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Risentric

SHANGHAI RISENTRIC ELECTRIC CO .,LTD

BlokSeT Intelligent Low-voltage Complete Set Of Equipment Manual

Hotline | +86 173 0181 0387

+86 173 0181 0387

info@risentric.com

www.risentric.com

No. 900 Shantong Road, Jinshan District, Shanghai, China

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.

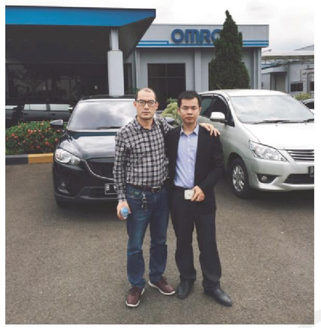
Technological innovation, quality first, integrity-based service, and win-win cooperation are the core business philosophies of Risentric. The company sincerely welcomes customers worldwide to cooperate and achieve shared success.

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

Risentric

BlokSeT Intelligent Low-Coltage Complete Set Of Equipment

PRODUCT INTRODUCTION

Blokset low-voltage switchgear offers a wide range of cubicle types to meet different application requirements. It provides functions such as power distribution, motor protection, and power factor correction, and is suitable for all low-voltage systems requiring high reliability.

Excellent Performance

- Industry-leading electrical performance to meet diverse customer requirements.
- Anti-corrosion and salt mist resistant solutions, designed to withstand harsh site environments.
- Excellent EMC (Electromagnetic Compatibility) performance, ensuring strong immunity against electromagnetic interference on site.
- Rated up to 690 V, 85 kA for 0.5 s arc fault withstand, and seismic resistance up to 9 degrees, ensuring operational safety and reliability under severe vibration and seismic conditions.

Applicable Standards

Complies with Major International Standards:

- GB/T 7251.1/12
- GB/T 18859
- GB/T 2424.25
- IEC/EN 61439-1/2.2011

Basic Electrical Parameters

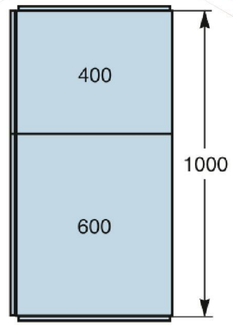
General Data		
Application scenarios		Power distribution
		Motor control
IS (Operations and Maintenance Index)		211 to 333
Reference Standard		IEC 60529 IEC 61439-1/2 IEC 61641 GB/T 7251.1/2 GB/T 7251.8 GB/T 18859 GB/T 2424.25
Climate tolerance	Moist heat tolerance	IEC 60068-2-30
	Dry heat tolerance	IEC 60068-2-2
	Low temperature tolerance	IEC 60068-2-1
	Salt spray tolerance	IEC 60068-2-11
Installation location		indoor
Environment		Category 2
Mechanical data		
Cable entry/exit		Top/Bottom
Wiring method		front */back
Protection level		IP20~54
Isolation method		1/2b/3a/3b/4b
Connection method		fff/WWW
Dimensions (mm)	Height	2200*
	Width	400/600/700/800/900/1000/1100/1200/1300/1400/1600
	Depth	600/1000
Average weight per unit		650 kg
Casing		Epoxy resin powder coating >50μm
Casing color		RAL9003/RAL7016
Electrical data		
Rated insulation voltage (Ui)		1000V
Rated operating voltage (Ue)		400/690*V AC
Rated frequency (f)		50/60 Hz
Rated impulse voltage (Uimp)		12 kV
Rated auxiliary circuit voltage		230 VAC max.
Overvoltage level		IV
Pollution level		3
Horizontal busbar rating		Maximum up to 7000A
Vertical busbar rating		Maximum up to 3200A
Horizontal busbar	Rated short-time withstand current (Icw/1s)	30/50/65/80/100 kA
	Rated peak withstand current (Ipk)	63/105/143/176/220 kA
Vertical busbar	Rated short-time withstand current (Icw/1s)	30/50/65/70/80 kA
	Rated peak withstand current (Ipk)	63/105/143/154/176 kA
Internal combustion arc protection IEC 61641 V3		85kA 0.5s(Ipc arc),65kA 0.3s(Ip arc)
Its seismic resistance meets GB/T2424.25 standards.		Earthquake intensity 9 degrees
grounding system		TT-IT-TNS-TNC
Maximum incoming/outgoing line switch		6300 A
Maximum motor capacity		250 kW

STRUCTURE AND COMPONENTS

PRODUCT STRUCTURE OVERVIEW

Enclosure

BlokSeT can be supplied with different enclosure protection degrees on request, ranging from IP20 to IP54. The enclosure is epoxy polyester powder coated. The standard color is Signal White (RAL 9003), while the ventilation louvers are Dark Grey (RAL 7016).
All non-live metal parts are reliably earthed and provided with clear earthing marks to ensure operator safety.



Framework

The BlokSeT framework is assembled from standard prefabricated components and is provided with pre-punched modular spacing holes. The standard BlokSeT module is 1M = 50 mm. By combining frames of different dimensions, switchgear cubicles with various widths and depths can be configured.
The main structure adopts a bolted assembly design, ensuring that no deformation occurs under normal conditions of transportation, storage, and installation.

Internal Compartments

The framework structure is divided into a busbar compartment, an equipment compartment, and a cable compartment.
The main busbars and distribution busbars are arranged in the busbar compartment.
Switching devices such as circuit breakers, contactors, variable frequency drives, and capacitors are installed in the equipment compartment.
Incoming and outgoing cables, interconnections between functional units, and accessories are accommodated in the cable compartment.
The internal structure of the cubicle is strictly segregated into equipment, busbar, wiring, and metering zones. These zones are separated from each other by metal partitions to ensure operational safety.

Functional Unit

In the switchgear, switching devices are mounted on mounting plates. The combination of the mounting plate and the switching devices is referred to as a functional unit.
According to IEC 61439-1/2, a functional unit is defined as a part of a low-voltage switchgear and controlgear assembly consisting of all electrical and mechanical components that together perform the same function.
The height of a functional unit is determined by the number of 50 mm modules it occupies.

GENERAL INTRODUCTION

Cabinet Type	D	Mx		Dc	Dp	Da	Ms
Function							
	Distribution Cabinet	Drawer Cabinet	Mixed Drawer Cabinet	Capacitor Cabinet	Active Harmonic Filter Cabinet	Dual Power Supply Cabinet (ATS Cabinet)	VFD & Soft Starter Cabinet
Main Busbar							
Rated Current / Rated Capacity	Up to 3200 A	Up to 2100 A		Capacitor & reactor compensation up to 400 kvar Static VAR compensation up to 600 kvar	Compensation current up to 600 A	Up to 4000 A	Up to 3200 A
Rated Peak Withstand Current	63/105/143/176kA	63/105/143/154/176kA		63kA	63kA	143kA	63/105/143/187kA
Rated Short-Time Withstand Current	30/50/65/80kA	30/50/65/70/80kA		30kA	30kA	65kA	30//50/65/85kA
Outgoing Feeder							
Motor	-	Up to 250 A		-	-	-	Up to 315 kW
Power Distribution	Up to 6300 A	Up to 630 A	Up to 1600 A	-	-	Up to 4000 A	-
Mechanical Characteristics							
Overall Height	2200mm	2200mm*		2200nm*	2200mm*	2200mm*	2200mm*
Effective Height (1 module = 50 mm)	40 Modules	40 Modules		40 Modules	40 Modules	40 Modules	40 Modules
Width	400,600,700,800,900,1000,1100,1200,1300,1400,1600mm	600,1000mm*		600,800,1000mm	600,1000mm	1000,1200mm	600,800,1000,1200,1600mm
Depth	600,1000mm	600,1000mm		600,1000mm	1000mm	1000mm	600,1000mm
Functional Unit Type	fff	WWW		fff	fff	fff	fff
Separation Form	1/2b/3a/3b/4b	3b/4b		1/2b	1/2b	1/2b	1/2b/3b/4b

*For specific solutions, please contact us.

SOLUTION INTRODUCTION

BlokSeT D

Incoming and Feeder Solutions up to 6300 A
BlokSeT D meets protection requirements for high-power incoming feeders, outgoing feeders, bus couplers, and dual power supply changeover applications.
Up to three air circuit breakers can be installed in a single cubicle.

Solutions up to 4000 A
Basic framework cubicle widths: 400 mm, 600 mm, or 700 mm
- Three 800 – 1600 A Masterpact MTZ1 / MT / Compact NS
- Two 2000 – 2500 A Masterpact MTZ2 / MT
- One 3200 – 4000 A Masterpact MTZ2 / MT

Solutions above 4000 A;Cubicle width: 1000 mm or 1200 mm
- One 4000 – 6300 A Masterpact MTZ3 / MT

Distribution Circuits up to 630 A
A safe and reliable fixed distribution solution is provided, with the following circuit breaker options:

- Acti9 / Easy9 series miniature circuit breakers, 1 – 125 A
- Compact NSX series circuit breakers, 100 – 630 A,
compatible with PowerTag NSX wireless measurement and diagnostic modules configuration options
- Standard configuration:Up to 12 units ⩽ 250 A;Up to 9 units ⩽ 630 A
- High-density configuration:Up to 24 units ⩽ 250 A

BlokSeT Mx

MX provides safe, reliable, and intelligent withdrawable switchgear solutions.

Standards
Complies with major international standards:
- GB/T 7251.1 / 7251.12
- GB/T 18859
- GB/T 2424.25
- IEC / EN 61439-1 / 61439-2:2011

Structure
- Metal framework: folded sheet metal construction
- Frame structure: C-profile modular structural design
- Surface treatment: epoxy polyester powder coating with high-temperature curing
- Plastic components: dedicated supports for exposed live conductors with self-extinguishing properties

Connections
- Rear connection
- Front connection
- Top or bottom cable entry and exit

Switching Devices
- Three-pole or four-pole

BlokSeT Ms

Variable Frequency Drive and Soft Starter Cabinets

The following series of variable frequency drives and soft starters can be installed:
- Variable frequency drives: ATV630 / ATV930
- Soft starters: ATS480

Key Features

Variable frequency drive and soft starter applications are characterized by high heat dissipation. Dedicated designs and validation tests have been carried out for these applications to verify the operational stability of the standard solution and to ensure that the rated performance is achieved during operation.

BlokSeT Dc

Reactive Power Compensation Cabinets

- EasyCan series conventional low-voltage compensation products provide customers with a variety of cost-effective reactive power compensation solutions for environments with different levels of harmonic pollution.
In addition, solutions with three-phase common compensation capacitors and three-phase individual compensation capacitors are available to meet the requirements of balanced and unbalanced three-phase loads, respectively.

- VCK series conventional low-voltage compensation products offer higher performance, greater adaptability to harsh application environments, and a wider range of voltage ratings, making them particularly suitable for reactive power compensation in industrial applications.

Key Features

Capacitor cabinet applications are characterized by high heat dissipation and therefore require efficient ventilation and cooling of the enclosure. Dedicated designs and validation tests have been carried out for these applications to verify the operational stability of the standard solution and the safety of components, ensuring that rated performance is achieved during operation.

BlokSeT Dc

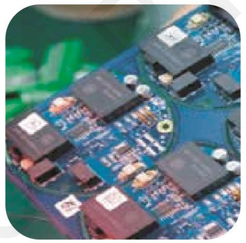
Reactive Power Compensation Cabinet

Static Var Generator (SVG)

AccuSine PQU is a new-generation modular SVG product developed based on advanced power electronics technology. It is a comprehensive power quality solution designed to address various power quality issues. In addition to power factor correction, it also provides three-phase unbalance compensation and filtering of 2nd to 25th order harmonics. AccuSine PQU is widely applicable in industrial facilities, telecommunications, and commercial buildings.

Key Features

The solution adopts the AccuSine PQU modular rack-mounted design.
A single cabinet supports up to six power modules, delivering a maximum compensation capacity of 600 kvar.
According to application requirements, the system can also be combined with capacitor and reactor units to form a hybrid compensation solution.
Dedicated design and validation have been carried out for this application to ensure the safety and operational stability of the standard solution during continuous operation.



BlokSeT Dp

Active Harmonic Filter Cabinet

Active Harmonic Filter

AccuSine PCSU provides 2nd to 51st harmonic filtering capability, featuring fast dynamic response and high filtering efficiency.
With a modular design, the system offers a compact footprint and lightweight structure, enabling easy system expansion and retrofit.
It is widely applicable to industrial facilities, data centers, commercial buildings, and metro transportation systems, effectively improving overall power quality.

Key Features

The solution adopts the AccuSine PCSU modular rack-mounted design.
A single cabinet supports a maximum harmonic compensation capacity of 600 A.
According to application requirements, the system can also be combined with capacitors and reactors to form a hybrid compensation solution.
Dedicated design and validation have been carried out for this application to ensure the safety and operational stability of the standard solution during operation.

INSTALLATION AND WIRING

● The BlokSeT installation site shall be clean. The floor must be flat, with a level deviation not exceeding 2 mm per meter.
● A minimum clear space of 1200 mm shall be provided (see Figure 1) to allow cabinet door opening and operator maintenance.
● A minimum clear space of 1200 mm shall be provided in front of the BlokSeT cabinet.
(1600 mm for 6300 A ratings), to allow full door opening, maintenance, or the use of lifting equipment where applicable.
● Space shall be reserved for future expansion.
● Top cable entry.
○ A minimum clear space of 600 mm shall be provided above the BlokSeT cabinet
● Bottom cable entry .
● Two options are available for cable routing:
○ Through trenches beneath the cabinet. The trench depth shall be at least 600 mm to accommodate different cable bending radii.
○ Alternatively, through a raised floor. In this case, holes must be drilled in the floor to allow cable routing.

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 imple-mented the CIMS (Computer Integrated Manufacturing System) and PDM (Product Data Management) systems.

Common Faults and Troubleshooting

Phenomenon	Common Causes	Corrective Actions
Circuit breaker cannot be closed	1) Trip unit not reset; 2) Spring charging not completed; 3) Interlock not in position	1) Reset the trip unit; 2) Charge the spring manually/electrically; 3) Check and adjust the interlock
Circuit breaker trips frequently	1) Load overload; 2) Protection settings too low; 3) Line short circuit / earth leakage	1) Reduce load or increase capacity; 2) Reset protection settings; 3) De-energize and locate the short-circuit point
Overheating at wiring / contacts	1) Loose bolts; 2) Contact oxidation; 3) Poor ventilation	1) Tighten bolts with a torque wrench; 2) Polish oxidized surfaces and replace damaged contacts; 3) Clean ventilation/heat dissipation holes
Drawer / operating mechanism sticking	1) Foreign objects in rail / looseness; 2) Mechanism rust / insufficient lubrication	1) Clean the rail and tighten screws; 2) Remove rust and apply dedicated lubricant
Abnormal indicator light (off / flashing)	1) Indicator lamp damaged; 2) Secondary circuit fault; 3) Fuse blown	1) Replace the indicator lamp; 2) Check circuit wiring / relays; 3) Replace the fuse

“ Science, truth-seeking, and continuous improvement ”

Packing and Accompanying Documents

- Switchgear cabinet: 1 unit (configured according to the selected size and series)
- Supplied with the cabinet:Primary and secondary wiring diagrams, certificate of conformity, factory test report, terminal / circuit list, component manuals, and type test report
- Accessories:Installation fasteners, spare fuses, and tool kit (configured as required)

Ordering Information

- Rated parameters: rated voltage, rated current, number of poles, short-time withstand current, degree of protection
- Cubicle configuration: series, cubicle dimensions, color, form of internal separation, type and quantity of functional units
- Component selection: models and ratings of circuit breakers, contactors, thermal overload relays, SPD, etc.
- Installation and wiring: incoming and outgoing cable directions, cable specifications, earthing requirements, configuration of anti-condensation devices
- Expansion requirements: arc flash detection system, intelligent power distribution management unit (PMU), communication functions, etc.
- Brand preference: 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+