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Suzhou Future Electrical Appliances Co.,Ltd.

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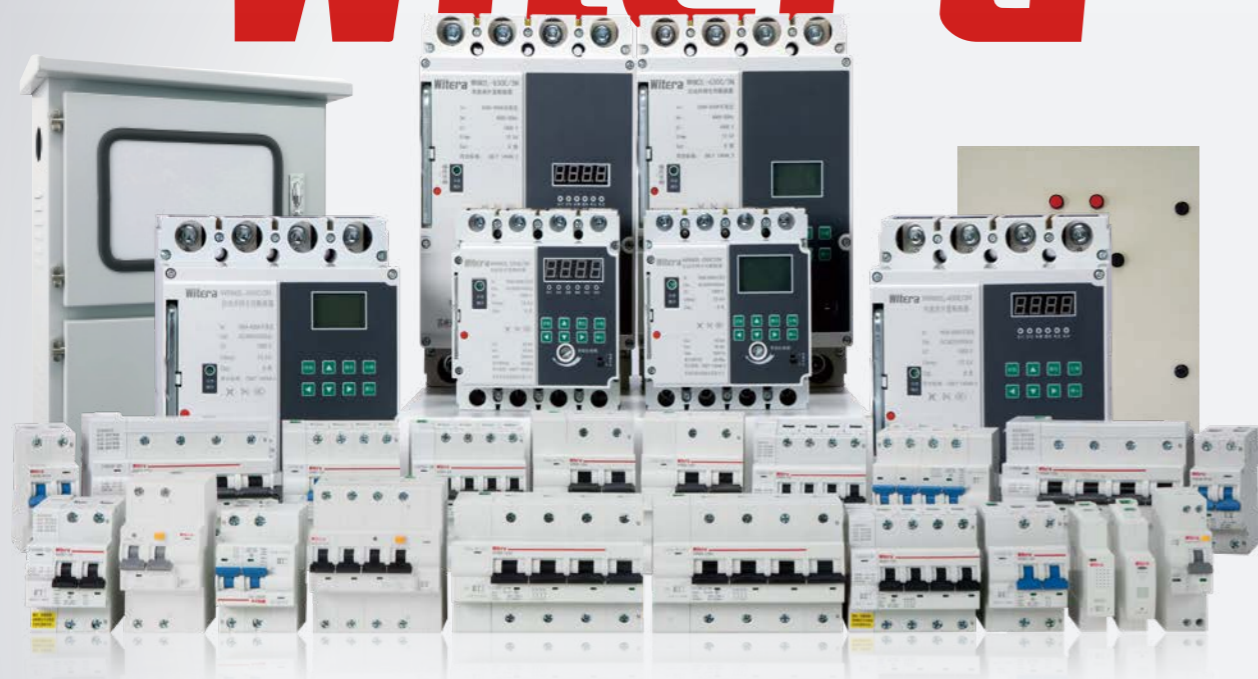
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因产品技术需不断改进,所有数据应以本公司技术部门最新确认为准。
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苏州未来电器股份有限公司
Suzhou Future Electrical Appliances Co.,Ltd.

Witera®



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ENTERPRISE CULTURE

企业文化

THE FUTURE STARTS TODAY.

企业精神

未来从今天起步

企业使命

让用电管理安全便捷

企业愿景

成为全球智能开关附件的领军企业

ENTERPRISE SPIRIT

The future starts today.

ENTERPRISE MISSION

Make electricity management more safe and convenient.

ENTERPRISE VISION

Become the global leader of intelligent circuit breaker accessories.

ENTERPRISE CULTURE

公司简介

Witera® 未来电器

企业精神

未来从今天起步

Enterprise Spirit

The future starts today

苏州未来电器股份有限公司是一家专业从事低压断路器功能附件研发、制造和销售的上市公司(股票代码301386)。产品线覆盖了塑壳断路器附件、框架断路器附件及微型断路器附件(智能终端电器)。其中以智能控制模块为核心的智能终端产品广泛应用于智能电网、智能楼宇、通信基站、轨道交通、分布式光伏、安防监控等无人值守的领域。

企业使命

让用电管理安全便捷

Enterprise Mission

Make electricity management safe and convenient

公司创立至今已有30余年,通过不断的研发投入和技术经验积累,奠定了低压电器功能附件这一细分领域的龙头地位。公司全员超600多人,拥有研发人员近70余人,其中博士3人,教授3人,研究生及中高级职称50余人。公司与河北工业大学合作建立了国内首个断路器附件的可靠性试验基地。同时,公司与上海电器科学研究所、清华大学、苏州大学、南京理工大学、常熟理工学院等院校建立了长期合作关系,为公司新产品、新技术的研发提供了有力的支撑。

企业愿景

成为全球智能开关附件的领军企业

Enterprise Vision

Become the global leader of intelligent electrical accessories

公司先后被评为江苏省高新技术企业、国家级专精特新小巨人企业、江苏省五星级上云企业、江苏省企业技术中心、江苏省工程技术研究中心、江苏省专利重点保护企业和江苏省工业互联网标杆工厂。公司拥有CNAS认可的国家级实验室,建有国家级博士后工作站。且公司为中国电器工业协会常务理事单位。拥有社会、行业和客户认可的多种奖项。

公司愿景:成为全球智能开关附件的领军企业。打造一个拥有智能制造、智能管理、智能产品、智能服务的智慧工厂。承担绿色、环保、高效、节能的社会责任。

Suzhou Future Electrical Appliances Co., Ltd. is a listed company (stock code 301386) specializing in the research and development, manufacturing, and sales of low-voltage circuit breaker functional accessories. Its products cover MCCB accessories, ACB accessories, and MCB accessories (intelligent terminal apparatus). The intelligent terminal products with the intelligent control modules as the core are widely used in unmanned fields such as smart grids, intelligent buildings, communication base stations, rail transit, distributed photovoltaics, security monitoring, etc.

The company has been established for more than 30 years and has established a leading position in the field of low-voltage electrical functional accessories through continuous research and development investment and technical experience accumulation. The company has over 600 employees and nearly 70 research and development personnel, including 3 PhDs, 3 professors, and more than 50 graduate and senior professional titles. The company has collaborated with Hebei University of Technology to establish the first reliability testing base for circuit breaker accessories in China. At the same time, the company has established long-term cooperative relationships with institutions such as Shanghai Electrical Science Research Institute, Tsinghua University, Suzhou University, Nanjing University of Technology, and Changshu Institute of Technology, providing strong support for the research and development of new products and technologies for the company.

The company has been successively rated as a high-tech enterprise in Jiangsu Province, Nation specialized and Innovative Small and Medium-sized Enterprises, a five-star cloud enterprise in Jiangsu Province, a Jiangsu Enterprise Technology Center, a Jiangsu Engineering Technology Research Center, a key patent protection enterprise in Jiangsu Province, and a benchmark factory for industrial internet in Jiangsu Province. The company has a national laboratory recognized by CNAS and a national postdoctoral workstation. And the company is an executive director unit of the China Electrical Industry Association. Has multiple awards recognized by society, industry, and customers.

Company Vision: To become a leading enterprise in the global intelligent circuit breaker accessories industry. And to build a smart factory with intelligent products, intelligent manufacturing, intelligent management, intelligent products, and intelligent services. Undertake the social responsibility of being green, environmentally friendly, efficient, and energy-saving.



HONORARY & QUALIFICATION

荣誉资质

发明专利

Patent for Invention

26

专利

Patent

170+

国家级实验室

National level laboratory



公司荣誉

未来电器先后被评为江苏省高新技术企业、国家级专精特新小巨人企业、江苏省五星级上云企业、江苏省企业技术中心、江苏省工程技术研究中心、江苏省专利重点保护企业和江苏省工业互联网标杆工厂。公司拥有CNAS认可的国家级实验室，建有国家级博士后工作站。拥有专利170项，其中发明专利26项。

Honorary & Qualification

Suzhou Future has been successively awarded as a high-tech enterprise in Jiangsu Province, Nation specialized and Innovative Small and Medium-sized Enterprises, a five-star cloud enterprise in Jiangsu Province, an enterprise technology center in Jiangsu Province, an engineering technology research center in Jiangsu Province, a key patent protection enterprise in Jiangsu Province, and a benchmark factory for industrial internet in Jiangsu Province. The company has a national laboratory recognized by CNAS and a national postdoctoral workstation. We have 170 patents, including 26 invention patents.

公司体系

公司始终将产品质量视为企业发展的根本，稳定、可靠的品质在业内得到广泛认可。公司建立完备的质量管理组织架构，配备了经验丰富的质量管理人员，持续推行并不断完善ISO9001质量保证体系、ISO14001环境管理体系、ISO45001职业健康安全管理体系，CNAS体系，以不断优化的精益化生产和6S现场管理水平，保证给客户高质量的产品。同时，公司通过建立并执行一系列管理制度，如ERP、WMS、MES、EHR、OA等，将质量控制贯穿于研发设计、原料采购、生产加工、现场管理、检验和试验、安装和售后服务的产全生命周期中，以保证公司产品品质的高度一致性和稳定性。

Quality Management System

The company always regards product quality as the foundation of enterprise development, and stable and reliable quality is widely recognized in the industry. The company has established a comprehensive quality management organizational structure, equipped with experienced quality management personnel, and continuously promotes and improves the ISO9001 quality assurance system, ISO14001 environmental management system, ISO45001 occupational health and safety management system, and CNAS system. With continuously optimized lean production and 6S on-site management level, it ensures to provide customers with high-quality products. At the same time, the company establishes and implements a series of management systems, such as ERP, WMS, MES, EHR, OA, etc., to integrate quality control throughout the entire product lifecycle of research and development design, raw material procurement, production processing, on-site management, inspection and testing, installation, and after-sales service, in order to ensure high consistency and stability of the company's product quality.

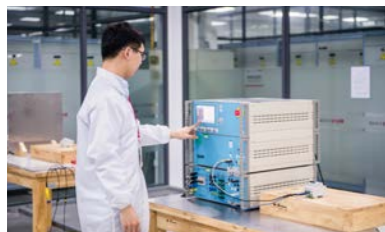


ENTERPRISE CAPABILITIES

公司能力

研发设计能力

R&D design capabilities



公司拥有一支在低压断路器附件领域技术过硬、经验丰富的超过60人的技术研发团队。研发力量充实,拥有低压断路器附件各相关领域全面的基础技术研究积累。经过在低压断路器附件技术领域的长期积累与持续的研发投入,公司形成了先进的技术创新和产品研发体系,拥有丰厚的研发成果,申请了一系列相关发明专利共计40余项,其中已授权20余项。

公司建立了通过中国合格评定国家认可委员会(CNAS)认可的企业实验室,有EMC、RoHS、环境试验、盐雾、理化分析、电气性能、机电寿命、可靠性、计量验证10个实验室,可承担80多项实验项目,为研发提供强有力的支撑和保障。

The company has a technical research and development team of over 60 people with excellent technology and rich experience in the field of low-voltage circuit breaker accessories. We have a strong R&D team and a comprehensive accumulation of basic technology research in various related fields of low-voltage circuit breaker accessories. After long-term accumulation and continuous research and development investment in the field of low-voltage circuit breaker accessory technology, the company has formed an advanced technology innovation and product research and development system, with rich research and development achievements. It has applied for a series of related invention patents, totaling more than 40, of which more than 20 have been authorized.

The company has established an enterprise laboratory recognized by the China National Accreditation Service for Conformity Assessment (CNAS), consisting of 10 laboratories including EMC, RoHS, environmental testing, salt spray, physicochemical analysis, electrical performance, mechanical and electrical life, reliability, and metrological verification. It can undertake more than 80 experimental projects, providing strong support and guarantee for research and development.

生产制造能力

Production Capabilities

公司拥有1.3亿高端装备1000+台套。从模具设计与制造、钣金加工、金属切削、各类焊接(并拥有成熟的真空电子束焊接工艺,设备为德国进口高端品牌)、注塑成型、SMT加工、总装、检测、智能仓储全工艺生产制程。从传统制造快速向自动化、数字化、智能化转型。打造产品全生命周期透明工厂,实现质的跨越。

The company has over 1000 sets of high-end equipment worth 130 million yuan. The entire production process includes mold design and manufacturing, sheet metal processing, metal cutting, various types of welding (with mature vacuum electron beam welding technology and high-end German imported equipment), injection molding, SMT processing, final assembly, testing, and intelligent warehousing. Rapid transformation from traditional manufacturing to automation, digitization, and intelligence. Create a transparent factory throughout the entire product lifecycle to achieve quality breakthroughs.



品质保证

Quality Assurance

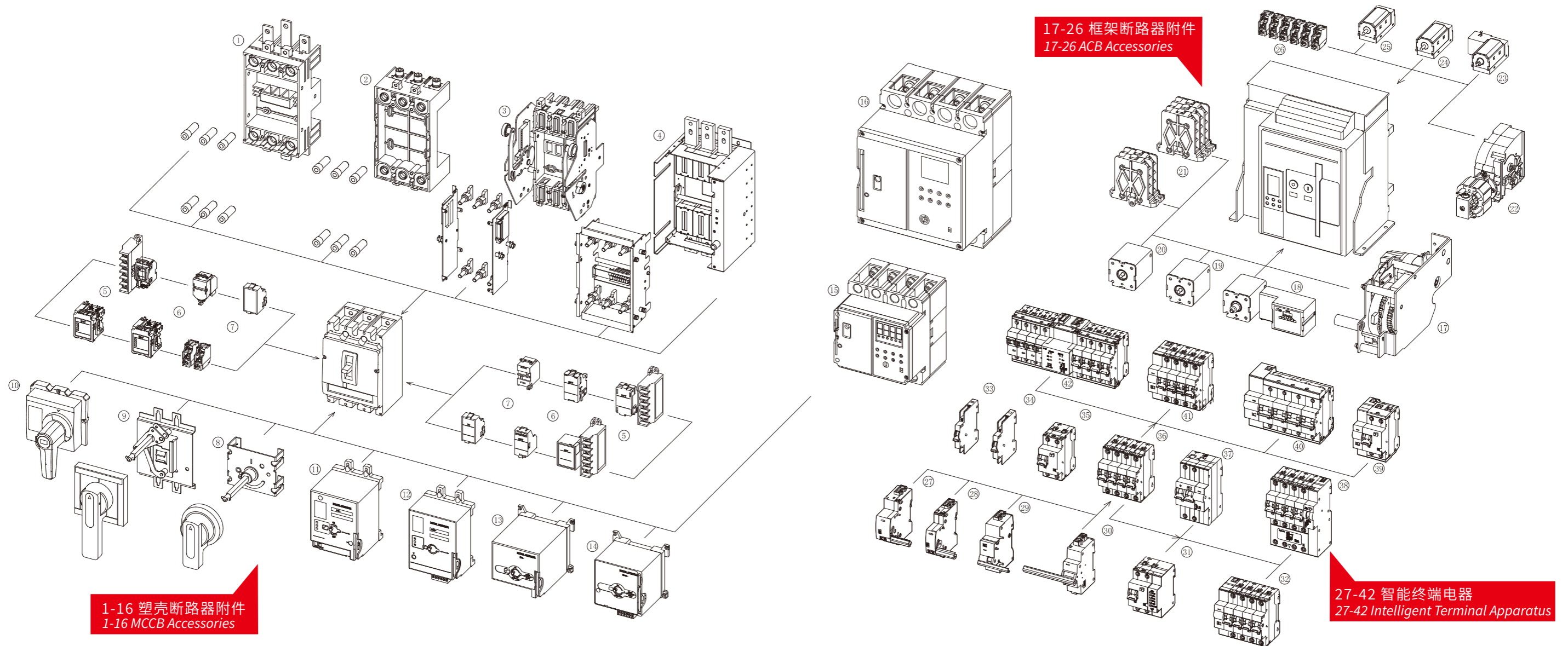
公司始终将产品质量视为企业发展的根本,稳定、可靠的品质在业内得到广泛认可。公司建立完备的质量管理组织架构,配备了经验丰富的质量管理人员,持续推行并不断完善ISO9001质量保证体系、ISO14001环境管理体系、ISO45001职业健康安全管理体系,CNAS体系,以不断优化的精益化生产和6S现场管理水平,保证给客户提供高质量的产品。同时,公司通过建立并执行一系列管理制度,如ERP、WMS、MES、EHR、OA等,将质量控制贯穿于研发设计、原料采购、生产加工、现场管理、检验和试验、安装和售后服务的产品全生命周期中,以保证公司产品品质的高度一致性和稳定性。

The company always regards product quality as the foundation of enterprise development, and stable and reliable quality is widely recognized in the industry. The company has established a comprehensive quality management organizational structure, equipped with experienced quality management personnel, and continuously promotes and improves the ISO9001 quality assurance system, ISO14001 environmental management system, ISO45001 occupational health and safety management system, and CNAS system. With continuously optimized lean production and 6S on-site management level, it ensures to provide customers with high-quality products. At the same time, the company establishes and implements a series of management systems, such as ERP, WMS, MES, EHR, OA, etc., to integrate quality control throughout the entire product lifecycle of research and development design, raw material procurement, production processing, on-site management, inspection and testing, installation, and after-sales service, in order to ensure high consistency and stability of the company's product quality.



PRODUCT SERIES

产品系统



1-16 塑壳断路器附件
1-16 MCCB Accessories

17-26 框架断路器附件
17-26 ACB Accessories

27-42 智能终端电器
27-42 Intelligent Terminal Apparatus

塑壳断路器附件：

- 1 MZ2-63~800一体式插入式接线座
- 2 MZ3-63~800一体式插入接线座
- 3 CH2-400~800杠杆式抽出式装置
- 4 CH3-800~1600螺杆式抽出式装置
- 5 QT30~39系列欠电压脱扣器
- 6 FT30~39系列分励脱扣器
- 7 FC, FB30~39系列辅助报警触头
- 8 CS1-63~800中心式手动操作机构(可配套A型、F型、F2型手柄)
- 9 CS2-63~800偏心式手动操作机构(可配套A型、F型、F2型手柄)
- 10 CS3-63~800塑壳手动操作机构(可配套A型、F型、F2型手柄)
- 11 CD2-63~1600电动操作机构
- 12 CD2B-63~1600电动操作机构
- 13 CD4-200~800电动操作机构
- 14 CD4B-100~800电动操作机构
- 15 WRM2L-250电能表外置塑壳断路器
- 16 WRM2L-400剩余电流动作断路器

框架断路器附件：

- 17 CDW45系列框架断路器电动操作机构
- 18 QTW45系列框架断路器欠电压脱扣器
- 19 FTW45系列框架断路器分励脱扣器
- 20 BGW45系列框架断路器闭合电磁铁
- 21 FCW45系列框架断路器辅助触头
- 22 CDW450系列框架断路器电动操作机构
- 23 QTW450系列框架断路器欠电压脱扣器
- 24 FTW450系列框架断路器分励脱扣器
- 25 BGW450系列框架断路器闭合电磁铁
- 26 FCW450系列框架断路器辅助触头

智能终端电器：

- 27 MT3电动操作机构
- 28 MT2电动操作机构
- 29 西门子5TT电动操作机构
- 30 过欠压模块
- 31 AFDD电弧故障保护器
- 32 FAR6-W100电能表外置断路器
- 33 OF6辅助开关
- 34 SD6报警开关
- 35 WRB6LE-80漏电断路器
- 36 WRB6-100小型断路器
- 37 WRB6Z-80智能漏电断路器
- 38 WRB7LE-100漏电断路器
- 39 FAR6-L80漏电重合闸
- 40 FAR6-W125H电能表外置断路器
- 41 FAR6B-GD100光伏并网专用断路器
- 42 FDQ5B-100自动转换开关

01

塑壳断路器功能附件
MCCB ACCESSORIES

塑壳断路器电动操作机构

电动操作机构是塑壳断路器进行远距离闭合、断开和再扣操作的一个重要执行机构。随着低压电器远程控制、集中控制、自动控制 and 可通信、智能化的发展，电动操作机构的可靠性、安全性及满足不同场合、不同层次、不同功能的多样性需求愈显重要，可分为：CD2 电动操作机构、CD2B 电动操作机构、CD4 电动操作机构、CD4B 电动操作机构、EMT 电动操作机构、SMT 储能电动操作机构。

MCCB Motor Operator

The motor operator is an important execution unit for remote closing, breaking, and re-tripping operations of molded case circuit breakers. With the development of remote control, centralized control, automatic control, communication, and intelligence of low-voltage electrical appliances, the reliability, safety, and diverse needs to meet different occasions, levels, and functions of motor operator are becoming increasingly important. The product series includes CD2, CD2B, CD4, CD4B, EMT, and SMT energy storage.

● CD2型电动操作机构

CD2型电操远程控制断路器分合，可配装63A~1600A的绝大多数断路器，操作简单快捷，适用电压宽，功耗低，动作稳定，使用寿命长。

CD2 Motor Operator

The CD2 motor operator can remotely control the opening and closing of circuit breakers, and can be equipped with most circuit breakers within the range of 63A-1600A. The operation is simple and fast, suitable for a wide voltage range, low power consumption, stable operation, and long operation life

产品名称	Description
型号	Model
额定工作电压	Rated operational voltage
额定工作电流	Rated operational current
额定绝缘电压	Rated insulation voltage
额定冲击耐受电压	Rated impulse withstand voltage
机械寿命	Mechanical life



电动操作机构 / Motor Operator

电动操作机构 / Motor Operator			
CD2-63~1600			
DC24V	AC/DC110V	AC/DC220V	AC380V
3A/6A	1A	0.8A	0.8A
500V			
4.5KV			
10000次以上			

● CD4型电动操作机构

CD4型电操是为电子式断路器专门开发的一款产品，其可以避让电子操作部分，与断路器配合整体性强，采用断路器面盖孔安装。

CD4 Motor Operator

The CD4 motor operator is a product specially developed for electronic circuit breakers, which can avoid electronic operation parts and has strong overall compatibility with the circuit breaker. It is installed using the circuit breaker cover hole.

产品名称	Description
型号	Model
额定工作电压	Rated operational voltage
额定工作电流	Rated operational current
额定绝缘电压	Rated insulation voltage
额定冲击耐受电压	Rated impulse withstand voltage
机械寿命	Mechanical life



电动操作机构 / Motor Operator

电动操作机构 / Motor Operator			
CD4-100~800			
DC24V	AC/DC110V	AC/DC220V	AC380V
3A/6A	1A	0.8A	0.8A
500V			
4.5KV			
10000次以上			

● CD2B型电动操作机构

CD2B电操高度比CD2型的降低1/3, 可适应更多的使用场合; 采用一体式插拔端子, 更方便美观。

CD2B Motor Operator

The height of the CD2B is reduced by 1/3 compared to the CD2, which can adapt to more usage situations; Adopting integrated plug-in terminals for more convenience and aesthetics.



产品名称	Description	电动操作机构 / Motor Operator		
型号	Model	CD2B-63-800		
额定工作电压	Rated operational voltage	DC24V	AC/DC110V	AC/DC220V
额定工作电流	Rated operational current	3A/6A	1A	0.5A
额定绝缘电压	Rated insulation voltage	500V		
额定冲击耐受电压	Rated impulse withstand voltage	4.5KV		
机械寿命	Mechanical life	10000次		

● CD4B型电动操作机构

CD4B型电操高度比CD4型的降低1/3, 可适应更多的使用场合; 采用一体式插拔端子, 更方便美观。

CD4B Motor Operator

The height of the CD4B is reduced by 1/3 compared to the CD4, which can adapt to more usage situations; Adopting integrated plug-in terminals for more convenience and aesthetics.



产品名称	Description	电动操作机构 / Motor Operator		
型号	Model	CD4B-100-800		
额定工作电压	Rated operational voltage	DC24V	AC/DC110V	AC/DC220V
额定工作电流	Rated operational current	3A/6A	1A	0.5A
额定绝缘电压	Rated insulation voltage	500V		
额定冲击耐受电压	Rated impulse withstand voltage	4.5KV		
机械寿命	Mechanical life	10000次以上		

● EMT型电动操作机构

EMT型电操为高防护, 易安装型经济电操, 采用一体式插拔端子或端子式接线方式, 适合不同的使用环境要求。

EMT Motor Operator

The EMT type is a highly protective and easy to install economical electric operator, adopting an integrated plug-in terminal or terminal type wiring method, suitable for different usage conditions.



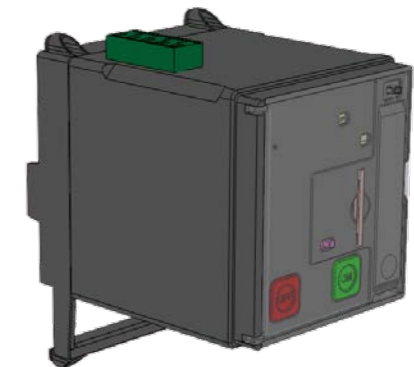
产品名称	Description	电动操作机构 / Motor Operator			
型号	Model	EMT-63-800			
额定工作电压	Rated operational voltage	DC24V	AC/DC110V	AC/DC220V	AC380V
额定工作电流	Rated operational current	3A/6A	1A	0.5A	0.5A
额定绝缘电压	Rated insulation voltage	500V			
额定冲击耐受电压	Rated impulse withstand voltage	4.5KV			
机械寿命	Mechanical life	10000次以上			

● SMT型储能电动操作机构

SMT型电操为快速瞬动合闸的电操 (俗称储能电操), 采用一体式插拔端子的接线方式, 产品指示能真实反馈断路器的触头状态, 适合不同的使用环境要求。

SMT energy Storage Motor Operator

The SMT type is an electric operation that can perform instantaneous closing (commonly known as energy storage electric operation). It adopts an integrated plug-in terminal wiring method. This product can provide real feedback on the contact status of circuit breakers, suitable for different usage environment requirements.



产品名称	Description	电动操作机构 / Motor Operator		
型号	Model	SMT-250-630		
额定工作电压	Rated operational voltage	AC230V/DC220V		
额定电压频率	Rated operational current	50Hz		
工频耐压	Power frequency withstand voltage	2000V, 历时1min		
额定绝缘电压	Rated insulation voltage	500V		
额定冲击耐受电压	Rated impulse withstand voltage	4.5KV		
机械寿命	Mechanical life	10000次以上		

DMT型框塑电动操作机构

DMT型框塑电操适用于1600A框塑断路器,高度约65mm,可适应更多的使用场合;采用端子式接线方式,更方便美观。

DMT Model Motor Operator for ACB

DMT motor operator is suitable for 1600A Air Circuit Breaker, with a height of about 65mm, and can be applied in more occasions. Adopting terminal type wiring method, more convenience and aesthetics.



产品名称	Description	电动操作机构 / Motor Operator				
型号	Model	DMT-1600				
额定工作电压	Rated operational voltage	DC24V	DC48V	AC/DC110V	AC/DC220V	AC400V
额定工作电流	Rated operational current	6A	4A	2A	1A	0.8A
额定绝缘电压	Rated insulation voltage	500V				
额定冲击耐受电压	Rated impulse withstand voltage	4.5KV				
机械寿命	Mechanical life	10000次以上				

DMT-630/2型电动操作机构

DMT-630/2型电操适用于630A塑壳2P断路器,高度约117mm,适用于新能源直流环境;采用端子式接线方式,更方便美观。

DMT-630/2 Motor Operator

DMT-630/2 is suitable for 630A 2P MCCB, with a height of about 117mm, and can be applied in new energy DC environments. Adopting terminal type wiring method, more convenience and aesthetics.



产品名称	Description	电动操作机构 / Motor Operator				
型号	Model	DMT-630/2				
额定工作电压	Rated operational voltage	DC24V	DC48V	AC/DC110V	AC/DC220V	AC400V
额定工作电流	Rated operational current	4.5A	2.5A	1A	0.5A	0.3A
额定绝缘电压	Rated insulation voltage	500V				
额定冲击耐受电压	Rated impulse withstand voltage	4.5KV				
机械寿命	Mechanical life	10000次以上				

塑壳断路器手动操作机构 Manual operating mechanism for MCCBs

CS1/2金属手操

CS1/2金属手操结构简单,可配合国内外大多数厂家断路器使用(如常熟开关厂CM系列、正泰NM系列、德力西CDM系列、良信NDM系列、ABB S/Tmax系列、施耐德NS/NSX/NSC等),该产品能满足基本使用功能,性价比高。



CS1/2 Metal Handle Operating Mechanism

The CS1/2 structure is simple and can be used for most domestic and foreign manufacturers' circuit breakers (such as Changshu Switch Factory CM series, Chint NM series, Delixi CDM series, Nader NDM series, ABB S/Tmax series, Schneider NS/NSX/NSC, etc.). This product can meet basic functions and has high cost-effectiveness.

A型手柄

A型手柄用于柜外操作手动操作机构,目前根据尺寸大小分别选用小手柄(63-250壳架)、大手柄(400-800壳架)、加长手柄(800以上壳架),防护等级IP40。

A-type Handle

A-type handle is used for manual operation mechanism outside the distribution cabinet. According to dimensions, it can be divided into small handles (63-250 frames), large handles (400-800 frames), and extended handles (800 and above frames). IP Code: 40.

F2型手柄

F2型手柄用于柜外操作手动操作机构,目前根据尺寸大小分别选用小手柄(63-250壳架)、大手柄(400-800壳架),防护等级经设计改进后能达到IP65。

F2-type Handle

F2-type handle is used for manual operation mechanism outside the distribution cabinet. According to dimensions, it can be divided into small handles (63-250 frames), large handles (400-800 frames), and extended handles (800 and above frames). IP Code: 40.

塑壳断路器插入式、抽出式装置 MCCB Plug-in and Draw-out

MZ3一体式插入式

MZ3一体式插入式采用塑料底座,外形美观,符合ROHS要求。内部触头结构优化设计大大降低了材料消耗,性价比更加突出。采用一体式安装,更加方便用户安装使用。

MZ3-type integrated Plug-in

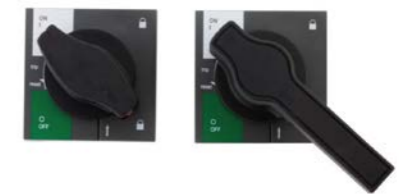
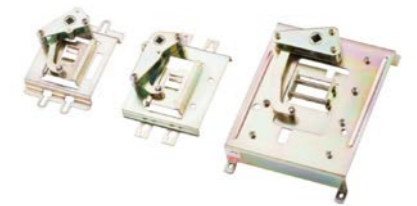
The MZ3 integrated plug-in adopts a plastic base, which has a aesthetic appearance, and meets ROHS requirements. The optimized design of the internal contacts structure greatly reduces material consumption and More outstanding cost-effectiveness. Adopting integrated installation, more convenient for users to install and use.

CH2抽出式

CH2系列抽出式装置为我司第二代抽出式装置。其特点为功能完善;安装、操作简便,性能可靠,可与断路器配合实现多种联锁功能。本装置符合:IEC947-2、GB/T 14048.2、GB/T 14048.4

CH2-type draw-out

The CH2 series is our second-generation draw-out mechanism. Its characteristic is complete functionality; Easy to install and operate, reliable in performance, and can work with circuit breakers to achieve multiple interlocking functions. This device complies with IEC947-2, GB/T 14048.2, and GB/T 14048.4.



塑壳断路器内部附件 MCCB Inner accessories

塑壳断路器内部附件是用于断路器内部的执行机构,用以实现断路器远程化、自动化、智能化控制和断路器的信息化、系统化管理。可分为欠电压脱扣器、分励脱扣器、辅助触头、报警触头和辅报触头共五类产品单元。

The MCCB inner accessories are used as the actuator inside the circuit breaker to achieve remote, automated, intelligent control, and information and systematic management of the circuit breaker. It can be divided into UVR, Shunt Trip, auxiliary contact, alarm contact, and auxiliary alarm contact.

● 辅助触头 / 辅助报警触头

辅助报警触头作用是断路器分闸、合闸状态提供信号指示,并在断路器跳扣状态下提供故障、报警信号。

符合GB/T 14048.1《低压开关设备和控制设备 总则》标准要求。

符合GB/T 14048.5《低压开关设备和控制设备 控制电路电器和开关元件》标准要求。

Auxiliary contact / Auxiliary alarm contact

The function of auxiliary alarm contacts is to provide signal indication for the opening and closing state of circuit breakers, and to provide fault and alarm signals under the tripping state of circuit breakers.

It meets the requirements of GB/T 14048.1 "General Rules for Low Voltage Switchgear and Control Equipment" and GB/T 14048.5 "Control Circuits, Electrical Appliances and Switching Components of Low Voltage Switchgear and Control Equipment".



辅助触头



辅助报警触头

● 塑壳分励脱扣器

分励脱扣器可以远距离及快速的控制断路器的断开操作,保障断路器负载端设备和人身安全,并可作为漏电断路器等保护电器的执行元件。符合GB/T 14048.1《低压开关设备和控制设备 总则》标准要求。

符合GB/T 14048.2《低压开关设备和控制设备 低压断路器》标准要求。DC24V分励脱扣器要求输入电流大于2.5A,导线长度小于200m。

MCCB Shunt Trip

The Shunt Trip can disconnect the circuit breaker remotely and quickly to ensure the safety of equipment and personnel at the load end of the circuit breaker, and can be used as a leakage circuit breaker to protect the actuator of electrical appliance.

This product meets the standard requirements of GB/T 14048.1 "General Principles for Low Voltage Switchgear and Control Equipment", & GB/T 14048.2 "Low Voltage Switchgear and Control Equipment - Low Voltage Circuit Breakers" standard.

The DC24V Shunt Trip requires an input current greater than 2.5A and a wire length less than 200m.



● 塑壳欠电压脱扣器

欠电压脱扣器作用是检测断路器进线端电压,当受保护电路中的工作电压下降到电源电压的35%~70%时,自动断开断路器切断负载电源,使该断路器连接的负载电器设备免受低电压的损坏。

符合GB/T 14048.1《低压开关设备和控制设备 总则》标准要求。

符合GB/T 14048.2《低压开关设备和控制设备 低压断路器》标准要求。

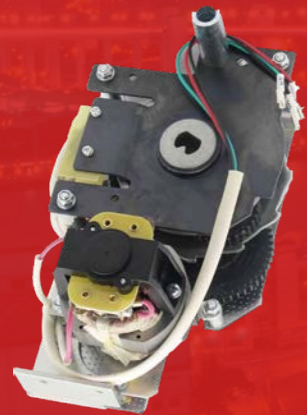
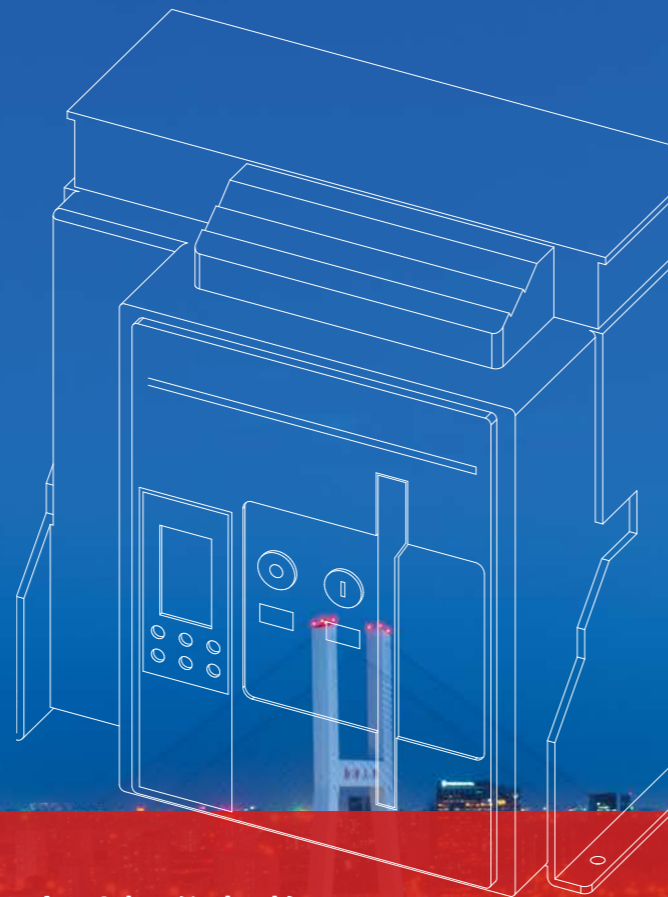
MCCB UVR

The function of the undervoltage release is to detect the incoming voltage of the circuit breaker. When the working voltage in the protected circuit drops to 35%~70% of the power supply voltage, it automatically disconnects the circuit breaker and cuts off the load power supply, preventing the load electrical equipment connected to the circuit breaker from being damaged by low voltage.

Comply with the standard requirements of GB/T 14048.1 "General Principles for Low Voltage Switchgear and Control Equipment". Comply with the requirements of GB/T 14048.2 "Low Voltage Switchgear and Control Equipment - Low Voltage Circuit Breakers" standard.



02

框架断路器功能附件
ACB ACCESSORIES

CDW45系列

框架断路器用电动操作机构

CDW系列电动操作机构是由单相串激电动机驱动,用作对框架断路器进行远距离储能操作。

- ◆ 全系列产品通过国家CQC自愿认证;
- ◆ CDW系列电操结构紧凑、体积小、安装方便、动作可靠;
- ◆ 能为DW45、DW450的各电流规格框架断路器配套;
- ◆ 多电压多频率,可满足国内外多地区使用;
- ◆ 能适配特殊环境下运行的断路器产品,如低温型、湿热盐雾型产品等。

Motor operators for ACBs

CDW series electric operation mechanism is driven by single-phase series motor, which is used for long-distance energy storage operation of frame circuit breaker.

- ◆ The whole series of products have passed CQC compulsory certification.
- ◆ CDW series has compact structure, small volume, convenient installation and reliable movement.
- ◆ It can be used for all current specification frame circuit breakers of DW45 and DW450.
- ◆ Multi-voltage and multi-frequency, which can be used in many areas at home and abroad.
- ◆ It can be used for circuit breakers that work in special environments, such as low-temperature and humid salt spray products.



CDW450系列

● FCW45-2000框架辅助触头

FCW45-2000是适用于额定绝缘电压400V,交流50Hz,额定工作电压交流380V及以下、直流220V及以下低压断路器的辅助触头,用作低压断路器所处工作状态位置时提供控制信号。

FCW45-2000 frame auxiliary contact

FCW45-2000 is an auxiliary contact suitable for low-voltage circuit breakers with rated insulation voltage of 400V, AC 50Hz, rated working voltage of AC 380V and below, and DC 220V and below. It is used as a control signal when the low-voltage circuit breaker is in a working state position.



四开四闭-KF1-4

六开六闭-KF1-6

产品名称	Description
型号	Model
额定工作电压	Rated operational voltage
额定工作电流	Rated operational current
额定绝缘电压	Rated insulation voltage
额定冲击耐受电压	Rated impulse withstand voltage
约定发热电流	Conventional thermal current
机械寿命	Mechanical life

辅助触头	
FCW45-2000	
380V/AC	220V/DC
0.95A	0.63A
660V	
6KV	
6A	
>10000次	

DW450系列产品
DW450 series products● 分励脱扣器&闭合电磁铁
—FTW45-1600&BGW45-1600

FTW45-1600是专配DW450-200~1600 A低压断路器的分励脱扣器,用于提供断路器分闸功能。

BGW45-1600是专配DW450-200~1600A低压断路器的闭合电磁铁(即释能电磁铁),用作提供断路器合闸功能。

Shunt Trip & Latching Electromagnet
- FTW45-1600 & BGW45-1600

FTW45-1600 is a shunt release specifically equipped with DW450-200-1600A low-voltage circuit breakers, used to provide circuit breaker opening function.

BGW45-1600 is a Latching Electromagnet (Le. energy release electromagnet) specifically equipped with DW450-200~1600A low-voltage circuit breakers, used to provide circuit breaker closing function.



FTW45-1600



BGW45-1600

脱扣行程	Trip stroke	10mm±0.3mm
脱扣力	Trip force	≥10N
机械寿命	Mechanical life	>10000次

● 分励脱扣器&闭合电磁铁
—FTW45-1600/DMX3&BGW45-1600/DMX3

FTW45-1600/DMX3是在FTW45-1600基础上开发的保持型分励脱扣器,用于提供断路器分闸功能

BGW45-1600/DMX3是在BGW45-1600基础上开发的保持型闭合电磁铁,用作提供断路器合闸功能。

450V以内全电压规格覆盖,双节线圈控制,产品可长时间通电,螺杆可长时间保持弹出状态。

Shunt Trip & Latching Electromagnet
- FTW45-1600/DMX3&BGW45-1600/DMX3

FTW45-1600/DMX3 is a shunt release developed on the basis of FTW45-1600, used to provide circuit breaker opening function.

BGW45-1600/DMX3 is a Latching Electromagnet developed on the basis of BGW45-1600, used to provide circuit breaker closing function.

Full voltage specification coverage within 450V, dual coil control, the product can be powered on for a long time, and the screw can remain ejected for a long time.



FTW45-1600/DMX3



BGW45-1600/DMX3

脱扣行程	Trip stroke	10mm±0.3mm
脱扣力	Trip force	≥10N
机械寿命	Mechanical life	>10000次

● 欠电压脱扣器—QTW45-1600

QTW45-1600是专配DW450-200~1600A低压断路器的欠电压脱扣器,用作提供低压断路器增加欠电压保护功能。

注:分为单线圈与双线圈两种产品。

Undervoltage Release - QTW45-1600

QTW45-1600 is an undervoltage Release for low-voltage circuit breakers from DW450-200 to 1600A. It is used to provide low-voltage circuit breakers with additional undervoltage protection.



脱扣行程	Trip stroke	9mm±0.3mm
脱扣力	Trip force	≥10N
机械寿命	Mechanical life	>3000次

● 欠电压脱扣器—QTW45-1600/DMX3

QTW45-1600/DMX3是450V以内全电压规格覆盖,双节线圈控制,专配DW450-200~1600A低压断路器的欠电压脱扣器,用作提供低压断路器增加欠电压保护功能。

Undervoltage Release - QTW45-1600/DMX3

QTW45-1600/DMX3 is a full voltage specification within 450V, with dual coil control It is specially equipped with an undervoltage release for DW450-200~1600A low-voltage circuit breakers to provide additional undervoltage protection function for low-voltage circuit breakers.



脱扣行程	Trip stroke	9mm±0.3mm
脱扣力	Trip force	≥10N
机械寿命	Mechanical life	>3000次

● 失压脱扣器—QTW45-1600C

QTW45-1600C是同时具有欠压与失压功能,双节线圈控制磁保持式,超低能耗,专配DW450-200~1600A低压断路器的欠电压脱扣器,用作提供低压断路器增加欠电压保护功能。

No-voltage release - QTW45-1600C

The QTW45-1600C has the functions of under-voltage and Voltage-loss at the same time. It has double coils to control magnetic holding type and ultra-low energy consumption. It is specially equipped with under-voltage Release of low-voltage circuit breakers of DW450-200-1600A for providing low-voltage circuit breakers with additional under-voltage protection functions.



脱扣行程	Trip stroke	9mm±0.3mm
脱扣力	Trip force	≥10N
机械寿命	Mechanical life	>3000次

4000系列产品
4000 series products

● 分励脱扣器—FTW45-4000

FTW45-4000是新开发的分励脱扣器,在满足脱扣打击行程及打击力的前提下结构紧凑组装方便,用作提供断路器断开功能。

Shunt Trip - FTW45-4000

FTW45-4000 is a newly developed shunt trip, which is compact and easy to assemble while meeting the tripping stroke and striking force. It is used to provide circuit breaker disconnection function.



脱扣行程	Trip stroke	11mm±0.4mm
脱扣力	Trip force	≥15N
机械寿命	Mechanical life	>10000次

● 欠电压脱扣器—QTW45-4000

QTW45-4000是新开发的欠电压脱扣器,在满足脱扣打击行程及打击力的前提下结构紧凑组装方便,用作提供断路器欠电压脱扣保护功能。

Undervoltage Release - FTW45-4000

QTW45-4000 is a newly developed undervoltage release that is compact and easy to assemble while meeting the tripping stroke and striking force. It is used to provide undervoltage release protection for circuit breakers.



脱扣行程	Trip stroke	9mm±0.3mm
脱扣力	Trip force	≥15N
机械寿命	Mechanical life	>3000次

DW45系列产品 DW45 series products

● 分励脱扣器&闭合电磁铁 —FTW45-2000&BGW45-2000

FTW45-2000是专配DW45系列2000~6300A低压断路器的分励脱扣器, 用作提供断路器分闸功能。

BGW45-2000是专配DW45系列2000~6300A低压断路器的闭合电磁铁(即释能电磁铁), 用作提供断路器合闸功能。

Shunt Trip & Latching Electromagnet - FTW45-2000&BGW45-2000

FTW45-2000 is a shunt trip for DW45 series 2000-6300A low-voltage circuit breakers, which is used to provide circuit breaker disconnection function.

BGW45-2000 is a Latching Electromagnet specially designed for DW45 series 2000-6300A low voltage circuit breakers (i.e. energy-releasing electromagnets), which is used to provide the closing function of circuit breakers.



脱扣行程	Trip stroke	10mm±0.3mm
脱扣力	Trip force	≥16N
机械寿命	Mechanical life	>10000次

● 分励脱扣器&闭合电磁铁 —FTW45-2000D&BGW45-2000D

FTW45-2000D是专配DW45系列2000A~6300A低压断路器的分励脱扣器, 用作提供断路器分闸功能。

BGW45-2000D是专配DW45系列2000A~6300A低压断路器的闭合电磁铁(即释能电磁铁), 用作提供断路器合闸功能。

线圈能够自动断电以保护线圈不被烧毁, 并且可以长期通电。

Shunt Trip & Latching Electromagnet —FTW45-2000D&BGW45-2000D

Shunt tripper-closed electromagnet for type FTW45-2000D&BGW45-2000D FTW45-2000D is a shunt tripper for low-voltage circuit breakers of DW45 series 2000A-6300A, which is used to provide circuit breaker disconnection function.

BGW45-2000D is a Latching Electromagnet specially designed for DW45 series 2000A-6300A low-voltage circuit breakers (i.e. release electromagnets), which is used to provide the closing function of circuit breakers.

The coil can be automatically cut off to protect the coil from burning down and can be powered on for a long time.



脱扣行程	Trip stroke	≤10mm
脱扣力	Trip force	≥16N
机械寿命	Mechanical life	>10000次

● 欠压脱扣器—QTW45-3200ZX

QTW45-3200是专配DW45系列2000~6300A低压断路器的自吸欠电压脱扣器, 用作提供低压断路器增加欠电压保护功能。

Undervoltage tripper - QTW45-3200ZX

QTW45-3200 is a self-priming undervoltage tripper for DW45 series 2000-6300A low-voltage circuit breakers, which is used to provide low-voltage circuit breakers with additional undervoltage protection functions.



脱扣行程	Trip stroke	7mm±0.5mm
脱扣力	Trip force	≥16N
机械寿命	Mechanical life	>3000次

● 欠压脱扣器—QTW45-3200SZBX/光伏

QTW45-3200/光伏是在QTW45-3200产品基础上开发的专配光伏系统使用, 并可派生有源信号检测和无源信号检测两种功能, 可同时提供断路器欠电压脱扣保护和过电压脱扣保护功能。

Undervoltage Release - QTW45-3200SZBX/Photovoltaic

QTW45-3200/PV is a special photovoltaic system developed on the basis of the products of QTW45-3200. It can also derive two functions: active signal detection and passive signal detection. It can also provide undervoltage tripping protection function of circuit breaker and over-voltage tripping protection function.



脱扣行程	Trip stroke	7mm±0.5mm
脱扣力	Trip force	≥16N
机械寿命	Mechanical life	>3000次

派生型号 Derivative model	名称 Name	标准值	动作时间 Operating Time	准确值
QTW45-3200ZX	欠电压瞬时脱扣器	<0.1S		—
QTW45-3200SZX	欠电压延时脱扣器	10S以内/可调		±10%
QTW45-3200ZXP	失压瞬时脱扣器	<0.1S		—
QTW45-3200SZBX	失压延时脱扣器	5S以内/可调		±10%
QTW45-3200SZBX/光伏	光伏失压瞬时脱扣器	10S以内/可调(步进1S)		±10%

标准值	动作时间 Operating Time	准确值
<0.1S		—
10S以内/可调		±10%
<0.1S		—
5S以内/可调		±10%
10S以内/可调(步进1S)		±10%

03

智能终端电器产品 INTELLIGENT TERMINALS



● 远程电动操作模块 Remote Electric Operating module

产品背景及应用

现在的微型断路器的各项指标不断提高的前提下, 应用的场合也越来越广泛, 在低压配电的终端基本都会用到微型断路器; 同时有自动控制 and 远程控制要求的场合也越来越多, 这时就需要装配远程电动操作模块来实现断路器的远程控制功能, 远程电动操作模块具有小体积、合闸速度快、动作可靠, 采用PIC单片机技术, 具有可靠地使用寿命和工作特性; 具有可靠地延时和误动作保护功能。

产品特点

- ◆ 超小体积: 最小宽度仅为18mm;
- ◆ 动作快速: 分、合闸时间在1s以内;
- ◆ 安全可靠: 20000次机械寿命, 配置安全挂锁;
- ◆ 适配性好: 适配施耐德、ABB、伊顿、西门子及国内各类微型断路器;
- ◆ 适应性强: 电压规格齐全, 使用范围宽, 交直流通用;

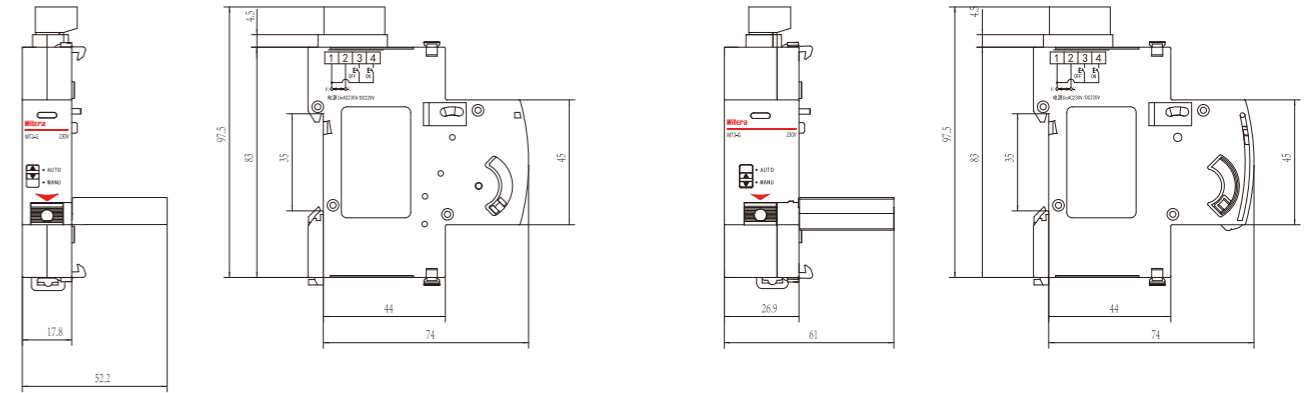
Product Background and Application

With the continuous improvement of various indicators of miniature circuit breakers, their applications are becoming more and more widespread. Miniature circuit breakers are commonly used in low-voltage distribution terminals; There are more and more occasions where there are requirements for both automatic control and remote control. At this time, it is necessary to install a remote electric operation module to achieve the remote control function of the circuit breaker. The remote electric operation module has a small volume, fast closing speed, and reliable action, and adopts PIC microcontroller technology, which has a reliable service life and working characteristics; It has reliable delay and misoperation protection functions.

Product Features

- ◆ Ultra-small volume: the minimum width is only 18 mm;
- ◆ Fast action: opening and closing time is less than 0.5 s;
- ◆ Safety and reliability: 20000 mechanical life, with safety padlock;
- ◆ Good adaptability: suitable for Schneider, ABB, Eaton, Siemens and various domestic miniature circuit breakers;
- ◆ Strong adaptability: complete voltage specifications, wide range of use, AC and DC universal.

外形尺寸图 / Outline Dimension



产品型号	Model	MT2	MT3
产品图片	Product image		
产品宽度	Product width	18mm	27mm
额定工作电压 (Uc)	Rated working voltage (UC)	230V: AC230/DC220 110V: AC/DC110 DC48V DC24V DC12V	
介电强度	Dielectric strength	2500VAC 1分钟	
耐压水平 (Uimp)	Withstand voltage level (Uimp)	4KV	
机械寿命	Mechanical life	10000次	
动作时间	Operating time	分闸 ≤ 0.5s、合闸 ≤ 1s (不包含延时)	
防护等级	Protection level	IP20	
工作温度	Working temperature	-25°C~+60°C	
空气相对湿度	Relative humidity of air	≤ 95% (55°C)	
动作过程	Action process	远程控制, 能远距离进行分、合闸	
手动/自动操作	Manual/automatic operation	将【手动/自动】拨到自动模式, 能进行远程控制 将【手动/自动】拨到手动模式, 可手动分闸或合闸, 不会自动动作	
安全挂锁	Safety padlock	分闸状态时可挂锁, 锁径Φ4mm, 挂锁后产品将不能合闸	

● 过欠压保护模块
Undervoltage protection module

产品背景及应用

自复式过欠压保护器加装于断路器左侧,适用于交流额定频率50Hz,单相额定电压230V,三相额定电压400V(相对中性线电压为230V)的家用及类似用途的低压配电线路中,能自动检测线路电压,在线路发生过电压或欠电压时自动断开故障线路,在线路电压恢复正常范围后能自动合闸,确保负载设备在正常电压下安全运行。

Product Background and Application

The self resetting overvoltage/undervoltage protector is installed on the left side of the circuit breaker and is suitable for household and similar low-voltage distribution lines with AC rated frequency of 50Hz, single-phase rated voltage of 230V, three-phase rated voltage of 400V (relative to neutral line voltage of 230V). It can automatically detect line voltage, automatically disconnect faulty lines in case of overvoltage or undervoltage, and automatically close after the line voltage returns to normal range, Ensure that the load equipment operates safely under normal voltage.

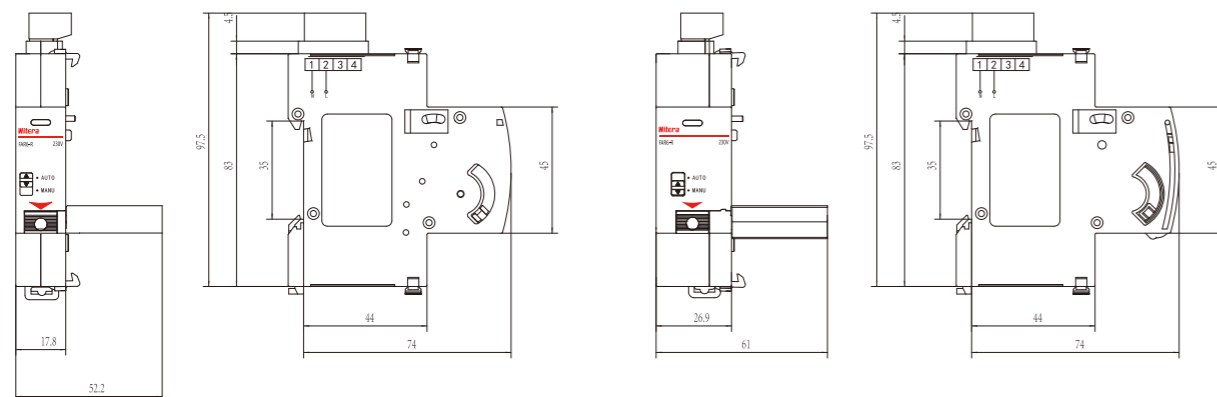
产品特点

- ◆ 全面保护:过欠压保护;
- ◆ 安全可靠:具有分闸挂锁;
- ◆ 小体积大容量:单相18mm,三相27mm;
- ◆ 安装方便:安装快速且稳定;
- ◆ 适应性强:适用于环境温度-25°C~+60°C。

Product Features

- ◆ Comprehensive protection: overvoltage and undervoltage protection;
- ◆ Safe and reliable: with opening padlock;
- ◆ Small volume and large capacity: single-phase 18mm, three-phase 27mm;
- ◆ Easy installation: fast and stable installation;
- ◆ Strong adaptability: suitable for environmental temperatures ranging from -25°C to +60°C;

外形尺寸图 / Outline Dimension



产品型号	Model	FAR6-U/2	FAR6-U/4
产品图片	Product image		
额定工作电压 (Un)	Rated working voltage (Un)	AC 230V	AC 400V
产品宽度	Product width	18mm	27mm
接线方式	Wiring method	单相	三相四线
欠压保护值	Undervoltage protection value	165V±5V (相电压)	
过压保护值	Overvoltage protection value	270V±5V (相电压)	
欠压恢复值	Undervoltage recovery value	190V±5V (相电压)	
过压恢复值	Overvoltage recovery value	250V±5V (相电压)	
自恢复合闸延时	Self recovery composite gate delay	30s±5s	
动作时间	Operating time	分闸动作时间≤ 5s	
额定冲击耐受电压(Uimp)	Rated impulse withstand voltage (Uimp)	4kV	
机械寿命	Mechanical life	10000次, 3次/分钟	
防护等级	Protection level	IP20	
污染等级	Pollution level	2级	
工作环境温度	Working environment temperature	-25°C~+60°C	
空气相对湿度	Relative humidity of air	≤ 90% (平均温度+25°C)	
手动/自动操作	Manual/automatic operation	将【手动/自动】拨到自动模式,因过压或欠压引起的分闸,在电压恢复正常后能够自动合闸;如手动将断路器分闸或由于负载故障开关跳闸,产品不会自动合闸。需排查故障后,手动合闸复位(可能存在的其它故障需要人工排除)。 注意:在排查故障时,请将自动操作改为手动操作,将产品分闸,保证人身安全。 将【手动/自动】拨到手动模式,可手动分闸或合闸,不会自动合闸。	
安全挂锁	Safety padlock	分闸状态时可挂锁,锁径Φ4mm,挂锁后产品将不能合闸。	
电源指示灯	Indicator light	红色恒亮:正常运行,合闸状态 绿色慢闪:欠压故障 绿色快闪:过压故障 绿色恒亮:延时合闸	

● 重合闸保护模块
Reclosing protection module

产品背景及应用

自动重合闸保护器具有短路保护、过载保护、自动重合功能。产品适用于各种复杂的环境，尤其是通信领域中的无人值守、集中控制、不便操作及网络监控等应用场合。该系列产品具有小体积、高分断、动作可靠、性能稳定及良好的人机交互界面。

产品对人身触电危险提供间接接触保护，对线路、用电或通信设备提供选择性保护和选择性自复。

Product Background and Application

The automatic reclosing protector has short-circuit protection, overload protection, and automatic reclosing functions. The product is suitable for various complex environments, especially in applications such as unmanned, centralized control, inconvenient operation, and network monitoring in the communication field. This series of products has small size, high breaking, reliable action, stable performance, and a good human-machine interaction interface.

The product provides indirect contact protection against the risk of personal electric shock, and selective protection and self recovery for circuits, electrical or communication equipment.

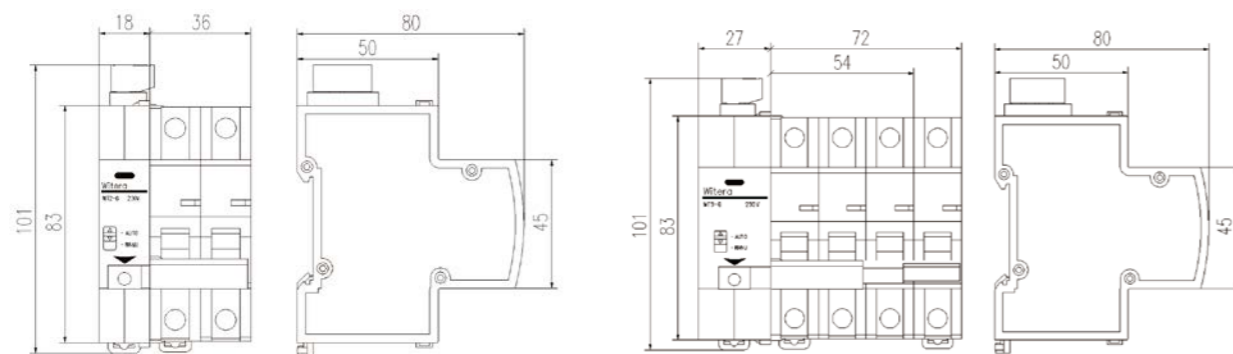
产品特点

- ◆ 全面保护：过载短路保护、实时漏电保护、过欠压保护及重合前绝缘检测；
- ◆ 安全可靠：具有手自动开关，安全挂锁；
- ◆ 小体积大容量：100A及以下均为单极18mm；
- ◆ 安装方便：TH35mm标准导轨安装，快速且稳定；
- ◆ 适应性强：适用于环境温度-25℃~+60℃。

Product Features

- ◆ Comprehensive protection: overload and short circuit protection, real-time leakage protection, overvoltage and undervoltage protection, and insulation detection before reclosing;
- ◆ Safe and reliable: equipped with manual automatic switch and safety padlock;
- ◆ Small volume and large capacity: Single pole 18mm for 100A and below;
- ◆ Easy installation: TH35mm standard guide rail installation, fast and stable;
- ◆ Strong adaptability: suitable for environmental temperatures ranging from -25°C to +60°C;

外形尺寸图 / Outline Dimension



产品型号	Model	MRT2	MRT3
产品图片	Product image		
产品宽度	Product width	18mm	27mm
额定工作电压 (Uc)	Rated working voltage (UC)	230V : AC230/DC220	
		110V : AC/DC110	
		DC48V	
		DC24V	
		DC12V	
介电强度	Dielectric strength	2500VAC 1分钟	
耐压水平 (Uimp)	Withstand voltage level (Uimp)	4KV	
机械寿命	Mechanical life	10000次, 3次/分钟	
动作时间	Action time	分闸 ≤ 0.5s、合闸 ≤ 0.5s (不包含延时)	
防护等级	Protection level	IP20	
工作温度	Working temperature	-25℃~+60℃	
空气相对湿度	Relative humidity of air	≤ 95% (55℃)	
动作过程	Action process	自动状态下，故障跳闸，要求延时30秒自动重合闸；合闸不成功，要求延时15分钟第二次重合闸；不成功，要求延时15分钟第三次重合闸；合闸不成功，进入闭锁状态，除非人为操作，否则不再动作。如果人为操作过，直接手动合闸，合闸成功则自动解除闭锁状态。 (注：连续3次检测重合后在5S内跳闸，可能为负载端短路，因此需永久闭锁；合闸后5S不跳闸定义为合闸成功，重合次数计数清零。)	
手动/自动操作	Manual/automatic operation	将【手动/自动】拨到自动模式，能进行远程控制。 将【手动/自动】拨到手动模式，可手动分闸或合闸，不会自动动作。	
安全挂锁	Safety padlock	分闸状态时可挂锁，锁径Φ4mm，挂锁后产品将不能合闸。	
通讯	Communicate	标准RS485通讯接口，可实现远程控制，能远距离进行分、合闸及查询运行状况等智能化管理(如有此功能)	

● 小型断路器 Miniature circuit breaker

产品背景及应用

WRB系列是具有过载、短路保护的微型断路器，最大额定电流125A，根据不同的需求有多种特性（B型、C型、D型），分别适用于照明配电及工业配电。符合标准GB/T 10963.1。

Product Background and Application






The WRB series is a miniature circuit breaker with overload and short circuit protection, with a maximum rated current of 125A. It has various characteristics (B-type, C-type, D-type) according to different needs, and is suitable for lighting distribution and industrial distribution. Meet the standard GB/T 10963.1.

产品特点

- ◆ 超小体积: 125A最小宽度仅为18mm;
- ◆ 多极同步: 多极断路器可内置一体轴驱动;
- ◆ 安全可靠: 20000次机械脱扣寿命;
- ◆ 安装方便: TH35mm标准导轨;
- ◆ 节能环保: 符合欧盟ROHS指令;

Product Features

- ◆ Ultra small volume: 125A, with a minimum width of only 18mm;
- ◆ Multi pole synchronization: Multi pole circuit breakers can be built-in with integrated shaft drive;
- ◆ Safe and reliable: 20000 mechanical trips with lifespan;
- ◆ Easy installation: TH35mm standard guide rail;
- ◆ Energy conservation and environmental protection: in accordance with the EU ROHS directive;

产品型号 Model	WRB5N-40	WRB5-63	WRB6-100	WRB6-125	WRB6-125H
产品图片 Product image					
极数 Number of poles	1N	1, 1N, 2, 3, 3N, 4	1, 2, 3, 4		
额定工作电压V Rated working voltage V	AC230V	AC230/400V(1P), AC230V(1P+N), AC400V(2P, 3P, 3P+V, 4P)			
额定工作电流A Rated working current A	2, 4, 6, 10, 16, 20, 25, 32, 40	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63	6, 10, 16, 20, 25, 32, 40, 50, 63, 80, 100	125	80, 100, 125
脱扣特性 Tripping characteristics	B, C, D			C	C, D
额定分断能力 Rated breaking capacity	6kA			10kA	
机械寿命 Mechanical life	20000次				
电气寿命 Electrical lifespan	10000次				
接线能力 Wiring capability	10mm ² 及以下	25mm ² 及以下	35mm ² 及以下	50mm ² 及以下	
环境温度 Ambient temperature	-40°C~+70°C				
空气相对湿度 Relative humidity of air	≤95%				
海拔 Altitude	≤2000m				
污染等级 Pollution level	2				
振动和冲击 Vibration and shock	无振动和冲击的场所				
防护等级 Protection level	IP20				

● 小型漏电断路器 Miniature circuit breaker

产品背景及应用

WRB系列是具有过载、短路保护的微型断路器，最大额定电流100A，根据不同的需求有多种特性（B型、C型、D型），分别适用于照明配电及工业配电。符合标准GB/T 10963.1、GB/T 16917.1。

Product Background and Application




The WRB series is a miniature circuit breaker with overload and short circuit protection, with a maximum rated current of 100A. It has various characteristics (B-type, C-type, D-type) according to different needs, and is suitable for lighting distribution and industrial distribution. Comply with standards GB/T 10963.1 and GB/T 16917.1.

产品特点

- ◆ 超小体积: 100A总宽度仅为90mm (5模数);
- ◆ 多极同步: 多极断路器可内置一体轴驱动;
- ◆ 安全可靠: 20000次机械脱扣寿命;
- ◆ 安装方便: TH35mm标准导轨;
- ◆ 节能环保: 符合欧盟ROHS指令;

Product Features

- ◆ Ultra small volume: 100A, with a total width of only 90mm (5 modules);
- ◆ Multipole synchronization: Multiple circuit breakers can be equipped with integrated shaft drive;
- ◆ Safe and reliable: 20000 mechanical trips with a lifespan of;
- ◆ Easy installation: TH35mm standard guide rail;
- ◆ Energy conservation and environmental protection: in accordance with the EU ROHS directive;

产品型号 Model	WRB5NL	WRB5L	WRB6LE-80	WRB7LE-100
产品图片 Product image				
极数 Number of poles	1N	1N, 2, 3, 3N, 4	1N	1N, 2, 3, 3N, 4
额定工作电压V Rated working voltage V	AC230V	AC230V(1N, 2); AC400V(3, 3N, 4)	AC230V	AC230V(1N, 2); AC400V(3, 3N, 4)
额定工作电流A Rated working current A	2, 4, 6, 10, 16, 20, 25, 32, 40, 63	1, 2, 3, 4, 5, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63	10, 16, 20, 25, 32, 40, 50, 63, 80	10, 16, 20, 25, 32, 40, 50, 63, 80, 100
脱扣特性 Tripping characteristics	B, C, D			C
分断能力 Rated breaking capacity	6kA			
机械寿命 Mechanical life	20000次		20000次	
电气寿命 Electricot fifespan	10000次		6000次	
接线能力 Wiring capability	25mm ² 及以下			35mm ² 及以下
剩余动作类型 Remaining action types	A型/AC型, 一般A/AC/B/S型, 电子式		AC型, 电子式	
额定剩余动作电流mA Rated residual operating current mA	30mA, 50mA, 100mA, 300mA		30mA, 50mA, 100mA	30mA, 50mA, 100mA, 300mA
环境温度 Ambient temperature	-40°C~+70°C			
空气相对湿度 Relative humidity of air	≤95%			
海拔 Altitude	≤2000m			
污染等级 Pollution level	2			
振动和冲击 Vibration and shock	无振动和冲击的场所			
防护等级 Protection level	IP20			

● 物联网智能断路器
IOT intelligent circuit breaker

产品背景及应用

WRB系列是具有过载、短路保护的微型断路器，最大额定电流80A，根据不同的需求有多种特性（B型、C型、D型），分别适用于照明配电及工业配电。符合标准GB/T 10963.1、GB/T 16917.1。

Product Background and Application

The WRB series is a miniature breaker with overload and short circuit protection, with a maximum rated current of 100A. It has various characteristics (B-type, C-type, D-type) according to different needs, and is suitable for lighting distribution and industrial distribution. Comply with standards GB/T 10963.1 and GB/T 16917.1.

智能微断功能特性 / Intelligent MCB function characteristics

产品型号	Model	WRB6Z-32	WRB6Z-80
产品图片	Product image		
极数	Number of poles	DPN	1P+N, 3P+N
额定工作电压V	Rated working voltage V	AC230V	AC230(1P+N)、AC400V(3P+N)
额定工作电流A	Rated working current A	10、16、20、25、32	32、40、50、63、80
脱扣特性	Tripping characteristics	C型	
额定分断能力	Rated breaking capacity	6kA	
机械寿命	Mechanical life	20000次	20000次
电气寿命	Electrical lifespan	10000次	6000次
接线能力	Wiring capability	10mm ² 及以下	25mm ² 及以下
剩余动作类型	Remaining action types	AC 型, 电子式	
额定剩余动作电流mA	Rated residual operating current mA	30mA、50mA、100mA、300mA、500mA	
监测参数	Monitoring parameters	电流、电压、漏电值、电量、频率、温度	
通讯方式	Communication method	RS485、蓝牙	
环境温度	ambient temperature	-25°C~+60°C(极限-40°C~+70°C)	
空气相对湿度	Relative humidity of air	≤95%	
海拔	altitude	≤2000m	
污染等级	Pollution level	2	
振动和冲击	Vibration and shock	无振动和冲击的场所	
防护等级	Protection level	IP20	

智能塑壳(测量开关)功能特性
Intelligent molded case circuit breaker functional characteristics (measuring circuit breaker)

产品型号	Model	WRM2E-250	WRM2E-400	WRM2E-630
产品图片	Product image			
极数	Number of poles	3P、3P+N		
额定工作电压V	Rated working voltage V	AC400V		
额定工作电流A	Rated working current A	125、160、200、250	315、400	500、630
脱扣类型	Tripping type	电子式		
选择性类别	Selective category	B类		
极限分断能力	Ultimate breaking capacity	50kA	70kA	70kA
运行分断能力	Running breaking capacity	35kA	42kA	50kA
额定短时耐受电流	Rated short time withstand current	5kA/1s	8kA/1s	10kA/1s
机械寿命	Mechanical life	20000次		
电气寿命	Electrical lifespan	6000次		
接线能力	Wiring capability	35mm ² 及以下	50mm ² 及以下	
监测参数	Monitoring parameters	电流、电压、功率、电能量、温度		
通讯方式	Communication method	2路RS-485;1路HRF微功率无线通讯;1路HPLC载波通讯;1路蓝牙通讯		
环境温度	Ambient temperature	-40°C~+70°C		
空气相对湿度	Relative humidity of air	≤95%		
海拔	Altitude	≤2000m		
污染等级	Pollution level	3		
振动和冲击	Vibration and shock	无振动和冲击的场所		
防护等级	Protection level	IP20		

● 智能网关 Intelligent Gateway

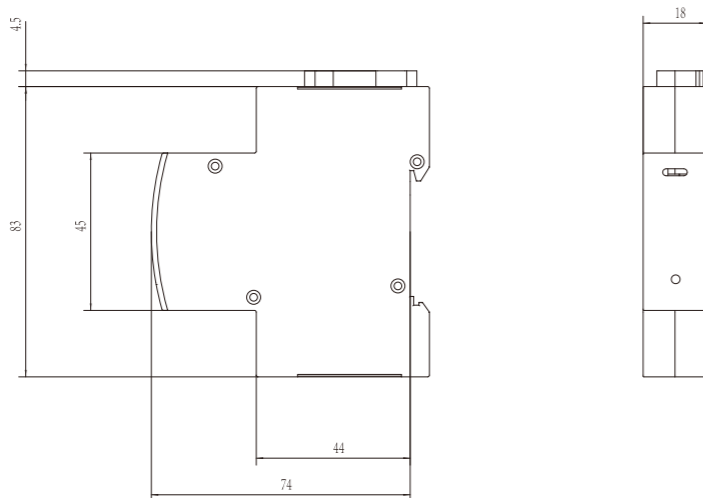
产品特点

- ◆ 采用模块式结构内置WiFi, 只有1P宽度, 35mm标准导轨固定;
- ◆ 具有设备热点配网, 配网方式简便可靠;
- ◆ 具有通知服务器断电功能;
- ◆ 网关最多可控制19路通讯型断路器;
- ◆ 待机功耗低, 节约电能、低碳环保;

Product Features

- ◆ Adopting a modular structure with built-in WiFi, only 1P wide, fixed with a 35mm standard guide rail;
- ◆ Equipped with equipment hotspot distribution network, the distribution network method is simple and reliable;
- ◆ It has the function of notifying the server of power outage;
- ◆ The gateway can control up to 19 communication type circuit breakers;
- ◆ Low standby power consumption, energy-saving, and low-carbon environment.

外形尺寸图 / Outline Dimension



接线方式	Wiring method	1P 单相
额定工作电压Un	Rated working voltage Un	230V AC / 50Hz
输入电压范围Un	Input voltage range Un	160V AC - 270V AC/50Hz
设备功耗	Device power consumption	≤7W
指示灯	Indicator light	指示灯绿灯慢闪: 网关未检测到任何从属设备; 指示灯绿灯常亮: 网关已处于工作模式但未联网; 指示灯红灯快闪: 网关处于配网状态; 指示灯橙灯慢闪: 网关处于在线升级;



● 电能表外置断路器 (FAR6-W/FAR6N-W) External circuit breaker for electric energy meter (FAR6-W/FAR6N-W)

产品背景及应用

FAR6-W电能表外置断路器是具有过载短路保护, 通过对电能表控制信号的检测进行自动接通或断开负载电路, 实现欠费分闸, 付费合闸的全自动费控开关。产品符合国家电网Q/GDW11421-2020《电能表外置断路器技术规范》、《南方电网费控电能表用低压外置断路器技术规范》及GB/T 10963.1-2020《家用及类似场所用过电流保护断路器》的标准要求。同时苏州未来电器还是中国电力企业联合会标准 T/CEC 115-2016《电能表用外置断路器技术规范》及中国质量认证中心认证技术规范 CQC1121-2016《电能表用外置断路器技术规范》的起草单位之一。

Product Background and Application

The external circuit breaker of FAR6-W electric energy meter has overload and short circuit protection, which automatically connects or disconnects the load circuit through the detection of the control signal of the electric energy meter, achieving a fully automatic fee control switch for overdue opening and paid closing. The product meets the standard requirements of State Grid Q/GDW11421-2020 "Technical Specification for External Circuit Breakers for Energy Meters", "Technical Specification for Low Voltage External Circuit Breakers for Charge Controlled Energy Meters in Southern Power Grid", and GB/T 10963.1-2020 "Overcurrent Protection Circuit Breakers for Household and Similar Places". At the same time, Suzhou Future Electrical Appliances is also one of the drafting units of the China Electric Power Enterprise Federation standard T/CEC 115-2016 "Technical Specification for External Circuit Breakers for Energy Meters" and the China Quality Certification Center certification technical specification CQC1121-2016 "Technical Specification for External Circuit Breakers for Energy Meters".

产品特点

- ◆ 全面保护: 具有欠费脱扣自保持功能, 有效防止欠费后窃电;
- ◆ 安全可靠: 具有手动自动开关, 安全可靠, 内轴驱动, 同步性好;
- ◆ 小体积、大容量: 100A及以下均为单极18mm, 最大可达125A;
- ◆ 安装方便: 采用模块式结构组合, 内置取电, 35mm标准导轨, 安装维护快速方便;
- ◆ 适应性强: 适用于环境温度-25°C~+65°C, 极限可达-40°C~+70°C;
- ◆ 节能环保: 待机功耗极低、全面符合欧盟ROHS指令, 节能约能源, 低碳环保。

Product Features





- ◆ Comprehensive protection: With the function of tripping and self holding for arrears, effectively preventing electricity theft after arrears.
- ◆ Safe and reliable: With manual and automatic switch, safe and reliable, internal shaft drive, good synchronization-25°C to+60°C.
- ◆ Small volume and large capacity: 100A and below are single pole 18mm, with a maximum of 125A.
- ◆ Easy installation: Adopting modular structure combination, built-in power supply, 35mm standard guide rail, fast and convenient installation and maintenance.
- ◆ Strong adaptability: suitable for environmental temperatures ranging from -25°C to +65°C, with limits up to -40°C to+70°C.
- ◆ Energy conservation and environmental protection: Extremely low standby power consumption, fully compliant with the EU ROHS directive, energy-saving and energy-saving, low-carbon and environmentally friendly.

选型说明 / Product Selection Guide

FAR	6	N	-	W	100	B	-	C	80	/	2
产品类别 Product Category	设计序号 Design Serial Number	衍生代号 Derived code	功能类别 Functional code	壳架电流 Frame size	衍生代号(分断+功能) Derived code (break+function)	脱扣特性 Release characteristics	额定电流 Rated current	极数 Number of poles			
				100	B:6kA+电平		20	1: 1P			
				125	BT:6kA+蓝牙	C:	...	2: 2P			
		内置式	费控		HB:10kA+电平	瞬时脱扣电流 5-10In	100	3: 3P			
					HBT:10kA+蓝牙		125	4: 4P			

型号示例: FAR6-W100BT_C80/4, 表示C型80A的4P电能表外置断路器, 短路分断能力6kA, 蓝牙通讯。
Model example: FAR6-W100BT_C80/4 represents the external circuit breaker of the C-type 80A 4P electric energy meter, with a short-circuit breaking capacity of 6kA and Bluetooth communication.

功能特性 / Function characteristics

产品型号 Model	FAR6-W100B	FAR6-W125	FAR6-W125H	FAR6N-W100
产品图片 Product image				
接线方式 Wiring method	单相1P/1P+N/2P、三相3P/3P+N/4P			单相1P+N
额定工作电压 Rated working voltage	1P/1P+N/2P 230V AC/50Hz、3P/3P+N/4P 400V AC/50Hz			1P+N 230V AC/50Hz
控制回路电源电压 Un Control circuit power supply voltage Un	230V AC/50Hz			
额定工作电流 In (A) Rated working current In (A)	20、25、32、40、50、63、80、100	125	40、50、63、80、100、125	20、25、32、40、50、63、80、100
额定短路分断能力 Icn Rated short-circuit breaking capacity Icn	6kA		10kA	6kA
脱扣特性 Tripping characteristics	C型 (5In ≤ I ≤ 10In)			
上电延时 Te Power on delay te	7s ≤ te ≤ 8s, 8s后方可动作			
自动合闸时间 tc Automatic closing time tc	≤ 3s			
自动分闸时间 td Automatic opening time td	≤ 2s			
机械寿命 Mechanical life	20000次			
电气寿命 Mechanical life	6000次			
介电强度 Dielectric strength	2500VAC, 1分钟			
冲击耐压 Uimp Impulse withstand voltage Uimp	6000V			
控制电平电流 Ic Control level current Ic	≤ 1mA			
相线泄漏电流 I _l Phase line leakage current I _l	电平控制 I _l ≤ 0.2mA; 蓝牙控制 I _l ≤ 0.8mA			
接线能力 Wiring capability	35mm²及以下	50mm²及以下		35mm²及以下
通讯方式 Communication method	电平/蓝牙			
手动自动操作 Manual/Automatic operation	在自动状态, 检测到控制信号为低电平, 欠费分闸, 控制信号转为高电平, 则自动合闸。 在手动状态, 检测到控制信号为低电平, 欠费分闸, 控制信号转为高电平, 需手动合闸。			
指示灯 Indicator light	红色指示灯亮, 表示未欠费, 红色指示灯灭, 表示欠费或者停电。			
环境温度 Ambient temperature	-25°C ~ +65°C (极限 -40°C ~ +70°C)			
空气相对湿度 Relative humidity of air	≤ 95%			
海拔 Altitude	≤ 2000m			
污染等级 Pollution level	2			
振动和冲击 Vibration and shock	无振动和冲击的情况			
防护等级 Protection level	IP20			

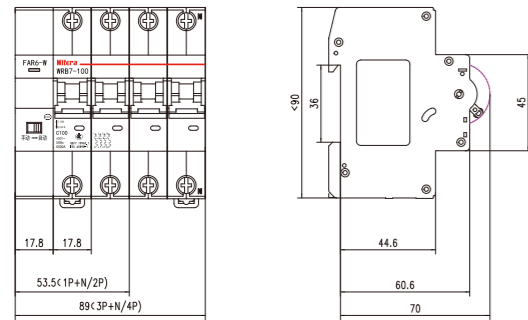
电平状态控制表 / Level state control table

序号 Number	相线 Phase line	控制信号 Control signal	初始状态 Initial state	动作后状态 Status after action	备注 Notes
1	Uc	↑	分闸	合闸	(从 0V 跳变至 Uc) 收到合闸信号
2	Uc	Uc	合闸	分闸	手动分闸
3	Uc	Uc	分闸	合闸	手动合闸
4	Uc	↓	合闸	分闸	(从 Uc 跳变至 0V) 收到分闸信号
5	Uc	↓	分闸	分闸	(从 Uc 跳变至 0V) 收到分闸信号
6	Uc	0V	分闸	分闸	0V 控制信号, 不允许合闸 (手动)
7	Uc → 0V → Uc	Uc	合闸	合闸	线路断电前处于合闸状态, 线路断电后又上电, 不允许分闸后再合闸
8	Uc → 0V → Uc	Uc	分闸	分闸	线路断电前处于分闸状态, 线路断电后又上电, 不允许合闸或合闸后再分闸
9	0V	/	分闸	分闸	线路断电, 保持原状态
10	0V	/	合闸	合闸	线路断电, 保持原状态

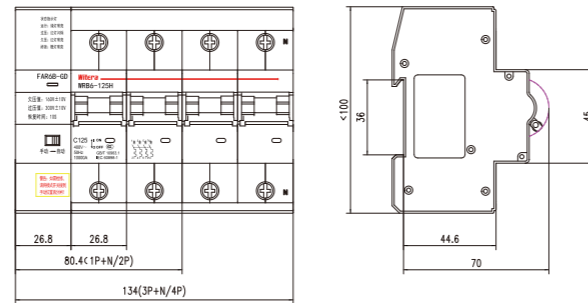
蓝牙状态控制表 / Bluetooth state control table

序号 Number	控制信号 Control signal	初始状态 Initial state	动作后状态 Status after action	备注 Notes
1	直接合闸命令	分闸	合闸	由分闸防合闸状态直接合闸
2	无	合闸	分闸	手动分闸 (由合闸到分闸非防合闸状态)
3	无	分闸	合闸	手动合闸 (由分闸非防合闸状态到合闸)
4	跳闸命令	合闸	分闸	由合闸到分闸防合闸状态
5	无	分闸	分闸	在分闸防合闸状态下, 不允许手动合闸
6	跳闸命令	分闸	分闸	在分闸状态下收到分闸命令保持不动
7	合闸允许命令	分闸	分闸	由分闸防合闸状态到分闸非防合闸状态
8	直接合闸命令	分闸	分闸	保持分闸非防合闸状态, 不允许直接合闸

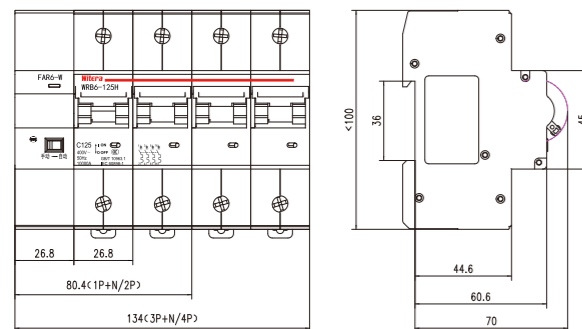
外形尺寸图 / Outline Dimension



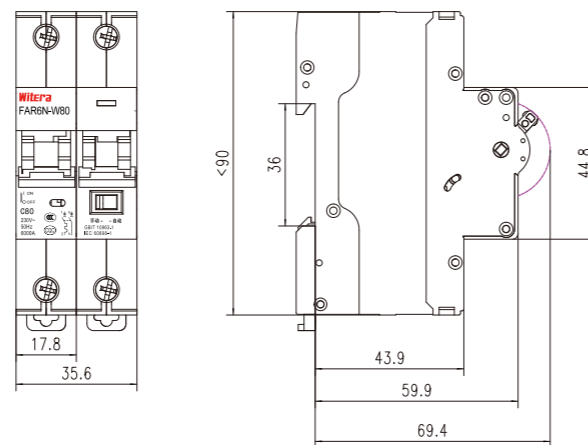
FAR6-W100B



FAR6-W125



FAR6-W125H



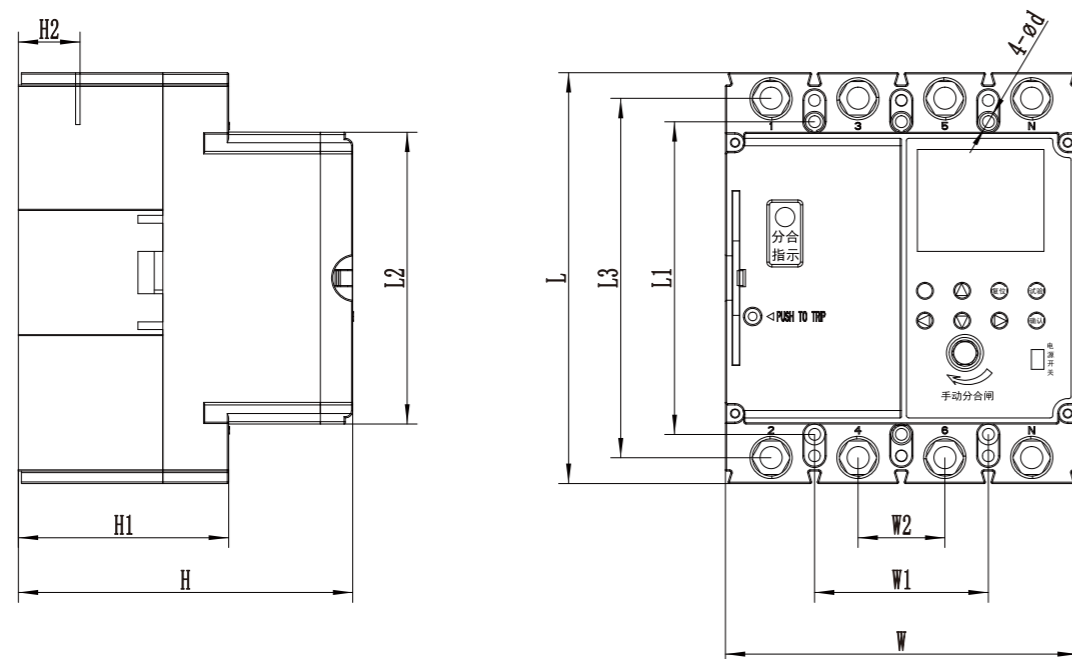
FAR6N-W100

● 塑壳费控断路器
Molded case cost controlled
circuit breaker

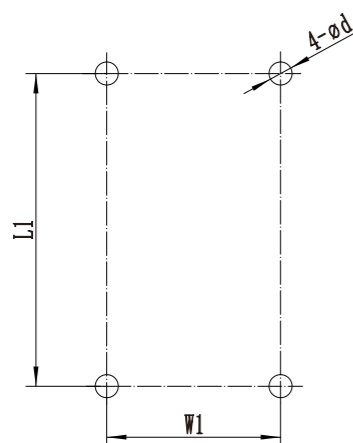


塑壳费控断路器 Molded case cost controlled circuit breaker	WRM2L-W125	WRM2L-W250	WRM2L-W400	WRM2L-W630	
壳架电流(A) Shell frame current (A)	125	250	400	630	
额定电流In(A) Rated current In (A)	50、63、80、100、125	100、125、140、160、 200、225、250	200、225、250、 315、350、400	315、350、400、 500、630	
极数 Number of poles	3P+N				
额定工作电压Ue(V) Rated working voltage Ue (V)	AC400				
额定绝缘电压Ui(V) Rated insulation voltage Ui (V)	AC1000				
额定冲击耐受电压Uimp(V) Rated impulse withstand voltage Ump (V)	8000				
飞弧距离(mm) Arc distance (mm)	>50	>50	>100	>100	
极限短路分断能力Icu(kA) Ultimate short-circuit breaking capacity Icu (kA)	70	85	100	50 50	
运行短路分断能力Ics(kA) Operating short-circuit breaking capacity Ics (kA)	50	55	65	35 35	
额定短时耐受电流Icw (kA) Rated short-time withstand current (kA)	12.5	5	5	8	
操作性能(次) Operational performance (times)	通电 Power on	1500	1000	1000	1000
	不通电 No power supply	8500	7000	4000	4000
	总次数 Total times	10000	8000	5000	5000
过载、短路特性 Overload and short circuit characteristics	三段保护, 电子可调				
过压保护值(V) Overvoltage protection value (V)	设置值(250~300)+5%				
欠压保护值(V) Undervoltage protection value (V)	设置值(145~200)+5%				
手动/自动开关转换操作 Manual/automatic switch switching operation	将【手动/自动开关】切换至【自动】模式, 欠费分闸后, 缴费会自动合闸 将【手动/自动开关】切换至【手动】模式, 欠费分闸后, 缴费不会自动合闸				
环境温度 Ambient temperature	-40°C~+70°C				
空气相对湿度 Relative humidity of air	≤ 95%				
海拔 Altitude	≤ 2000m				
污染等级 Pollution level	3				
振动和冲击 Vibration and shock	无振动和冲击的场合				
防护等级 Protection level	IP20				

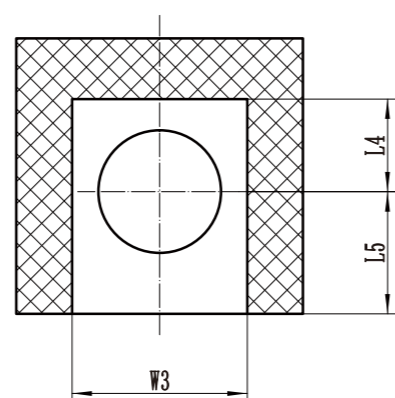
外形尺寸图 / Outline Dimension



安装尺寸



接线位置



外形及安装尺寸 / Appearance and installation dimensions

产品型号 Model	L	W	H	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	Φd
WRM2L-125-W	150	122	123	123	120	133	7.5	8.5	60	30	18	64	26	4.5
WRM2L-250-W	165	142	135	126	118	145	11.5	10	70	35	23	85	22.5	5
WRM2L-400-W	257	198	180	193	182	225	12	16	94	48	32	98	39	8
WRM2L-630-W	336	198	182.5	274	253	305	12	16	96	48	32	98.5	39	8

● 自恢复式过欠压保护器
FAR6B-U Self-Recovery overvoltage/undervoltage protector

产品背景及应用

低压配电系统中,由于中性线发生故障或错接线等都可能造成电压异常,而且对于室内无人或者老幼病残的住户如还需要手动操作既不方便也不安全。因此在JGJ 242-2011《住宅建筑电气设计规范》中也明确规定了“每套住宅应设置自恢复式过、欠压保护器”。

FAR6B-U自恢复式过欠压保护器,适用于家用及类似用途的低压配电线路中,实现自动检测线路电压,在线路发生过电压或欠电压时自动断开故障线路,在线路电压恢复正常范围后自动合闸,确保负载设备在正常电压下安全运行。同时兼有过载短路保护功能,符合JB/T12762自恢复式过欠压保护器行业标准(苏州未来电器作为本标准负责起草单位)。

Product Background and Application

In low-voltage distribution system, the neutral line fault or wrong connection may cause abnormal voltage, and it is neither convenient nor safe for indoor unmanned or disabled households to operate manually. Therefore, in JG 242-2011 Code for Electrical Design of Residential Buildings, it is clearly stipulated that "FAR6B-U Self-Recovery overvoltage/undervoltage protector should be installed in every house".

FAR6B-U Self-Recovery overvoltage/undervoltage protector is suitable for low-voltage distribution lines for household and similar purposes, It can automatically detect line voltage, automatically disconnect fault lines when overvoltage or under-voltage occurs, and automatically close after the line voltage restores to normal range, so as to ensure the safe operation of load equipment under normal voltage. At the same time, it also has the function of overload short circuit protection, which meets the industry standard of JB/T12762 self-recovery over-voltage protector (Suzhou Future Electrical Appliances as the drafting unit of this standard).

产品特点

- ◆ 全面保护:过欠压保护、过载及短路保护;
- ◆ 安全可靠:具有隔离功能,分闸挂锁、分断能力最大可达10KA;
- ◆ 小体积、大容量:100A及以下均为单极18mm,最大可达125A
- ◆ 安装方便:内置取电和监测,无需外接引线,安装快速且稳定。
- ◆ 适应性强:适用于环境温度-25°C~+60°C。
- ◆ 节能环保:低功耗、全面符合欧盟ROHS指令。

Product Features

- ◆ Comprehensive protection: over-voltage protection, over-load protection and short-circuit protection;
- ◆ Safety and reliability: with isolation function, the capacity of opening padlock and interrupting can reach 10KA;
- ◆ Small volume, large capacity: 100A and below are unipolar 18mm, up to 125A;
- ◆ Easy installation: built-in power pick-up and monitoring, without external lead, fast and stable installation;
- ◆ Strong adaptability: suitable for ambient temperature -25°C~+60°C;
- ◆ Energy-saving and environmental protection: low power consumption, fully in line with EU ROHS directive.

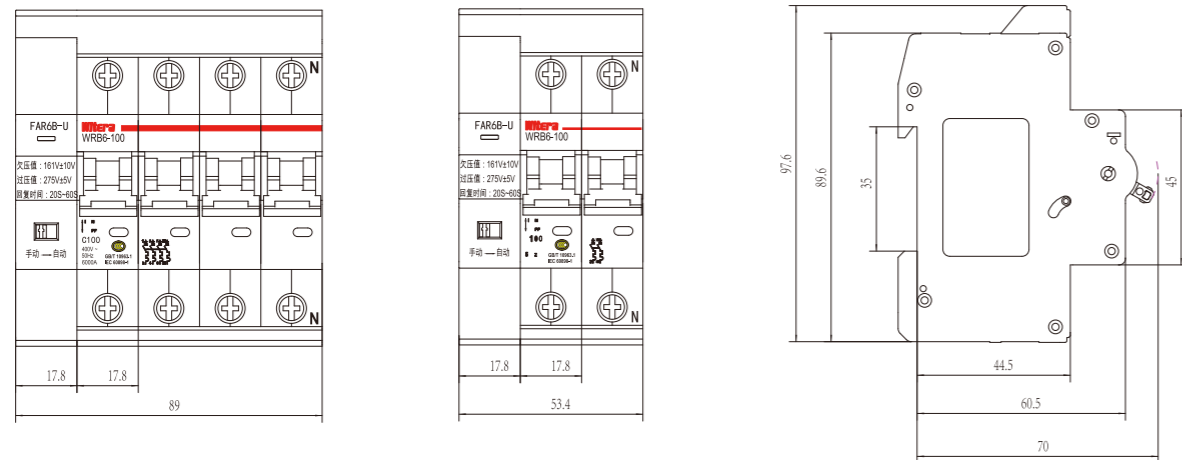
选型说明 / Product Selection Guide

产品类别 Product Category	设计序号 Design Serial Number	内轴驱动 Inner axle drive	功能类别 Functional category	功能代码 Functional code	壳架电流 Frame size	分断能力 Breaking capacity	脱扣特性 Release characteristics	额定电流 Rated current	极数 Number of poles
FAR	6	B	-	U	A	100	-	C	100 / 2
			自恢复式过欠压 Self-repeating overvoltage and undervoltage	A	100	省略:6000A	B型:3-5In	16	2: 单相2P
				B	125	H:10000A	C型:5-10In	...	4: 三相4P
				C			D型:10-14In	100	
				D				125	

产品系列 / Product Series



外形尺寸图 / Outline Dimension



细分功能表 / Subdivision Function Table

结构代码 Structural code	A	B	C	D	E	F	G
过压保护(V) Overvoltage protection	275	275	通讯可调	275			
欠压保护(V) Undervoltage protection	161	/	通讯可调	150			
上电合用延时(S) Power-on closing delay	22	22	通讯可调	22			
闭锁 Atresia	/	/	/	/			

型号示例: FAR6B-UA125H_C100/4, 表示C型100A的4P自复式过欠压保护器, 过欠压及延时分别是275V、161V及22s。
Model example: FAR6B-UA125H_C100/4 represents a C-type 100A 4P self resetting overvoltage/undervoltage protector, with overvoltage/undervoltage and delay of 275V, 161V, and 22s, respectively.

功能特性 / Function characteristics

产品型号 Model	FAR6B-U100	FAR6B-U125H
产品图片 Product image		
接线方式 Wiring method	单相1P+N/2P、三相3P+N/4P	
额定工作电压(V) Rated working voltage	单相AC230V、三相AC400V	
额定工作电流(A) Rated working current(A)	6、10、16、20、25、32、40、50、63、80、100、125	80、100、125
额定短路分断能力 Rated short-circuit breaking capacity	6kA	10kA
脱扣特性 Tripping characteristics	C、D	
欠压保护值(默认) Undervoltage protection value (default)	161V±5V(恢复值190V±5V)(相电压)	
欠压保护分闸时间 Opening time of undervoltage protection	1s < T1 ≤ 3s	
过压保护值(默认) Overvoltage protection value (default)	275V±5V(恢复值253V±5V)(相电压)	
过压保护分闸时间 Overvoltage protection opening time	3s < T2 ≤ 5s (275V-300V)	
自恢复合闸延时 Self-recovery closing delay	T3=20-60s	
手动/自动 Manual and Automatic	自动状态: 电压故障后自动分闸, 电压恢复后自动复位合闸 手动状态: 电压故障后保持原有状态, 只能通过人工分合闸	
指示灯 Indicator light	绿色: 正常运行; 红色: 电压故障; 橙色: 故障闭锁	
机械寿命 Mechanical life	10000	
电气寿命 Electrical life	6000	
接线能力 Connectivity	35mm²及以下	50mm²及以下
环境温度 Ambient temperature	-25°C~+60°C	
空气相对湿度 Relative humidity of air	≤ 95% (55°C)	
海拔 Altitude	≤ 2000m	
污染等级 Class of pollution	2	
振动和冲击 Vibration and shock	无振动和冲击的场合	
防护等级 Protection Level	IP20	

● **WRGQ5自复式过欠压保护器(继电器式)**
WRGQ5 Self-Recovery overvoltage/undervoltage protector (Relay Type)

产品背景及应用

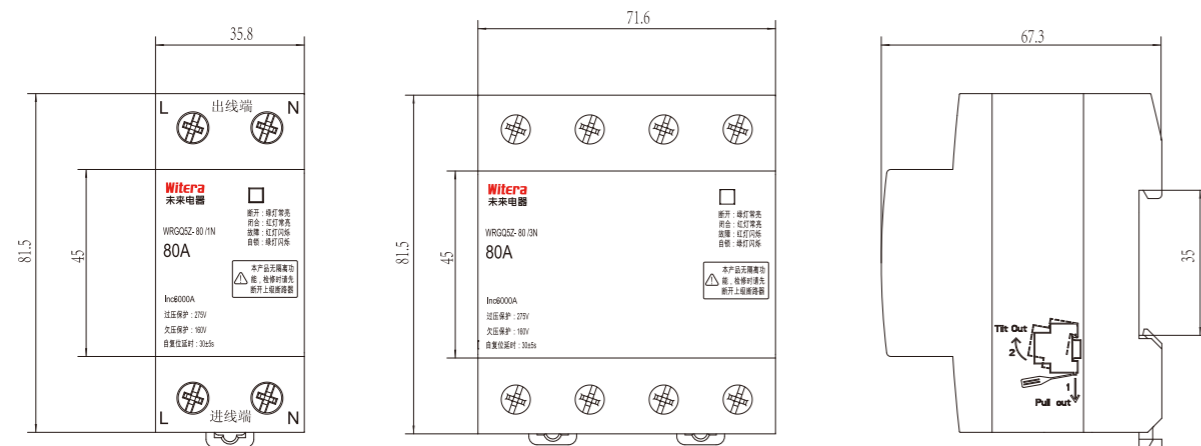
WRGQ5Z 过欠压自动重合闸保护器,适用于交流额定频率 50Hz, 额定电压 230/400V(相对中性线电压为230V)的家用及类似用途的低压配电线路中,能自动检测线路电压,在线路发生过电压或欠电压时自动断开故障线路,在线路电压恢复正常范围后能自动合闸,确保负载设备在正常电压下安全运行。

Product Background and Application

WRGQ5Z overvoltage/undervoltage automatic reclosing protector is suitable for low-voltage distribution lines with AC rated frequency of 50Hz and rated voltage of 230/400V (relative to neutral line voltage of 230V) for household and similar purposes. It can automatically detect line voltage, automatically disconnect faulty lines in case of overvoltage or undervoltage, and automatically close after the line voltage returns to normal range, ensuring safe operation of load equipment under normal voltage.



外形尺寸图 / Outline Dimension



功能特性 / Function characteristics

产品型号 Model	WRGQ5Z/1N	WRGQ5Z/3N
额定工作电压(Un) Rated working voltage (Un)	AC 230V	AC 400V
额定电流 Rated current	32、40、50、63、80	
额定频率 Rated frequency	50Hz	
额定绝缘电压Ui Rated insulation voltage Ui	AC 500V	
额定限制短路电流 Inc Rated limiting short-circuit current Inc	6kA	
极数 Number of poles	1N、3N ("N"为不带过电流保护的不可开闭中性极)	
欠压保护值 Undervoltage protection value	275V	
过压保护值 Overvoltage protection value	160V	
欠压恢复值 Undervoltage recovery value	195V	
过压恢复值 Overvoltage recovery value	253V	
自恢复合闸延时 Self recovery composite gate delay	30±5s	
欠压动作时间 Undervoltage action time	0.6s ≤ t ≤ 5s	
过压动作时间 Overvoltage action time	275V: 3s ≤ t ≤ 15s; 300V: 1s ≤ t ≤ 3s; 350V: 0.25s ≤ t ≤ 0.75s; 400V: 0.1s ≤ t ≤ 0.2s;	
额定冲击耐受电压 (Uimp) Rated impulse withstand voltage (Uimp)	4kV	
机械寿命 Mechanical life	10000 次, 3 次/分钟	
环境温度 Ambient temperature	-25°C~+60°C	
空气相对湿度 Relative humidity of air	≤ 95% (55°C)	
海拔 Altitude	≤ 2000m	
污染等级 Pollution level	2	
振动和冲击 Vibration and shock	无振动和冲击的场合	
防护等级 Protection level	IP20	

● FAR6B-R自动重合闸保护器 FAR6B-R Automatic reclosing protector

产品背景及应用

FAR6B-R 自动重合闸保护器具有短路保护、过载保护、自动重合功能。产品适用于各种复杂的环境，尤其是通信领域中的无人值守、集中控制、不便操作及网络监控等应用场合。该系列产品具有小体积、高分断、动作可靠、性能稳定及良好的人机交互界面。

产品对人身触电危险提供间接接触保护，对线路、用电或通信设备提供选择性保护和选择性自复。

Product Background and Application

FAR6B-R Automatic reclosing protector has the functions of short circuit protection, overload protection and automatic reclosure. The product is suitable for various complex environments, especially in the field of communication applications such as unattended, centralized control, inconvenient operation and network monitoring. This series of products have small volume, high breaking, reliable movement, stable performance and good man-machine interface.

The product provides indirect contact protection for personal electric shock hazard, selective protection and selective self-repetition for lines, electricity or communication equipment.

产品系列 / Product Series



产品特点

- ◆ 全面保护: 具有过载、短路保护功能。
- ◆ 小体积、大容量: 100A及以下均为单极18mm
- ◆ 安全可靠: 具有手自动开关, 安全可靠, 内轴驱动, 同步性好。
- ◆ 安装方便: 内部取电和监测, 无需外接引线, 安装快速且稳定。
- ◆ 适应性强: 适用于环境温度-25°C-±65°C。
- ◆ 节能环保: 低功耗, 全面符合欧盟ROHS指令, 节约能源, 低碳环保。

Product Features

- ◆ Comprehensive protection: with overload and short circuit protection functions;
- ◆ Small volume and large capacity: both 100A and below are unipolar 18 mm;
- ◆ Safety and reliability: with manual automatic switch, safety and reliability, internal shaft drive, good synchronization;
- ◆ Easy to install: Internal power collection and monitoring, no need for external leads, fast and stable installation;
- ◆ Strong adaptability: suitable for ambient temperature -25°C±65°C;
- ◆ Energy-saving and environmental protection: Low power consumption, in full compliance with EU ROHS directive, energy-saving, low-carbon environmental protection.

选型说明 / Product Selection Guide

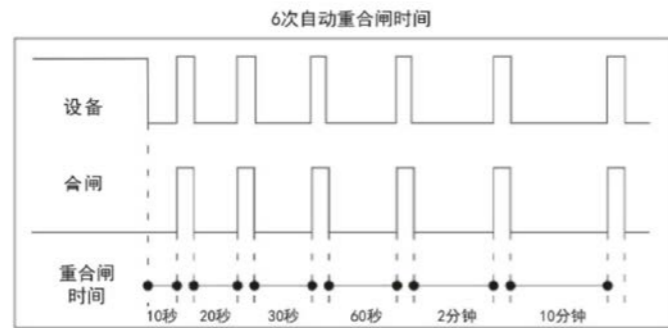
FAR	6	B	-	R	100	/	-	C	100	/	2
产品类别 Product Category	设计序号 Design Serial Number	内轴驱动 Inner axle drive	功能类别 Functional category	壳架电流 Frame size	分断能力 Breaking capacity	脱扣特性 Release characteristics	额定电流 Rated current	极数 Number of poles			
			重合闸保护器 Reclosure protector	100	省略:6000A	B:瞬时脱扣 电流3-5In	16	2:单相2P			
				125	H:10000A	C:瞬时脱扣 电流5-10In D:瞬时脱扣 电流10-14In	...	4:三相4P			
							100				
							125				

型号示例: FAR6B-R100_C100/4, 表示C型100A的4P重合闸保护器。
Model example: FAR5B-R100_C100/4 represents a C-type 100A 4P reclosing protector.

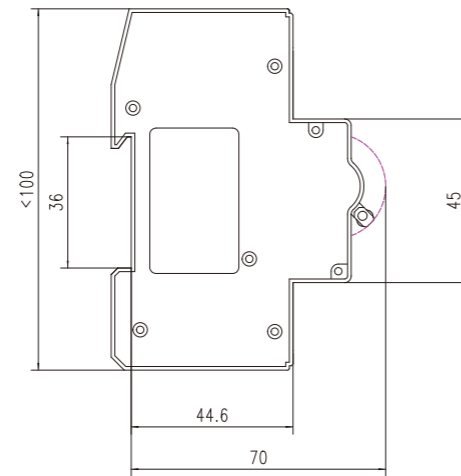
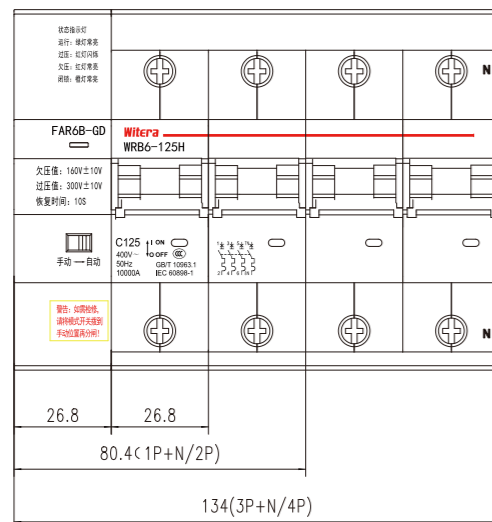
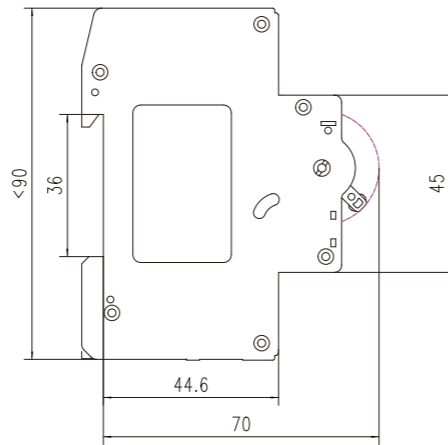
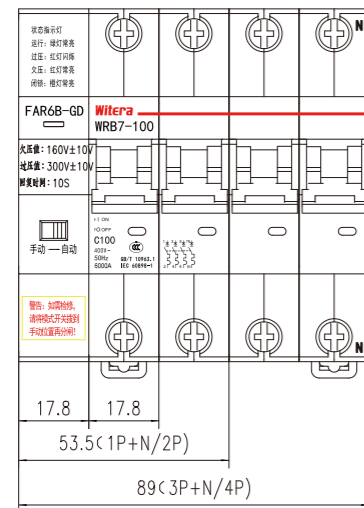
功能特性 / Function characteristics

自动重合闸保护器 Automatic reclosure protector	FAR6B-R100	FAR6B-R125H
接线方式 Connection mode	单相1P+N/2P; 三相3P+N/4P	
额定工作电压(V) Rated operating voltage	单相AC230V; 三相AC400V	
额定工作电流(A) Rated working current	6、10、16、20、25、32、40、50、63、80、100	80、100、125
额定短路分断能力 Rated working current	6kA	10kA
脱扣特性 Release characteristics	C型、D型	
取电方式 Electricity fetching mode	A相	
介电性能 Dielectric properties	2500VAC 1分钟	
耐压水平 Voltage withstanding level	4kV	
手动/自动 Manual/Automatic Operation	自动状态: 手动将断路器分闸, 默认为故障跳闸, 将自动重合 手动状态: 自动重合功能失效, 可以手动分闸或合闸	
机械寿命 Mechanical life	10000次	
电气寿命 Electrical life	6000次	
接线能力 Connectivity	35mm ² 及以下	50mm ² 及以下
环境温度 Ambient temperature	-25°C~+60°C	
空气相对湿度 Relative humidity of air	≤95% (55°C)	
海拔 Altitude	≤2000m	
污染等级 Class of pollution	2	
振动和冲击 Vibration and shock	无振动和冲击的场合	
防护等级 Protection Level	IP20	

自动重合规律图 / Automatic reclosing pattern diagram



外形尺寸图 / Outline Dimension



● FRC6-M远程控制断路器
FRC6-M Remote Control Circuit Breaker

产品背景及应用

为适应智能电网、物联网的高速发展,将MT电动操作机构及WRB6内轴驱动微型断路器紧密结构,构成了FRC6-M远程控制断路器,实现可靠的远程自动控制,满足了市场需求。

Product Background and Application

In order to adapt to the rapid development of smart grid and Internet of Things, the close structure of MT electric operation mechanism and WRB6 inner-axle driven miniature circuit breaker constitutes FRC6-M remote control circuit breaker, which realizes reliable remote automatic control and meets the market demand.

产品特点

- ◆ 超小体积: 125A单极断路器及驱动模块最小宽度仅为18mm;
- ◆ 动作快速: 分、合闸时间在0.5s以内;
- ◆ 安全可靠: 10000次机械寿命, 配置安全挂锁;
- ◆ 多极同步: 多极断路器可内置一体轴驱动;
- ◆ 适应性强: 控制电压规格齐全、电源范围宽、交直流通用;
- ◆ 安装方便: TH35mm标准导轨;
- ◆ 节能环保: 符合欧盟ROHS指令;

Product Features

- ◆ Ultra-small volume: The minimum width of 125A unipolar circuit breaker and drive module is only 18mm;
- ◆ Fast action: opening and closing time is less than 0.5 seconds;
- ◆ Safety and reliability: 10000 mechanical life, with safety padlock;
- ◆ Multiple synchronization: Multipole circuit breaker can be built-in integrated shaft drive;
- ◆ Strong adaptability: complete control voltage specifications, wide power supply range, AC and DC universal;
- ◆ Easy installation: TH35mm standard guide;
- ◆ Energy Conservation and Environmental Protection: In accordance with EU ROHS Directive;

产品系列 / Product Series

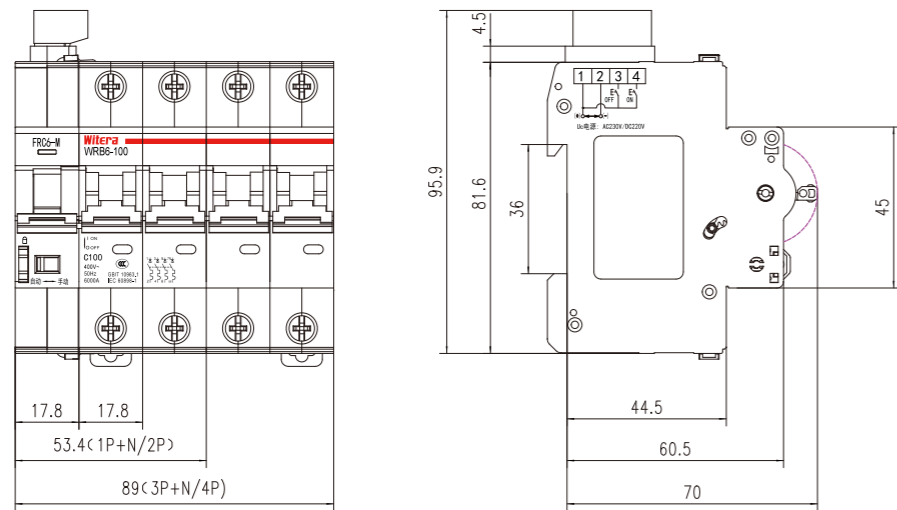


选型说明 / Product Selection Guide

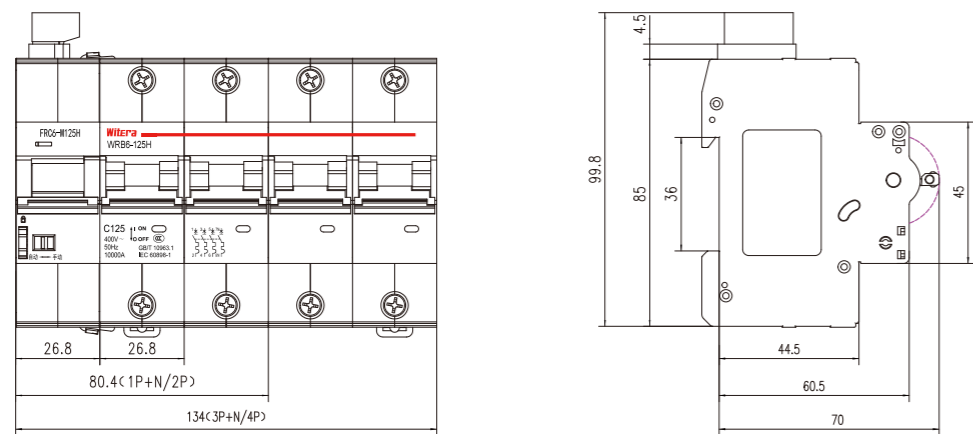
FRC	6	M	-	R	100	/	C	100	/	2	-	230V
产品类别 Product Category	设计序号 Design Serial Number	功能类别 Functional category	结构代码 Structural code	壳架电流 Frame size	分断能力 Breaking capacity	脱扣特性 Release characteristics	额定电流 Rated current	极数 Number of poles	额定电压 Rated voltage			
		电动操作 Electric operation	常规省略 Conventional ellipsis	100	省略:6000A	B型:3-5In	16	2:单相2P	230V: AC230V/DC220V			
			R:RS485	125	H:10000A	C:5-10In	...	4:三相4P	110V: AC110V/DC110V			
						D:10-14In	100		24V:DC24V			
							125		12V-DC12V			

示例:FRC6-M100_C80/2_230V表示C型80A的2P断路器,额定控制电压为230V。
Example: FRC6-M100_C80/2_230V represents a C-type 80A 2P circuit breaker with a rated control voltage of 230V.

外形尺寸图 / Outline Dimension



FRC6-M100



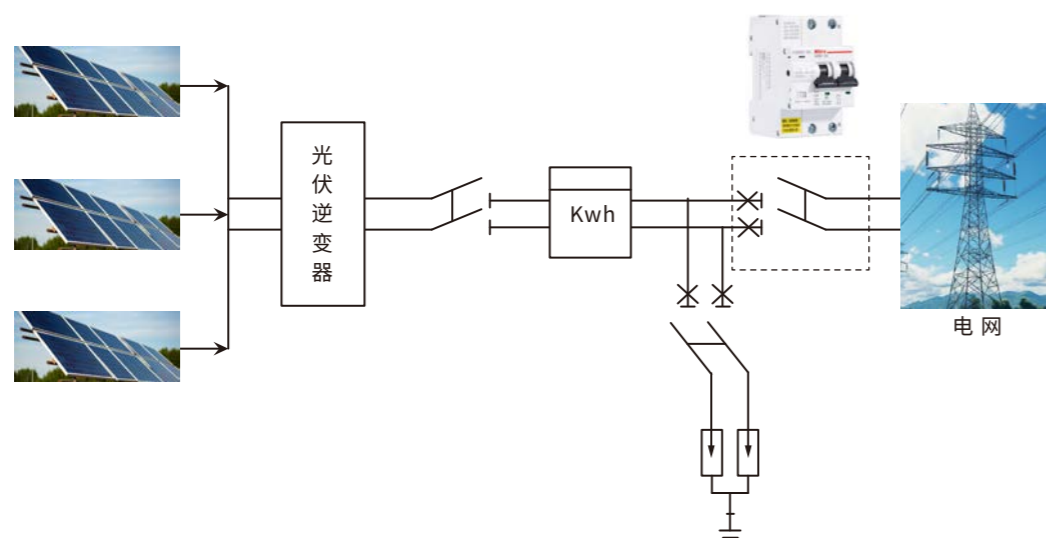
FRC6-M125H

功能特性 / Function characteristics

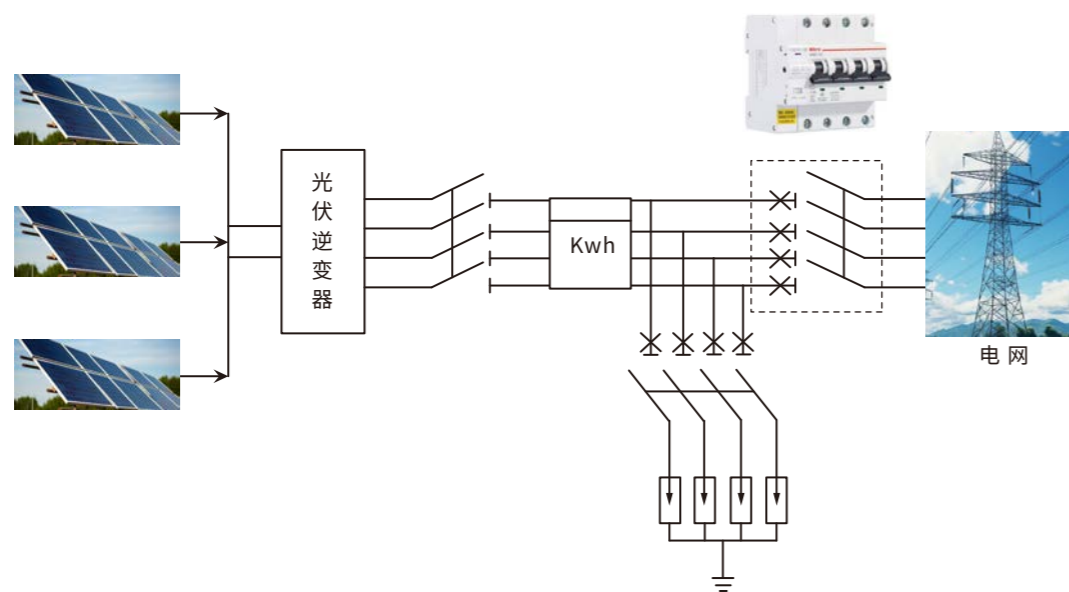
产品型号 Model	FRC6-M100	FRC6-M125H
产品图片 Product image		
控制电源电压 Control power supply voltage	AC230V/DC220V、AC110V/DC110V、DC24V、DC12V等可选	
远程控制方式 Remote control mode	干节点控制(默认)、RS485控制可选	
分闸合闸时间 Opening and closing time	≤0.5s	
分闸安全挂锁 Opening safety padlock	分闸状态挂锁后无法合闸	
手动/自动 Manual and Automatic	手动状态,只能纯手动操作,自动状态下远程控制分合闸	
极数 Pole number	单相1P+N/2P、三相3P+N/4P	
额定工作电压(V) Rated operating voltage	AC230/400V	
额定工作电流(A) Rated working current	6、10、16、20、25、32、40、50、63、80、100、125	80、100、125
额定短路分断能力 Rated short circuit breaking capacity	6KA	10KA
脱扣特性 Release characteristics	B、C、D	
机械寿命 Mechanical life	10000	
电气寿命 Electrical life	6000	
接线能力 Connectivity	35mm²及以下	50mm²及以下
环境温度 Ambient temperature	-25°C~+60°C	
空气相对湿度 Relative humidity of air	≤95% (55°C)	
海拔 Altitude	≤2000m	
污染等级 Class of pollution	2	
振动和冲击 Vibration and shock	无振动和冲击的场合	
防护等级 Protection Level	IP20	

● 光伏并网专用断路器(FAR6B-G / WRM2L-G分布式光伏并网塑壳断路器)
Special circuit breaker for photovoltaic grid connection (FAR6B-G / WRM2L - G Distributed photovoltaic grid-connected MCCB)

220V分布式光伏并网发电系统方案
220V distributed photovoltaic grid-connected power generation system scheme



380V分布式光伏并网发电系统方案
380V distributed photovoltaic grid-connected power generation system scheme



产品背景及应用

自动并网专用断路器为分布式电源提供孤岛保护和自动重合功能。产品适用于各种分布式新能源发电自动并网场合。该系列产品具有小体积、高分断、动作可靠、性能稳定及良好的人机交互界面，具有安装简单，具备通过对过欠压及失压保护实现孤岛保护，当主电网恢复时自动并网。符合国网Q/GDW1972-2013《分布式光伏并网专用低压断路器技术规范》要求。

产品对无人值守场合的分布式电网实现了孤岛保护及自动并网。

Product Background and Application

Automatic grid-connected special circuit breaker provides islanding protection and automatic reclosure function for distributed generation. The product is suitable for all kinds of distributed new energy generation automatic grid-connected occasions. This series of products have small volume, high breakdown, reliable operation, stable performance and good man-machine interaction interface. It has simple installation, islanding protection through over-voltage and under-voltage protection, and automatic grid connection when the main power grid restores. In line with the national network. Q/GDW1972-2013 "Technical Specification for Low Voltage Circuit Breakers for Distributed Photovoltaic Grid Connection".

The product achieves island protection and automatic grid connection for distributed power grids in unmanned environments.

产品特点

- ◆ 全面保护:具有过压、欠压、失压及过载短路保护功能;
- ◆ 小体积、大容量:100A及以下均为单极18mm;
- ◆ 安全可靠:具有手自动开关,安全可靠,内轴驱动,同步性好;
- ◆ 安装方便:内部取电和监测,无需外接引线,安装快速且稳定;
- ◆ 适应性强:适用于环境温度-25°C ~+65°C;
- ◆ 节能环保:低功耗,全面符合欧盟ROHS指令,节约能源,低碳环保;

Product Features

- ◆ Overall protection: with over-voltage, under-voltage, voltage loss and overload short-circuit protection functions;
- ◆ Small volume, large capacity: 100A and below are unipolar 18mm;
- ◆ Safe and reliable: with hand automatic switch, safe and reliable, internal shaft drive, good synchronization;
- ◆ Easy to install: Internal power collection and monitoring, no need for external leads, fast and stable installation;
- ◆ Strong adaptability: suitable for ambient temperature -25°C ~+65°C;
- ◆ Low power consumption, fully compliant with the EU ROHS directive, energy-saving, low-carbon and environmentally friendly;

产品系列 / Product Series

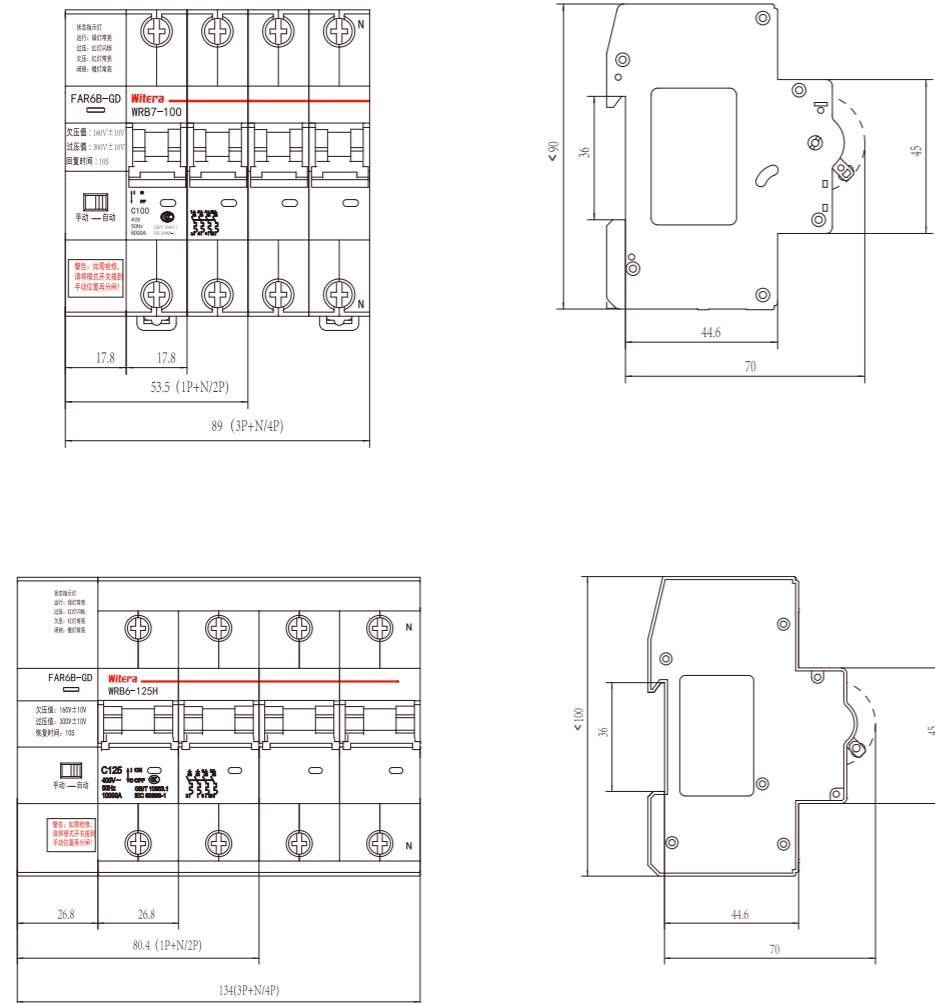


选型说明 / Product Selection Guide

FAR	6	B	-	G	D	100	B	-	C	100 / 2
产品类别 Product Category	设计序号 Design Serial Number	内轴驱动 Inner axle drive	功能类别 Functional category	细分功能 Subdivision function	壳架电流 Frame size	断路器代号 Circuit breaker code	脱扣特性 Release characteristics	额定电流 Rated current	极数 Number of poles	
		光伏并网 Photovoltaic grid-connected	D: 防孤岛	100	加长版 Extended edition	B型: 3-5In	16	2: 单相2P		
			W: 防孤岛+费控	125		C型: 5-10In	...	4: 三相4P		
			R: 防孤岛+通讯			D型: 10-14In	100			
			T: 防孤岛+蓝牙费控				125			

型号示例: FAR6B-GD100B_C100/4, 表示C型100A的4P光伏并网专用断路器, 具有过压、欠压、失压保护。
Model example: FAR6B-GD100B_C100/4 represents a C-type 100A 4P photovoltaic grid connected dedicated circuit breaker with overvoltage, undervoltage, and voltage loss protection.

外形尺寸图 / Outline Dimension



功能特性 / Function characteristics

产品型号 Model	FAR6B-GD100B FAR6B-GRS100B	FAR6B-GW100B FAR6B-GT100B	FAR6B-GD125H FAR6B-GRS125H	FAR6B-GW125H FAR6B-GT125H
功能类别 Functional category	GD: 过欠压保护(防孤岛) GW: 过欠压保护+费控(电平控制) GRS: 过欠压保护+RS485通讯 GT: 过欠压保护+费控功能(无线蓝牙)			
接线方式 Connection mode	单相1P+N/2P、三相3P+N/4P			
额定工作电压(V) Rated operating voltage	1P+N/2P 230V AC/50Hz, 3P+N/4P 400V AC/50Hz			
额定工作电流In (A) Rated working current	20、25、32、40、50、63、80、100		40、50、63、80、100、125	
额定短路分断能力Icn Rated working current	6kA		10kA	
脱扣特性 Release characteristics	C型 (5In ≤ I ≤ 10In)			
过压动作值 Overvoltage action value	> 300V ± 10V			
过压延时 Overvoltage delay	0-10s (默认3s)			
过压恢复值 Overvoltage recovery value	< 280V ± 10V			
欠压动作值 Undervoltage action value	< 160V ± 10V			
失压、欠压延时 Voltage loss and undervoltage delay	0-10s (默认5s)			
欠压恢复值 Undervoltage recovery value	> 180V ± 10V			
机械寿命 Mechanical life	20000次			
电气寿命 Electrical life	6000次			
介电强度 Dielectric strength	2500VAC, 1分钟			
冲击耐压Uimp Impulse withstand voltage Uimp	6000V			
接线能力 Wiring capability	35mm²及以下		50mm²及以下	
通讯方式 Communication method	RS485/电平/蓝牙			
手动/自动操作 Manual/automatic operation	拨到自动模式: 具有失压、欠压、过压及自动重合功能 拨到手动模式: 可分闸, 不能自动合闸			
环境温度 Ambient temperature	-25°C ~ +60°C (极限 -40°C ~ +70°C)			
空气相对湿度 Relative humidity of air	≤ 95%			
海拔 Altitude	≤ 2000m			
污染等级 Class of pollution	2			
振动和冲击 Vibration and shock	无振动和冲击的场合			
防护等级 Protection Level	IP20			

● 塑壳光伏断路器
Molded case photovoltaic circuit breaker

产品背景及应用

各类分布式新能源发电, 在主电网出现电压异常或掉电时, 该电源即成为孤岛, 需要将其从主电网可靠切除, 实现孤岛保护, 同时主电网恢复时, 又需要自动合闸复位实现并网。

WRM2L-G光伏并网专用塑壳断路器即为分布式电源、提供自动并网和孤岛保护的专用断路器。符合国家电网公司Q/GDW1972-2013《分布式光伏并网专用低压断路器技术规范》的相关要求。

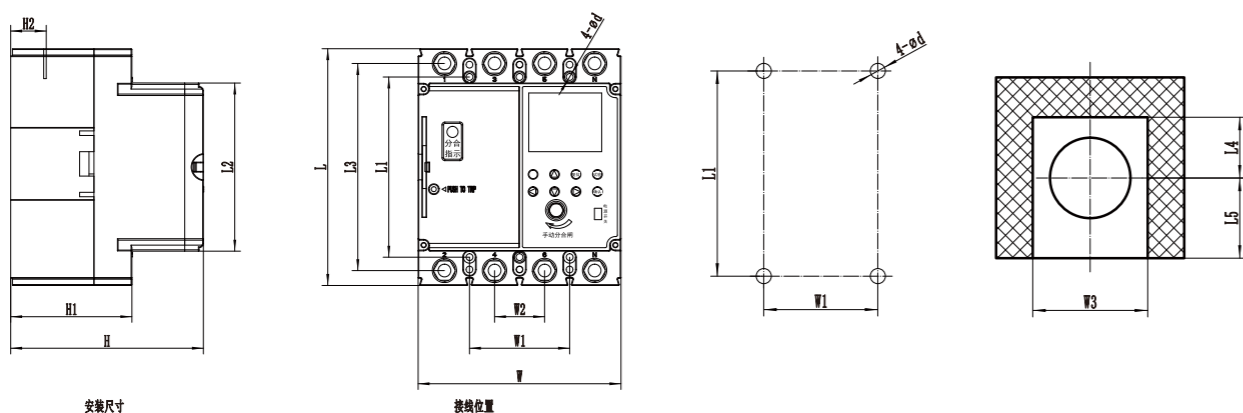
Product Background and Application

Various types of distributed new energy power generation become isolated when the main power grid experiences voltage abnormalities or power outages. It needs to be reliably cut off from the main power grid to achieve island protection. At the same time, when the main power grid is restored, it needs to automatically close and reset to achieve grid connection.

The WRM2L-G photovoltaic grid connected dedicated molded case circuit breaker is a dedicated circuit breaker for distributed power sources, providing automatic grid connection and island protection. Comply with the relevant requirements of State Grid Corporation of China's Q/GDW1972-2013 "Technical Specification for Low Voltage Circuit Breakers for Distributed Photovoltaic Grid Connection".



外形尺寸图 / Outline Dimension



外形及安装尺寸 / Appearance and installation dimensions

产品型号 Model	L	W	H	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	Φd
WRM2L-250_G	165	142	135	126	118	145	11.5	10	70	35	23	85	22.5	5
WRM2L-400_G	257	198	180	193	182	225	12	16	94	48	32	98	39	8
WRM2L-630_G	336	198	182.5	274	253	305	12	16	96	48	32	98.5	39	8

功能特性 / Function characteristics

产品型号 Model	WRM2L-G250	WRM2L-G400	WRM2L-G630
壳架电流(A) Shell frame current (A)	250	400	630
额定电流In(A) Rated current In (A)	100、125、140、160、200、225、250	200、225、250、315、350、400	315、350、400、500、630
极数 Number of poles	3P+N		
额定工作电压Ue(V) Rated working voltage Ue (V)	AC400		
额定绝缘电压Ui(V) Rated insulation voltage Ui (V)	AC1000		
额定冲击耐受电压Uimp(V) Rated impulse withstand voltage Ump (V)	8000		
飞弧距离(mm) Arc distance (mm)	≥50	≥100	≥100
极限短路分断能力Icu(kA) Ultimate short-circuit breaking capacity Icu (kA)	85	50 100	50 100
运行短路分断能力Ics(kA) Operating short-circuit breaking capacity Ics (kA)	55	35 65	35 65
额定短时耐受电流Icw (kA) Rated short-time withstand current (kA)	5	5	8
操作性能(次) Operational performance (times)	通电 Power on	1000	1000
	不通电 No power supply	7000	4000
	总次数 Total times	8000	5000
过载、短路特性 Overload and short circuit characteristics	三段保护, 电子可调		
过电压整定值(V) Overvoltage setting value (V)	默认290V (范围: 240V~350V)		
过电压延时值 (s) Overvoltage delay value (s)	默认3s (范围: 0s~10s)		
过电压恢复值(V) Overvoltage recovery value (V)	默认270V (范围: 240V~300V)		
欠电压整定值(V) Undervoltage setting value (V)	默认160V (范围: 120V~200V)		
欠电压延时值 (s) Undervoltage delay value (s)	默认3s (范围: 0s~10s)		
欠电压恢复值(V) Undervoltage recovery value (V)	默认190V (范围: 160V~220V)		
全失压整定值(V) Total voltage loss setting value (V)	默认50V (范围: 50V~100V)		
手动/自动开关转换操作 Manual/automatic switch switching operation	将【电压重合闸】切换至【开启】模式, 过欠压分闸后, 电压恢复正常会自动合闸 将【电压重合闸】切换至【禁用】模式, 过欠压分闸后, 电压恢复正常不会自动合闸		
环境温度 Ambient temperature	-40°C~+70°C		
空气相对湿度 Relative humidity of air	≤ 95%		
海拔 Altitude	≤ 2000m		
污染等级 Pollution level	3		
振动和冲击 Vibration and shock	无振动和冲击的场合		
防护等级 Protection level	IP20		

● WSPD浪涌保护器
WSPD surge protector

产品背景及应用

适用于交流50/60Hz,380V及以下的TT、IT、TN-S、TN-C-S等供电系统(或通讯系统)中,对间接雷电和直接雷电或其它瞬时过电压、过电流的浪涌进行防护,它能够安全有效的保障您的用电安全。

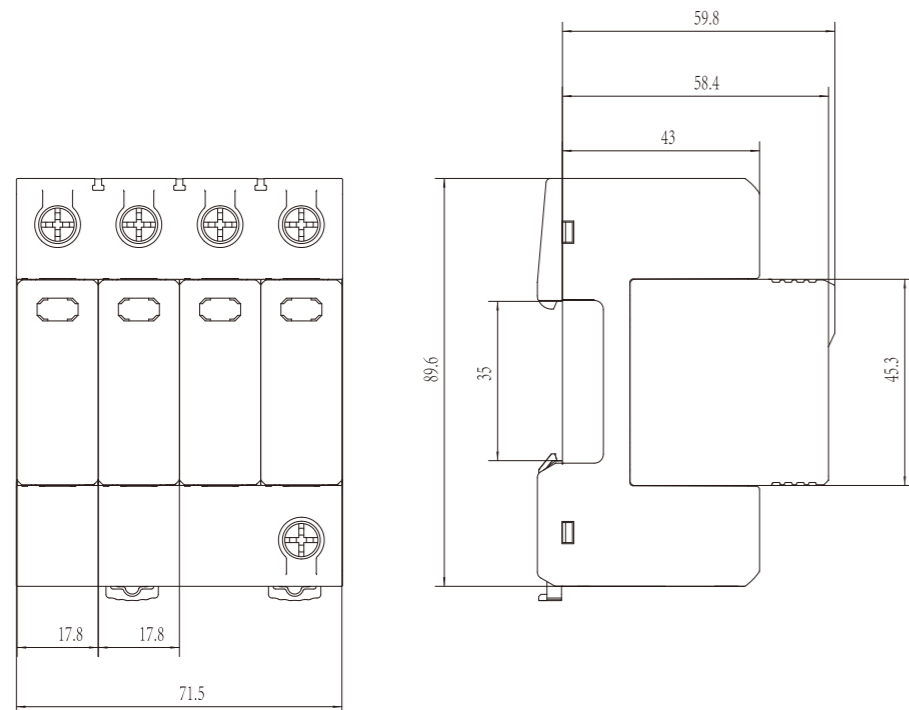
浪涌保护器(以下简称 SPD) 具有相对相、相对地、相对中线、中线对地及其它组合等保护模式,使低压配电系统后端设备及其他设备得到更安全、更广泛、更有效的保护。

Product Background and Application

Suitable for TT, IT, TN-S, TN-C-S and other power supply systems (or communication systems) with AC 50/60Hz, 380V and below, it provides protection against indirect lightning, direct lightning, or other transient overvoltage and overcurrent surges. It can safely and effectively ensure your electricity safety.

Surge protective devices (SPD) have protection modes such as phase to phase, phase to ground, phase to neutral, neutral to ground, and other combinations, providing safer, more extensive, and more effective protection for backend equipment and other devices in low-voltage distribution systems.

外形尺寸图 / Outline Dimension



功能特性 / Function characteristics

产品型号 Model	WSPD-C40	WSPD-C20	WSPD-A25	WSPD-A15
符合标准 Compliant with standards	GB/T18802.1/IEC61643.1			
极数 Number of poles	1P、1P+N、2P、3P、3P+N、4P		1P、2P、3P、4P	
额定频率(Hz) Rated frequency (Hz)	50-60			
电网运行电压Un(V) Grid operating voltage Un(V)	220/380			
最大持续工作电压Uc(V) Maximum continuous working voltage U (V)	275、320、385、460		385	
电压保护水平Up(kV) Voltage protection level Up (kV)	1.5、1.6、1.8、2.0	1.2、1.5、1.6、1.8	≤2.3	≤2.0
最大放电电流Imax(kA) Maximum discharge current Imax (kA)	40	20	limp25	limp15
标称放电电流In (kA) Nominal discharge current In (kA)	20	10	30	20
响应时间Ta(ns) Response time Ta (ns)	25			
L/N建议连接线径(mm ²) Recommended connecting wire diameter for L/N(mm ²)	10、16	10、16	25	16
PE建议连接线径(mm ²) Recommended connection wire diameter for PE(mm ²)	25	25	35	25
后备保护最大允许熔断器(A) Maximum allowable fuse for backup protection(A)	100	50	160	100
后备保护(建议断路器, A) Backup protection (recommended circuit breaker, A)	32/63	16/32	63/125	32/63
保护等级(产品使用保护类型) Protection level (product usage protection type)	B/I级保护	C/II级保护	A/I级保护	
试验等级(产品性能测试波形) Test level (product performance test waveform)	B/T2/II类试验(8/20us)		B/T2/II类试验(8/20us)	
使用环境温度 Operating ambient temperature	正常范围-5°C~+40°C,极限范围-40°C~+70°C			
失效指示窗口 Failure indication window	有(绿色:正常;红色:故障)			
遥信触点 Remote signaling contact	可选(常规产品不带遥信触点功能)			
安装海拔高度 Installation altitude	不超过2000m			
接线端子 Terminal blocks	螺钉压接			
最大接线能力 Maximum wiring capacity	软线2.5~16mm ² /硬线2.5~25mm ²			
安装方式 Installation method	TH35-7.5型钢安装轨			

● WSCB浪涌保护器后备保护装置 WSCB surge protector backup protection device

产品背景及应用

WSCB (浪涌保护器专用后备保护装置)作为新一代的浪涌保护器后备保护装置,具有分断能力强和更高的电涌耐受能力。WSCB在浪涌保护器(SPD)发生劣化,配电线路发生异常过电压,使浪涌保护器导通发生短路时能迅速切断电路,防止浪涌保护器起火。

通过远程报警模块,可及时了解后备保护装置的工作状态;更好的掌握SPD工作情况。

相对于同类其他产品来说本产品具有对SPD保护更灵敏,可提供持续防雷能力,线路保护电压更低,能更好的保护后端设备。

Product Background and Application

As a new generation of backup protection device for surge protective devices, WSCB (surge protective device specific backup protection device) has strong breaking capacity and higher surge withstand capacity. WSCB can quickly cut off the circuit when the surge protector (SPD) deteriorates and abnormal overvoltage occurs in the distribution line, causing the surge protector to conduct and cause a short circuit, preventing the surge protector from catching fire.

Through the remote alarm module, the working status of the backup protection device can be timely understood; Better grasp the workingsituation of SPD.

Compared to other similar products, this product is more sensitive to SPD protection, can provide continuous lightning protection ability, and has lower line protection voltage, which can better protect backend equipment.

产品特点

- ◆ 采用模块式结构组合成整体,每相独立保护,采用35mm标准导轨安装;
- ◆ 工频2A毫秒级脱扣保护;
- ◆ 冲击次数满足SPD型式试验次数;
- ◆ 工频电流与雷击电磁脉冲双通道,回路中串接限流元件,能有效降低工频预期短路峰值电流;
- ◆ 有雷击感应电流时,瞬态大电流在SCB上产生的残压较小;如SPD未完全失效,即使在SCB断开状态,保护电路对雷击浪涌电流仍能做到保护;

工作原理

- ◆ 有雷击电流时,通过GDT(气体放电管)导通SPD后对地释放。
- ◆ 当MOV失效时,工频电流通NTC(热敏电阻温度传感器)和线圈和SPD对地放电,当达到保护状态时,线圈铁芯动作使触头断开,切断SPD上的工频持续电流。
- ◆ 在受雷击冲击需再次合闸WSCB时,须确认SPD是保持有效后再合上手柄,如无法合上手柄或合上后短时后跳闸,说明需更换下端对应的SPD。

Product Features

- ◆ It adopts a modular structure combination to form a whole, with independent protection for each phase, and is installed using a 35mm standard guide rail;
- ◆ Power frequency 2A millisecond level tripping protection;
- ◆ The number of impacts meets the number of SPD type tests;
- ◆ Dual channels of power frequency current and lightning electromagnetic pulse, with series connection of current limiting elements in the circuit, can effectively reduce the expected peak short-circuit current at power frequency.
- ◆ When there is lightning induced current, the residual voltage generated by the transient high current on the CB is relatively small; If SPD is not completely ineffective, even in the SCB disconnected state, the protection circuit can still protect against lightning surge current.

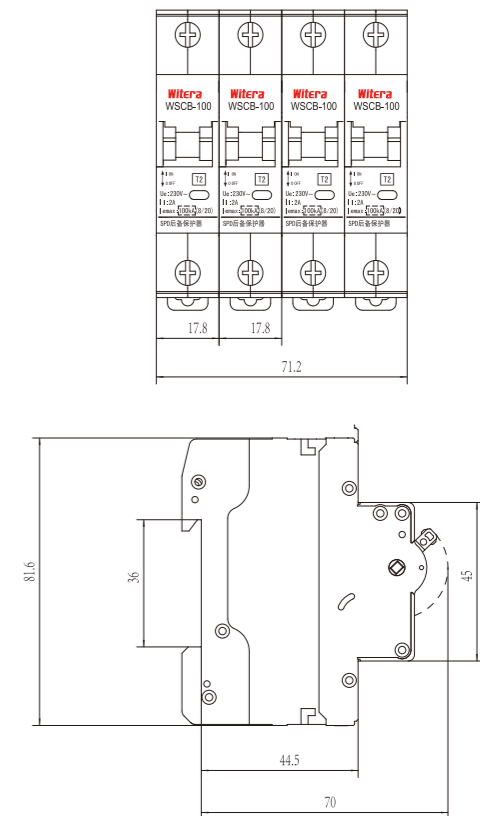
Product Features

- ◆ When there is lightning current, SPD is released to the ground through GDT (gas discharge tube) conduction.
- ◆ When the MOV fails, the power frequency current is discharged to the ground through NTC (thermistor temperature sensor) and the coil and SPD. When the protection state is reached, the coil iron core acts to disconnect the contact and cut off the power frequency continuous current on the SPD.
- ◆ When the WSCB needs to be closed again due to lightning strikes, it must be confirmed that the SPD remains valid before closing the handle. If the handle cannot be closed or trips after a short time after closing, it indicates that the corresponding SPD at the lower end needs to be replaced.

产品系列 / Product Series



外形尺寸图 / Outline Dimension



功能特性 / Function characteristics

产品型号 Model	WSCB-60	WSCB-80	WSCB-100
额定工作电压(Ue) Rated working voltage (Ve)	AC: 230V		
直流击穿电压(100V/s) DC breakdown voltage (100V/s)	DC: 600V±20%		
标称通流量 Nominal flow rate	30kA (8/20μs)	40kA (8/20μs)	50kA (8/20μs)
最大通流量 Maximum flow rate	60kA (8/20μs)	80kA (8/20μs)	100kA (8/20μs)
工频电流脱扣值 Power frequency current tripping value	2A		
脱扣时间 Tripping time	≤ 0.2s		
机械寿命 Mechanical life	1000次		
端子最大接线 Maximum terminal connection	35mm ²		
外壳防护等级 Sheft protection level	IP20		
工作环境 Work environment	温度-25~+60°C, 相对湿度≤95% (25°C)		
安装卡轨 Instating the clamping rail	35mm		

● 双电源自动转换开关 Dual power automatic transfer switch

产品背景及应用

高层住宅、医院、酒店、银行、机场、冶金、石化、通讯电源等重要的用电场所，一般不允许停电，通常采用两路市电或者一路市电加一路发电机作为两路电源，进行不间断连续供电。

未来电器的FDQ系列双电源自动转换开关能在常用电源故障或者停电时，自动切换到备用电源，保证不断电。在市电作为常用电源，当市电断开后，装置能自动接通发电机并给发电机启动指令，由发电机供电。

产品符合标准：GB/T 14048.11 ((ATSE双电源自动转换开关))

Product Background and Application

High-rise residential buildings, hospitals, hotels, banks, airports, metallurgy, petrochemical, telecommunications power supply and other important places, generally do not allow power outages, usually using two-way city power or one-way city power plus one-way generator as two-way power supply, for uninterrupted and continuous power supply.

In the future, the FDQ series dual-power automatic switch of electrical appliances can automatically switch to the standby power supply when the common power supply fails or power outages, so as to ensure continuous power supply. As a common power supply, when the municipal power is disconnected, the device can automatically connect the generator and give the generator start instructions, which are supplied by the generator.

The product conforms to the standard: GB/T 14048 11 (ATSE double power automatic conversion switch).

FDQ5B系列双电源自动转换开关(CB级) FDQ3 series dual power automatic transfer switch (CB Level)



属末端型双电源自动转换装置。产品采用全新结构设计，突破原有设计理念，实现超小体积。适用于交流50Hz、额定电压380V/230V、额定电流63A及以下的三相四线双路供电电网中，该产品无论体积还是成本，都具有明显优势。

It belongs to the end type dual power automatic conversion device. The product adopts a brand new structural design, breaking through the original design concept and achieving ultra small volume. Suitable for three-phase four wire dual circuit power grids with AC 50Hz, rated voltage 380V/230V, rated current 63A and below, this product has significant advantages in both volume and cost.

产品特点

- ◆ 超小体积：控制部分宽度仅为54mm，是国内外同类产品的1/2；
- ◆ 安装便捷：导轨式安装，无需底板，可直接安装于标准终端电箱内；
- ◆ 安全可靠：可靠的机械、电气连锁，防止两路电源同时合闸；
- ◆ 防护性高：达到IP20，有效避免湿气侵入导致产品失效；

Product Features

- ◆ Ultra small volume: The width of the control part is only 54mm, which is half of that of similar products both domestically and internationally;
- ◆ Easy installation: Rail mounted, without the need for a bottom plate, it can be directly installed in a standard terminal box;
- ◆ Civil safety and reliability: Reliable mechanical and electrical interlocking to prevent the simultaneous closing of two power sources;
- ◆ High protection: up to IP20, effectively preventing moisture intrusion and product failure;

选型说明 / Product Selection Guide

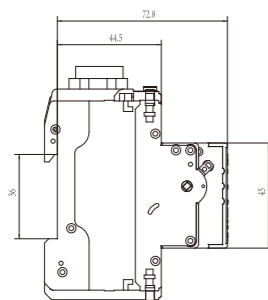
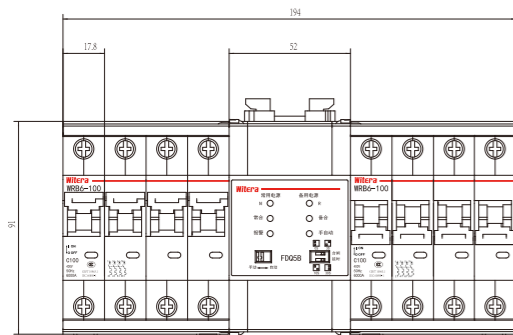
FDQ	5	B	-	100	-	C	100	/	4	R	D
产品类别 Product Category	设计序号 Design Serial Number	内轴驱动 Inner axle drive	壳架能力 Shell capacity	脱扣特性 Release characteristics	壳架电流 Shell current	极数 Number of poles	功能代号 Functional code	类型 Type			
	3		63	B型:3-5In	16	4:4P	R:自投自复	D:多功能			
	3		100	C型:5-10In	...	3:3P	F:电网-发电	省略:基本型			
				D型:10-14In	100						

型号示例：FDQ5B-100_C100/4RD，表示C型100A的4P自动转换开关，自投自复、多功能型。

Model example: FDQ5B-100_C100/4RD represents a C-type 100A 4P automatic transfer switch, which is self switching, self resetting, and multifunctional.

功能特性 / Function characteristics

产品型号 Model	FDQ5B
额定工作电压 Rated working voltage	AC400V
额定工作电流(A) Rated working current (A)	6、10、16、20、25、32、40、50、63、80、100
额定短路分断能力 Rated short-circuit breaking capacity	6KA
脱扣特性 Tripping characteristics	B型、C型、D型
过压保护 Overvoltage protection	310V±5V(相电压)
欠压保护 Undervoltage protection	161V±5V(相电压)
故障分闸延时 Fault opening delay	有
消防双分输入端 Fire protection dual input terminal	DC24V有源输入
手动/自动 Manual/Automatic	自动状态:手动将断路器分闸,默认为故障跳闸,将自动重合 手动状态:自动重合功能失效,可以手动分闸或合闸
指示灯 Indicator light	红色:电源指示; 绿灯:合闸状态; 黄灯:报警告示
机械寿命 Mechanical life	10000
电气寿命 Electrical life	6000
接线能力 Wiring capability	35mm ² 及以下
环境温度 Ambient temperature	-25°C~+60°C
空气相对湿度 Relative humidity of air	≤95%(55°C)
海拔 Altitude	≤2000m
污染等级 Pollution level	2
振动和冲击 Vibration and shock	无振动和冲击的场合
防护等级 Protection level	IP20



● AFDD电弧故障保护断路器 AFDD arc fault protection circuit breaker

产品概述

AFDD是苏州未来电器在智能终端器(如电能表全自动费控断路器、过、欠压保护器、漏电重合闸保护器)领先优势的基础上,又一新的突破...

WRA2-63系列电弧故障保护断路器是由小型断路器、脱扣机构及电弧检测模块组装而成。区别于普通断路器的功能是:它能发现对地电弧性短路或者正常工作电流下因回路中连接不良、线路绝缘老化击穿等产生的故障电弧,并第一时间切断电路,而防止故障电弧的局部高温引起火灾,而这些故障电弧的电流通常较小,正好处于普通断路器的保护盲区。而其他消防设备、器材和目前市场上消防(或称火灾)监测、报警系统等都是事后去缩小火灾事故的损失。即使安装了故障电弧监控装置,也只是发现部分电弧进行报警,而无法控制电弧可能造成的危害。因此,本WRA2-63系列电弧故障保护断路器同时具有过载保护、短路保护、电弧故障保护功能,可从源头杜绝电气火灾的发生,预防火灾事故,避免损失。

Product Introduction And Application

AFDD products are another breakthrough based on our leading edge in intelligent terminals (such as fully automatic cost control circuit breakers for energy meters, overvoltage/undervoltage protectors, and leakage reclosing protectors)

WRA2-63 series arc fault protection apparatus is composed of small circuit breaker, tripping mechanism and arc detection module. The function of the circuit breaker is different from that of the common circuit breaker: it can detect the fault arc caused by the short circuit of the ground arc or the breakdown of the line insulation due to the bad connection in the circuit or the aging of the line under the normal working current, and cut off the circuit at the first time, so as to prevent the fire caused by the local high temperature of the fault arc, and the current of these fault arcs is often lower than that of the conventional circuit breaker. Small, just in the common circuit breaker protection blind area. Other fire fighting equipment, equipment and fire control (or fire) monitoring and alarm systems in the current market are to reduce the loss of fire accidents afterwards. Even if a fault arc monitoring device is installed, only part of the arc is found to alarm, and the possible harm caused by the arc can not be controlled. Therefore, the WRA2-63 series arc fault protection electrical appliances have the functions of overload protection, short circuit protection and arc fault protection, which can prevent the occurrence of electrical fire from the source, prevent fire accidents and avoid losses.



适用场合

WRA2-63系列电弧故障保护断路器主要适用于额定电流63A及以下的插座和照明的分支回路中,保护这些分支用电线路及设备的电气安全。

Applicable occasions

WRA2-63 series arc fault protection appliances are mainly used in sockets and branch circuits of lighting with rated current of 32A or less to protect the electrical safety of these branch circuits and equipment.

符合标准及获得认证

WRA2-63符合《GB/T 31143-2014 电弧故障保护电器(AFDD)的一般要求》,产品已通过上海电器设备检测所测试,测试报告编号V2019CQC012020-402179,已获得CQC认证,证书编号:CQC19012215821。

Compliant with standards and certified

WRA2-63 meets the General Requirements for Arc Fault Protection Devices (AFDD) in GB/T 31143-2014. The product has passed the testing by Shanghai Electrical Equipment Testing Institute with test report number V2019CQC012020-402179 and has obtained CQC certification with certificate number CQC19012215821.



产品功能

- ◆ 防故障电弧:检测到有电弧故障,开关跳闸;
- ◆ 防短路功能:负载端发生短路开关直接跳闸;
- ◆ 防过电流功能:电流长期高于额定电流开关跳闸;
- ◆ 故障记忆功能:故障跳闸后首次合闸会点亮相应故障指示灯;
- ◆ LED显示功能:具有运行、电弧故障灯状态指示灯;

Product Function

- ◆ Fault-proof arc: Detection of arc fault, switch tripping;
- ◆ Short-circuit protection function: Short-circuit switch trips directly at the load end;
- ◆ Anti-overcurrent function: The current is higher than rated current switch tripping for a long time;
- ◆ Fault Memory Function: The first closing after fault tripping will light the corresponding fault indicator;
- ◆ LED display function: with operation, arc fault lamp status indicator energy-saving, low-carbon environmental protection;

产品特点

模数化结构,标准导轨安装,可以直接安装或更换在原标准入户箱内,无需重新更换入户箱,投资小。

Product Features

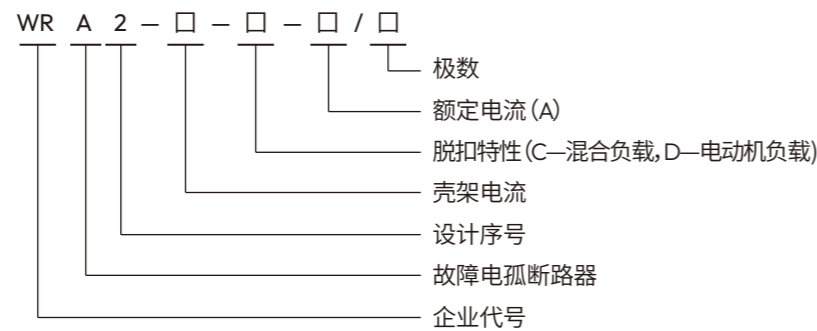
Modular structure, Standard Guide installation, can be directly installed or replaced in the original standard into the box, no need to replace into the box, low investment.

产品图示 / Product Diagram



规格型号说明

Specification and model description



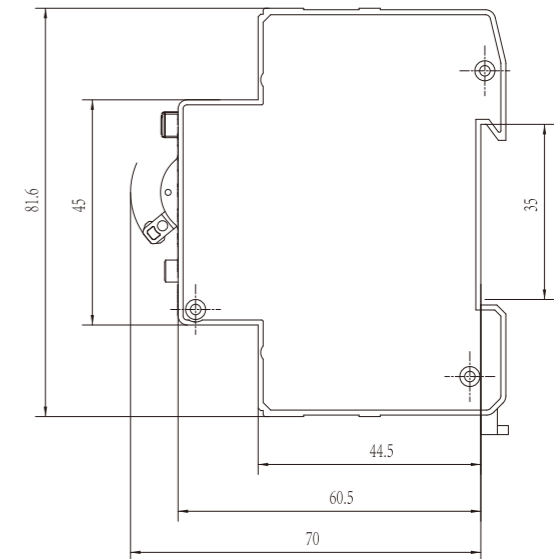
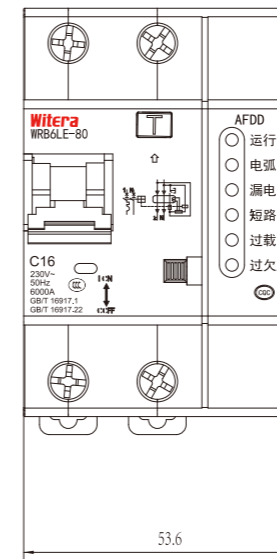
选型说明 / Product Selection Guide

WR	A	2	C	63	1P+N	C	32	L
产品型号 Product model	电弧故障保护 Design Serial Number	设计序号 Design Serial Number	C:混合负载 D:电动机载	壳架电流 Frame size	极数 Number of poles	脱扣特性 Release characteristics	额定电流 Rated current	漏电 Electric leakage

技术参数 / Technical parameter

项目 Project	AFDD主要技术参数
额定工作电压(V) Rated operating voltage	AC 220-230V
额定频率(A) Rated Frequency	50Hz
额定电流(A) Rated current	10A、16A、20A、25A、32A、40A、50A、63A
额定短路分断能力(KA) Rated working current	6kA
极数 Pole number	1P+N
基本保护功能 Basic protection function	能及时切断负载供电线路中产生短路、过载、电弧、过欠压、漏电的电源
具有其他功能特性 Has other functional characteristics	具有LED状态指示, 故障记忆、负载故障警示功能C型
脱扣特性 Release characteristics	(执行标准 GB10963.1-2005) 同时符合IEC62606相应标准
执行标准 Executive standards	GB/T 31143-2014

外形尺寸图 / Outline Dimension



安装调试及说明

- ◆ 在插座或照明回路中建议安装本电弧故障保护器, 或者替换原普通断路器, 以实现故障电弧的保护;
- ◆ 由具有专业资格的人员进行安装, 接好线后进行合闸测试, 绿色指示灯闪烁即进入带载下的正常保护状态;
- ◆ 通过正面的测试按钮进行故障电弧试跳测试, 确保产品完好并进入正常保护状态;
- ◆ 当使用特殊设备开关误跳时, 可通过按下测试按钮的同时合闸, 正常运行灯慢闪(有载时), 开关可进入临时【监控模式】J, 当发现有故障电弧时电弧故障灯红灯闪烁但开关不跳闸。当结束特殊设备使用, 可按下序测试按钮解除红色警告, 再次按下测试按钮, 退出【监控模式】, 进入正常保护状态。

Installation, debugging and instructions

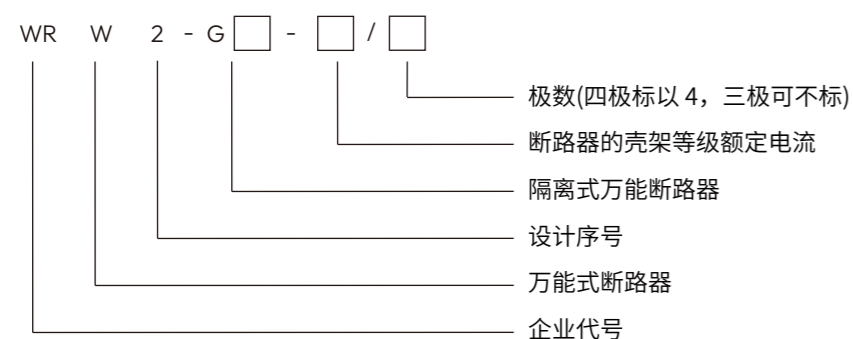
- ◆ It is suggested to install the arc fault protector in the socket or lighting circuit, or replace the conventional circuit breaker to realize the protection of the fault arc;
- ◆ Installation by professionally qualified personnel, closing test after wiring, green indicator flashing into the normal protection state under load;
- ◆ Fault are test jump test is carried out by front test button to ensure that the product is in good condition and in normal protection state;
- ◆ When the switch of special equipment is mistakenly tripped, it can be closed by pressing the test button at the same time. When the normal running lamp is slow flashing (on load), the switch can enter temporary (monitoring mode) J. When a fault are is found, the arc fault lamp flashes red but the switch does not trip. When the special equipment is used, the red warning can be removed by pressing the sequential test button, and the test button can be pressed again to exit the monitoring mode and enter the normal protection state.



● WRW2 系列·万能式断路器 / Series · Universal Circuit Breaker

规格型号说明

Specification and model description



智能控制器性能

- ◆ 智能控制器分为:H型(通信用)、M型(普通智能型)、L型(经济型);
- ◆ 具有过载长延时反时限,短延时反时限、定时限、瞬时功能。可由用户自行设定组成所需要的保护特性;
- ◆ 单相接地保护功能;
- ◆ 显示功能:整定电流显示、动作电流显示、各线电压主显示(电压显示应在订货时提出);
- ◆ 报警功能:过载报警;
- ◆ 自检功能:过热自检、微机自诊断;
- ◆ 试验功能:试验控制器的动作特性。

Intelligent Controller Performance

- ◆ Intelligent controllers are classified into: H-type (general-purpose), M-type (standard intelligent type), and L-type (economic type);
- ◆ Features include long-time inverse time delay for overload, short-time inverse time delay, definite time delay, and instantaneous trip functions. Users can customize the protection characteristics as needed;
- ◆ Single-phase ground fault protection function;
- ◆ Display functions: setting current display, operating current display, main line voltage display (voltage display must be specified at order time);
- ◆ Alarm function: overload alarm;
- ◆ Self-test function: overheat self-check, microprocessor self-diagnosis;
- ◆ Test function: test the controller's operating characteristics.

适用范围

WRW2系列智能型万能式断路器(以下简称断路器),适用于交流50Hz,额定电压至600V(690V)及以下,额定电流630A~3200A的配电网络中,用来分配电能和保护线路及电源设备免受过载、欠电压、短路、单相接地等故障的危害。断路器具有智能化保护功能,选择性保护精确,能提高供电可靠性,避免不必要的停电。同时带有开放式通讯接口,可进行“四遥”,以满足控制中心和自动化系统的要求。断路器在海拔2000米时脉冲耐压8000V(不同海拔按标准修正,最高不超过12000V)。该断路器不带智能控制器及传感器可作隔离器用,标示为 —/— 。

断路器符合GB14048.2《低压开关设备和控制设备低压断路器》和IEC60947-2《低压开关设备和控制设备断路器》等标准。

- ◆ 按安装方式分:1、固定式;2、抽屉式
- ◆ 按极数分:三极、四极
- ◆ 按操作方式分:1、电动操作;2、手动操作(检修、维护用)
- ◆ 脱扣器种类:智能控制器、欠电压瞬时(或延时)脱扣器、分励脱扣器。

Application Scope

The WRW2 series intelligent universal circuit breaker (hereinafter referred to as “circuit breaker”) is suitable for AC 50Hz power distribution networks with rated voltages up to 600V (690V) and below, and rated currents from 630A to 3200A. It is used to distribute electrical energy and protect lines and power equipment from hazards such as overload, undervoltage, short circuit, and single-phase grounding faults. The circuit breaker features intelligent protection functions with precise selective tripping, enhancing power supply reliability and avoiding unnecessary outages. It also includes an open communication interface supporting “four remote” functions (remote signaling, tele-signaling, telemetry, tele-control, tele-adjustment) to meet requirements of control centers and automation systems. At an altitude of 2000 meters, its impulse withstand voltage is 8000V (corrected per standard for different altitudes, maximum not exceeding 12000V). When equipped without an intelligent controller or sensor, it can serve as a disconnecter, marked as —/— .

The circuit breaker complies with standards GB14048.2 “Low-voltage switchgear and controlgear – Low-voltage circuit breakers” and IEC60947-2 “Low-voltage switchgear and controlgear – Circuit breakers”.

- ◆ By installation method: 1. Fixed type; 2. Draw-out type
- ◆ By number of poles: Three-pole, Four-pole
- ◆ By operation method: 1. Electric operation; 2. Manual operation (for inspection/maintenance)
- ◆ Trip unit types: Intelligent controller, undervoltage instantaneous (or delayed) trip unit, shunt trip unit.

正常工作条件和安装条件

- ◆ 周围空气温度:
 - 上限值不超过+40°C, 下限值不低于-5°C, 24h平均值不超过+35°C;
 - 注:下限值为-10°C或-25°C的工作条件, 用户应与本公司申明:上限值超过+40°C或下限值低于-10°C或-25°C的工作条件, 用户应与本公司协商。
- ◆ 安装地点的海拔不超过2000m;
- ◆ 大气条件:大气相对湿度在周围空气为+40°C时不超过50%, 在较低温度下可以有较高的相对湿度, 最湿月的月平均最大相对湿度为90%, 同时该月的平均最低温度为+25°C, 并考虑到因温度变化发生在产品表面上的凝露。超过规定要求应与本公司协商;
- ◆ 防护等级:IP30;
- ◆ 污染等级:III;
- ◆ 使用类别:B类或A类;
- ◆ 安装类别:额定工作电压660V(690V)及以下的断路器以及欠电压脱扣器, 电源变压器初级线圈用于安装类别N;辅助电路及控制电路安装类别为III;
- ◆ 安装条件:断路器应按本说明书要求安装, 断路器的垂直倾斜度不超过5度(矿用断路器的倾斜度不超过15度)。

Normal Operating and Installation Conditions

- ◆ Ambient Air Temperature: Upper limit shall not exceed +40°C, lower limit shall not be below -5°C, and the 24-hour average shall not exceed +35°C.
 - Note: For operating conditions with a lower limit of -10°C or -25°C, users must declare this to the company. For operating conditions where the upper limit exceeds +40°C or the lower limit is below -10°C or -25°C, users must consult with the company.
- ◆ Installation Altitude: Not exceeding 2000m.
- ◆ Atmospheric Conditions: Relative humidity of the atmosphere shall not exceed 50% when ambient air temperature is +40°C. At lower temperatures, higher relative humidity is permissible. The maximum monthly average relative humidity in the wettest month shall be 90%, while the average minimum temperature for that month shall be +25°C. Condensation on product surfaces due to temperature changes must also be considered. Requirements exceeding these specifications must be consulted with the company.
- ◆ Protection Rating: IP30
- ◆ Pollution Degree: III
- ◆ Utilization Category: Class B or Class A
- ◆ Installation Category: Circuit breakers rated at 660V (690V) and below, as well as undervoltage releases, and primary windings of power transformers are intended for Installation Category N. Auxiliary circuits and control circuits are intended for Installation Category III.
- ◆ Installation Conditions: Circuit breakers shall be installed according to the requirements specified in this manual. The vertical inclination of the circuit breaker shall not exceed 5 degrees (for mining circuit breakers, the inclination shall not exceed 15 degrees).

结构简介 / Structure Overview

◆ 断路器正面指示 / Front Indicator of Circuit Breaker



技术数据与性能 / Technical Data and Performance

◆ 断路器的额定电流 / Rated Current of Circuit Breaker

壳架等级额定电流 I_{nm} (A) Frame Rated Current I_{nm} (A)	额定电流 I_n (A) Rated Current I_n (A)
2000	630、800、1000、1250、1600、2000
3200	2000、2500、2900、3200

◆ 断路器的额定短路分断能力及短时耐受电流，断路器飞弧距离为“零”（即断路器外无飞弧）

Rated Short-Circuit Breaking Capacity and Short-Time Withstand Current of Circuit Breaker; Arcing Distance is "Zero" (i.e., no external arcing from circuit breaker)

壳架等级额定电流 I_{nm} (A) Frame Rated Current I_{nm} (A)	2000	3200
额定极限短路分断能力 I_{cu} (kA) O-CO Rated Ultimate Short-Circuit Breaking Capacity I_{cu} (kA) O-CO	400V 80	400V 100
额定短路接通能力 nI_{lcu} (kA)/cos Rated Short-Circuit Making Capacity nI_{lcu} (kA)/cos	690V 50	690V 65
额定运行短路分断能力 I_{cs} (kA) O-CO-CO Rated Service Short-Circuit Breaking Capacity I_{cs} (kA) O-CO-CO	400V 176/0.2	400V 220/0.2
额定短时耐受电流 I_{cw} (kA) 1s 延时0.4s, O-CO Rated Short-Time Withstand Current I_{cw} (kA) 1s, Delay 0.4s, O-CO	690V 105/0.25	690V 143/0.2
	400V 50	400V 65
	690V 40	690V 50
	400V 50	400V 65
	690V 40	690V 50

注：表中分断能力上下进线相同。
Note: Breaking capacity values are identical for top and bottom feeders.

◆ 断路器的最大耗损功率为630W。断路器在不同环境温度下额定持续电流变动

Maximum Power Loss of Circuit Breaker is 630W. Variation of Rated Continuous Current at Different Ambient Temperatures

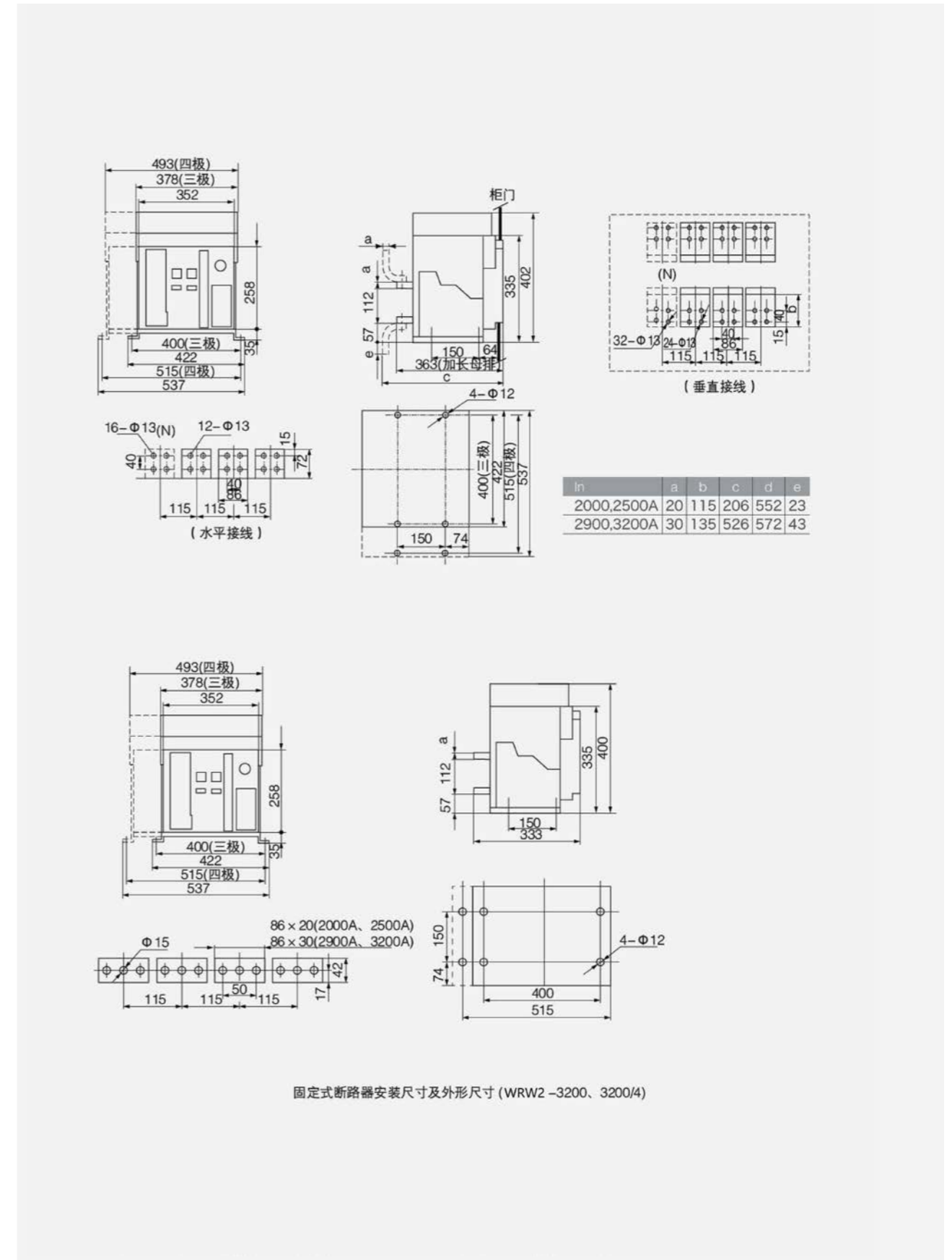
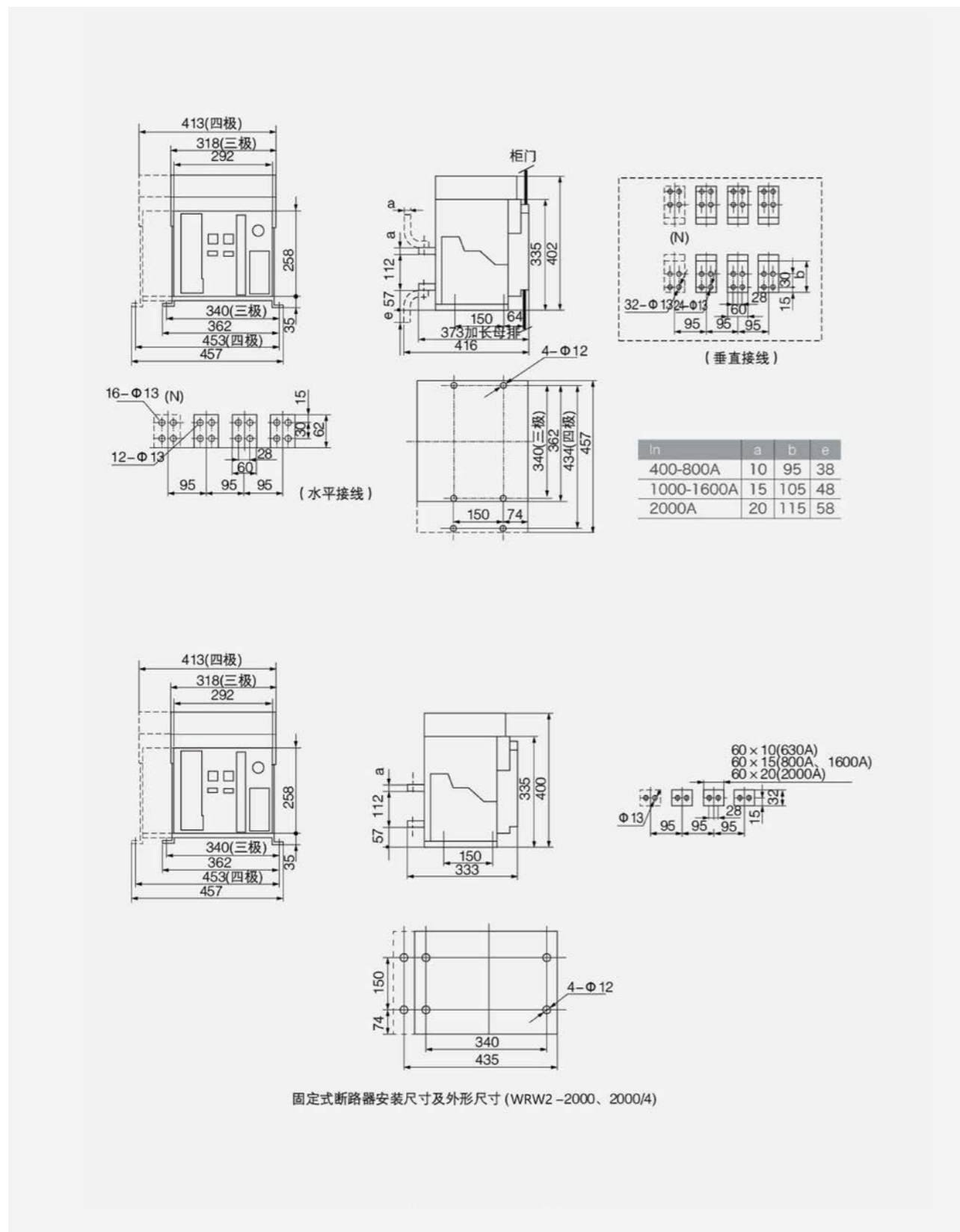
环境温度°C Ambient Temperature °C	WRW2					
	630A	800A	1000A	1250A	1600A	2000A
40	630A	800A	1000A	1250A	1600A	2000A
50	630A	800A	1000A	1250A	1550A	1900A
60	630A	800A	1000A	1250A	1550A	1800A

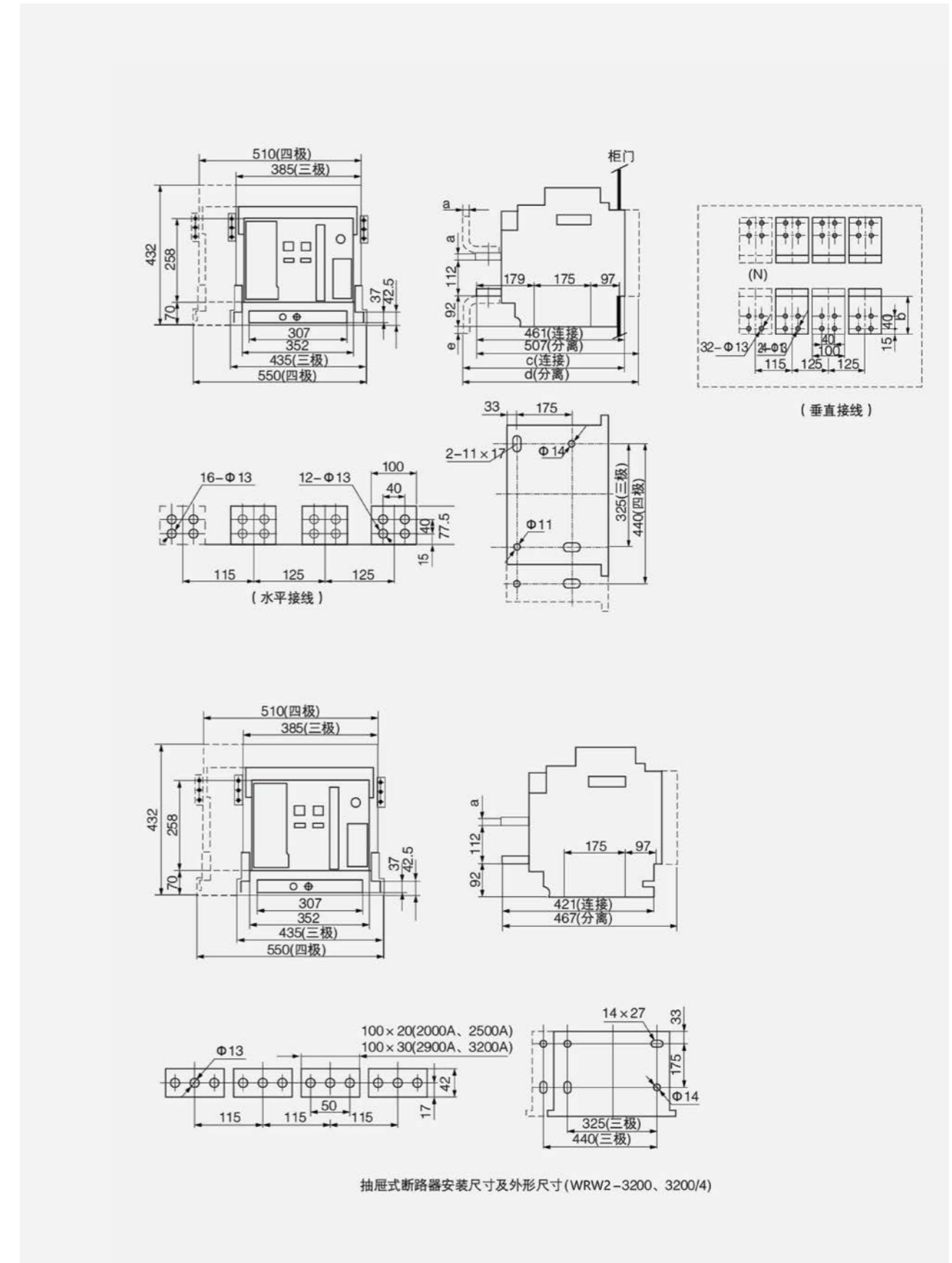
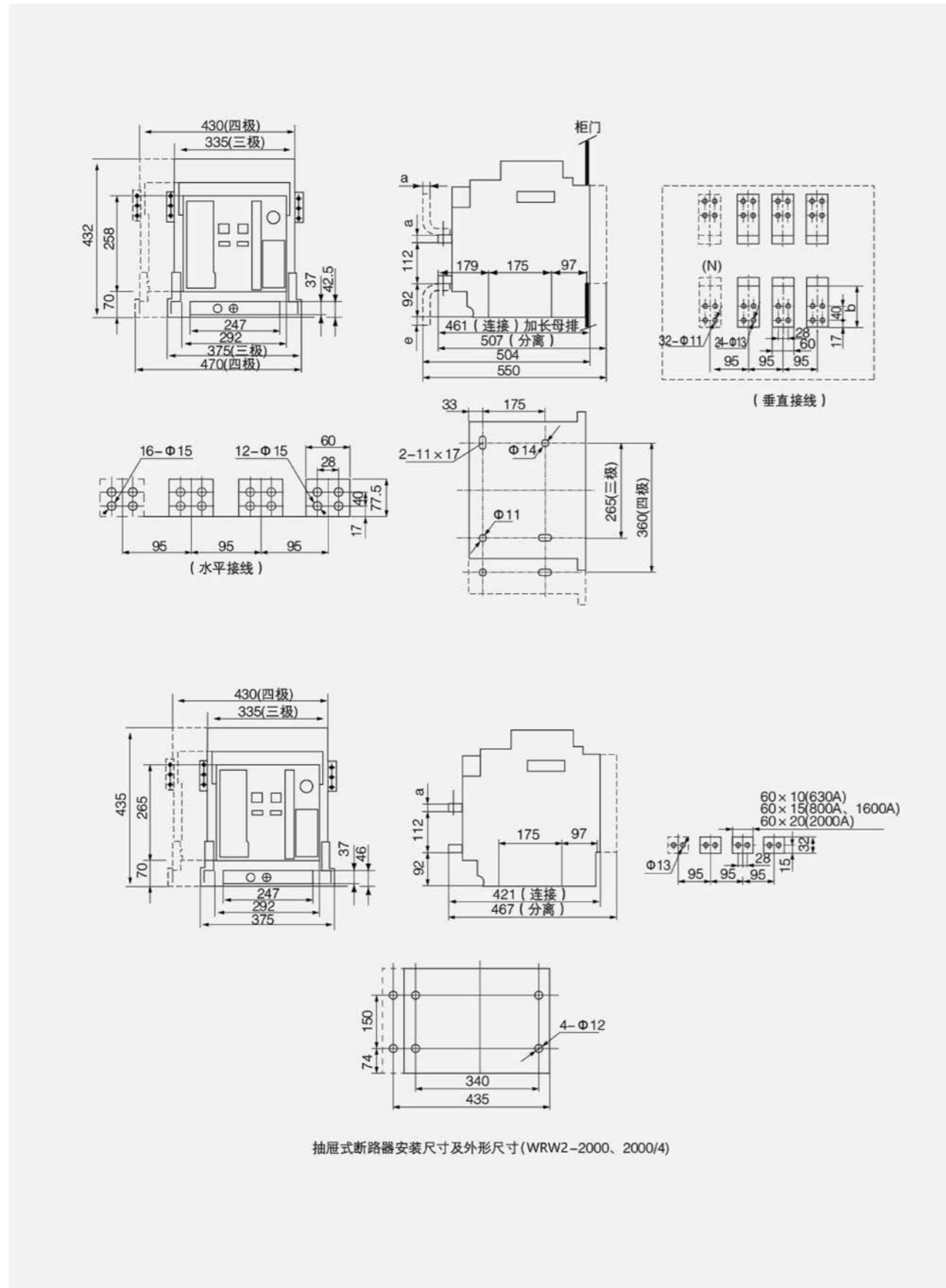
注：2500A及以上降容系数为0.9，其中6300A中不降容。
Note: Derating coefficient for 2500A and above is 0.9; 6300A does not require derating.

外形与安装尺寸 / Appearance and Installation Dimensions

◆ 固定式断路器安装尺寸, 外形尺寸图

Fixed-type circuit breaker installation dimensions, outline dimension drawing





01 塑壳断路器功能附件
MCCB ACCESSORIES

02 框架断路器功能附件
ACB ACCESSORIES

03 智能终端产品
INTELLIGENT TERMINALS

04 低压配电网成套产品
LV SWITCHGEAR ASSEMBLIES

05 高低压焊接导电部件
HIGH-LOW VOLTAGE CORE CONDUCTIVE PARTS

04

低压配电成套产品

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES

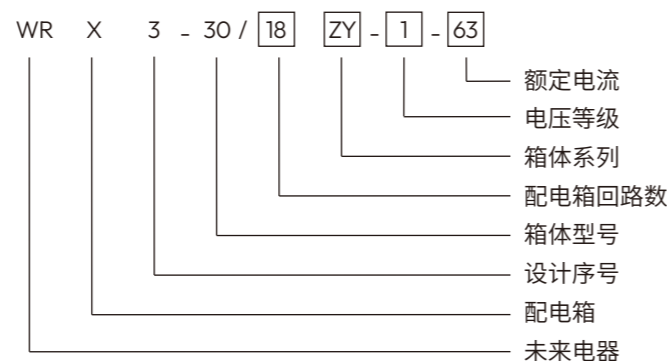
● 智能配电箱 Intelligent distribution box

产品图示 / Product Diagram



规格型号说明

Specification and model description



产品背景及应用

WRX3-30系列智能配电箱是未来电器基于物联网技术开发的一款成套装置,可以实现对终端线路保护、控制和人机互动的功能,适用于额定电压230V或400V,负载总电流不大于100A的单相三线或三相五线的末端电路中,作为对用电设备进行控制和电能分配,对过载、短路、漏电和过欠压起保护作用。广泛应用于住宅、宾馆、学校、车站、港口、机场、医院、影剧院和大型商业网点等。

智能配电箱配有专用APP“未来电器”,可以对产品的电参数进行查看、设定、调整;可以查看线路的实时电流、电压、电能、漏电、温度等;可以实时播报故障短路、过载、漏电的信息;可以对漏电、温度、电流保护的预警值和保护值进行预设。用户还可以通过APP进行远程分合闸及定时分合操作。APP同时能给用户提供各种电参数和故障类型的报表,便于用户的故障排除,提高用电的安全性。

智能配电箱元器件采用宽度为9mm的模数化电器元件,可根据实际需要,任意组合成各种不同的电气化方案。安装的电器元件手柄外露,便于操作,带电及其他部分遮盖于有机材料制成的活动门内,打开门即可方便操作,使用安全可靠。

Product Background and Application

The WRX3-30 series intelligent distribution box is a complete device developed by Future Electric Appliances based on the Internet of things technology, which can achieve terminal line protection, control, and human-machine interaction functions. It is suitable for single-phase three wire or three-phase five wire terminal circuits with a rated voltage of 230V or 400V and a total load flow of not more than 100A. As a control and energy distribution device for electrical equipment, it provides protection against overload, short circuit, leakage, and overvoltage/undervoltage. Widely used in residential areas, hotels, schools, stations, ports, airports, hospitals, theaters, and large commercial outlets.

The intelligent distribution box is equipped with a dedicated app called "Future Appliances", which can view, set, and adjust the electrical parameters of the product; You can view the real-time current, voltage electricity, leakage, temperature, etc; Can broadcast real-time information about faults, short circuits, overloads, and leakage; It is possible to adjust the warning and protection values for leakage, temperature, and current protection line presetting. Users can also perform remote and timed opening and closing operations through the app. The APP can provide users with various electrical parameters and fault types simultaneously the report is easy for users to troubleshoot and improve the safety of electricity usage.

The intelligent distribution box components adopt modular electrical components with a width of 9mm, which can be combined into various electrification schemes according to actual needs. Installed electrical appliances The component handle is exposed for easy operation, and the live and other parts are covered in a movable door made of organic materials. Opening the door makes it easy to operate, making it safe and reliable to use.

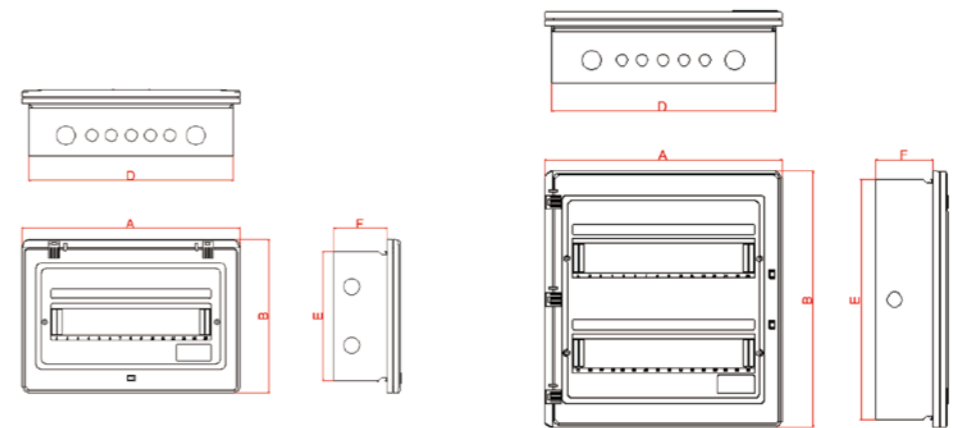
功能特性 / Function characteristics

产品型号 Model	智雅系列	智信系列
产品图片 Product image		
配电箱回路数 Number of circuits in distribution box	15, 18, 21, 26, 32, 42	15, 18, 22, 26, 30, 36, 44
环境温度 Ambient temperature	-5°C ~ +40°C	
海拔高度 Altitude	<2000m	
污染等级 Pollution level	2	
符合标准 Standards compliant	GB7251.3	GB7251.8
额定工作电压 Un(V) Rated operating voltage Un(V)	AC 230/400	
额定绝缘电压 Ui(V) Rated insulation voltage Ui(V)	400	
额定冲击耐受电压 Uimp (kV) Rated impulse withstand voltage Uimp (kV)	4	
额定频率(Hz) Rated frequency(Hz)	50/60	
配电板类型 Distribution board type	B型	
过电压类别 Overvoltage category	III	
材料组别 Material group	IIIa	
电气间隙 Electrical clearance	≥3mm	
爬电距离 Creepage distance	≥4mm	
成套设备的额定电流 In(A) Rated current of complete equipment In(A)	32, 40, 50, 63, 80, 100	
额定短路耐受电流和额定峰值耐受电流 Rated short circuit withstand current and rated peak withstand current	4kA/6kA	
主开关的分段能力 Segmentation capabilities of the main switch	6kA	
外壳防护等级 Enclosure rating	IP30-操作面	IP20C
机械碰撞等级 Mechanical impact rating	户内:IK05	
触电保护类别 Electric shock protection category	I类	
EMC环境 EMC environment	环境B	

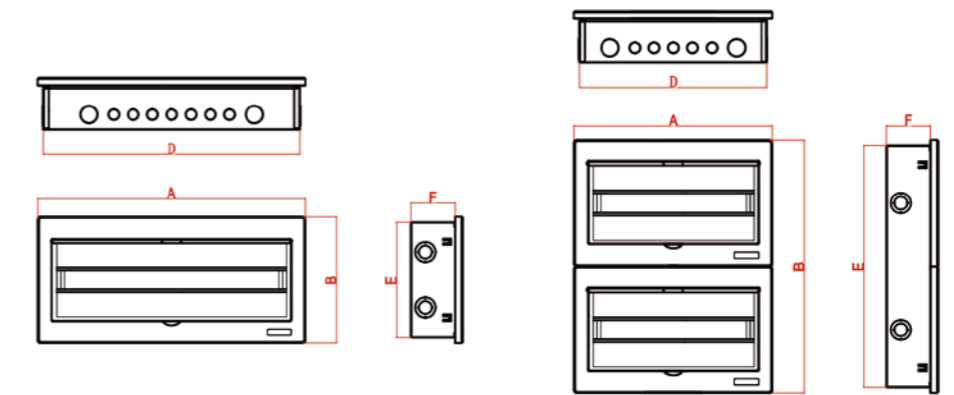
智能功能 / Smart functions

序号 No.	分类 Classification	描述 Describe	主体	智能电箱	普通电箱	说明
1	保护功能 Protective function	过载保护	断路器	●	●	
2		短路保护		●	●	
3		漏电保护		●	●	
4		过、欠压保护		●	●	
5	预警功能 Early warning function	过载预警	APP+语音模块	●		
6		漏电预警		●		
7		温度预警		●		
8	报警功能 Alarm function	过载故障报警	APP	●		
9		短路故障报警		●		
10		漏电故障报警		●		
11		温度保护报警		●		
12		预警信息		●		
13	APP信息提示 APP information prompt	报警信息	APP	●		
14		分合动作信息		●		
15		预警恢复信息		●		
16		故障恢复信息		●		
17	语音播报 Voice broadcast	预警播报	语音模块	●		
18		故障播报		●		
19		预警恢复播报		●		
20		故障恢复播报		●		
21	短信提示 SMS reminder	报警信息	手机	●		
22		远程查看断路器状态		●		
23		漏电电流实时显示		●		
24		电网频率显示		●		
25	APP显示信息 APP displays information	内部温度显示	APP	●		
26		电压显示		●		
27		电流显示		●		
28		功率显示		●		
29		功率因数显示		●		
30		手/自动切换	断路器	●		
31		主开关安全挂锁		●		
32		远程分合闸		●		
33		定时分合闸		●		
34	开关操作 Switch operation	场景设置	APP	●		
35		线路满载电流设定		●		
36		正常待机电流设定		●		
37		温度预警阈值设定		●		出厂值为60°C
38		温度报警阈值设定		●		出厂值为80°C

外形尺寸图 / Overall dimensions



箱体系列	规格	面板尺寸 (mm)		暗装底箱尺寸 (mm)			备注
		长A	宽B	长D	宽E	深F	
智雅系列	15回路	370	260	346	200	90	单排
	18回路	424		400			
	21回路	478		454			
	26回路	322	405	300	380		双排
	32回路	376		354			
	42回路	466		444			



箱体系列	规格	面板尺寸 (mm)		暗装底箱尺寸 (mm)			备注
		长A	宽B	长D	宽E	深F	
智信系列	15回路	360	230	340	210	90	单排
	18回路	414		394			
	22回路	486		466			
	26回路	324	460	304	440		双排
	30回路	360		340			
	36回路	414		394			
	44回路	486		466			

内部可选元件所占回路数(1回路=18mm) / Number of Circuits Occupied by Optional Internal Components (1 circuit = 18mm)

电箱	分类	可选元件	元件宽度(mm)	所占回路数	备注
智能电箱	物联网漏电断路器	WRB6Z-80/1P+N	54	3	单相230V
		WRB6Z-80/3P+N	90	5	三相400V
		WRB6Z-32/DPN	27	1.5	
	网关	WIR2-W	18	1	智能型必选
	语音模块	WVAI	18	1	智能型必选
普通电箱	小型断路器	WRA2-AFDD/1P+N	54	3	
		WRB5N/DPN	18	1	
		WRB5/1P	18	1	
		WRB5/2P	36	2	
		WRB5/3P	54	3	
	漏电断路器	WRB5/4P	72	4	
		WRB5NL/1P+N	36	2	
		WRB5L-C32/1P+N	45	2.5	
		WRB5L-C32/2P	63	3.5	
		WRB5L-C32/3F	90	5	32A及以下
		WRB5L-C32/3P+N	99	5.5	
		WRB5L-C32/4	117	6.5	
		WRB5L-C63/1P+N	54	3	
		WRB5L-C63/2P	72	4	
		WRB5L-C63/3F	108	6	40A及以上
	WRB5L-C63/3P+N	117	6.5		
	WRB5L-C63/4	135	7.5		
	自复式过欠压保护器	WRGQ5Z/1N	36	2	
		WRGQ5Z/3N	72	4	
	隔离开关	WRG5/1P	18	1	
WRG5/2P		36	2		
WRG5/3P		54	3		
WRG5/4P		72	4		

两款电箱对比 / Comparison of Two Types of Electrical Boxes

在相同回路数的配电箱体的情况下, 选装物联网漏电断路器组成的智能电箱, 分路更多, 更省空间。

In the case of distribution boxes with the same number of circuits, selecting a smart electrical box composed of IoT leakage circuit breakers provides more branches and saves more space.



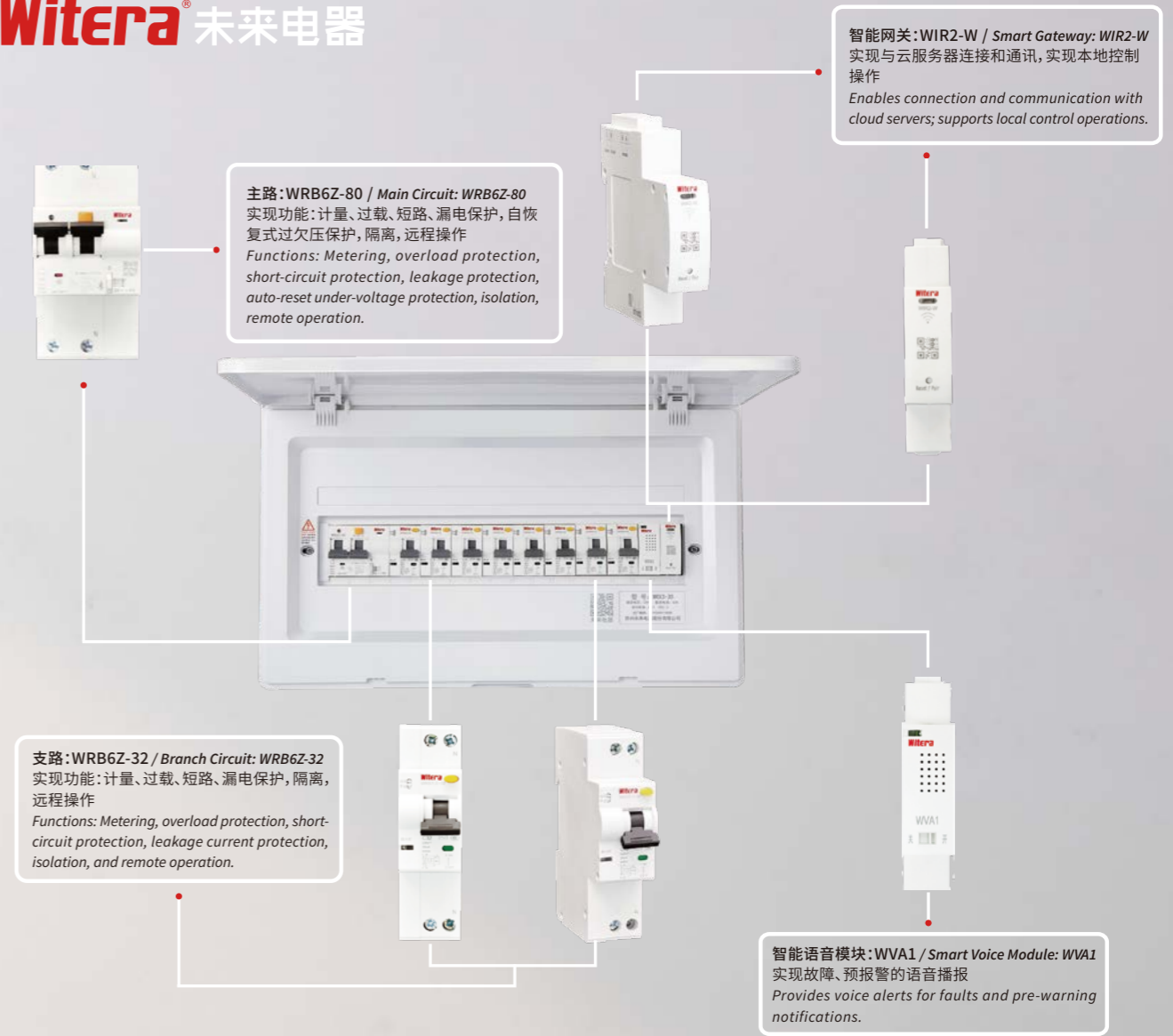
分路: 1 2 3 4 5 6

普通电箱



分路: 1 2 3 4 5 6 7 8

智能电箱



- 1 预警提示 / Pre-warning Alerts**

在负载、漏电流、温度达到保护值的50%至80%时进行预警, 防范可能出现或已经存在的早期故障。
Triggers warnings when load, leakage current, or temperature reaches 50% to 80% of the protective threshold - helping prevent early-stage or potential faults before they escalate.
- 2 主动保护 / Active Protection**

对家庭各支路出现的线路故障实时监测, 一旦出现故障, 在保护的同时, 第一时间通过云端向手机发出故障信息。随时随地开启或关闭各开关, 避免各种异常分合闸。
Real-time monitoring of circuit faults across all household branches. Upon detecting a fault, it immediately protects the circuit while sending alert notifications via cloud to your smartphone. Enables remote on/off control of switches anytime, anywhere - preventing abnormal tripping or closing.
- 3 故障定位 / Fault Localization**

明确哪条线路故障和原因, 使检修目标更明晰、检修更快速, 防止因故障引起的二次火灾。可以快速发现线路或设备的老化问题, 防止触电事故发生。
Clearly identifies which circuit has failed and why - making maintenance targets clearer and repairs faster. Helps prevent secondary fires caused by faults, quickly detects aging lines or equipment, and reduces risk of electric shock accidents.
- 4 语音播报 / Voice Announcements**

内置语音播报模块: WVAI, 实现各种故障语音播报功能实时告知故障原因
Built-in voice module (WVAI) delivers real-time spoken alerts detailing fault types and causes - keeping you informed instantly.
- 5 实时查看 / Real-Time Monitoring**

查看年、月、日总用电和各分路用电, 实时查看总用电和分路用电, 主动推送各类年度用电报表
View total and branch-specific electricity consumption by year, month, or day. Receive proactive annual electricity usage reports pushed directly to your device.

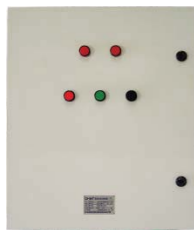
● WR_JXF 综合配电箱 / Integrated Distribution Box

产品概述

WR_JXF封闭式控制箱适用于50Hz、400V及以下，负荷电流不大于630A的三相三线、三相四线、三相五线制系统，对配电系统作控制、漏电保护以及电动机的过载、短路、缺相保护及各种控制。该箱设计合理，体积小，外形美观，使用安全可靠，广泛应用于冶金、石化、医疗卫生、航空、住宅小区、商场、学校、城市改造等行业。

Product Overview

The WR_JXF enclosed distribution box is suitable for three-phase five-wire, three-phase four-wire, and three-phase three-wire systems with a frequency of 50Hz and voltage up to 400V, and load current not exceeding 630A. It provides control, leakage protection, and various protections (overload, short circuit, phase loss) for power distribution systems and electric motors. The cabinet features reasonable design, compact size, attractive appearance, safe and reliable operation. Widely used in metallurgy, petrochemical, medical & health, aviation, residential communities, shopping malls, schools, urban renovation projects, and other industries.



WR_JXF(G₁系列)



控制箱密封条

符合标准

- ◆ IEC61439-1《低压开关设备和控制设备组合装置——第1部分：一般规则》
- ◆ GB7251.12《低压成套开关设备和控制设备 第2部分：成套电力开关和控制设备》

Compliance Standards

- ◆ IEC61439-1 "Low-voltage switchgear and controlgear assemblies — Part 1: General rules"
- ◆ GB7251.12 "Low-voltage switchgear and controlgear assemblies — Part 2: Power switchgear and controlgear assemblies"

使用环境条件

- ◆ 海拔高度：不超过2000m；
- ◆ 环境温度：上限为+40°C，下限为-25°C；24小时内平均温度不超过+35°C；
- ◆ 振动与冲击：无剧烈振动和冲击的场所；
- ◆ 安全环境：无爆炸危险，介质中无足以腐蚀金属、破坏绝缘的气体及导电尘埃。

Operating Environment Conditions

- ◆ Altitude: Not exceeding 2000m
- ◆ Ambient temperature: Upper limit +40°C; Lower limit -25°C; Average temperature within 24 hours shall not exceed +35°C
- ◆ Vibration and shock: Locations free from severe vibration and impact
- ◆ Safety environment: Non-explosive hazard areas; no corrosive gases, metal-damaging vapors, or conductive dust present

结构特点

WR_JXF(G₁系列)结构特点

WR_JXF(G₁系列)封闭式控制箱壳体材料采用1.2mm及以上优质钢板，表面采用色泽美观的环氧树脂粉末涂料，经静电喷涂处理，造型美观大方。

- ◆ 控制箱按结构特点可分为：焊接式、分体式、组装式。
- ◆ 控制箱可采用多种双层门结构，使用更安全可靠。
- ◆ 防护等级：户内IP40、户外IP43。
- ◆ 控制箱多种优化的尺寸规格，适用于不同方案的配置要求。

WR_JXF(G₂系列)结构特点

- ◆ 箱体采用1.2及以上冷轧钢板焊接而成，有足够的强度和刚度。
- ◆ 所有的金属部件，根据其在结构中的位置及作用分别以镀层或涂层加以防护，镀层有足够的厚度和附着力，可保证永久耐腐蚀性。
- ◆ 箱体全部采用标准紧固件连接，拼装结构的每一个零件或部件具有良好接地措施，保证其电路具有永久的连续性。
- ◆ 控制箱具有多种优化的尺寸规格，适用于不同方案的配置要求。
- ◆ 箱体拼接采用密封焊接，没有缝隙，控制箱采用高强度高韧性铰链和门锁，半圆型密封条采用专用设备发泡成型。
- ◆ 同种控制箱的门可左右互换，同时可满足左开门或右开门的要求。
- ◆ 控制箱的安装板深度可随意调节，可满足各种元器件的安装要求。
- ◆ 箱体的下部设有封板及渗水孔，封板可根据不同的进出线要求开孔配置不同的密封接头。
- ◆ 外形尺寸较大的控制箱门板内侧配置了S型多孔加强条，同时可作为防干扰屏蔽板的安装支架。
- ◆ 控制箱配备了万能式安装挂件(可选件)，适用于各种不同的安装尺寸。
- ◆ 防护等级：IP54、IP65(可选)。

Structural Features

WR_JXF(G₁Series) Structural Characteristics

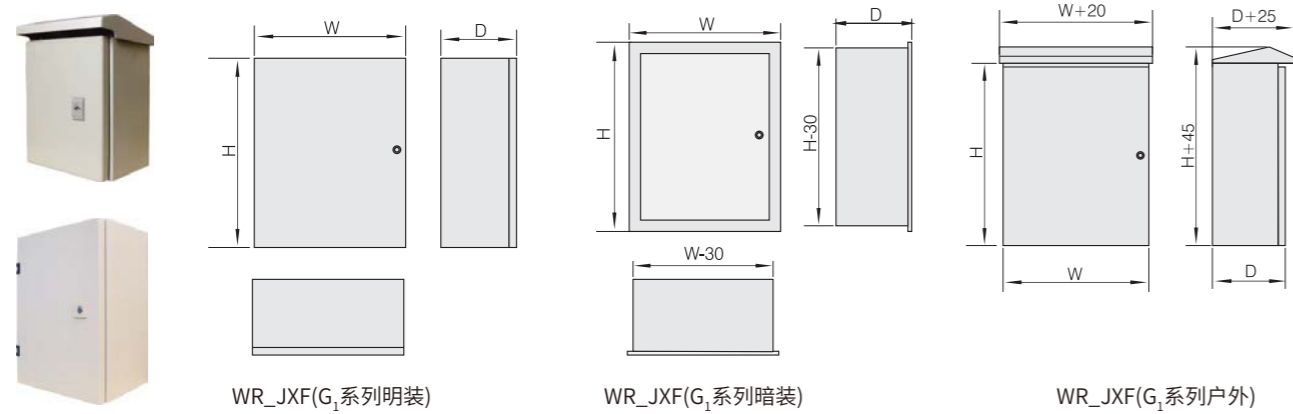
- ◆ The enclosure shell material uses $\geq 1.2\text{mm}$ high-quality steel plate, surface treated with epoxy polyester powder coating, electrostatic spray finish — elegant and durable.
- ◆ Control cabinet structure types available: Welded type, modular type, custom-made.
- ◆ Cabinet doors can be configured with double-door locking mechanism for enhanced safety and reliability.
- ◆ Protection rating: Indoor IP40, Outdoor IP43.
- ◆ Multiple optimized dimensional specifications available to meet different configuration requirements.

WR_JXF(G₂Series) Additional Features

- ◆ Enclosure constructed from $\geq 1.2\text{mm}$ cold-rolled steel plate, ensuring sufficient strength and rigidity.
- ◆ All metallic components are galvanized or coated according to their position and function within the structure, providing adequate thickness and adhesion to ensure long-term corrosion resistance.
- ◆ Standard fasteners used throughout; each component or part has good grounding measures to maintain electrical continuity of the entire circuit.
- ◆ Multiple optimized dimensional configurations available to suit diverse application needs.
- ◆ Door hinges use welded construction; control cabinets employ high-strength wear-resistant hinges and door locks; semi-circular sealing strips prevent water ingress.
- ◆ Same-type control cabinet doors can open left or right, meeting both left-opening and right-opening requirements.
- ◆ Mounting plate depth of the control cabinet is adjustable to accommodate installation needs of various components.

外形及安装尺寸

WR_JXF(G₁系列)外形及安装尺寸 / External & Installation Dimensions



WR_JXF(G₂系列)外形及安装尺寸 / External & Installation Dimensions



WR_JXF(G₁系列)尺寸表 / Dimension Table

外形尺寸	高(H) mm	宽(W) mm	深(D) mm
2520/14	250	200	140
3025/14	300	250	140
3025/18	300	250	180
3030/14	300	300	140
3030/18	300	300	180
4030/14	400	300	140
4030/20	400	300	200
5040/14	500	400	140
6040/20	600	400	200
6040/23	600	400	230
6050/14	600	500	140
6050/20	600	500	200
6050/23	600	500	230
7050/16	700	500	160
7050/20	700	500	200
7050/23	700	500	230
8060/20	800	600	200
8060/23	800	600	230
8060/25	800	600	250
10080/20	1000	800	200
10080/25	1000	800	250
10080/30	1000	800	300

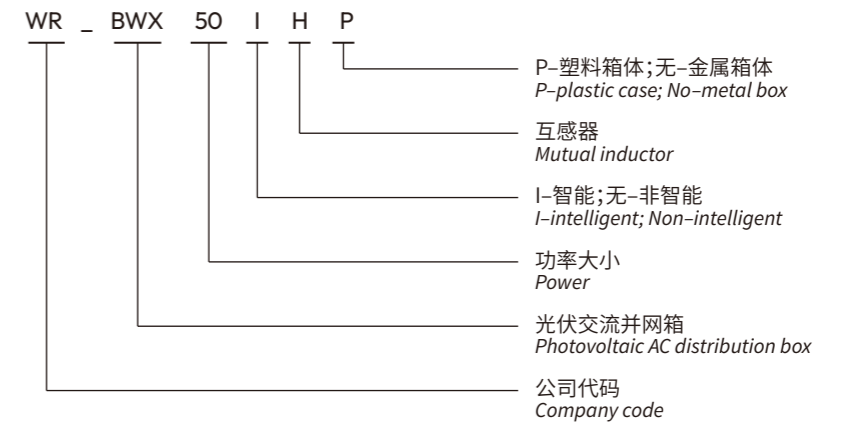
WR_JXF(G₂系列)尺寸表 / Dimension Table

外形尺寸	高(H) mm	宽(W) mm	深(D) mm
3025/15	300	250	150
3025/18	300	250	180
3030/15	300	300	150
3030/18	300	300	180
4030/15	400	300	150
4030/20	400	300	200
5040/15	500	400	150
5040/20	500	400	200
6040/15	600	400	150
6040/20	600	400	200
6050/15	600	500	150
6050/20	600	500	200
7050/15	700	500	150
7050/20	700	500	200
7060/15	700	600	150
7060/20	700	600	200
8060/20	800	600	200
8060/25	800	600	250
8070/20	800	700	200
8070/25	800	700	250
10080/20	1000	800	200
10080/25	1000	800	250

● WR_BWX 新能源并网箱 / New Energy Grid-Connected Box

规格型号说明

Specification and model description



产品应用

新能源并网箱和并网柜广泛应用于分布式屋顶电站、地面电站、工商业屋顶、渔光互补、农光互补以及各种新能源发电并网项目、光伏发电项目和风力发电项目。产品符合国家并网标准。

Product application

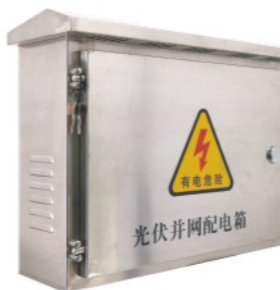
Photovoltaic grid box and grid cabinet are widely used in distributed rooftop power stations, ground power stations, industrial and commercial rooftops, complementary fishing and photovoltaics, complementary agricultural photovoltaics, and various new energy grid projects, photovoltaic power generation projects, and wind power generation projects. They conform to National grid standards.

产品特点

- ◆ 规格齐全可按客户要求定制；
- ◆ 功率从单相2KW到三相1MW；
- ◆ 结构紧凑，外形美观，耐腐蚀，具有漏电保护、过载保护、短路保护、缺相保护和浪涌保护等功能，最大程度保护用户人身安全；
- ◆ 具有自动重合闸功能及远程控制功能，减少了工作人员的工作成本；
- ◆ 并网柜具有防孤岛、过欠压保护、检有压合用和失压跳闸功能；
- ◆ 并网柜采用汇流加并网的一体化设计降低了用户成本；

Product characteristics

- ◆ Complete specifications can be customized according to customer requirements;
- ◆ Power from single-phase 2KW to three-phase 1MW;
- ◆ Compact structure, beautiful appearance, corrosion resistance, with leakage protection, overload protection, short circuit protection, phase loss protection, surge protection and other functions, to maximize the personal safety of users;
- ◆ With automatic reclosing function and remote control function, reduce the working cost of staff;
- ◆ The grid cabinet has the functions of anti-island, over-low voltage protection, pressure combination detection and voltage loss tripping;
- ◆ The grid-connection cabinet adopts the integrated design of confluent and grid-connection, which reduces the user cost;



技术参数 / Specification

型号	Model
基本参数	Basic parameters
逆变器输入路数	The input ways of the inverter
输出路数	Output way
额定交流电压	Rated AC voltage
最大额定输入电流	Maximum rated input current
额定频率	Rated frequency
电能表接入	Meter access
外壳箱体	Shell casing
箱体材质	Material
防护等级	Protection class
碰撞防护等级	Collision protection class
箱体尺寸	Size
逆变器接入端口	Inverter access port
电网接入端口	Grid access port
隔离开关	Isolating switch
额定电压	Rated voltage (AC)
额定电流	Rated current (AC)
类型	Type
过欠压保护器	Overvoltage protector
断路器极数	Poles of circuit breaker
额定电压	Rated voltage (AC)
最大电流	Maximum current (AC)
过压保护值(相电压)	Overvoltage protection value (phase voltage)
欠压保护值(相电压)	Undervoltage protection value (phase voltage)
失压保护值(相电压)	Loss of voltage protection value (phase voltage)
额定频率	Rated frequency
执行标准	Standard
认证证书	Certifications
交流浪涌保护器	AC surge protector
最大工作电压	Maximum operating voltage (AC)
最大放电电流	Maximum discharge current (AC)
执行标准	Standard
交流断路器	AC circuit breaker
断路器极数	Poles of circuit breaker
额定电压	Rated voltage (AC)
额定电流	Rated current (AC)
额定频率	Rated frequency
执行标准	Standard
环境参数	Environmental parameters
工作温度	Working temperature
工作湿度	Working humidity
海拔高度	Altitude
安装方式	Installation
可选功能	Optional function
交流熔断器	AC fuse
过欠压保护器	Overvoltage protector
交流漏电保护器	AC leakage protector

5	10	15	30	40
1				
1				
220V/230V/240V		400V		
32A	63A	32A	63A	80A
50Hz/60Hz				
直接接入 Direct connection				二次接入 Secondary connection
金属 Metal				
IP65				
IK10				
定制 Customization				
M50(Φ 32.7 - 38mm)				
M50(Φ 32.7 - 38mm)				
230V		400V		
63A	100A	100A		
单投开关 Knife switch				
2P		4P		
230V		400V		
63A		80A		
≥ 290V				
< 150V				
< 45V				
50Hz/60Hz				
Q/G DW 1972				
CCC				
230V		400V		
40kA				
EN 50539 11 Type 2				
2P		4P		
230V		400V		
32A	60A	32A	60A	80A
50Hz/60Hz				
IEC/EN 60947-3,UL508I				
-20°C ~ +60°C				
99%				
2000m(2000m以上满载 Load reduction above 2000m)				
挂壁安装 Wall mounting				
可选 Optional				
可选 Optional				
可选 Optional				

技术参数 / Specification

型号	Model
基本参数	Basic parameters
逆变器输入路数	The input ways of the inverter
输出路数	Output way
额定交流电压	Rated AC voltage
最大额定输入电流	Maximum rated input current
额定频率	Rated frequency
电能表接入	Meter access
外壳箱体	Shell casing
箱体材质	Material
防护等级	Protection class
碰撞防护等级	Collision protection class
箱体尺寸	Size
逆变器接入端口	Inverter access port
电网接入端口	Grid access port
隔离开关	Isolating switch
额定电压	Rated voltage (AC)
额定电流	Rated current (AC)
类型	Type
过欠压保护器	Overvoltage protector
断路器极数	Poles of circuit breaker
额定电压	Rated voltage (AC)
最大电流	Maximum current (AC)
过压保护值(相电压)	Overvoltage protection value (phase voltage)
欠压保护值(相电压)	Undervoltage protection value (phase voltage)
失压保护值(相电压)	Loss of voltage protection value (phase voltage)
额定频率	Rated frequency
执行标准	Standard
认证证书	Certifications
交流浪涌保护器	AC surge protector
最大工作电压	Maximum operating voltage (AC)
最大放电电流	Maximum discharge current (AC)
执行标准	Standard
交流断路器	AC circuit breaker
断路器极数	Poles of circuit breaker
额定电压	Rated voltage (AC)
额定电流	Rated current (AC)
额定频率	Rated frequency
执行标准	Standard
环境参数	Environmental parameters
工作温度	Working temperature
工作湿度	Working humidity
海拔高度	Altitude
安装方式	Installation
可选功能	Optional function
交流熔断器	AC fuse
过欠压保护器	Overvoltage protector
交流漏电保护器	AC leakage protector

50	60	90	110	130
1				
1				
400V				
100A	125A	200A	225A	250A
50Hz/60Hz				
直接接入/二次接入 Direct connection/ Secondary connection		二次接入 Secondary connection		
金属 Metal				
IP65				
IK10				
定制 Customization				
M50(Φ 32.7 - 38mm)				
M50(Φ 32.7 - 38mm)				
400V			400A	
单投开关 Knife switch				
200A			400A	
4P				
400V				
125A		250A		
≥ 290V		253 ~ 300V		
≥ 290V		154 ~ 187V		
< 45V				
50Hz/60Hz				
Q/G DW 1972				
CCC				
400V				
40kA				
EN 50539 11 Type 2				
4P				
400V				
100A	125A	200A	225A	250A
50Hz/60Hz				
IEC/EN 60947-3,UL508I				
-20°C ~ +60°C				
99%				
2000m(2000m以上满载 Load reduction above 2000m)				
挂壁安装 Wall mounting				
可选 Optional				
可选 Optional				
可选 Optional				

● 塑料材质并网配电箱 Plastic Grid Distribution Box

产品概述

塑料材质并网箱，该产品主要用于分布式光伏系统3~60kW的并网线路中。产品具有防雷击、短路保护、过流保护、漏电保护、失压自动跳闸有压自动合闸和防孤岛功能。箱体采用绝缘不饱和聚酯PA66材料和透明聚碳酸酯材料，用户可以在不接触箱体的情况下很直观的看到产品的运行情况。防护等级可以达到IP54，可防止灰尘和雨水渗入。该产品安全、可靠、稳定耐用、安装方便，最大程度保护用户的人身安全。

Product Description

Plastic grid distribution box, the product is mainly used in the 3~60kW grid connection line of distributed photovoltaic system. Products with lightning protection, short circuit protection, overcurrent protection, leakage protection, automatic tripping under voltage loss, automatic closing under voltage and anti-island functions. The box body is made of insulating unsaturated polyester PA66 material and transparent polycarbonate material. Users can see the operation of the product directly without touching the box body. Protection level up to IP54, can prevent dust and rain infiltration. The product is safe, reliable, stable and durable, easy to install. To protect the personal safety of users to the greatest extent.



● 玻璃钢并网配电箱 Fiberglass Grid Distribution Box

产品概述

该产品主要用于分布式光伏系统3~60kW的并网线路中。产品具备防雷击、短路保护、过流保护、漏电保护、失压自动跳闸有压自动合闸和防孤岛功能。箱体采用绝缘树脂SMC材料，防护等级可以达到IP54，箱门上装有橡胶密封条，防止灰尘和雨水渗入。该产品安全、可靠，稳定耐用，安装方便，最大程度保护用户的人身安全。

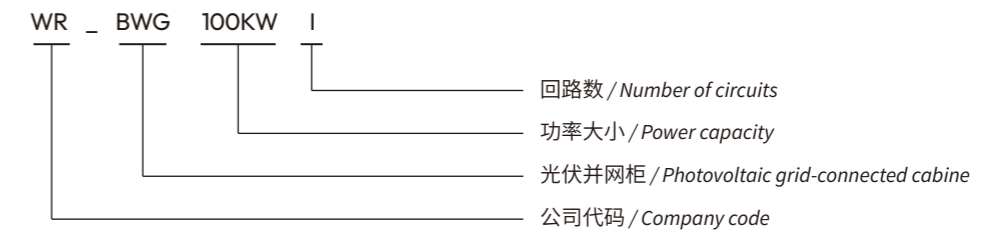
Product Description

The product is mainly used in the 3~60kW grid connection line of distributed photovoltaic system. Products with lightning protection, short circuit protection, overcurrent protection, leakage protection, automatic tripping under voltage loss, automatic closing under voltage and anti-island functions. The box body is made of insulating resin SMC material, and the protection grade can reach IP54. The door of the box is pasted with rubber seal, which can prevent dust and rainwater from infiltration. The product is safe, reliable, stable and durable, easy to install. To protect the personal safety of users to the greatest extent.



● WR_BWG 新能源并网柜 / New Energy Grid-Connection Cabinet

规格型号说明 / Specification and model description



产品概述

新能源并网柜，作为光伏电站的总输出，存在于光伏分布式电站系统中，是连接光伏电站和电网的配电装置，其作用是做为光伏发电系统与电网的分界点，对于低压并网柜的光伏电站，光伏并网柜中还可以加装计量和保护等功能器件。并网柜对于电站安全、运维、经济效益都有举足轻重的影响。

Product Overview

The PV grid-connected cabinet is the main output point of a distributed solar plant, linking it to the grid. It acts as the interface between generation and utility power — and for low-voltage systems, can include metering and protection functions. Critical for safety, O&M, and ROI.

产品特点

- ◆ 容量涵盖范围广，可涵盖2000A以下用户并网需求；
- ◆ 重量轻、安装方便，外观美观大气；
- ◆ 可选配检有压合闸、失压跳闸等功能，实现无人化管理；
- ◆ 可预留独立铅封计量室，光伏发电一目了然；
- ◆ 具有RS485通讯接口，使用ModBus-RTU通讯协议；
- ◆ 可根据客户需求配用国内外知名品牌厂家元件；
- ◆ 可定制不锈钢或冷轧板材质。

Key Features

- ◆ Up to 2000A capacity
- ◆ Light, easy install, sleek design
- ◆ Optional: voltage-check closing & undervoltage tripping for unmanned operation
- ◆ Sealed metering chamber — clear PV output view
- ◆ RS485 + ModBus-RTU
- ◆ Choose top-brand components (global/local)
- ◆ Material: stainless or cold-rolled steel (custom)

产品应用

◆ 大型光伏电站&分布式光伏发电

在大型光伏电站中，可能存在多个并网点，这些并网点是电站发电的最后一站，是电站与电网系统的分界点，对于这些并网点的监测、保护十分重要。

Applications

◆ Large-scale & Distributed PV Plants

In large PV plants, multiple grid connection points may exist — these are the final output interfaces between plant and grid. Monitoring and protection at these points are critical.

◆ 家庭光伏

家庭光伏容量较小，通常只有一个并网点。此时的并网柜可以作为发电量统计、配电保护来使用。

◆ Residential PV Systems

Smaller capacity, typically one grid point. The cabinet serves for energy metering and distribution protection.



技术参数 / Specification

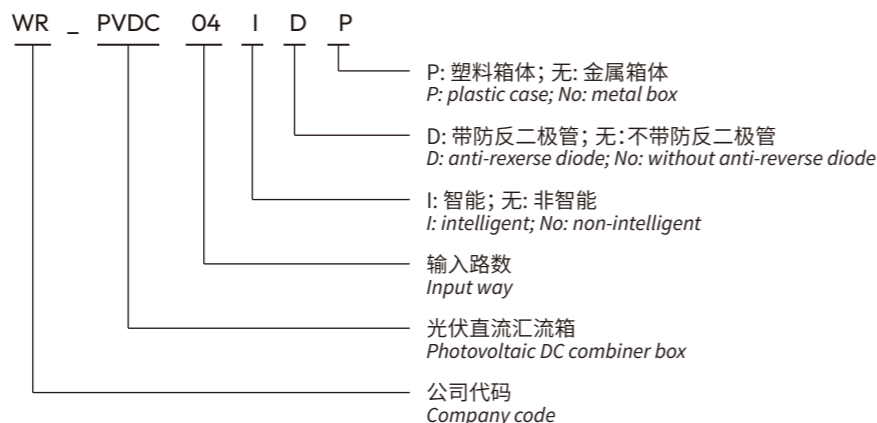
电气参数 Electrical Parameters	参数名称	规格
电气参数	额定电压	Rated Voltage: 3相 380V~400V AC / 3 Phase 380V~400V AC
	额定频率	Rated Frequency: 50Hz
	额定电流	Rated Current: 100A\125A\400A\630A\800A\1000A\1250A\1600A
	额定功率	Rated Power: 50kW\100kW\200kW\300kW\400kW\500kW\630kW\800kW
	额定冲击耐受电压	Rated Impulse Withstand Voltage: 2.5kV
环境条件 Environmental Conditions	工作温度	Operating Temperature: -25°C ~ 60°C
	贮存温度	Storage Temperature: -25°C ~ 70°C
结构特性 Structural Features	防护等级	Protection Rating (IP): IP54
	颜色	Color: RAL7035 (可按客户要求定制 Customize)

WR_PVDC 新能源直流汇流箱 / New Energy DC Combiner Box



规格型号说明

Specification and model description



产品应用

汇流箱应用于光伏发电系统中,减少了光伏组件与逆变器之间连接线。通过光伏专用熔断器、断路器和防雷器的保护,提高了可靠性,也方便了系统的维护。用户可以根据逆变器输入的直流电压范围,把一定数量的规格相同的光伏组件串联组成1个光伏组件串列,再将若干个串列接入光伏阵列防雷汇流箱,通过防雷器与断路器保护后输出,方便了后级逆变器的接入。

Product application

Combiner box is applied in photovoltaic power generation system, which reduces the connection line between photovoltaic module and inverter. Through the protection of photovoltaic fuses, circuit breakers and lightning protection devices, reliability is improved and system maintenance is facilitated. The user can connect a certain number of photovoltaic modules with the same specifications in series to form a photovoltaic module series according to the DC voltage range input by the inverter, and then connect several series to the photovoltaic array lightning protection combiner box. The output is protected by the lightning protector and circuit breakers, which facilitates the access of the back-stage inverter.

产品特点

- ◆ 箱体采用热镀锌钢板材质;
- ◆ 产品可同时接入多至24路光伏阵列,具备防雷击,防盐雾,短路保护,过流保护等功能;
- ◆ 防护等级IP65;
- ◆ 箱体门上贴有发泡橡胶密封条,防止灰尘和雨水渗入;
- ◆ 安全、可靠、稳定耐用、安装方便;
- ◆ 最大程度保护用户的人身安全;

Product characteristics

- ◆ The box body is made of hot-dip galvanized steel sheet;
- ◆ The product can be connected to up to 24 ways photovoltaic arrays at the same time, with the functions of lightning protection, salt-fog protection, short circuit protection, overcurrent protection, etc.
- ◆ Protection grade IP65;
- ◆ Foaming rubber sealing strips are affixed to the box door to prevent dust and rain infiltration;
- ◆ Safe, reliable, stable and durable, easy to install;
- ◆ Protect the personal safety of users to the maximum extent;

技术参数 / Specification

型号 Model	
基本参数 Basic parameters	
直流输入组串 DC input group string	2/1, 3/1, 4/1, 6/1, 8/1, 10/1, 12/1, 16/1, 20/1, 24/1
直流输出组串 DC output group string	2, 3, 4, 6, 8, 10, 12, 16, 20, 24
最大输入电压 Maximum input voltage (DC)	1000V
最大直流短路电流 (DC) Maximum DC short circuit current	15A/20A 串(可选) 15A/20A/String (Optional)
最大直流输出电流 Maximum DC output current (DC)	80A, 80A, 100A, 100A, 125A, 160A, 180A, 250A, 315A, 400A
外壳箱体 Shell casing	金属 Metal
箱体材质 Cabinet material	是 Yes
抗紫外线 Anti-UV (PC/ABS)	IP65
防护等级 Protection class	IK10
碰撞防护等级 Collision protection class	定制 Customization
箱体尺寸 Body size	M16(Φ4~8mm)
直流输入端口 DC input port	M40(Φ23~32mm)
直流输出端口 DC output port	M50(Φ32.7~38mm) M63(Φ37~44mm)
接地端口 Grounding port	M20(Φ6.7~12mm)
直流断路器 DC circuit breaker	
额定绝缘电压 Rated insulation voltage (DC)	1000V
额定电流 Rated current (DC)	1000V / 1500V
执行标准 Execution standard	80A, 80A, 100A, 100A, 125A, 160A, 180A, 250A, 315A, 400A
直流浪涌保护器 DC surge protector	IEC 60947-1, GB14048.2, IEC60898.2, GB14048.1
最大工作电压 Maximum operating voltage (DC)	1000V
最大放电电流 Maximum discharge current (DC)	1000V / 1500V
执行标准 Standard	40kA
直流熔断器 DC fuse	EN 50539-11 Type2
额定工作电压 Rated operating voltage	
额定电流 Rated current	1000V
尺寸 Size (mm)	1000V / 1500V
环境参数 Environmental parameters	15/20A(可选) 15/20A(Optional)
工作温度 Working temperature	Φ10*38
工作湿度 Working humidity	Φ10*38 / Φ10*85
海拔高度 The altitude	
安装方式 Installation	-20°C ~ +60°C
可选功能 Optional function	99%(无凝露) 99% (Without condensation)
直流监控 DC monitoring	2000m(2000m以上载降) 2000m (Load reduction above 2000m)
防反二极管 Antireversing diode	挂壁安装 Wall mounting
MC4接头 MC4 connector	可选(金属箱) Optional (Metal box)
	可选(金属箱) Optional (Metal box)
	可选 Optional

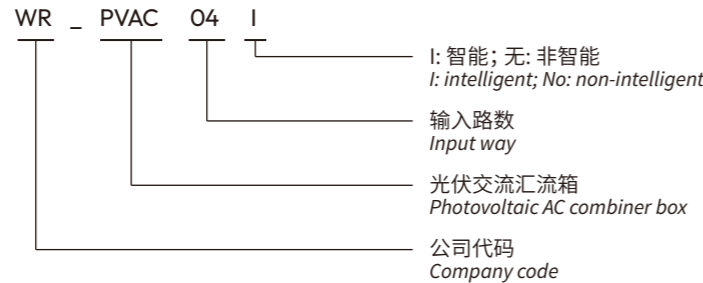
2/1	3/1	4/1	6/1	8/1	10/1	12/1	16/1	20/1	24/1
2	3	4	6	8	10	12	16	20	24
1	1	1	1	1	1	1	1	1	1
1000V							1000V / 1500V		
15A/20A 串(可选) 15A/20A/String (Optional)									
80A	80A	100A	100A	125A	160A	180A	250A	315A	400A
定制 Customization									
M16(Φ4~8mm)									
M40(Φ23~32mm)						M50(Φ32.7~38mm)		M63(Φ37~44mm)	
M20(Φ6.7~12mm)									
1000V							1000V / 1500V		
80A	80A	100A	100A	125A	160A	180A	250A	315A	400A
IEC 60947-1, GB14048.2, IEC60898.2, GB14048.1									
1000V							1000V / 1500V		
40kA									
EN 50539-11 Type2									
1000V							1000V / 1500V		
15/20A(可选) 15/20A(Optional)									
Φ10*38						Φ10*38 / Φ10*85			
-20°C ~ +60°C									
99%(无凝露) 99% (Without condensation)									
2000m(2000m以上载降) 2000m (Load reduction above 2000m)									
挂壁安装 Wall mounting									
可选(金属箱) Optional (Metal box)									
可选(金属箱) Optional (Metal box)									
可选 Optional									

● WR_PVAC 新能源交流汇流箱 / New Energy AC Combiner Box



规格型号说明

Specification and model description



产品应用

在太阳能光伏发电系统中, 在大型电站中使用组串式逆变器, 为了集中汇流与箱变或者并网柜之间的连线使用交流汇流箱。为了提高系统的可靠性和实用性, 在光伏交流汇流箱里配置了交流防雷模块、交流熔断器、防水端子等。

Product application

In the solar photovoltaic power generation system, string inverters are used in large power stations. In order to centralize confluence and box change or the connection between the grid cabinets, an AC combiner box is used. In order to improve the reliability and practicability of the system, AC lightning protection modules, AC fuses, and waterproof terminals are equipped in the photovoltaic AC combiner box.

产品特点

- ◆ 柜体采用热镀锌钢板, 柜体结构安全、可靠, 具有足够的机械强度;
- ◆ 防护等级IP65, 具备防水、防潮、防灰、防锈、防盐雾功能, 满足室外安装的要求;
- ◆ 配备光伏专用断路器, 光伏专用防雷器。光伏专用防水接头;
- ◆ 箱体线材采用优质铜导线、优质铜排, 确保安全、可靠的连接;
- ◆ 箱体设计紧凑、布置整齐, 满足电气设计要求;
- ◆ 交流箱根据组串式逆变器, 可定制额定电压380V~690V;
- ◆ 防雷器可配置B级或C级防雷;
- ◆ 交流箱可根据客户要求配置多功能仪表, 采集电流电压、断路器及防雷器的状态通过RS485通讯发送到后台监控系统; (注: 可按客户要求特制定不同参数不同材质)

Product characteristics

- ◆ The cabinet body is made of hot-dip galvanized steel plate, the cabinet body structure is safe, reliable, and has sufficient mechanical strength;
- ◆ The protection grade is IP65, with the functions of waterproof, moisture-proof, dust-proof, rust-proof and salt-fog protection, meeting the requirements of outdoor installation;
- ◆ Equipped with special photovoltaic circuit breaker and photovoltaic special lightning protection device. Special waterproof connector for photovoltaic;
- ◆ The box body wire uses high-quality copper wires and high-quality copper bars to ensure safe and reliable connections;
- ◆ The cabinet design is compact and neatly arranged to meet the electrical design requirements;
- ◆ The AC box can be customized with a rated voltage of 380V~690V according to the string inverter;
- ◆ The lightning protection device can be configured with B or C level lightning protection;
- ◆ The AC box can be equipped with multi-function instruments according to customer requirements to collect current and voltage, circuit breaker and lightning protection status and send to the background monitoring system through RS485 communication; (Note: different parameters and materials can be customized according to customer requirements)



技术参数 / Specification

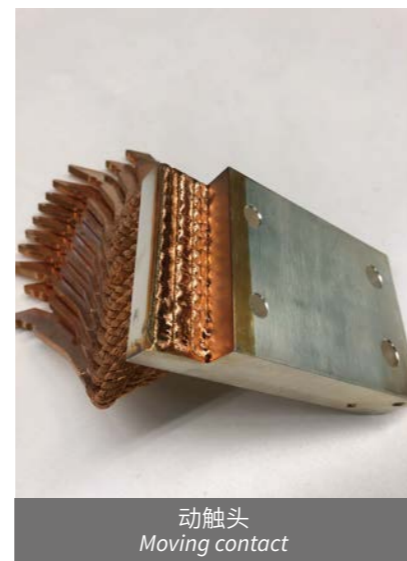
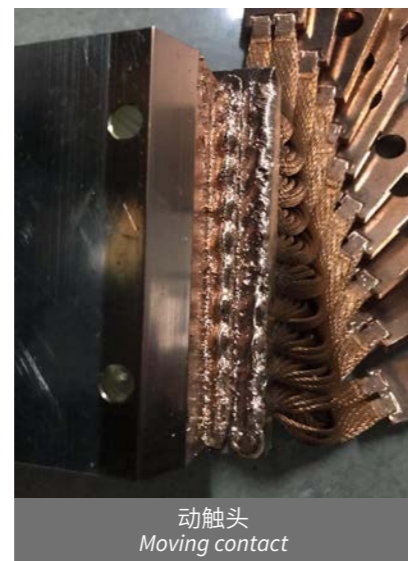
型号	Model	2/1	3/1	4/1	5/1	6/1	7/1	8/1
基本参数	Basic parameters							
逆变器台数	Number of inverters	2	3	4	5	6	7	8
交流输出路数	AC output way	1	1	1	1	1	1	1
额定交流电压	Rated AC voltage (AC)	400V / 500V / 800V						
最大输入电流	Maximum input current (AC)	1A~200A 台 (可选 Optional)						
最大汇流输出电流	Maximum confluence output current (AC)	400A	600A	800A				
额定频率	Rated frequency	50Hz / 60Hz						
外壳箱体	Shell casing	金属 Metal						
箱体材质	Cabinet material	RAL7035						
颜色	Color	IP65						
防护等级	Protection class	IK10						
碰撞防护等级	Collision protection class	定制 Customization						
箱体尺寸	Body size	M50(Φ 32.7 ~ 38mm)						
交流输入端口	AC input port	输出电缆大于95mm²时, 开方孔, 用防火泥封堵 When the output cable is larger than 95mm², open a square hole and block it with fireproof mud						
交流输出端口	AC output port	M20(Φ 6.7~12mm)						
接地端口	Grounding port	3P/4P						
输入断路器	Input circuit breaker	400V/500V/800V						
断路器类型	Circuit breaker type	1A-200A台 (可选 Optional)						
额定电压	Rated voltage (AC)	50Hz/60Hz						
额定电流	Rated current (AC)	3P/4P						
额定频率	Rated frequency	400V/500V/800V						
浪涌保护断路器	Surge protection for circuit breakers	63A						
断路器类型	Circuit breaker type	50Hz/60Hz						
额定电压	Rated voltage (AC)	415V/690V/800V						
额定电流	Rated current (AC)	40kA						
额定频率	Rated frequency	EN 50539-1 Type2						
交流浪涌保护器	AC surge protector	3P/4P						
最大工作电压	Maximum operating voltage (DC)	400V/500V/800V						
最大放电电流	Maximum discharge current (DC)	250-800A						
执行标准	Standard	50Hz/60Hz						
输出断路器	Output circuit breaker	-20°C ~ +60°C						
断路器类型	Circuit breaker type	99%						
额定电压	Rated voltage (AC)	2000m (2000m以上降载 Load reduction above 2000m)						
额定电流	Rated current (AC)	挂壁安装 Wall mounting						
额定频率	Rated frequency	可选 Optional						
环境参数	Environmental parameters							
工作温度	Working temperature							
工作湿度	Working humidity							
海拔高度	The altitude							
安装方式	Installation							
可选功能	Optional function							
监控	Monitoring							

05

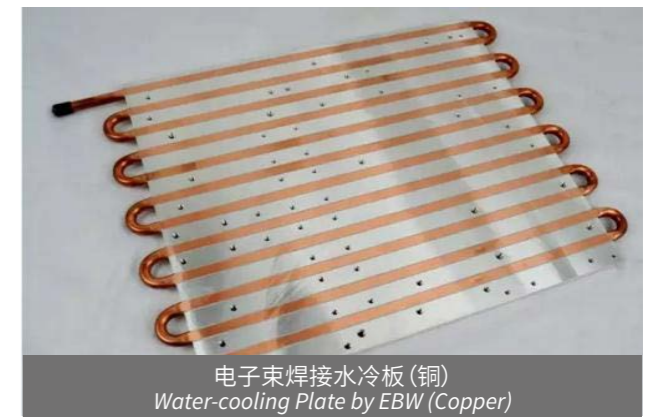
高低压焊接类零部件

HIGH-LOW VOLTAGE CORE CONDUCTIVE PARTS

- 电子束焊接 — 断路器核心导电部件
Electron Beam Welding-Core Conductive Components of Circuit Breaker



- 电子束焊接 — 新能源
Electron Beam Welding-New Energy



高低压断路器核心导电部件产品

Core Conductive Components of High and Low Voltage Circuit Breakers

● 编织带软连接系列

Braid Belt Flexible Connection Series



● 冲压件系列

Stamping Parts Series



● 母排&锻件系列

Bus-bar & forgings series



● 触头系列

Contact Series



● 端子系列

Terminal Series



● 机加件系列

Machining Parts Series



● 牵引线圈系列

Traction Coil Series

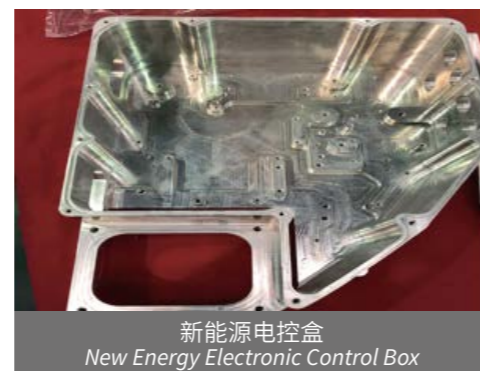


● 铜带软连接系列

Copper-belt Flexible Connection Series



新能源汽车 New Energy Vehicle



检测设备 Testing Equipment

<p>超声无损检测仪 Ultrasonic Non-destructive testing Detector</p>	<p>ROHS制样 (德国超研磨机、瑞士天平) Rohs sample preparation (german super lapping machine, Swiss balance)</p>	<p>化学分析仪 (美国安捷伦) Chemical analyzer (Agilent, United States)</p>
<p>电磁兼容: 多功能干扰仪 (瑞士) 传导抗扰 (德国) 断续和连续抗扰 (意大利) Electromagnetic compatibility: Multifunction interferometer (Switzerland) Conduction disturbance rejection (Germany) intermittent and continuous disturbances (Italy)</p>	<p>工信部五所高低温、盐雾、防水测试 The five high temperature, salt fog and waterproof test of the Ministry of industry and information</p>	
<p>北京钢研院理化试验碳硫检测 Determination of carbon and sulfur in physical and chemical test of Beijing Institute of Steel Research</p>	<p>盐雾试验机 Salt Spray Teste</p>	<p>三坐标检测仪 Three coordinate detector</p>

生产设备 Production Equipment

<p>数控加工中心(美国哈斯) CNC machining center (Haas, USA)</p>	<p>全自动焊接设备 Automatic welding equipment</p>	<p>冲压设备 Punching equipment</p>
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01 塑壳断路器功能附件
MCB ACCESSORIES

02 框架断路器功能附件
ACB ACCESSORIES

03 智能终端电器产品
INTELLIGENT TERMINALS

04 低压配电成套产品
LV SWITCHGEAR ASSEMBLIES

05 高低压焊接导电零件
HIGH-LOW VOLTAGE CORE CONDUCTIVE PARTS