing caused by internal faults	IEC61641
Clearance and creepage distance	Rated impulse withstand voltage	8kV
	Overvoltage category	III
	pollution level	3
Rated insulation voltage	1000V	
Rated working voltage	Up to 690V	
Treat the surface	Skeleton	Galvanized electrostatic spraying/painting
	Enclosure	Galvanized electrostatic spraying/painting
	Door	Electrostatic spraying/painting
Standard color	RAL7032	

Cabinet Design

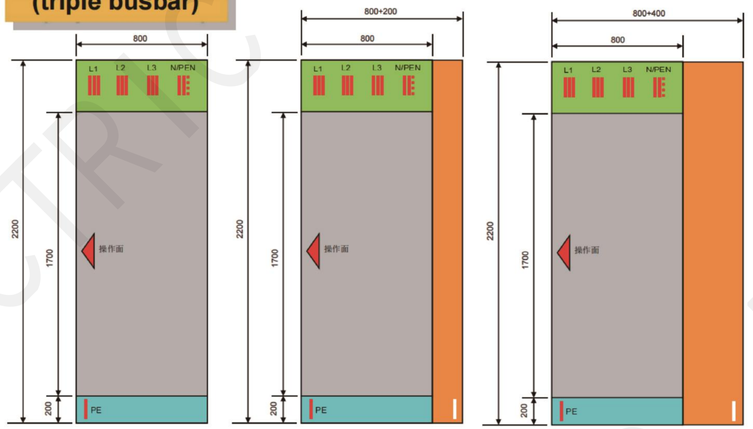
Cabinet			Circuit Breaker Technology	fixed technology			Strip Fuse Technology		Extraction technology
				OFF1	OFF2	OFF3/OFF4	3NJ4 (Fixed)	3NJ6 (Plug-in)	
Top of busbar	Outgoing circuit	Maximum control power of electric motor (kW)	-	-					250kW
		Maximum current of the feeder circuit	6300A	630A					630A
	Internal interval form		1/2/3a/4b	1/2b	4a	3b/4b	1/2b	1/3b/4b	3b/4b
	Protection level		Fume hood-<=1P42;Non-fume hood<=IP54					<=IP41	Fume hood<=IP42;Non-fume hood<=IP54
	Overall Dimensions	Cabinet height(mm) (Main Busbar≤4000A)	2200						
		Cabinet height(mm) (Main Busbar>4000A)	2600						
		Cabinet width(mm)	400/600/800/1000/1200	600/800/1000	1000	800	600/800/1000	1000	600/1000
		Cabinet depth(mm)	600/800/1000/1200	600/800/1000/1200	600/800/1000/1200	1000/1200	600/800/1000/1200	600/800/1000/1200	600/800/1000/1200

OVERALL DIMENSIONS

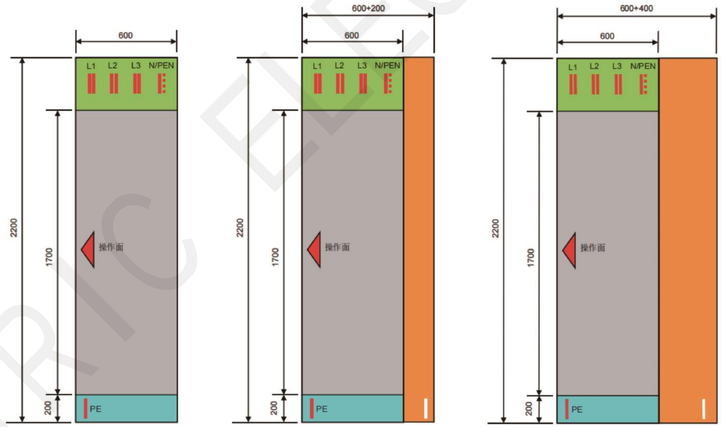
Main structure



Cabinet depth (triple busbar)



Tank depth



POWER FACTOR COMPENSATION SYSTEM

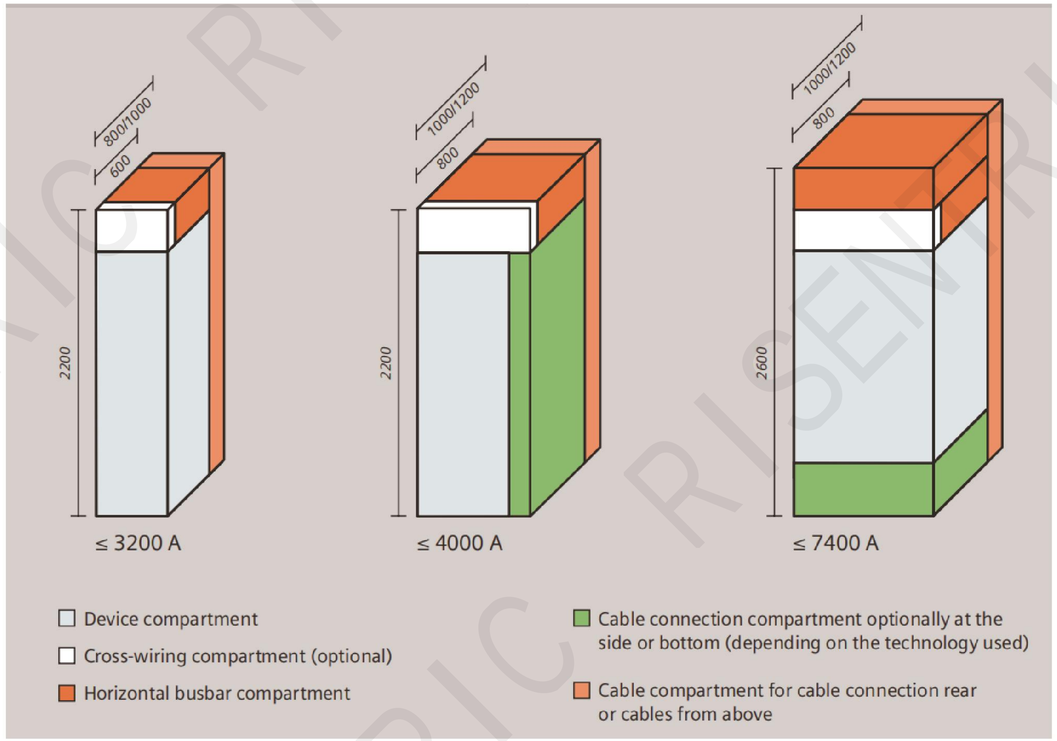
- Components can be freely selected.
- Door with cabinet height or compartment with separate door.
- Functional units can be separated separately.
- The vertical distribution bus is optional with 3 or 4 poles.
- Rated current up to 1200A.
- Rated short-circuit strength
  I_{pk} up to 163 kA
  I_{cw} up to 65 kA

- Non-choke type single unit up to 500kvar
- Choke type up to 350kvar
- Single capacitor modules up to 100kvar
- An electronic power factor automatic compensator mounted on the door is included in the control component
- Cabinet width 800mm

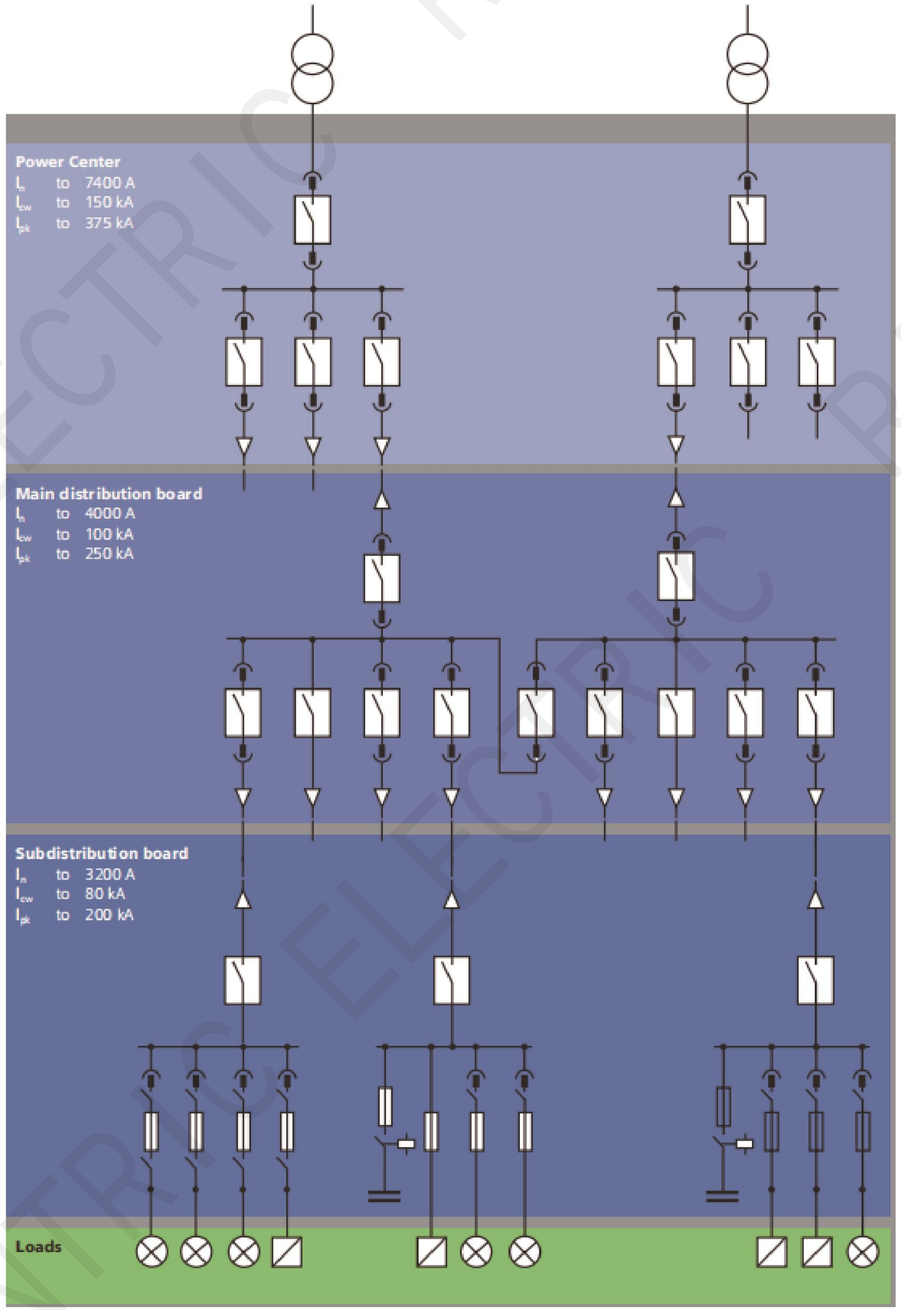
FLEXIBLE CONFIGURATION

Optimized Spatial Adaptability

- Standard horizontal busbar system arranged at the top of the enclosure
- Electrical components can be installed in the equipment compartment regardless of busbar position or panel depth
- Functional units can be partitioned as required (Form 1 to Form 4, in accordance with IEC 60439−1)
- Equipment compartments provide sufficient depth to meet installation requirements
- Suitable for wall−mounted or free−standing installation
- Cables and busbars can be routed from either top or bottom as required
- Cable connection compartment can be arranged at the front or rear of the panel
- Busbar system offers good accessibility for installation and maintenance



APPLICATION STRUCTURE



INSTALLATION AND WIRING

Installation:
- The cabinet shall be installed on the foundation steel according to the drawings and fixed using expansion bolts or chemical anchor bolts. Ensure proper horizontal and vertical alignment, with a tolerance of ⩽ 1 mm/m.
- The layout shall meet operation and maintenance requirements: front operating aisle ⩾ 1000 mm, rear maintenance aisle ⩾ 600 mm.
- The cable trench depth shall generally be no less than 400 mm, and the width shall meet cable entry requirements. The interface between the cabinet bottom and trench shall be properly sealed to prevent water ingress.
- Multiple cabinets shall be assembled tightly with fastening bolts, ensuring neat arrangement without visible misalignment or deformation.
- During busbar installation, contact surfaces shall be clean, polished if necessary, and coated with conductive grease. Bolts shall be tightened according to specified torque.

Earthing:
- The cabinet must be reliably earthed. The PE busbar shall be connected to the site earthing system.
- The cross-sectional area of the earthing conductor shall not be less than 6 mm☒.
- The earthing resistance shall not exceed 4 Ω.
- Equipotential bonding between cabinets shall be ensured using earthing jumpers.
- Cabinet doors shall be connected to the enclosure using flexible copper conductors to ensure grounding continuity.

Wiring:
- Incoming cable ratings shall match the rated current, and main circuit busbar connections shall comply with technical requirements.
- Copper busbar joints shall be treated with anti-oxidation measures to ensure good conductivity.
- Functional unit wiring shall be carried out according to schematic diagrams and terminal numbering, ensuring correct connections.
- Secondary control wiring shall use BV/BVR insulated conductors, with conductor sizes selected as per design requirements.
- Phase sequence of incoming and outgoing circuits shall remain consistent to avoid issues such as reverse motor rotation.
- After wiring, insulation resistance tests and earthing continuity tests shall be performed to ensure there are no short circuits or loose connections.

Commissioning and Acceptance

- Pre-energization:Verify consistency between drawings and component nameplates, check the tightening torque of busbar connections and correctness of wiring, and confirm that protective sealing meets the specified requirements.
- Parameter settings:Set the circuit breaker trip current, thermal overload relay setting current, and protection device operating thresholds according to load requirements.
- Functional tests:
- Opening and closing test:Manually / electrically operate all switching devices to verify flexible and reliable opening and closing.
- Protection test:Simulate short-circuit, overload and other fault conditions to verify accurate operation of protection devices.
- Unit changeover test:Carry out three-position changeover tests for withdrawable / removable units to verify the effectiveness of interlocking functions.
- Documentation and records:Prepare and archive the “Commissioning Record”, “Terminal Schedule”, “Factory / Site Acceptance Checklist”, “Test Report”, and other relevant documents.

Operation and Service

- Automatic / Manual mode:Automatic mode is adopted during normal operation, with protection devices performing automatic monitoring and operation; switch to manual mode during inspection or maintenance.
- Operating procedure:When operating withdrawable / removable units, strictly follow the principle of “open before close”, and proceed to the next operation only after confirming the correct position indication.
- Shutdown operation:Disconnect all functional unit switching devices first, then open the incoming circuit breaker, apply lockout and tagout (LOTO), and carry out maintenance only after voltage verification and earthing in accordance with procedures.

Maintenance (Recommended)

- Quarterly:Clean dust from inside the cabinet and from the surfaces of components, check the status of indicator lamps and position indication windows, and perform spot checks on circuit temperature rise.
- Semi-annually:Re-tighten busbar and terminal connection bolts, check the operational flexibility of switching device mechanisms, and confirm the reliability of earthing connections.
- Annually:Carry out comprehensive functional tests and protection setting verification, inspect insulation condition and sealing performance, replace aged or damaged components, and archive maintenance records.

Risentric

The company is equipped with advanced flexible sheet metal processing production lines, busbar processing production lines, and state-of-the-art manufacturing and testing equipment. By adopting modern information technology, it has fully implemented the CIMS (Computer Integrated Manufacturing System) and PDM (Product Data Management) systems.

Common Faults and Troubleshooting

Fault Description	Possible Causes	Corrective Actions
Circuit breaker cannot close	Control power failure / Closing coil defective	Check control power supply; replace closing coil if necessary
Circuit breaker trips frequently	Overload / Short circuit / Incorrect protection settings	Inspect load and wiring; reset protection parameters
Withdrawable unit stuck	Deformed rails / Mechanical jamming	Clean guide rails; lubricate or replace damaged parts
Excessive temperature inside panel	Poor ventilation / Fan failure / Overloading	Clean ventilation openings; replace fan; reduce load
Insulation degradation or discharge	Moisture / Dust accumulation / Aging	Clean panel; dry out; replace insulation if required
Communication failure	Communication line fault / Incorrect parameter settings	Check communication wiring and parameters

“ Science, truth-seeking, and continuous improvement ”

Packing and Accompanying Documents

- Switchgear Cubicle: 1 set (configured according to the selected model, dimensions, and series).
- Documents Supplied:Primary and secondary wiring diagrams, certificate of conformity, factory inspection report, terminal and circuit list, component manuals, and type test report.
- Accessories:Installation fasteners, spare fuses, and tool kit (supplied as required).

Ordering Information

- Rated Parameters:Rated voltage, rated current, number of poles, short-time withstand current, and degree of protection.
- Enclosure Configuration:Series designation, enclosure dimensions, color, compartmentalization form, and type and quantity of functional units.
- Component Selection:Models and ratings of circuit breakers, contactors, thermal overload relays, surge protective devices (SPD), and other components.
- Installation and Wiring:Incoming and outgoing cable direction, cable specifications, grounding requirements, and configuration of anti-condensation devices.
- Optional / Extended Functions:Arc flash monitoring system, intelligent power distribution management unit (PMU), and communication functions.
- Brand Preference:Customer-specified component brands or standard configuration.

100+ Over 100 professionals

20+ 20 years of manufacturing experience

20000+ Factory footprint 20000 square meter

2000+ Number of satisfied customers 2000+