



公众号二维码



产品册二维码



抖音号二维码

苏州未来电器股份有限公司  
Suzhou Future Electrical Appliances Co.,Ltd.

联系我们  
**CONTACT US**

全国免费服务热线 (National free service hotline)  
400-862-2800

销售热线 (Sales Hotline)  
+86-0512-61110000

官网(web)  
<http://www.szfuture.com>

邮箱(E-Mail)  
[sale@szfuture.com](mailto:sale@szfuture.com)

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。  
本手册版权属于苏州未来电器股份有限公司,2023年11月@傲美设计。



## 低压电器功能附件 让未来尽断路器所能

Low voltage electrical functional accessories  
Low Voltage Apparatus Functional Accessories Powered by Witera

苏州未来电器股份有限公司  
Suzhou Future Electrical Appliances Co.,Ltd.

# Witera®



## CONTENTS

## 目录

|                                                     |    |
|-----------------------------------------------------|----|
| 企业文化<br>ENTERPRISE CULTURE                          | 01 |
| 公司简介<br>BRIEF INTROUDUCTION                         | 03 |
| 荣誉资质<br>HONORARY & QUALIFICATION                    | 05 |
| 公司能力<br>ENTERPRISE CAPABILITIES                     | 07 |
| 产品系统<br>PRODUCTS SERIES                             | 09 |
| 塑壳断路器功能附件<br>MCCB ACCESSORIES                       | 11 |
| 框架断路器功能附件<br>ACB ACCESSORIES                        | 19 |
| 智能终端电器产品<br>INTELLIGENT TERMINALS                   | 25 |
| 高低压焊接类零部件<br>HIGH-LOW VOLTAGE CORE CONDUCTIVE PARTS | 75 |



# 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。

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院、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。

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.

### 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





# 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

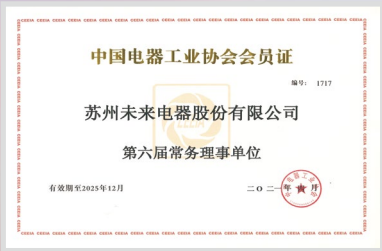
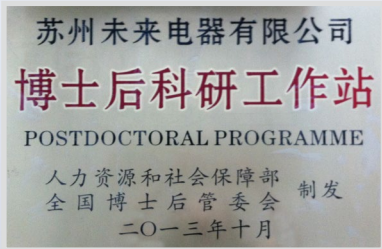
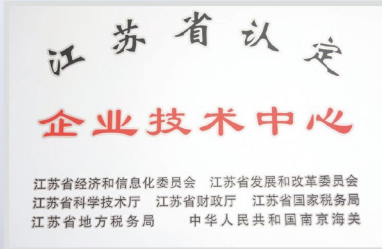


## 公司荣誉

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.



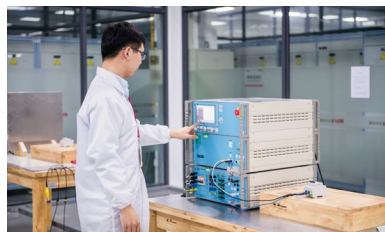


# ENTERPRISE CAPABILITIES

## 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。

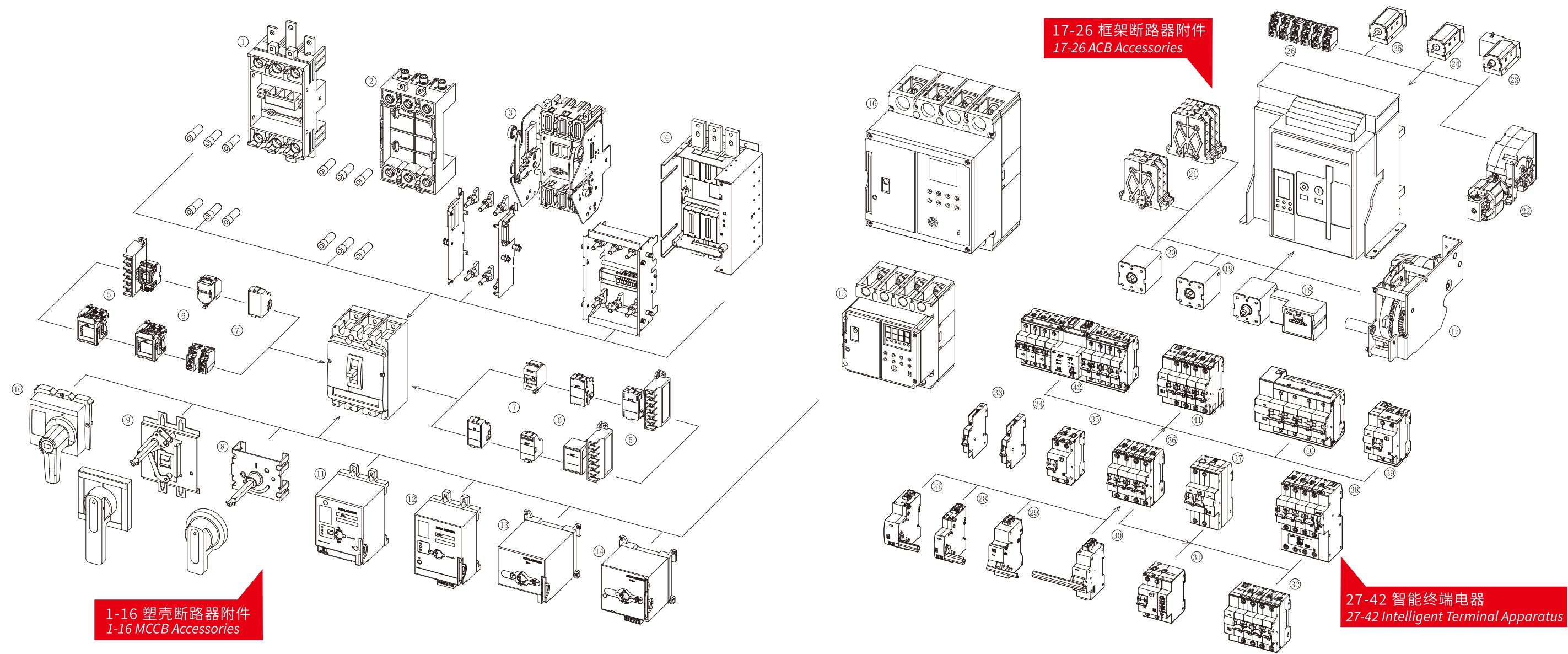
*The company always regards product quality as the foundation of enterprise development, and stable and reliable quality is widely recognized in the industry. The company has established a comprehensive quality management organizational structure, equipped with experienced quality management personnel, 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



### 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、自动控制和可通信、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 |           |           |        |
|-------------------------|-----------|-----------|--------|
| 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 |           |           |        |
|-------------------------|-----------|-----------|--------|
| 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                     |
|----------|---------------------------------|
| 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 |           |           |
|-------------------------|-----------|-----------|
| CD2B-63-800             |           |           |
| DC24V                   | AC/DC110V | AC/DC220V |
| 3A/6A                   | 1A        | 0.5A      |
| 500V                    |           |           |
| 4.5KV                   |           |           |
| 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                     |
|----------|---------------------------------|
| 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 |           |           |
|-------------------------|-----------|-----------|
| CD4B-100~800            |           |           |
| DC24V                   | AC/DC110V | AC/DC220V |
| 3A/6A                   | 1A        | 0.5A      |
| 500V                    |           |           |
| 4.5KV                   |           |           |
| 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                     |
|----------|---------------------------------|
| 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                 |

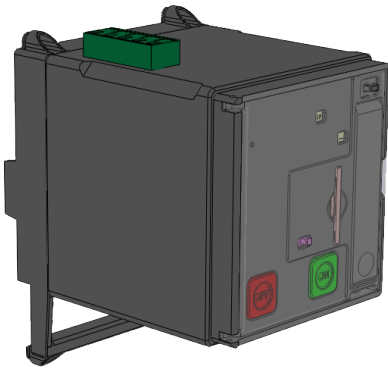
| 电动操作机构 / Motor Operator |           |           |        |
|-------------------------|-----------|-----------|--------|
| EMT-63~800              |           |           |        |
| DC24V                   | AC/DC110V | AC/DC220V | AC380V |
| 3A/6A                   | 1A        | 0.5A      | 0.5A   |
| 500V                    |           |           |        |
| 4.5KV                   |           |           |        |
| 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                       |
|----------|-----------------------------------|
| 型号       | Model                             |
| 额定工作电压   | Rated operational voltage         |
| 额定电压频率   | Rated operational current         |
| 工频耐压     | Power frequency withstand voltage |
| 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 |  |  |  |
|-------------------------|--|--|--|
| SMT-250~630             |  |  |  |
| AC230V/DC220V           |  |  |  |
| 50Hz                    |  |  |  |
| 2000V, 历时1min           |  |  |  |
| 500V                    |  |  |  |
| 4.5KV                   |  |  |  |
| 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

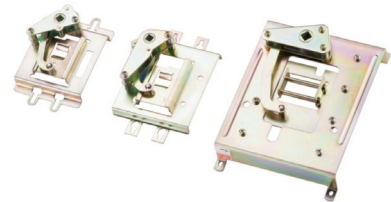
CS1/2金属手操

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.

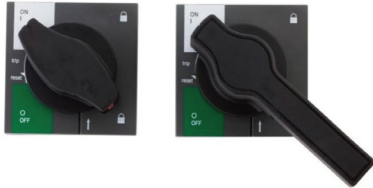


F2型手柄

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 intergrated 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.

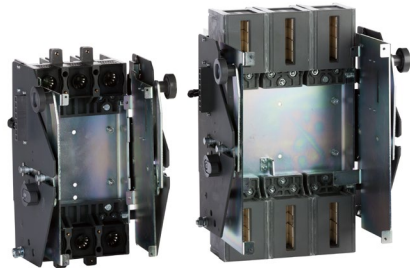


CH2抽出式

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的分闸、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.

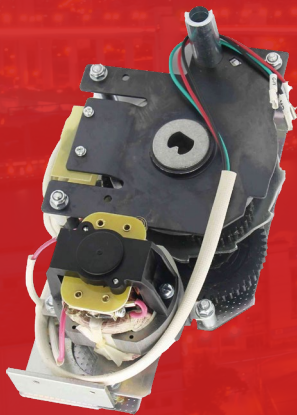
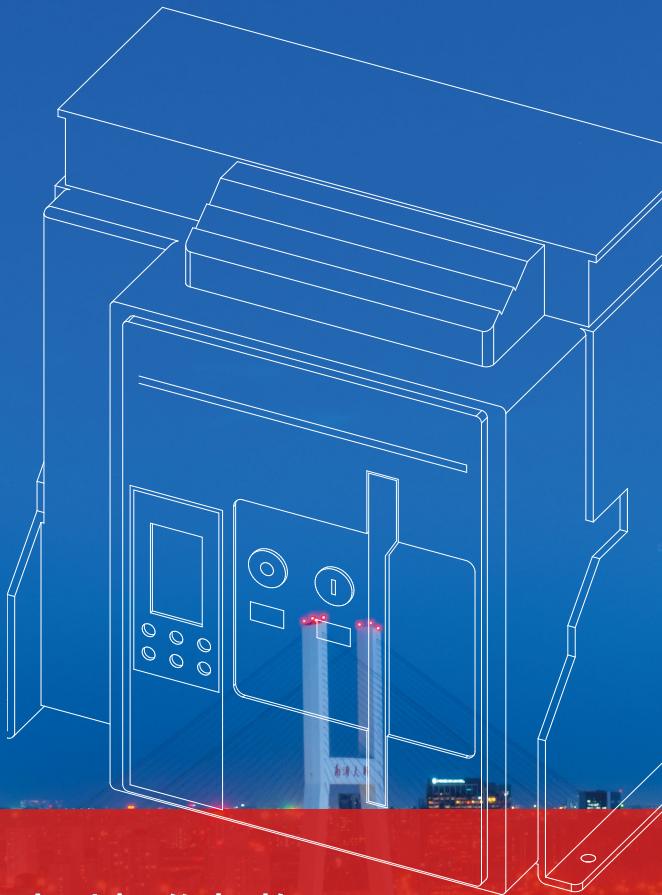
Comply with the standard requirements of GB/T 14048.1 "General Principles for Low Voltage Switchgear and Control Equipment". Comply with the requirements of GB/T 14048.2 "Low Voltage Switchgear and Control Equipment - Low Voltage Circuit Breakers" standard.





# 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 BGWW45-1600, 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 - OTW45-1600**  
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 compoct 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 (Le. 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功能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    |

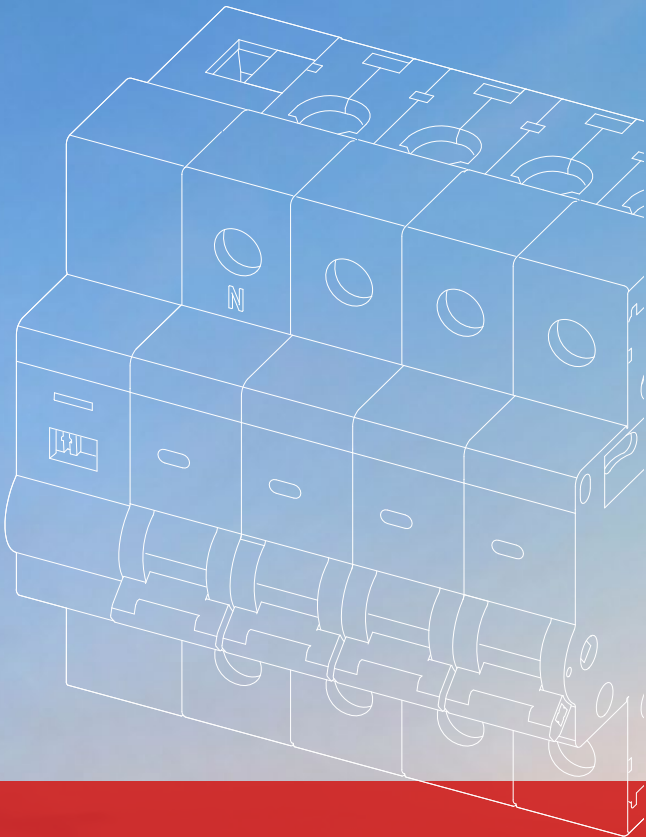
| 派生型号<br>Derivative model | 名称<br>Name |
|--------------------------|------------|
| QTW45-3200ZX             | 欠电压瞬时脱扣器   |
| QTW45-3200SZX            | 欠电压延时脱扣器   |
| QTW45-3200ZXP            | 失压瞬时脱扣器    |
| QTW45-3200SZBX           | 失压延时脱扣器    |
| QTW45-3200SZBX/光伏        | 光伏失压瞬时脱扣器  |

| 动作时间<br>Operating Time |  | 准确值  |
|------------------------|--|------|
| 标准值                    |  |      |
| <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; 同时有自动控制和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;

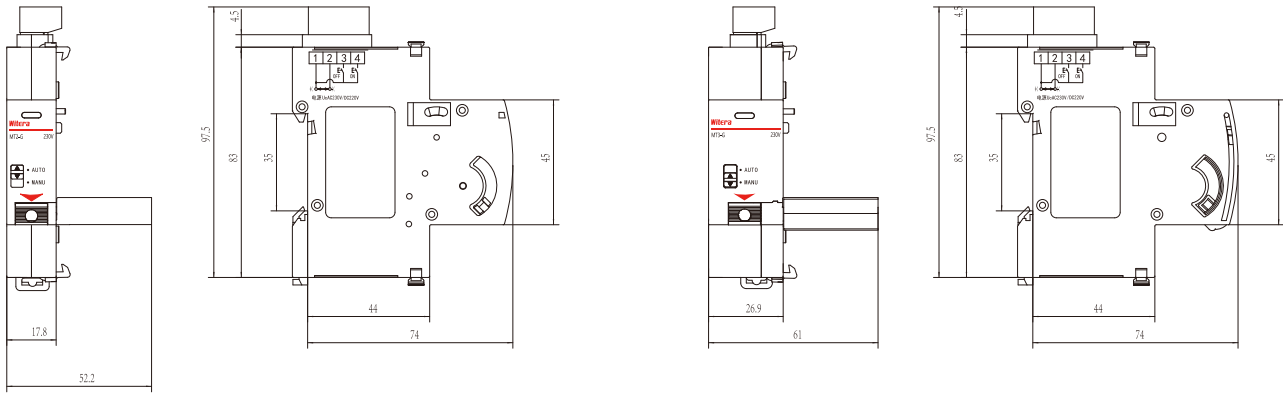
#### Product Background and Application

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<br>110V：AC/DC110<br>DC48V<br>DC24V<br>DC12V<br>2500VAC 1分钟 |      |
| 介电强度        | Dielectric strength            | 4KV                                                                         |      |
| 耐压水平 (Uimp) | Withstand voltage level (Uimp) | 10000次                                                                      |      |
| 机械寿命        | Mechanical life                | 分闸≤ 0.5s、合闸≤ 1s (不包含延时)                                                     |      |
| 动作时间        | Operating time                 | IP20                                                                        |      |
| 防护等级        | Protection level               | -25°C~+60°C                                                                 |      |
| 工作温度        | Working temperature            | ≤ 95% (55°C)                                                                |      |
| 空气相对湿度      | Relative humidity of air       | 远程控制, 能远距离进行分、合闸                                                            |      |
| 动作过程        | Action process                 | 将【手动/自动】拨到自动模式, 能进行远程控制<br>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                 |      |
| 手动/自动操作     | Manual/automatic operation     | 分闸状态时可挂锁, 锁径Φ4mm, 挂锁后产品将不能合闸                                                |      |
| 安全挂锁        | Safety padlock                 |                                                                             |      |



● 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.

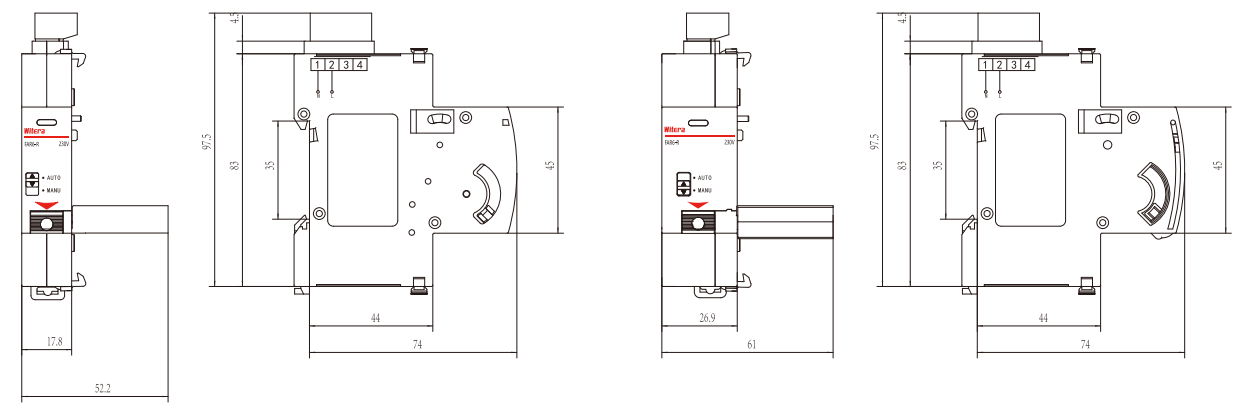
产品特点

- ◆ 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℃~+60℃。

Product Features

- ◆ Comprehensive protection: overvoltage ond undervoltage protection;
- ◆ Safe and reliable: with opening padlock;
- ◆ Small volume and large copacity: single-phase 18mm, three-phase 27mmm;
- ◆ Easy installation: fast and stable installation;
- ◆ Strong adoptability: suitable for environmentalol temperatures ranging from -25℃ to +60℃;

外形尺寸图 / Outline Dimension



| 产品型号           | Model                                  | FAR6-U/2                                                                                                                                                  | FAR6-U/4 |
|----------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 产品图片           | Product image                          |                                                                                                                                                           |          |
|                |                                        | AC 230V                                                                                                                                                   | AC 400V  |
|                |                                        | 18mm                                                                                                                                                      | 27mm     |
|                |                                        | 单相                                                                                                                                                        | 三相四线     |
| 额定工作电压 (Un)    | Rated working voltage (Un)             | 165V±5V (相电压)                                                                                                                                             |          |
| 产品宽度           | Product width                          | 270V±5V (相电压)                                                                                                                                             |          |
| 接线方式           | Wiring method                          | 190V±5V (相电压)                                                                                                                                             |          |
| 欠压保护值          | Undervoltage protection value          | 250V±5V (相电压)                                                                                                                                             |          |
| 过压保护值          | Overvoltage protection value           | 30s±5s                                                                                                                                                    |          |
| 欠压恢复值          | Undervoltage recovery value            | 分闸动作时间≤ 5s                                                                                                                                                |          |
| 过压恢复值          | Overvoltage recovery value             | 4kV                                                                                                                                                       |          |
| 自恢复合闸延时        | Self recovery composite gate delay     | 10000次, 3次/分钟                                                                                                                                             |          |
| 动作时间           | Operating time                         | IP20                                                                                                                                                      |          |
| 额定冲击耐受电压(Uimp) | Rated impulse withstand voltage (Uimp) | 2级                                                                                                                                                        |          |
| 机械寿命           | Mechanical life                        | -25℃~+60℃                                                                                                                                                 |          |
| 防护等级           | Protection level                       | ≤ 90% (平均温度+25℃)                                                                                                                                          |          |
| 污染等级           | Pollution level                        | 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)。<br>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。 |          |
| 工作环境温度         | Working environment temperature        | 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。                                                                                                                         |          |
| 空气相对湿度         | Relative humidity of air               | 分闸状态时可挂锁, 锁径Φ4mm, 挂锁后产品将不能合闸。                                                                                                                             |          |
| 手动/自动操作        | Manual/automatic operation             | 红色恒亮: 正常运行, 合闸状态<br>绿色慢闪: 欠压故障 绿色快闪: 过压故障 绿色恒亮: 延时合闸                                                                                                      |          |
| 安全挂锁           | Safety padlock                         |                                                                                                                                                           |          |
| 电源指示灯          | Indicator light                        |                                                                                                                                                           |          |



● 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.

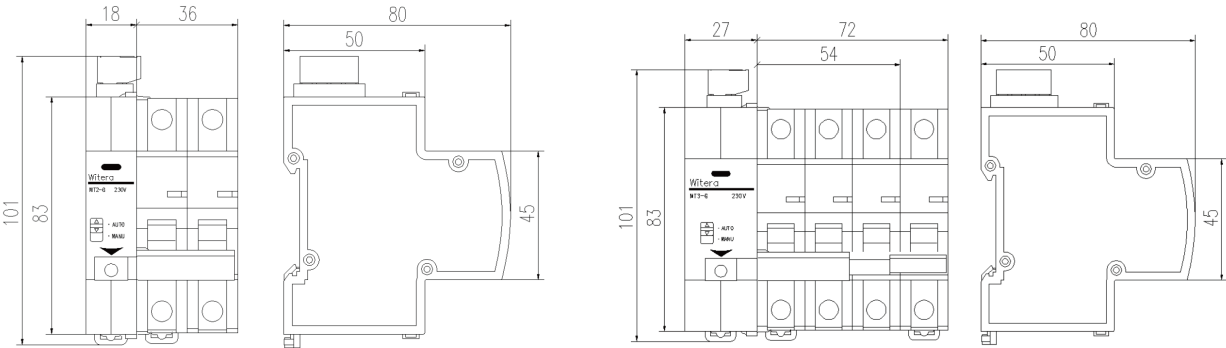
产品特点

- ◆ 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℃ to +60℃;

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。<br><br>(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。<br>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<br>Model                       | WRB5N-40                                                                            |  | WRB5-63                                                                             |  | WRB6-100                                                                            |  | WRB6-125                                                                              |  | WRB6-125H                                                                             |  |
|-------------------------------------|-------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|
| 产品图片<br>Product image               |  |  |  |  |  |  |  |  |  |  |
| 极数<br>Number of poles               | 1N                                                                                  |  | 1, 1N、2、3、3N、4                                                                      |  | 1、2、3、4                                                                             |  |                                                                                       |  |                                                                                       |  |
| 额定工作电压V<br>Rated working voltage V  | AC230V                                                                              |  | AC230/400V(1P)、AC230V(1P+N)、AC400V(2P、3P、3P+V、4P)                                   |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 额定工作电流 A<br>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<br>Tripping characteristics    | B、C、D                                                                               |  |                                                                                     |  |                                                                                     |  | C                                                                                     |  | C、D                                                                                   |  |
| 额定分断能力<br>Rated breaking capacity   | 6kA                                                                                 |  |                                                                                     |  |                                                                                     |  |                                                                                       |  | 10kA                                                                                  |  |
| 机械寿命<br>Mechanical life             | 20000次                                                                              |  |                                                                                     |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 电气寿命<br>Electrical lifespan         | 10000次                                                                              |  |                                                                                     |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 接线能力<br>Wiring capability           | 10mm²及以下                                                                            |  | 25mm²及以下                                                                            |  | 35mm²及以下                                                                            |  | 50mm²及以下                                                                              |  |                                                                                       |  |
| 环境温度<br>Ambient temperature         | -40°C~-70°C                                                                         |  |                                                                                     |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 空气相对湿度<br>Relative humidity of air  | ≤95%                                                                                |  |                                                                                     |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 海拔<br>Altitude                      | ≤2000m                                                                              |  |                                                                                     |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 污染等级<br>Pollution level             | 2                                                                                   |  |                                                                                     |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 振动和冲击<br>Vibration and shock        | 无振动和冲击的场合                                                                           |  |                                                                                     |  |                                                                                     |  |                                                                                       |  |                                                                                       |  |
| 防护等级<br>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<br>Product image                             |  |  |  |  |
| 极数<br>Number of poles                             | 1N                                                                                    | 1N、2、3、3N、4                                                                           | 1N                                                                                    | 1N、2、3、3N、4                                                                           |
| 额定工作电压V<br>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<br>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<br>Tripping characteristics                  | B、C、D                                                                                 |                                                                                       |                                                                                       | C                                                                                     |
| 分断能力<br>Rated breaking capacity                   | 6kA                                                                                   |                                                                                       |                                                                                       |                                                                                       |
| 机械寿命<br>Mechanical life                           | 20000次                                                                                |                                                                                       | 20000次                                                                                |                                                                                       |
| 电气寿命<br>Electricot fifespan                       | 10000次                                                                                |                                                                                       | 6000次                                                                                 |                                                                                       |
| 接线能力<br>Wiring capability                         | 25mm²及以下                                                                              |                                                                                       |                                                                                       | 35mm²及以下                                                                              |
| 剩余动作类型<br>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<br>Rated residual operating current mA | 30mA、50mA、100mA 、300mA                                                                |                                                                                       | 30mA、50mA、100mA                                                                       | 30mA、50mA、100mA、300mA                                                                 |
| 环境温度<br>Ambient temperature                       | -40°C~+70°C                                                                           |                                                                                       |                                                                                       |                                                                                       |
| 空气相对湿度<br>Relotive humidity of air                | ≤95%                                                                                  |                                                                                       |                                                                                       |                                                                                       |
| 海拔<br>Altitude                                    | ≤2000m                                                                                |                                                                                       |                                                                                       |                                                                                       |
| 污染等级<br>Pollution level                           | 2                                                                                     |                                                                                       |                                                                                       |                                                                                       |
| 振动和冲击<br>Vibration and shock                      | 无振动和冲击的场合                                                                             |                                                                                       |                                                                                       |                                                                                       |
| 防护等级<br>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                  | 10mm²及以下                                                                          | 25mm²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 residul 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℃~+60℃(极限-40℃~+70℃)                                                            |                                                                                     |
| 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                  | 35mm²及以下                                                                            | 50mm²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 metho                | 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                | 无振动和冲击的场合                                                                           |           |           |
| 防护等级     | Protection level                   | IP20                                                                                |           |           |

● 智能网关  
Intelligent Gateway

产品特点

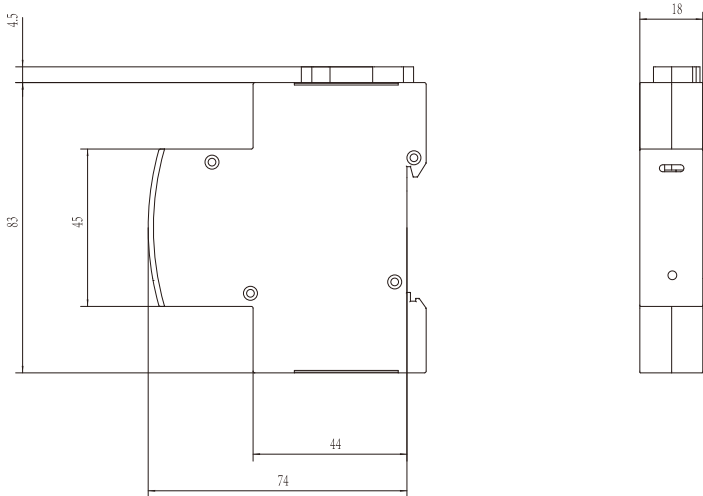
- ◆ 采用模块式结构内置WiFi, 只有1P宽度, 35mm标准导轨固定；
- ◆ 具有设备热点配网, 配网方式简便可靠；
- ◆ 具有通知服务器断电功能；
- ◆ 网关最多可控制19路通讯型断路器；
- ◆ 待机功耗低, 节约电能、低碳环保；

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；<br>指示灯绿灯常亮:网关已处于工作模式但未联网；<br>指示灯红灯快闪:网关处于配网状态；<br>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 some time, Suzhou Future Electrical Appliances is also one of the drafting units of the China Electric Power Enterprise Federotion 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℃~+65℃, 极限可达-40℃~+70℃；
- ◆ 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℃ to+60℃.
- ◆ 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℃ to +65℃, with limits up to -40℃ to+70℃.
- ◆ 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<br>Product<br>Category | 设计序号<br>Design Serial<br>Number | 衍生代号<br>Derived<br>code | 功能类别<br>Functional<br>code | 壳架电流<br>Frame<br>size | 衍生代号 (分断+功能)<br>Derived code<br>(break+function) | 脱扣特性<br>Release<br>characteristics | 额定电流<br>Rated<br>current | 极数<br>Number of poles |    |   |   |
|                             |                                 |                         |                            | 100                   | B:6kA+电平                                         |                                    | 20                       | 1:1P                  |    |   |   |
|                             |                                 |                         |                            | 125                   | BT:6kA+蓝牙                                        | C:                                 | ...                      | 2:2P                  |    |   |   |
|                             |                                 |                         |                            |                       | HB:10kA+电平                                       | 瞬时脱扣电流<br>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: FARG-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<br>Model                                                     | FAR6-W100B                                                                         | FAR6-W125                                                                         | FAR6-W125H                                                                         | FAR6N-W100                                                                          |
| 产品图片<br>Product image                                             |   |  |  |  |
| 接线方式<br>Wiring merhod                                             | 单相1P/1P+N/2P、三相3P/3P+N/4P                                                          |                                                                                   |                                                                                    | 单相1P+N                                                                              |
| 额定工作电压<br>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<br>Control circuit power supply voltone Un            | 230V AC/50Hz                                                                       |                                                                                   |                                                                                    |                                                                                     |
| 额定工作电流In (A)<br>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<br>Rated short-circuit breaking capacity Icn         | 6kA                                                                                |                                                                                   | 10kA                                                                               | 6kA                                                                                 |
| 脱扣特性<br>Tripping charocteristics                                  | C型 (5In≤I≤10In)                                                                    |                                                                                   |                                                                                    |                                                                                     |
| 上电延时<br>Te Power on delay te                                      | 7s≤te≤8s, 8s后方可动作                                                                  |                                                                                   |                                                                                    |                                                                                     |
| 自动合闸时间tc<br>Automatic closing time tc                             | ≤3s                                                                                |                                                                                   |                                                                                    |                                                                                     |
| 自动分闸时间 td<br>Automatic opening time td                            | ≤2s                                                                                |                                                                                   |                                                                                    |                                                                                     |
| 机械寿命<br>Mechanical life                                           | 20000次                                                                             |                                                                                   |                                                                                    |                                                                                     |
| 电气寿命<br>Mechonical life                                           | 6000次                                                                              |                                                                                   |                                                                                    |                                                                                     |
| 介电强度<br>Dielectric strength                                       | 2500VAC,1分钟                                                                        |                                                                                   |                                                                                    |                                                                                     |
| 冲击耐压 Uimp<br>Impulse withstand voltage Uimp                       | 6000V                                                                              |                                                                                   |                                                                                    |                                                                                     |
| 控制电平电流Ic<br>Control level current Ic                              | ≤1mA                                                                               |                                                                                   |                                                                                    |                                                                                     |
| 相线泄漏电流I <sub>l</sub><br>Phase line leakage current I <sub>l</sub> | 电平控制I <sub>L</sub> ≤0.2mA；蓝牙控制I <sub>L</sub> ≤0.8mA                                |                                                                                   |                                                                                    |                                                                                     |
| 接线能力<br>Wiring capability                                         | 35mm²及以下                                                                           | 50mm²及以下                                                                          |                                                                                    | 35mm²及以下                                                                            |
| 通讯方式<br>Communication method                                      | 电平/蓝牙                                                                              |                                                                                   |                                                                                    |                                                                                     |
| 手动自动操作<br>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。<br>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<br>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<br>Ambient temperature                                       | -25℃~+65℃ (极限-40℃~+70℃)                                                            |                                                                                   |                                                                                    |                                                                                     |
| 空气相对湿度<br>Relative humidity of air                                | ≤95%                                                                               |                                                                                   |                                                                                    |                                                                                     |
| 海拔<br>Altitude                                                    | ≤2000m                                                                             |                                                                                   |                                                                                    |                                                                                     |
| 污染等级<br>Pollution level                                           | 2                                                                                  |                                                                                   |                                                                                    |                                                                                     |
| 振动和冲击<br>Vibration and shock                                      | 无振动和冲击的场合                                                                          |                                                                                   |                                                                                    |                                                                                     |
| 防护等级<br>Protection level                                          | IP20                                                                               |                                                                                   |                                                                                    |                                                                                     |

电平状态控制表 / Level state control table

| 序号<br>Number | 相线<br>Phase line | 控制信号<br>Control signal | 初始状态<br>Initial state | 动作后状态<br>Status after action |
|--------------|------------------|------------------------|-----------------------|------------------------------|
| 1            | Uc               | ↑                      | 分闸                    | 合闸                           |
| 2            | Uc               | Uc                     | 合闸                    | 分闸                           |
| 3            | Uc               | Uc                     | 分闸                    | 合闸                           |
| 4            | Uc               | ↓                      | 合闸                    | 分闸                           |
| 5            | Uc               | ↓                      | 分闸                    | 分闸                           |
| 6            | Uc               | 0 V                    | 分闸                    | 分闸                           |
| 7            | Uc → 0 V → Uc    | Uc                     | 合闸                    | 合闸                           |
| 8            | Uc → 0 V → Uc    | Uc                     | 分闸                    | 分闸                           |
| 9            | 0 V              | /                      | 分闸                    | 分闸                           |
| 10           | 0 V              | /                      | 合闸                    | 合闸                           |

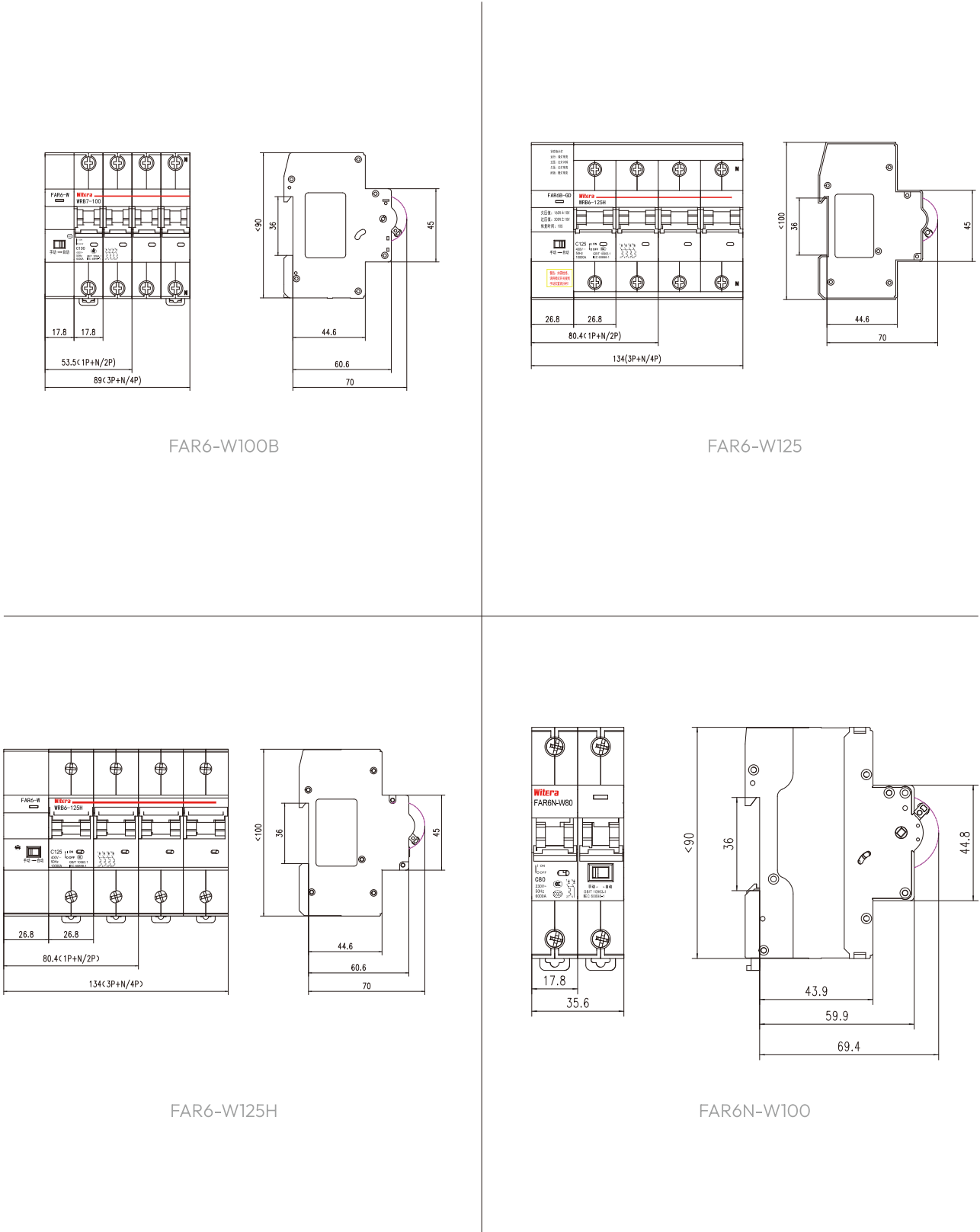
| 备注<br>Notes                         |
|-------------------------------------|
| (从 0 V 跳变至 Uc ) 收到合闸信号              |
| 手动分闸                                |
| 手动合闸                                |
| (从 Uc 跳变至 0 V ) 收到分闸信号              |
| (从 Uc 跳变至 0 V ) 收到分闸信号              |
| 0 V 控制信号, 不允许合闸 (手动)                |
| 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    |
| 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 |
| 线路断电, 保持原状态                         |
| 线路断电, 保持原状态                         |

蓝牙状态控制表 / Bluetooth state control table

| 序号<br>Number | 控制信号<br>Control signal | 初始状态<br>Initial state | 动作后状态<br>Status after action |
|--------------|------------------------|-----------------------|------------------------------|
| 1            | 直接合闸命令                 | 分闸                    | 合闸                           |
| 2            | 无                      | 合闸                    | 分闸                           |
| 3            | 无                      | 分闸                    | 合闸                           |
| 4            | 跳闸命令                   | 合闸                    | 分闸                           |
| 5            | 无                      | 分闸                    | 分闸                           |
| 6            | 跳闸命令                   | 分闸                    | 分闸                           |
| 7            | 合闸允许命令                 | 分闸                    | 分闸                           |
| 8            | 直接合闸命令                 | 分闸                    | 分闸                           |

| 备注<br>Notes         |
|---------------------|
| 由分闸防合闸状态直接合闸        |
| 手动分闸 (由合闸到分闸非防合闸状态) |
| 手动合闸 (由分闸非防合闸状态到合闸) |
| 由合闸到分闸防合闸状态         |
| 在分闸防合闸状态下, 不允许手动合闸  |
| 在分闸状态下收到分闸命令保持不动    |
| 由分闸防合闸状态到分闸非防合闸状态   |
| 保持分闸非防合闸状态, 不允许直接合闸 |

外形尺寸图 / Outline Dimension



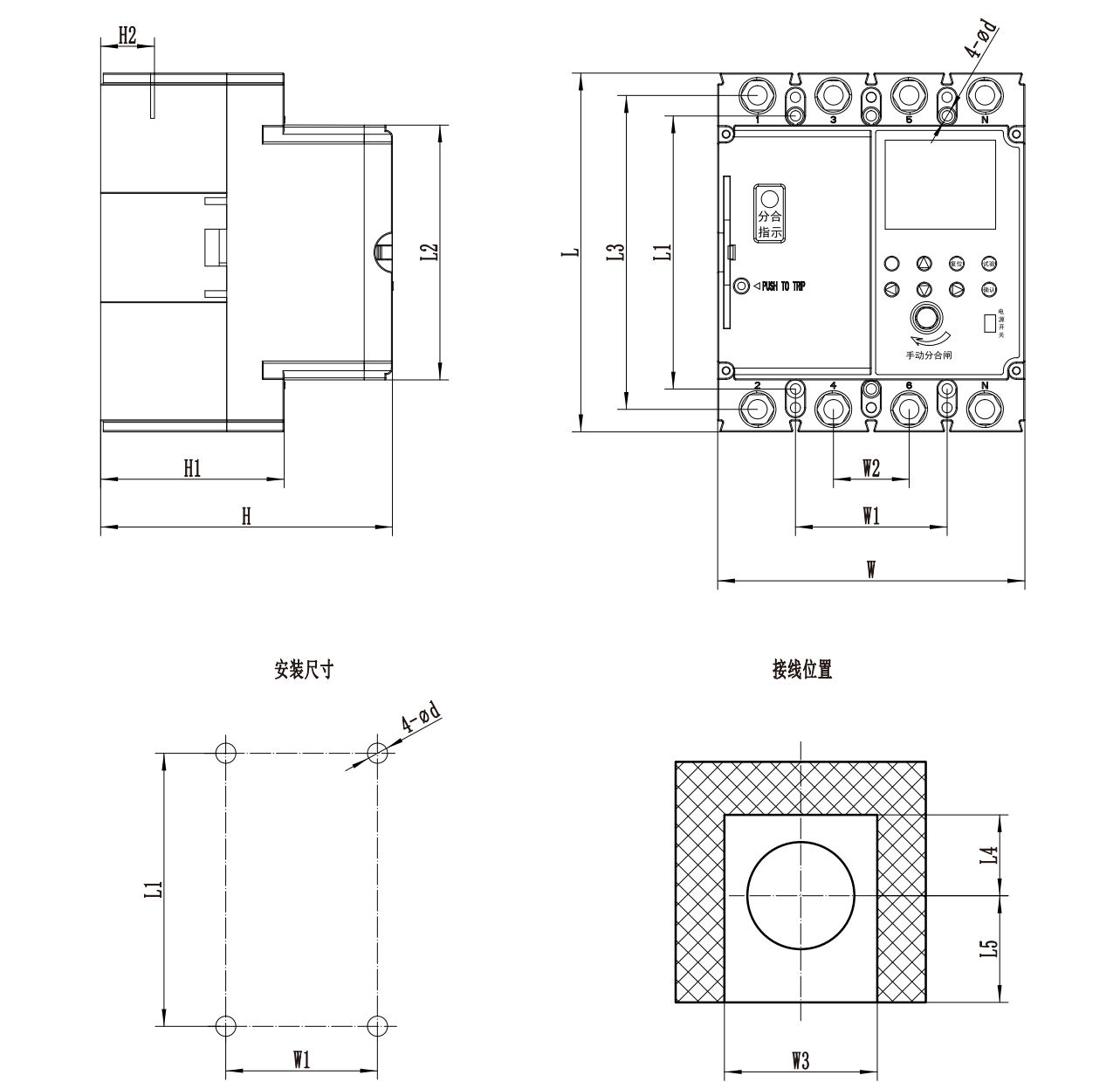
● 塑壳费控断路器  
Molded case cost controlled  
circuit breaker



| 塑壳费控断路器<br>Molded case cost controlled circuit breaker                |                        | WRM2L-W125                                                                  | WRM2L-W250                      | WRM2L-W400                  | WRM2L-W630              |
|-----------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------|---------------------------------|-----------------------------|-------------------------|
| 壳架电流(A)<br>Shell frame current (A)                                    |                        | 125                                                                         | 250                             | 400                         | 630                     |
| 额定电流In(A)<br>Rated current In (A)                                     |                        | 50、63、80、100、125                                                            | 100、125、140、160、<br>200、225、250 | 200、225、250、<br>315、350、400 | 315、350、400、<br>500、630 |
| 极数<br>Number of poles                                                 |                        | 3P+N                                                                        |                                 |                             |                         |
| 额定工作电压Ue(V)<br>Rated working voltage Ue (V)                           |                        | AC400                                                                       |                                 |                             |                         |
| 额定绝缘电压Ui(V)<br>Rated insulation voltage Ui (V)                        |                        | AC1000                                                                      |                                 |                             |                         |
| 额定冲击耐受电压Uimp(V)<br>Rated impulse withstand voltage Ump (V)            |                        | 8000                                                                        |                                 |                             |                         |
| 飞弧距离(mm)<br>Arc distance (mm)                                         |                        | ≥50                                                                         | ≥50                             | ≥100                        | ≥100                    |
| 极限短路分断能力Icu(kA)<br>Ultimate short-circuit breaking capacity Icu (kA)  |                        | 70                                                                          | 85                              | 100                         | 5050                    |
| 运行短路分断能力Ics(kA)<br>Operating short-circuit breaking capacity Ics (kA) |                        | 50                                                                          | 55                              | 65                          | 3535                    |
| 额定短时耐受电流Icw (KA)<br>Rated short-time withstand current (kA)           |                        | 12.5                                                                        | 5                               | 5                           | 8                       |
| 操作性能(次)<br>Operational performance (times)                            | 通电<br>Power on         | 1500                                                                        | 1000                            | 1000                        | 1000                    |
|                                                                       | 不通电<br>No power supply | 8500                                                                        | 7000                            | 4000                        | 4000                    |
|                                                                       | 总次数<br>Total times     | 10000                                                                       | 8000                            | 5000                        | 5000                    |
| 过载、短路特性<br>Overload and short circuit characteristics                 |                        | 三段保护, 电子可调                                                                  |                                 |                             |                         |
| 过压保护值(V)<br>Overvoltage protection value (V)                          |                        | 设置值(250~300)+5%                                                             |                                 |                             |                         |
| 欠压保护值(V)<br>Undervoltage protection value (V)                         |                        | 设置值(145~200)+5%                                                             |                                 |                             |                         |
| 手动/自动开关转换操作<br>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<br>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<br>Ambient temperature                                           |                        | -40℃~+70℃                                                                   |                                 |                             |                         |
| 空气相对湿度<br>Relative humidity of air                                    |                        | ≤95%                                                                        |                                 |                             |                         |
| 海拔<br>Altitude                                                        |                        | ≤2000m                                                                      |                                 |                             |                         |
| 污染等级<br>Pollution level                                               |                        | 3                                                                           |                                 |                             |                         |
| 振动和冲击<br>Vibration and shock                                          |                        | 无振动和冲击的场合                                                                   |                                 |                             |                         |
| 防护等级<br>Protection level                                              |                        | IP20                                                                        |                                 |                             |                         |



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-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℃~+60℃。
- ◆ 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 125 A;
- ◆ Easy installation: built-in power pick-up and monitoring, without external lead, fast and stable installation;
- ◆ Strong adaptability: suitable for ambient temperature -25℃~+60℃;
- ◆ Energy-saving and environmental protection: low power consumption, fully in line with EU ROHS directive.

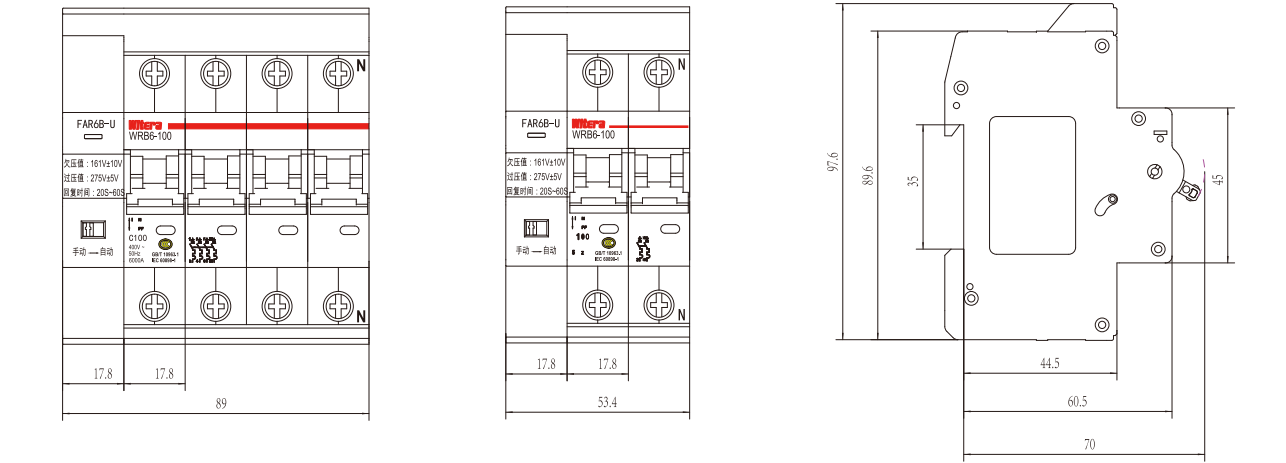
选型说明 / Product Selection Guide

| FAR                      | 6                            | B                        | -                                                     | U | A                       | 100                | -                         | C                               | 100                   | /                     | 2 |
|--------------------------|------------------------------|--------------------------|-------------------------------------------------------|---|-------------------------|--------------------|---------------------------|---------------------------------|-----------------------|-----------------------|---|
| 产品类别<br>Product Category | 设计序号<br>Design Serial Number | 内轴驱动<br>Inner axle drive | 功能类别<br>Functional category                           |   | 功能代码<br>Functional code | 壳架电流<br>Frame size | 分断能力<br>Breaking capacity | 脱扣特性<br>Release characteristics | 额定电流<br>Rated current | 极数<br>Number of poles |   |
|                          |                              |                          | 自复式过欠压<br>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<br>Structural code             | A   | B   | C    | D   | E | F | G |
|-------------------------------------|-----|-----|------|-----|---|---|---|
| 过压保护(V)<br>Overvoltage protection   | 275 | 275 | 通讯可调 | 275 |   |   |   |
| 欠压保护(V)<br>Undervoltage protection  | 161 | /   | 通讯可调 | 150 |   |   |   |
| 上电合用延时(S)<br>Power-on closing delay | 22  | 22  | 通讯可调 | 22  |   |   |   |
| 闭锁<br>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<br>Model                                         | FAR6B-U100                                                                          |  | FAR6B-U125H                                                                         |  |
|-------------------------------------------------------|-------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|
| 产品图片<br>Product image                                 |  |  |  |  |
| 接线方式<br>Wiring merhod                                 | 单相1P+N/2P、三相3P+N/4P                                                                 |  |                                                                                     |  |
| 额定工作电压(V)<br>Rated working voltage                    | 单相AC230V、三相AC400V                                                                   |  |                                                                                     |  |
| 额定工作电流 (A)<br>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<br>Rated short-circuit breaking capacity     | 6kA                                                                                 |  | 10KA                                                                                |  |
| 脱扣特性<br>Tripping charocteristics                      | C、D                                                                                 |  |                                                                                     |  |
| 欠压保护值 (默认)<br>Undervoltage protection value (default) | 161V±5V(恢复值190V±5V) (相电压)                                                           |  |                                                                                     |  |
| 欠压保护分闸时间<br>Opening time of undervoltage protection   | 1s< T1≤3s                                                                           |  |                                                                                     |  |
| 过压保护值 (默认)<br>Overvoltage protection value (default)  | 275V±5V(恢复值253V±5V) (相电压)                                                           |  |                                                                                     |  |
| 过压保护分闸时间<br>Overvoltage protection opening time       | 3s< T2≤5s (275V~300V)                                                               |  |                                                                                     |  |
| 自恢复合闸延时<br>Self-recovery closing delay                | T3=20~60s                                                                           |  |                                                                                     |  |
| 手动/自动<br>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<br>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<br>Indicator light                                | 绿色: 正常运行; 红色: 电压故障; 橙色: 故障闭锁                                                        |  |                                                                                     |  |
| 机械寿命<br>Mechonical life                               | 10000                                                                               |  |                                                                                     |  |
| 电气寿命<br>Electrical life                               | 6000                                                                                |  |                                                                                     |  |
| 接线能力<br>Connectivity                                  | 35mm²及以下                                                                            |  | 50mm²及以下                                                                            |  |
| 环境温度<br>Ambient temperature                           | -25℃~+60℃                                                                           |  |                                                                                     |  |
| 空气相对湿度<br>Relative humidity of air                    | ≤95% (55℃)                                                                          |  |                                                                                     |  |
| 海拔<br>Altitude                                        | ≤2000m                                                                              |  |                                                                                     |  |
| 污染等级<br>Class of pollution                            | 2                                                                                   |  |                                                                                     |  |
| 振动和冲击<br>Vibration and shock                          | 无振动和冲击的场合                                                                           |  |                                                                                     |  |
| 防护等级<br>Protection Level                              | IP20                                                                                |  |                                                                                     |  |



● WRGQ5自复式过欠压保护器(继电器式)  
WRFQ5 Self-Recovery overvoltage/undervoltage protector (Relay Type)

产品背景及应用

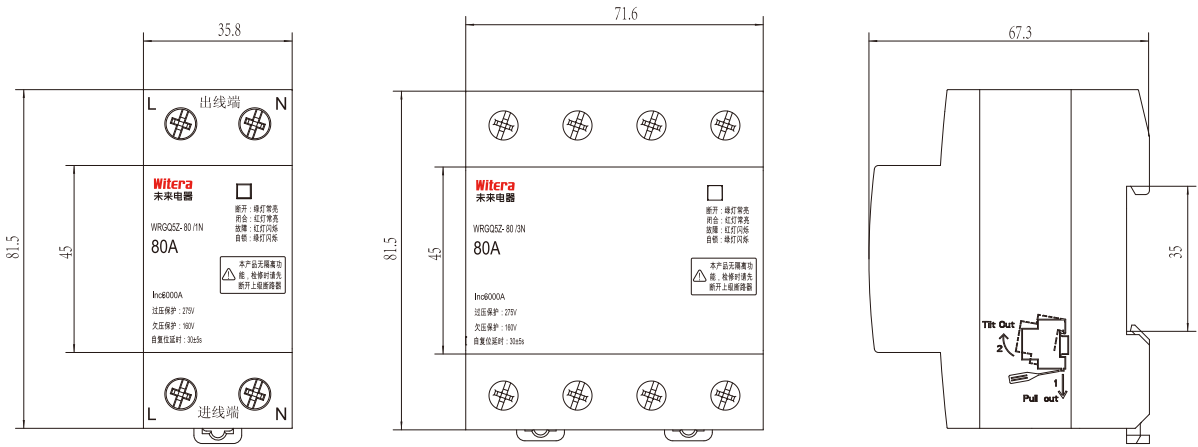
WRGQ5Z 过欠压自动重合闸保护器, 适用于交流额定频率 50Hz, 额定电压 230/400V(相对中性线电压为230V) 的家用及类似用途的低压配电线路中, 能自动检测线路电压, 在线路发生过电压或欠电压时自动断开故障线路, 在线路电压恢复正常范围后能自动合闸, 确保负载设备在正常电压下安全运行。

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<br>Model                                             | WRGQ5Z/1N                                                          | WRGQ5Z/3N |
| 额定工作电压(Un)<br>Rated working voltage (Un)                  | AC 230V                                                            | AC 400V   |
| 额定电流<br>Rated current                                     | 32、40、50、63、80                                                     |           |
| 额定频率<br>Rated frequency                                   | 50Hz                                                               |           |
| 额定绝缘电压Ui<br>Rated insulation voltage Ui                   | AC 500V                                                            |           |
| 额定限制短路电流 Inc<br>Rarted limiting short-circuit current Inc | 6kA                                                                |           |
| 极数<br>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<br>Undervoltage protection value                    | 275V                                                               |           |
| 过压保护值<br>Overvoltage protection value                     | 160V                                                               |           |
| 欠压恢复值<br>Undervoltage recovery value                      | 195V                                                               |           |
| 过压恢复值<br>Overvoltage recovery value                       | 253V                                                               |           |
| 自恢复合闸延时<br>Self recovery composite gate delay             | 30±5s                                                              |           |
| 欠压动作时间<br>Undervoltage action time                        | 0.6s≤t≤5s                                                          |           |
| 过压动作时间<br>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)<br>Rated impulse withstand voltage (Uimp) | 4kV                                                                |           |
| 机械寿命<br>Mechanical life                                   | 10000 次, 3 次/分钟                                                    |           |
| 环境温度<br>Ambient temperature                               | -25℃~+60℃                                                          |           |
| 空气相对湿度<br>Relative humidity of air                        | ≤ 95% (55℃)                                                        |           |
| 海拔<br>Altitude                                            | ≤ 2000m                                                            |           |
| 污染等级<br>Pollution level                                   | 2                                                                  |           |
| 振动和冲击<br>Vibration and shock                              | 无振动和冲击的场合                                                          |           |
| 防护等级<br>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℃-±65℃。
- ◆ 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<br>Product<br>Category | 设计序号<br>Design Serial<br>Number | 内轴驱动<br>Inner axle<br>drive | 功能类别<br>Functional<br>category   |   | 壳架电流<br>Frame<br>size | 分断能力<br>Breaking<br>capacity |   | 脱扣特性<br>Release<br>characteristics | 额定电流<br>Rated<br>current | 极数<br>Number<br>of poles |   |
|                             |                                 |                             | 重合闸保护器<br>Reclosure<br>protector |   | 100                   | 省略:6000A                     |   | B:瞬时脱扣<br>电流3-5In                  | 16                       | 2:单相2P                   |   |
|                             |                                 |                             |                                  |   | 125                   | H:10000A                     |   | C:瞬时脱扣<br>电流5-10In                 | ...                      | 4:三相4P                   |   |
|                             |                                 |                             |                                  |   |                       |                              |   | D:瞬时脱扣<br>电流10-14In                | 100                      |                          |   |
|                             |                                 |                             |                                  |   |                       |                              |   |                                    | 125                      |                          |   |

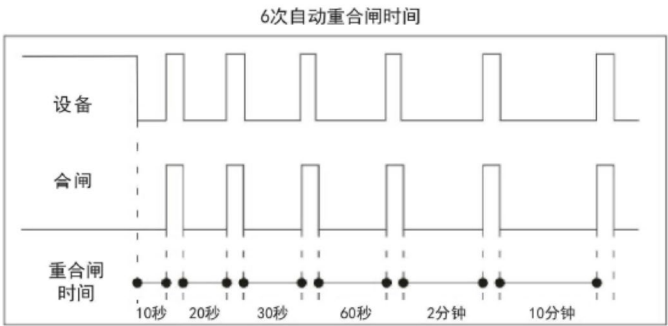
型号示例:FAR6B-R100\_C100/4,表示C型100A的4P重合闸保护器。  
Model example: FAR5B-R100\_C100/4 represents a C-type 100A 4P reclosing protector.

功能特性 / Function characteristics

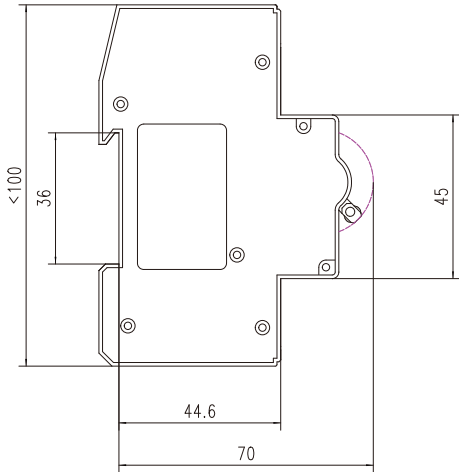
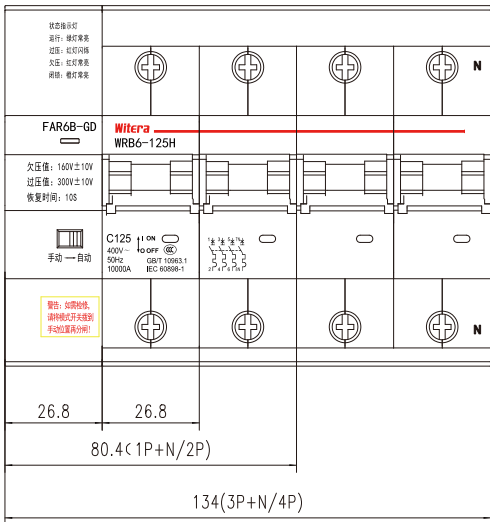
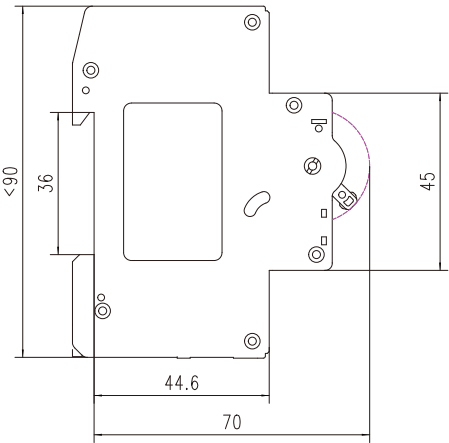
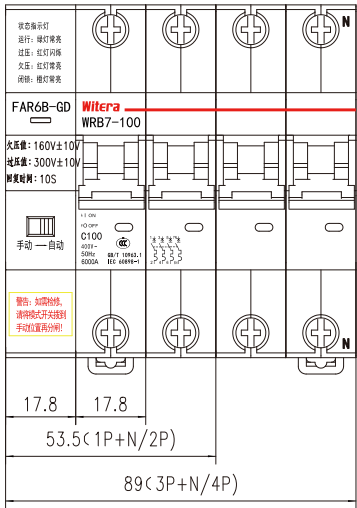
| 自动重合闸保护器<br>Automatic reclosure protector | FAR6B-R100                                             | FAR6B-R125H |
|-------------------------------------------|--------------------------------------------------------|-------------|
| 接线方式<br>Cornection mode                   | 单相1P+N/2P; 三相3P+N/4P                                   |             |
| 额定工作电压(V)<br>Rated operating voltage      | 单相AC230V; 三相AC400V                                     |             |
| 额定工作电流(A)<br>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<br>Rated working current         | 6kA                                                    | 10kA        |
| 脱扣特性<br>Release characteristics           | C型、D型                                                  |             |
| 取电方式<br>Electricity fetching mode         | A相                                                     |             |
| 介电性能<br>Dielectric praperties             | 2500VAC 1分钟                                            |             |
| 耐压水平<br>Voltage withstanding level        | 4kV                                                    |             |
| 手动/自动<br>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<br>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<br>Mechanical life                   | 10000次                                                 |             |
| 电气寿命<br>Electrical life                   | 6000次                                                  |             |
| 接线能力<br>Connectivity                      | 35mm²及以下                                               | 50mm²及以下    |
| 环境温度<br>Ambient temperature               | -25°C~+60°C                                            |             |
| 空气相对湿度<br>Relative humidity of air        | ≤95%(55°C)                                             |             |
| 海拔<br>Altitude                            | ≤2000m                                                 |             |
| 污染等级<br>Class of pollution                | 2                                                      |             |
| 振动和冲击<br>Vibration and shock              | 无振动和冲击的场合                                              |             |
| 防护等级<br>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

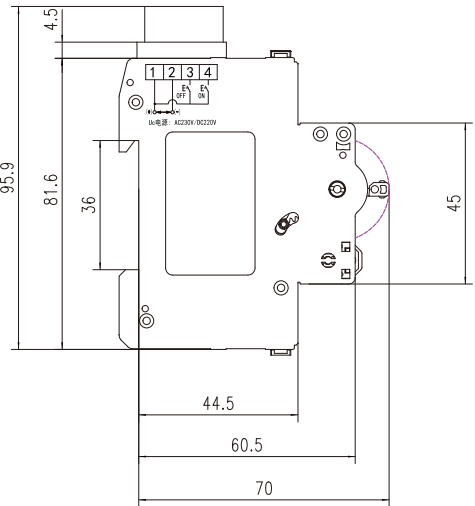
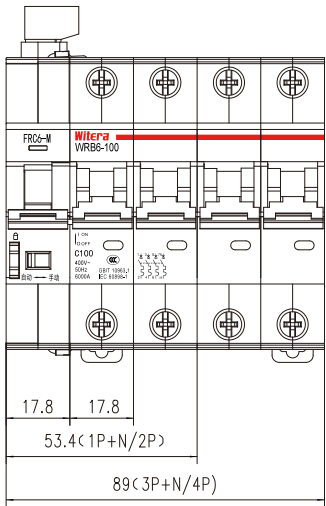


选型说明 / Product Selection Guide

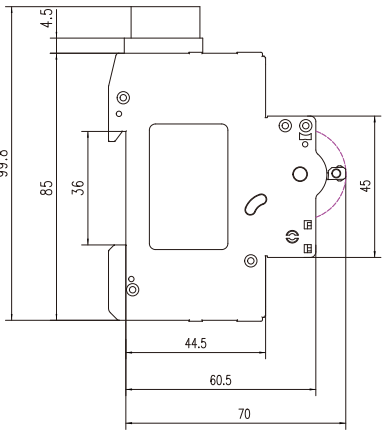
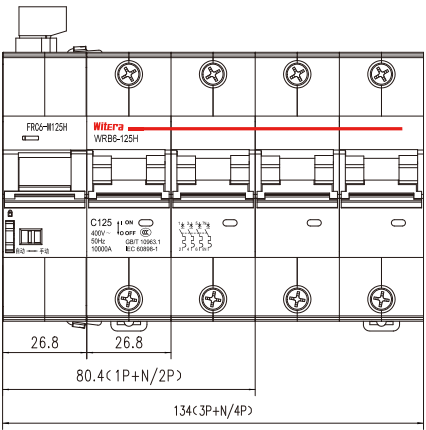
| FRC                      | 6                            | M                           | -                             | R                  | 100                       | /                               | C                     | 100                   | /                      | 2 | - | 230V |
|--------------------------|------------------------------|------------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

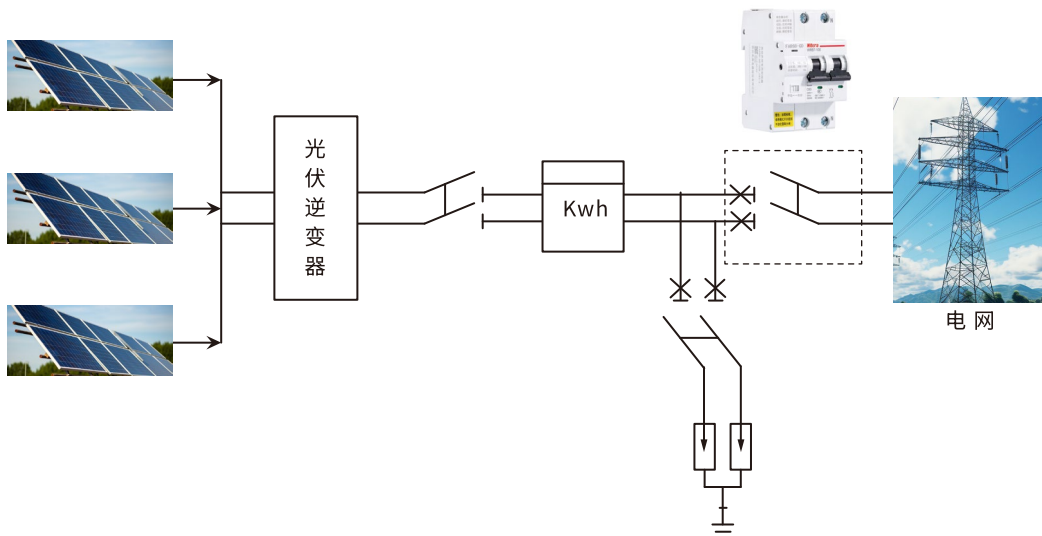
功能特性 / Function characteristics

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

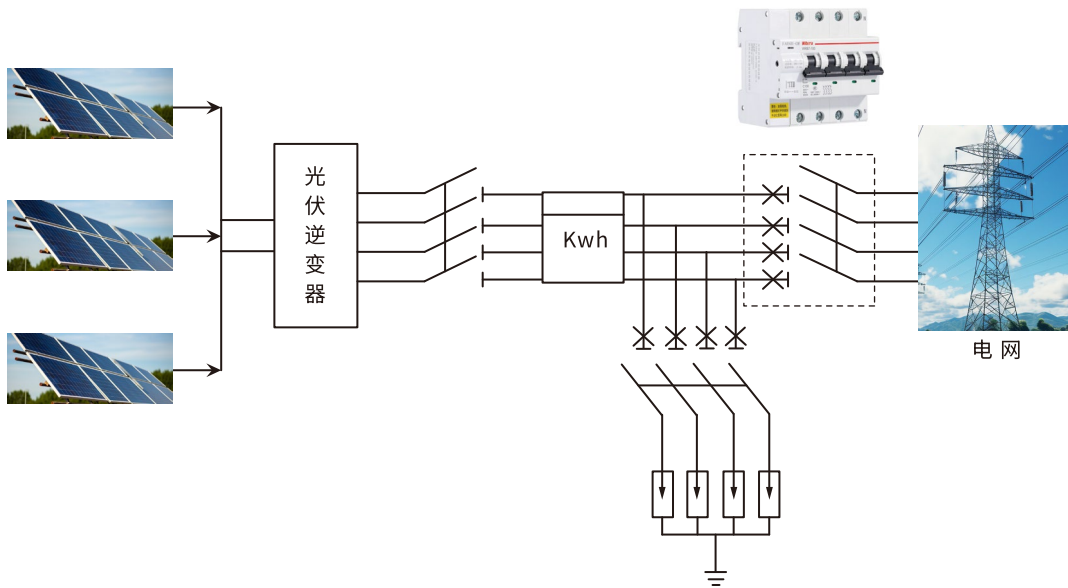


● 光伏并网专用断路器(FAR6B-G / WRM2L-G分布式光伏并网塑壳断路器)  
Special circuit breaker for photovoltaic grid connection (FAR6B-G / WRM2L - G Distributed photovoltaic grid-connected MCCB

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℃ ~+65℃；
- ◆ 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℃ ~+65℃;
- ◆ Low power consumption, fully compliant with the EU ROHS directive, energy-saving, low-carbon and environmentally friendly;

产品系列 / Product Series

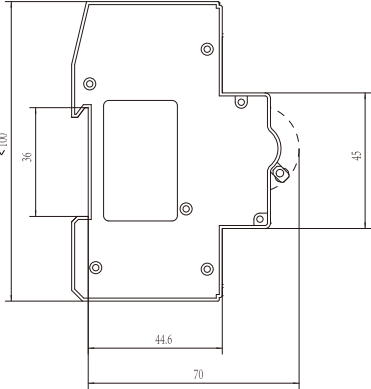
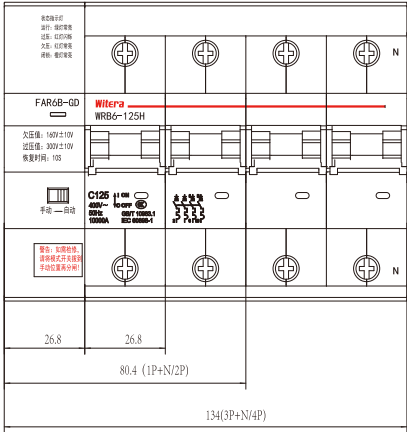
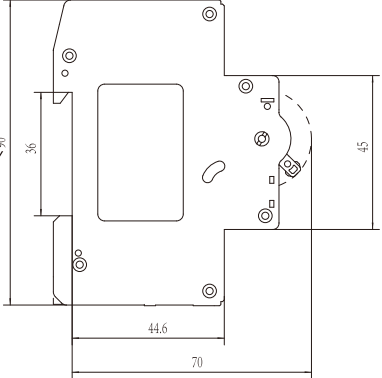
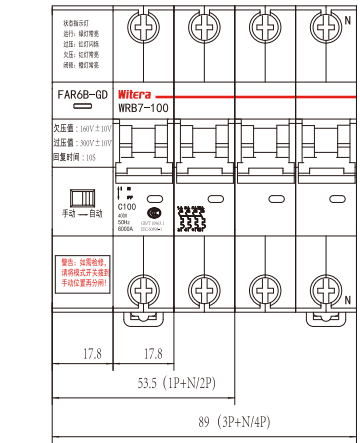


选型说明 / Product Selection Guide

| FAR                      | 6                            | B                        | -                                   | G                            | D                  | 100                           | B                               | -                     | C                     | 100 | / | 2 |
|--------------------------|------------------------------|--------------------------|-------------------------------------|------------------------------|--------------------|-------------------------------|---------------------------------|-----------------------|-----------------------|-----|---|---|
| 产品类别<br>Product Category | 设计序号<br>Design Serial Number | 内轴驱动<br>Inner axle drive | 功能类别<br>Functional category         | 细分功能<br>Subdivision function | 壳架电流<br>Frame size | 断路器代号<br>Circuit breaker code | 脱扣特性<br>Release characteristics | 额定电流<br>Rated current | 极数<br>Number of poles |     |   |   |
|                          |                              |                          | 光伏并网<br>Photovoltaic grid-connected | D:<br>防孤岛                    | 100                | 加长版<br>Extended edition       | B型:3~5In                        | 16                    | 2:单相2P                |     |   |   |
|                          |                              |                          |                                     | W:<br>防孤岛+费控                 | 125                |                               | C型: 5~10In                      | ...                   | 4:三相4P                |     |   |   |
|                          |                              |                          |                                     | R:<br>防孤岛+通讯                 |                    |                               | D型:10~14In                      | 100                   |                       |     |   |   |
|                          |                              |                          |                                     | T:<br>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<br>Model                                  | FAR6B-GD100B   FAR6B-GW100B<br>FAR6B-GRS100B   FAR6B-GT100B                    | FAR6B-GD125H   FAR6B-GW125H<br>FAR6B-GRS125H   FAR6B-GT125H |
| 功能类别<br>Functional category                    | GD：过欠压保护(防孤岛)    GW：过欠压保护+费控(电平控制)<br>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<br>Cornection mode                        | 单相1P+N/2P、三相3P+N/4P                                                            |                                                             |
| 额定工作电压(V)<br>Rated operating voltage           | 1P+N/2P 230V AC/50Hz、3P+N/4P 400V AC/50Hz                                      |                                                             |
| 额定工作电流In (A)<br>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<br>Rated working current           | 6kA                                                                            | 10kA                                                        |
| 脱扣特性<br>Release characteristics                | C型 (5In≤I≤10In)                                                                |                                                             |
| 过压动作值<br>Overvoltage action value              | >300V±10V                                                                      |                                                             |
| 过压延时<br>Overvoltage delay                      | 0-10s (默认3s)                                                                   |                                                             |
| 过压恢复值<br>Overvoltage recovery value            | <280V±10V                                                                      |                                                             |
| 欠压动作值<br>Undervoltage action value             | <160V±10V                                                                      |                                                             |
| 失压、欠压延时<br>Voltage loss and undervoltage delay | 0-10s (默认5s)                                                                   |                                                             |
| 欠压恢复值<br>Undervoltage recovery value           | >180V±10V                                                                      |                                                             |
| 机械寿命<br>Mechanical life                        | 20000次                                                                         |                                                             |
| 电气寿命<br>Electrical life                        | 6000次                                                                          |                                                             |
| 介电强度<br>Dielectric strength                    | 2500VAC,1分钟                                                                    |                                                             |
| 冲击耐压Uimp<br>Impulse withstand voltage Uimp     | 6000V                                                                          |                                                             |
| 接线能力<br>Wiring capability                      | 35mm²及以下                                                                       | 50mm²及以下                                                    |
| 通讯方式<br>Communication method                   | RS485/电平/蓝牙                                                                    |                                                             |
| 手动/自动操作<br>Manual/automatic operation          | 拨到自动模式：具有失压、欠压、过压及自动重合功能<br>拨到手动模式：可分闸, 不能自动合闸                                 |                                                             |
| 环境温度<br>Ambient temperature                    | -25℃~+60℃ (极限 -40℃~+70℃)                                                       |                                                             |
| 空气相对湿度<br>Relative humidity of air             | ≤95%                                                                           |                                                             |
| 海拔<br>Altitude                                 | ≤2000m                                                                         |                                                             |
| 污染等级<br>Class of pollution                     | 2                                                                              |                                                             |
| 振动和冲击<br>Vibration and shock                   | 无振动和冲击的场合                                                                      |                                                             |
| 防护等级<br>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: 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, 需要自动合闸复位实现并网。

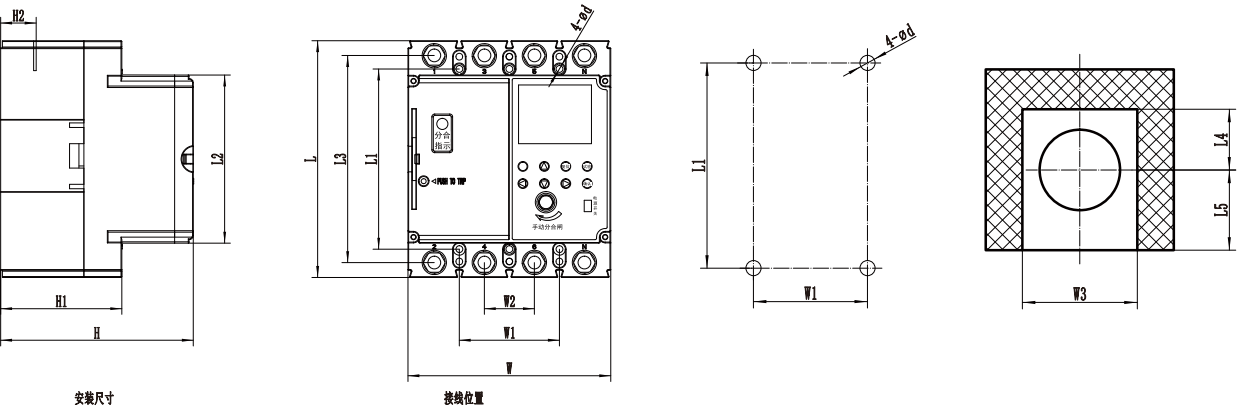
WRM2L-G光伏并网专用塑壳断路器即为分布式电源、提供自动并网和保护专用断路器。符合国家电网公司Q/GDW1972-2013《分布式光伏: 专用低压断路器技术规范》的相关要求。

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<br>Model                                                         | WRM2L-G250                                                                        |      |  |  |      |  |  |  |
| 壳架电流(A)<br>Shell frame current (A)                                    | 250                                                                               |      |  |  |      |  |  |  |
| 额定电流In(A)<br>Rated current In (A)                                     | 100、125、140、160、200、225、250                                                       |      |  |  |      |  |  |  |
| 极数<br>Number of poles                                                 | 3P+N                                                                              |      |  |  |      |  |  |  |
| 额定工作电压Ue(V)<br>Rated working voltage Ue (V)                           | AC400                                                                             |      |  |  |      |  |  |  |
| 额定绝缘电压Ui(V)<br>Rated insulation voltage Ui (V)                        | AC1000                                                                            |      |  |  |      |  |  |  |
| 额定冲击耐受电压Uimp(V)<br>Rated impulse withstand voltage Ump (V)            | 8000                                                                              |      |  |  |      |  |  |  |
| 飞弧距离(mm)<br>Arc distance (mm)                                         | ≥50                                                                               |      |  |  |      |  |  |  |
| 极限短路分断能力Icu(kA)<br>Ultimate short-circuit breaking capacity Icu (kA)  | 85                                                                                |      |  |  |      |  |  |  |
| 运行短路分断能力Ics(kA)<br>Operating short-circuit breaking capacity Ics (kA) | 55                                                                                |      |  |  |      |  |  |  |
| 额定短时耐受电流Icw (KA)<br>Rated short-time withstand current (kA)           | 5                                                                                 |      |  |  |      |  |  |  |
| 操作性能(次)<br>Operational performance (times)                            | 通电<br>Power on                                                                    | 1000 |  |  | 1000 |  |  |  |
|                                                                       | 不通电<br>No power supply                                                            | 7000 |  |  | 4000 |  |  |  |
|                                                                       | 总次数<br>Total times                                                                | 8000 |  |  | 5000 |  |  |  |
| 过载、短路特性<br>Overload and short circuit characterstics                  | 三段保护, 电子可调                                                                        |      |  |  |      |  |  |  |
| 过电压整定值(V)<br>Overvoltage setting value (V)                            | 默认290V (范围: 240V~350V)                                                            |      |  |  |      |  |  |  |
| 过电压延时值 (s)<br>Overvoltage delay value (s)                             | 默认3s (范围: 0s~10s)                                                                 |      |  |  |      |  |  |  |
| 过电压恢复值(V)<br>Overvoltage recovery value (V)                           | 默认270V (范围: 240V~300V)                                                            |      |  |  |      |  |  |  |
| 欠电压整定值(V)<br>Undervoltage setting value (V)                           | 默认160V (范围: 120V~200V)                                                            |      |  |  |      |  |  |  |
| 欠电压延时值 (s)<br>Undervoltage delay value (s)                            | 默认3s (范围: 0s~10s)                                                                 |      |  |  |      |  |  |  |
| 欠电压恢值(V)<br>Undervoltage recovery value (V)                           | 默认190V (范围: 160V~220V)                                                            |      |  |  |      |  |  |  |
| 全失压整定值(V)<br>Total voltage loss setting value (V)                     | 默认50V (范围: 50V~100V)                                                              |      |  |  |      |  |  |  |
| 手动/自动开关转换操作<br>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<br>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<br>Ambient temperature                                           | -40°C~+70°C                                                                       |      |  |  |      |  |  |  |
| 空气相对湿度<br>Relative humidity of air                                    | ≤95%                                                                              |      |  |  |      |  |  |  |
| 海拔<br>Altitude                                                        | ≤2000m                                                                            |      |  |  |      |  |  |  |
| 污染等级<br>Pollution level                                               | 3                                                                                 |      |  |  |      |  |  |  |
| 振动和冲击<br>Vibration and shock                                          | 无振动和冲击的场合                                                                         |      |  |  |      |  |  |  |
| 防护等级<br>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。

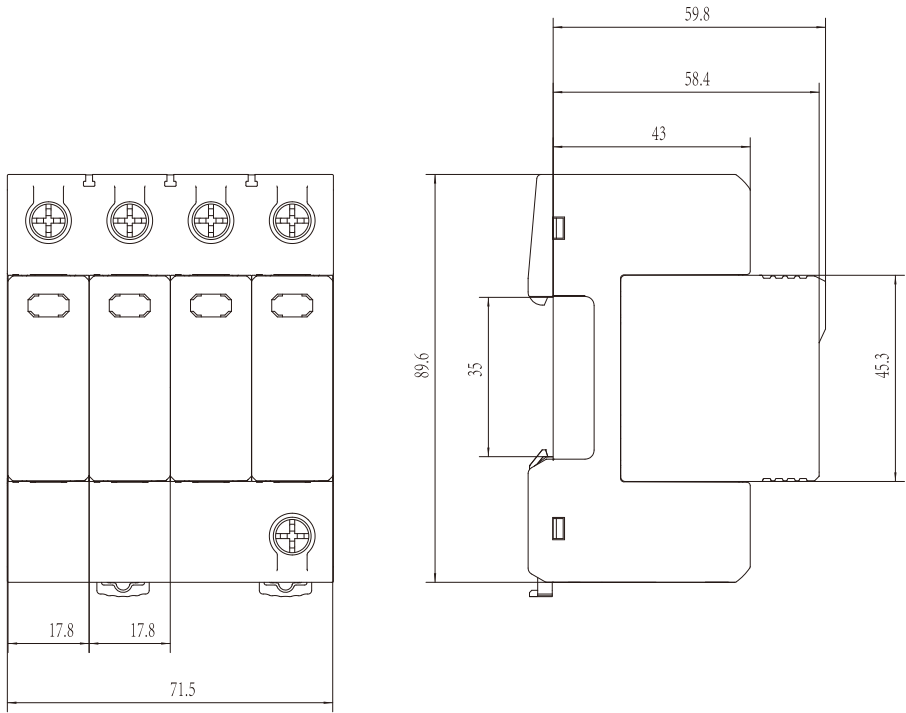
浪涌保护器(以下简称 SPD) 具有相对相、相对地、相对中线、中线对地及其它组合等保护模式, 使低压配电系统后端设备及其他设备得到更安全、更广泛、更有效的保护。

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<br>Model                                                        | WSPD-C40                   | WSPD-C20        | WSPD-A25           | WSPD-A15 |
| 符合标准<br>Compliant with standards                                     | GB/T18802.1/IEC61643.1     |                 |                    |          |
| 极数<br>Number of poles                                                | 1P、1P+N、2P、3P、3P+N、4P      |                 | 1P、2P、3P、4P        |          |
| 额定频率(Hz)<br>Rated frequency (Hz)                                     | 50-60                      |                 |                    |          |
| 电网运行电压Un(V)<br>Grid operating voltage Un(V)                          | 220/380                    |                 |                    |          |
| 最大持续工作电Uc(V)<br>Maximum continuous working voltage U (V)             | 275、320、385、460            |                 | 385                |          |
| 电压保护水平Up(kV)<br>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)<br>Maximum discharge current Imax (kA)                | 40                         | 20              | limp25             | limp15   |
| 标称放电电流In (kA)<br>Nominal discharge current In (kA)                   | 20                         | 10              | 30                 | 20       |
| 响应时间Ta(ns)<br>Response time Ta (ns)                                  | 25                         |                 |                    |          |
| L/N建议连接线径(mm²)<br>Racarmended copncting wire diamstor for l/N(mm²)   | 10、16                      | 10、16           | 25                 | 16       |
| PE建议连接线径(mm²)<br>Recommended connection wire diameter for PE(mm²)    | 25                         | 25              | 35                 | 25       |
| 后备保护最大允许熔断器(A)<br>Maeimum allowntfe jusse for bachup pratactian(A)   | 100                        | 50              | 160                | 100      |
| 后备保护(建议断路器, A)<br>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)<br>Prorectiop level (faroduct usage prafection 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)<br>Test level (pradiuct 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<br>Operating ambient temperature                              | 正常范围-5℃~+40℃,极限范围-40℃~+70℃ |                 |                    |          |
| 失效指示窗口<br>Faiture indication window                                  | 有(绿色:正常;红色:故障)             |                 |                    |          |
| 遥信触点<br>Remote signaling contact                                     | 可选(常规产品不带遥信触点功能)           |                 |                    |          |
| 安装海拔高度<br>Installation altitude                                      | 不超过2000m                   |                 |                    |          |
| 接线端子<br>Terminal blocks                                              | 螺钉压接                       |                 |                    |          |
| 最大接线能力<br>Maximum wiring capacity                                    | 软线2.5~16mm²/硬线2.5~25mm²    |                 |                    |          |
| 安装方式<br>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 con still protect against lightning surge current.

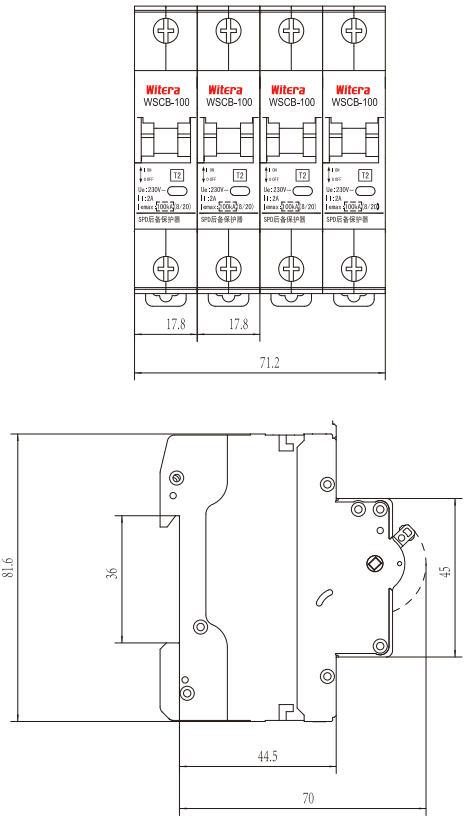
Product Features

- ◆ 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<br>Model                                     | WSCB-60                     | WSCB-80       | WSCB-100       |
|---------------------------------------------------|-----------------------------|---------------|----------------|
| 额定工作电压(Ue)<br>Rated working voltage (Ve)          | T2<br>AC: 230V              |               |                |
| 直流击穿电压(100V/s)<br>DC breakdown voltage (100V/s)   | DC:600V±20%                 |               |                |
| 标称通流量<br>Nominal flow rate                        | 30kA (8/20μs)               | 40kA (8/20μs) | 50kA (8/20μs)  |
| 最大通流量<br>Maximum flow rate                        | 60kA (8/20μs)               | 80kA (8/20μs) | 100kA (8/20μs) |
| 工频电流脱扣值<br>Power frequency current tripping value | 2A                          |               |                |
| 脱扣时间<br>Tripping time                             | ≤0.2s                       |               |                |
| 机械寿命<br>Mechanicol life                           | 1000次                       |               |                |
| 端子最大接线<br>Maximum terminal connection             | 35mm2                       |               |                |
| 外壳防护等级<br>Sheft protecrtion level                 | IP20                        |               |                |
| 工作环境<br>Work environment                          | 温度 -25~+60℃，相对湿度 ≤95% (25℃) |               |                |
| 安装卡轨<br>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》

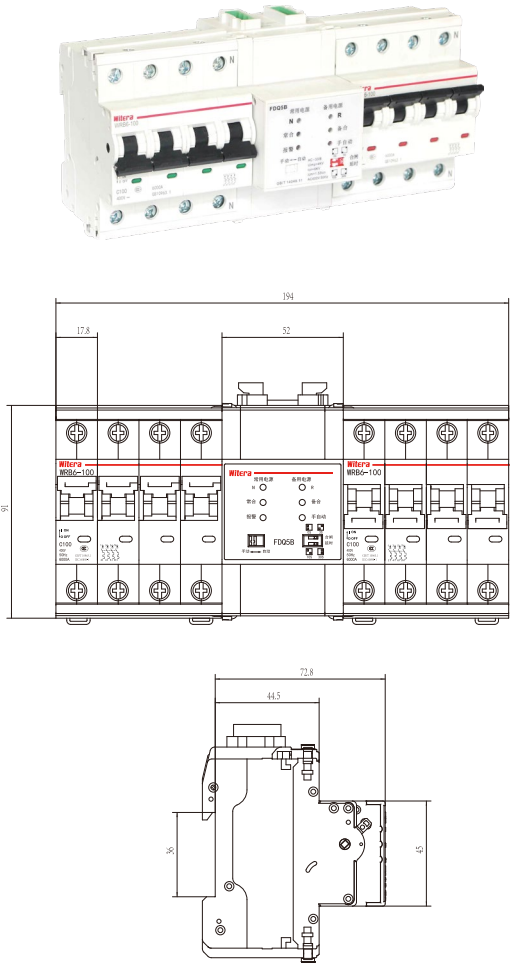
Product Background and Application

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54mn，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;
- ◆ 民安全可靠: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 54mn, 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<br>Product Category | 设计序号<br>Design Serial Number | 内轴驱动<br>Inner axle drive | 壳架能力<br>Shell capacity | 脱扣特性<br>Release characteristics | 壳架电流<br>Shell current | 极数<br>Number of poles | 功能代号<br>Functional code | 类型<br>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                       | ...                   | 3:3 P                 | 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<br>Rated working voltage                   |       | AC400V                                                 |
| 额定工作电流(A)<br>Rated working current (A)            |       | 6、10、16、20、25、32、40、50、63、80、100                       |
| 额定短路分断能力<br>Rated short-circuit breaking capacity |       | 6KA                                                    |
| 脱扣特性<br>Tripping characteristics                  |       | B型、C型、D型                                               |
| 过压保护<br>Overvoltage protection                    |       | 310V±5V(相电压)                                           |
| 欠压保护<br>Undervoltage protection                   |       | 161V±5V(相电压)                                           |
| 故障分闸延时<br>Fault opening delay                     |       | 有                                                      |
| 消防双分输入端<br>Fire protection dual input terminal    |       | DC24V有源输入                                              |
| 手动/自动<br>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<br>手动状态:自动重合功能失效,可以手动分闸或合闸 |
| 指示灯<br>Indicator light                            |       | 红色:电源指示； 绿灯:合闸状态； 黄灯:报警告示                              |
| 机械寿命<br>Mechanical life                           |       | 10000                                                  |
| 电气寿命<br>Electrical life                           |       | 6000                                                   |
| 接线能力<br>Wiring capability                         |       | 35mm²及以下                                               |
| 环境温度<br>Ambient temperature                       |       | -25℃~+60℃                                              |
| 空气相对湿度<br>Relative humidity of air                |       | ≤ 95% (55℃)                                            |
| 海拔<br>Altitude                                    |       | ≤ 2000m                                                |
| 污染等级<br>Pollution level                           |       | 2                                                      |
| 振动和冲击<br>Vibration and shock                      |       | 无振动和冲击的场合                                              |
| 防护等级<br>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系列电弧故障保护电器是由小型断路器、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系列电弧故障保护电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 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系列电弧故障保护电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 COC 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

WR A 2 - □ - □ - □ / □

极数  
额定电流 (A)  
脱扣特性 (C—混合负载, D—电动机负载)  
壳架电流  
设计序号  
故障电弧断路器  
企业代号

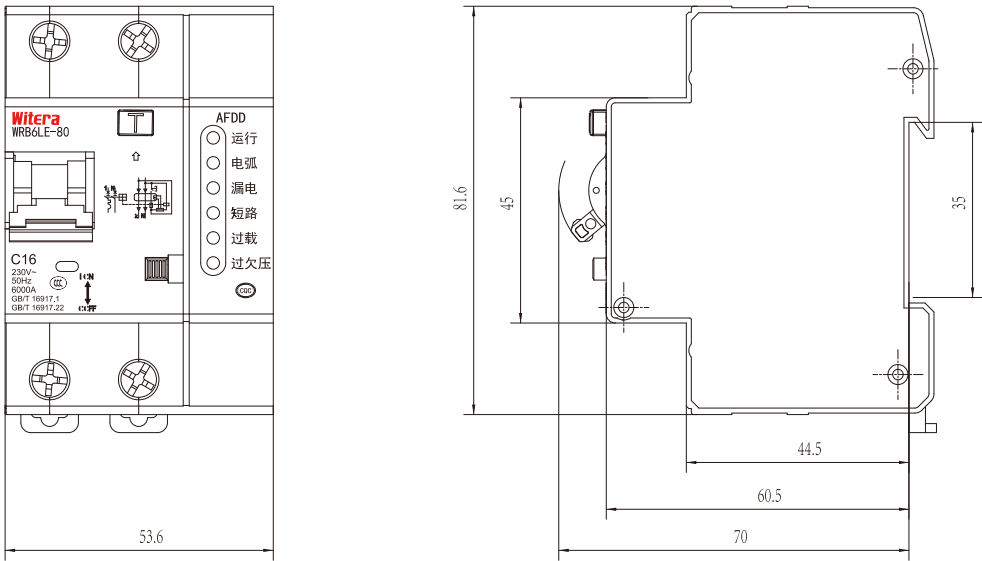
选型说明 / Product Selection Guide

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

技术参数 / Technical parameter

|                                                  |                                        |
|--------------------------------------------------|----------------------------------------|
| 项目<br>Project                                    | AFDD主要技术参数                             |
| 额定工作电压 (V)<br>Rated operating voltage            | AC 220-230V                            |
| 额定频率(A)<br>Rated Frequency                       | 50Hz                                   |
| 额定电流(A)<br>Rated current                         | 10A、16A、 20A、25A、32A、40A、50A、63A       |
| 额定短路分断能力(KA)<br>Rated working current            | 6kA                                    |
| 极数<br>Pole number                                | 1P+N                                   |
| 基本保护功能<br>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<br>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<br>Release characteristics                  | (执行标准 GB10963.1-2005) 同时符合IEC62606相应标准 |
| 执行标准<br>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, 以实现对其故障电弧的保护;
- ◆ 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.

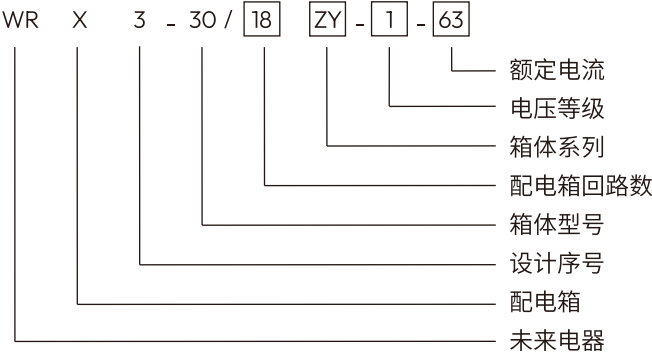


● 智能配电箱  
Intelligent distribution box

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<br>Model                                                                               |  |
| 产品图片<br>Product image                                                                       |  |
| 配电箱回路数<br>Number of circuits in distribution box                                            |  |
| 环境温度<br>Ambient temperature                                                                 |  |
| 海拔高度<br>Altitude                                                                            |  |
| 污染等级<br>Pollution level                                                                     |  |
| 符合标准<br>Standards compliant                                                                 |  |
| 额定工作电压 Un(V)<br>Rated operating voltage Un(V)                                               |  |
| 额定绝缘电压 Ui(V)<br>Rated insulation voltage Ui(V)                                              |  |
| 额定冲击耐受电压 Uimp (kV)<br>Rated impulse withstand voltage Uimp (kV)                             |  |
| 额定频率(Hz)<br>Rated frequency(Hz)                                                             |  |
| 配电板类型<br>Distribution board type                                                            |  |
| 过电压类别<br>Overvoltage category                                                               |  |
| 材料组别<br>Material group                                                                      |  |
| 电气间隙<br>Electrical clearance                                                                |  |
| 爬电距离<br>Creepage distance                                                                   |  |
| 成套设备的额定电流 In(A)<br>Rated current of complete equipment In(A)                                |  |
| 额定短路耐受电流和额定峰值耐受电流<br>Rated short circuit withstand current and rated peak withstand current |  |
| 主开关的分段能力<br>Segmentation capabilities of the main switch                                    |  |
| 外壳防护等级<br>Enclosure rating                                                                  |  |
| 机械碰撞等级<br>Mechanical impact rating                                                          |  |
| 触电保护类别<br>Electric shock protection category                                                |  |
| EMC环境<br>EMC environment                                                                    |  |

| 智雅系列                    | 智信系列                       |
|-------------------------|----------------------------|
|                         |                            |
| 15, 18, 21, 26, 32, 42  | 15, 18, 22, 26, 30, 36, 44 |
| -5°C ~ +40°C            |                            |
| <2000m                  |                            |
| 2                       |                            |
| GB7251. 3               | GB7251. 8                  |
| AC 230/400              |                            |
| 400                     |                            |
| 4                       |                            |
| 50/60                   |                            |
| B型                      |                            |
| III                     |                            |
| IIIa                    |                            |
| ≥3mm                    |                            |
| ≥4mm                    |                            |
| 32, 40, 50, 63, 80, 100 |                            |
| 4kA/6KA                 |                            |
| 6kA                     |                            |
| IP30-操作面 IP20C          |                            |
| 户内:IK05                 |                            |
| I类                      |                            |
| 环境B                     |                            |

智能功能 / Smart functions

| 序号<br>No. | 分类<br>Classification                | 描述<br>Describe |                                        | 主体       | 智能电箱 | 普通电箱 | 说明       |
|-----------|-------------------------------------|----------------|----------------------------------------|----------|------|------|----------|
| 1         | 保护功能<br>Protective function         | 过载保护           | Overload protection                    | 断路器      | ●    | ●    |          |
| 2         |                                     | 短路保护           | Short circuit protection               |          | ●    | ●    |          |
| 3         |                                     | 漏电保护           | Leakage Protection                     |          | ●    | ●    |          |
| 4         |                                     | 过、欠压保护         | Over and under voltage protection      |          | ●    | ●    |          |
| 5         | 预警功能<br>Early warning function      | 过载预警           | Overload warning                       | APP+语音模块 | ●    |      |          |
| 6         |                                     | 漏电预警           | Leakage warning                        |          | ●    |      |          |
| 7         |                                     | 温度预警           | Temperature warning                    |          | ●    |      |          |
| 8         | 报警功能<br>Alarm function              | 过载故障报警         | Overload fault alarm                   | APP      | ●    |      |          |
| 9         |                                     | 短路故障报警         | Short circuit fault alarm              |          | ●    |      |          |
| 10        |                                     | 漏电故障报警         | Leakage fault alarm                    |          | ●    |      |          |
| 11        |                                     | 温度保护报警         | Temperature protection alarm           |          | ●    |      |          |
| 12        | APP信息提示<br>APP information prompt   | 预警信息           | Warning information                    | 语音模块     | ●    |      |          |
| 13        |                                     | 报警信息           | Alarm information                      |          | ●    |      |          |
| 14        |                                     | 分合动作信息         | Opening and closing action information |          | ●    |      |          |
| 15        |                                     | 预警恢复信息         | Alert recovery information             |          | ●    |      |          |
| 16        | 语音播报<br>Voice broadcast             | 故障恢复信息         | Recovery information                   | 手机       | ●    |      |          |
| 17        |                                     | 预警播报           | Early warning broadcast                |          | ●    |      |          |
| 18        |                                     | 故障播报           | fault propagation                      |          | ●    |      |          |
| 19        |                                     | 预警恢复播报         | Early warning resume broadcast         |          | ●    |      |          |
| 20        | 短信提示<br>SMS reminder                | 故障恢复播报         | Fault recovery broadcast               | APP      | ●    |      |          |
| 21        |                                     | 报警信息           | Alarm information                      |          | ●    |      |          |
| 22        |                                     | 远程查看断路器状态      | View circuit breaker status remotely   |          | ●    |      |          |
| 23        |                                     | 漏电电流实时显示       | Leakage current real-time display      |          | ●    |      |          |
| 24        | APP显示信息<br>APP displays information | 电网频率显示         | Grid frequency display                 | 断路器      | ●    |      |          |
| 25        |                                     | 内部温度显示         | Internal temperature display           |          | ●    |      |          |
| 26        |                                     | 电压显示           | Voltage display                        |          | ●    |      |          |
| 27        |                                     | 电流显示           | Current display                        |          | ●    |      |          |
| 28        | 开关操作<br>Switch operation            | 功率显示           | Power display                          | APP      | ●    |      |          |
| 29        |                                     | 功率因数显示         | Power factor display                   |          | ●    |      |          |
| 30        |                                     | 手/自动切换         | Manual/automatic switching             |          | ●    |      |          |
| 31        |                                     | 主开关安全挂锁        | Main switch safety padlock             |          | ●    |      |          |
| 32        |                                     | 远程分合闸          | Remote opening and closing             | APP      | ●    |      |          |
| 33        |                                     | 定时分合闸          | Timing opening and closing             |          | ●    |      |          |
| 34        |                                     | 场景设置           | Scene setting                          |          | ●    |      |          |
| 35        |                                     | 线路满载电流设定       | Line full load current setting         |          | ●    |      |          |
| 36        |                                     | 正常待机电流设定       | Normal standby current setting         |          | ●    |      |          |
| 37        |                                     | 温度预警阈值设定       | Temperature warning threshold setting  |          | ●    |      | 出厂值为60°C |
| 38        |                                     | 温度报警阈值设定       | Temperature alarm threshold setting    |          | ●    |      | 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         |     |    |    |  |

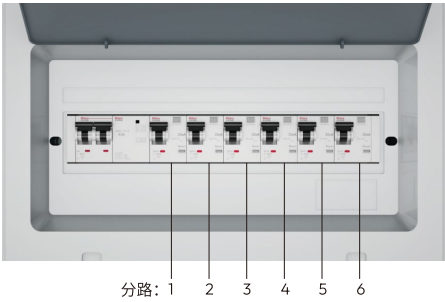


内部可选元件所占回路数(1回路=18mm)

| 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 | AFDD电弧故障断路器 | WRA2-AFDD/1P+N | 54       | 3     |        |
|      | 小型断路器       | WRB5N/DPN      | 18       | 1     |        |
|      |             | WRB5/1P        | 18       | 1     |        |
|      |             | WRB5/2P        | 36       | 2     |        |
|      |             | WRB5/3P        | 54       | 3     |        |
|      |             | WRB5/4P        | 72       | 4     |        |
|      | 漏电断路器       | WRB5NL/1P+N    | 36       | 2     | 32A及以下 |
|      |             | WRB5L-C32/1P+N | 45       | 2.5   |        |
|      |             | WRB5L-C32/2P   | 63       | 3.5   |        |
|      |             | WRB5L-C32/3F   | 90       | 5     |        |
|      |             | WRB5L-C32/3P+N | 99       | 5.5   |        |
|      |             | WRB5L-C32/4    | 117      | 6.5   | 40A及以上 |
|      |             | WRB5L-C63/1P+N | 54       | 3     |        |
|      |             | WRB5L-C63/2P   | 72       | 4     |        |
|      |             | WRB5L-C63/3F   | 108      | 6     |        |
|      |             | WRB5L-C63/3P+N | 117      | 6.5   |        |
|      | 自复式过欠压保护器   | WRB5L-C63/4    | 135      | 7.5   |        |
|      |             | WRGQ5Z/1N      | 36       | 2     |        |
|      | 隔离开关        | WRGQ5Z/3N      | 72       | 4     |        |
|      |             | WRG5/1P        | 18       | 1     |        |
|      |             | WRG5/2P        | 36       | 2     |        |
|      |             | WRG5/3P        | 54       | 3     |        |
|      |             | WRG5/4P        | 72       | 4     |        |

两款电箱对比

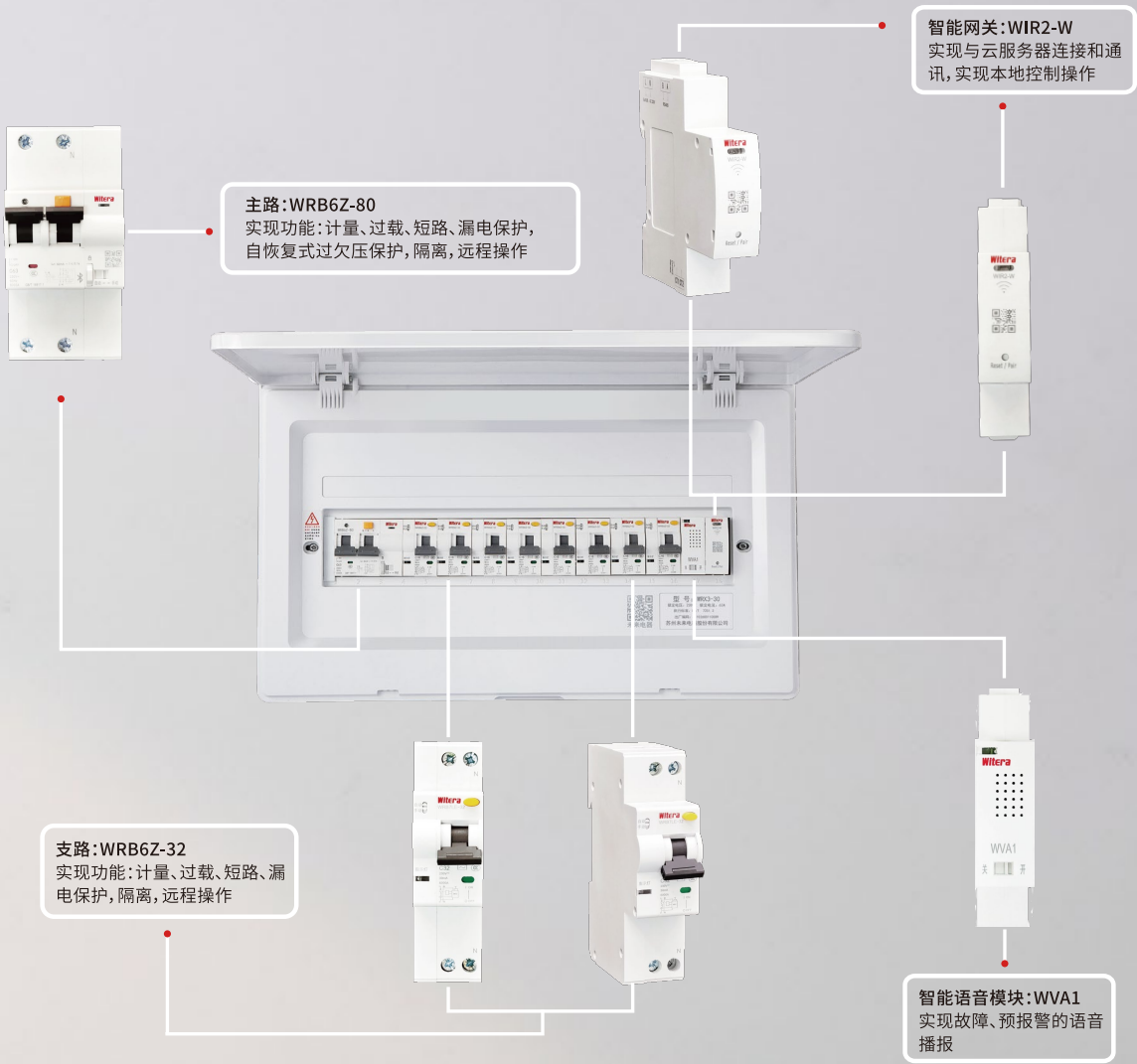
在相同回路数的配电箱体的情况下,选装物联网漏电断路器组成的智能电箱,分路更多,更省空间。



普通电箱



智能电箱



- 1 预警提示

在负载、漏电值、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。
- 2 主动保护

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。
- 3 故障定位

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。
- 4 语音播报

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
- 5 实时查看

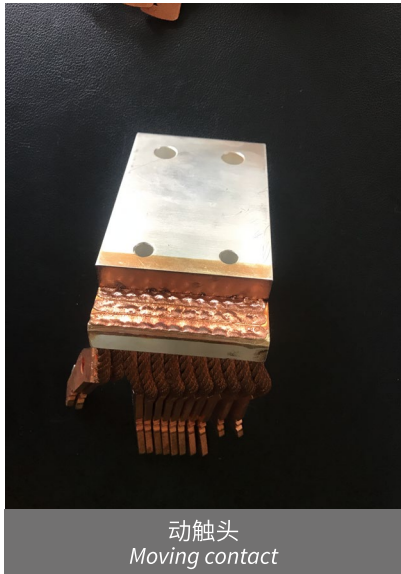
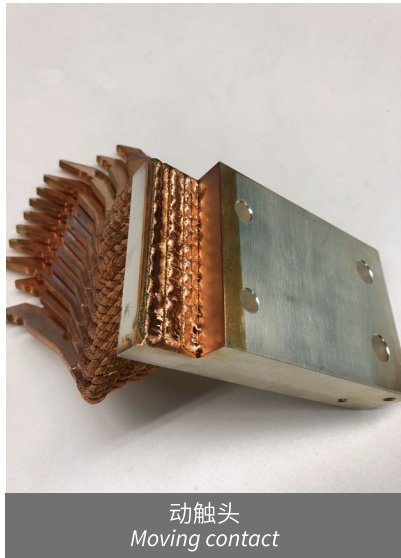
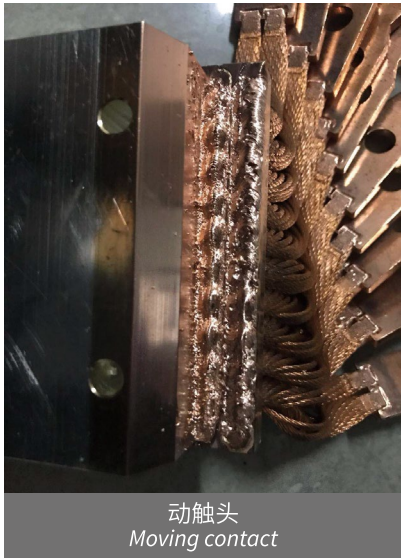
查看年、月、日总用电和各分路用电  
实时查看总用电和分路用电  
主动推送各类年度用电报表



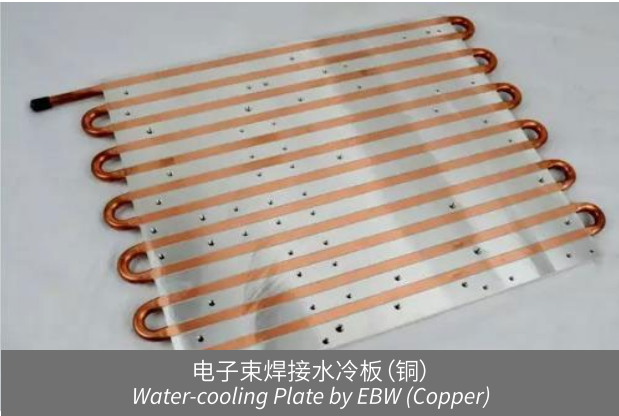
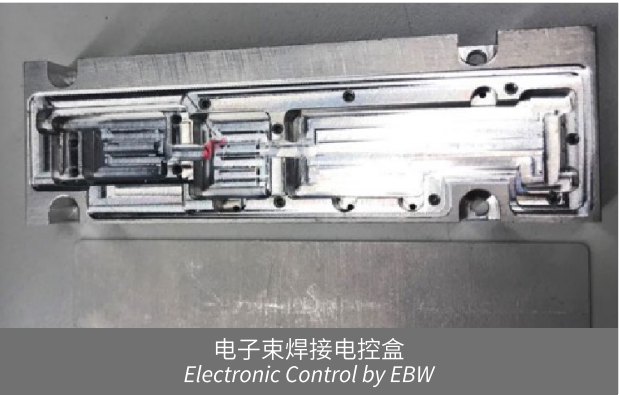
# 04

## 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



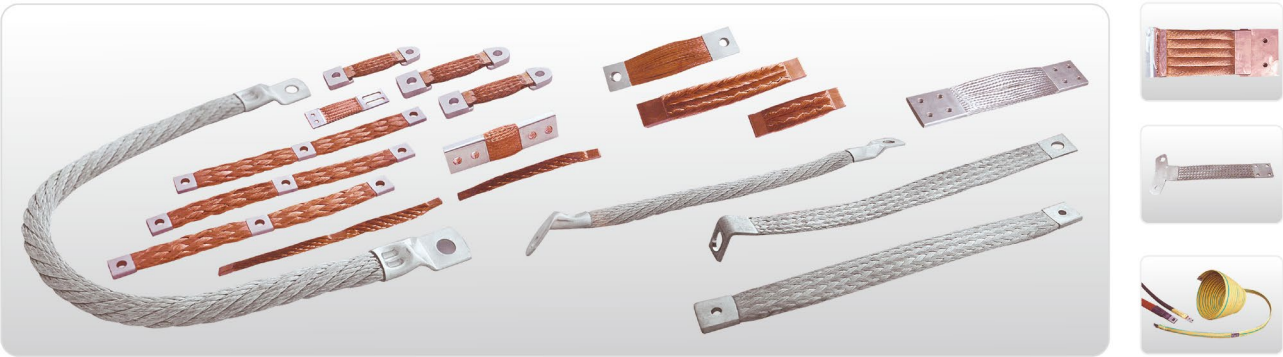
- 电子束焊接 — 新能源  
Electron Beam Welding-New Energy





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



铝带软连接  
Soft Connection of Aluminum Strip



风冷散热器  
Air-cooled Radiator



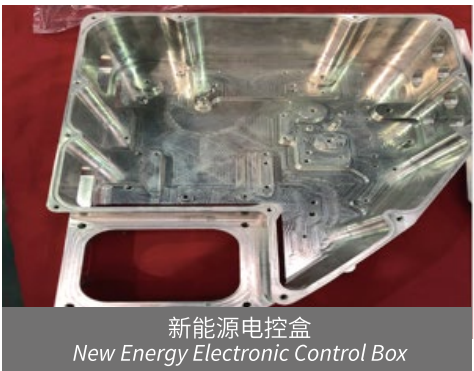
新能源电池包配件  
New Energy Battery Package Accessories



新能源电控盒  
New Energy Electronic Control Box



新能源电控盒  
New Energy Electronic Control Box



新能源电控盒  
New Energy Electronic Control Box

检测设备  
Testing Equipment



超声无损检测仪  
Ultrasonic Non-destructive testing Detector

ROHS制样 (德国超研磨机、瑞士天平)  
Rohs sample preparation (german super lapping machine, Swiss balance)

化学分析仪 (美国安捷伦)  
Chemical analyzer (Agilent, United States)

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)

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

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

盐雾试验机  
Salt Spray Teste

三坐标检测仪  
Three coordinate detector

生产设备  
Production Equipment



数控加工中心(美国哈斯)  
CNC machining center (Haas, USA)

全自动焊接设备  
Automatic welding equipment

冲压设备  
Punching equipment