



# SHTW3系列智能型万能式低压断路器 WATSC702、WATSC802 自动电源转换系统

SHTW3 Series Intelligent Air Circuit Breaker

WATSC702、WATSC802 Automatic Power Transfer Switching System



上海华通低压开关有限公司(原上海华通开关厂低空部)  
SHANGHAI HUATONG LV ELECTRIC APPARATUS CO. LTD.  
(SHANGHAI HUATONG SWITCHGEAR WORKS LV-DIVISION)





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## 企业简介

### Enterprise introduction

#### 公司简介

上海华通，历史悠久。

上海华通低压开关有限公司的前身是上海华通开关厂低压空气开关制造部（曾名塑壳车间），经上级公司上海电气集团总公司批准于2001年8月整体转制后成立为股份制公司。

自1919年创立“华通电机厂”——解放后国有化的“上海华通开关厂”——2001年转制后的“上海华通低压开关有限公司”已经走过了百年的风雨旅程。

低压电器制造方面经历了从无到有、从小到大、从一般到高科技的不断发展过程。

上世纪50年代的第一代仿苏产品A3塑料外壳式断路器在我厂诞生，壳架等级达600A。60—70年代自力更生研发并大规模生产DZ10系列塑料外壳式断路器，产品畅销全国各地，并源源不断出口到中、西亚，及非洲地区。80年代从美国西屋公司引进了H系列塑料外壳式断路器及专有制造技术，最大壳架等级达3000A，为国内外之最。90年代先后开发完善了SHTW1(DW45)系列低压智能型万能式断路器、S(H)系列高性能塑料外壳式断路器等几大系列低压产品，以及SHTQ1、SHTQ3系列双电源自动转换开关电器，S(H)L系列剩余电流断路器，S(H)Z系列智能型塑料外壳式断路器。2013年成功开发SHTW3系列低压智能型万能式断路器，2019年又成功开发了SHTM3系列及S(H)系列（升级版）塑料外壳式断路器以及WATSC702/802自动电源转换系统。同时与有关科研单位、企业集团及其他相关行业开展了全方位的合作，使我公司在产品设计开发、工艺制造、生产管理等方面迅速适应市场经济的发展需要，成为我国低压电器主要生产基地之一。目前除了仍延续生产原有几大系列产品外，还开发了智能化产品及SHTB系列微型断路器等新产品。

公司已获得了ISO9001:2000质量体系认证，全部产品均获得国家强制性产品认证(CCC)证书。公司坚持不断发展，开拓创新，服务至上，争创品牌的理念，严格按照ISO9001国际质量体系进行质量管理。公司产品现已被广泛用于电力、煤炭、石油、化工、冶金、交通、通讯、建筑及城市基础设施等领域。

我公司以通过体制改革为契机，激活内部机制，更新观念，不断开发新产品，延续华通精湛的制造技术，以先进的工艺、优异的产品质量和周到的售后服务回报广大用户的支持和信赖。我们将一如既往，秉承百年“华通”的优良传统，以最新的技术、最快的速度、最优的质量为用户提供最佳的服务。

#### Company profile

Shanghai huatong has a long history.

Shanghai huatong LV electric apparatus CO., LTD., formerly known as Shanghai huatong switchgear works LV electric apparatus manufacturing department (formerly known as plastic shell workshop), was established as a new company in August 2001 after the approval of the parent company Shanghai electric group company.

Since the establishment of "WHA TUNG ELEC & GEN.ENG WORKS" in 1919 -- "Shanghai huatong switchinggear works" nationalized after liberation -- "Shanghai huatong LV electric apparatus CO., LTD." after the transformation in 2001, "Shanghai huatong LV electric apparatus CO., LTD." has gone through the wind and rain journey for a hundred years.

The manufacture of low voltage electrical appliances has experienced the continuous development process from scratch, from small to large, from general to high-tech. The manufacture of low voltage apparatus has experienced the continuous development process from scratch, from small to large, from general to high-tech.

In the 1950s, the first generation of imitation product A3 moulded case circuit breaker was born in our factory, with a frame size of 600A. During the 1960s and 1970s, self-reliant R&D and mass production of DZ10 series moulded case circuit breakers have sold well all over the country and exported continuously to central, western Asia and Africa. In the 1980s, we introduced the H-series moulded case circuit breaker and proprietary manufacturing technology from Westinghouse company, with the maximum frame size up to 3000A, the highest at home and abroad. In the 1990s, successively developed and improved SHTW1(DW45) series low-voltage intelligent air-operated circuit breaker, S(H) series high performance moulded case circuit breaker and other series of low-voltage products, as well as SHTQ1 and SHTQ3 series double power source auto-switch apparatus, S(H)L series residual current circuit breaker, S(H)Z series intelligent type breaker. In 2013, SHTW3 series of low-voltage intelligent air-operated circuit breakers were successfully developed, and in 2019, SHTM3 series, S(H) series (upgraded version) moulded case circuit breakers and WATSC702, WATSC802 Automatic power transfer switching system were successfully developed. At the same time with the relevant scientific research units, enterprise groups and other related industries to carry out all-round cooperation, so that our company in product design and development, technology manufacturing, production management and other aspects quickly adapt to the needs of the development of the market economy, become one of the main production bases of China's low-voltage apparatus. At present, in addition to continuing to produce the original several series of products, we have also developed intelligent products and new products such as SHTB series miniature circuit breakers.

The company has obtained ISO9001:2000 quality system certification, all the products have obtained the national compulsory product certification (CCC) certificate. The company adheres to the concept of continuous development, pioneering and innovation, service first and striving for a brand, and carries out quality management in strict accordance with ISO9001 international quality system. The company's products have been widely used in power, coal, petroleum, chemical, metallurgy, transportation, communications, construction and urban infrastructure and other fields.

Our company takes the opportunity through the system reform, activates the internal mechanism, updates the concept, develops the new product unceasingly, continues huatong exquisite manufacture technology, with the advanced craft, the outstanding product quality and the thoughtful after-sale service returns the general user's support and the trust. Our company will, as always, uphold the hundred years of "huatong" fine tradition, with the latest technology, the fastest speed, the best quality to provide users with the best service.



#### 传承华通百年历史，再显卓越性能产品

SHTW3 系列低压智能型万能式断路器得益于多年来所专注的配电产品领域设计研发、专业制造技术的全新一代产品，基于安全、可靠基本要求的同时，融入了全新的智能、模块化设计理念，通过它将给你带来全面的配电产品应用新体验。应用国际先进的在线检测、装配流水线生产，先进的工艺，确保了零部件的一致性，使得每一台断路器都具有更完美的性能表现。

#### Inheriting the centenary history of Huatong and showing its excellent performance products again

SHTW3 series of low-voltage intelligent universal circuit breakers benefit from the new generation of products focused on the field of distribution product design and development, professional manufacturing technology over the years. Based on the basic requirements of safety and reliability, they are integrated with a new intelligent and modular design concept, through which you will have a comprehensive new experience in the application of distribution products. The application of international advanced on-line detection, assembly line production, advanced technology, to ensure the consistency of parts, so that each circuit breaker has a more perfect performance.



SHTW3-1600



SHTW3-2500



SHTW3-4000



SHTW3-5000



SHTW3-6300



SHTW3-8000

#### 保护功能完善，齐全的测量功能

多种可选保护脱扣单元，满足过载长延时、短路短延时、短路瞬时、接地故障保护等各种保护需求、并可满足电压保护、发电机保护等特殊需求。可测量电流、电压、谐波等各种电参量。

#### 智能通讯功能

完善的 SHTW3 系列万能式断路器及其 SW3 系列脱扣单元可具备智能通讯功能，具备完善的通讯接口及协议，可对断路器的运行状态及电量进行采集及上传，并可进行实践记录及维护信息查看，优化维护及运行功能。

#### Perfect protection function and complete measurement function

A variety of optional protection trip units can meet various protection requirements such as overload long time delay, short circuit short time delay, short circuit instantaneous, ground fault protection, etc., and can meet special requirements such as voltage protection, generator protection, etc. It can measure current, voltage, harmonic and other electrical parameters.

#### Intelligent communication function

The perfect SHTW3 series Air Circuit Breakers and its SW3 series tripping unit can have intelligent communication function, have perfect communication interface and protocol, can collect and upload the operation state and electric quantity of the circuit breaker, and can carry out practice record and maintenance information view, optimize maintenance and operation function.

## 概述

SHTW3 系列智能型万能式断路器 (以下简称断路器), 额定电流为 200A—8000A, 适用于交流 50Hz、400V、690V, 主要在配电网络中用来分配电能和保护线路, 防止电源设备遭受过载、欠电压、短路、单相接地等故障的危害, 该断路器具有多种智能保护功能。可做到选择性保护, 并且动作精确, 可避免不必要的停电, 提高供电可靠性。

## 主要优点

- 无需区分进出线端, 表现同样出色, 满足各种进出线要求。
- 无需安全间距。
- 满足水平或垂直连接要求, 客户可自行调整。
- 根据标准开关柜设计, 尺寸满足通用标准柜要求。
- 既可方便连接母线, 又方便于电缆的连接。
- 具有 18 项发明专利, 实用新型及外观专利。
- 辅助功能越来越强大, 控制单元附件、连接方式、各种联锁技术、指示触点齐全。
- 抽架形式
  - 三位置联锁结构 (专利技术)
  - 三位置显示方式 (专利技术)
  - 三位置旋转解锁结构 (专利技术)
  - 中间位置摇进机构使断路器摇进退出更省力
  - 安全门单点式打开机构
- 实现最大框架电流等级(8000A)
- 独具(5000A)框架电流等级

## 应用广泛

SHTW3 系列符合 IEC/GB 国际、国内相关标准, 并通过相关试验及 3C 认证, 可适用于 690V 及以下各种电网系统, 广泛应用于工矿企业、商住大楼、地铁、煤矿的系统中。

## Essentials

SHTW 3 Series Intelligent air circuit breakers (hereinafter referred to as the Breaker) with rated current of 200A–8000A are suitably used in AC50Hz, 400V and 690V systems mainly in distribution network for power distribution, circuit protection, and prevention of power supply apparatus from damage due to overload, undervoltage, short circuit, single phase earthing etc. With various intelligent protective functions, the Breaker has a kind of selective and accurate operating protections, avoiding unnecessary down time and promoting power supply reliability consequently.

## Main advantages

- There is no need to distinguish the incoming and outgoing line ends, and the performance is also excellent to meet various incoming and outgoing line requirements
- No safe spacing is required.
- Meet the horizontal or vertical connection requirements, customers can adjust.
- According to the design of standard switch cabinet, the size meets the requirements of general standard cabinet.
- It is convenient to connect bus and cable.
- It has 18 invention patents, utility model and appearance patents.
- The auxiliary functions are more and more powerful, and the control unit accessories, connection methods, various interlocking technologies and indication contacts are complete.
- Frame drawing form
  - Three position interlocking structure (patented technology)
  - Three position display mode (patented technology)
  - Three position rotary unlocking structure (patented technology)
  - The middle position swing in mechanism makes the circuit breaker swing in and out more labor-saving
  - Single point opening mechanism of safety door
- Achieve maximum frame current class 8000A
- Unique 5000A frame current level

## Widely applied

SHTW3 series conforms to IEC / GB international and domestic standards, and has passed relevant tests and 3C certification. It can be applied to various power grid systems of 690V and below, and widely used in industrial and mining enterprises, commercial and residential buildings, subway and coal mine systems.

断路器型号及意义 Type and its designation



正常工作条件

周围空气温度为 -5℃—+40℃，且 24h 的平均值不超过 +35℃ (特殊订货的除外)；

安装地点的海拔不超过 2000m；

安装地点的空气相对湿度在最高温度为 +40℃ 时不超过 50%。在较低温度下可以有较高的相对湿度，最湿月的月平均最低温度不超过 +25℃，该月的月平均最大相对湿度不超过 90%，并考虑因温度变化发生在产品表面上的凝露；

污染等级为 3 级；

断路器主电路及欠电压脱扣器线圈、电源变压器初级圈的安装类别为Ⅳ，其余辅助电路、控制电路安装类别为Ⅲ；

Normal operation conditions

Ambient temperature:-5℃ ~ +40℃ ,and average temperature in 24 hours below+35℃ (except for special orders);

Elevation of installation site: ≤ 2000m.

Relative humidity: not exceeding 50% at the maximum ambient temperature of +40℃ . With lower temperature, higher humidity would

be permitted, but the lowest average temperature in a month not exceeding +25℃ during the most moist month, and the maximum monthly average relative humidity not exceeding 90% in that month, and giving consideration to the dew on the goods surface, which

would appear due to temperature change.

Pollution protection: 3 grade.

Installing categ: **Ⅳ** for breakers main circuits, coils of under voltage release and primary circuit of transformers;

**Ⅲ** for other auxiliary circuits and control circuit.

注 (1)：文中可简称为壳架电流，其含义相同

Note (1): in this paper, it can be referred to as shell frame current, with the same meaning

A

正常安装条件

断路器应按本说明书安装要求安装。断路器的垂直倾斜度不超过 5° ；  
断路器安装在柜体小室内，且加装门框，防护等级达 IP54。

Normal installation conditions

The installation of breakers should be done as the relative article of this instruction. The vertical gradient is less then 5° .  
Breaker could be fixed in cabinet of panel's body, the protection grade is IP40(with door frame) and IP54(with transparent cover).

符合标准

IEC60947-2  
GB14048.2  
《低压开关设备和控制设备 第 2 部分：断路器》

Standards applicable

IEC60947-2  
GB14048.2  
《Low-voltage switchgear and controlgear  
—Part 2:Circuit-breakers》

型式

安装方式：  
固定式、抽屉式；  
连接方式：  
水平连接、垂直前连接、垂直后连接；  
储能方式：  
手动储能、电动储能；  
极数：  
三极、四极；  
脱扣器种类：  
智能脱扣器、欠电压脱扣器（瞬时和延时两种）  
、分励脱扣器。

Type

Installation method:  
Fixed type and Withdrawout type;  
In light of connection:  
Horizontal Rear,Vertical Front,Vertical Rear connection;  
In accordance with energy storing:  
Manual and Motor-driven;  
Pole number:  
Three-pole and Four-pole;  
According to the classification of trips equipped:  
Intelligent trip,Undervoltage trip(instantaneous and time-delay respectively),Shunt trip.

结构简介

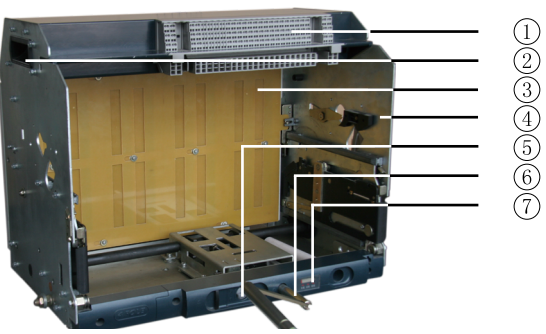
SHTW3 系列万能式断路器是 SHTW1 系列断路器后最新研发的新一代产品，产品结构紧凑、造型美观，分断能力和短时耐受电流指标进一步提高；辅助功能越发强大，控制单元附件、连接方式、各种联锁技术、指示触头齐全；新型二次回路增加了接线端口，满足用户需要；抽屉座设计新颖，具有三位置联锁结构、指针式三位置显示、三位置旋转解锁机构等。

Essentials of structure

SHTW3 air circuit breaker is a new generation product developed after SHTW1 series circuit breaker. The product has compact structure, beautiful appearance, further improvement of breaking capacity and short-time withstand current index; more powerful auxiliary function, complete control unit accessories, connection mode, various interlocking technologies and indication contacts; new secondary circuit has added connection port to meet the user's needs; drawer The seat is novel in design, with three position interlock structure, pointer type three position display, three position rotary unlocking mechanism, etc.

B

抽 屉 座 Draw-out seat



- ① 二次回路接线端子 Terminals of secondary circuit
- ② 把手 Handle
- ③ 隔离挡板 Isolating partition
- ④ 侧板 Side plate
- ⑤ 三位置（连接、试验、分离）锁 "Unlock button" of the three positions ("separated", "test" and "connected") for draw-out circuit breaker
- ⑥ 摇手柄 Rotating handle
- ⑦ 位置显示 Position indicator

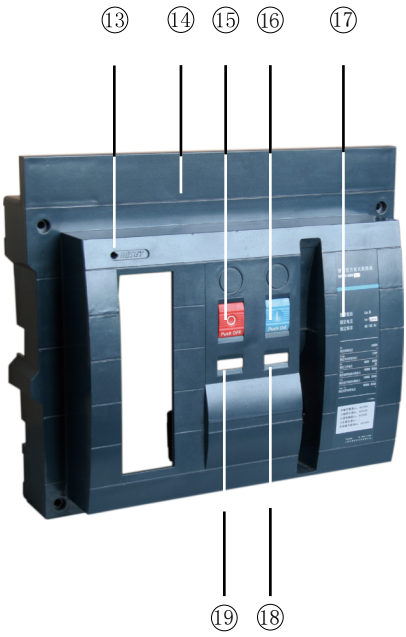
断 路 器 Circuit breaker

- ⑧ 二次回路接线端子 Terminals of secondary circuit
- ⑨ 智能型控制器 Intelligent controller
- ⑩ 分闸按钮 Opening pushbutton
- ⑪ 合闸按钮 Closing pushbutton
- ⑫ 电动机储能机构 Motor-driven energy storing mechanism



面 罩 Face mask

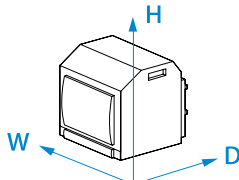
- ⑬ 脱扣指示按钮 Trip indication button
- ⑭ 面罩 Face mask
- ⑮ 分闸按钮 Opening pushbutton
- ⑯ 合闸按钮 Closing pushbutton
- ⑰ 铭牌 Nameplate
- ⑱ 机构储能状态指示窗 Position indication window of main contact
- ⑲ 主触头位置显示窗 Indication window of energy storing state





## 主要技术数据 Main technical parameters

### 主要技术数据 Main technical parameters

| 型号 Type designation                                                                                                         |                                                            | SHTW3-1600                                                                        |                     | SHTW3-2500                                                                          |                                       |               |
|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------|
| 产品外观                                                                                                                        |                                                            |                                                                                   |                     |                                                                                     |                                       |               |
|                                                                                                                             |                                                            |  |                     |  |                                       |               |
| 壳架等级额定电流 Inm(A) Frame size rated current                                                                                    |                                                            | 1600                                                                              |                     | 2500                                                                                |                                       |               |
| 额定电流 In(A) Rated current                                                                                                    |                                                            | 200、400、630、800、1000、1250、1600                                                    |                     | 630、800、1000、1250、1600、2000、2500                                                    |                                       |               |
| 额定工作电压 Ue(V) Rated operational voltage                                                                                      |                                                            | AC400V、AC690V 50Hz / 60Hz                                                         |                     |                                                                                     |                                       |               |
| 额定绝缘电压 Ui(V) Rated insulation voltage                                                                                       |                                                            | AC1000V 50Hz / 60Hz                                                               |                     |                                                                                     |                                       |               |
| 额定冲击耐受电压 Uimp(V) Rated impulse withstand voltage                                                                            |                                                            | 12000V                                                                            |                     |                                                                                     |                                       |               |
| 工频耐受电压 U Power-frequency withstand voltage                                                                                  |                                                            | AC2200V 1min 50Hz / 60Hz                                                          |                     |                                                                                     |                                       |               |
| 极数 Pole number                                                                                                              |                                                            | 3、4                                                                               |                     |                                                                                     |                                       |               |
| 分断能力级别 Short circuit breaking capacity level                                                                                |                                                            | H                                                                                 | N                   | H                                                                                   | N                                     |               |
| 额定极限短路分断能力 Icu(kA)( 有效值 )<br>Rated ultimate short-circuit breaking capacity(r.m.s value)                                    | AC400V                                                     | 65                                                                                | 55                  | 85                                                                                  | 70                                    |               |
|                                                                                                                             | AC690V                                                     | 35                                                                                | 25                  | 65                                                                                  | 55                                    |               |
| 额定运行短路分断能力 Ics(kA)( 有效值 )<br>Rated service short-circuit breaking capacity (r.m.s value)                                    | AC400V                                                     | 55                                                                                | 42                  | 85                                                                                  | 70                                    |               |
|                                                                                                                             | AC690V                                                     | 35                                                                                | 25                  | 65                                                                                  | 55                                    |               |
| 额定短路短时耐受电流 (1s/0.5s)Icw(kA)( 有效值 )<br>Rated short-time withstand current(r.m.s value)                                       | AC400V                                                     | 50/55                                                                             | 42/50               | 85                                                                                  | 70                                    |               |
|                                                                                                                             | AC690V                                                     | 35                                                                                | 25                  | 65                                                                                  | 55                                    |               |
| 全分断时间 ( 无附加延时 )(ms) Breaking time(no additional delay)                                                                      |                                                            | < 30                                                                              |                     |                                                                                     |                                       |               |
| 闭合时间 (ms) Closing time                                                                                                      |                                                            | < 70                                                                              |                     |                                                                                     |                                       |               |
| 使用类别 Utilization category                                                                                                   |                                                            | B                                                                                 |                     |                                                                                     |                                       |               |
| 操作性能<br>Operational performance                                                                                             | 电气寿命 ( 次 )<br>Electrical durability<br>( number of times ) | (AC400V)                                                                          | 6500(In=1600A)      |                                                                                     | 8000(In=2500A)                        |               |
|                                                                                                                             |                                                            |                                                                                   | 9000(In=800A-1250A) |                                                                                     | 10000(In=1600A-2000A)                 |               |
|                                                                                                                             |                                                            |                                                                                   | 15000(In=200A-630A) |                                                                                     | 12500(In=630A-1250A)                  |               |
|                                                                                                                             |                                                            | (AC690V)                                                                          | 3000(In=1600A)      |                                                                                     | 5000(In=2500A)                        |               |
|                                                                                                                             |                                                            |                                                                                   | 5000(In=800A-1250A) |                                                                                     | 7000(In=1600A-2000A)                  |               |
|                                                                                                                             |                                                            |                                                                                   | 15000(In=200A-630A) |                                                                                     | 12500(In=630A-1250A)                  |               |
|                                                                                                                             | 机械寿命 ( 次 )<br>Mechanical durability<br>( number of times ) | 免维护 Non-maintenance                                                               | 15000               |                                                                                     | 12500                                 |               |
|                                                                                                                             |                                                            | 有维护 Maintenance                                                                   | 25000               |                                                                                     | 25000                                 |               |
| <br>重量 ( 净重 )(kg)<br>Weight (Net weight) |                                                            | 外形尺寸 Outline dimensions W×D×H(mm)                                                 |                     |                                                                                     |                                       |               |
|                                                                                                                             |                                                            | 抽屉式<br>Draw-out type                                                              | 3P                  | 248×360×310                                                                         |                                       | 347×450×406.5 |
|                                                                                                                             |                                                            |                                                                                   | 4P                  | 318×360×310                                                                         |                                       | 442×450×406.5 |
|                                                                                                                             |                                                            | 固定式<br>fixed type                                                                 | 3P                  | 254×328.5×217.5                                                                     |                                       | 368×415.5×308 |
|                                                                                                                             |                                                            |                                                                                   | 4P                  | 324×328.5×217.5                                                                     |                                       | 463×415.5×308 |
|                                                                                                                             |                                                            | 抽屉式<br>Draw-out type                                                              | 3P                  | 40/48                                                                               |                                       | 98/107        |
|                                                                                                                             |                                                            |                                                                                   | 4P                  | 50/58                                                                               |                                       | 120/131       |
|                                                                                                                             |                                                            | 固定式<br>fixed type                                                                 | 3P                  | 18/26                                                                               |                                       | 45/54         |
|                                                                                                                             |                                                            |                                                                                   | 4P                  | 25/33                                                                               |                                       | 55/66         |
|                                                                                                                             |                                                            | 可供智能型控制器类型<br>Types of intelligent controllers available                          |                     | SW3-                                                                                | L 型、A 型、H 型<br>L type, A type, H type |               |

主要技术数据  
Main technical parameters

| SHTW3-4000                                                                        |                                       | SHTW3-5000                                                                        |    | SHTW3-6300                                                                         |     | SHTW3-8000                                                                          |     |
|-----------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|
|  |                                       |  |    |  |     |  |     |
| 4000                                                                              |                                       | 5000                                                                              |    | 6300                                                                               |     | 8000                                                                                |     |
| 2000、2500、2900、3200、3600、4000                                                     |                                       | 3200、3600、4000、5000                                                               |    | 4000、5000、6300                                                                     |     | 6300、7500、8000                                                                      |     |
| AC400V、AC690V 50Hz / 60Hz                                                         |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| AC1000V 50Hz / 60Hz                                                               |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| 12000V                                                                            |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| AC2200V 1min 50Hz / 60Hz                                                          |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| 3、4                                                                               |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| H                                                                                 | N                                     | H                                                                                 | N  | H                                                                                  | N   | H                                                                                   | N   |
| 120                                                                               | 85                                    | 120                                                                               | 85 | 150                                                                                | 120 | 150                                                                                 | 135 |
| 85                                                                                | 75                                    | 85                                                                                | 75 | 100                                                                                | 85  | 120                                                                                 | 100 |
| 100                                                                               | 85                                    | 100                                                                               | 85 | 135                                                                                | 120 | 150                                                                                 | 135 |
| 85                                                                                | 75                                    | 85                                                                                | 75 | 100                                                                                | 85  | 120                                                                                 | 100 |
| 100                                                                               | 85                                    | 100                                                                               | 85 | 135                                                                                | 120 | 135                                                                                 | 120 |
| 85                                                                                | 75                                    | 85                                                                                | 75 | 100                                                                                | 85  | 120                                                                                 | 100 |
| < 30                                                                              |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| < 70                                                                              |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| B                                                                                 |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| 6000(In=4000A)                                                                    | 6000                                  | 2000(In=6300A)                                                                    |    | 2000                                                                               |     |                                                                                     |     |
| 8000(In=2900A-3200A)                                                              |                                       | 4000(In=5000A)                                                                    |    |                                                                                    |     |                                                                                     |     |
| 10000(In=1000A-2500A)                                                             |                                       | 6000(In=4000A)                                                                    |    |                                                                                    |     |                                                                                     |     |
| 3000(In=4000A)                                                                    | 3000                                  | 1500(In=6300A)                                                                    |    | 1500                                                                               |     |                                                                                     |     |
| 5000(In=2900A-3200A)                                                              |                                       | 2500(In=5000A)                                                                    |    |                                                                                    |     |                                                                                     |     |
| 10000(In=1000A-2500A)                                                             |                                       | 3500(In=4000A)                                                                    |    |                                                                                    |     |                                                                                     |     |
| 10000                                                                             | 10000                                 | 6500                                                                              |    | 5000                                                                               |     |                                                                                     |     |
| 20000                                                                             | 20000                                 | 13000                                                                             |    | 10000                                                                              |     |                                                                                     |     |
| 外形尺寸 Outline dimensions W × D × H(mm)                                             |                                       |                                                                                   |    |                                                                                    |     |                                                                                     |     |
| 440 × 450 × 406.5                                                                 | 566 × 450 × 406.5                     | 818 × 490 × 406.5                                                                 |    | 944 × 490 × 406.5                                                                  |     |                                                                                     |     |
| 566 × 450 × 406.5                                                                 | 692 × 450 × 406.5                     | 1070 × 490 × 406.5(3P+N)<br>944 × 490 × 406.5(3P+N/2)                             |    | 1070 × 490 × 406.5                                                                 |     |                                                                                     |     |
| 461 × 415.5 × 308                                                                 | 587 × 415.5 × 308                     | 839 × 415.5 × 308                                                                 |    | 965 × 415.5 × 308                                                                  |     |                                                                                     |     |
| 587 × 415.5 × 308                                                                 | 713 × 415.5 × 308                     | 1091 × 415.5 × 308(3P+N)<br>965 × 415.5 × 308(3P+N/2)                             |    | 1091 × 415.5 × 308                                                                 |     |                                                                                     |     |
| 120/131                                                                           | 159/172                               | 233/261                                                                           |    | 260/288                                                                            |     |                                                                                     |     |
| 148/160                                                                           | 193/215                               | 292/320(3P+N) 235/263(3P+N/2)                                                     |    | 325/353                                                                            |     |                                                                                     |     |
| 55/66                                                                             | 98/111                                | 124/152                                                                           |    | 140/168                                                                            |     |                                                                                     |     |
| 68/80                                                                             | 121/142                               | 165/193(3P+N) 125/153(3P+N/2)                                                     |    | 178/206                                                                            |     |                                                                                     |     |
| L 型、A 型、H 型<br>L type, A type, H type                                             | L 型、A 型、H 型<br>L type, A type, H type | L 型、A 型、H 型<br>L type, A type, H type                                             |    | A 型、H 型<br>A type, H type                                                          |     |                                                                                     |     |

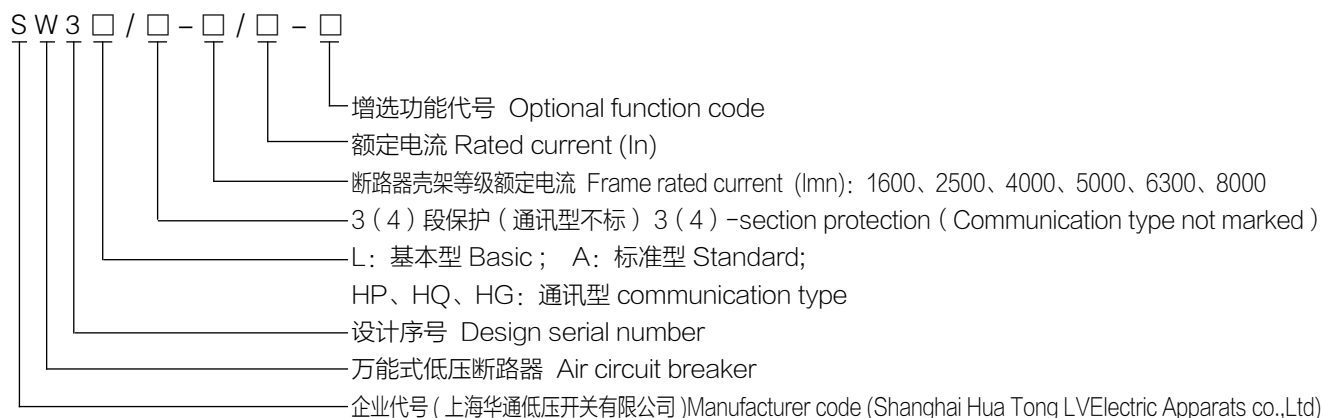
## 智能控制器种类

SHTW3 系列万能式断路器使用的智能控制器为 SW3 系列，按其功能不同有 L—基本型、A—标准型和 H—多功能型三种，按其保护特性和辅助功能特征又可分为 L3、L4、A3、A4 和 HP、HQ、HG 等多种型式。

## Intelligent controller type

SHTW3 air circuit breakers use SW3 series of intelligent controllers. According to their functions, they are l—basic, a—standard and h—multi-functional. According to their protection characteristics and auxiliary function characteristics, they can be divided into L3, L4, A3, A4 and HP, HQ, HG and other types.

### ● 基本型、标准型、通讯型



### ● SW3-L “基本型” 系列功能与特性

SW3-L3、SW3-L4 型智能控制器对主回路电源进行保护；  
L3 型提供选择性长延时，短延时，瞬时三段保护；  
L4 型在 L3 型基础上增加选择性接地故障保护；  
适用于壳架电流 1600A ~ 6300A 的断路器。

### ● SW3-L "basic" series functions and characteristics

SW3-L3 and SW3-L4 intelligent controllers protect the main circuit power supply;  
L3 type provides selective long time delay, short time delay and instantaneous three-stage protection;  
L4 type adds selective earth fault protection on the basis of L3 type;  
It is applicable to the circuit breaker of 1600a-8000a shell frame.

### ● SW3-A “标准型” 系列功能与特性

SW3-A3、SW3-A4 型智能控制器对主回路电源进行保护；  
A3 型提供选择性长延时，短延时，瞬时三段保护；  
A4 型在 A3 型基础上增加选择性接地故障保护；  
显示界面增加 LCD 屏；  
适用于壳架电流 1600A ~ 8000A 的断路器。

### ● SW3-L "Standard" series functions and characteristics

SW3-a3 and SW3-a4 intelligent controllers protect the main circuit power supply;  
A3 type provides selective long time delay, short time delay and instantaneous three-stage protection;  
Type A4 adds selective earth fault protection on the basis of type A3;  
LCD screen is added to the display interface;  
It is applicable to the circuit breaker of 1600a-8000a shell frame.

### ● SW3-H “通讯型” 系列功能与特性

SW3-HP、HQ、HG 型智能控制器对主回路电源进行保护；  
全系列提供选择性长延时、短延时、瞬时、接地故障四段保护；  
显示界面超大 LCD 屏，全程操作均由功能按键完成；  
具有通讯功能，可实现遥测、遥控、遥调、遥讯；  
适用于壳架电流 1600A ~ 8000A 的断路器。

### ● SW3-L "communication type" series functions and characteristics

SW3-HP, HQ and HG intelligent controllers protect the main circuit power supply;  
The whole series provides selective long time delay, short time delay, instantaneous and earth fault four section protection;  
The display interface is large LCD screen, and the whole operation is completed by the function buttons;  
With communication function, it can realize telemetry, remote control, remote adjustment and remote communication;  
It is applicable to the circuit breaker of 1600a-8000a shell frame.

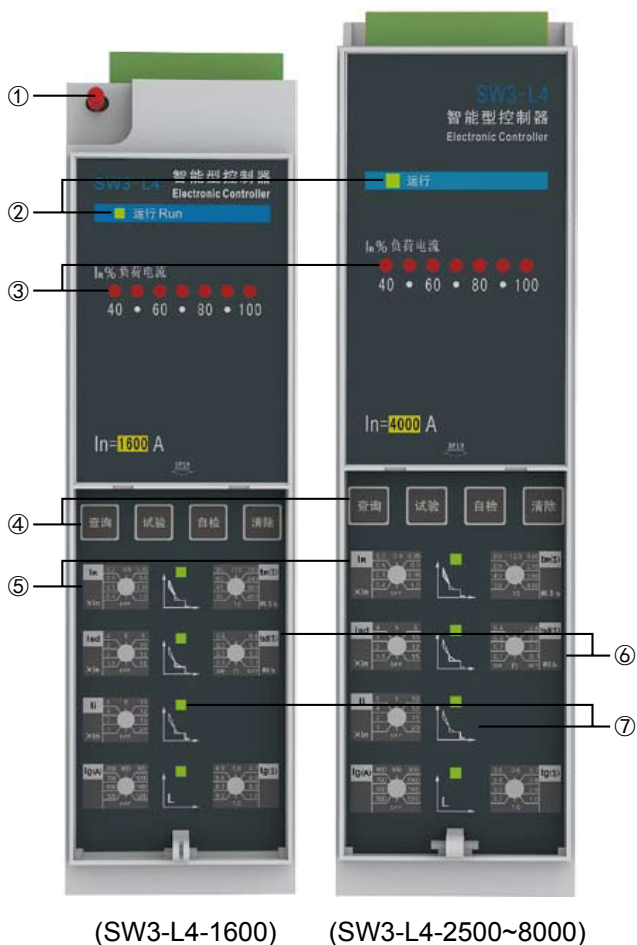
SW3 系列智能型控制器功能分配表 SW3 series intelligent controller function table

| 型号 Type designation                                                                                              | SW3-L3                                                                                                                                                                                                                                          | SW3-L4                                                                            | SW3-A3                                                                             | SW3-A4                                                                              | SW3-H                                                                               |    |    |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|----|
|                                                                                                                  |                                                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     | HP                                                                                  | HQ | HG |
| 控制器外观                                                                                                            |                                                                                                                                                                |  |  |  |  |    |    |
| 保护与报警功能 Protection and alarm function                                                                            |                                                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |    |    |
| 过载长延时保护 Overload long-time delay protection                                                                      | ■                                                                                                                                                                                                                                               | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 短路短延时保护 Short-circuit short-time delay protection                                                                | ■                                                                                                                                                                                                                                               | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 短路瞬时保护 Instantaneous short-circuit protection                                                                    | ■                                                                                                                                                                                                                                               | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 接地故障保护 (二选一)<br>Earth-fault protection (choose one of the two)                                                   | —                                                                                                                                                                                                                                               | ■                                                                                 | —                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 矢量和接地故障保护 (T)<br>Vector and earth-fault protection (T)                                                           |                                                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |    |    |
| 变压器中心点接地故障保护 (W)<br>Earth-fault protection of the center of transformer (W)                                      |                                                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |    |    |
| 漏电保护 Leakage protection                                                                                          | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | □                                                                                   | □  | □  |
| 中性极保护 Neutral protection                                                                                         | ■                                                                                                                                                                                                                                               | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 热记忆 Thermal memory                                                                                               | ■                                                                                                                                                                                                                                               | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 故障跳闸显示 Fault trip display                                                                                        | ■                                                                                                                                                                                                                                               | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| MCR 保护 MCR protection                                                                                            | □                                                                                                                                                                                                                                               | □                                                                                 | □                                                                                  | □                                                                                   | □                                                                                   | □  | □  |
| 区域联锁选择性保护 Regional interlocking selective protection                                                             | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | □                                                                                   | □  | □  |
| 负载监控 (电流卸载) (继电器输出)<br>Load monitoring (current unloading) (relay output)                                        | □                                                                                                                                                                                                                                               | □                                                                                 | □                                                                                  | □                                                                                   | □                                                                                   | □  | □  |
| 过载预报警 (继电器输出) Overload pre-alarm (relay output)                                                                  | —                                                                                                                                                                                                                                               | —                                                                                 | □                                                                                  | □                                                                                   | □                                                                                   | □  | □  |
| 接地报警 Ground alarm                                                                                                | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | □                                                                                   | □  | □  |
| 电流不平衡保护 Current unbalance protection                                                                             | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 需用电流保护 Need to use current protection                                                                            | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 断相保护 Disconnection protection                                                                                    | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 欠电压保护 Undervoltage protection                                                                                    | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | □                                                                                   | □  | □  |
| 过电压保护 Overvoltage protection                                                                                     | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | □                                                                                   | □  | □  |
| 电压不平衡保护 Voltage unbalance protection                                                                             | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | □                                                                                   | □  | □  |
| 相序保护 Phase sequence protection                                                                                   | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | □                                                                                   | □  | □  |
| 欠频保护 Under frequency protection                                                                                  | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | —                                                                                   | —  | ■  |
| 过频保护 Over frequency protection                                                                                   | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | —                                                                                   | —  | ■  |
| 逆功率保护 Reverse power protection                                                                                   | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | —                                                                                   | —  | ■  |
| 测量功能 Measurement function                                                                                        |                                                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |    |    |
| 电流 (三相电流、中性极电流、接地电流、电流不平衡率)<br>Current (three-phase current, neutral current, ground current, current imbalance) | —                                                                                                                                                                                                                                               | —                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 电压 (线电压、相电压、平均电压、电压不平衡率)<br>Voltage (line voltage, phase voltage, average voltage, voltage unbalance rate)       | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 功率 (有功功率、无功功率、视在功率、功率因数)<br>Power (active power, reactive power, apparent power, power factor)                   | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 频率 frequency                                                                                                     | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 电能 (有功电能、无功电能、视在电能)<br>Electric energy (active energy, reactive power, apparent power)                           | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 热容 Heat capacity                                                                                                 | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 相序 Phase sequence                                                                                                | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 需用值 (需用电流、需用功率)<br>Need to use the value (need to use the current, the need for power)                           | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 谐波分析 Harmonic analysis                                                                                           | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | —                                                                                   | ■  | ■  |
| 波形显示 Waveform display                                                                                            | —                                                                                                                                                                                                                                               | —                                                                                 | —                                                                                  | —                                                                                   | —                                                                                   | ■  | ■  |
| 维护功能 Maintenance function                                                                                        |                                                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |    |    |
| 断路器维护<br>Maintenance function                                                                                    | 试验脱扣 Test tripping                                                                                                                                                                                                                              | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
|                                                                                                                  | 自诊断功能 self-diagnosis                                                                                                                                                                                                                            | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
|                                                                                                                  | 触头磨损指示 Contact wear indication                                                                                                                                                                                                                  | —                                                                                 | —                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
|                                                                                                                  | 控制器有电时操作次数<br>The number of times the controller has operation                                                                                                                                                                                  | —                                                                                 | —                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
| 历史记录<br>History record                                                                                           | 历史故障记录 (控制器显示 L 型 1 次、A、H 型 10 次)<br>Historical fault record (Controller shows E, L type 1, A, H type 10 times)                                                                                                                                 | ■                                                                                 | ■                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
|                                                                                                                  | 历史最大电流 (控制器显示)<br>Historical maximum current (controller display)                                                                                                                                                                               | —                                                                                 | —                                                                                  | ■                                                                                   | ■                                                                                   | ■  | ■  |
|                                                                                                                  | 报警记录 (控制器显示 10 次)<br>Alarm log (controller display 10 times)                                                                                                                                                                                    | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
|                                                                                                                  | 时钟功能 (年、月、日、时、分、秒)<br>Clock function (year, month, day, hour, minute, second)                                                                                                                                                                   | —                                                                                 | —                                                                                  | —                                                                                   | ■                                                                                   | ■  | ■  |
| 通讯功能 Communication function                                                                                      |                                                                                                                                                                                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |    |    |
| 通讯接口<br>Communication function                                                                                   | 通信输出: 保护功能、测量功能及维护功能打开的信息, 历史最大电流, 报警记录、历史故障记录<br>Communication output: protection function, Measurement function and maintenance function to open the information, the history of the maximum current, alarm records, historical fault records | —                                                                                 | —                                                                                  | —                                                                                   | —                                                                                   | ■  | ■  |
| 通讯协议 Protocol                                                                                                    | 通过 modbus-RTU 实现通讯<br>Communication via modbus-RTU                                                                                                                                                                                              | —                                                                                 | —                                                                                  | —                                                                                   | —                                                                                   | □  | □  |

注: ■表示必备, □表示可选, —表示无此功能 Note: ■ Standard, □ Optional, — None

### 智能型控制器

#### SW3-L “基本型” 系列功能与特性



SW3-L3、SW3-L4型智能控制器对主回路电源进行保护;

L3型提供选择性长延时, 短延时, 瞬时三段保护;

L4型在L3型基础上增加选择性接地故障保护;

适用于壳架电流1600A~6300A的断路器。

SW3-L3, SW3-L4 intelligent controller to protect the main circuit power supply;

L3 type to provide selective long delay, short delay, instantaneous three sections of protection;

L4 type in the L3-based increase in selective ground fault protection;

Suitable for frame current 1600A ~ 6300A circuit breaker.

① 机械复位按钮(用于故障动作后手工复位)  
壳架电流: 2500A~ 8000A复位按钮位于断路器罩壳上

② 运行指示灯

③ 负载百分率指示灯 (对应于IR)

④ 功能按键 (其中“清除”键用于清除故障指示)

⑤ 电流整定值旋钮 (L3型无I<sub>g</sub>部分)

⑥ 时间整定值旋钮 (L3型无t<sub>g</sub>部分)

⑦ 故障指示灯

① Mechanical reset button (for manual reset after fault action), shell current: 2500A ~ 8000A reset button is located on the circuit breaker housing

② Running lights

③ Load percentage indicator (corresponding to IR)

④ Function key (where the "clear" key is used to clear the fault indication)

⑤ Current setting knob (L3 type without I<sub>g</sub> part)

⑥ Time setting knob (L3 type without t<sub>g</sub> part)

⑦ Fault indicator



### 功能

- 保护  
保护阈值和延时用旋钮来整定。
- 过载保护  
真有效值(RMS)长延时保护, 可选择OFF关闭。  
热记忆: 脱扣前、后的热积累。
- 短路保护  
短延时(RMS)和瞬时保护, 可选择OFF关闭。  
短延时 $I^2t$ 可通过旋钮选择ON反时限或OFF定时限。
- 接地故障保护  
两种保护方式差值(T)型及地电流(W)型可选,  
标准配置为T型, 保护可选择“OFF”关闭。  
延时特性 $I^2t$ (定时限)。
- 中性极保护  
在4极断路器上中性极具有相极所有保护功能及特性。  
在3P+N的断路器上, 可通过外接中性(N)极实现保护。  
在3极断路器上无中性极保护。
- 故障跳闸显示  
断路器发生故障脱扣时通过面板上LED指示故障类型。
- 试验脱扣  
可模拟测试断路器瞬动功能。
- 历史故障记录  
查询上一次故障记录(指示故障类型)。
- MCR保护(增选功能)  
MCR对断路器的极限接通能力( $>10 \times I_n$ )进行保护。
- 不具自检功能。
- 负载监控(电流卸载)(增选功能)  
可发送报警信号, 也可独立控制两路支路负荷, 保证主系统供电。(继电器输出)

### Function

- Protection  
Protection and delay with knob.
- Overload protection  
True RMS (RMS) long delay protection, select "OFF" off  
Thermal memory: heat accumulation before and after tripping.
- Short circuit protection  
Short delay (RMS) and instantaneous protection, select "OFF" off  
Short delay delay characteristic  $I^2t$ (definite time limit).
- Earth fault protection (E3 type does not have this function)  
Two kinds of protection methods difference (T) type and ground current (W) type optional, standard configuration  
For T-type, the protection can be selected "OFF" off.  
Delay characteristic  $I^2t$ (definite time limit)
- Neutral pole protection  
In the 4-pole circuit breaker, the neutral pole has all the protection functions and characteristics.  
In the 3P + N circuit breaker, through the external neutral (N) pole to achieve protection.  
There is no neutral pole protection on the 3-pole circuit breaker.
- Fault trip display  
The fault condition of the circuit breaker is indicated by the LED on the panel  
Test tripping  
Simulate the test to the circuit breaker instantaneous function.  
Historical fault record  
Query the last fault record (indicating the fault type).  
MCR protection (optional)  
MCR protects ( $>10 \times I_n$ ) the limitability of the circuit breaker.  
Not self-test function.  
Load monitoring (optional)  
Can send alarm signal, but also independent control of two tributary load to ensure that the main system power supply. (Relay output)

注:

控制器电源有辅助电源和断路器内置互感器感应二种方式, 后一种方式要求一次电流不低于 $0.4I_n$  时控制器正常工作。当使用接地保护、热记忆功能或要求断路器在分闸状态保持输入输出信号时, 必须配备辅助电源。

Note:

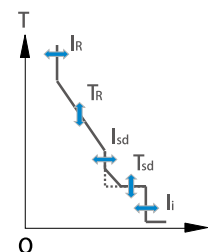
The controller power supply with auxiliary power supply and circuit breaker built-in transformer sensor two ways, the latter way requires a current not less than  $0.4I_n$  when the controller is working properly. When the use of ground protection, thermal memory function or require the circuit breaker in the sub-state to maintain the input and output signals, must be equipped with auxiliary power.

## 保护特性 Protect characteristic

### 特性 Feature

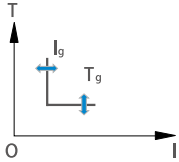
### 保护 Protection SW3-L3

| 长延时 Long-time                                                                                                                                      |                                                                                                                                                                                          |                                                                              |      |      |      |      |      |      |       |     |       |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------|------|------|------|------|------|-------|-----|-------|------|
| 电流 I <sub>R</sub> 整定 (A)<br>Current I <sub>R</sub> setting                                                                                         | I <sub>R</sub> =I <sub>n</sub> X ...                                                                                                                                                     | 0.4                                                                          | 0.5  | 0.6  | 0.7  | 0.8  | 0.85 | 0.9  | 0.95  | 1.0 | OFF   |      |
| 动作特性<br>Action characteristics                                                                                                                     | ≤1.05I <sub>R</sub> , > 2h不动作 No-operating;<br>> 1.3I <sub>R</sub> , < 1h动作 Operating                                                                                                    |                                                                              |      |      |      |      |      |      |       |     |       |      |
| 延时时间T <sub>R</sub> (S)<br>Delay Time T <sub>R</sub> (S)<br><br>T <sub>R</sub> = $\frac{(1.5I_R)^2 \times t_R}{I^2}$<br><br>I——过电流<br>I—Overcurrent | 精度±10%<br>(固有误差 ±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms)                                                                                                                       | 整定时间t <sub>R</sub> (S)<br>Setting time                                       | 15   | 30   | 45   | 60   | 90   | 120  | 180   | 240 | 360   | 480  |
|                                                                                                                                                    |                                                                                                                                                                                          | I=1.5×I <sub>R</sub> 时                                                       | 15   | 30   | 45   | 60   | 90   | 120  | 180   | 240 | 360   | 480  |
|                                                                                                                                                    |                                                                                                                                                                                          | I=2×I <sub>R</sub> 时                                                         | 8.4  | 16.9 | 25.3 | 33.8 | 50.6 | 67.5 | 101.2 | 135 | 203   | 270  |
|                                                                                                                                                    |                                                                                                                                                                                          | I=6×I <sub>R</sub> 时                                                         | 0.94 | 1.88 | 3.81 | 3.75 | 5.62 | 7.5  | 11.3  | 15  | 22.5  | 30   |
|                                                                                                                                                    |                                                                                                                                                                                          | I=7.2×I <sub>R</sub> 时                                                       | 0.65 | 1.3  | 1.95 | 2.6  | 3.9  | 5.2  | 7.74  | 10  | 15.62 | 21   |
|                                                                                                                                                    |                                                                                                                                                                                          | I=10×I <sub>R</sub> 时                                                        | 0.34 | 0.68 | 1.01 | 1.35 | 2.03 | 2.7  | 4.05  | 5.4 | 8.1   | 10.8 |
| 热记忆特性Thermal memory characteristics                                                                                                                |                                                                                                                                                                                          | 经10min冷却后清除或控制器断电后清除<br>Reset after 10min cooling or controller power off    |      |      |      |      |      |      |       |     |       |      |
| 短延时 Short-time                                                                                                                                     |                                                                                                                                                                                          |                                                                              |      |      |      |      |      |      |       |     |       |      |
| 电流I <sub>sd</sub> 整定 (A)<br>Current I <sub>R</sub> setting                                                                                         | I <sub>sd</sub> =I <sub>R</sub> ×...<br>(I <sub>R</sub> =0FF时, 式中用I <sub>n</sub> 代)<br>I <sub>sd</sub> = I <sub>R</sub> × ...<br>(I <sub>R</sub> = OFF, where I <sub>n</sub> generation) | 1.5                                                                          | 2    | 3    | 4    | 6    | 8    | 10   | 12    | 15  | OFF   |      |
| 动作特性<br>Action characteristics                                                                                                                     | ≤0.9I <sub>sd</sub> 不动作No-operating; > 1.1I <sub>sd</sub> 动作Operating                                                                                                                    |                                                                              |      |      |      |      |      |      |       |     |       |      |
| I <sup>2</sup> t(OFF) ( 定时限<br>Time limit )<br>延时时间T <sub>sd</sub> (S)                                                                             | 精度±10% (固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms)                                                                                                                           | 整定时间t <sub>sd</sub> (S)<br>Setting time                                      | 0.1  |      | 0.2  |      | 0.3  |      | 0.4   |     |       |      |
|                                                                                                                                                    |                                                                                                                                                                                          | 可返回时间 (S)<br>Return time                                                     | 0.06 |      | 0.14 |      | 0.23 |      | 0.35  |     |       |      |
| I <sup>2</sup> t(ON)>8I <sub>is</sub><br>( 定时限Time limit ) T <sub>sd</sub> (S)                                                                     | 精度±10% (固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms)                                                                                                                           | 整定时间t <sub>sd</sub> (S)<br>Setting time                                      | 0.1  |      | 0.2  |      | 0.3  |      | 0.4   |     |       |      |
|                                                                                                                                                    |                                                                                                                                                                                          | 可返回时间 (S)<br>Return time                                                     | 0.06 |      | 0.14 |      | 0.23 |      | 0.35  |     |       |      |
| I <sup>2</sup> t(ON)I≤8I <sub>is</sub><br>( 反时限Time limit ) T <sub>sd</sub> (S)                                                                    | 精度±10% (固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms)                                                                                                                           | 8I <sub>R</sub> 时间t <sub>sd</sub> (S)<br>Return time                         | 0.1  |      | 0.2  |      | 0.3  |      | 0.4   |     |       |      |
|                                                                                                                                                    |                                                                                                                                                                                          | 延时时间T=[(8X I <sub>R</sub> /I)X[(8X I <sub>R</sub> /I)Xt <sub>sd</sub> I——过电流 |      |      |      |      |      |      |       |     |       |      |
| 瞬时 Instantaneous                                                                                                                                   |                                                                                                                                                                                          |                                                                              |      |      |      |      |      |      |       |     |       |      |
| 电流 I <sub>i</sub> 整定 (A)<br>Current I <sub>i</sub> setting                                                                                         | 适用于壳架1600~4000时I <sub>i</sub><br>=I <sub>n</sub> ×...<br>Applicable to shell frame 1600 ~ 4000 I <sub>i</sub> =I <sub>n</sub> ×...                                                       | 1                                                                            | 2    | 4    | 6    | 8    | 10   | 12   | 15    | 20  | OFF   |      |
|                                                                                                                                                    | 适用于壳架5000~8000时I <sub>i</sub><br>=I <sub>n</sub> ×...<br>Applicable to shell frame 5000~8000 I <sub>i</sub> =I <sub>n</sub> ×...                                                         | 1                                                                            | 2    | 3    | 4    | 6    | 8    | 10   | 12    | 15  | OFF   |      |
| 动作特性<br>Action characteristics                                                                                                                     | ≤0.85I <sub>i</sub> 不动作No-operating; > 1.15I <sub>i</sub> 动作Operating                                                                                                                    |                                                                              |      |      |      |      |      |      |       |     |       |      |
| 动作延时<br>Action delay                                                                                                                               | < 30ms                                                                                                                                                                                   |                                                                              |      |      |      |      |      |      |       |     |       |      |



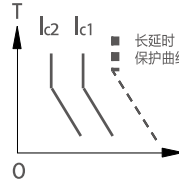
保护 Protection  
SW3-L4

|                                                           |                                                                                      |                                                         |      |     |      |     |      |      |      |      |     |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------|------|-----|------|-----|------|------|------|------|-----|
| 长延时一同SW3-L3（见前表） Long delay – with SW3-E3 (see table)     |                                                                                      |                                                         |      |     |      |     |      |      |      |      |     |
| 短延时一同SW3-L3（见前表） Short delay – same as SW3-E3 (see table) |                                                                                      |                                                         |      |     |      |     |      |      |      |      |     |
| 瞬时一同SW3-L3（见前表） Instant – with SW3-E3 (see table)         |                                                                                      |                                                         |      |     |      |     |      |      |      |      |     |
| 接地故障 Ground fault                                         |                                                                                      |                                                         |      |     |      |     |      |      |      |      |     |
| 电流 $I_g$ 整定 (A)<br>Current $I_R$ setting                  | $I_n \leq 1250A$ 时, $I_g = I_n \times \dots$                                         | 0.4                                                     | 0.45 | 0.5 | 0.55 | 0.6 | 0.65 | 0.7  | 0.75 | 0.8  | OFF |
|                                                           | $I_n > 1250A$ 时, $I_g = \dots$                                                       | 500                                                     | 600  | 700 | 800  | 850 | 900  | 1000 | 1100 | 1200 | OFF |
| 动作特性 Action characteristics                               |                                                                                      | $\leq 0.9I_g$ 不动作 No-operating; $> 1.1I_g$ 动作 Operating |      |     |      |     |      |      |      |      |     |
| 延时时间 $T_g$ (S)<br>(定时限)<br>Delay Time (time limit)        | 精度 $\pm 10\%$<br>(固有误差 $\pm 40ms$ )<br>Accuracy 10%<br>(intrinsic error $\pm 40ms$ ) | 整定时间<br>$t_g$ (S)<br>Setting time                       | 0.2  | 0.3 | 0.4  | 0.5 | 0.6  | 0.7  | 0.8  | 0.9  | 1.0 |



负载监控（增选功能） Load monitoring (optional)  
SW3-L3/L4

|                                                                                                                |                                                                                                                     |                                                                                                 |     |     |     |     |      |     |      |     |     |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----|-----|-----|-----|------|-----|------|-----|-----|
| 负载监控（电流卸载 $I_{C1}$ 、电流卸载 $I_{C2}$ ） Load monitoring (current unloading $I_{C1}$ , current unloading $I_{C2}$ ) |                                                                                                                     |                                                                                                 |     |     |     |     |      |     |      |     |     |
| 电流 $I_{C1}$ 整定 (A)<br>Current $I_{C1}$ setting                                                                 | 无整定界面, $I_{C1}$ 依附于 $I_R = I_n \times \dots$<br>No setting interface, $I_{C1}$ attached to $I_R = I_n \times \dots$ | 0.4                                                                                             | 0.5 | 0.6 | 0.7 | 0.8 | 0.85 | 0.9 | 0.95 | 1.0 | OFF |
| 电流 $I_{C2}$ 整定 (A)<br>Current $I_{C2}$ setting                                                                 | 无整定界面, $I_{C2}$ 依附于 $I_R = I_n \times \dots$<br>No setting interface, $I_{C2}$ attached to $I_R = I_n \times \dots$ | 0.4                                                                                             | 0.5 | 0.6 | 0.7 | 0.8 | 0.85 | 0.9 | 0.95 | 1.0 | OFF |
| $I_{C1}$ 动作特性<br>Action characteristics                                                                        |                                                                                                                     | $\leq 0.9I_{C1} > 2h$ 不吸合 does not pull; $\geq 1.1I_{C1}$ , $< 1h$ 延时继电器吸合 does not pull        |     |     |     |     |      |     |      |     |     |
| $I_{C2}$ 动作特性<br>Action characteristics                                                                        |                                                                                                                     | $\leq 0.9I_{C2} > 2h$ 不吸合 does not pull; $\geq 1.1I_{C2}$ , $< 1h$ 延时继电器吸合 does not pull        |     |     |     |     |      |     |      |     |     |
| 延时时间 $T_{C1}$ (S)<br>$T_{C1} = 50\% T_R$                                                                       | 精度 $\pm 10\%$<br>(固有误差 $\pm 40ms$ )<br>Accuracy $\pm 10\%$<br>(inherent error $\pm 40ms$ )                          | 无整定界面, 整定时间<br>依附于 $t_R$ (S)<br>No setting interface, setting<br>time Dependent on $t_R$ (S)    | 15  | 30  | 45  | 60  | 90   | 120 | 180  | 240 | 360 |
| 延时时间 $T_{C2}$ (S)<br>$T_{C2} = 25\% T_R$                                                                       | 精度 $\pm 10\%$<br>(固有误差 $\pm 40ms$ )<br>Accuracy $\pm 10\%$<br>(inherent error $\pm 40ms$ )                          | 无整定界面, 整定时间<br>依附于 $t_R$ (S)<br>No setting<br>interface, setting<br>time Dependent on $t_R$ (S) | 15  | 30  | 45  | 60  | 90   | 120 | 180  | 240 | 360 |

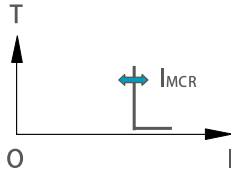


出厂设定 Factory setting

智能控制器出厂整定值 Intelligent controller factory setting value:  $I_R = 1.0I_n$ ,  $t_R = 15S$ ;  $I_i = 10I_n$ ,  $I_{sd} = 3.0I_R$ ,  $t_{sd} = 0.4S$  ( $I^2$  旋至 OFF 侧);  
 $I_g = OFF$ ,  $t_g = 0.8S$ 。

MCR（越限跳闸）保护（增选功能） MCR (overrun trip) protection (optional)  
SW3-L/A/HP/HQ/HG

|                                                  |                                                                          |                                                   |     |
|--------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------|-----|
| MCR 保护 MCR protection                            |                                                                          |                                                   |     |
| 电流 $I_{MCR}$ 整定 (A)<br>Current $I_{MCR}$ setting | $I_{MCR} = I_n \times \dots$                                             | 10 (用户定制须特别说明)<br>10 (customized to be specified) | OFF |
| 动作特性<br>Action characteristics                   | MCR: $\leq 0.85 I_{MCR}$ 不动作 No-operating; $> 1.15 I_{MCR}$ 动作 Operating |                                                   |     |
| 动作延时<br>Action delay                             | $< 20ms$                                                                 |                                                   |     |



出厂设定 Factory setting

智能控制器出厂整定值 Intelligent controller factory setting value:  $I_R = 1.0I_n$ ;  $t_R = 30S$ ;  $I_i = 10I_n$ ,  $I_{sd} = 3.0I_R$ ,  $t_{sd} = 0.4S$ ;  $I_g = OFF$ ,  $t_g = 0.8S$ 。

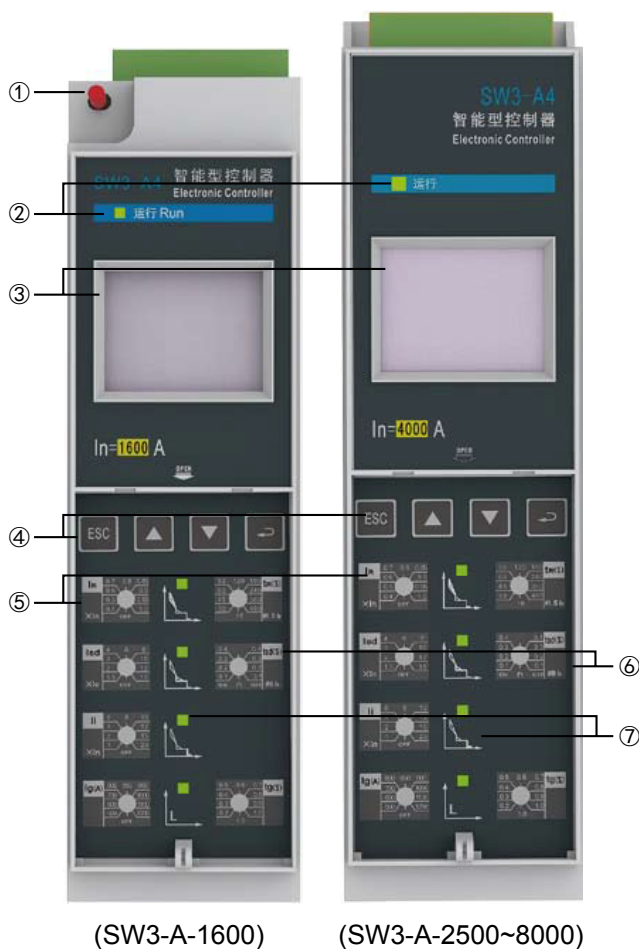
## 保护特性 Protect characteristic

### 智能型控制器

#### SW3-A “标准型” 系列功能与特性

SW3-A3、SW3-A4型智能控制器对主回路电源进行保护；  
A3型提供选择性长延时，短延时，瞬时三段保护；  
A4型在A3型基础上增加选择性接地故障保护；  
显示界面增加LCD屏。  
适用于壳架电流1600A~8000A的断路器

SW3-A3, SW3-A4 intelligent controller to protect the main circuit power supply;  
A3 type to provide selective long delay, short delay, instantaneous three sections of protection;  
A4 type on the basis of A3 to increase the selective ground fault protection; Display interface to increase the LCD screen;  
Applicable to the chassis current 1600A ~ 8000A circuit breaker.



- ① 机械复位按钮（用于故障动作后手工复位），壳架电流：2500A~ 8000A 复位按钮位于断路器罩壳上
- ② 运行指示灯
- ③ LCD显示屏
- ④ 功能按键
- ⑤ 电流整定值旋钮（A3型无lg部分）
- ⑥ 时间整定值旋钮（A3型无tg部分）
- ⑦ 故障指示灯

- ① Mechanical reset button (for manual reset after fault action), shell current: 2500A ~ 8000A reset button is located on the circuit breaker housing
- ② Running light
- ③ LCD display
- ④ Function button
- ⑤ Current setting knob (A3 type without lg)
- ⑥ Time setting knob (A3 type without tg part)
- ⑦ Fault indicator

注：

控制器电源有辅助电源和断路器内置互感器感应二种方式，后一种方式要求一次电流不低于0.4In 时控制器正常工作。当使用接地保护、热记忆功能或要求断路器在分闸状态保持输入输出信号时，必须配备辅助电源。

E-05

Note:

The controller power supply with auxiliary power supply and circuit breaker built-in transformer sensor two ways, the latter way requires a current not less than 0.4In when the controller is working properly. When the use of ground protection, thermal memory function or require the circuit breaker in the sub-state to maintain the input and output signals, must be equipped with auxiliary power.

### 功能

SW3-A3、A4具有SW3-L3、L4所有功能，另有不同或增加下列功能：

- 保护  
保护阈值和延时用旋钮来整定并可通过LCD屏显示查询，部分功能可通过功能键+LCD整定。
- 故障跳闸显示  
断路器发生故障脱扣时通过面板上LED指示故障类型，同时LCD屏显示数据。
- 测量  
具有电流测量功能。
- 不具自检功能。
- 触头磨损指示  
显示触头磨损的百分比（对应于断路器分断电流当量及总的使用寿命）。
- 控制器有电时操作次数  
记录断路器操作次数的总和。
- 历史故障记录  
查询前10次故障记录（显示故障类型及参数）。  
历史最大电流  
记录查询从运行以来曾出现的最大值。
- 过载预警（**增选功能**）  
负载电流达到过载设定值时控制器输出DO报警信号，同时面板信号指示。

### Function

SW3-A3, A4 has all functions of SW3-L3, L4, with or with the following features:

- Protection  
Protection value and delay with the knob to set and can be displayed through the LCD screen query, part of the function can be set by the function keys + LCD.
- Fault trip display  
When the circuit breaker fails to trip, it indicates the fault type through the LED on the panel, and the LCD screen displays the data.
- Measuring  
With current measurement function.
- Not self-test function
- Contact wear indication  
Displays the percentage of contact wear (corresponding to the breaking current equivalent of the circuit breaker and the total service life).
- The number of times the controller has operation  
Record the sum of the number of circuit breaker operations.
- Historical fault record  
Query the first 10 fault records (display fault type and parameters).  
History maximum current  
Record the maximum value that has occurred since the query was run.
- Overload pre-alarm (**optional**)  
When the load current reaches the overload set value, the controller outputs DO alarm signal, and the panel signal indicates.

### 特性 Feature

#### 保护 Protection SW3-A3

长延时—同SW3-L3（见前表） Long delay — with SW3-L3 (see table)

短延时—同SW3-L3（见前表） Short delay — with SW3-L3 (see table)

瞬时—同SW3-L3（见前表） Instant — with SW3-L3 (see table)

#### 保护 Protection SW3-A4

长延时—同SW3-A3（见前表） Long delay — with SW3-A3 (see table)

短延时—同SW3-A3（见前表） Short delay — same as SW3-A3 (see table)

瞬时—同SW3-A3（见前表） Instant — with SW3-A3 (see table)

接地故障—同SW3-L4（见前表） Ground fault — same as SW3-L4 (see table)

#### 测量 Measuring SW3-A4

电流（连续电流测量） Current (continuous current measurement)

测量参数 Measurement parameters:  
 $I_1$ 、 $I_2$ 、 $I_3$ 、 $I_g$ 、 $I_N$

测量范围 Measuring range:  
 $I_1$ 、 $I_2$ 、 $I_3$ 、 $I_N$  以25In为基数  $I_1$ 、 $I_2$ 、 $I_3$ 、 $I_N$  Base on 25In

测量精度 measurement accuracy:  
 $\leq 2I_N$  为 $\pm 1.5\%$ ， $> 2I_N$  为 $\pm 5\%$

#### MCR(越限跳闸)保护(增选功能)—同SW3-L3、SW3-L4(见前表)

MCR and HSISC (overrun trip) protection (optional) – with SW3-L3, SW3-L4 (see table)

#### 负载监控（增选功能）—同SW3-L3、SW3-L4（见前表）

Load monitoring (optional function) – with SW3-L3, SW3-L4 (see table)

出厂设定 Factory setting

智能控制器出厂整定值 Intelligent controller factory setting value:  $I_R = 1.0I_N$ ,  $t_R = 15S$ ;  $I_L = 10I_N$ ;  $I_{sd} = 3.0I_R$ ,  $t_{sd} = 0.4S$ (旋至I<sub>g</sub>的OFF侧);  $I_g = OFF$ ,  $t_g = 0.8S$ 。

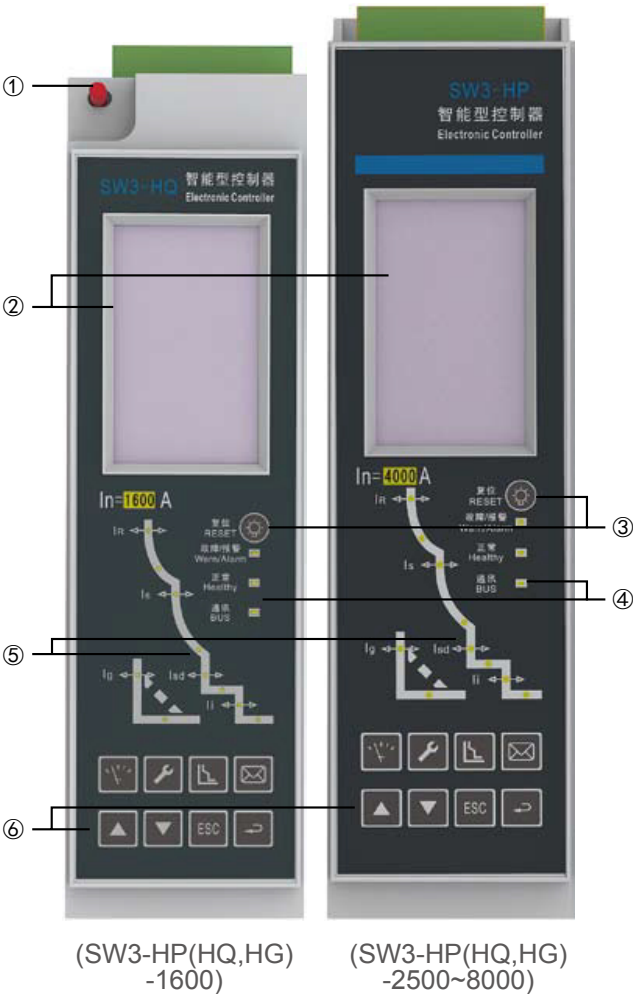
保护特性  
Protect characteristic

智能型控制器

SW3-H “通讯型” 系列功能与特性

SW3-HP, HQ, HG智能控制器对主回路电源进行保护;  
全系列提供选择性长延时、短延时、瞬时、接地故障四段保护;  
显示界面超大LCD屏, 全程操作均由功能按键完成;  
具有通讯功能, 可实现遥测、遥控、遥调、遥讯;  
适用于壳架电流1600A~8000A的断路器。

SW3-HP, HQ, HG intelligent controller to protect the main circuit power supply  
Full range of selective long delay, short delay, instantaneous, ground fault four protection;  
Display interface large LCD screen, full operation by the function keys to complete;  
With communication function, can realize telemetry, remote control, remote control, remote;  
Applicable to the chassis current 1600A ~ 8000A circuit breaker.



- ① 机械复位按钮（用于故障动作后手工复位），壳架电流：2500A~ 8000A 复位按钮位于断路器罩壳上
- ② LCD显示屏
- ③ 状态复位键
- ④ 状态指示灯
- ⑤ 保护特性曲线（含LED状态指示）
- ⑥ 功能按键

- ① Mechanical reset button (for manual reset after fault action), shell current: 2500A ~ 8000A reset button is located on the circuit breaker housing
- ② LCD display
- ③ Status reset key
- ④ Status Indicator
- ⑤ Protection characteristic curve (including LED status indication)
- ⑥ Function button

注：  
控制器电源有辅助电源和断路器内置互感器感应二种方式，后一种方式要求一次电流不低于0.4In 时控制器正常工作。当使用接地保护、热记忆功能或要求断路器在分闸状态保持输入输出信号时，必须配备辅助电源。

Note:  
The controller power supply with auxiliary power supply and circuit breaker built-in transformer sensor two ways, the latter way requires a current not less than 0.4In when the controller is working properly. When the use of ground protection, thermal memory function or require the circuit breaker in the sub-state to maintain the input and output signals, must be equipped with auxiliary power.



### 功能

SW3-HP、HQ、HG具有SW3-A3、A4所有功能，另有不同或增加下列功能：

- 保护  
保护值和延时均由功能键结合LCD整定及查询。
- 过载保护  
基于电流真有效值(RMS)长延时多曲线保护，可选择OFF关闭。  
热记忆：脱扣前、后的热积累。
- 短路保护  
短延时(RMS)和瞬时保护，可选择OFF关闭。  
短延时 $I^2t$ 可通过功能按键结合LCD菜单选择ON或OFF。
- 接地故障保护  
两种保护方式差值(T)型及地电流(W)型可选，标准配置为T型，保护可选择OFF关闭。  
延时特性 $I^2t$ （定时限），可通过功能按键结合LCD菜单选择。
- 中性极保护  
提供半中性极、全中性极、1.6倍中性极、双倍中性极保护，ON或OFF可选。
- 电流不平衡、需用电流、断相保护、欠频、过频、逆功率保护（SW3-HG型独具）
- 测量  
提供电流、电压、功率、频率、电能、热容、相序、需用值测量，另外SW3-HQ、HG型独具谐波分析、波形显示。
- 报警记录  
查询前10次报警记录（显示报警内容）
- 时钟功能  
时钟设置：日期、时间。
- 通讯接口  
提供实现通讯功能的输出接口。
- 漏电保护（**增选功能**）  
零序取样方式，精度、灵敏度较高，适用于较小电流保护。
- 负载监控(卸载和加载)（**增选功能**）  
可用于预报警，也可用于控制支路负荷，动作依据电流或功率进行。（继电器输出）
- 区域联锁选择性保护(ZSI)(**增选功能**)  
ZSI与多台有上下级关联的断路器相连，提供接地故障保护和短路保护的完全选择性，脱扣方式为瞬动。
- 接地报警（**增选功能**）  
发送报警信号（继电器输出，可OFF关闭）。
- 欠电压、过电压、电压不平衡、相序保护（**增选功能**）
- 通讯协议（软件）（**增选功能**）  
实现“遥测”、“遥控”、“遥调”、“遥讯”的支持软件，提供Modbus-RTU通讯协议。

### Function

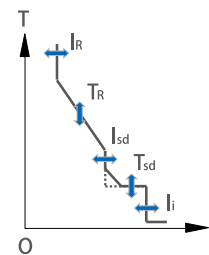
SW3-HP, HQ, HG have SW3-A3, A4 all the features, and different or increase the following functions:

- Protection  
Protection values and delay are combined by the function keys LCD tuning and query.
- Overload protection  
Based on current RMS (RMS) long delay multi-curve protection, select "OFF" off .  
Thermal memory: heat accumulation before and after tripping.
- Short circuit protection  
Short delay (RMS) and instantaneous protection, select "OFF" off .  
Short delay  $I^2t$  You can select ON or OFF by pressing the function keypad in conjunction with the LCD menu.
- Ground fault protection  
Two kinds of protection methods difference (T) type and ground current (W) type optional, standard configuration for the T-type, protection can be selected "OFF" off .  
The delay characteristic  $I^2t$  (definite time) can be selected by means of the function keys combined with the LCD menu.
- Neutral pole protection  
Provides semi-neutral pole, full neutral pole, 1.6x neutral pole, double neutral pole protection, ON or OFF optional.
- Current imbalance, the need for current, phase protection  
Under frequency, over frequency, reverse power protection (SW3-HG type unique)
- Measuring  
Provide current, voltage, power, frequency, power, heat capacity, phase sequence, need to use value measurement, the other SW3-HQ, HG unique harmonic analysis, waveform display.
- Alarm record  
Check the first 10 alarm records (display alarm content).
- Clock function  
Clock setting: date, time.
- Communication Interface  
Provides the output interface for implementing the communication function.
- Leakage protection (**optional**)  
Zero sequence sampling mode, accuracy, high sensitivity, suitable for small current protection.
- Load monitoring (unloading and loading) (**optional**)  
Can be used for pre-alarm, can also be used to control the tributary load, action based on current or power.(Relay output)
- Area Interlock Selective Protection (ZSI) (**optional**)  
The ZSI is connected to multiple circuit breakers associated with upper and lower stages to provide ground faults protection and short circuit protection of the full selectivity, tripping method for the instantaneous.
- Ground alarm (**optional**)  
Send an alarm signal (relay output, OFF off).
- Undervoltage, overvoltage, voltage unbalance, phase sequence protection (**optional**)
- Communication protocol (software) (**optional**)  
It provides support software for "telemetry", "remote control", "remote control" and "remote". It provides Modbus-RTU communication protocols.

## 保护特性 Protect characteristic

### 特性 Feature 保护 Protection SW3-HP/HQ/HG

| 长延时 Long-time                                                                                                                          |                                                                                                                                                                                                                                                                                                                                             |                                                                   |                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 电流 I <sub>R</sub> 整定 (A)<br>Current I <sub>R</sub> setting                                                                             | I <sub>R</sub> =I <sub>n</sub> X ...                                                                                                                                                                                                                                                                                                        |                                                                   | (0.4~1.0)+OFF, 整定步长: 1A或2A<br>(0.4 to 1.0) + OFF, setting step: 1A or 2A                                                                                 |
| 动作特性<br>Action characteristics                                                                                                         |                                                                                                                                                                                                                                                                                                                                             |                                                                   | < 1.05I <sub>R</sub> , > 2h不动作No-operating;<br>≥1.2I <sub>R</sub> , < 1h动作Operating                                                                      |
| 多曲线类型选择T<br>Multi-curve type selection                                                                                                 | SI: 标准反时限 standard inverse time<br>VI: 快速反时限 fast inverse time limit<br>EI(G): 特快反时限(一般配电保护)<br>Express anti-time limit (general distribution protection)<br>EI(M): 特快反时限(电机保护)<br>Express Reverse Time (Motor Protection)<br>HV: 高压熔丝兼容<br>High voltage fuse compatible<br>I <sup>2</sup> t: 通用型反时限保护<br>Universal inverse time protection |                                                                   | 进入菜单选择 ( 标配为I <sup>2</sup> t—同SW3-A3、A4 )<br>Go to the menu selection (standard I <sup>2</sup> t- with SW3-A3, A4)<br>动作时间见 “多曲线过载长延时保护动作延时时间表”          |
|                                                                                                                                        | 延时时间T <sub>R</sub> (S)<br>Delay time                                                                                                                                                                                                                                                                                                        | 精度±10% ( 固有误差±40ms )<br>Accuracy ± 10%<br>(inherent error ± 40ms) | 整定时间<br>t <sub>R</sub> (S)<br>Set time t <sub>R</sub>                                                                                                    |
|                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                             |                                                                   | C1 ~ C16, 进入菜单选择<br>C1 ~ C16, enter the menu selection                                                                                                   |
| 热记忆特性Thermal memory characteristics                                                                                                    |                                                                                                                                                                                                                                                                                                                                             |                                                                   | 选(10、20、30、45)min、<br>(1、2、3)h复位或断电后清除<br>(10,20,30,45) min, (1,2,3) h<br>reset or clear after power failure                                             |
| 短延时 Short-time                                                                                                                         |                                                                                                                                                                                                                                                                                                                                             |                                                                   |                                                                                                                                                          |
| 电流I <sub>sd</sub> 整定 ( A )<br>Current I <sub>R</sub> setting                                                                           | I <sub>sd</sub> =I <sub>R</sub> ×...(I <sub>R</sub> =OFF时, 式中用I <sub>n</sub> 代)<br>I <sub>sd</sub> =I <sub>R</sub> ×... (I <sub>R</sub> = OFF, where I <sub>n</sub> generation)                                                                                                                                                             |                                                                   | (1.5 ~ 15)+OFF, 整定步长: 1A或2A<br>(1.5 to 15) + OFF, setting step: 1A or 2A                                                                                 |
| 动作特性<br>Action characteristics                                                                                                         |                                                                                                                                                                                                                                                                                                                                             |                                                                   | < 0.9I <sub>sd</sub> 不动作No-operating; ≥1.1I <sub>sd</sub> 动作<br>Operating                                                                                |
| I <sup>2</sup> t(OFF)<br>( 定时限 )<br>延时时间T <sub>sd</sub> (S)<br>I <sup>2</sup> t(OFF) (definite time) delay time<br>T <sub>sd</sub> (S) | 精度±10% (固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms)                                                                                                                                                                                                                                                                              | 整定时间<br>t <sub>sd</sub> (S)<br>Set time                           | (0.1~0.4)S, 整定步长: 0.1S<br>(0.1 ~ 0.4) S, the tuning step: 0.1S                                                                                           |
| I <sup>2</sup> t(ON)<br>( 定时限 )<br>延时时间T(S)<br>I <sup>2</sup> t(OFF) (definite time) delay time<br>T <sub>sd</sub> (S)                 | 精度±10% (固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms)                                                                                                                                                                                                                                                                              |                                                                   | 反时限特性同过载长延时, 其动作延时时间是长延时的十分之一<br>The inverse time characteristic is the same as the long delay, and the action delay time is one tenth of the long delay |
| 热记忆特性Thermal memory property                                                                                                           |                                                                                                                                                                                                                                                                                                                                             |                                                                   | 经5min冷却后清除或控制器断电后清除<br>Reset after 5min cooling or controller power off                                                                                  |
| 瞬时 Instantaneous                                                                                                                       |                                                                                                                                                                                                                                                                                                                                             |                                                                   |                                                                                                                                                          |
| 电流I <sub>n</sub> 整定(A)<br>Current I <sub>R</sub> setting                                                                               | 适用于壳架1600~4000 时I <sub>n</sub> =I <sub>n</sub> ×...<br>Applicable to shell frame 1600 ~ 4000 I <sub>n</sub> =I <sub>n</sub> ×...                                                                                                                                                                                                            |                                                                   | (1.0~20)+OFF, 整定步长: 1A或2A<br>(1.0 ~ 20)+OFF, setting step: 1A or 2A                                                                                      |
|                                                                                                                                        | 适用于壳架5000~8000 时I <sub>n</sub> =I <sub>n</sub> ×...<br>Applicable to shell frame 5000~8000 I <sub>n</sub> =I <sub>n</sub> ×...                                                                                                                                                                                                              |                                                                   | (1.0~15)+OFF, 整定步长: 2A<br>(1.0~15)+OFF, setting step:2A                                                                                                  |
| 动作特性<br>Action characteristics                                                                                                         |                                                                                                                                                                                                                                                                                                                                             |                                                                   | < 0.85I <sub>n</sub> 不动作No-operating; ≥1.15I <sub>n</sub> 动作<br>Operating                                                                                |
| 动作延时Action delay                                                                                                                       |                                                                                                                                                                                                                                                                                                                                             |                                                                   | < 30ms                                                                                                                                                   |
| 接地故障 Ground fault                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                   |                                                                                                                                                          |
| 电流I <sub>n</sub> 整定 (A)<br>Current I <sub>R</sub> setting                                                                              | I <sub>n</sub> ≤1250A时, I <sub>g</sub> =I <sub>n</sub> ×...                                                                                                                                                                                                                                                                                 |                                                                   | (0.4~0.8)+OFF, 整定步长: 1A<br>(0.4 to 0.8)+OFF, setting step: 1A                                                                                            |
|                                                                                                                                        | I <sub>n</sub> >1250A时, I <sub>g</sub> =...                                                                                                                                                                                                                                                                                                 |                                                                   | (500A~1200A)+OFF, 整定步长: 2A<br>(500A~1200A)+OFF, the setting step: 2A                                                                                     |
| 动作特性I <sub>g</sub> (S) Action characteristics                                                                                          |                                                                                                                                                                                                                                                                                                                                             |                                                                   | < 0.8I <sub>g</sub> 不动作No-operating;<br>≥1.0I <sub>g</sub> 动作Operating                                                                                   |
| 延时时间T <sub>g</sub> (S)<br>( 定时限 )<br>delay time<br>(definite time)                                                                     | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms)                                                                                                                                                                                                                                                                           | 整定时间t <sub>g</sub> (S)<br>Set time t <sub>g</sub> (S)             | (0.1~1.0)S, 整定步长: 0.1S<br>(0.1~1.0)S, the tuning step: 0.1S                                                                                              |



多曲线过载长延时保护动作延时时间表  
Action delay schedule of multi curve overload long delay protection

| 曲线<br>类型 | 故障<br>电流 | 延时时间 (s) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|----------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|          |          | C1       | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
| SI       | 1.5 × IR | 0.61     | 0.98 | 1.47 | 2.46 | 3.68 | 4.91 | 6.14 | 8.29 | 11.1 | 17.2 | 24.6 | 36.8 | 49.1 | 61.4 | 73.7 | 86   |
|          | 6 × IR   | 0.14     | 0.22 | 0.33 | 0.55 | 0.82 | 1.1  | 1.37 | 2.06 | 2.47 | 3.84 | 5.48 | 8.22 | 10   | 13.7 | 16.4 | 19.2 |
|          | 7.2 × IR | 0.12     | 0.2  | 0.3  | 0.5  | 0.75 | 0.99 | 1.24 | 1.86 | 2.23 | 3.48 | 4.97 | 7.45 | 9.93 | 12.4 | 14.9 | 17.4 |
| VI       | 1.5 × IR | 2        | 3.2  | 4.8  | 8    | 12   | 16   | 20   | 27   | 36   | 56   | 80   | 120  | 160  | 200  | 240  | 280  |
|          | 6 × IR   | 0.2      | 0.32 | 0.48 | 0.8  | 1.2  | 1.6  | 2    | 2.7  | 3.6  | 5.6  | 8    | 12   | 16   | 20   | 24   | 28   |
|          | 7.2 × IR | 0.16     | 0.26 | 0.39 | 0.65 | 0.97 | 1.29 | 1.61 | 2.18 | 2.9  | 4.52 | 6.45 | 9.68 | 12.9 | 16.1 | 19.4 | 22.6 |
| EI(G)    | 1.5 × IR | 8        | 12.8 | 19.2 | 32   | 48   | 64   | 80   | 108  | 144  | 224  | 320  | 480  | 640  | 800  | 960  | 1120 |
|          | 6 × IR   | 0.29     | 0.46 | 0.69 | 1.14 | 1.71 | 2.29 | 2.86 | 3.86 | 5.14 | 8    | 11.4 | 17.1 | 22.9 | 28.6 | 34.3 | 37.1 |
|          | 7.2 × IR | 0.2      | 0.32 | 0.47 | 0.79 | 1.18 | 1.57 | 1.97 | 2.66 | 3.54 | 5.51 | 7.87 | 11.8 | 15.7 | 19.7 | 23.6 | 25.6 |
| EI(M)    | 1.5 × IR | 6.22     | 9.96 | 14.9 | 24.9 | 37.3 | 49.8 | 62.2 | 84   | 112  | 174  | 249  | 373  | 498  | 622  | 747  | 871  |
|          | 6 × IR   | 0.28     | 0.45 | 0.68 | 1.13 | 1.69 | 2.26 | 2.82 | 3.81 | 5.08 | 7.9  | 11.3 | 16.9 | 22.6 | 28.2 | 33.9 | 36.7 |
|          | 7.2 × IR | 0.2      | 0.31 | 0.47 | 0.78 | 1.17 | 1.56 | 1.95 | 2.63 | 3.51 | 5.46 | 7.8  | 11.7 | 15.6 | 19.5 | 23.4 | 25.4 |
| HV       | 1.5 × IR | 2.46     | 3.94 | 5.9  | 9.85 | 14.8 | 19.7 | 24.6 | 33.2 | 44.3 | 68.9 | 98.5 | 147  | 197  | 246  | 295  | 344  |
|          | 6 × IR   | 0.01     | 0.01 | 0.02 | 0.03 | 0.05 | 0.06 | 0.08 | 0.1  | 0.14 | 0.22 | 0.31 | 0.46 | 0.62 | 0.77 | 0.93 | 1    |
|          | 7.2 × IR | 0        | 0.01 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.05 | 0.07 | 0.1  | 0.15 | 0.22 | 0.3  | 0.37 | 0.45 | 0.48 |

中性极保护 Neutral pole protection  
SW3-HP/HQ/HG

| 中性极保护 Neutral pole protection                                                                                                                                                                                                                            |                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| 应用范围:<br>中性线较细时, 采用半定值; 中性线与其它相一样时, 采用全定值;<br>电网中谐波较重时采用双倍或1.6倍定值。<br>Applications: Neutral line is thin, the use of semi-fixed value; Neutral line and other phase, the use of all the value; The harmonics in the grid are double or 1.6 times higher. | 参数设置 Parameter settings:<br>50%、100%、160%、200%、OFF |

需用电流保护 Need to use current protection  
SW3-HP/HQ/HG

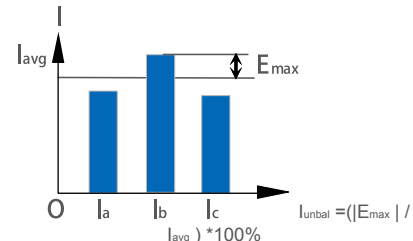
| 需用电流保护 Need to use current protection                                       |                                                                   |                                                                                                                                                       |                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 相需用值保护启动设定值<br>Use the value protection action to return to the set value   |                                                                   | (0.2~1.0)In+OFF, 整定步长: 1A或2A<br>(0.2 to 1.0) + OFF, setting step: 1A or 2A                                                                            |                                                                                                                                                                                                                  |
| 动作特性 Action characteristics                                                 |                                                                   | < 0.9(I/设定值)不动作; ≥ 1.1(I/设定值)动作<br>< 0.9 (I/set value) No-operating; ≥ 1.1 (I/set value) Operating                                                    |                                                                                                                                                                                                                  |
| 动作延时(s)<br>(定时限)<br>Action delay<br>(s) (definite<br>time)                  | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms) | 动作延时时间设定 (s) Action delay<br>time setting (s)                                                                                                         | (15~1500)S, 整定步长: 1S;<br>定时限时间等于设定延时时间<br>(15 ~ 1500) S, the tuning step: 1S;<br>The settling time is equal to the set delay time                                                                                |
| 相需用值保护动作返回设定值<br>Use the value protection action to return to the set value |                                                                   | 0.2In ~ 开启值, 整定步长: 1A或2A (仅当执行方式为<br>“报警”时才有此设定)<br>0.2In ~ open value, tuning step: 1A or 2A (this setting only if the execution<br>mode is "alarm") |                                                                                                                                                                                                                  |
| 返回特性 Return feature                                                         |                                                                   | > 1.1 (I/设定值) 不返回; ≤ 0.9 (I/设定值) 返回<br>> 1.1 (I/set value) does not return; ≤ 0.9 (I/set value) returns                                               |                                                                                                                                                                                                                  |
| 返回延时(s)<br>(定时限)<br>Action delay<br>(s) (definite<br>time)                  | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms) | 返回延时时间设定 (s)<br>Return delay (s)<br>(definite time)                                                                                                   | (15~3000)S, 整定步长: 1S (仅当执行方式为“报警”<br>时才有此设定); 定时限时间等于设定延时时间<br>(15 ~ 3000) S, the setting step: 1S (only when the implementation of the<br>"alarm" when this setting); fixed time is equal to set the delay time |
| 执行方式 Implementation mode                                                    |                                                                   | 报警/跳闸/关闭 Alarm / trip / off                                                                                                                           |                                                                                                                                                                                                                  |

## 保护特性 Protect characteristic

### 电流不平衡保护 Current unbalance protection SW3-HP/HQ/HG

#### 电流不平衡保护 Current unbalance protection

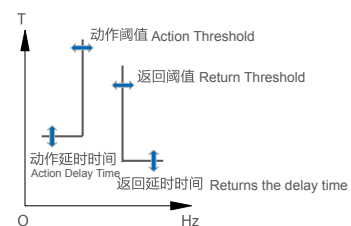
|                                                                                      |                                                                      |                                                                                                                                                     |                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 电流不平衡 $I_{unbal}$ 保护启动设定值<br>Current unbalanced $I_{unbal}$ protection start setting |                                                                      | (5~60)%, 整定步长: 1%<br>(5 ~ 60)%, tuning step: 1%                                                                                                     |                                                                                                                                                                                                                      |
| 动作特性 Action characteristics                                                          |                                                                      | < 0.9 $I_{unbal}$ 不动作 No-operating;<br>≥ 1.1 $I_{unbal}$ 动作 Operating                                                                               |                                                                                                                                                                                                                      |
| 动作延时(s)(<br>定时限) Action<br>delay (s)<br>(definite time)                              | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ±<br>40ms) | 动作延时时间<br>设定(s)<br>Action delay<br>time setting<br>(s)                                                                                              | (0.1-40)s, 整定步长: 0.1s;<br>(0.1 ~ 40) s, the tuning step: 0.1s;<br>定时限时间等于设定延时时间<br>The settling time is equal to the set delay<br>time                                                                               |
| 保护动作返回设定值<br>The protection action returns the set value                             |                                                                      | 5%~启动值, 整定步长: 1% (仅当执行方式<br>为“报警”时才有此设定)<br>5% ~ start value, tuning step: 1% (only<br>when the implementation of the "alarm"<br>when this setting) |                                                                                                                                                                                                                      |
| 返回特性 Return feature                                                                  |                                                                      | > 1.1 $I_{unbal}$ 不返回; ≤ 0.9 $I_{unbal}$ 返回<br>> 1.1 $I_{unbal}$ not return; ≤ 0.9 $I_{unbal}$ return                                               |                                                                                                                                                                                                                      |
| 返回延时(s)(<br>定时限) Action<br>delay (s) (definite<br>time)                              | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ±<br>40ms) | 返回延时时间<br>设定(s)<br>Return delay (s)<br>(definite time)                                                                                              | (10~200)s, 整定步长: 1s (仅当执行方式<br>为“报警”时才有此设定); 定时限时间<br>等于设定延时时间<br>(10 ~ 200) s, the tuning step: 1s (only when the<br>implementation of the "alarm" when this setting);<br>fixed time is equal to set the delay time |
| 执行方式 Implementation mode                                                             |                                                                      | 报警/跳闸/关闭 Alarm / trip / off                                                                                                                         |                                                                                                                                                                                                                      |



### 欠频保护 Under frequency protection SW3-HG

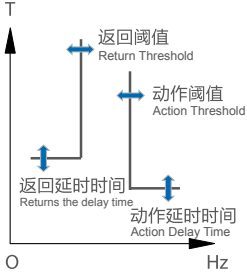
#### 欠频保护 Under frequency protection

|                                                         |                                                                          |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                    |
|---------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 欠频保护启动设定值<br>Undercurrent protection start setting      |                                                                          | 45Hz~返回值。整定步长: 0.5Hz<br>45Hz ~ return value. Set the steps: 0.5Hz                                                                                                                                                                                    |                                                                                                                                                                                                                    |
| 动作特性<br>Action characteristics                          |                                                                          | > 设定值+1Hz 不动作; ≤ 设定值-1Hz 动作<br>> Set value + 1Hz does not return; ≤ set<br>value - 1Hz return                                                                                                                                                        |                                                                                                                                                                                                                    |
| 动作延时(s)(<br>定时限) Action<br>delay (s)<br>(definite time) | 精度±10%<br>(固有误差<br>±40ms)<br>Accuracy 10%<br>(intrinsic error ±40ms)     | 动作延时时间<br>设定(s) Action<br>delay time<br>setting (s)                                                                                                                                                                                                  | (0.2~5.0)S, 整定步长: 0.1S;<br>(0.2 ~ 5.0) S, the tuning step: 0.1S;<br>定时限时间等于设定延时时间<br>The settling time is equal to the set delay<br>time                                                                           |
| 欠频保护动作返回设定值<br>Undercurrent protection start setting    |                                                                          | 启动值~65Hz, 整定步长: 0.5Hz (仅当<br>执行方式为“报警”时才有此设定, 返回值<br>需大于或等于启动值)<br>Start value ~ 65Hz, the tuning step: 0.5Hz (only<br>when the implementation of the "alarm" when this<br>setting, the return value is greater than or equal<br>to the start value) |                                                                                                                                                                                                                    |
| 返回特性 Return feature                                     |                                                                          | < 设定值-1Hz 不返回; ≥ 设定值+1Hz 返回<br>< Set value - 1Hz does not return; ≥ set<br>value + 1Hz return                                                                                                                                                        |                                                                                                                                                                                                                    |
| 返回延时(s)(<br>定时限) Action<br>delay (s)<br>(definite time) | 精度±10%<br>(固有误差<br>±40ms)<br>Accuracy 10%<br>(intrinsic error ±<br>40ms) | 返回延时时间<br>设定(s)<br>Return delay<br>(s)                                                                                                                                                                                                               | (0.2~36)S, 整定步长: 0.1S; (仅当执行<br>方式为“报警”时才有此设定) 定时限时间<br>等于设定延时时间<br>(0.2 to 36) S, setting step: 0.1S; (this setting only<br>if the execution mode is "alarm") The definite time<br>is equal to the set delay time |
| 执行方式 Implementation mode                                |                                                                          | 报警/跳闸/关闭 Alarm / trip / off                                                                                                                                                                                                                          |                                                                                                                                                                                                                    |



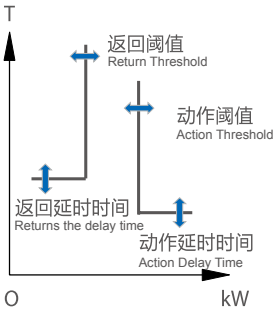
过频保护 Over frequency protection  
SW3-HG

|                                                                                                                                                    |                                                                   |                                                                                                                                                                                                                                 |                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 过频保护(欠频保护设定值必须小于过频保护设定值)<br>Over frequency protection<br>(under frequency protection setting must be less than over-frequency protection setpoint) |                                                                   |                                                                                                                                                                                                                                 |                                                                                                                                                                                                      |
| 过频保护启动设定值<br>Overcurrent protection start setting                                                                                                  |                                                                   | 返回值 ~ 65Hz。整定步长: 0.5Hz<br>Return value ~ 65Hz. Set the steps: 0.5Hz                                                                                                                                                             |                                                                                                                                                                                                      |
| 动作特性<br>Action characteristics                                                                                                                     |                                                                   | < 设定值-1Hz不动作; ≥ 设定值+1Hz动作<br><Set value -1Hz does not operate; ≥ set value + 1Hz action                                                                                                                                         |                                                                                                                                                                                                      |
| 动作延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                                                                                            | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10% (intrinsic<br>error ± 40ms) | 动作延时时间设定<br>(s)Action delay time<br>setting (s)                                                                                                                                                                                 | (0.2~5.0)S, 整定步长: 0.1S;<br>(0.2 ~ 5.0) S, the tuning step: 0.1S;<br>定时限时间等于设定延时时间<br>The settling time is equal to the set delay time                                                                |
| 过频保护动作返回设定值<br>The overcurrent protection action returns the set value                                                                             |                                                                   | 45Hz~启动值, 整定步长: 0.5Hz (仅当执行方式为“报警”时才有此设定, 启动值需大于或等于返回值)<br>45Hz ~ start value, tuning step: 0.5Hz (only when the implementation of the “alarm” when this setting, the start value is greater than or equal to the return value) |                                                                                                                                                                                                      |
| 返回特性<br>Return feature                                                                                                                             |                                                                   | > 设定值+1Hz不返回; ≤ 设定值-1Hz返回<br>> Set value + 1Hz does not return; ≤ set value -1Hz return                                                                                                                                         |                                                                                                                                                                                                      |
| 返回延时(s) (定时限)<br>Action delay (s) (definite time)                                                                                                  | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10% (intrinsic<br>error ± 40ms) | 返回延时时间设定 (s)<br>Return delay (s) (definite time)                                                                                                                                                                                | (0.2~36)S, 整定步长: 0.1S; (仅当执行方式为“报警”时才有此设定) 定时限时间等于设定延时时间<br>(0.2 to 36) S, setting step: 0.1S; (this setting only if the execution mode is “alarm”) The definite time is equal to the set delay time |
| 执行方式<br>Implementation mode                                                                                                                        |                                                                   | 报警/跳闸/关闭<br>Alarm / trip / off                                                                                                                                                                                                  |                                                                                                                                                                                                      |



逆功率保护 Reverse power protection  
SW3-HG

|                                                                           |                                                                   |                                                                                                                                                                                                                           |                                                                                                                                                                                                        |
|---------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 逆功率保护 Reverse power protection                                            |                                                                   |                                                                                                                                                                                                                           |                                                                                                                                                                                                        |
| 逆功率保护启动设定值<br>Reverse power protection starts the set value               |                                                                   | 5~50kW。整定步长: 1kW<br>5 ~ 50kW. Set the steps: 1kW                                                                                                                                                                          |                                                                                                                                                                                                        |
| 动作特性<br>Action characteristics                                            |                                                                   | < 0.9(逆功率值/设定值)不动作;<br>≥ 1.1(逆功率值/设定值)动作<br><0.9 (reverse power value / set value) does not operate;<br>≥ 1.1 (reverse power value / set value)                                                                           |                                                                                                                                                                                                        |
| 动作延时(s)<br>(定时限)<br>Action delay (s) (definite time)                      | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10% (intrinsic<br>error ± 40ms) | 动作延时时间设定 (s)<br>Action delay time setting (s)                                                                                                                                                                             | (0.2~20)S, 整定步长: 0.1S;<br>(0.2 ~ 20) S, the tuning step: 0.1S;<br>定时限时间等于设定延时时间<br>The settling time is equal to the set delay time                                                                    |
| 逆功率保护动作返回设定值<br>The reverse power protection action returns the set value |                                                                   | 5kW~启动值, 整定步长: 1kW (仅当执行方式为“报警”时才有此设定, 返回值需大于或等于启动值)<br>5kW ~ start value, tuning step: 1kW (only when the implementation of the “alarm” when this setting, the return value is greater than or equal to the start value) |                                                                                                                                                                                                        |
| 返回特性<br>Return feature                                                    |                                                                   | > 1.1(逆功率值/设定值)不返回;<br>≤ 0.9(逆功率值/设定值)返回<br>> 1.1 (reverse power value / set value) does not return;<br>≤ 0.9 (reverse power value / set value)                                                                           |                                                                                                                                                                                                        |
| 返回延时(s) (定时限)<br>Action delay (s) (definite time)                         | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10% (intrinsic<br>error ± 40ms) | 返回延时时间设定 (s)<br>Return delay (s)                                                                                                                                                                                          | (1.0~360)S, 整定步长: 0.1S; (仅当执行方式为“报警”时才有此设定) 定时限时间等于设定延时时间<br>(1.0 to 360) S, setting step: 0.1S; (this setting only if the execution mode is “alarm”) The definite time is equal to the set delay time |
| 执行方式<br>Implementation mode                                               |                                                                   | 报警/跳闸/关闭<br>Alarm / trip / off                                                                                                                                                                                            |                                                                                                                                                                                                        |



## 保护特性 Protect characteristic

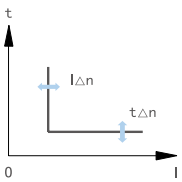
### 测量 Measuring SW3-HP/HQ/HG

|                                                                                                                                                                                                          |                                                                                                                                  |                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 电流 (连续电流测量, 适用于50Hz、60Hz电网)<br>Current (continuous current measurement, suitable for 50Hz, 60Hz power grid)                                                                                              |                                                                                                                                  |                                                                                                  |
| 内容Contents: $I_A$ 、 $I_B$ 、 $I_C$ (三相three phase)<br>$I_N$ (中性极neutral pole)、 $I_g$ (接地电流ground current)<br>$I_{unbal}$ (电流不平衡率current unbalance rate)                                                   | 范围Range: $I_A$ 、 $I_B$ 、 $I_C$ 、 $I_N$ 为25In                                                                                     | 精度Accuracy: $\leq 2I_N$ 为 $\pm 1.5\%$<br>$> 2I_N$ 为 $\pm 5\%$                                    |
| 电压 (适用于50Hz、60Hz电网)<br>Voltage (for 50Hz, 60Hz power grid)                                                                                                                                               |                                                                                                                                  |                                                                                                  |
| 内容: 线电压、相电压、平均电压<br>相序、电压不平衡率<br>Content: line voltage, phase voltage, average voltage phase sequence, voltage unbalance rate                                                                            | 范围: 线电压0~1200V<br>相电压0~600V<br>显示相的次序<br>Range: Line voltage 0 ~ 1200V<br>Phase voltage 0 ~ 600V<br>Show the order of the phases | 精度Accuracy: $\pm 5\%$                                                                            |
| 功率 power                                                                                                                                                                                                 |                                                                                                                                  |                                                                                                  |
| 内容: 有功功率<br>无功功率<br>视在功率(三相三线不适用)<br>Content: active power<br>Reactive power<br>Apparent power (three-phase three lines not applicable)                                                                  | 范围Range:<br>有功active: -32768kW~+32767kW<br>无功Reactive: -32768kvar~+32767kvar<br>视在Apparently: 0kVA~65535kVA                      | 精度Accuracy: $\pm 2.5\%$                                                                          |
| 功率因素Power Factor                                                                                                                                                                                         |                                                                                                                                  |                                                                                                  |
| 内容: 系统功率因素<br>分相功率因素(三相三线不适用)<br>Content: System power factor<br>Phase power factor (three-phase three-wire not applicable)                                                                              | 范围Range: -1.00~+1.00                                                                                                             | 精度Accuracy: $\pm 0.02$                                                                           |
| 频率frequency                                                                                                                                                                                              |                                                                                                                                  |                                                                                                  |
| 内容: 频率Content: Frequency                                                                                                                                                                                 | 范围Range: 40Hz~65Hz                                                                                                               | 精度Accuracy: 0.05Hz                                                                               |
| 电能Power                                                                                                                                                                                                  |                                                                                                                                  |                                                                                                  |
| 内容: 输入(输出)有功电能<br>输入(输出)无功电能<br>总有功(无功、视在)电能<br>Content: input (output) active energy<br>Input (output) reactive energy<br>Total active (reactive, apparent) power                                       | 范围:<br>有功: 0~4294967295kWh<br>无功: 0~4294967295kvarh<br>视在: 0~4294967295kVAh                                                      | 精度Accuracy: $\pm 2.5\%$                                                                          |
| 需用值Need to use value                                                                                                                                                                                     |                                                                                                                                  |                                                                                                  |
| 内容: 电流需用值 $I_A$ 、 $I_B$ 、 $I_C$ 、 $I_N$<br>功率需用值P、Q、S<br>Contents: Current required values $I_A$ 、 $I_B$ 、 $I_C$ 、 $I_N$<br>Power required values P, Q, S                                                | 范围: 同电流、功率实时测量值<br>Range: with current, power real-time measurements                                                             | 精度: 同电流、功率精度<br>Accuracy: with current, power accuracy<br>Accuracy: with current, power accuracy |
| 谐波 (SW3-HQ、HG具备) Harmonics (SW3-HQ, HG)                                                                                                                                                                  |                                                                                                                                  |                                                                                                  |
| 电流、电压基波; 电流、电压总谐波畸变THD与thd; 前31次奇次谐波振幅波谱<br>Current, voltage fundamental wave; current, voltage total harmonic distortion THD and thd; first 31 times odd harmonic amplitude spectrum                    |                                                                                                                                  |                                                                                                  |
| 波形 (SW3-HQ、HG具备) Waveform (SW3-HQ, HG available)                                                                                                                                                         |                                                                                                                                  |                                                                                                  |
| 捕捉波形显示: 4个电流 $I_A$ 、 $I_B$ 、 $I_C$ 、 $I_N$ ; 3个相电压 $U_{AN}$ 、 $U_{BN}$ 、 $U_{CN}$<br>Capture waveform display: 4 current $I_A$ 、 $I_B$ 、 $I_C$ 、 $I_N$ ; 3 phase voltages $U_{AN}$ 、 $U_{BN}$ 、 $U_{CN}$ |                                                                                                                                  |                                                                                                  |

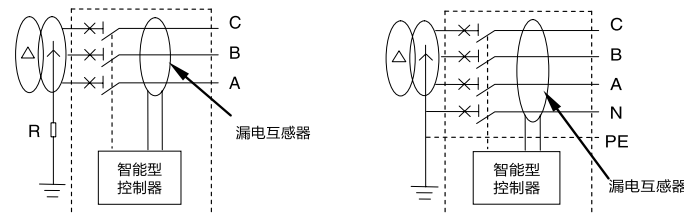


漏电保护（增选功能） Leakage protection (optional)  
SW3-HP/HQ/HG

| 漏电保护Leakage Protection                                    |                                                                                      |                                                          |                                                                                                                                                   |      |      |      |      |      |     |      |      |      |      |                     |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|-----|------|------|------|------|---------------------|
| 动作电流设定值 $I_{\Delta n}$<br>Operation current setting value |                                                                                      |                                                          | 0.5~30.0A。整定步长：0.1A<br>0.5 to 30.0 A. Set the steps: 0.1A                                                                                         |      |      |      |      |      |     |      |      |      |      |                     |
| 动作特性 Action characteristics                               |                                                                                      |                                                          | < 0.8( $I/I_{\Delta n}$ )不动作； $\geq 1.0(I/I_{\Delta n})$ 动作<br><0.8 ( $I/I_{\Delta n}$ ) does not operate; $\geq 1.0$ ( $I/I_{\Delta n}$ ) action |      |      |      |      |      |     |      |      |      |      |                     |
| 动作延时<br>$t_{\Delta n}(S)$<br>Action delay                 | 精度 $\pm 10\%$<br>(固有误差 $\pm 40ms$ )<br>Accuracy 10%<br>(intrinsic error $\pm 40ms$ ) | 整定时间(S)<br>Setting time                                  | 0.06                                                                                                                                              | 0.08 | 0.17 | 0.25 | 0.33 | 0.42 | 0.5 | 0.58 | 0.67 | 0.75 | 0.83 | 瞬时<br>Instantaneous |
|                                                           |                                                                                      | $I_{\Delta n}$ 断开时间(S)<br>$I_{\Delta n}$ off time(S)     | 0.36                                                                                                                                              | 0.5  | 1    | 1.5  | 2    | 2.5  | 3   | 3.5  | 4    | 4.5  | 5    | 0.04                |
|                                                           |                                                                                      | $2I_{\Delta n}$ 断开时间(S)<br>$2I_{\Delta n}$ off time(S)   | 0.18                                                                                                                                              | 0.25 | 0.5  | 0.75 | 1    | 1.25 | 1.5 | 1.75 | 2    | 2.25 | 2.5  | 0.04                |
|                                                           |                                                                                      | $5I_{\Delta n}$ 断开时间(S)<br>$5I_{\Delta n}$ off time(S)   | 0.07                                                                                                                                              | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6 | 0.7  | 0.8  | 0.9  | 1    | 0.04                |
|                                                           |                                                                                      | $10I_{\Delta n}$ 断开时间(S)<br>$10I_{\Delta n}$ off time(S) |                                                                                                                                                   |      |      |      |      |      |     |      |      |      |      |                     |
| 执行方式<br>Implementation mode                               |                                                                                      |                                                          | 报警/跳闸/关闭<br>Alarm / trip / off                                                                                                                    |      |      |      |      |      |     |      |      |      |      |                     |



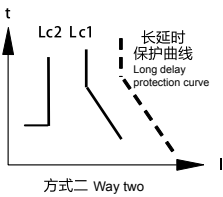
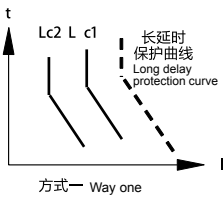
漏电保护检测原理Leakage protection detection principle:



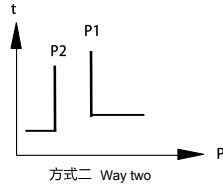
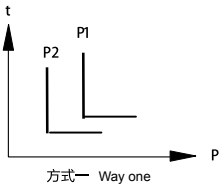
负载监控（增选功能） Load monitoring (optional)  
SW3-HP、HQ、HG

| 负载监控 Load monitoring                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 动作依据按电流<br>或功率进行<br>The action<br>is based on<br>current or power | <p>方式一：<br/>可独立控制两路负荷，当运行参数超过整定值时，相应负载监控DO延时动作（需设定相应DO功能），控制分断两路支路负荷，保证主系统供电<br/>Method one:<br/>Can independently control the two load, when the operating parameters exceed the set value, the corresponding load monitoring DO delay action (need Set the corresponding DO function), control the two branches of the load to ensure that the main system power supply</p>                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                   | <p>方式二：<br/>一般用于控制同一支路负荷，当运行参数超过启动值，“负载监控一”DO延时动作（动作形式可为脉冲方式或电平方式）分断支路负荷；若分断后运行参数值低于返回值，并经延时设定时间后，“负载监控一”DO返回，“负载监控二”DO动作(电平方式或脉冲方式)，接通已分断的负荷，恢复系统供电。<br/>注：方式二时，必须“负载一”启动值<math>\geq</math>“负载二”返回值<br/>Way two:<br/>Generally used to control the same branch load, when the operating parameters exceed the start value, "load monitoring a" DO delay action (action can be pulse mode or level mode) to break the branch load; if the break after the run parameter value is lower Return value, and after the delay set time, "load monitoring a" DO return, "load monitoring two" DO action (level mode or pulse mode), connected to the broken load, restore the system power supply.<br/>Note: In the second way, you must "load a" start value<math>\geq</math> "Load two" return value</p> |

按电流Press the current:



按功率 By power:



## 保护特性 Protect characteristic

### 保护 Protection SW3-HP/HQ/HG

#### 区域联锁选择性保护(ZSI) ( 增选功能 ) Area Interlock Selective Protection (ZSI) (Coverage feature)

应用范围：区域选择性联锁包括短路故障联锁和接地故障联锁，用于两台或多台有上下级关联断路器的同一电路回路中。  
Applications: Area-selective interlocks include short-circuit fault interlocks and ground fault interlocks for two or more of the same circuit circuits with upper and lower associated circuit breakers.

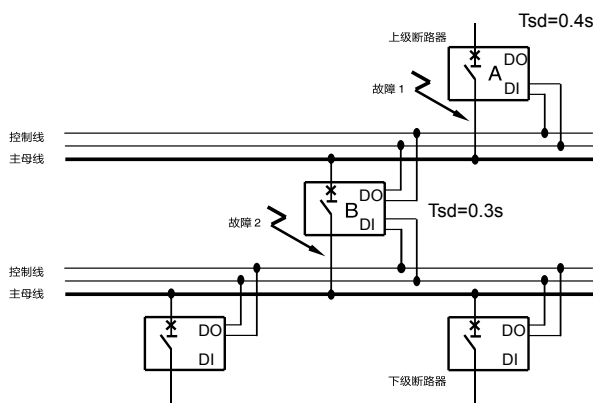
参数设置：  
上级断路器至少有一路DI设为区域联锁检测；  
下级断路器至少有一路DO设为区域联锁信号输出。  
Parameter settings:  
The upper circuit breaker at least one way DI is set to regional interlock detection;  
Lower circuit breaker at least one way DO is set to regional interlock signal output

应用示意：

检测到故障的断路器会输出一个信号给上级断路器同时检查下级断路器输出的信号。若检测到有下级断路器送过来的信号，此断路器将在脱扣延时期间保持合闸。如果下级断路器没有送来信号，不管脱扣保护是否有延时断路器将瞬时断开。

Application Note:

A circuit breaker that detects a fault will output a signal to the higher-level circuit breaker while checking the signal output from the lower-stage circuit breaker. If a signal from a lower circuit breaker is detected, the circuit breaker will remain closed during the trip delay. If the subordinate circuit breaker does not send a signal, the trip breaker will be momentarily disconnected regardless of whether the trip protection has a delay.



如左图所示：

只发生故障1：

只有断路器A检测到故障。由于没有收到下级断路器B的信号，断路器A将瞬时脱扣（与脱扣保护的延时整定0.4秒无关）。

同时发生故障1、2：

断路器A、B检测到故障。断路器A收到B的信号在脱扣延时0.4秒内保持合闸，断路器B没有收到下级断路器的信号将瞬时脱扣（与脱扣保护的延时整定0.3秒无关）。

DO — 断路器二次回路接线端子20、21

DI — 断路器二次回路接线端子22、23

As shown on the left:

Only failure 1:

Only circuit breaker A has detected a fault. Since the signal of the lower circuit breaker B is not received, the circuit breaker A will trip instantaneously (regardless of the delay setting of the trip protection).

At the same time failure 1:

Circuit breakers A, B detect faults. The signal received by circuit breaker A is kept closed within 0.4 seconds of the trip delay. The circuit breaker B does not receive the signal of the lower circuit breaker to tripping instantaneously (regardless of the delay setting of the trip protection).

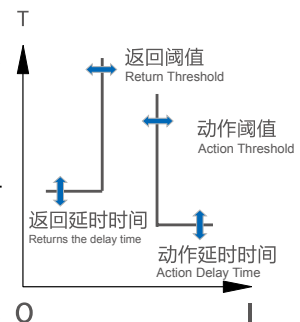
DO - Circuit breaker secondary circuit terminal 20、21

DI - Circuit breaker secondary circuit terminal 22、23

### 接地报警 ( 增选功能 ) Ground alarm (optional) SW3-HP、HQ、HG

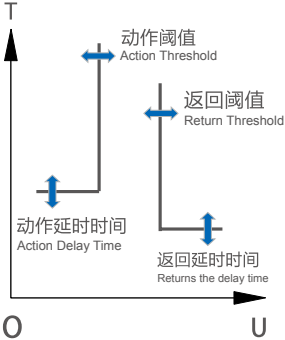
#### 接地报警 Ground alarm

|                                                                                                                   |                                                                   |                                                                                                        |                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 报警动作电流设定值<br>Alarm action current setting value                                                                   |                                                                   | In ≤ 1250A                                                                                             | (0.4~0.8)×In + OFF, 整定步长: 1A<br>(0.4 ~ 0.8) × In + OFF, the setting step is: 1A                                                                                                                                       |
|                                                                                                                   |                                                                   | In > 1250A                                                                                             | (500A~1200A)+OFF, 整定步长: 2A<br>(500A ~ 1200A) + OFF, the setting step: 2A                                                                                                                                              |
| 动作特性 Action characteristics                                                                                       |                                                                   | < 0.8(I/设定值)不动作; ≥ 1.0(I/设定值)动作<br>< 0.8 (I / set value) does not move; ≥ 1.0 (I / set value) action   |                                                                                                                                                                                                                       |
| 动作延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                                                           | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms) | 动作延时时间<br>设定 (s) Action<br>delay time<br>setting (s)                                                   | (0.1 ~ 1.0)S, 整定步长: 0.1S; 定时限时间等于设定<br>延时时间<br>(0.1 ~ 1.0) S, the setting step is 0.1S; (this setting only when<br>the execution mode is "alarm") The definite time is equal to the<br>set delay time                 |
| 报警返回电流设定值(仅当执行方式为“报警”时才有此设定)<br>Alarm return current setting (this setting only if the execution mode is "alarm") |                                                                   | In ≤ 1250A                                                                                             | (0.4~0.8)×In, 整定步长: 1A<br>(0.4 ~ 0.8) × In, the setting step: 1A                                                                                                                                                      |
|                                                                                                                   |                                                                   | In > 1250A                                                                                             | 500A~1200A, 整定步长: 2A<br>500A ~ 1200A, the tuning step: 2A                                                                                                                                                             |
| 返回特性 Return feature                                                                                               |                                                                   | > 1.0(I/设定值)不返回; ≤ 0.9(I/设定值)返回<br>> 1.0 (I / set value) does not return; ≤ 0.9 (I / set value) return |                                                                                                                                                                                                                       |
| 返回延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                                                           | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms) | 返回延时时间<br>设定 (s)<br>Return delay<br>setting (s)                                                        | (0.1 ~ 1.0)S, 整定步长: 0.1S; (仅当执行方式为“报警”时才有此设定) 定时限时间等于设定延时时间<br>(0.1 ~ 1.0) S, the setting step is 0.1S; (this setting only when<br>the execution mode is "alarm") The definite time is equal to the<br>set delay time |
| 执行方式 Implementation mode                                                                                          |                                                                   | 报警/关闭 Alarm / off                                                                                      |                                                                                                                                                                                                                       |



欠压保护（增选功能） Undervoltage protection (optional)  
SW3-HP、HQ、HG

| 欠压保护 Undervoltage protection                                              |                                                                                                    |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 欠压保护启动设定值 Undervoltage protection start setting                           |                                                                                                    | 100V~返回值。整定步长：1V<br>100V ~ return value. Set the steps: 1V                                                                                                                                                                                                        |                                                                                                                                                                                                                |
| 动作特性 Action characteristics                                               |                                                                                                    | $> 1.1(U_{\max}/\text{动作设定值})$ 不动作;<br>$\leq 0.9(U_{\max}/\text{动作设定值})$ 动作<br>$> 1.1 (U_{\max} / \text{action set value})$ does not operate; $\leq 0.9 (U_{\max} / \text{action set value})$                                                                     |                                                                                                                                                                                                                |
| 动作延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                   | 精度 $\pm 10\%$<br>(固有误差 $\pm 40\text{ms}$ )<br>Accuracy 10%<br>(intrinsic error $\pm 40\text{ms}$ ) | 动作延时<br>时间设定 (s)<br>Action delay<br>time setting (s)                                                                                                                                                                                                              | (0.2~60)S, 整定步长: 0.1S; 定时限时间等于设定<br>延时时间<br>(0.2 ~ 60) S, the tuning step: 0.1S;The settling time is<br>equal to the set delay time                                                                            |
| 欠压保护动作返回设定值<br>The undervoltage protection action returns to the setpoint |                                                                                                    | 启动值 $\sim 1200\text{V}$ , 整定步长: 1V (仅当执行方式为“报<br>警”时才有此设定, 返回值需大于或等于启动值)<br>Start value $\sim 1200\text{V}$ , tuning step: 1V (only when the<br>implementation of the "alarm" when this setting, the<br>return value is greater than or equal to the start value) |                                                                                                                                                                                                                |
| 返回特性 Return feature                                                       |                                                                                                    | $< 0.9(U_{\max}/\text{返回设定值})$ 不返回;<br>$< 0.9 (U_{\max} / \text{return set value})$ does not return;<br>$\geq 1.1(U_{\max}/\text{返回设定值})$ 返回<br>$\geq 1.1 (U_{\max} / \text{return set value})$ returns                                                           |                                                                                                                                                                                                                |
| 返回延时(s)<br>(定时限)Action<br>delay (s)<br>(definite time)                    | 精度 $\pm 10\%$<br>(固有误差 $\pm 40\text{ms}$ )<br>Accuracy 10% (intrinsic<br>error $\pm 40\text{ms}$ ) | 返回延时<br>时间设定 (s)<br>Return delay (s)                                                                                                                                                                                                                              | (0.2~60)S, 整定步长: 0.1S; (仅当执行方式为“报<br>警”时才有此设定) 定时限时间等于设定延时时间<br>(0.2 to 60) S, setting step: 0.1S; (this setting only if the<br>execution mode is "alarm") The definite time is equal<br>to the set delay time |
| 执行方式 Implementation mode                                                  |                                                                                                    | 报警/跳闸/关闭 Alarm / trip / off                                                                                                                                                                                                                                       |                                                                                                                                                                                                                |



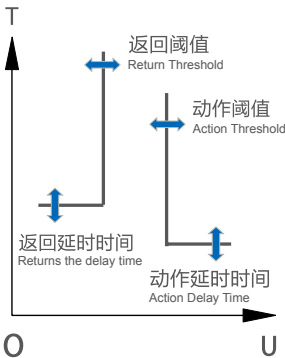
电压不平衡保护（增选功能） Voltage unbalance protection (optional)  
SW3-HP、HQ、HG

| 电压不平衡保护 Voltage unbalance protection                                                  |                                                                                                    |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 电压不平衡率Uunbal 保护启动设定值<br>Voltage unbalance rate U unbal protection start setting value |                                                                                                    | (2~30)%, 整定步长: 1%<br>(2 ~ 30)%, tuning step: 1%                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                       |
| 动作特性 Action characteristics                                                           |                                                                                                    | $< 0.9(\text{实际电压不平衡率}/\text{设定值})$ 不动作;<br>$\geq 1.1(\text{实际电压不平衡率}/\text{设定值})$ 动作<br>$< 0.9 (\text{actual voltage imbalance} / \text{set value})$ does not move;<br>$\geq 1.1 (\text{actual voltage does not measure} / \text{set value})$ action                                                                                                  |                                                                                                                                                                                                       |
| 动作延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                               | 精度 $\pm 10\%$ (固有误差<br>$\pm 40\text{ms}$ )<br>Accuracy 10% (intrinsic<br>error $\pm 40\text{ms}$ ) | 动作延时时间<br>设定 (s)<br>Action delay<br>time setting                                                                                                                                                                                                                                                                                                       | (0.2~60)S, 整定步长: 0.1S; 定时限时间等于设定延时时间<br>(0.2 ~ 60) S, the tuning step: 0.1S;<br>The settling time is equal to the set delay time                                                                      |
| 保护动作返回设定值 The protection action returns the set value                                 |                                                                                                    | 2%~启动值, 整定步长: 1% (仅当执行方式为“报警”时<br>才有此设定, 返回值需大于或等于启动值)<br>2% to start value, tuning step: 1% (only if the implementation of the<br>"alarm" when this setting, the return value is greater than or equal to<br>the start value)                                                                                                                         |                                                                                                                                                                                                       |
| 返回特性 Return feature                                                                   |                                                                                                    | $> 1.1(\text{实际电压不平衡率}/\text{设定值})$ 不返回;<br>$\leq 0.9(\text{实际电压不平衡率}/\text{设定值})$ 返回<br>$> 1.1 (\text{actual voltage does not measure} / \text{set value})$ does not return;<br>$\leq 0.9 (\text{actual voltage does not measure} / \text{set value})$ to return                                                                                      |                                                                                                                                                                                                       |
| 返回延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                               | 精度 $\pm 10\%$<br>(固有误差 $\pm 40\text{ms}$ )<br>Accuracy 10% (intrinsic<br>error $\pm 40\text{ms}$ ) | 返回延时时间<br>设定 (s)<br>Return delay                                                                                                                                                                                                                                                                                                                       | (0.2~60)S, 整定步长: 0.1S (仅当执行方式为“报警”<br>时才有此设定); 定时限时间等于设定延时时间<br>(0.2 ~ 60) S, the setting step: 0.1S (only when the implementation of the<br>"alarm" The settling time is equal to the set delay time |
| 执行方式 Implementation mode                                                              |                                                                                                    | 报警/跳闸/关闭 Alarm / trip / off                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                       |
|                                                                                       |                                                                                                    | $U_{\text{unbal}} = ( E_{\max}  / U_{\text{avg}}) 100\%$ 式中: $U_{\text{avg}}$ 为三相电压平均值, $E_{\max}$ 为每<br>个线电压与 $U_{\text{avg}}$ 最大差值<br>$U_{\text{unbal}} = ( E_{\max}  / U_{\text{avg}}) 100\%$ Where: $U_{\text{avg}}$ is the three-phase voltage<br>average, $E_{\max}$ is the maximum difference between each line voltage<br>and $U_{\text{avg}}$ |                                                                                                                                                                                                       |

保护特性  
Protect characteristic

过压保护（增选功能） Overvoltage protection (optional)  
SW3-HP、HQ、HG

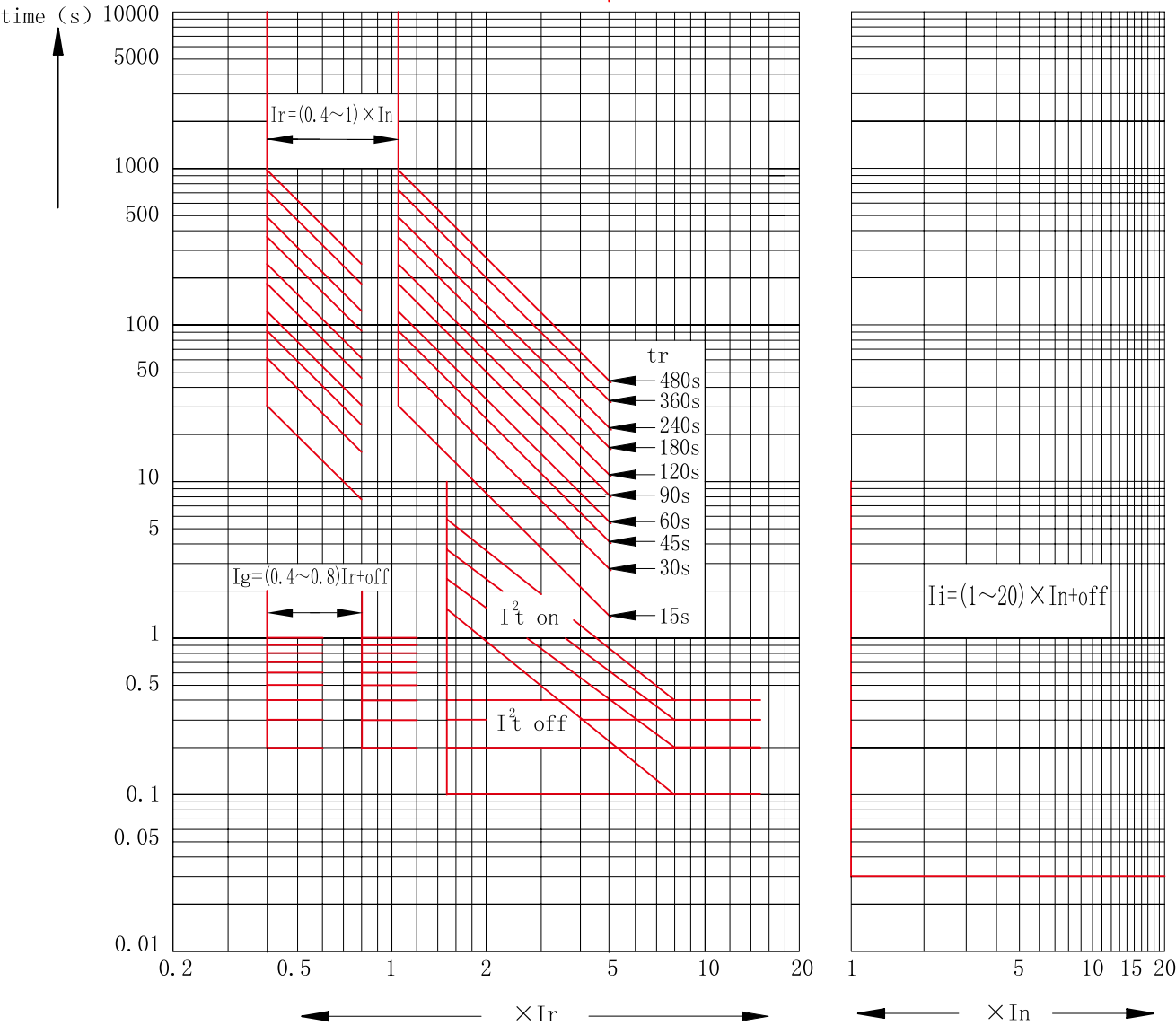
|                                                                                                                                                |                                                                   |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 过压保护（欠压保护设定值必须小于过压保护设定值）<br>Overvoltage protection<br>(undervoltage protection setpoint must be less than the overvoltage protection setpoint) |                                                                   |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                   |
| 过压保护启动设定值<br>Overvoltage protection starts the set value                                                                                       |                                                                   | 返回值 ~ 1200V。整定步长：1V<br>Return value ~ 1200V. Set the steps: 1V                                                                                                                                                                            |                                                                                                                                                                                                                   |
| 动作特性 Action characteristics                                                                                                                    |                                                                   | < 0.9(Umin/动作设定值)不动作；<br>≥1.1(Umin/动作设定值)动作<br><0.9 (Umin / action set value) does not operate; ≥1.1 (Umin / action set value)                                                                                                            |                                                                                                                                                                                                                   |
| 动作延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                                                                                        | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms) | 动作延时<br>时间设定 (s)<br>Action delay<br>time setting (s)                                                                                                                                                                                      | (0.2~60)S，整定步长：0.1S；定时限<br>时间等于设定延时时间<br>(0.2 ~ 60) S, the tuning step:<br>0.1S; The settling time is equal to the<br>set delay time                                                                              |
| 过压保护动作返回设定值<br>The overvoltage protection action returns the set value                                                                         |                                                                   | 100V~启动值，整定步长：1V(仅当执<br>行方式为“报警”时才有此设定，启<br>动值需大于或等于返回值)<br>100V ~ start value, tuning step: 1V<br>(only when the implementation of the<br>"alarm" when this setting, the start<br>value is greater than or equal to the<br>return value) |                                                                                                                                                                                                                   |
| 返回特性 Return feature                                                                                                                            |                                                                   | > 1.1(Umin/返回设定值) 不返回；<br>≤0.9(Umin/返回设定值) 返回<br>> 1.1 (Umin / return set value) does<br>not return;<br>≤0.9 (Umin / return set value) Returns                                                                                            |                                                                                                                                                                                                                   |
| 返回延时(s)<br>(定时限)<br>Action delay (s)<br>(definite time)                                                                                        | 精度±10%<br>(固有误差±40ms)<br>Accuracy 10%<br>(intrinsic error ± 40ms) | 返回延时<br>时间设定 (s)<br>Return delay<br>time setting(s)                                                                                                                                                                                       | (0.2~60)S，整定步长：0.1S；（仅当<br>执行方式为“报警”时才有此设定）定时<br>限时间等于设定延时时间<br>(0.2 to 60) S, setting step: 0.1S; (this<br>setting only if the execution mode is<br>"alarm") The definite time is equal to<br>the set delay time |
| 执行方式 Implementation mode                                                                                                                       |                                                                   | 报警/跳闸/关闭 Alarm / trip / off                                                                                                                                                                                                               |                                                                                                                                                                                                                   |



相序保护（增选功能） Phase sequence protection(optional)  
SW3-HP、HQ、HG

|                                |                                                                |
|--------------------------------|----------------------------------------------------------------|
| 相序保护 Phase sequence protection |                                                                |
| 动作相序 Action phase sequence     | 整定范围：ΔΦ：A，B，C / ΔΦ：A，C，B<br>Setting range: ΔΦ：A，B，C / ΔΦ：A，C，B |
| 执行方式 Action characteristics    | 报警/跳闸/关闭 Alarm / trip / off                                    |

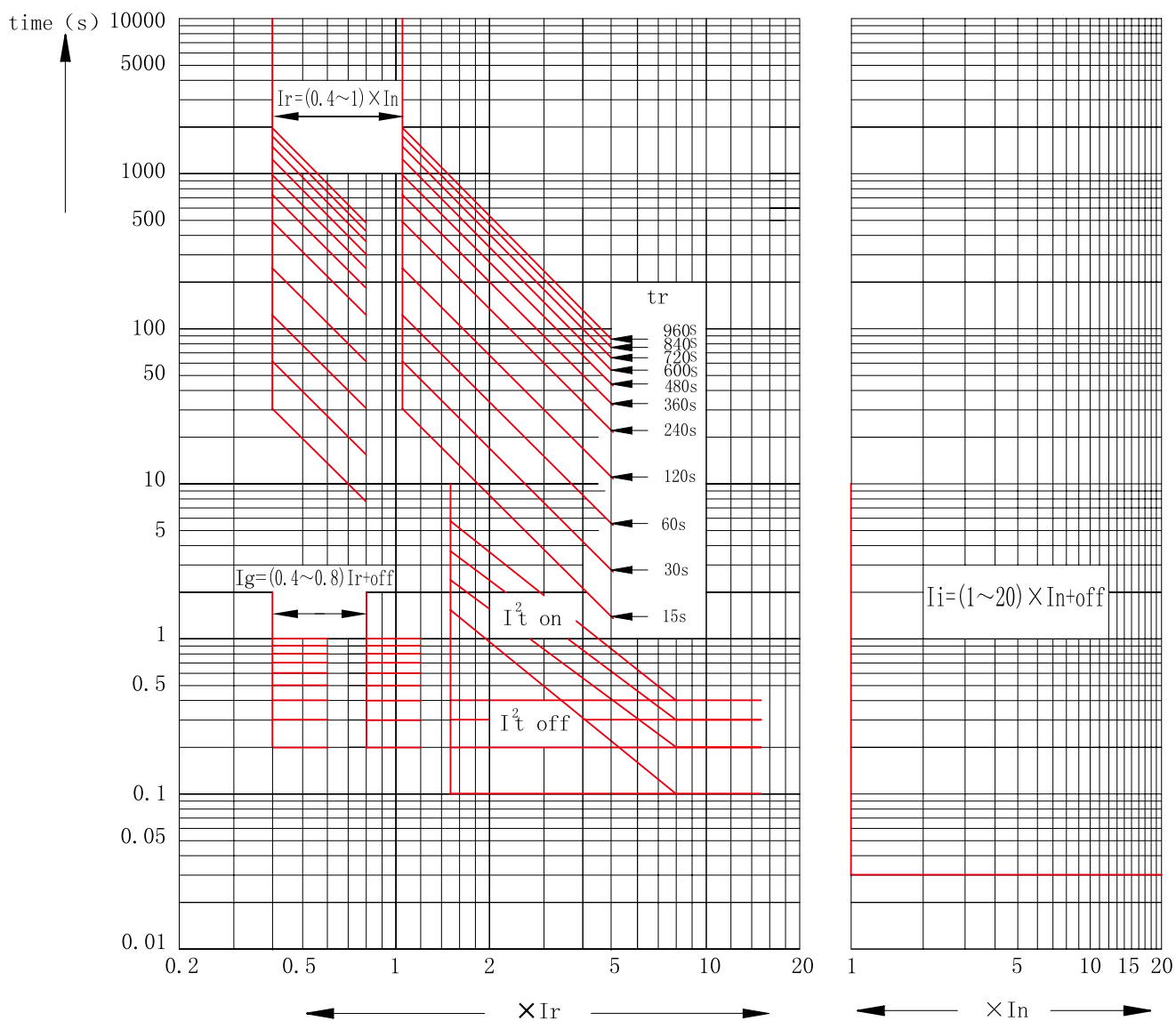
保护特性曲线 Protection characteristic curve  
SW3-L、SW3-A



E

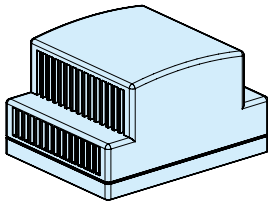
SW3-H通用反时限保护特性曲线

SW3-H universal inverse time protection characteristic curve





SW3 系列智能型控制器附件  
SW3 series of intelligent controller accessories



直流电源模块  
DC power supply module

直流电源模块（选配）

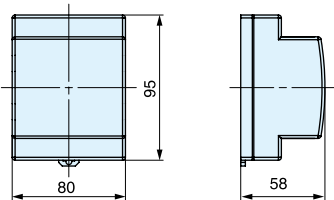
电源电压为DC220V或DC110V时，智能控制器需选购外置式专用电源模块。  
产品采用35mm标准导轨安装方式。

DC power supply module (optional)

Power supply voltage is DC220V or DC110V, the intelligent controller need to buy external dedicated power supply module.

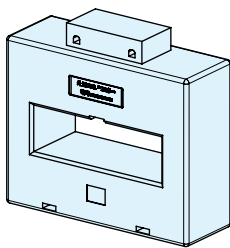
| 特性 Characteristic   |                         |
|---------------------|-------------------------|
| 输入电压 Input Voltage  | DC220V±15% / DC110V±15% |
| 输出电压 Output Voltage | DC24V±5%                |
| 输出电流 Output Current | 1.5A                    |

外形尺寸：  
Dimensions:



接线图参考本样本“断路器电气线路图”部分。

Wiring diagram Refer to the "Circuit Breaker Circuit Diagram" section of this catalog.



外接（N极）电流互感器  
External (N pole) current transformer

外接(N极)电流互感器(配3P+N功能)

用户根据特定场合特殊需求：将三极断路器加外接电流互感器作为第四极的方式(3P+N)替代四极断路器使用，相应智能控制器也有所不同。  
用户选适当地点自行安装，互感器与断路器间距离建议不超过2m。

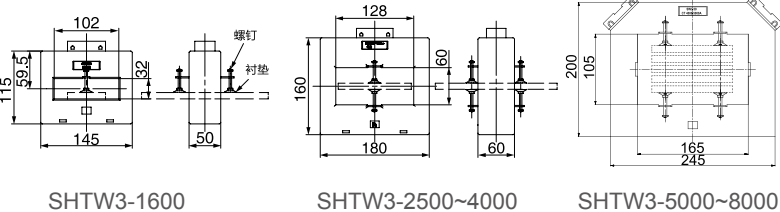
External (N pole) current transformer (with 3P + N function)

The user according to the special needs of specific occasions: the three-pole circuit breaker plus external current transformer as the fourth pole way (3P + N) instead of four-pole circuit breaker use, the corresponding intelligent controller is also different.

The user choose the appropriate place to install their own, the distance between the transformer and the circuit breaker is recommended not more than 2m.

安装及外形尺寸：

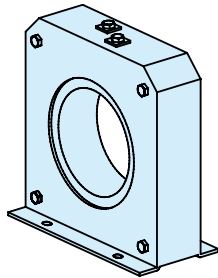
Installation and dimensions:



接线图参考本样本“断路器电气线路图”部分。

Wiring diagram Refer to the "Circuit Breaker Circuit Diagram" section of this catalog.

## 断路器附件 Circuit breaker accessories



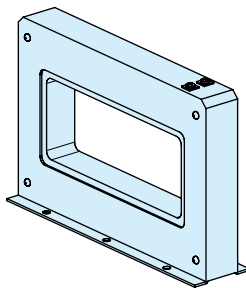
接地互感器  
Grounding transformer

### 接地互感器（配变压器接地保护功能）

当接地方式为地电流返回（W）型时外加的特殊互感器，直接检测接地电缆上的电流，可对断路器的上、下级接地故障同时进行保护，互感器与断路器间距离建议不超过10m。

### Grounding transformer (with transformer grounding protection function)

When the ground current return to (W) type when the special transformer, the direct detection of the ground cable current, the circuit breaker on the ground fault can be protected at the same time, the distance between the transformer and the circuit breaker is not recommended 10m.



漏电互感器  
Leakage transformer

### 漏电互感器（配漏电保护功能）

当接地方式为漏电型时外加的特殊矩形互感器，互感器与断路器间距离建议不超过2m。

### Leakage transformer (with leakage protection)

When the ground way for the leakage type plus special rectangular transformer, the distance between the transformer and the circuit breaker is recommended not more than 2m.

### 通讯附件（配通讯功能，选配）

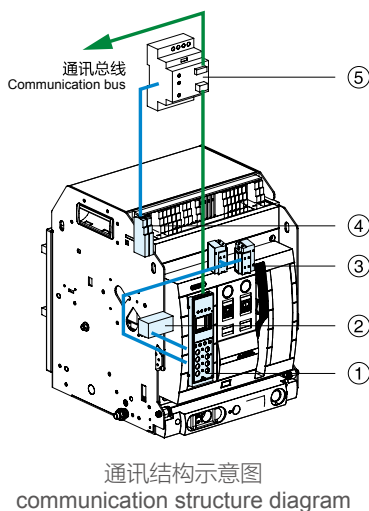
含通讯软件、数据转换器、通讯模块（抽架，本体）、数据集中器、继电器模块、电源模块、各类通讯线等到（更详资料请咨询软件供应商）。

### Communication accessories (with communication function, optional)

Including communication software, data converter, communication module (frame, ontology), data concentrator, relay Modules, power modules, all kinds of communication lines until (more detailed information requested software vendors).

## 通讯结构及网络

## Communication structure and network



### ① 本体通讯模块

#### Ontology communication module

### ② (分/合闸、故障脱扣、合闸准备、储能就绪) 微动开关

#### (Sub / closing, fault trip, closing preparation, energy storage ready) micro switch

### ③ 合闸、分闸线圈

#### Closing, opening the coil

### ④ 连接、试验、分离信号

#### Connection, test, separation signal

### ⑤ 抽架通讯模块

#### Frame communication module

— : 设备接线 Equipment wiring

— : 通讯总线 Communication bus

COM通讯选项

对于固定式断路器通讯COM由断路器内部的通讯模块组成，由一系列辅助触点(分/合闸、故障脱扣、合闸准备、储能就绪)提供信号，并与具有通讯功能的合闸、分闸线圈连接。

对于抽屉式断路器通讯COM的组成为:

安装在本体中的通讯模块，由（分/合闸、故障脱扣、合闸准备、储能就绪）提供信号，并与具有通讯功能的合闸、分闸线圈连接。

一个外接抽架通讯模块，由（连接、试验、分离）抽架三位置微动开关提供信号。COM的断路器状态指示与断路器的指示触点相互独立。断路器的指示触点对于常规使用仍然有效。

本体通讯模块

此模块独立于控制单元。模块安装在控制单元的后面，传送和接收来自通讯网的信息。远红外连接传送控制单元和通讯模块之间的数据。

模块需DC24V工作电源。

抽架通讯模块

此模块为外置式。当断路器处于断开位置时，能够给框架设置地址，并保存地址。

模块需DC24V工作电源。

合闸和分闸通讯线圈

合闸和分闸通讯线圈与本体通讯模块相连。

远程脱扣功能（第二个分闸线圈或欠电压脱扣器）独立于通讯选项之外。它们不能与本体通讯模块连接。

COM communication option

For fixed circuit breaker communication COM is composed of a communication module inside the circuit breaker, consisting of a series of auxiliary contacts(Minutes / closing, fault tripping, closing preparation, energy storage ready) to provide a signal, and with the communication functionClosing, opening coil connection.

For the drawer circuit breaker communication COM composition is:

Installed in the body of the communication module, by (sub / closing, fault tripping, closing preparation, energy storage ready) to mention.For the signal, and with the communication function of the closing, opening the coil connection.

An external drawer communication module, provided by (connecting, testing, separating) the three-position microswitch to provide a signal.COM circuit breaker status indication is independent of the indication contact of the circuit breaker. The indicator of the circuit breaker is for routine use is still valid.

Ontology communication module

This module is independent of the control unit. The module is installed behind the control unit and transmits and receives information from the communication network. Far infrared connection between the transfer control unit and the communication module.

Modules need DC24V power supply.

Frame communication module

This module is external. When the circuit breaker is in the disconnected position, the address can be set to the frame and the address can be saved.

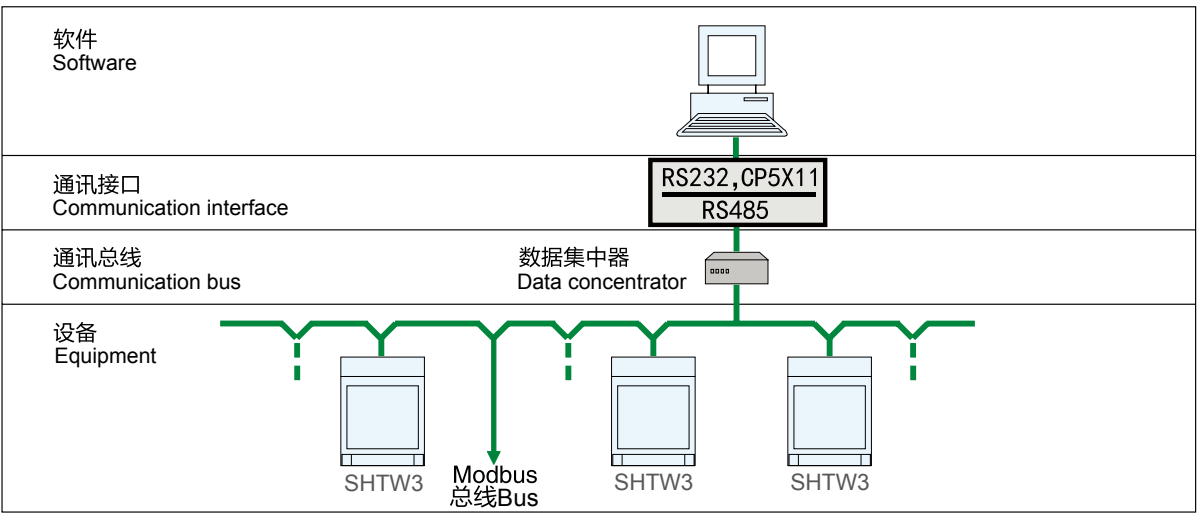
Modules need DC24V power supply.

Closing and opening communication coils

The closing and closing communication coils are connected to the ontology communication module.

The remote trip function (the second subrack or undervoltage release) is independent of the communication option.

They can not be connected to the ontology communication module.

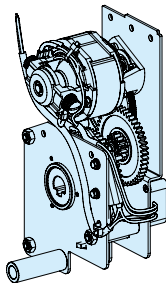


通讯网络示意图 Communication network diagram

注：通讯网络详情可联系软件供应商 Note: The communication network details can contact the software vendor

断路器附件  
Circuit breaker accessories

(远程、本地)操作及(电气、机械)指示  
(Remote, local) operation and (electrical, mechanical) instructions

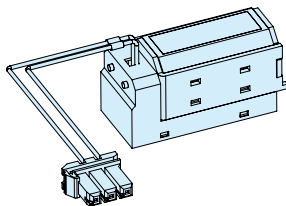


电动操作机构  
Motor driven operating mechanism

电动操作机构M (标配)  
电动操作机构初次得电时能自动储能。当断路器合闸释能的同时, 电动操作机构自动再储能。可保证断路器分闸时, 紧接瞬时合闸。

Motor driven operating mechanism (standard)  
The electric operating mechanism can automatically store energy for the first time. When the circuit breaker closes the release at the same time, the electric operating mechanism is self dynamic storage.

| 特性 Characteristic                              | SHTW3-1600            | SHTW3-2500~4000 | SHTW3-5000~8000 |
|------------------------------------------------|-----------------------|-----------------|-----------------|
| 额定控制电源电压 Us(V)<br>Rated control supply voltage | AC 230/400 DC 110/220 |                 |                 |
| 动作电压 (V)<br>Operating voltage                  | (0.85~1.1)Us          |                 |                 |
| 功耗 (W)<br>Power consumption                    | 40                    | 50              | 75              |
| 储能时间 (s)<br>Storage time                       | ≤5                    | ≤7              |                 |

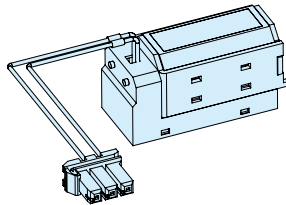


闭合电磁铁  
Closed electromagnet

闭合电磁铁X (标配)  
储能完毕后, 闭合电磁铁可实现本地及远程控制断路器瞬时电动合闸。闭合电磁铁常得电的情况下不会损坏。

Closed electromagnet X (standard)  
After the energy storage is completed, the closed solenoid can realize the instantaneous electric closing of the local and remote control circuit breaker. Closed electromagnet often in the case of electricity will not be damaged.

| 特性 Characteristic                              |                                      |
|------------------------------------------------|--------------------------------------|
| 额定控制电源电压 Us(V)<br>Rated control supply voltage | AC 230/400 DC 110/220                |
| 动作电压 (V) Operating voltage                     | (0.85~1.1)Us                         |
| 功耗 (W) Power consumption                       | 起动瞬时 Start instantaneous (100ms):500 |
| 储能时间 (s) Storage time                          | ≤100                                 |



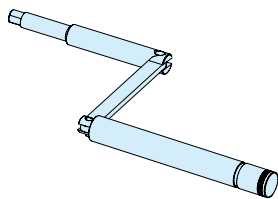
分励脱扣器  
Shunt release

分励脱扣器F (标配)  
分励脱扣器可实现本地及远程控制断路器电动分闸。分励脱扣器通电后可将断路器瞬时断开, 分励脱扣器常得电的情况下不会损坏。

Shunt release F (standard)  
Shunt release can be achieved local and remote control circuit breaker electric opening. After the shunt release is energized, the circuit breaker can be used Instantaneous disconnect, shunt off the device often get the case of electricity will not be damaged.

| 特性 Characteristic                              |                                               |
|------------------------------------------------|-----------------------------------------------|
| 额定控制电源电压 Us(V)<br>Rated control supply voltage | AC 230/400 DC 110/220                         |
| 动作电压 (V) Operating voltage                     | (0.70~1.1)Us                                  |
| 功耗 (W) Power consumption                       | 起动瞬时 (100ms):500<br>Start moment (100ms): 500 |
| 储能时间 (s) Storage time                          | ≤100                                          |

断路器附件  
Circuit breaker accessories



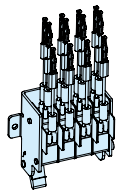
摇手柄  
Shake handle

摇手柄（标配）

操控断路器本体与抽屉座间位置移动，存放于抽屉座底部前端的深凹孔内，仅适用于抽屉式断路器。

Shake handle (standard)

The position of the control circuit breaker body and the drawer seat is moved and stored in the deep hole of the front end of the drawer seat, In the drawer circuit breaker.



SHTW3-1600辅助开关  
SHTW3-1600 auxiliary switch

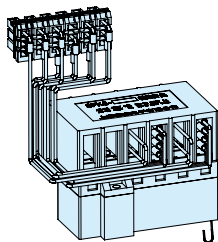
辅助开关AX（标配、选配）

辅助开关与断路器ON、OFF位置联动，可供用户设计电器控制电路之用。其中4NO-C（4组转换型触点）为标配，其余转换型及常开常闭型为选配。

Auxiliary switch AX (standard, optional)

Auxiliary switch and circuit breaker ON and OFF position linkage, for users to design electrical control circuit.

4NO-C (4 sets of conversion type contacts) as the standard, the remaining conversion type and normally open normally closed type optional.



SHTW3-2500及以上辅助开关  
SHTW3-2500 and above auxiliary switch

| 特性 Characteristic                             | SHTW3-1600 |           | SHTW3-2500~8000    |               |
|-----------------------------------------------|------------|-----------|--------------------|---------------|
| 类型 Types                                      | 4/6 NO-C   |           | 4/6 NO-C、4/6 NO-NC |               |
| 额定控制电源电压Us(V)<br>Rated control supply voltage | AC230/400  | DC110/220 | AC230/400/415      | DC110/220/250 |
| 额定控制容量<br>Rated control capacity              | 300VA      | 60W       | 830VA              | 75W           |
| 约定发热电流Ith (A)<br>Conventional heating current | 10         |           |                    |               |

检有压合闸模块

SHTW1系列万能式断路器检有压合闸模块使用于断路器经欠压跳闸后电源电压恢

复正常时有自动合闸要求的场合，如作光伏系统的并网用断路器。

动作特性如下：

- 1、控制电源电压可选AC220V、AC380V
- 2、欠压发生时，由断路器原欠压装置动作，使断路器跳闸。
- 3、当检测到电源电压恢复至85%Us及以上，根据用户要求可以设定0-10S延时闭合断路器。

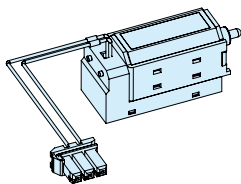
Automatic closing when the voltage returns to normal

SHTW1 series ACB has Automatic closing when the voltage returns module, which is used in the situation of automatic closing when the power supply voltage returns to normal after undervoltage tripping of the circuit breaker, such as the circuit breaker for grid connection of photovoltaic system.

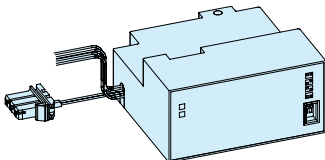
Action characteristics:

- 1.The control power supply voltage can be AC220V, AC380V
- 2.When undervoltage occurs, the original undervoltage device of the circuit breaker acts to trip the circuit breaker.
- 3.When the power supply voltage is detected to recover to 85% us or above, the 0-10s delay closing circuit breaker can be set according to the user's requirements.

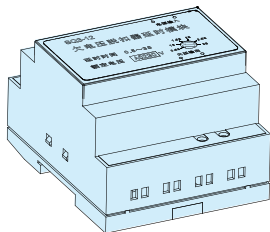
断路器附件  
Circuit breaker accessories



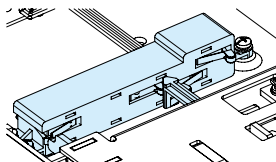
欠压脱扣器  
Under-voltage release



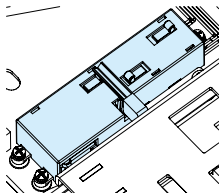
欠压瞬时（延时）模块（内置式）  
Under-voltage transient (delay)  
module(built in)



欠压瞬时（延时）模块（外置式）  
Under-voltage transient (delay)  
module(external)



SHTW3-1600  
三位置电气指示  
Three-position electrical indication



SHTW3-2500及以上 三位置电气指示  
SHTWS1-2500 and above  
Three-position electrical indication

欠压脱扣器Q（选配）

欠压脱扣器在供电电压下降至一定范围或失电压时可将断路器瞬时断开，只有当供电电压恢复至一定值时才允许断路器合闸。欠压脱扣器分欠压瞬时型及欠压延时型，欠压延时型在欠压瞬时型基础上增延时模块。

Undervoltage release Q (optional)

The undervoltage release can be momentarily disconnected when the supply voltage drops to a certain range or out of voltage, only When the supply voltage is restored to a certain value, the circuit breaker is allowed to close.Undervoltage release type undervoltage instantaneous and undervoltage delay type, undervoltage delay type in the undervoltage transient type on the basis of delay when the module.

| 特性 Characteristic                           |                                                               |
|---------------------------------------------|---------------------------------------------------------------|
| 额定控制电源电压 Ue(V)<br>Rated operating voltage   | AC 230/400                                                    |
| 动作电压 (V)<br>Operating voltage               | (0.35~0.7)Ue                                                  |
| 可靠合闸电压 (V)<br>Reliable closing voltage      | (0.85~1.1)Ue                                                  |
| 可靠不能合闸电压 (V)<br>Reliable No closing voltage | ≤0.35 Ue                                                      |
| 功耗 (W)<br>Power consumption                 | 起动瞬时(100ms): 500 保持: 12<br>Start moment (100ms): 500 Hold: 12 |
| 动作时间 (ms)<br>Action time                    | ≤100                                                          |
| 延时时间 (s)<br>Delay time                      | 0, 1, 2, 3                                                    |

三位置电气指示（选配）

对应于“三位置锁定装置”起断路器本体与抽屉座三种位置状态（分离、试验、连接）的信号指示作用，同时三组触点也可用于电气控制回路。

Three-position electrical indication (optional)

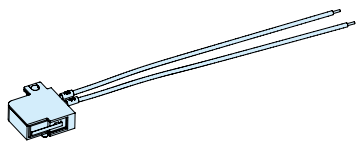
Corresponding to the "three-position locking device" from the circuit breaker body and drawer seat three position status (separation, testing,connection) signal indication, while three sets of contacts can also be used for electrical control circuit.

| 特性Characteristic                               | SHTW3-1600                                               | SHTW3-2500~8000 |
|------------------------------------------------|----------------------------------------------------------|-----------------|
| 触点数量<br>Number of contacts                     | 分离1NO、试验1NO、连接1NC<br>Separate 1NO, test 1NO, connect 1NC |                 |
| 额定工作电压Us(V)<br>Rated operating voltage         | AC230/400/415                                            | DC110/220/250   |
| 额定控制容量<br>Rated control capacity               | 300VA 60W                                                | 830VA 75W       |
| 约定发热电流 Ith (A)<br>Conventional heating current | 10                                                       |                 |



断路器附件

Circuit breaker accessories

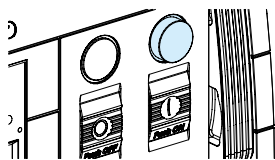


合闸准备电气指示  
Electrical module for indication of  
ready-for-close

**合闸准备电气指示（选配）**  
与机构上合闸机械传动件联锁配合，可指示合闸准备就绪。表明：断路器处于分断状态、断路器已储能、合(分)闸线圈无动作、无故障脱扣、抽屉式断路器在试验位置时合闸准备等。

**Electrical module for indication of ready-for-close (optional)**  
Interlocking with the mechanical transmission parts of the mechanism can indicate that the closing is ready. Indicating that the circuit breaker is in a broken state, the circuit breaker has stored energy, the (sub) gate coil has no action, trouble-free trip, drawer circuit breaker in the test position closing preparation.

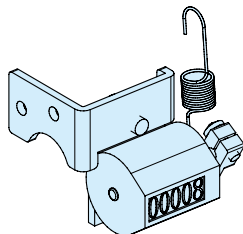
| 特性 Characteristic                                  |                     |
|----------------------------------------------------|---------------------|
| 额定控制电源电压 $U_s(V)$<br>Rated operating voltage       | AC230/400 DC110/220 |
| 额定控制容量<br>Rated control capacity                   | 300VA 60W           |
| 约定发热电流 $I_{th}(A)$<br>Conventional heating current | 6                   |



电动合闸按钮  
Electric closing button

**电动合闸按钮（选配）**  
出于设备控制/监视系统的安全性，此按钮可执行断路器本地端的电气合闸，安装于断路器大面罩的手动合闸按钮上方。  
适用于SHTW3-2500及以上抽屉式断路器。

**Electric closing button (optional)**  
For the safety of the equipment control / monitoring system, this button performs the electrical closing of the local end of the circuit breaker, In the circuit breaker large face mask above the manual closing button.  
Applicable to SHTW3-2500 and above Draw-out type circuit breakers.



计数器 Counter

**远程复位（选配）**  
断路器故障脱扣后可实现电气复位，该功能可远程电动复位控制器的红色复位按钮及故障脱扣指示触点，允许断路器合闸。电源：AC230V、DC110V。

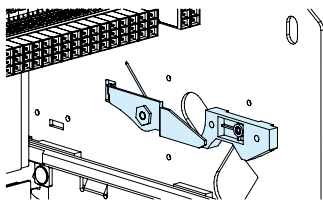
**Remote reset (optional)**  
Circuit breaker fault trip can be achieved after the electrical reset, the function can be remote reset the red controller reset Button and fault trip indication contact, allowing the circuit breaker to close. Power supply: AC230V, DC110V.

**计数器（选配）**  
用于手动或电动合、分断路器时计算操作次数，可在断路器大面罩前下方的矩形窗口内读出。

**Counter (optional)**  
For manual or electric coupling, the number of times to calculate the number of operations in the circuit breaker, Window read out.

## 断路器附件 Circuit breaker accessories

### 防护、锁定及连接装置 Protection, locking and connecting devices



本体进退分断保护  
Preserving and retracting protection

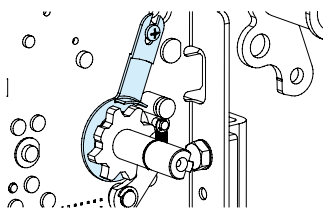
#### 本体进退分断保护（标配）

断路器本体抽出与抽屉座分离时能自动断开，也可防止在闭合状态下摇进抽屉座。断路器本体只能在分闸状态下，才能摇进摇出抽屉座。

此功能适用于抽屉式断路器。

#### Preserving and retracting protection (standard)

When the circuit breaker body is separated from the drawer seat, it can be automatically disengaged, and it can prevent the circuit breaker from falling into the closed state drawer. The circuit breaker body can only be in the sub-gate state, in order to shake into the drawer seat. This function is suitable for Draw-out type circuit breakers.



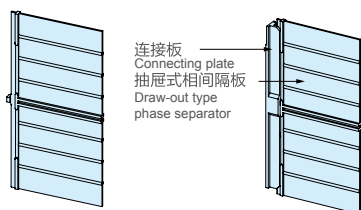
误储能防护装置  
Few storage device

#### 误储能防护装置（标配）

此装置能使机构储能时储能手柄内的掣子与机构上棘轮的啮合面隔离，可防止工序流转或维修中机构误储能引起的安全隐患，出厂检验前解禁。

#### Few storage device (standard)

This device allows the mechanism to store energy when the handle in the handle of the handle and the ratchet on the engagement surface of the isolation, to prevent process flow or maintenance of the organization caused by the risk of security risks, factory inspection before the lifting of the ban.



抽屉式相间隔板  
Drawer door frame

固定式相间隔板  
Fixed door frame

#### 相间隔板（选配）

垂直安装在断路器主回路外接端子排之间，用来加强母排间的绝缘。固定式相间隔板需另外选配连接板（连接过渡件）。

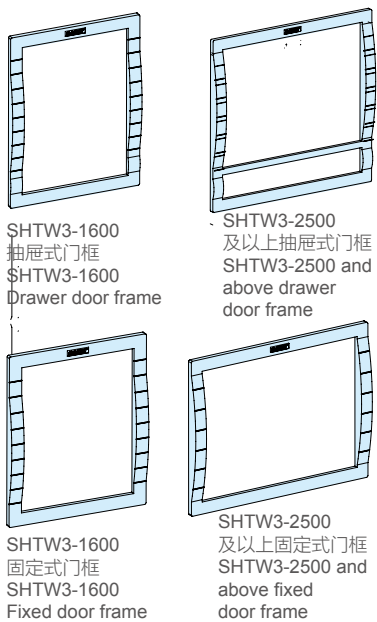
若运行电压大于500V，建议必须使用相间隔板。

#### Interphase barriers (optional)

Vertical installation in the circuit breaker main circuit between the external terminal block, used to strengthen the insulation between the busbar.

The fixed phase plate must be equipped with a connecting plate (connecting transition piece). If the operating voltage is greater than 500V, it is recommended to use phase spacers.

断路器附件  
Circuit breaker accessories



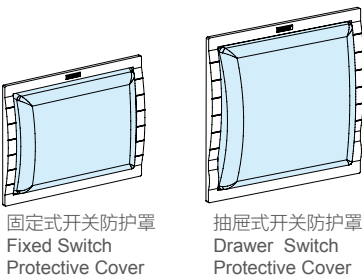
门框（选配）

安装在开孔的柜门上，对断路器在孔内透出柜门部位起防护作用，防护等级达到IP40。  
安装尺寸详见本样本内“SHTW3系列断路器外形、安装及连接尺寸”部分的“面板开孔”示意图。

Door frame (optional)

Installed in the opening of the cabinet door, the circuit breaker in the hole out of the door parts of the protective role, protection level to IP40.

For details on the installation dimensions, see "Panel Openings" in the "SHTW3 Series Circuit Breaker Outline, Installation and Connection Dimensions" section of this catalog.

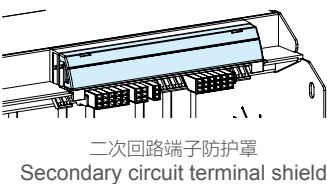


开关（断路器）防护罩（选配）

安装在门框上，透明，增加对断路器的防护等级到IP54。

Switch (circuit breaker) shield (optional)

Installed on the door frame, transparent, increasing the degree of protection to the circuit breaker to IP54.

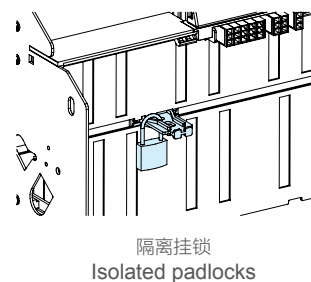


二次回路端子防护罩（选配）

安装在抽屉座上，可起防尘及防止接触二次接线端子带电体的作用，适用于抽屉式断路器。

Secondary circuit terminal shield (optional)

Installed in the drawer seat, can play dust and prevent contact with the secondary terminal of the role of charged body, suitable for pumping Drawer circuit breakers.



隔离挂锁（标配）

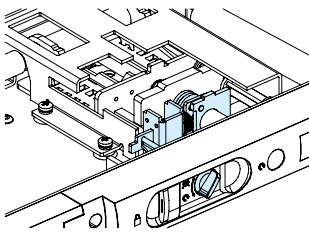
可锁定安全挡板在关闭位置（挂锁用户自备），起下列作用：防止断路器本体与抽屉座连接；  
断路器本体从抽屉座上移下或抽屉座现场维修时，防止接触带电部分。此功能适用于抽屉式断路器。

Isolated Padlock (Standard)

Lockable safety baffle in the closed position (padlock user-owned), the following functions:

To prevent the circuit breaker body and the drawer seat connection;  
When the circuit breaker body is removed from the drawer seat or the drawer seat is repaired, it is prevented from touching the live part.  
This function is suitable for Draw-out type circuit breakers.

## 断路器附件 Circuit breaker accessories



三位置锁定装置  
Three-position locking device

### 三位置锁定装置（标配）

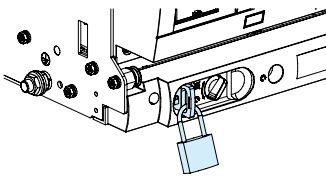
可对断路器本体与抽屉座分离、试验、连接三位置机械锁定及解除，三种位置状态在抽屉座前下方罩壳上可识别。

适用于抽屉式断路器。

### Three-position locking device (standard)

Can be separated from the circuit breaker body and drawer seat, test, connect the three-position mechanical locking and lifting, three position in the drawer seat on the front cover can be identified.

Applicable to Draw-out type circuit breakers.



位置锁  
Position lock

### 位置锁（标配）

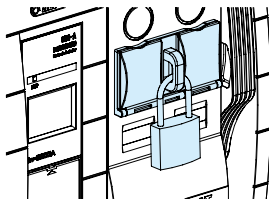
通过挂锁（用户自备）起到摇手柄禁止插入的作用，可把断路器锁定于“分离”位置。

适用于抽屉式断路器。

### Position lock (standard)

The lock is locked in the "disengaged" position by means of a padlock (user-supplied) that does not allow the handle to be inserted.

Applicable to Draw-out type circuit breakers.



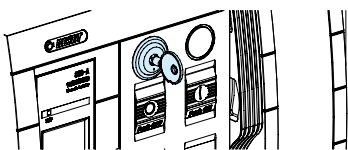
按钮闭锁装置  
Button lock

### 按钮闭锁装置（选配）

该装置通过挂锁（用户自备）可防止误操作合闸或分闸按钮。合闸和分闸按钮的锁定可以相互独立，通常与远程操作配合使用。

### Button lock (optional)

The device can be prevented from erroneous closing or opening by padlock (user-supplied). The locking of the closing and opening buttons can be independent of each other and are usually used in conjunction with remote operation.



防合锁  
Off key lock

### 防合锁（选配）

通过锁将分闸按钮保持在按下位置可锁定断路器在OFF位置。还可实现多台断路器间多种钥匙联锁，可分为：

#### 一锁一钥匙：

一台断路器配一把锁及一把钥匙，在锁住状态下才能拔出钥匙，同时此断路器合闸失效。

### Off key lock (optional)

Lock the circuit breaker in the OFF position by holding the trip button in the pressed position. But also to achieve multiple interlocking between a variety of key interlocking, can be divided into:

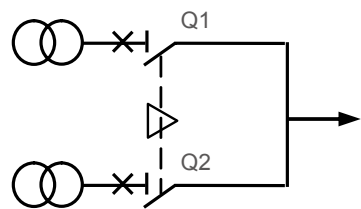
#### A lock a key:

A circuit breaker with a lock and a key, in the locked state to set the key, while the circuit breaker closing failure.

断路器附件

Circuit breaker accessories

二锁一钥匙：  
二台断路器配二把相同的锁及一把钥匙，这样在任何情况下此二台断路器只有一台能有效合闸。



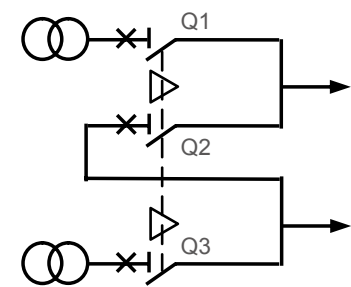
电路图 Circuit diagram

Two lock and one key:  
Two sets of circuit breakers with two identical locks and a key, so in any case the two circuit breakers only One can be effectively closed.

| Q1                                                                       | Q2 |
|--------------------------------------------------------------------------|----|
| O                                                                        | O  |
| O                                                                        | I  |
| I                                                                        | O  |
| O: 断路器断开 Circuit Breaker Disconnect      I: 断路器闭合 Circuit Breaker Closed |    |

可能的运行方式 Possible mode of operation

三锁二钥匙：  
三台断路器（二电源一母联）配三把相同的锁及二把钥匙，只允许二台断路器能有效合闸。



电路图 Circuit diagram

Three lock and two key:  
Three circuit breakers (two power supply a mother together) with three locks and two keys, only two sets of circuit breakers can Effective closing.

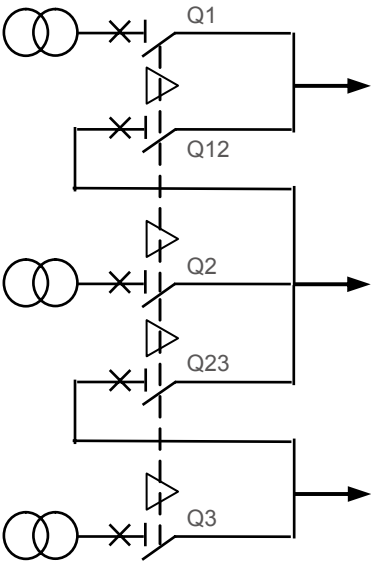
| Q1                                                                       | Q2 | Q3 |
|--------------------------------------------------------------------------|----|----|
| O                                                                        | O  | O  |
| I                                                                        | O  | O  |
| O                                                                        | I  | O  |
| O                                                                        | O  | I  |
| I                                                                        | I  | O  |
| O                                                                        | I  | I  |
| I                                                                        | O  | I  |
| O: 断路器断开 Circuit Breaker Disconnect      I: 断路器闭合 Circuit Breaker Closed |    |    |

可能的运行方式 Possible mode of operation

断路器附件  
Circuit breaker accessories

五锁三钥匙:

用于三路电源二合母联的配电系统，且断路器分散安装的场合。  
按下图所示：三台电源进线断路器分别为Q1、Q2、Q3，两合母联分别为Q12、Q23。  
Q1、Q12断路器配二把相同的锁，Q2断路器配一把锁，Q23、Q3断路器配二把相同的锁。  
提供二把钥匙及一把钥匙串：二把钥匙中的一把配Q1、Q12断路器，另一把配Q3、Q23断路器。一把钥匙串再由分别配Q1、Q12断路器、配Q2断路器、配Q23、Q3断路器的三把钥匙组成，不得分散，当此钥匙串插入Q12、Q2、Q23三台断路器中任一合时，另二台合闸失效。



电路图 Circuit diagram

Five lock and two key:

For the three-way power supply two busbar distribution system, and the circuit breaker dispersed installation of the occasion.  
According to the following figure: three power into the line circuit breaker Q1, Q2, Q3, respectively, two pairs of parental joint Q12, Q23.  
Q1, Q12 circuit breaker with two identical locks, Q2 circuit breaker with a lock, Q23, Q3 circuit breaker with two identical locks.  
Provide two keys and a keychain: one of the two keys with Q1, Q12 circuit breaker, another one with Q23, Q3 circuit breaker.  
A keychain with Q1, Q12 circuit breaker, with Q2 circuit breaker, with Q23, Q3 circuit breaker of the three keys, not scattered, when the keychain inserted Q12, Q2, Q23 three circuit breakers One, the other two closing failure.

| Q1 | Q12 | Q2 | Q23 | Q3 |
|----|-----|----|-----|----|
| O  | O   | O  | O   | O  |
| I  | O   | O  | O   | O  |
| O  | I   | O  | O   | O  |
| O  | O   | I  | O   | O  |
| O  | O   | O  | I   | O  |
| O  | O   | O  | O   | I  |
| I  | I   | O  | O   | O  |
| I  | O   | I  | O   | O  |
| I  | O   | O  | I   | O  |
| I  | O   | O  | O   | I  |
| O  | I   | I  | O   | O  |
| O  | I   | O  | I   | O  |
| O  | I   | O  | O   | I  |
| O  | O   | I  | I   | O  |
| O  | O   | I  | O   | I  |
| O  | O   | O  | I   | I  |
| I  | I   | O  | I   | O  |
| I  | I   | O  | O   | I  |
| I  | O   | I  | O   | I  |
| I  | O   | O  | I   | I  |
| O  | I   | I  | I   | O  |
| O  | I   | O  | I   | I  |

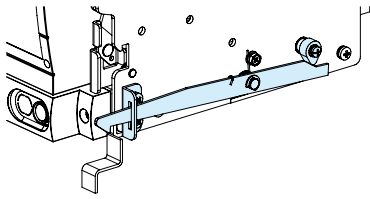
O: 断路器断开 Circuit Breaker Disconnect

I: 断路器闭合 Circuit Breaker Closed

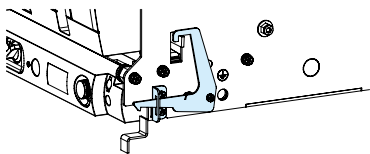
可能的运行方式 Possible mode of operation



## 断路器附件 Circuit breaker accessories



SHTW3-1600门联锁  
SHTW3-1600 door interlock



SHTW3-2500及以上门联锁  
SHTW3-2500 and above door interlock

### 门联锁（选配）

安装在抽屉座左侧或右侧，断路器处于试验或连接位置时禁止柜门打开。若门打开而断路器在连接位置，不用断开断路器就可以关上门。

适用于抽屉式断路器。

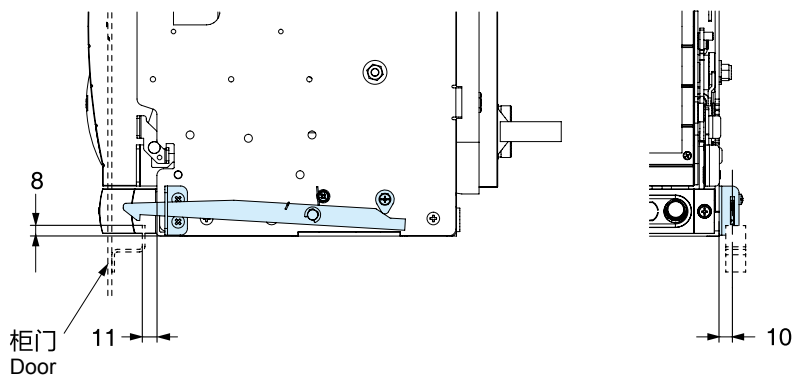
安装示意及尺寸：

### Door interlock (optional)

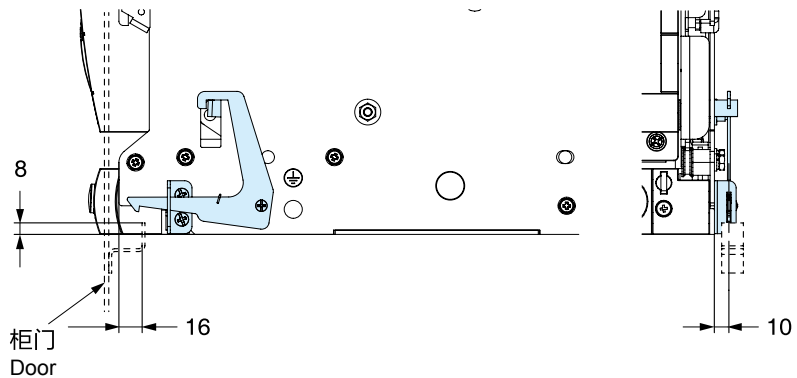
Installed on the left or right side of the drawer seat, the circuit breaker is closed when the circuit breaker is in the test or connection position. If the door is open and the circuit breaker is in the connected position, the door can be closed without disconnecting the circuit breaker.

Applicable to Draw-out type circuit breakers.

Installation instructions and size:

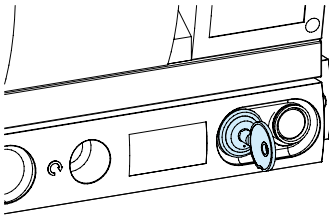


SHTW3-1600 门联锁  
SHTW3-1600 door interlock



SHTW3-2500及以上门联锁  
SHTW3-2500 and above door interlock

## 断路器附件 Circuit breaker accessories



位置钥匙锁  
Position key lock

### 位置钥匙锁（选配）

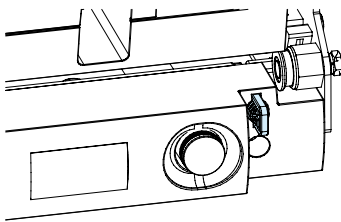
通过钥匙锁可把断路器锁定于“分离”位置，作用与“位置锁”相同。另外，也可用两把相同的锁分别装于两台断路器上，一把钥匙解锁的方式来实现它们之间“分离”位置的联锁。

适用于SHTW3-1600抽屉式断路器。

### Position key lock (optional)

In addition, you can also use two identical locks were installed in two circuit breakers, a key to unlock the way to achieve them Between the "separated" positions of the interlock.

Applicable to SHTW3-1600 drawer style circuit breakers.



进退联锁  
Advance and retreat

### 进退联锁（选配）

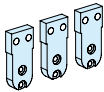
柜门打开时禁止插入摇手柄。

适用于SHTW3-2500及以上抽屉式断路器。

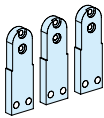
### Advance and retreat (optional)

Do not insert the handle when the door is open.

Applicable to SHTW3-2500 and above drawer style circuit breakers.



SHTW3-1600抽屉式前置连接排  
SHTW3-1600 drawer front connection row



SHTW3-2500及以上前置连接排  
SHTW3-2500 and above front connection row

### 前置连接排（选配）

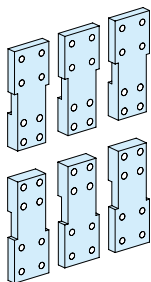
用于额定电流4000A及以下导电主回路断路器外接排为上、下方向的前连接方式。

安装方式及尺寸详见本样本内“SHTW3系列断路器外形、安装及连接尺寸”部分。

### Front connection row (optional)

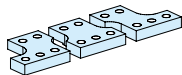
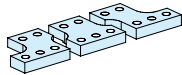
For the rated current of 4000A and below the main circuit breaker circuit breaker row for the upper and lower direction of the front connection.

Refer to the "SHTW3 Series Circuit Breaker Outline, Installation and Connection Dimensions" section of this catalog for installation and dimensions.

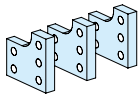
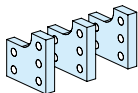


防护、锁定及连接装置

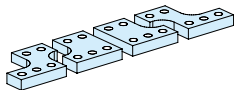
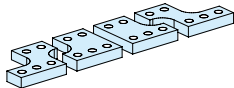
Protection, locking and connecting devices



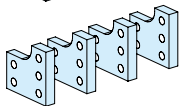
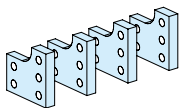
3P扩展母排（水平）  
3P extended busbar (horizontal)



3P扩展母排（垂直）  
3P extended busbar (vertical)



4P扩展母排（水平）  
4P extended busbar (vertical)



4P扩展母排（垂直）  
4P extended busbar (vertical)

3P扩展母排（选配）

适用于SHTW3-1600三极断路器扩大主回路连接相间距，提高电气安全性，降低温升。

安装方式及尺寸详见本样本内“SHTW3系列断路器外形、安装及连接尺寸”部分。

3P extended busbar (optional)

Applicable to SHTW3-1600 three-pole circuit breaker to expand the main circuit connection phase spacing, improve electrical safety, reduce the temperature rise.

Refer to the "SHTW3 Series Circuit Breaker Outline, Installation and Connection Dimensions" section of this catalog for installation and dimensions.

4P扩展母排（选配）

适用于SHTW3-1600四极断路器扩大主回路连接相间距，提高电气安全性，降低温升。

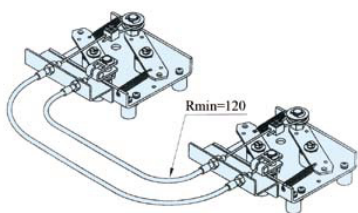
安装方式及尺寸详见本样本内“SHTW3系列断路器外形、安装及连接尺寸”部分。

4P extended busbar (optional)

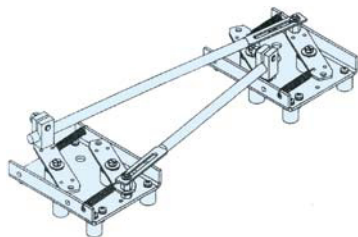
Applicable to SHTW3-1600 four-pole circuit breaker to expand the main circuit connection phase spacing, improve electrical safety, reduce the temperature rise.

Refer to the "SHTW3 Series Circuit Breaker Outline, Installation and Connection Dimensions" section of this catalog for installation and dimensions.

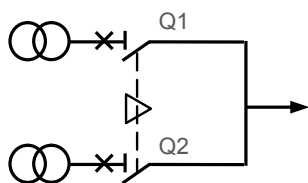
机械联锁及双电源  
Mechanical interlock and dual power supply



机械联锁（钢缆型）  
Mechanical interlock (steel type)



机械联锁（杠杆型）  
Mechanical interlock (lever type)



机械联锁（选配）

机械联锁机构安装于断路器抽屉座右侧，当其中一台断路器处于合闸状态时，与之联锁的断路器合闸失效。联锁机构由用户自行安装调试。  
联锁机构可分为以下类型：

Mechanical interlocking (optional)

The mechanical interlocking mechanism is installed on the right side of the drawer seat of the circuit breaker. When one of the circuit breakers is in the closed state, the circuit breaker with interlocking is inoperative. The interlocking mechanism is installed and debugged by the user.

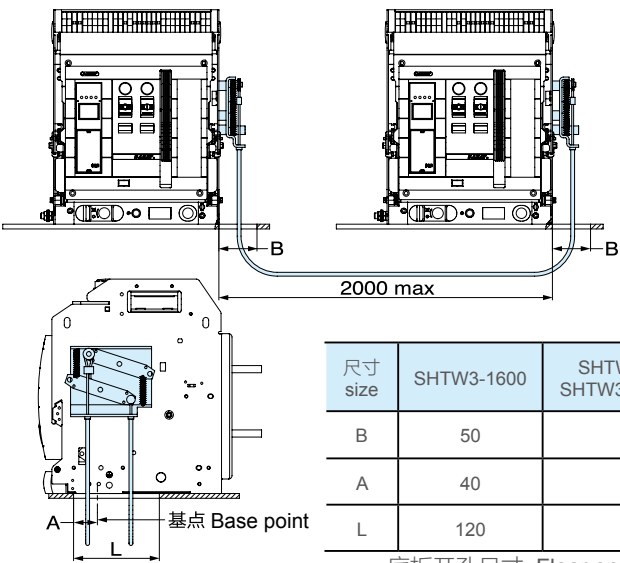
两台平放断路器的钢缆联锁

Two cable breakers for flat breakers

| Q1 | Q2 |
|----|----|
| O  | O  |
| O  | I  |
| I  | O  |

O: 断路器断开 Circuit Breaker Disconnect      I: 断路器闭合 Circuit Breaker Closed

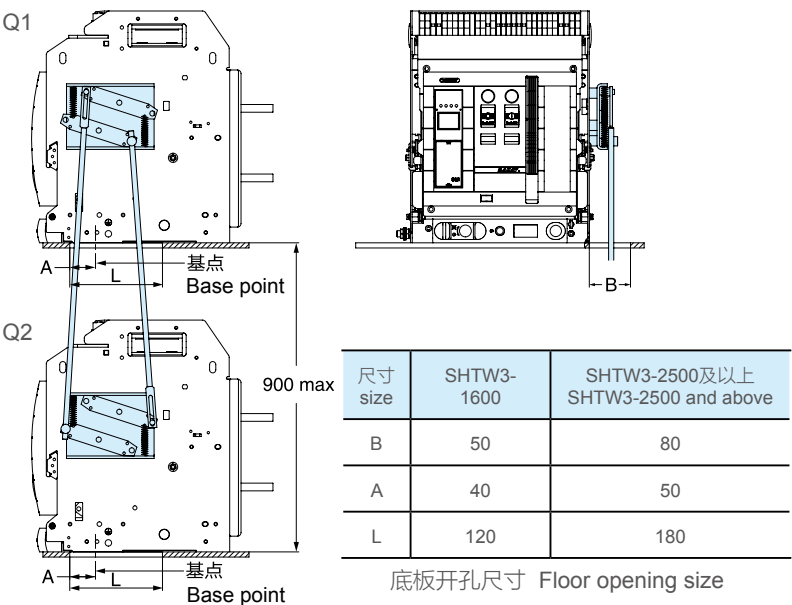
可能的运行方式 Possible mode of operation



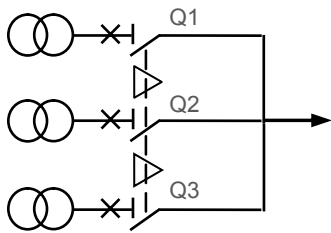
| 尺寸<br>size | SHTW3-1600 | SHTW3-2500及以上<br>SHTW3-2500 and above |
|------------|------------|---------------------------------------|
| B          | 50         | 80                                    |
| A          | 40         | 50                                    |
| L          | 120        | 180                                   |

底板开孔尺寸 Floor opening size

两台叠装断路器的杠杆联锁（“电路图”及“可能的运行方式”同钢缆联锁）  
The leverages of the two stacker breakers ("circuit diagram" and "possible mode of operation" are interlocked with the cable)



方式一：三个电源只能合一台断路器  
Way one: three power can only be combined with a circuit breaker



| Q1 | Q2 | Q3 |
|----|----|----|
| O  | O  | O  |
| I  | O  | O  |
| O  | I  | O  |
| O  | O  | I  |

O: 断路器断开 Circuit Breaker Disconnect

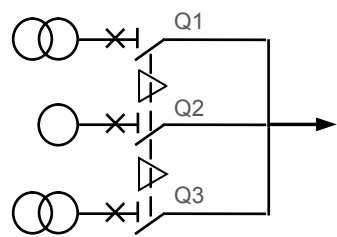
I: 断路器闭合 Circuit Breaker Closed

可能的运行方式 Possible mode of operation

注：钢缆联锁与杠杆连锁可组合使用。订货时需特别说明。

Note: Cable interlock and lever chain can be used in combination. Please specify when ordering.

方式二：二个常用电源加一个备用电源  
Mode 2: two commonly used power plus a backup power supply

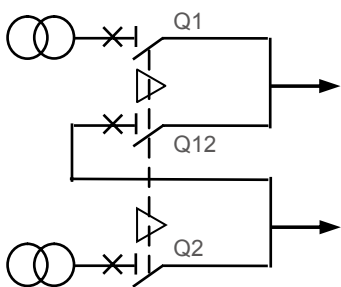


| Q1 | Q2 | Q3 |
|----|----|----|
| O  | O  | O  |
| I  | O  | O  |
| O  | I  | O  |
| I  | O  | I  |
| O  | O  | I  |

O: 断路器断开 Circuit Breaker Disconnect      I: 断路器闭合 Circuit Breaker Closed

可能的运行方式 Possible mode of operation

方式三：二个电源加一个分段  
Way three: two power plus a sub-section



| Q1 | Q12 | Q2 |
|----|-----|----|
| O  | O   | O  |
| I  | O   | O  |
| O  | I   | O  |
| O  | O   | I  |
| I  | I   | O  |
| O  | I   | I  |
| I  | O   | I  |

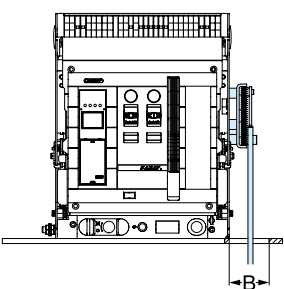
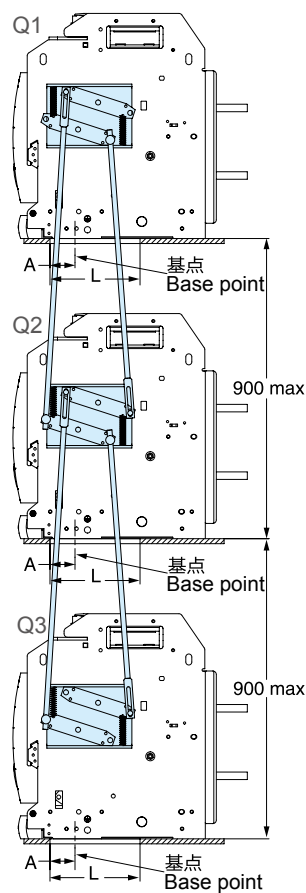
O: 断路器断开 Circuit Breaker Disconnect      I: 断路器闭合 Circuit Breaker Closed

可能的运行方式 Possible mode of operation

注：钢缆联锁与杠杆连锁可组合使用。订货时需特别说明。

Note: Cable interlock and lever chain can be used in combination. Please specify when ordering.





| 尺寸<br>size | SHTW3-1600 | SHTW3-2500及以上<br>SHTW3-2500 and above |
|------------|------------|---------------------------------------|
| B          | 50         | 80                                    |
| A          | 40         | 50                                    |
| L          | 120        | 180                                   |

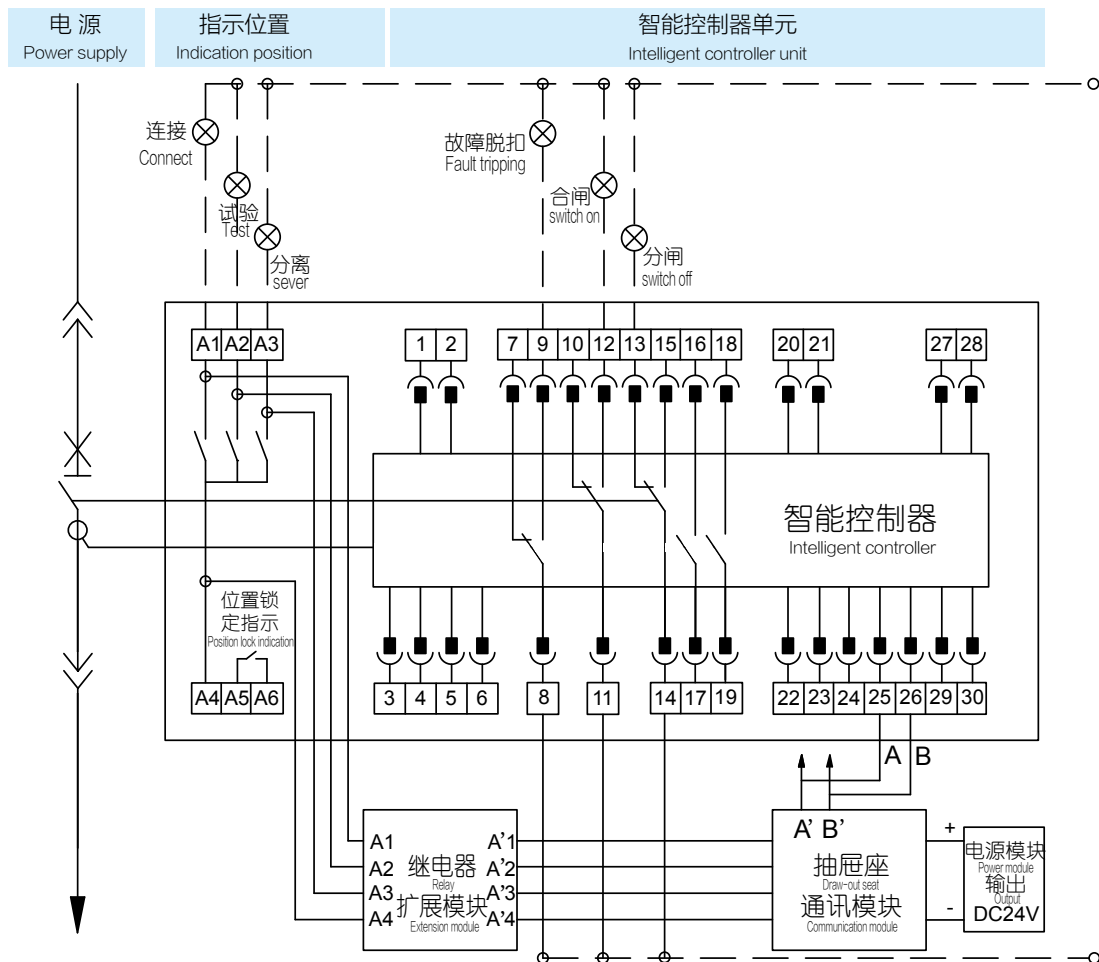
底板开孔尺寸 Floor opening size

注：钢缆联锁与杠杆连锁可组合使用。订货时需特别说明。

Note: Cable interlock and lever chain can be used in combination. Please specify when ordering.

## 二次回路接线图 Secondary circuit wiring diagram

### 二次回路接线图 Secondary circuit wiring diagram



#### 符号含义:

1#、2#：辅助电源输入，若直流则1#为“+”，2#为“-”  
 3#、4#、5#、6#：电压显示用A、B、C、N三相电压输入端  
 (选配功能)  
 7#、8#、9#：故障脱扣指示信号输出  
 10#、11#、12#：合闸指示信号输出  
 13#、14#、15#：分闸指示信号输出  
 16#、17#：可编程输出1(选配功能)  
 18#、19#：可编程输出2(选配功能)  
 20#、21#：ZS1信号输出，20#接“+”，21#接“-”(选配功能)  
 22#、23#：ZS1信号输入，22#接“+”，23#接“-”(选配功能)  
 24#、25#、26#：智能控制器通讯口，24#接SH屏蔽层，25#接A，  
 26#接B，若有抽屉座通讯模块，则接至抽屉座通讯  
 模块输入，24#接S，25#接A，26#接B(选配功能)  
 27#、28#：外加地电流或漏电型电流互感器输入(选配功能)  
 29#、30#：外接中性线电流互感器输入(选配功能)  
 A1-A6：三位置信号输出(选配功能)

#### Symbolic meaning:

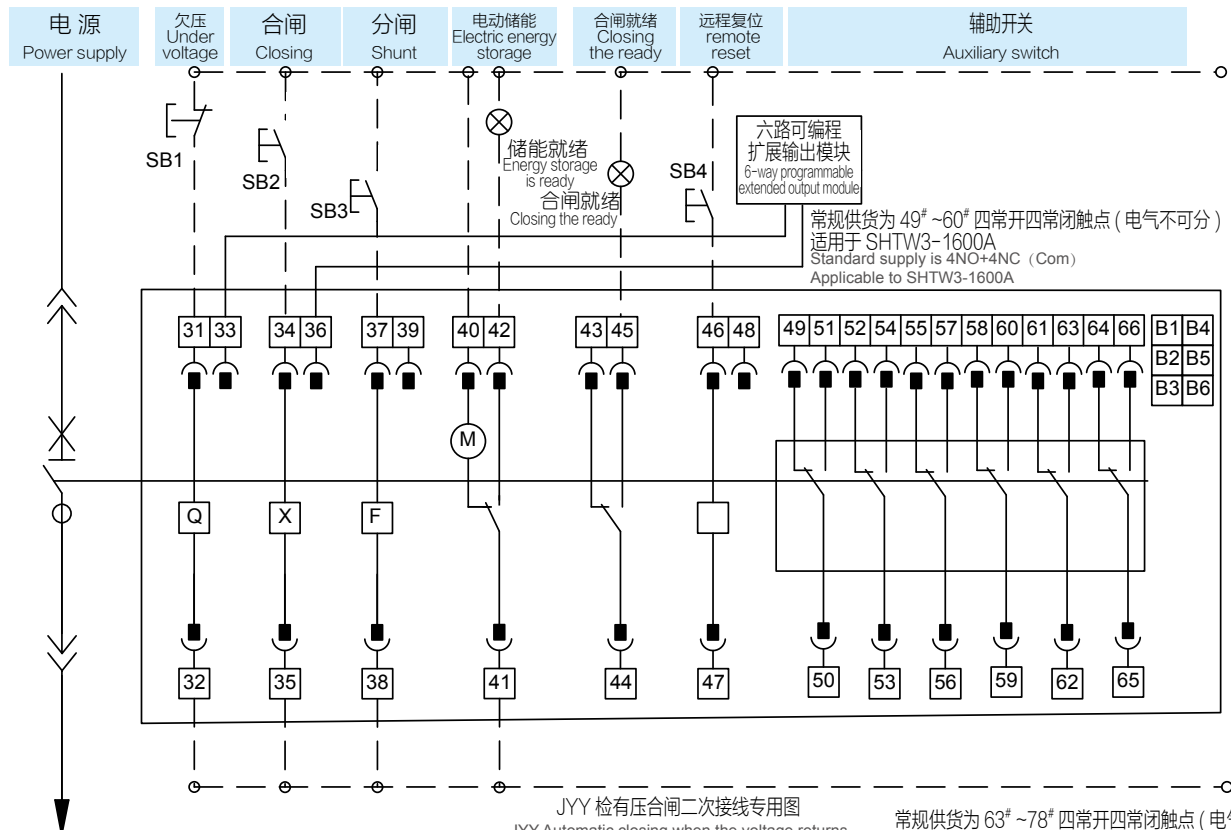
1#、2#：Auxiliary power input, if dc, 1# is “+”, 2# is “-”  
 3#、4#、5#、6#：A, B, C and N three-phase voltage input  
 terminals for voltage display (optional)  
 7#、8#、9#：Fault trip indication signal output  
 10#、11#、12#：Close indication signal output  
 13#、14#、15#：Switch indicating signal output  
 16#、17#：Programmable output 1(optional)  
 18#、19#：Programmable output 2(optional)  
 20#、21#：ZS1 signal output, 20# connect “+”, 21# connect  
 “-”(optional)  
 22#、23#：ZS1 signal input, 22# connect “+”, 23# connect  
 “-”(optional)  
 24#、25#、26#：Intelligent controller communication port, 24#  
 to SH shielding layer, 25# to A, 26# to B, If there  
 is a drawer block communication module, then  
 connect to the drawer block communication  
 module input, 24# connect S, 25# connect A, 26#  
 connect B(optional)  
 27#、28#：Input of ground current or leakage current  
 transformer (optional)  
 29#、30#：Input of external neutral current transformer (optional)  
 A1-A6：Three position signal output (optional)

## 二次回路接线图

### Secondary circuit wiring diagram

### 二次回路接线图

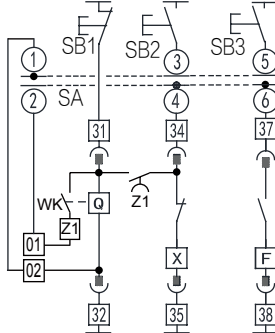
#### Secondary circuit wiring diagram



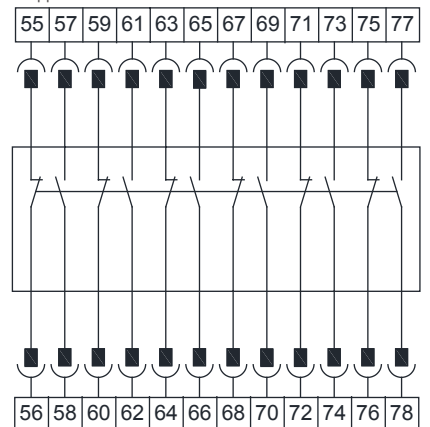
JYY 检有压合闸二次接线专用图

JYY Automatic closing when the voltage returns to normal of Secondary circuit wiring diagram

| SA 转换开关节点 |       |
|-----------|-------|
| 检查压投入     | 检查压退出 |
| 1-2       | X     |
| 3-4       | X     |
| 5-6       | X     |



常规供货为 63#~78# 四常开四常闭触点 (电气独立)  
适用于 SHTW3-2500A~8000A  
Standard supply is 4NO+4NC (Sep)  
Applicable to SHTW3-2500A-8000A



#### 符号含义:

SB1: 欠压按钮 J1: 遥控合闸继电器 X: 合闸电磁铁  
SB2: 合闸按钮 J2: 遥控分闸继电器 F: 分励脱扣器  
SB3: 分闸按钮 SA: 转换开关 M: 储能电机  
SB4: 远程复位按钮 Q: 欠电压 (或延时) 脱扣器  
31#、32#: 欠电压 (或延时) 脱扣器电源输入  
33#、36#: 六路可编程扩展输出模块  
34#、35#: 合闸电磁铁电源输入  
37#、38#、39#: 分励脱扣器电源输入, 39# 为空端子  
40#、41#、42#: 储能电操电源输入及储能就绪信号输出  
43#、44#、45#: 合闸准备就绪信号输出 (选配功能)  
46#、47#、48#: 远程复位电源输入, 48# 为空端子 (选配功能)  
49#~78#: 辅助开关连接端子输出 B1~B6: 固定备用接线端子  
JYY: 检有压合闸模块 断路器经失压跳闸后, 当检测到电源电压恢复到 85% 及以上, 断路器可经人为设定延时 (0~10s) 自动合闸

#### Symbolic meaning:

SB1: Undervoltage button J1: Remote closing relay X: Close the electromagnet  
SB2: Closing pushbutton J2: Remote switching relay F: Shunt release  
SB3: Shunt pushbutton SA: Transfer switch M: Energy storage motor  
SB4: Remote reset button Q: Undervoltage (or delay) trip  
31#、32#: Undervoltage (or delay) trip power input  
33#、36#: 6-way programmable extended output module  
34#、35#: Close the electromagnet power input  
37#、38#、39#: Shunt trip power input, 39# is empty terminal  
40#、41#、42#: Energy storage electrical operation power input and energy storage ready signal output  
43#、44#、45#: Closing ready signal output (optional)  
46#、47#、48#: Remote reset power input, 48# empty terminal (optional)  
49#~77#: Auxiliary switches connect terminal outputs B1~B6: Secure standby terminal  
JYY: Automatic closing when the voltage returns to normal :When the power supply voltage is recovered to 85% or above, the circuit breaker can be closed automatically by setting time delay (0~10s) after the circuit breaker trips.

# 自动电源转换系统

## Automatic power transfer switching system

### 自动电源转换系统简介

WATSC702/802 自动电源转换系统是一种具有可编程功能、自动化测量、LCD 菜单显示、数字通讯为一体的智能化双电源切换产品,可自动实现电压、频率、相位等电参量测量,并根据设置参数进行自动化控制,可减少人为操作失误,是控制双电源切换的理想产品。

WATSC702/802 自动电源转换系统主要是由双电源转换控制器、SHTW1/SHTW3 万能式断路器、重载连接器及机械连锁构成,可精确地检测两路三相电压,对出现的电压异常(欠压、过压、缺相、过频、欠频)做出准确的判断并输出无源控制开关量。用户无需单独接线,只需接插专用电缆连接器。

其中 WATSC702 控制器控制两路进线开关,实现低压自投。其结构紧凑、电路先进、接线简单、可靠性高,可广泛应用于电力、邮电、石油、煤炭、冶金、铁道、市政、智能大厦等行业、部门的电气装置、自动控制以及带母联开关的两路电源供电系统。

### 符合标准

IEC 60947-6-1

GB/T 14048.11

《低压开关设备和控制设备

第 6-1 部分:多功能电气 转换电气》



WATSC702 自动电源转换系统

WATSC702 Automatic power transfer switching system

### Automatic power transfer switching system

Watsc702/802 Automatic power transfer switching system is a programmable function, automatic measurement, LCD menu display, digital communication as one of the intelligent dual power switching products, can be automatic Voltage, frequency, phase and other electrical parameters measurement, and according to the set parameters for automatic control, can reduce human operation error, is an ideal product to control the dual power switch.

Watsc702/802 Automatic power transfer switching system is mainly composed of dual power conversion controller, SHTW1/SHTW3 universal circuit breaker, heavy-duty connector and mechanical linkage, which can accurately detect two or three phases Voltage, make accurate judgment of the abnormal voltage (undervoltage, overvoltage, missing phase, overfrequency, underfrequency) and output the switch quantity of passive control. Users do not need separate wiring, Just plug in the special cable connector.

WATSC702 controller controls the two-way inlet switch, WATSC802 controller controls the two-way inlet switch and a busbar switch. Its compact structure, advanced circuit, simple wiring, can Highly reliable, can be widely used in electric power, posts and telecommunications, petroleum, coal, metallurgy, railway, municipal, intelligent buildings and other industries, departments of electrical equipment, automatic control and with bus switch two power supply The electrical system.

### Standards applicable

IEC 60947-6-1

GB/T 14048.11

《Low-voltage switchgear and controlgear—Part 6-1:

multiple function equipment—Transfer switching equipment》



WATSC802 自动电源转换系统

WATSC802 Automatic power transfer switching system

WATSC 自动电源转换系统示意图 (机械连锁需根据现场实际距离选配)

Schematic diagram of WATSC Automatic Power Supply Switch System

(mechanical interlock shall be selected according to the actual distance on site)

### 型号及意义 Type and its designation

WATSC□-□/□/□/□/□

R: 电网 - 电网 / F: 电网 - 发电机 R: Grid-Grid/F: Grid-Generator

配用断路器 Select ACB: W1(SHTW1)/W3(SHTW3)

极数 Pole number: 3(3P)/4(4P)

额定电流 Rated current: 02-200A、04-400A、06-630A、08-800A、10-1000A、12-1250A、16-1600A、20-2000A、25-2500A、29-2900A、32-3200A、36-3600A、40-4000A

壳架等级电流 Frame rated current: 25(1600A、2000A、2500A)/40(3200、4000A)

控制器类型:

702- 控制两路电源, 两台进线断路器

802- 控制两路电源, 两台进线断路器一台母联断路器

902- 控制三路电源, 三台进线断路器 (注: 2)

上海华通低压开关有限公司自动电源转换系统

Shanghai Hua Tong LV Electric Apparats co.,Ltd automatic power transfer switching system

Controller Types:

702 - control two power supply, two incoming circuit breakers

802 - control two power supply, two incoming circuit breakers and one busbar circuit breaker

902 - control three power supply, three incoming circuit breakers (Note: 2)

注: 1 R 或 F, 用户也可通过 WATSC 控制器现场调节。

2 用户需要选用 WATSC902 控制器则与制造厂协商, 协议供货。

Note: 1 R or f, The user can also adjust on site through WATSC controller.

2 Users need to control 3-way power supply and 3 incoming circuit breakers. WATSC902 controller is selected and supplied by agreement.

WATSC 参数表 WATSC Parameters table

| 主要技术数据 Main technical parameters                                                                       |                                                                                                                                                      |                                                               | WATSC702 | WATSC802 |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------|----------|
| 壳架等级额定电流 Inm(A)<br>Frame Rated Current Inm(A)                                                          | 25 ( 1600A/2000A/2500A )                                                                                                                             | 40 ( 3200A/4000A )                                            | ■        | ■        |
| 极数 Quantity of poles                                                                                   | 3、4                                                                                                                                                  | 3、4                                                           | ■        | ■        |
| 额定电流 Ie(A)<br>Rated Current Ie(A)                                                                      | 02-200A、04-400A、06-630A、<br>08-800A、10-1000A、12-1250A、<br>16-1600A、20-2000A、25-2500A                                                                 | 20-2000A、25-2500A、<br>29-2900A、32-3200A、<br>36-3600A、40-4000A | ■        | ■        |
| 额定工作电压 Ue(V)Rated Working Voltage Ue(V)                                                                | AC400V 50Hz/60Hz                                                                                                                                     |                                                               | ■        | ■        |
| 额定绝缘电压 Ui(V)Rated Insulation Voltage Ui(V)                                                             | AC1000V 50Hz/60Hz                                                                                                                                    |                                                               | ■        | ■        |
| 额定冲击耐受电压 Uimp(kV)<br>Rated Impulse Withstand able Voltage Uimp(kV)                                     | 12                                                                                                                                                   |                                                               | ■        | ■        |
| 额定短路分断能力 Icn(kA)<br>Rated short-circuit breaking capacity Icn(kA)                                      | 70                                                                                                                                                   | 95                                                            | ■        | ■        |
| 额定短路接通能力 Icm (kA)(峰值)<br>Rated short-circuit making capacity Icm(kA)(Peak)                             | 154                                                                                                                                                  | 209                                                           | ■        | ■        |
| 使用类别 Use category                                                                                      | AC-33B                                                                                                                                               |                                                               | ■        | ■        |
| 自动电源转换功能 Automatic power transfer switching feature                                                    |                                                                                                                                                      |                                                               |          |          |
| 失压 / 断相 / 三相不平衡<br>Loss of voltage/phase failure/3-phase imbalance                                     | 主、备回路 ( 三相 )<br>Main circuit, standby circuit ( 3-phase circuit )                                                                                    |                                                               | ■        | ■        |
| 电网额定电压 Grid rated voltage                                                                              | 默认 default: AC380V( 可调 Adjustable: AC 50-400V)                                                                                                       |                                                               | ■        | ■        |
| 电网额定频率 Grid rated frequency                                                                            | 默认 default: 50Hz( 可调 Adjustable: 50 Hz/60 Hz)                                                                                                        |                                                               | ■        | ■        |
| 欠压 <sup>(1)</sup> Undervoltage                                                                         | 默认 default: 85% ( 可调 Adjustable: 70%-95% ± 2% )                                                                                                      |                                                               | ■        | ■        |
| 欠压返回 <sup>(1)</sup> Undervoltage return                                                                | 默认 default: 95% ( 可调 Adjustable: 75%-100% ± 2% )                                                                                                     |                                                               | ■        | ■        |
| 过压 <sup>(1)</sup> Overvoltage                                                                          | 默认 default: 115% ( 可调 Adjustable: 105%-130% ± 2% )                                                                                                   |                                                               | ■        | ■        |
| 过压返回 <sup>(1)</sup> Overvoltage return                                                                 | 默认 default: 105% ( 可调 Adjustable: 100%-125% ± 2% )                                                                                                   |                                                               | ■        | ■        |
| 欠频 <sup>(2)</sup> Underfrequency                                                                       | 默认 default: 95% ( 可调 Adjustable: 80%-99% ± 2% )                                                                                                      |                                                               | ■        | ■        |
| 欠频返回 <sup>(2)</sup> Underfrequency return                                                              | 默认 default: 97% ( 可调 Adjustable: 81%-100% ± 2% )                                                                                                     |                                                               | ■        | ■        |
| 过频 <sup>(2)</sup> Overfrequency                                                                        | 默认 default: 105% ( 可调 Adjustable: 101%-120% ± 2% )                                                                                                   |                                                               | ■        | ■        |
| 过压返回 <sup>(2)</sup> Overfrequency return                                                               | 默认 default: 103% ( 可调 Adjustable: 100%-119% ± 2% )                                                                                                   |                                                               | ■        | ■        |
| 信号保持时间 Signal hold time                                                                                | 默认 default: 0.5s ( 可调 Adjustable: 0.1 ~ 0.5s )                                                                                                       |                                                               | ■        | ■        |
| I 路 / II 路电源正常延时 <sup>(3)</sup><br>I / II power supply normal delay                                    | 默认 default: 5s ( 可调 Adjustable: 0 ~ 60s )                                                                                                            |                                                               | ■        |          |
| I 路 / II 路电源异常延时 <sup>(4)</sup><br>I / II power supply Abnormal delay                                  | 默认 default: 0.1Min ( 可调 Adjustable: 0 ~ 60Min )                                                                                                      |                                                               | ■        |          |
| I / II 路电源零位延时 <sup>(5)</sup><br>I / II power supply zero delay                                        | 默认 default: 0s ( 可调 Adjustable: 0.1 ~ 20s )                                                                                                          |                                                               | ■        |          |
| I 路 / II 路电源正常延时 <sup>(3)</sup><br>I / II power supply normal delay                                    | 默认 default: 3s ( 可调 Adjustable: 0 ~ 99s )                                                                                                            |                                                               |          | ■        |
| I 路 / II 路电源异常延时 <sup>(4)</sup><br>I / II power supply Abnormal delay                                  | 默认 default: 3s ( 可调 Adjustable: 0 ~ 99s )                                                                                                            |                                                               |          | ■        |
| I 路 / II 路电源异常延时 <sup>(5)</sup><br>I / II power supply zero delay                                      | 默认 default: 0.5s ( 可调 Adjustable: 0~2.0s )                                                                                                           |                                                               |          | ■        |
| 工作模式 Work-pattern                                                                                      |                                                                                                                                                      |                                                               |          |          |
| 手动模式: 长按手动模式键 3s 进入手动模式<br>Manual mode: Long press the manual mode key for 3s to enter the manual mode | 按下 I 位置键、II 位置键、O 位置键可将开关切换至对应位<br>Press the I position key, II position key, and O position key to switch the switch to the corresponding position. |                                                               | ■        |          |
|                                                                                                        | 按下 101 键、110 键、011 键、100 键、001 键、000 键可将开关切换至对应位置。Press 101, 110, 011, 100,001 key, 000 key can switch the switch to the corresponding position.     |                                                               |          | ■        |
| 自动模式: 长按自动模式键 3s 进入自动模式<br>Auto mode: Long press the auto mode key for 3s to enter the auto mode       | 在自动模式下, 设备自动切换开关位置。In automatic mode, the device switches the switch position automatically.                                                         |                                                               | ■        | ■        |
| 通信功能 Communication function                                                                            | RS-485 接口, MODBUS 协议 RS-485 interface, MODBUS protocol.                                                                                              |                                                               | ■        | ■        |

**注:**

- 1 欠压、过压门限与返回门限差值必须大于 5%
- 2 欠频、过频门限与返回门限差值必须大于 1%
- 3 正常延时指电源从异常到正常开关转换延时时间
- 4 异常延时指电源从正常到异常开关转换延时时间
- 5 零位延时指开关转换过程的断开状态保持时间

**Note:**

- 1 The difference between undervoltage, overvoltage threshold and return threshold must be greater than 5%.
- 2 The difference between underfrequency, overfrequency threshold and return threshold must be greater than 1%.
- 3 Normal delay refers to the delay time for the power supply to switch from abnormal to normal.
- 4 Abnormal delay refers to the switching delay time of the power supply from normal to abnormal.
- 5 Zero delay refers to the hold-off time of the switch state during the switch.



# 自动电源转换系统

## Automatic power transfer switching system

### 产品特点

- 液晶屏  
WATSC702 控制器采用 128x64 像素 LCD 屏。  
WATSC802 控制器采用 800x480 像素 5.0 寸 TFT 屏。
- 2 路交流电源输入：三相四线。
- 测量值、设置和消息文本支持中文语言。
- 10~30VDC 直流电源。
- 具有过压、欠压、缺相、逆相序、过频、欠频检测功能。
- 8 路可编程数字输入（接地有效）。
- 10 路可编程数字输出。
- 集成 RS-485 隔离接口，MODBUS 通讯协议。
- 可存储最近的 200 个事件（动作记录及报警记录各 100）。
- 实时时钟。
- 所有参数现场可编程，采用密码保护访问，防止非专业人员误操作。
- 标配防水垫圈，前面板防护等级为 IP65。
- 模块化结构设计，阻燃 PC 外壳，可插拔式接线端子，嵌入式安装方式，结构紧凑，安装方便。

### Features

- Lcd panel  
WATSC702 controller uses a 128x64 pixel LCD screen.  
WATSC802 controller uses 800x480 pixel 5.0 inch TFT screen.
- 2 - way ac power supply input: three - phase four - wire.
- Measurement values, Settings and message text support the Chinese language.
- 10~30VDC dc power supply.
- With overvoltage, undervoltage, missing phase, inverse phase sequence, overfrequency, underfrequency detection function.
- 8 channels programmable digital input (effective grounding).
- 10 channel programmable digital output.
- Integrated rs-485 isolation interface, MODBUS communication protocol.
- Can store the latest 200 events (action record and alarm record 100 each).
- Real time clock.
- All parameters are field programmable, password protected access to prevent non-professional misoperation.
- Standard waterproof gasket, front panel protection grade IP65.
- Modular structure design, flame retardant PC housing, pluggable terminal, embedded installation, compact structure, easy installation.

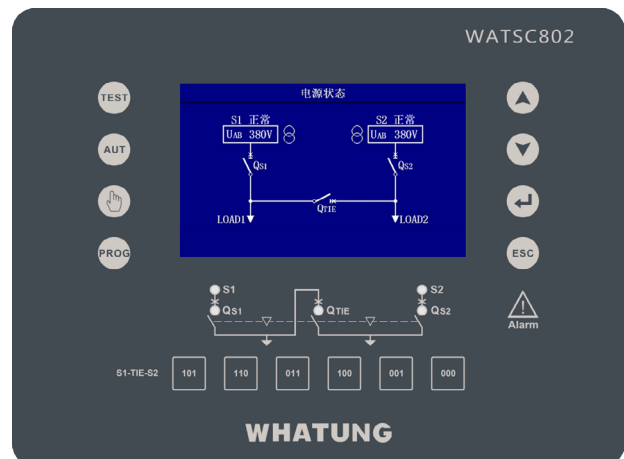
### WATSC702 型控制器

#### WATSC702 Controller



### WATSC802 型控制器

#### WATSC802 Controller



### WATSC702 前面板指示灯

- 报警指示灯（红色）— 常亮，表示有报警激活。
- I 路电压状态指示灯（绿色）— I 路正常，灯亮；I 路异常，灯闪烁。
- II 路电压状态指示灯（绿色）— II 路正常，灯亮；II 路异常，灯闪烁。
- I 路开关状态指示灯（绿色）— 亮，表示闭合；灭，表示断开。
- II 路开关状态指示灯（绿色）— 亮，表示闭合；灭，表示断开。

### WATSC702 Panel indicator light

- Alarm indicator (red) -- always on, indicating alarm activation.
- Voltage I road status indicator light (green) -- I LuZhengChang, light; Abnormal I road, lights flashing.
- Voltage II road status indicator light (green) -- II LuZhengChang, light; Abnormal II road, lights flashing.
- I way switch state indicator (green) -- on, said closed; Off, means disconnect.
- II way switch state indicator (green) -- on, said closed; Off, means disconnect.

### WATSC802 面板指示灯

- Alarm 报警指示灯（红色）— 常亮，表示有报警激活。
- S1 电压状态指示灯（绿色）— S1 路正常，灯亮；S1 路异常，灯闪烁。
- S2 路电压状态指示灯（绿色）— S2 路正常，灯亮；S2 路异常，灯闪烁。
- QS1 开关状态指示灯（绿色）— 亮，表示闭合；灭，表示断开。
- QS2 开关状态指示灯（绿色）— 亮，表示闭合；灭，表示断开。
- QTIE 开关状态指示灯（绿色）— 亮，表示闭合；灭，表示断开。

### WATSC802 Panel indicator light

- Alarm Alarm light (red) -- always on, indicating Alarm activation.
- S1 voltage status indicator (green) -- S1 is normal and the lamp is on; S1 abnormal, flashing lights.
- S2 voltage status indicator (green) -- S2 is normal and the lamp is on; S2 abnormal, flashing lights.
- QS1 switch status indicator (green) -- light, indicating closure; Off, means disconnect.
- QS2 switch status indicator (green) -- light, indicating closure; Off, means disconnect.
- QTIE switch status indicator (green) -- light, indicating closure; Off, means disconnect.

WATSC 型控制器面板按键说明  
WATSC Controller Panel Key Description

| 图标<br>Icon                                                                          | 按键名称<br>The key name               | 功能描述<br>Functional description                                                                                                                                                                                                                                                                  | WATSC702 | WATSC802 |
|-------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|
|    | I 键<br>I key                       | 手动模式下，按下此键，切换到 I 位置。<br>In manual mode, press this key to switch to the I position                                                                                                                                                                                                              | ■        |          |
|    | II 键<br>II key                     | 手动模式下，按下此键，切换到 II 位置。<br>In manual mode, press this key to switch to the II position                                                                                                                                                                                                            | ■        |          |
|    | O 键<br>O key                       | 手动模式下，按下此键，切换到 O 位置。<br>In manual mode, press this key to switch to the O position                                                                                                                                                                                                              | ■        |          |
|    | 101 键<br>101 key                   | 手动模式下，按下此键，切换到 101 位置<br>In manual mode, press this button to switch the circuit breaker to 101                                                                                                                                                                                                 |          | ■        |
|    | 110 键<br>110 key                   | 手动模式下，按下此键，切换到 110 位置<br>In manual mode, press this button to switch the circuitbreaker to 110                                                                                                                                                                                                  |          | ■        |
|    | 011 键<br>011 key                   | 手动模式下，按下此键，切换到 011 位置<br>In manual mode, press this button to switch the circuit breaker to 011                                                                                                                                                                                                 |          | ■        |
|    | 100 键<br>100 key                   | 手动模式下，按下此键，切换到 100 位置<br>In manual mode, press this button to switch the circuit breaker to 100                                                                                                                                                                                                 |          | ■        |
|    | 001 键<br>001 key                   | 手动模式下，按下此键，切换到 001 位置<br>In manual mode, press this button to switch the circuit breaker to 001                                                                                                                                                                                                 |          | ■        |
|   | 000 键<br>000 key                   | 手动模式下，按下此键，切换到 000 位置<br>In manual mode, press this button to switch the circuit breaker to 000                                                                                                                                                                                                 |          | ■        |
|  | 测试键<br>Test key                    | 长按此键 3S 进入测试功能<br>Long press this button 3S to enter the test function                                                                                                                                                                                                                          | ■        | ■        |
|  | 自动模式键<br>Automatic mode key        | 长按此键 3S 将控制器设置为自动模式<br>Long press this button 3S to set the controller to automatic mode                                                                                                                                                                                                        | ■        | ■        |
|  | 手动模式键<br>Manual mode key           | 长按此键 3S 将控制器设置为手动模式<br>Long press this button 3S to set the controller to automatic mode                                                                                                                                                                                                        | ■        | ■        |
|  | 编程模式键<br>Programming mode key      | 长按此键 3S 将控制器设置为编程模式<br>Long press this key 3S to set the controller to programming mode                                                                                                                                                                                                         | ■        | ■        |
|  | 增加键 / 上翻键<br>Increase key/Up key   | 在进入菜单界面后，可向上移动光标或增加光标所在位的数字；<br>在参数配置界面调整参数时为数值增加键<br>After entering the menu interface, you can move the cursor up or increase the location of the cursor a number of bits; In the parameter configuration interface to adjust parameters for the value of the increase key                    | ■        | ■        |
|  | 减少键 / 下翻键<br>Decrease key/Down key | 在进入菜单界面后，可向下移动光标或减少光标所在位的数字；<br>在参数配置界面调整参数时为数值减少键<br>After entering the menu interface, you can move the cursor down or reduce the location of the cursora number of bits; Is the value reduction key when adjusting parameters in the parameter configuration interface                       | ■        | ■        |
|  | 确认键<br>Identify key                | 在进入菜单界面后，确认键可进入子菜单及确认设置信息 After entering the menu interface, the confirm key can enter the sub-menu and confirm the setting information                                                                                                                                                         | ■        | ■        |
|  | 返回键<br>Return key                  | 返回上层菜单界面，长按 3S 锁定按键 / 解锁按键。产生报警时按此键解除报警，如报警类型是开关动作超时报警，则同时切换到手动模式 Back to the upper menu interface, long press 3S lock/unlock button.Press this button to remove the alarm when an alarm is generated, if the alarm type is switch Action timeout alarm, switch to manual mode at the same time | ■        | ■        |

注：  
1 编程模式：该模式下进行参数设置操作，长按编程模式键3s弹出密码输入界面，输入正确密码后进入参数设置。  
2 控制器上电后的工作模式为上一次断电前的模式  
3 断路器脱扣或人为分闸后不再发出合闸动作，自动切换到手动模式  
4 ESC键只是解除声光报警，完全解除报警操作为回到主菜单 ->参数设置 ->解除报警 -> ENTER键

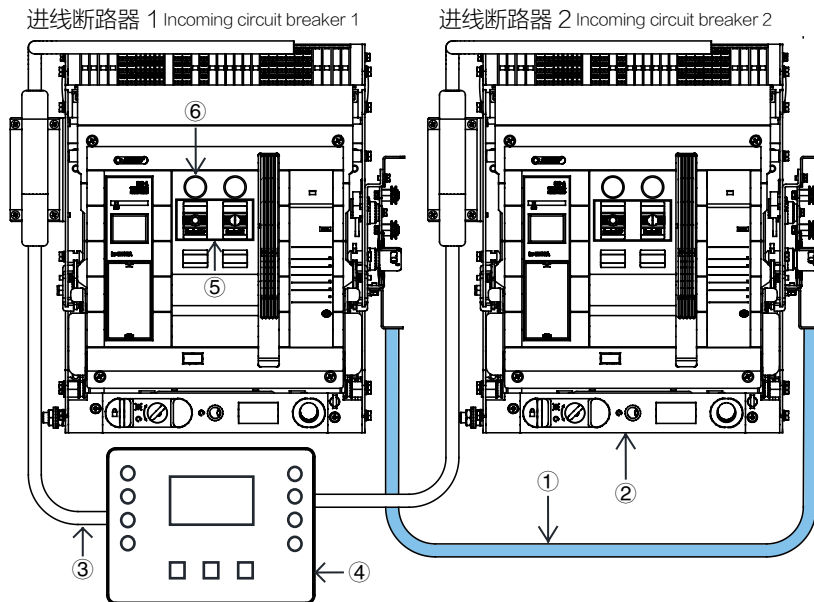
Note:  
1 Programming mode: parameter setting operation is carried out in this mode,Long press the 3s key of programming mode to pop up the password input interface.Enter the correct password to enter the parameter Settings.  
2 The operating mode of the controller after power-on is the mode before the last power-off  
3 After the circuit breaker is tripped or opened manually, the closing action will no longer be issued.  
4 the ESC key only disactivates the sound and light alarm, and the complete disalarm operation is to return to the main menu -> parameter setting -> disalarm -> ENTER key



# 自动电源转换系统 Automatic power transfer switching system

## WATSC702 自动电源转换系统结构说明

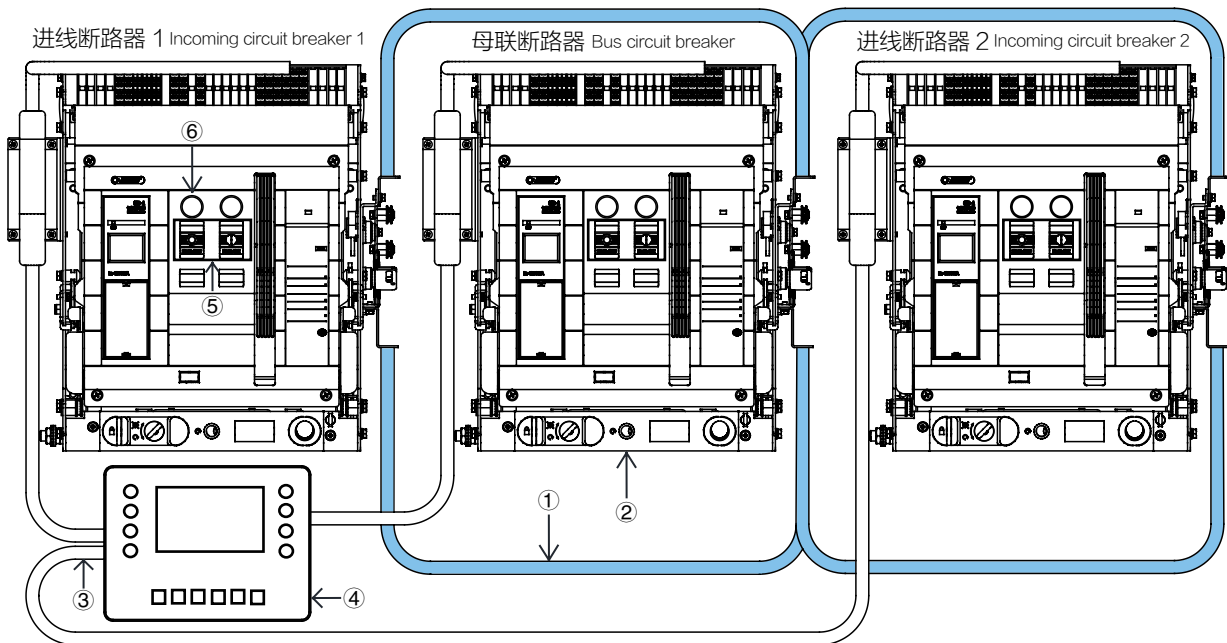
### WATSC702 Automatic power transfer switching system structure description



- ① mechanical 2 chain
- ② SHTW3 ACB ( 2 )
- ③ Heavy-duty connectors and wire
- ④ WATSC702 controller
- ⑤ Button lock
- ⑥ Off key lock
- Note: ① according to the site configuration

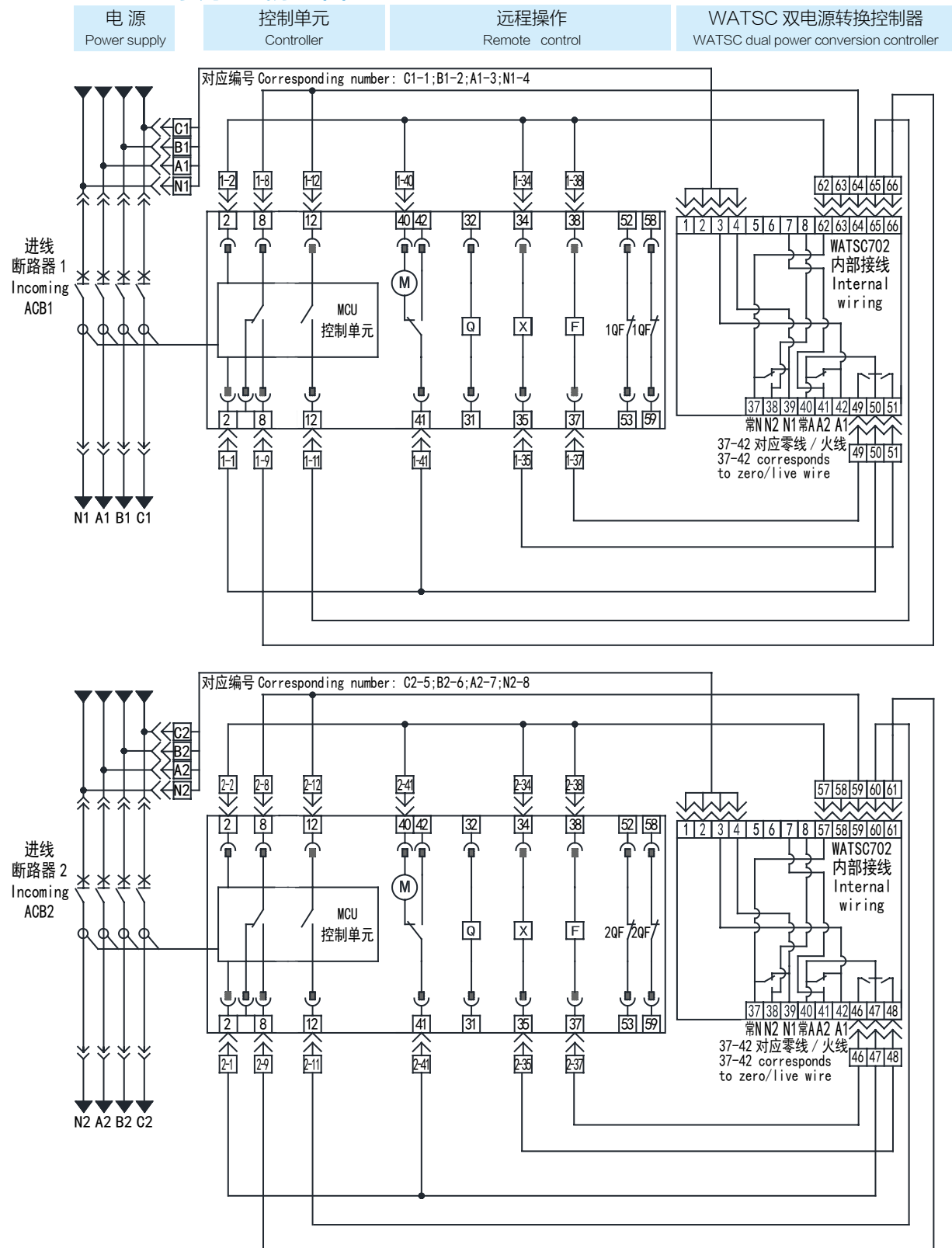
## WATSC802 自动电源转换系统结构说明

### WATSC802 Automatic power transfer switching system structure description



- ① mechanical 2 chain
- ② SHTW3 ACB ( 3 )
- ③ Heavy-duty connectors and wire
- ④ WATSC802 controller
- ⑤ Button lock
- ⑥ Off key lock
- Note: ① according to the site configuration

WATSC702 系列电气原理图 WATSC702 Electrical schematic



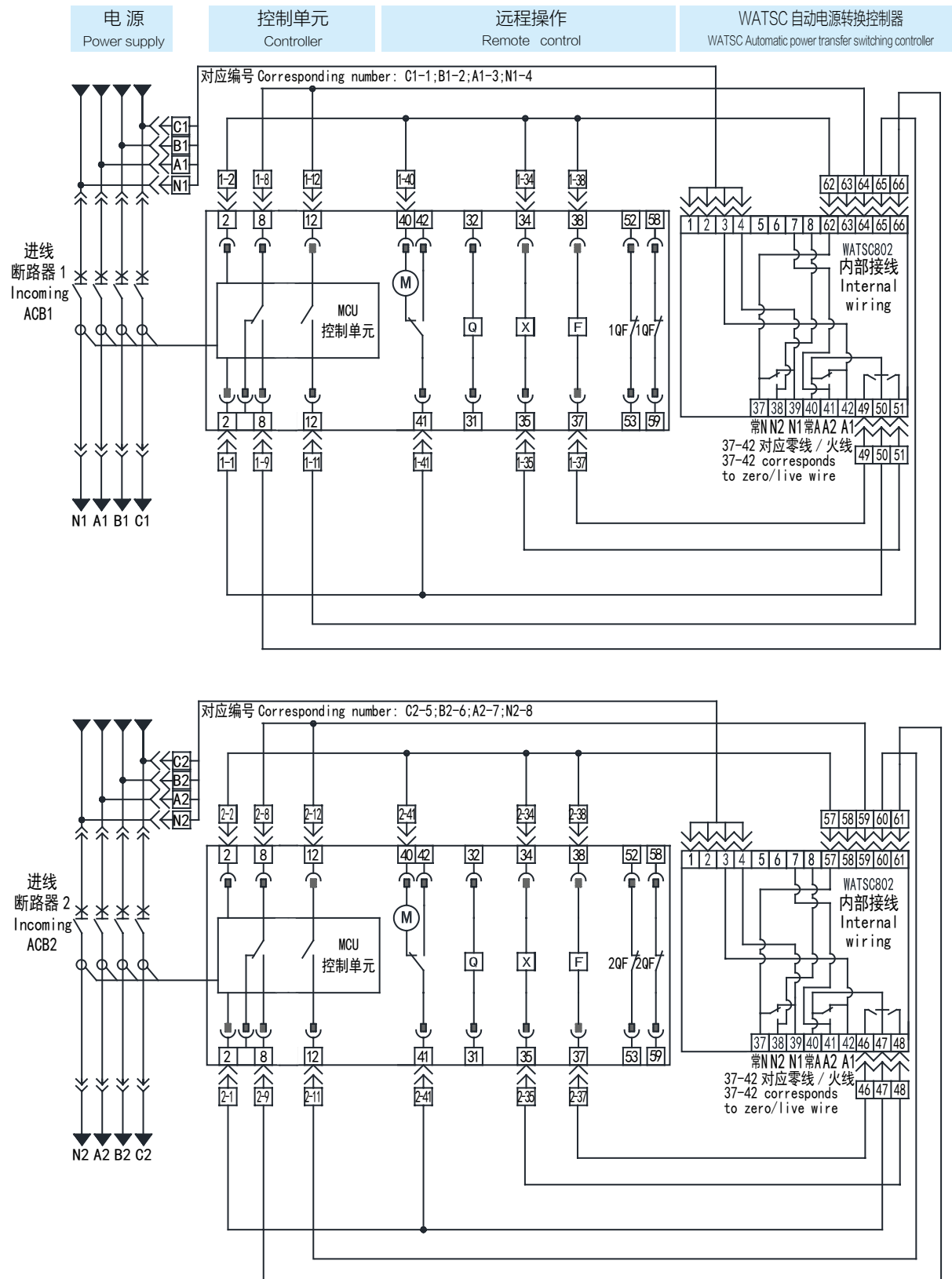
注：  
1、图中所示控制器均为常规上进线取电，如有下进线取电要求在采购时特殊注明。  
2、控制器数量仅一台，为接线指示方便显示分开显示  
3、电气原理图为断路器处于断开状态、未储能，且控制器无故障指示时的接线图。  
4、图中外接线为WATSC702控制器和二台断路器的二次接线通过重载连接器连接，用户不需接线。

Note:  
1. The controllers shown in the figure are all conventional power charging lines, If there is a down line to take electricity requirements, please specify in the purchase.  
2. The number of controllers is only one, which can be displayed separately for convenient display of wiring instructions.  
3. The electrical principle diagram is the wiring diagram when the circuit breaker is in the state of disconnection, there is no energy storage, and the controller has no fault indication  
4. WATSC702 controller and 2 of ACB in the figure Secondary wiring of station circuit breakers is connected by heavy-duty connectors. Users do not need wiring.

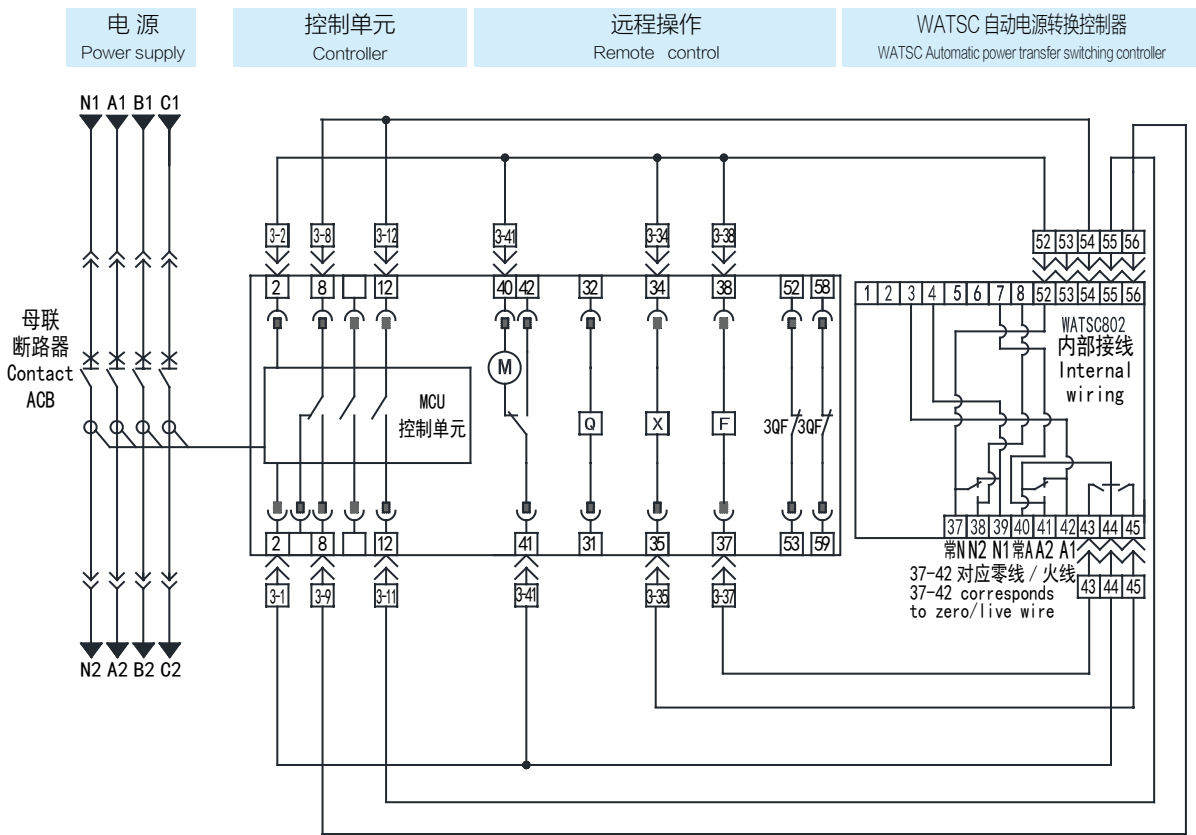
# 自动电源转换系统

## Automatic power transfer switching system

### WATSC802 系列电气原理图 WATSC802 Electrical schematic



WATSC802 系列电气原理图 WATSC802 Electrical schematic



注:

- 1、图中所示控制器均为常规上进线取电，如有下进线取电要求请在采购时特殊注明。
- 2、控制器数量仅一台，为接线指示方便显示分开显示
- 3、电气原理图为断路器处于断开状态、未储能,且控制器无故障指示时的接线图。
- 4、图中外接线为WATSC802控制器和三台断路器的二次接线通过重载连接器连接，用户不需接线。

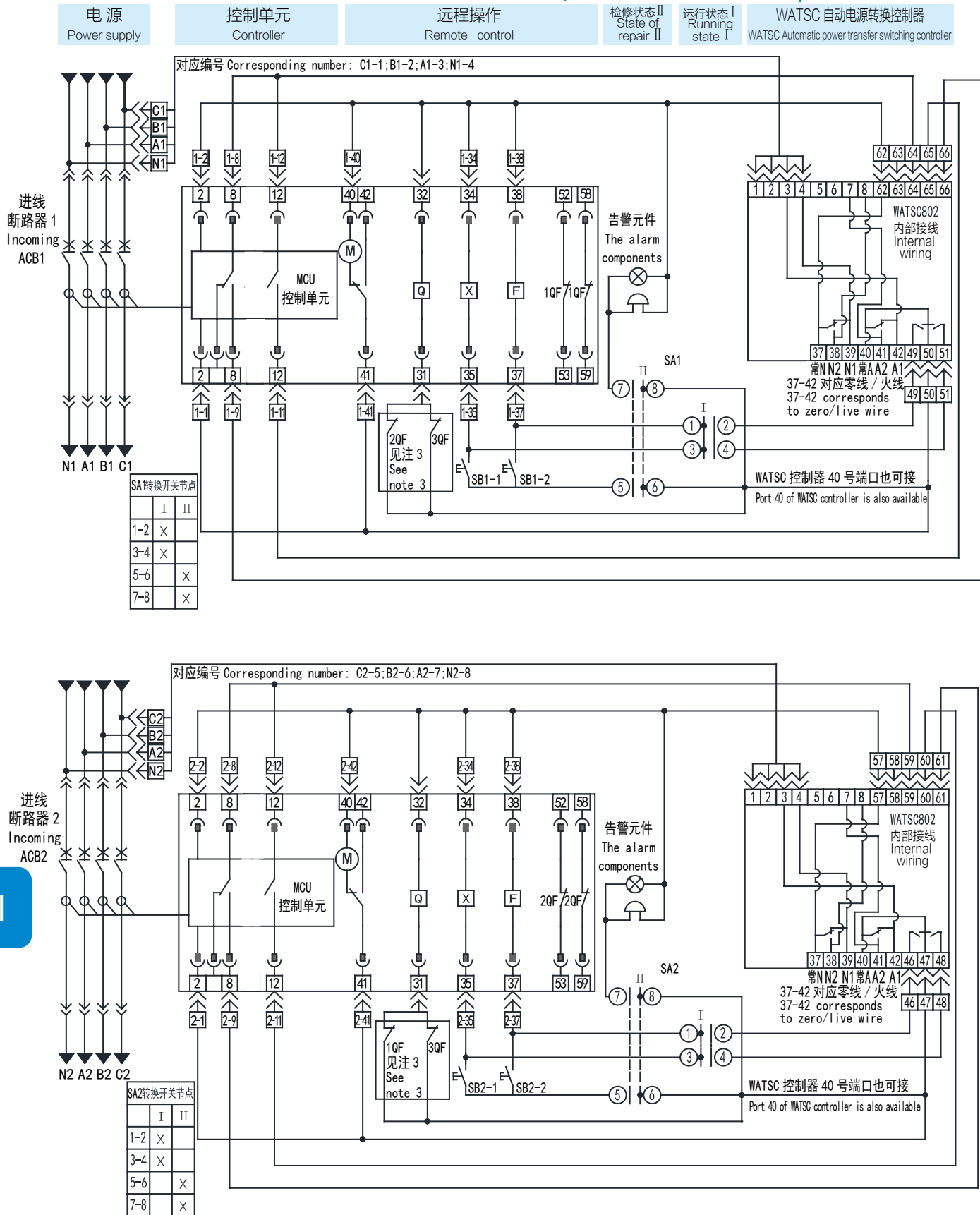
Note:

1. The controllers shown in the figure are all conventional power charging lines, If there is a down line to take electricity requirements, please specify in the purchase.
2. The number of controllers is only one, which can be displayed separately for convenient display of wiring instructions.
3. The electrical principle diagram is the wiring diagram when the circuit breaker is in the state of disconnection, there is no energy storage, and the controller has no fault indication
4. WATSC802 controller and 3 of ACB in the figure Secondary wiring of station circuit breakers is connected by heavy-duty connectors. Users do not need wiring.

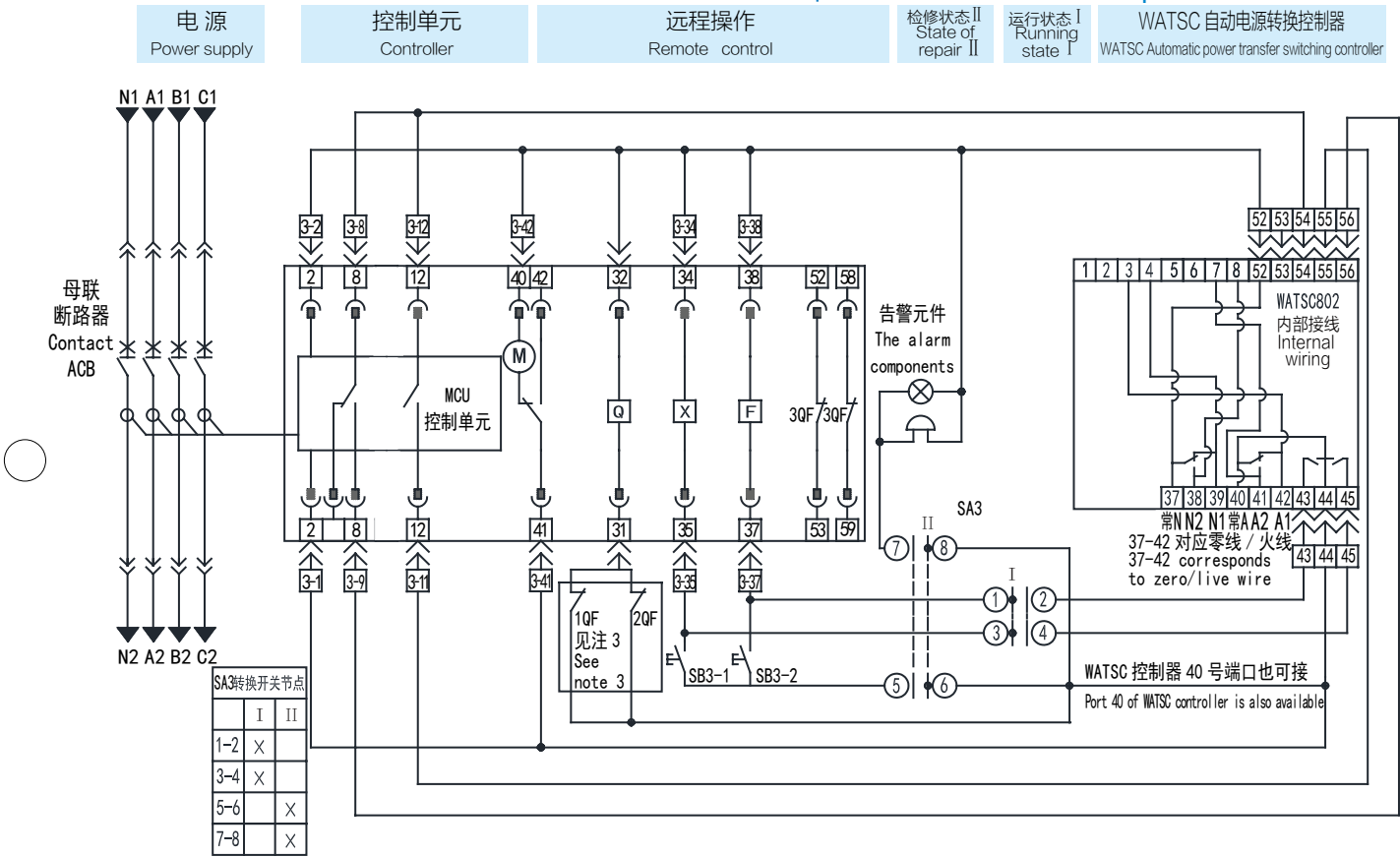
# 自动电源转换系统

## Automatic power transfer switching system

### WATSC802 系列运行/检修切换示例电气原理图 WATSC802 Operation / maintenance switch sample electrical schematic



WATSC802 系列运行/检修切换示例电气原理图WATSC802 Operation / maintenance switch sample electrical schematic



注:

- 1、图中所示控制器均为常规上进线取电，如有下进线取电要求请在采购时特殊注明。
- 2、控制器数量仅一台，为接线指示方便显示分开显示
- 3、电气原理图为断路器处于断开状态、未储能，且控制器无故障指示时的接线图。
- 4、图中外接线为WATSC802控制器和三台断路器的二次接线通过重载连接器连接，用户不需接线。
- 5、图中欠压电气互锁回路用户可根据需求接入，若不需要则不用接该回路。
- 6、转换开关SA1/2/3中的7、8节点用户可接入检修警告元件（蜂鸣器、报警灯等），若无警告需要则不用接该回路。

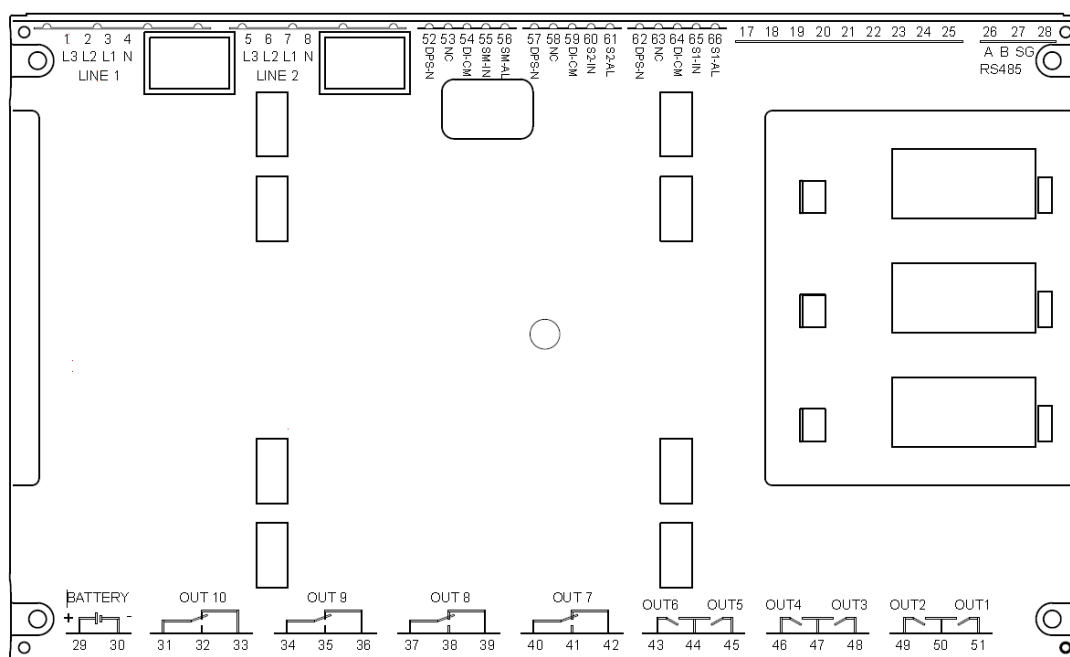
Note:

1. The controllers shown in the figure are all conventional power charging lines. If there is a down line to take electricity requirements, please specify in the purchase.
2. The number of controllers is only one, which can be displayed separately for convenient display of wiring instructions.
3. The electrical principle diagram is the wiring diagram when the circuit breaker is in the state of disconnection, there is no energy storage, and the controller has no fault indication
4. WATSC802 controller and 3 of ACB in the figure Secondary wiring of station circuit breakers is connected by heavy-duty connectors. Users do not need wiring.
5. The under-voltage electrical interlock loop in the figure can be customized by users Access, if no need is not connected to the loop.
6. 7 and 8 node users in transfer switch sa1/2 /3 Access to maintenance warning components (buzzer, alarm lamp, etc.), if no warning is required, do not connect the loop.

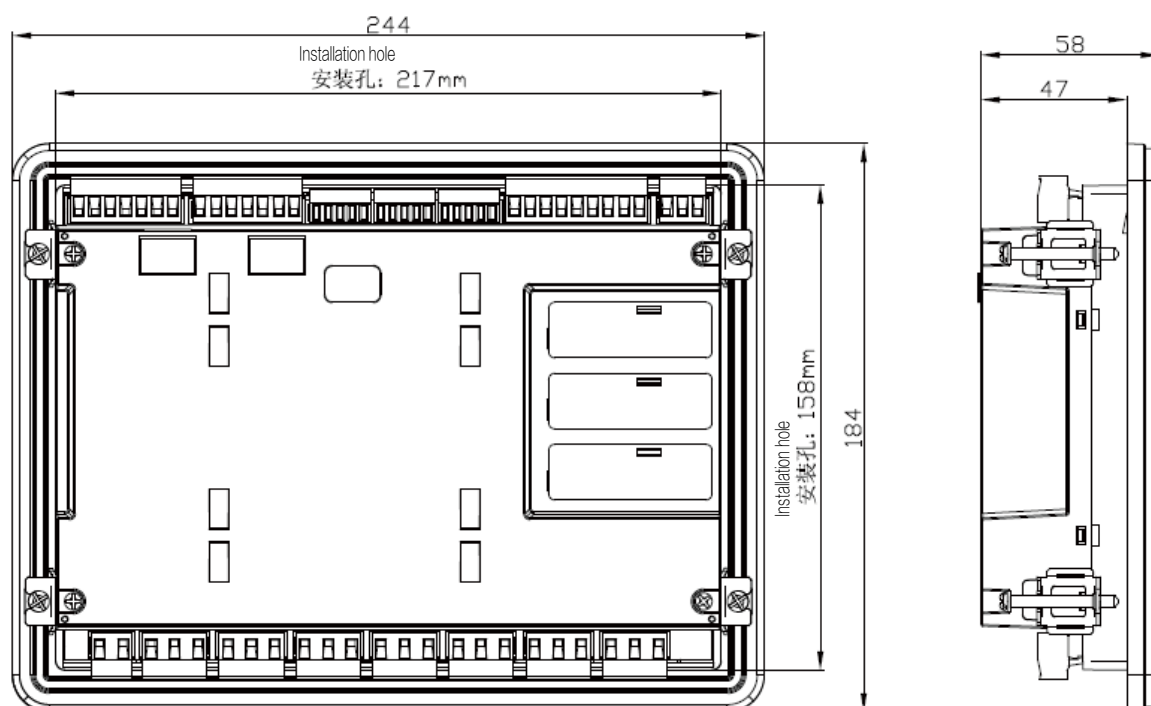


# 自动电源转换系统 Automatic power transfer switching system

## WATSC 型控制器端子布置图 WATSC Controller Node layout



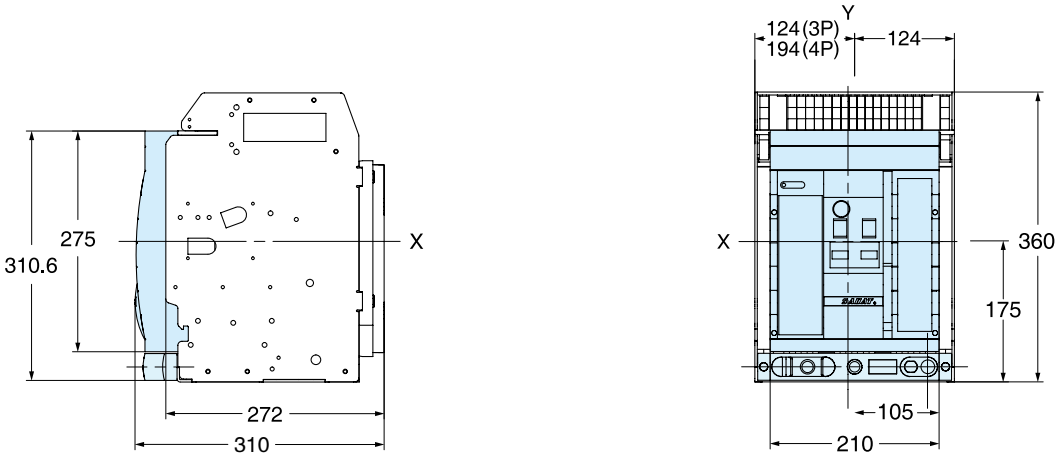
## 机械尺寸与面板开孔 WATSC Controller Mechanical dimensions with panel openings



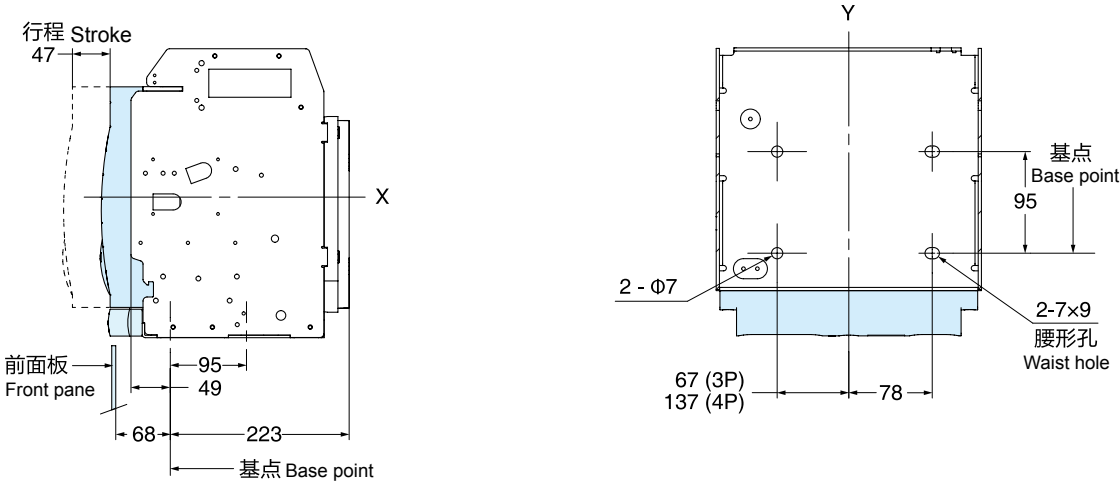
SHTW3-1600系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-1600 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

外形 Outline



安装 Mounting



注:

“X”和“Y”为断路器前罩壳对称轴

Note:

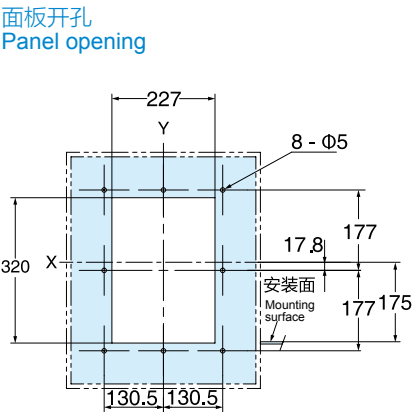
“X” and “Y” are the front axle of the circuit breaker

SHTW3-1600系列断路器外形、安装及连接尺寸 3/4极抽屉式

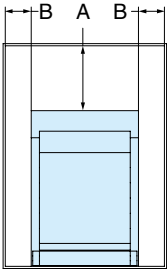
SHTW3-1600 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

面板开孔及安全间距

Panel opening and safety spacing



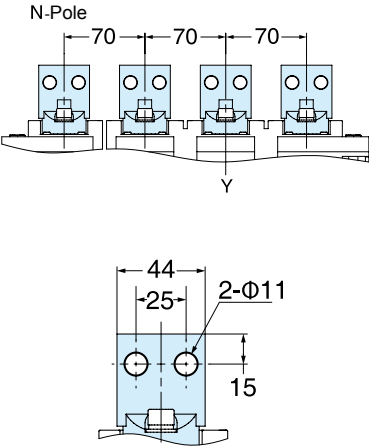
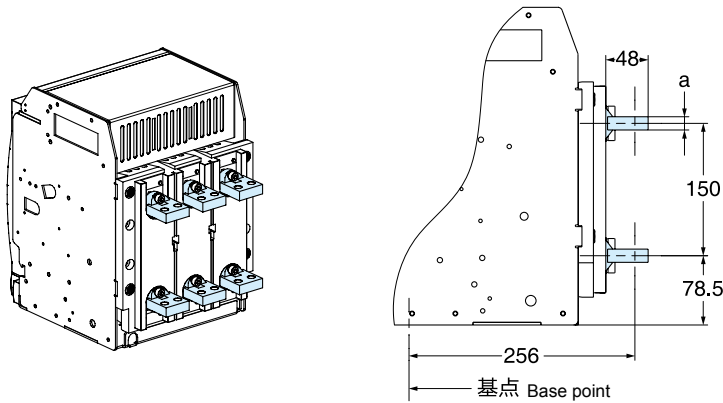
安全距离  
Safe distance



|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

水平后连接（标准配置）

Horizontal rear connection (standard)



| In          | 尺寸a Size a |
|-------------|------------|
| 200A~1000A  | 8          |
| 1250A、1600A | 15         |

注：“X”和“Y”为断路器前罩壳对称轴

Note: "X" and "Y" are the front axle of the circuit breaker

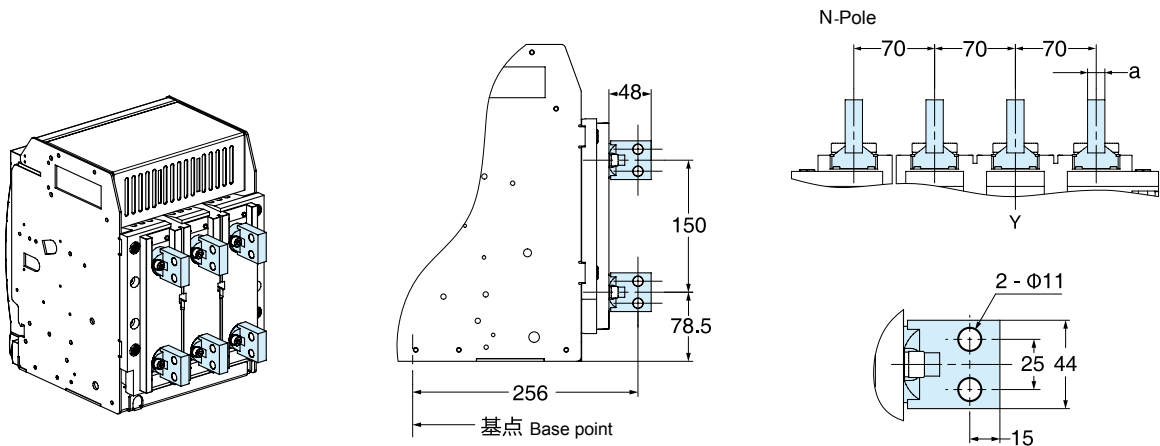
外形和安装尺寸

Appearance and installation dimensions

SHTW3-1600系列断路器外形、安装及连接尺寸 3/4极抽屉式

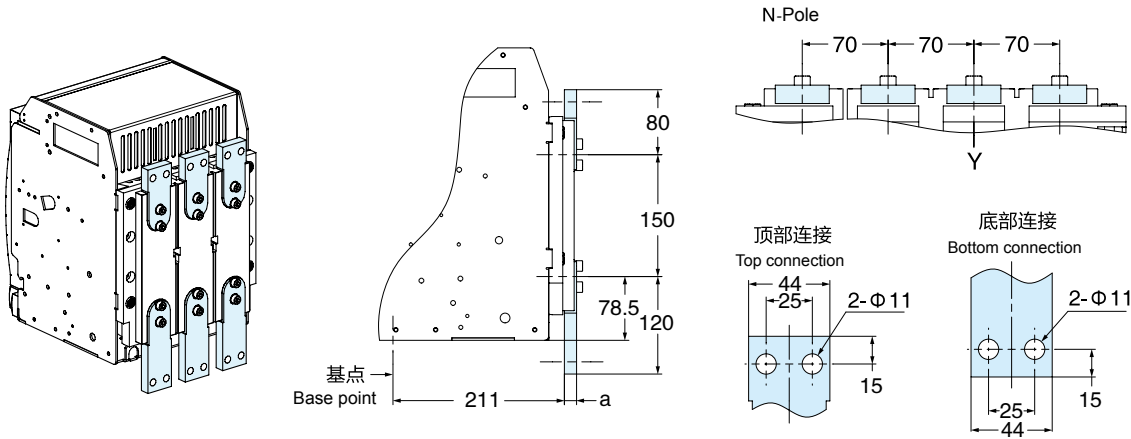
SHTW3-1600 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

垂直后连接 Vertical rear connection



| In          | 尺寸a Size a |
|-------------|------------|
| 200A~1000A  | 8          |
| 1250A、1600A | 15         |

前连接 Front connection



| In          | 尺寸a Size a |
|-------------|------------|
| 200A~1000A  | 8          |
| 1250A、1600A | 15         |

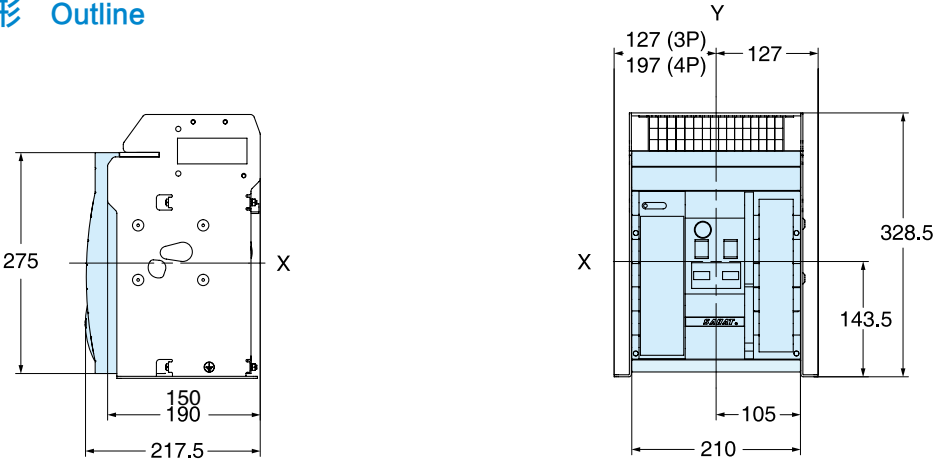
注:  
“Y”为断路器前罩壳对称轴

Note:  
“Y” is the front axle of the circuit breaker

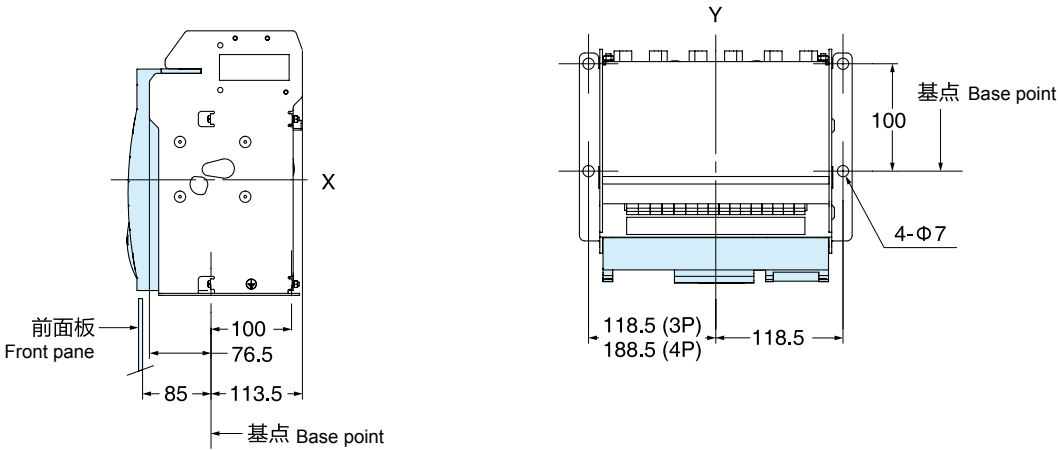
外形和安装尺寸  
Appearance and installation dimensions

SHTW3-1600系列断路器外形、安装及连接尺寸 3/4极固定式  
SHTW3-1600 series circuit breaker shape, installation and connection size 3/4 pole fixed style

外形 Outline



安装 Mounting



注:  
“X”和“Y”为断路器前罩壳对称轴

Note:  
"X" and "Y" are the front axle of the circuit breaker

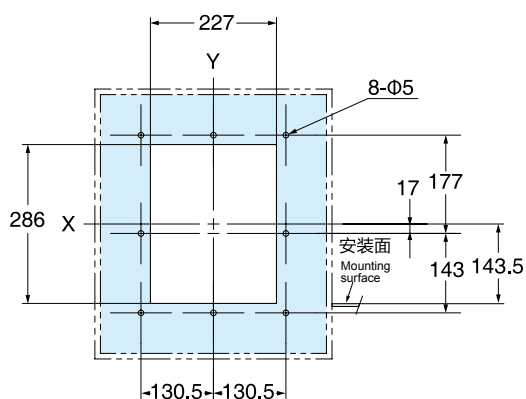
### SHTW3-1600系列断路器外形、安装及连接尺寸 3/4极固定式

## SHTW3-1600 series circuit breaker shape, installation and connection size 3/4 pole fixed style

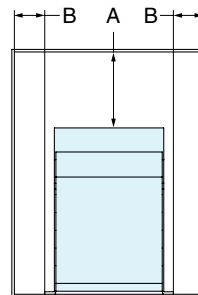
## 面板开孔及安全间距

## Panel opening and safety spacing

面板开孔  
Panel opening



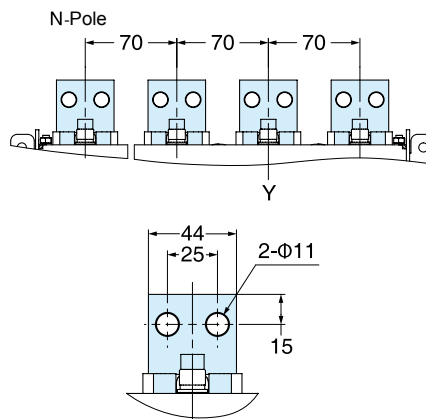
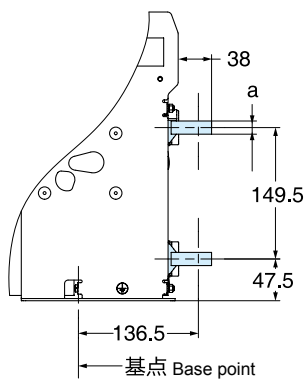
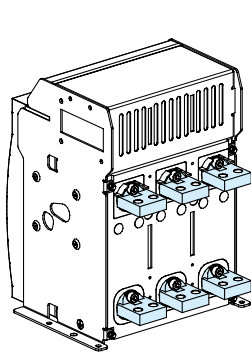
安全距离  
Safe distance



|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

### 水平后连接（标准配置）

### Horizontal rear connection (standard)



| In          | 尺寸a Size a |
|-------------|------------|
| 200A~1000A  | 8          |
| 1250A、1600A | 15         |

注:

“X”和“Y”为断路器前罩壳对称轴

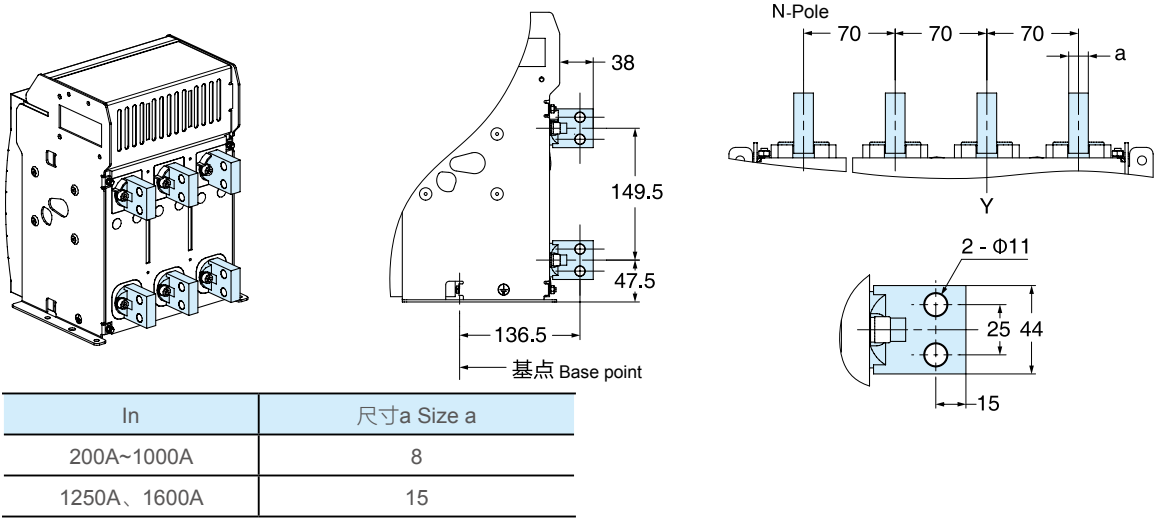
Note:

"X" and "Y" are the front axle of the circuit breaker

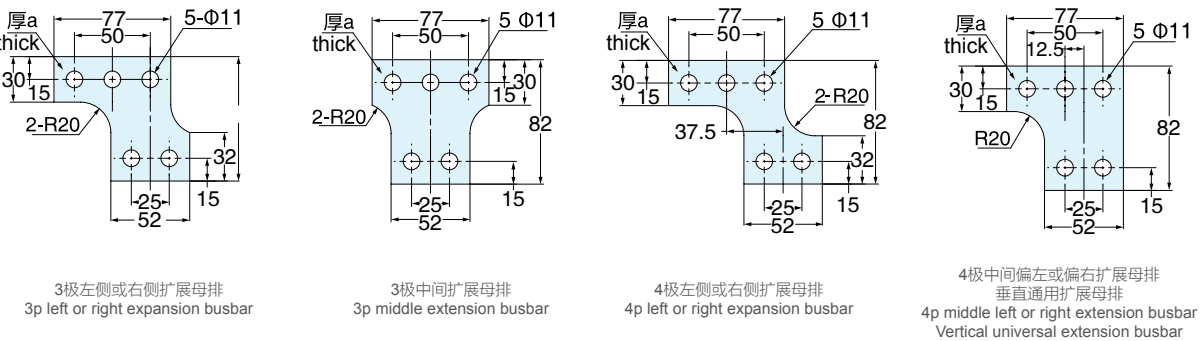
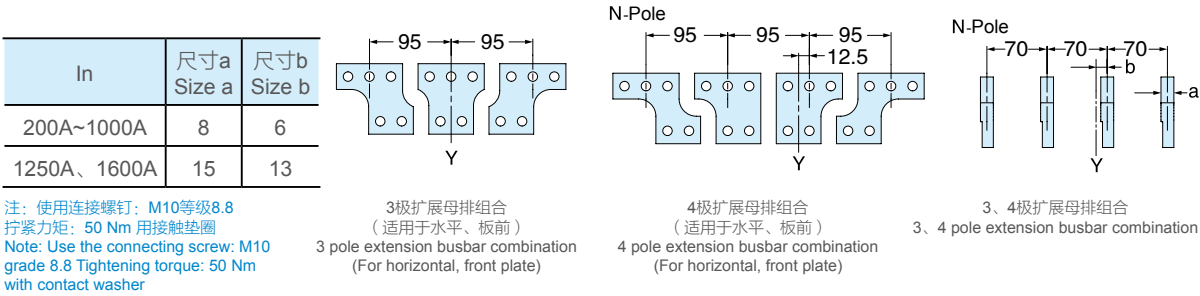
外形和安装尺寸  
Appearance and installation dimensions

SHTW3-1600系列断路器外形、安装及连接尺寸 3/4极固定式  
SHTW3-1600 series circuit breaker shape, installation and connection size 3/4 pole fixed style

垂直后连接 Vertical rear connection



扩展母排（同样适用于抽屉式）  
Extended busbars (also applicable to drawers)



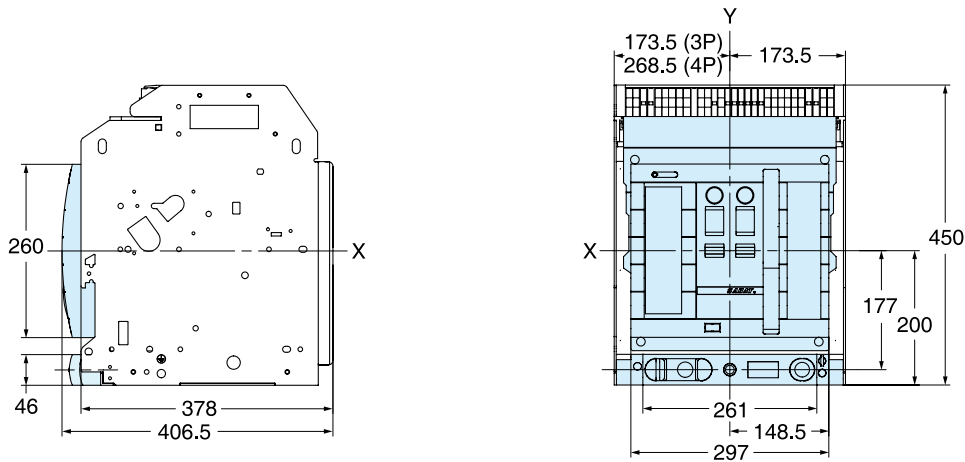
注: "Y"为断路器前罩壳对称轴  
Note: "Y" is the front axle of the circuit breaker



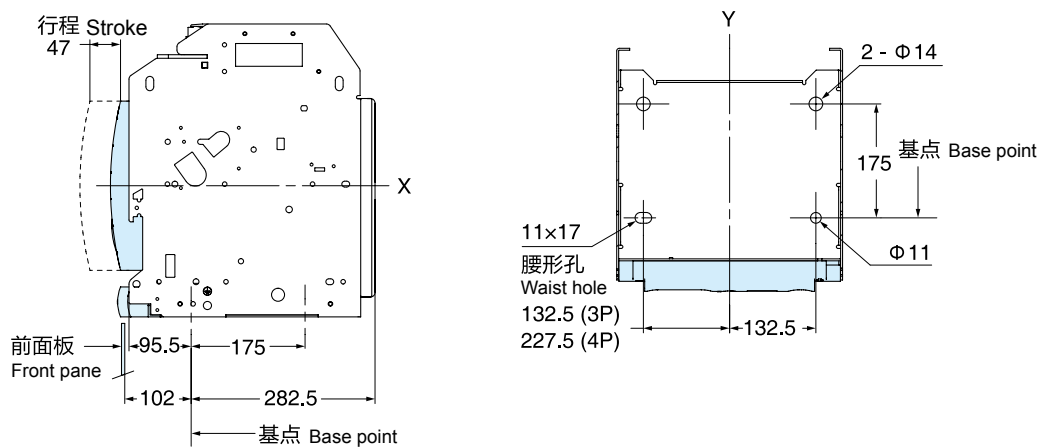
SHTW3-2500系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-2500 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

外形 Outline



安装 Mounting



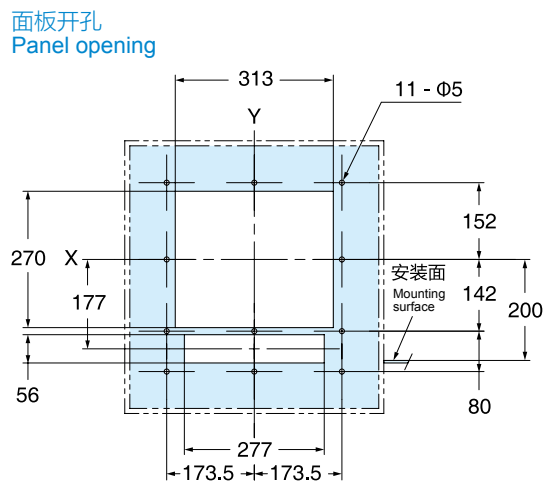
注:  
“X”和“Y”为断路器前罩壳对称轴

Note:  
“X” and “Y” are the front axle of the circuit breaker

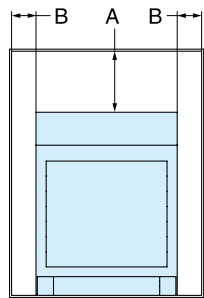
外形和安装尺寸  
Appearance and installation dimensions

SHTW3-2500系列断路器外形、安装及连接尺寸 3/4极抽屉式  
SHTW3-2500 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

面板开孔及安全间距  
Panel opening and safety spacing

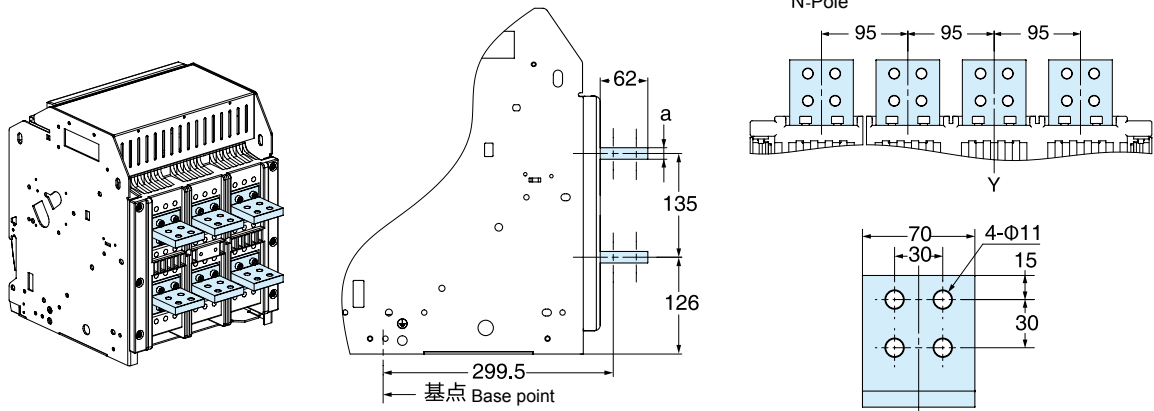


安全距离  
Safe distance



|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

水平后连接（标准配置）  
Horizontal rear connection (standard)



| In          | 尺寸a Size a |
|-------------|------------|
| 630A~1600A  | 15         |
| 2000A、2500A | 20         |

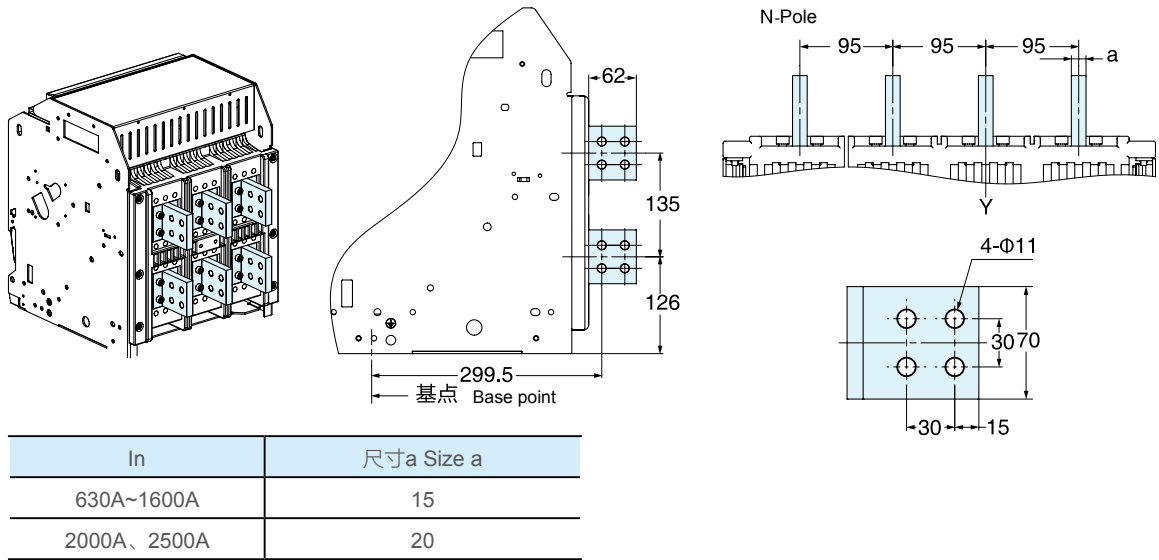
注：  
“X”和“Y”为断路器前罩壳对称轴

Note:  
“X” and “Y” are the front axle of the circuit breaker

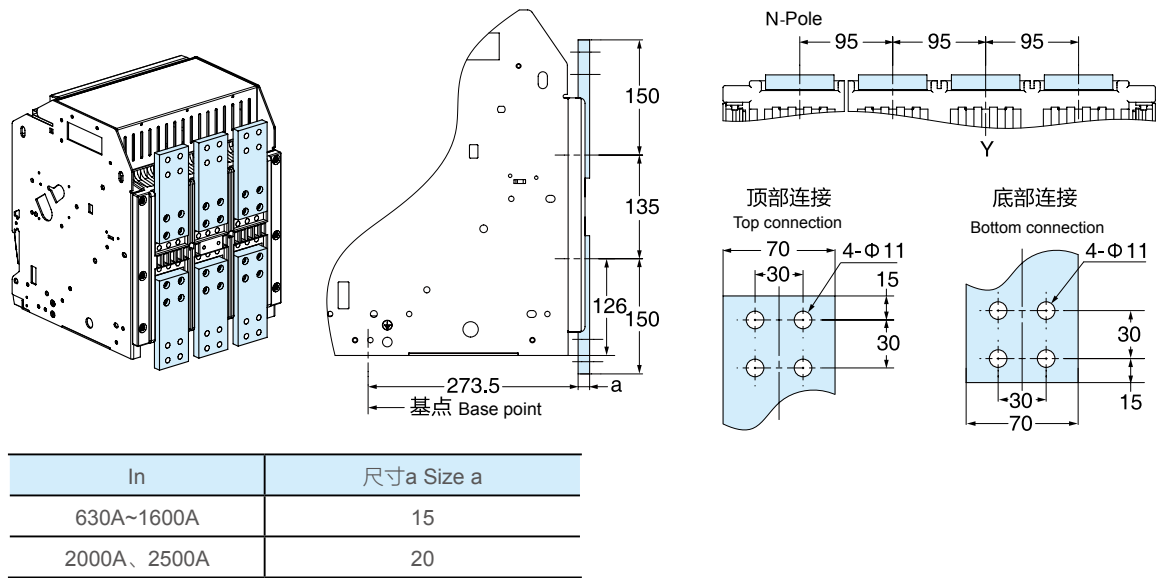
SHTW3-2500系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-2500 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

垂直后连接 Vertical rear connection



前连接 Front connection



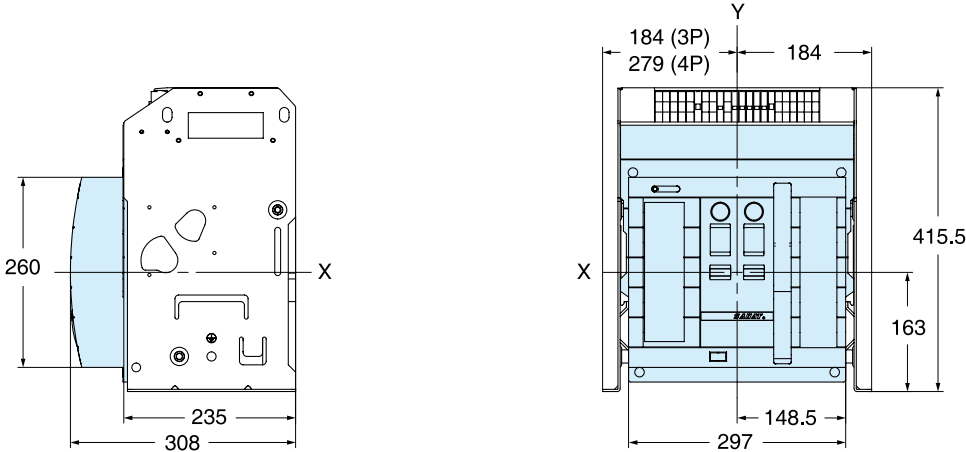
注:  
“Y”为断路器前罩壳对称轴

Note:  
“Y” is the front axle of the circuit breaker

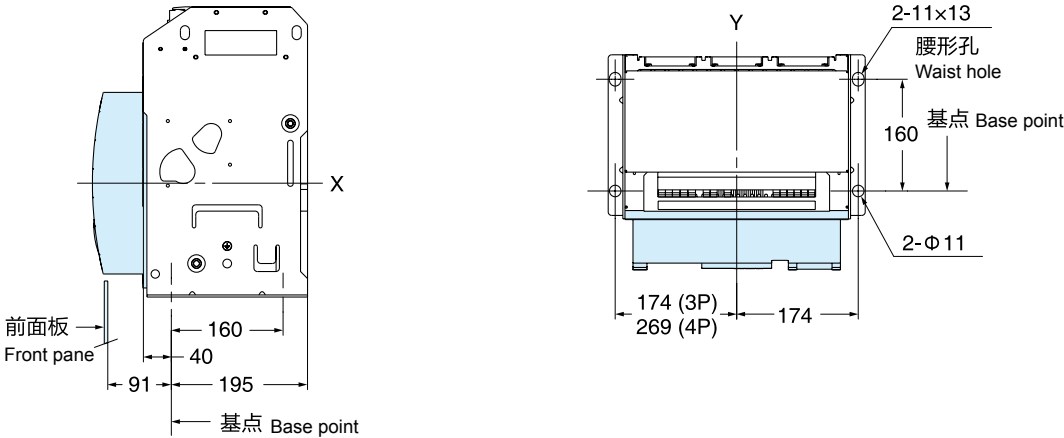
外形和安装尺寸  
Appearance and installation dimensions

SHTW3-2500系列断路器外形、安装及连接尺寸 3/4极固定式  
SHTW3-2500 series circuit breaker shape, installation and connection size 3/4 pole fixed style

外形 Outline



安装 Mounting



注:  
“X”和“Y”为断路器前罩壳对称轴

Note:  
"X" and "Y" are the front axle of the circuit breaker

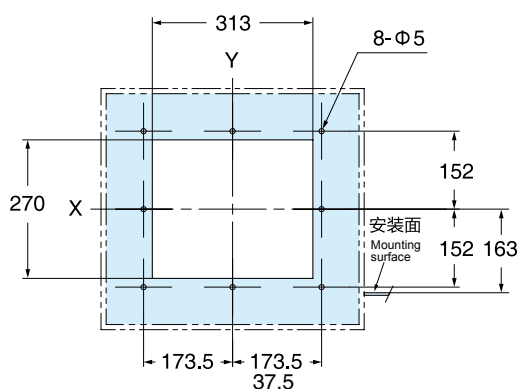
### SHTW3-2500系列断路器外形、安装及连接尺寸 3/4极固定式

## SHTW3-2500 series circuit breaker shape, installation and connection size 3/4 pole fixed style

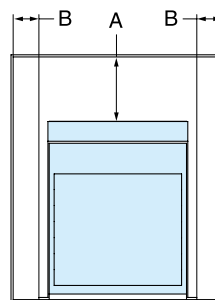
## 面板开孔及安全间距

## Panel opening and safety spacing

面板开孔  
Panel opening



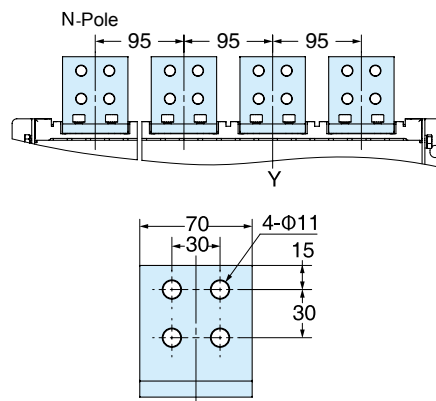
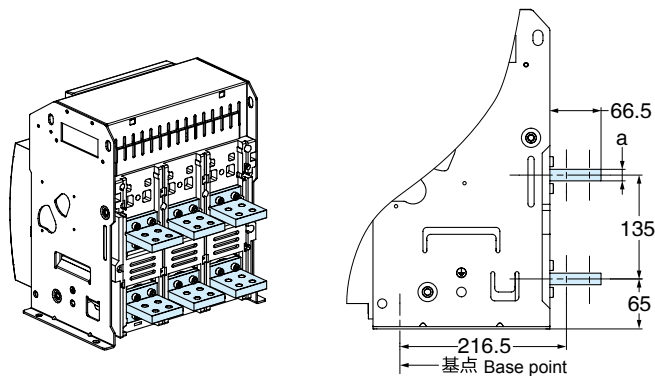
安全距离  
Safe distance



|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

### 水平后连接（标准配置）

### Horizontal rear connection (standard)



| In          | 尺寸a Size a |
|-------------|------------|
| 630A~1600A  | 15         |
| 2000A、2500A | 20         |

注:

“X”和“Y”为断路器前罩壳对称轴

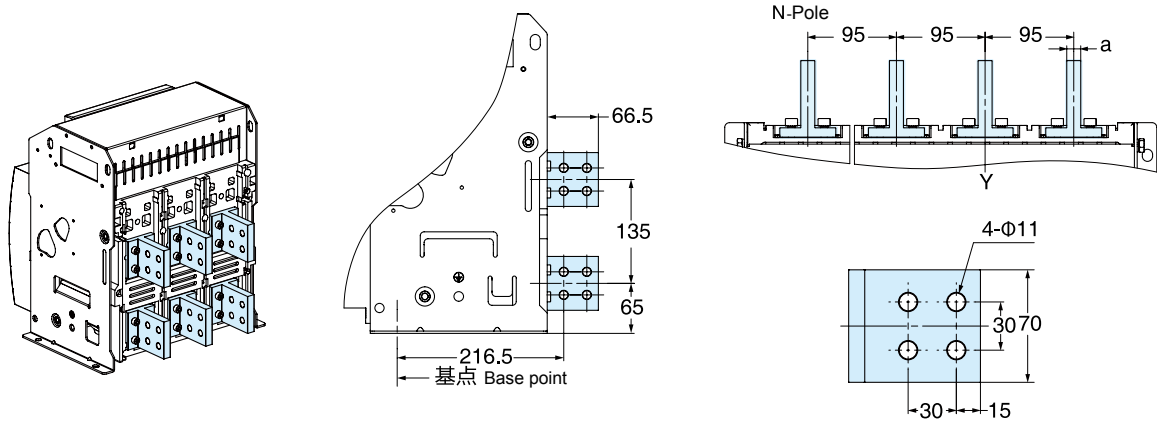
Note:

"X" and "Y" are the front axle of the circuit breaker

外形和安装尺寸  
Appearance and installation dimensions

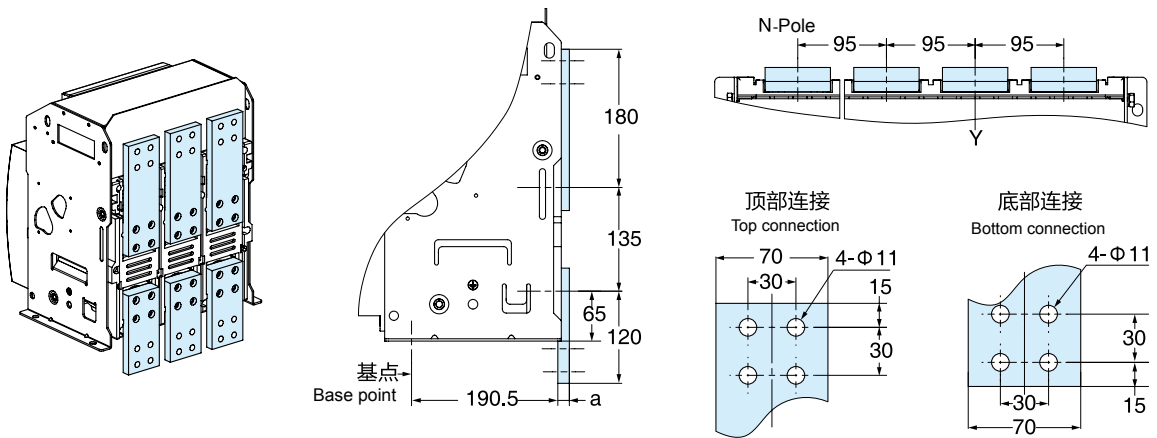
SHTW3-2500系列断路器外形、安装及连接尺寸 3/4极固定式  
SHTW3-2500 series circuit breaker shape, installation and connection size 3/4 pole fixed style

垂直后连接      Vertical rear connection



| In          | 尺寸a Size a |
|-------------|------------|
| 630A~1600A  | 15         |
| 2000A、2500A | 20         |

前连接      Front connection



| In          | 尺寸a Size a |
|-------------|------------|
| 630A~1600A  | 15         |
| 2000A、2500A | 20         |

注：  
“Y”为断路器前罩壳对称轴

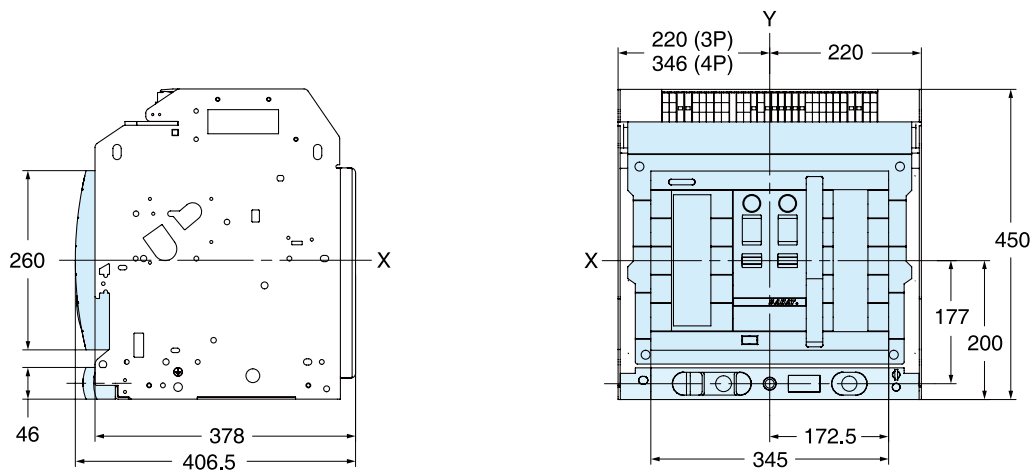
Note:  
"Y" is the front axle of the circuit breaker

外形和安装尺寸  
Appearance and installation dimensions

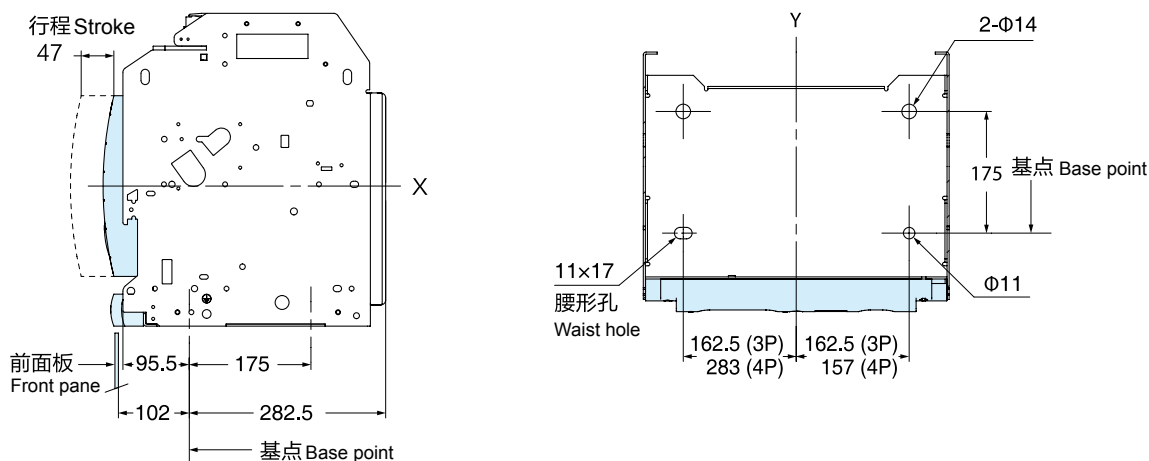
SHTW3-4000系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-4000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

外形 Outline



安装 Mounting



注:  
“X”和“Y”为断路器前罩壳对称轴

Note:  
"X" and "Y" are the front axle of the circuit breaker



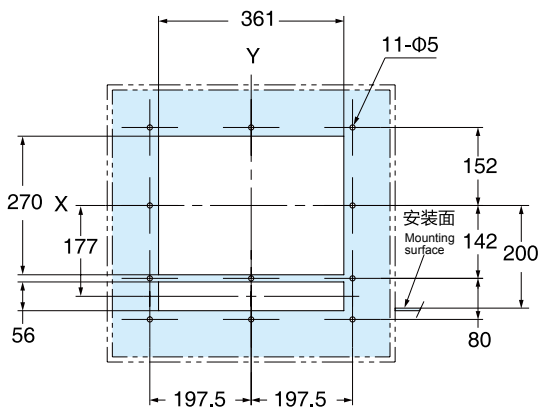
## SHTW3-4000系列断路器外形、安装及连接尺寸 3/4极抽屉式

## SHTW3-4000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

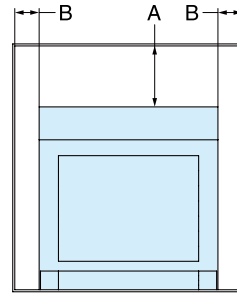
## 面板开孔及安全间距

## Panel opening and safety spacing

面板开孔  
Panel opening



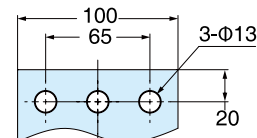
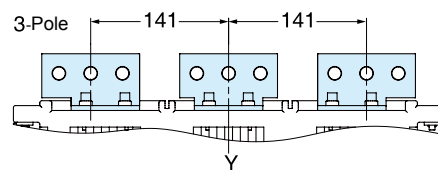
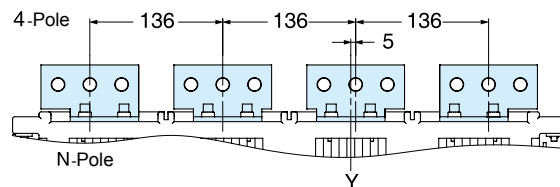
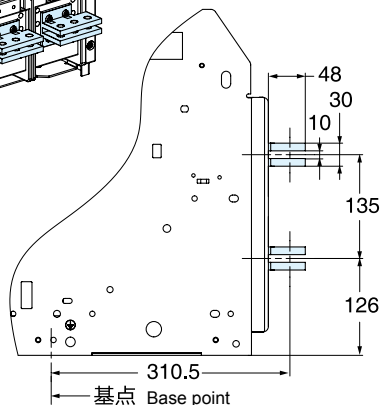
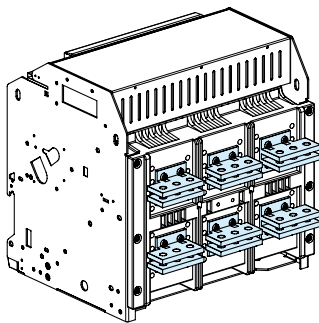
安全距离  
Safe distance



|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

水平后连接2000A~3600A（标准配置）

Horizontal rear connection2000A~3600A(standard)



注:

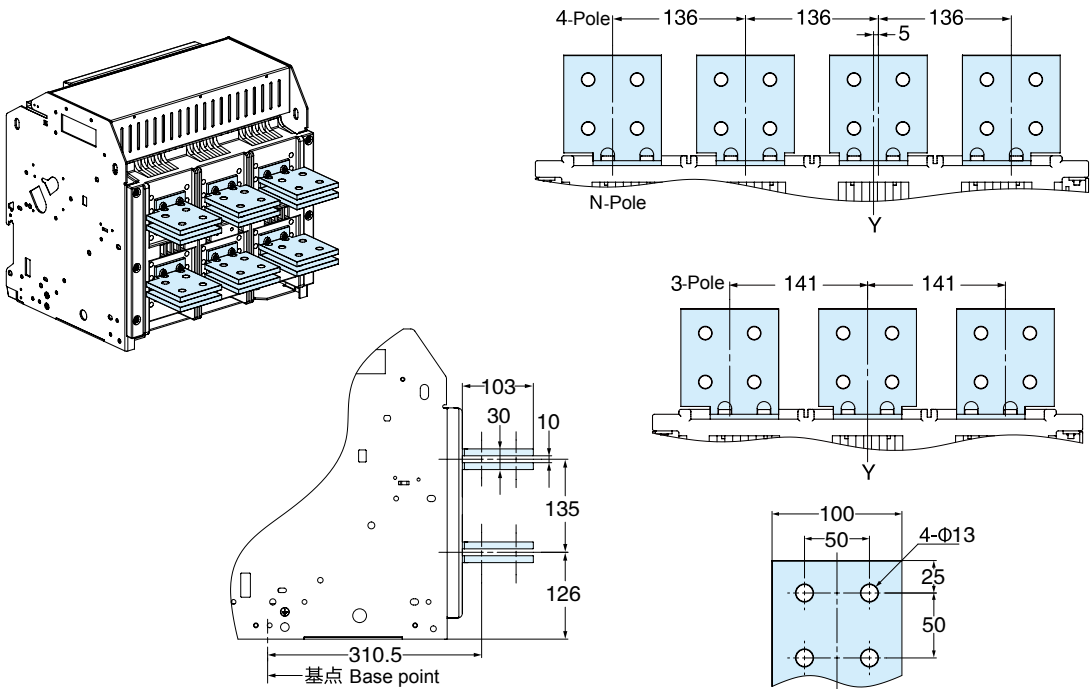
“X”和“Y”为断路器前罩壳对称轴

Note:

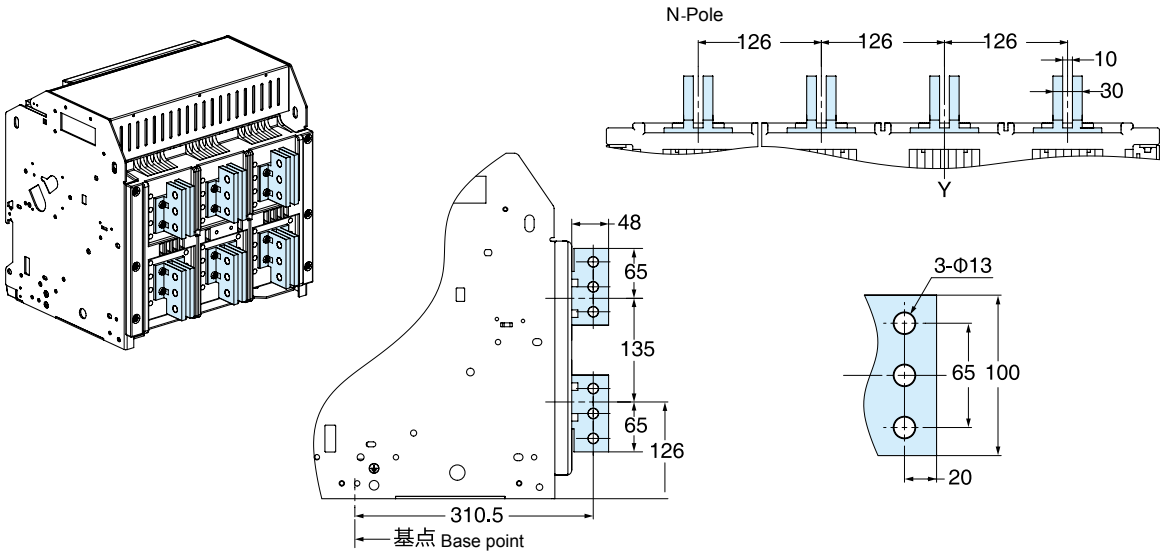
"X" and "Y" are the front axle of the circuit breaker

SHTW3-4000系列断路器外形、安装及连接尺寸 3/4极抽屉式  
SHTW3-4000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

水平后连接4000A（标准配置）  
Horizontal rear connection4000A(standard)



垂直后连接2000A~3600A  
Vertical rear connection 2000A~3600A



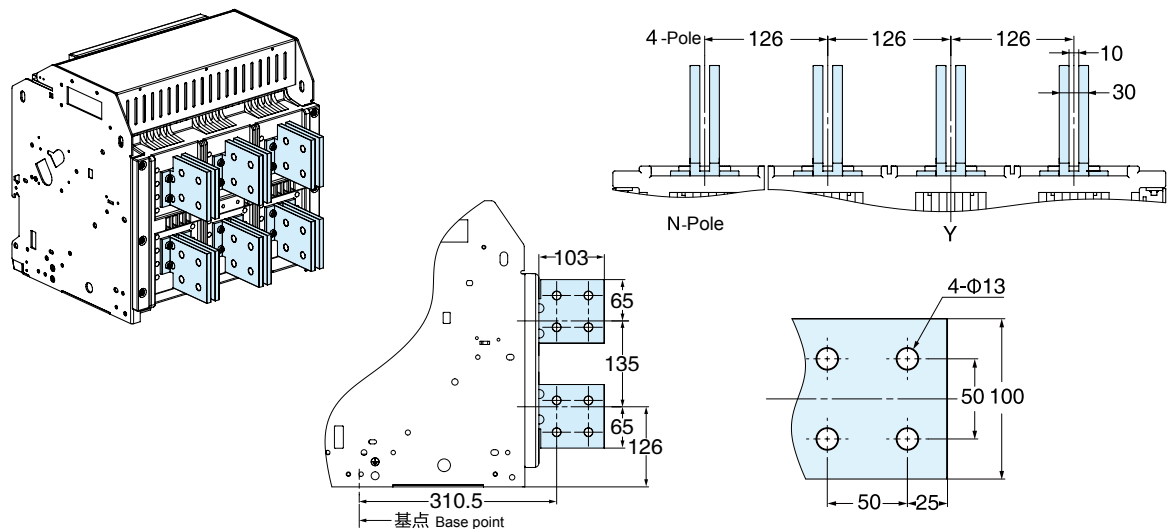
注：  
“X”和“Y”为断路器前罩壳对称轴

Note:  
"X" and "Y" are the front axle of the circuit breaker

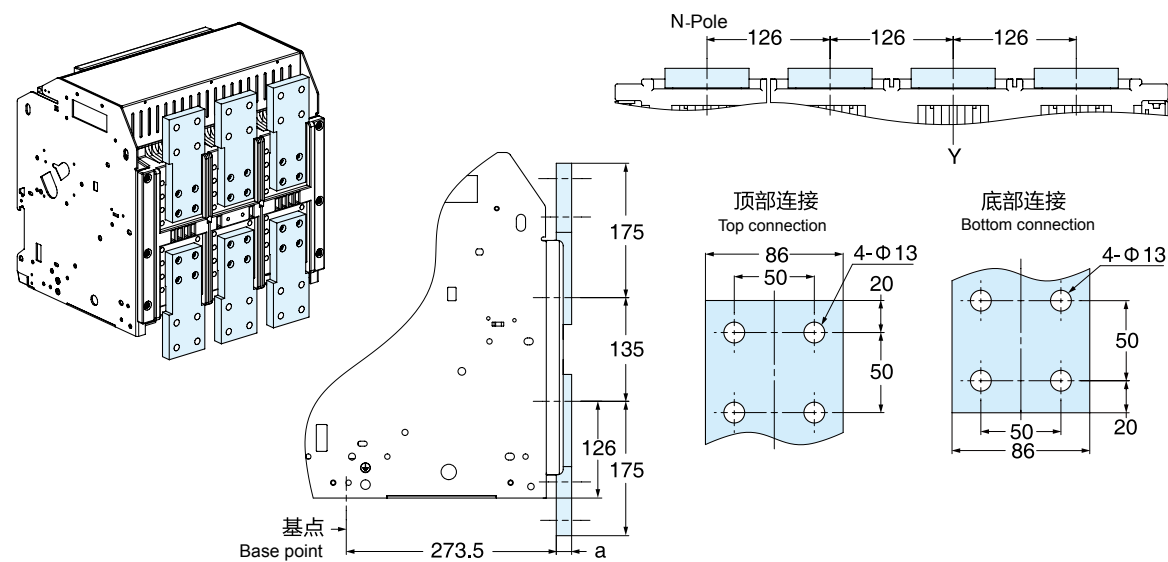
外形和安装尺寸  
Appearance and installation dimensions

SHTW3-4000系列断路器外形、安装及连接尺寸 3/4极抽屉式  
SHTW3-4000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

垂直后连接4000A  
Vertical rear connection 4000A



前连接  
Front connection



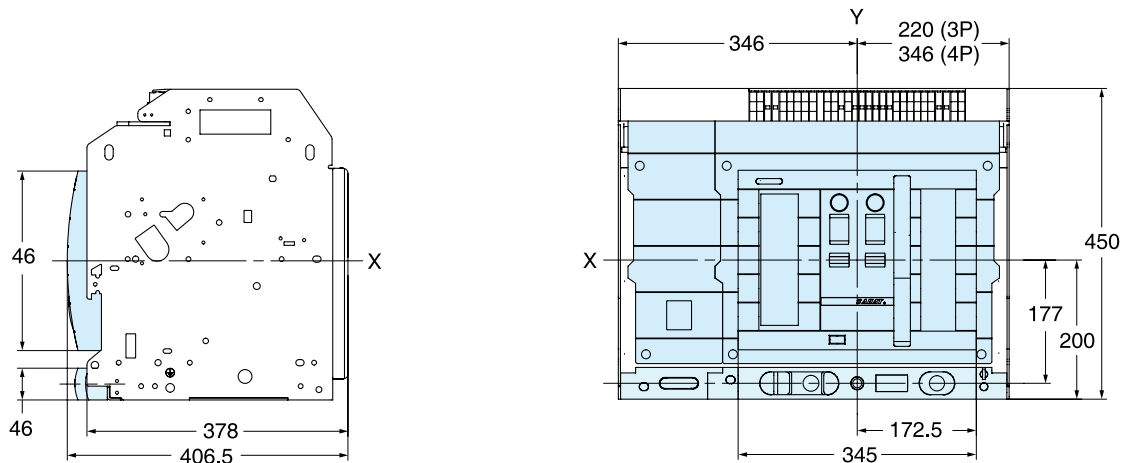
| In          | 尺寸a Size a |
|-------------|------------|
| 2000A~3600A | 15         |
| 4000A       | 20         |

注: "Y"为断路器前罩壳对称轴  
Note: "Y" is the front axle of the circuit breaker

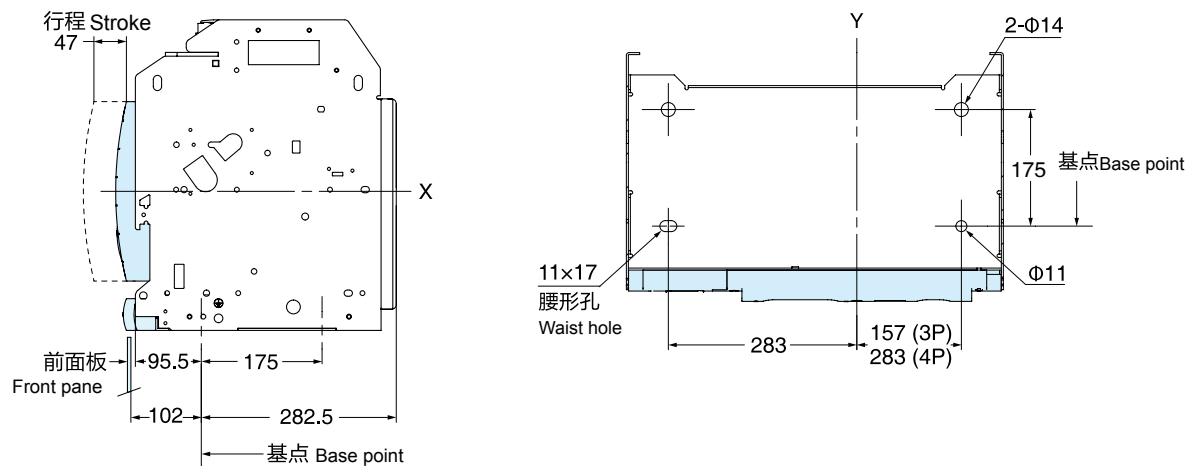
SHTW3-5000系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-5000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

外形 Outline



安装 Mounting



注:

"X"和"Y"为断路器前罩壳对称轴

Note:

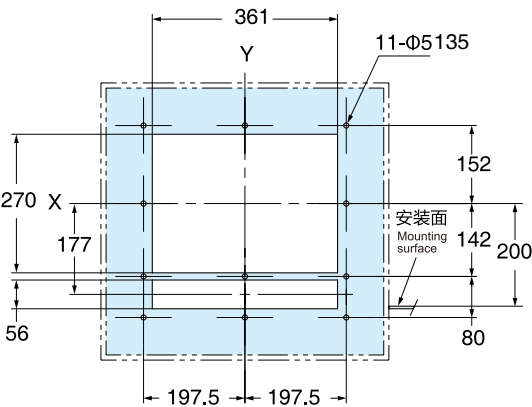
"X" and "Y" are the front axle of the circuit breaker

外形和安装尺寸  
Appearance and installation dimensions

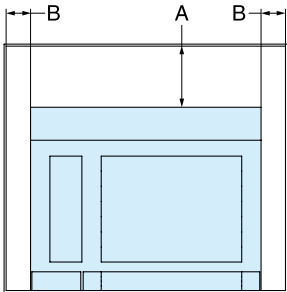
面板开孔及安全间距

Panel opening and safety spacing

面板开孔  
Panel opening



安全距离  
Safe distance



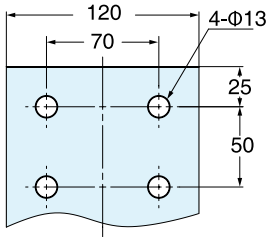
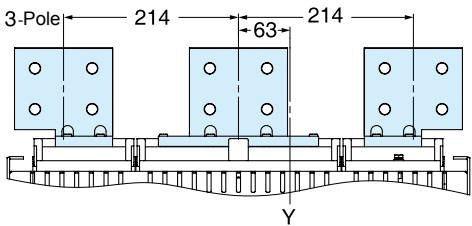
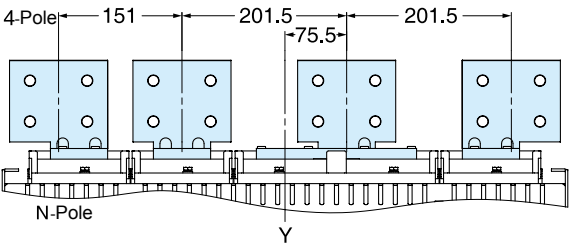
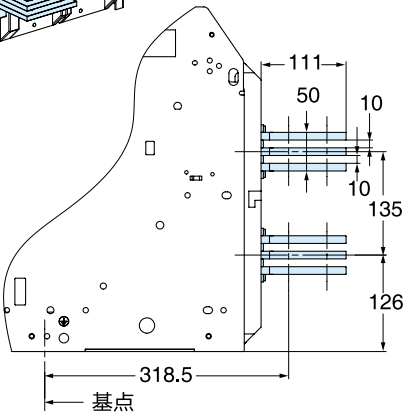
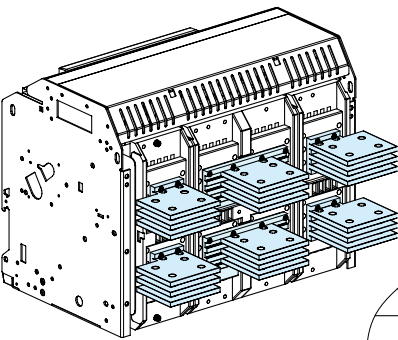
|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

SHTW3-5000系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-5000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

水平后连接 (3200A~4000A)

Horizontal rear connection (3200A~4000A)



注:

"X"和"Y"为断路器前罩壳对称轴

Note:

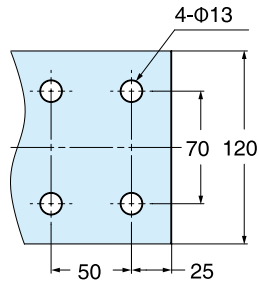
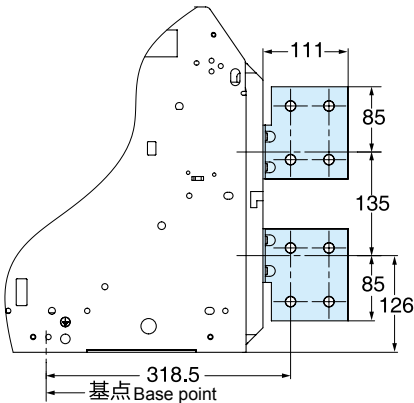
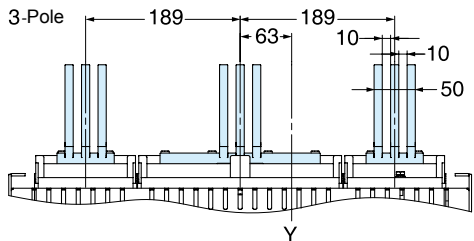
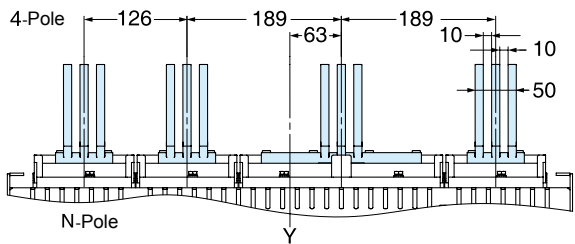
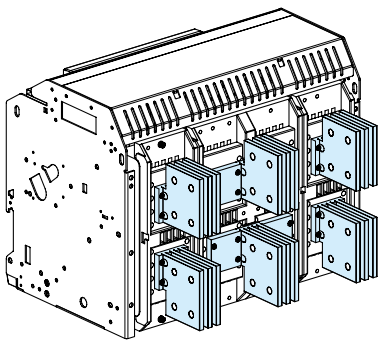
"X" and "Y" are the front axle of the circuit breaker

SHTW3-5000系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-5000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

垂直后连接（标准配置 3200A~5000A）

Vertical rear connection (standard 3200A~5000A)



注:

“Y”为断路器前罩壳对称轴

Note:

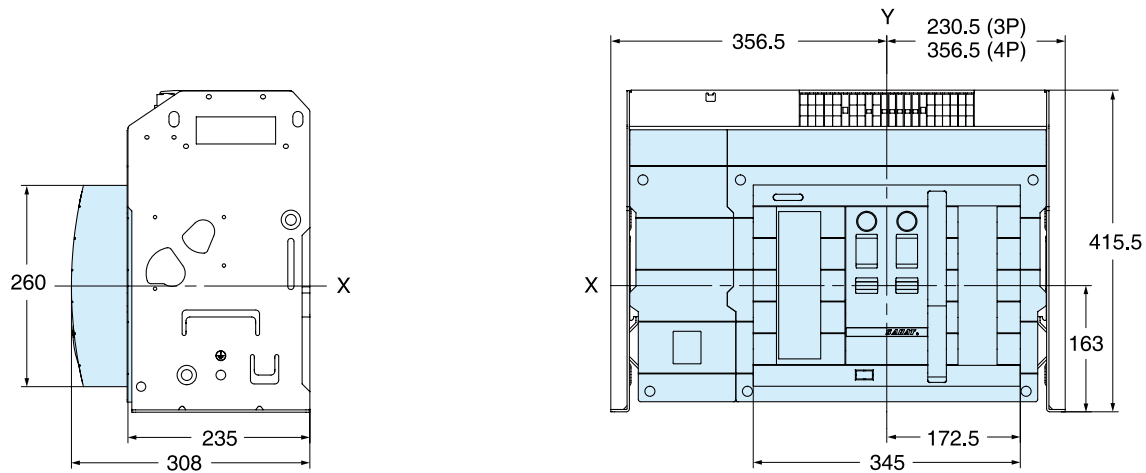
"Y" is the front axle of the circuit breaker

## 外形和安装尺寸 Appearance and installation dimensions

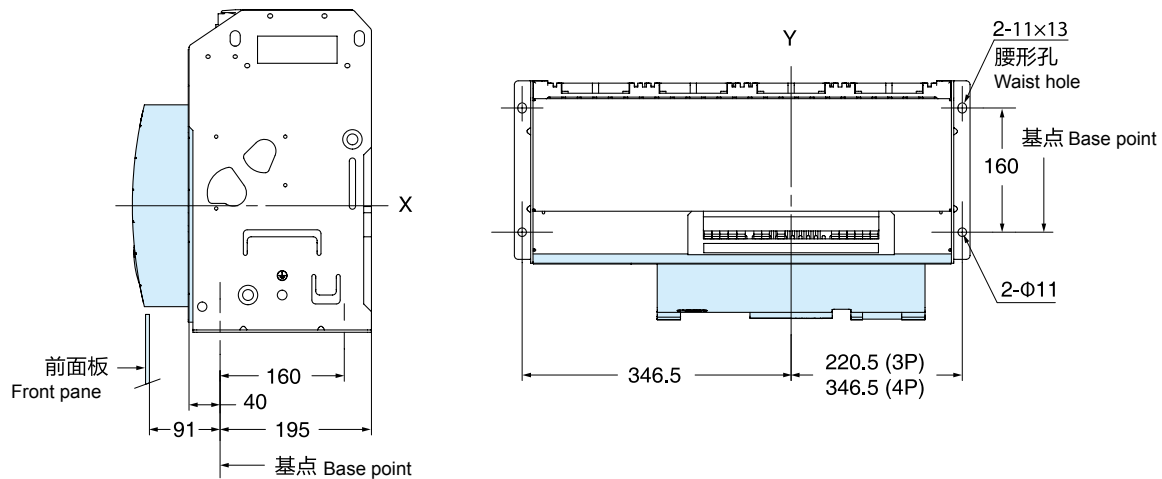
### SHTW3-5000系列断路器外形、安装及连接尺寸 3/4极固定式

SHTW3-5000 series circuit breaker shape, installation and connection size 3/4 pole fixed style

#### 外形 Outline



#### 安装 Mounting



注:

"X"和"Y"为断路器前罩壳对称轴

Note:

"X" and "Y" are the front axle of the circuit breaker



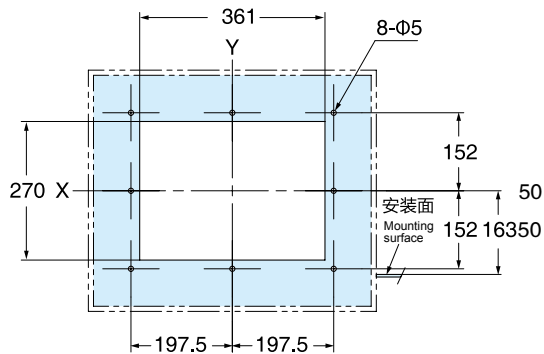
### SHTW3-5000系列断路器外形、安装及连接尺寸 3/4极固定式

## SHTW3-5000 series circuit breaker shape, installation and connection size 3/4 pole fixed style

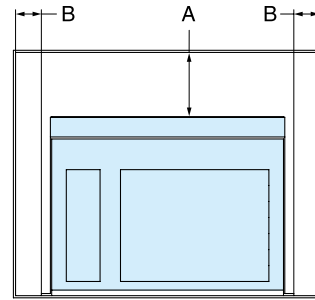
## 面板开孔及安全间距

## Panel opening and safety spacing

面板开孔  
Panel opening



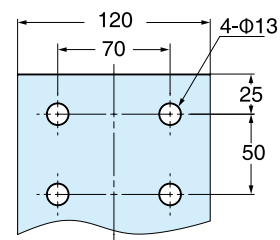
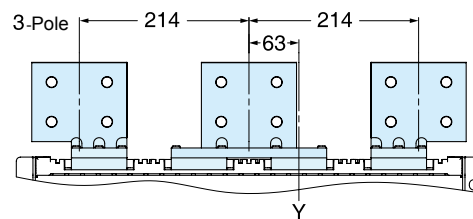
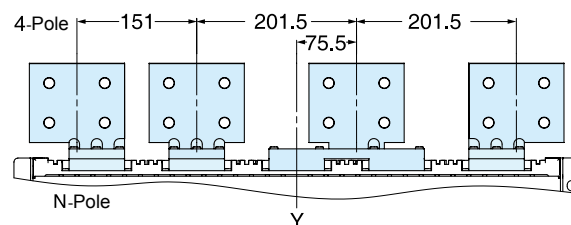
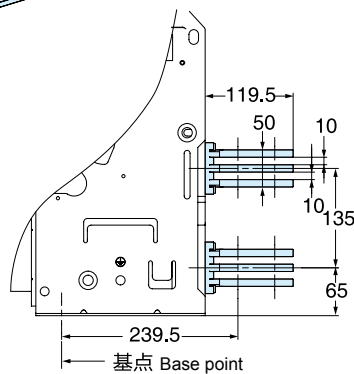
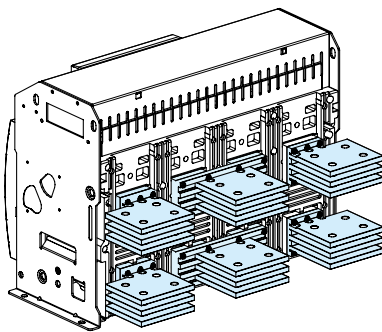
安全距离  
Safe distance



|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

## 水平后连接3200A~4000A

## Horizontal rear connection 3200A~4000A



注:

“X”和“Y”为断路器前罩壳对称轴

Note:

"X" and "Y" are the front axle of the circuit breaker

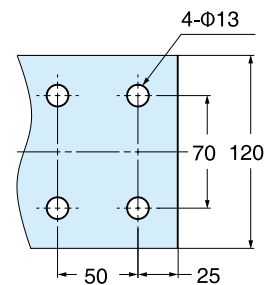
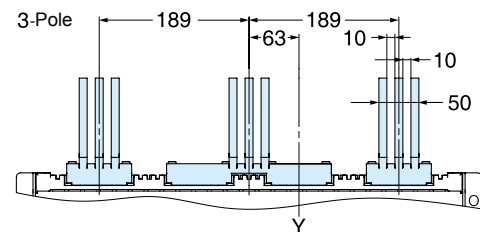
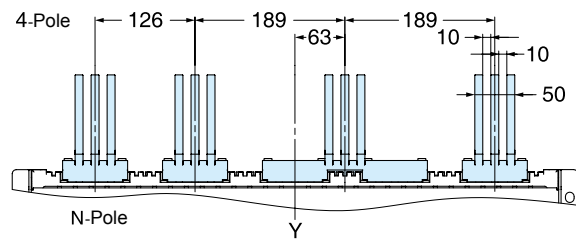
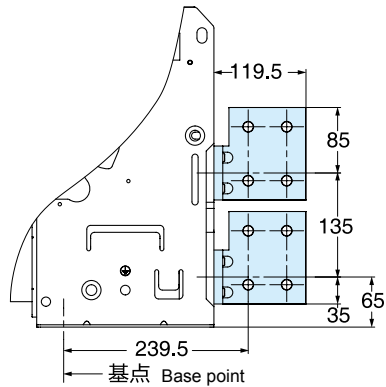
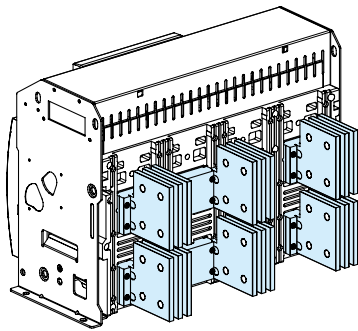
## 外形和安装尺寸 Appearance and installation dimensions

### SHTW3-5000系列断路器外形、安装及连接尺寸 3/4极固定式

SHTW3-5000 series circuit breaker shape, installation and connection size 3/4 pole fixed style

#### 垂直后连接（标准配置3200A~5000A）

Vertical rear connection (standard 3200A~5000A)



注:

“Y”为断路器前罩壳对称轴

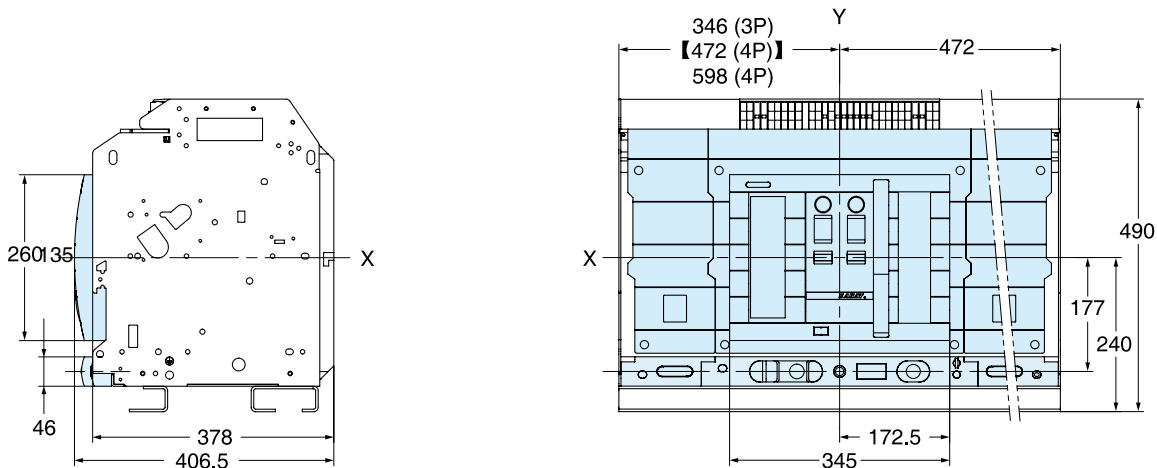
Note:

"Y" is the front axle of the circuit breaker

SHTW3-6300系列断路器外形、安装及连接尺寸 3/4极抽屉式

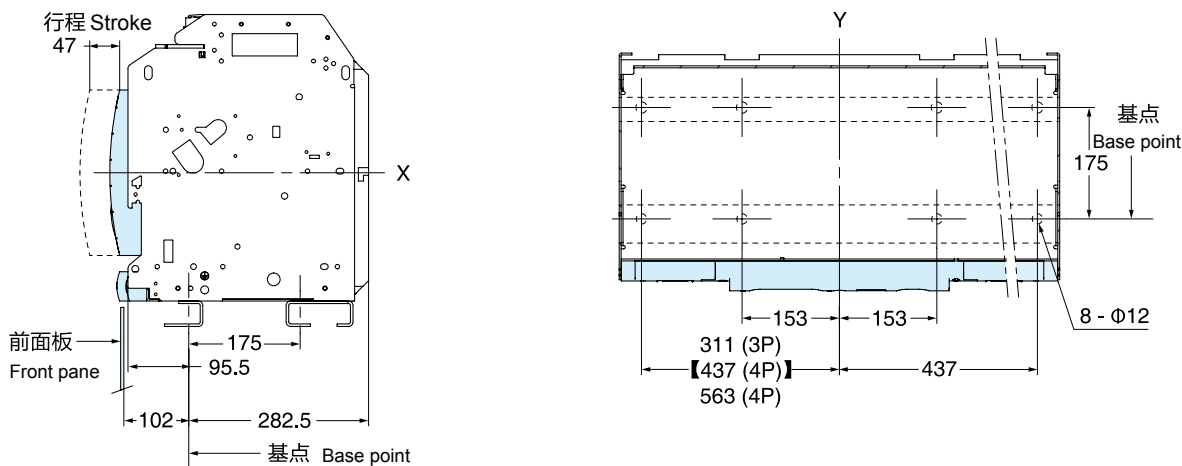
SHTW3-6300 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

外形 Outline



注: 【 】内为N极=0.5In时的尺寸值  
Note: 【 】 for the N pole = 0.5In when the size value

安装 Mounting



注: 【 】内为N极=0.5In时的尺寸值  
Note: 【 】 for the N pole = 0.5In when the size value

注:  
“X”和“Y”为断路器前罩壳对称轴

Note:  
“X” and “Y” are the front axle of the circuit breaker

## 外形和安装尺寸

## Appearance and installation dimensions

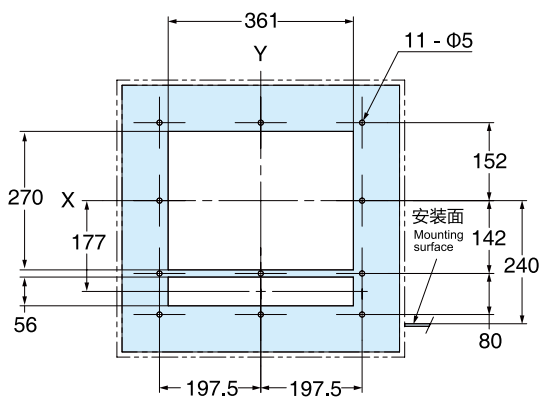
## SHTW3-6300系列断路器外形、安装及连接尺寸 3/4极抽屉式

## SHTW3-6300 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

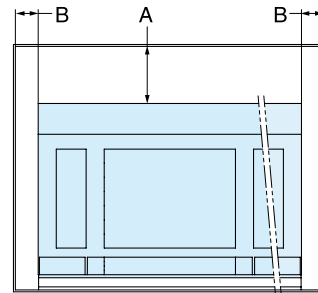
## 面板开孔及安全间距

## Panel opening and safety spacing

面板开孔  
Panel opening



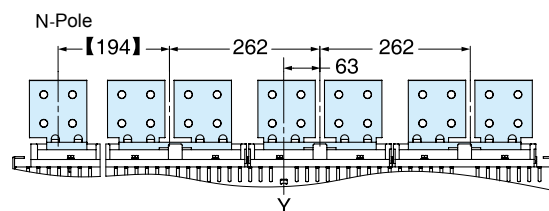
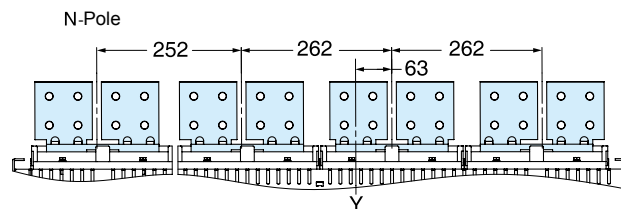
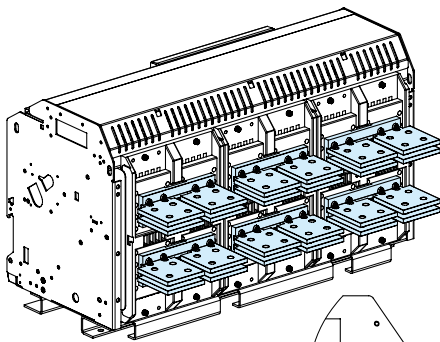
安全距离  
Safe distance



|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

水平后连接4000A、5000A（标准配置）

Horizontal rear connection 4000A、5000A (standard)



注：【 】内为N极=0.5ln时的尺寸值

Note: 【 】 for the N pole = 0.5ln when the size value

注:

Note:

“X”和“Y”为断路器前罩壳对称轴

"X" and "Y" are the front axle of the circuit breaker

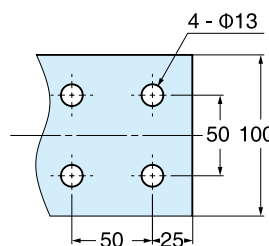
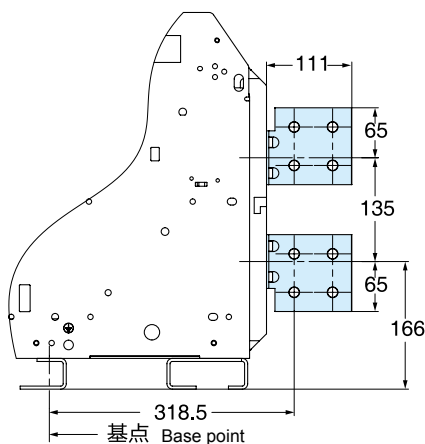
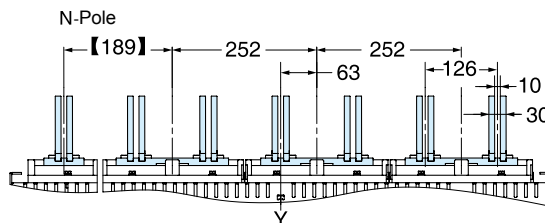
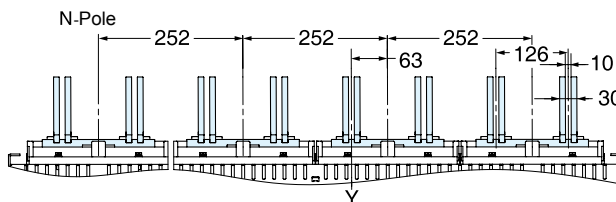
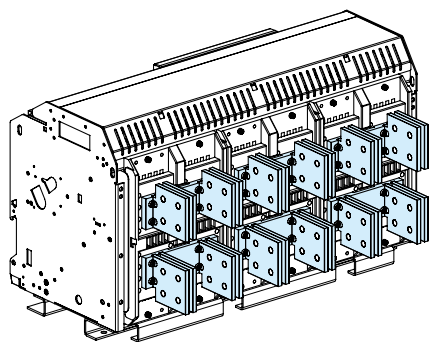
外形和安装尺寸  
Appearance and installation dimensions

SHTW3-6300系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-6300 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

垂直后连接4000~6300A（其中6300A只提供垂直方式）

Vertical connection 4000~6300A (of which 6300A only provide vertical mode)



注：【 189 】内为N极=0.5In时的尺寸值  
Note: 【 189 】 for the N pole = 0.5In when the size value

注：  
“Y”为断路器前罩壳对称轴

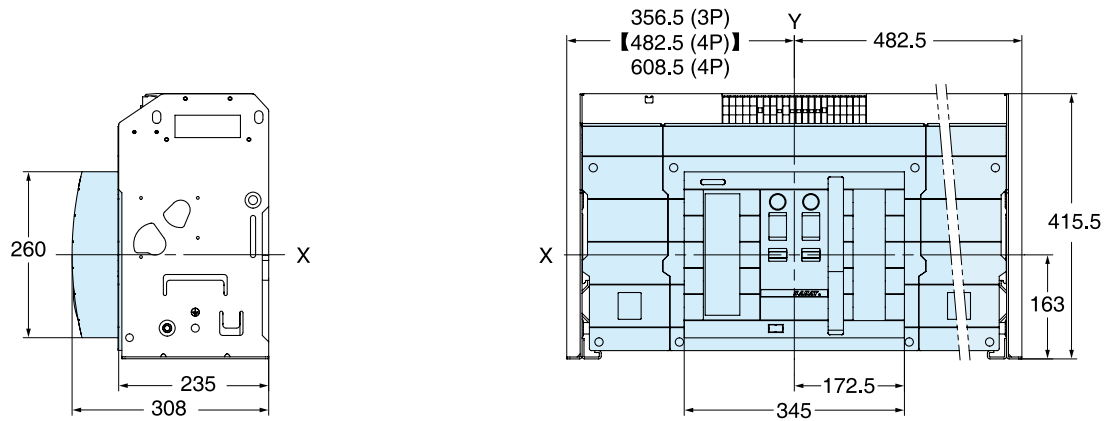
Note:  
“Y” is the front axle of the circuit breaker

## 外形和安装尺寸 Appearance and installation dimensions

### SHTW3-6300系列断路器外形、安装及连接尺寸 3/4极固定式

SHTW3-6300 series circuit breaker shape, installation and connection size 3/4 pole fixed style

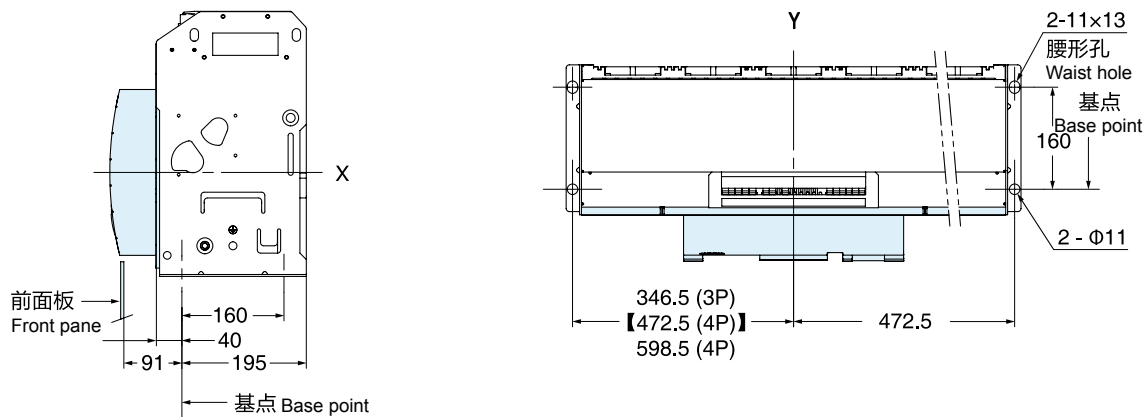
#### 外形 Outline



注: 【 】内为N极=0.5In时的尺寸值

Note: 【 】 for the N pole = 0.5In when the size value

#### 安装 Mounting



注: 【 】内为N极=0.5In时的尺寸值

Note: 【 】 for the N pole = 0.5In when the size value

注:

"X"和"Y"为断路器前罩壳对称轴

Note:

"X" and "Y" are the front axle of the circuit breaker

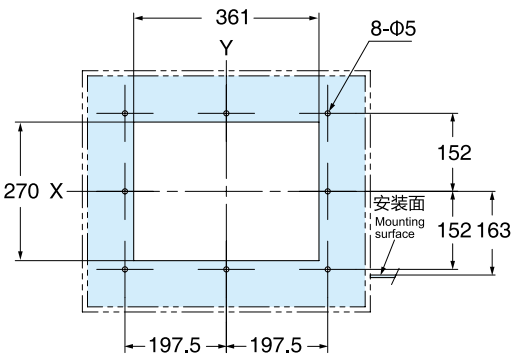
SHTW3-6300系列断路器外形、安装及连接尺寸 3/4极固定式

SHTW3-6300 series circuit breaker shape, installation and connection size 3/4 pole fixed style

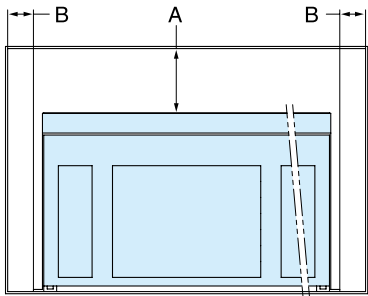
面板开孔及安全间距

Panel rear opening and safety spacing

面板开孔  
Panel opening



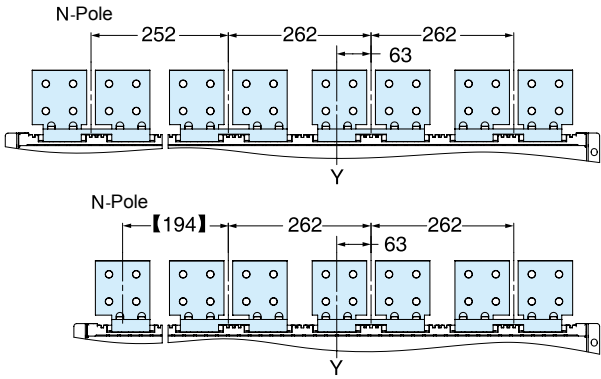
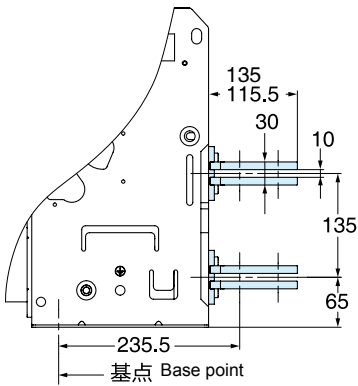
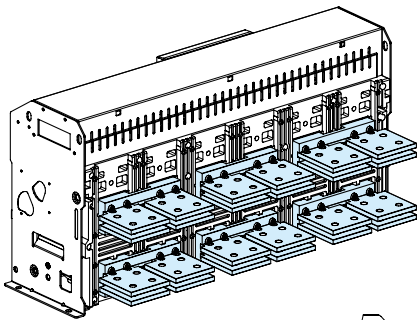
安全距离  
Safe distance



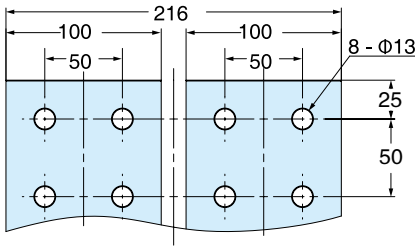
|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

水平后连接4000A、5000A（标准配置）

Horizontal connection 4000A、5000A (standard)



注：【 】内为N极=0.5In时的尺寸值  
Note: 【 】 for the N pole = 0.5In when the size value



注：  
“X”和“Y”为断路器前罩壳对称轴

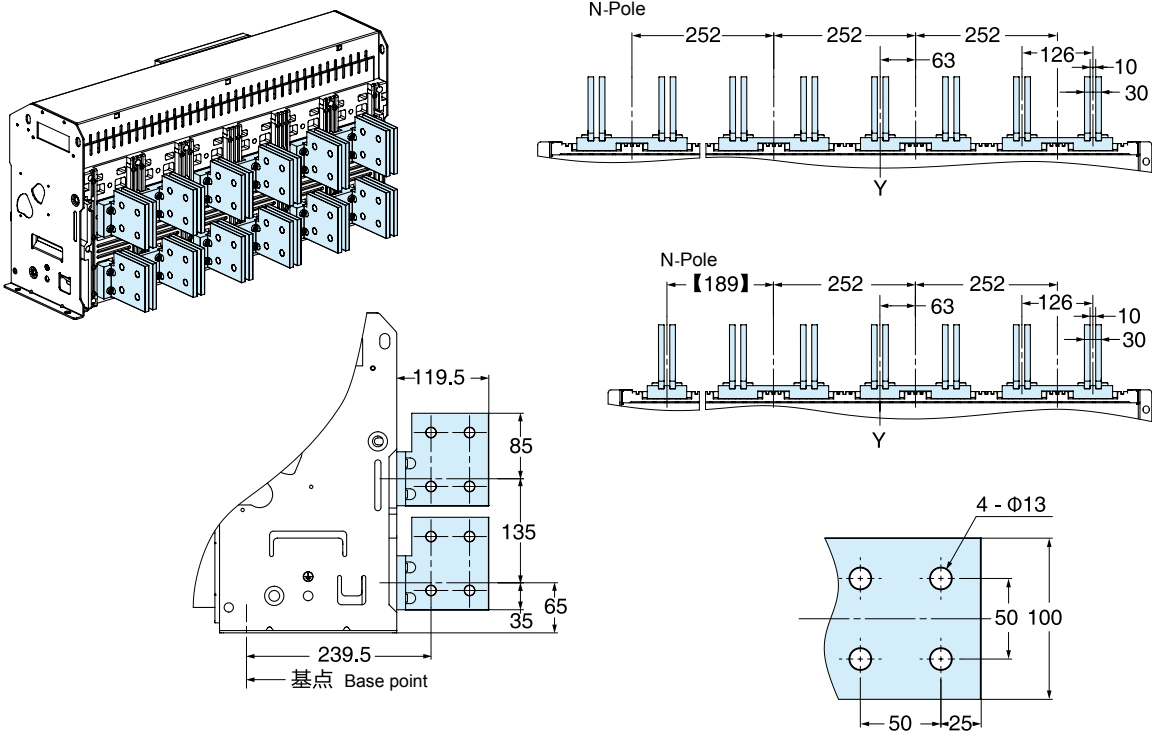
Note:  
“X” and “Y” are the front axle of the circuit breaker



外形和安装尺寸  
Appearance and installation dimensions

SHTW3-6300系列断路器外形、安装及连接尺寸 3/4极固定式  
SHTW3-6300 series circuit breaker shape, installation and connection size 3/4 pole fixed style

垂直后连接4000~6300A（其中6300A只提供垂直方式）  
Vertical rear connection 4000~6300A (of which 6300A only provide vertical mode)



注：【 】内为N极=0.5In时的尺寸值  
Note: 【 】 for the N pole = 0.5In when the size value

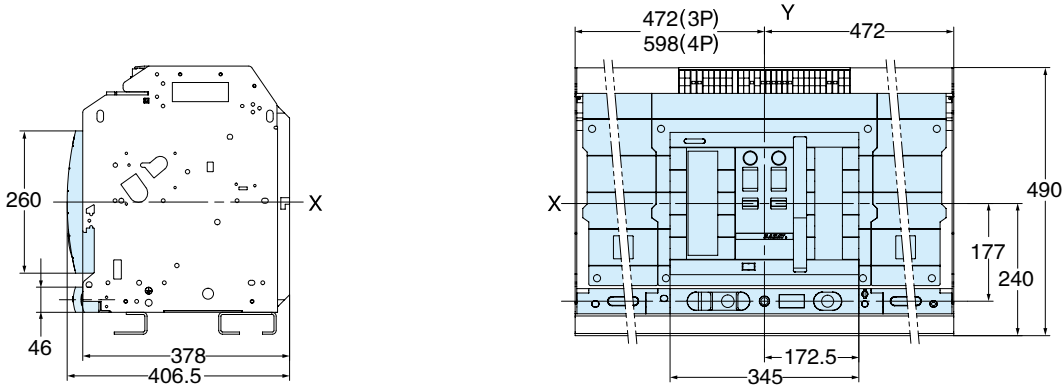
注：  
“Y”为断路器前罩壳对称轴

Note:  
“Y” is the front axle of the circuit breaker

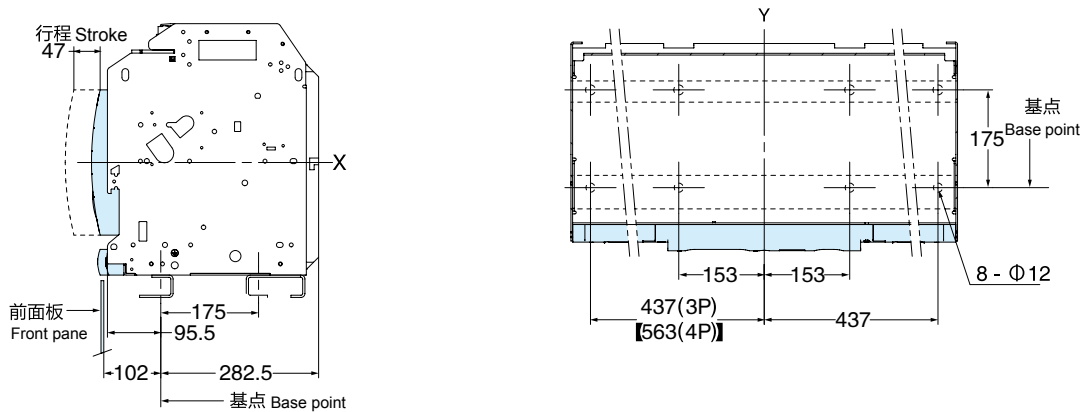
SHTW3-8000系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-8000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

外形 Outline



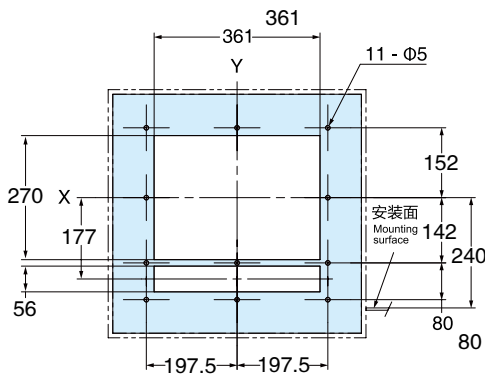
安装 Mounting



面板开孔及安全间距

Panel opening and safety spacing

面板开孔 Panel opening



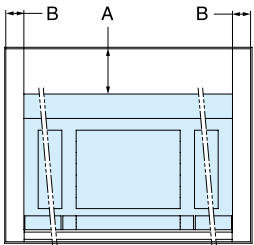
注:

"X"和"Y"为断路器前罩壳对称轴

Note:

"X"和"Y" are the front axle of the circuit breaker

安全距离 Safe distance



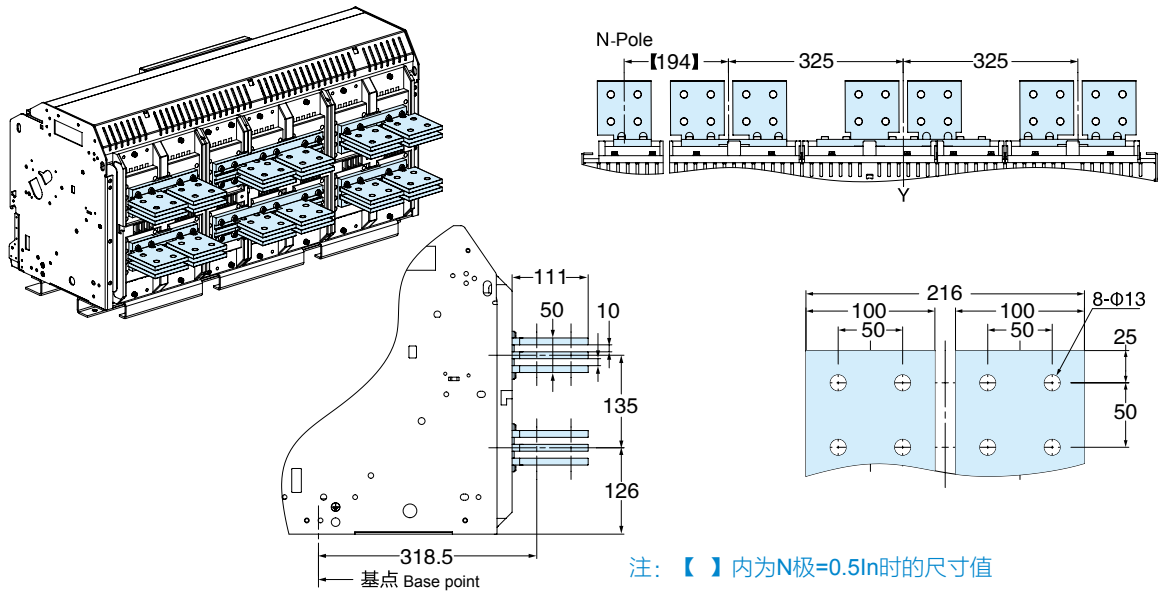
|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

### SHTW3-8000系列断路器外形、安装及连接尺寸 3/4极抽屉式

## SHTW3-8000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

### 水平后连接6300A（标准配置）

**Horizontal rear connection 6300A (standard)**

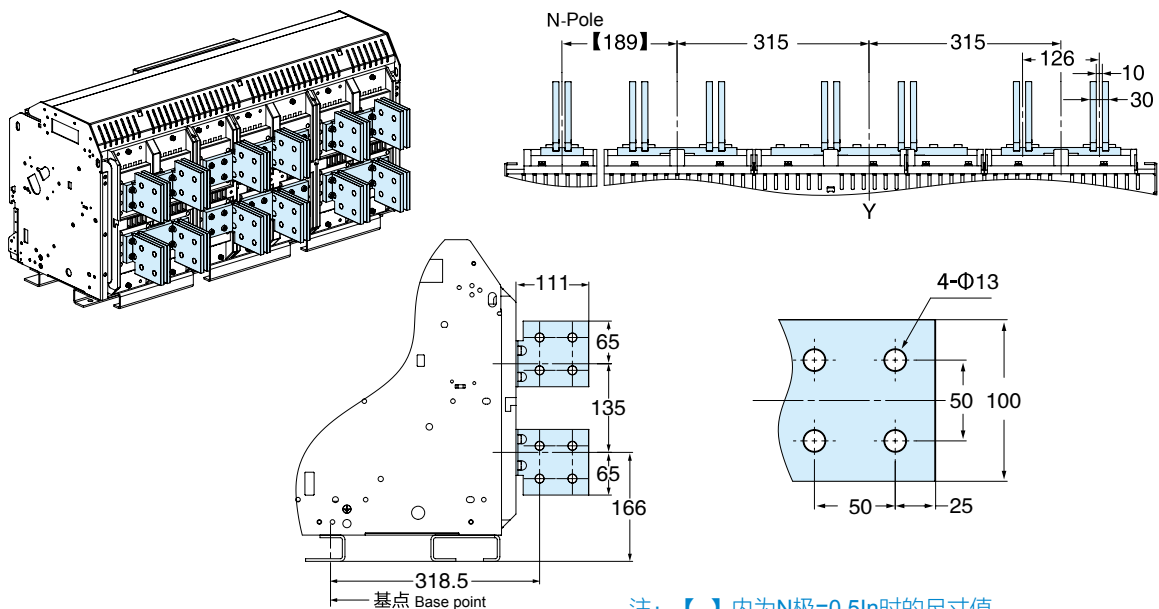


注：【 】内为N极=0.5ln时的尺寸值

Note: **【 】** for the N pole = 0.5ln when the size value

## 垂直后连接 6300A

## Vertical rear connection 6300A



注: 【 】内为N极=0.5ln时的尺寸值

Note: **【 】** for the N pole = 0.5ln when the size value

注：

“Y”为断路器前罩壳对称轴

Note:

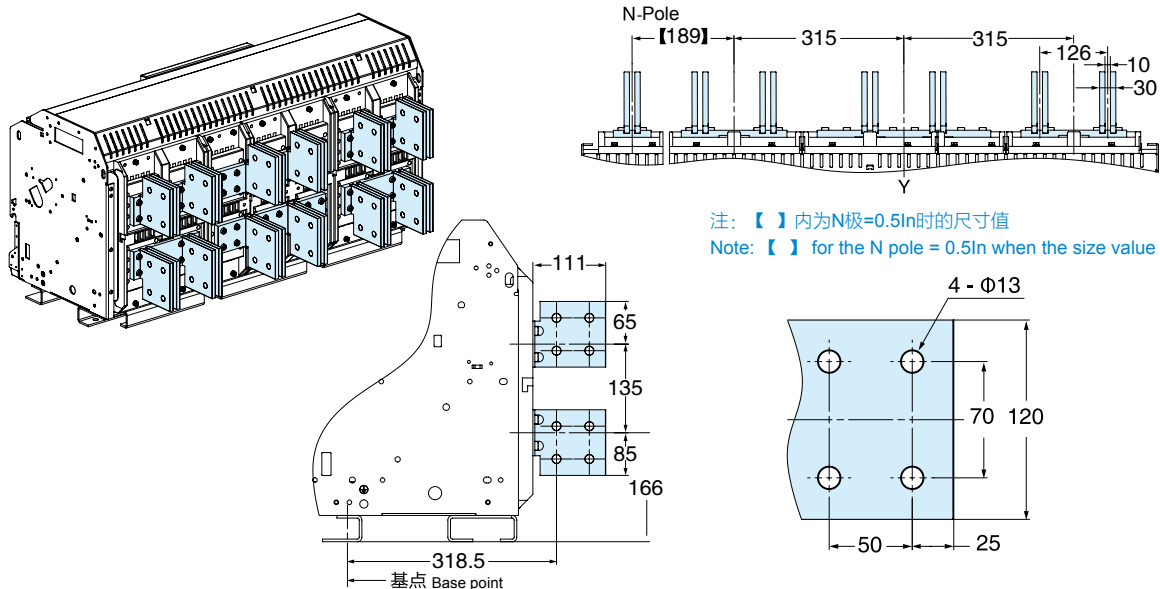
"Y" is the front axle of the circuit breaker

SHTW3-8000系列断路器外形、安装及连接尺寸 3/4极抽屉式

SHTW3-8000 series circuit breaker shape, installation and connection size 3/4 pole draw-out type

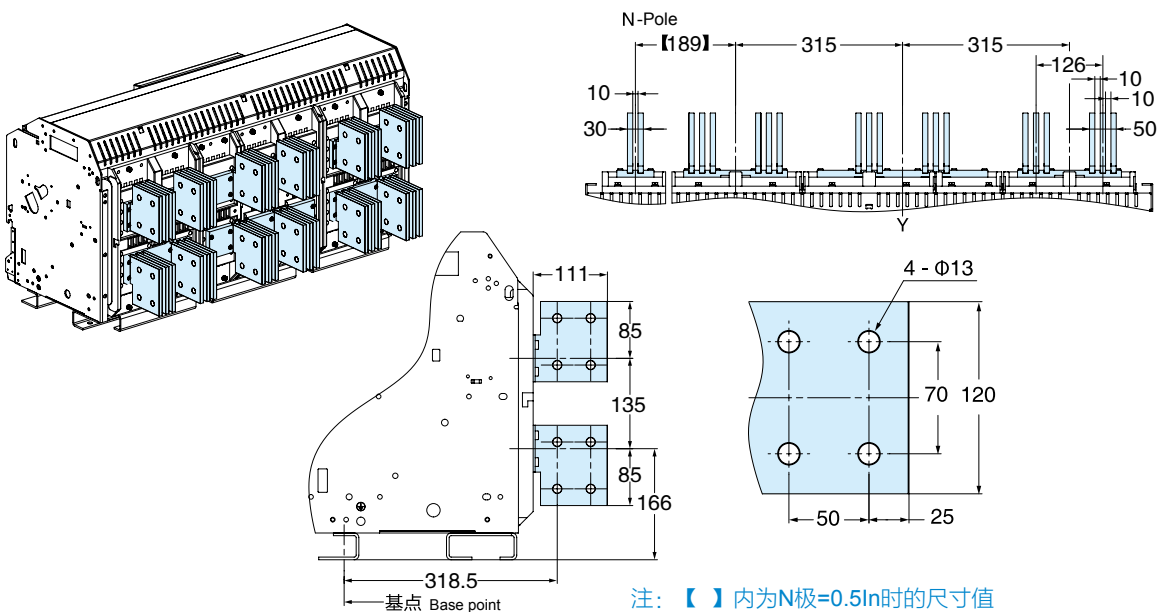
垂直后连接7500A（只提供垂直方式）

Vertical rear connection 7500A (vertical only)



垂直后连接8000A（只提供垂直方式）

Vertical rear connection 8000A (vertical only)



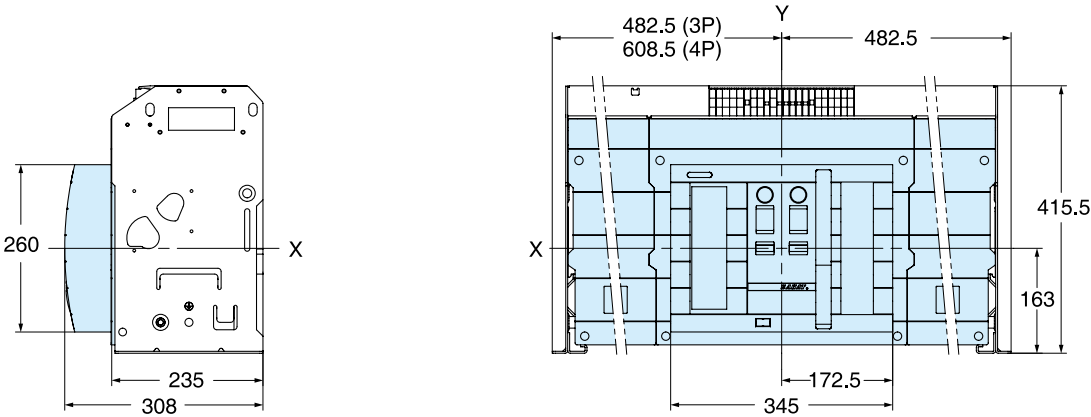
注：  
“Y”为断路器前罩壳对称轴

Note:  
“Y” is the front axle of the circuit breaker

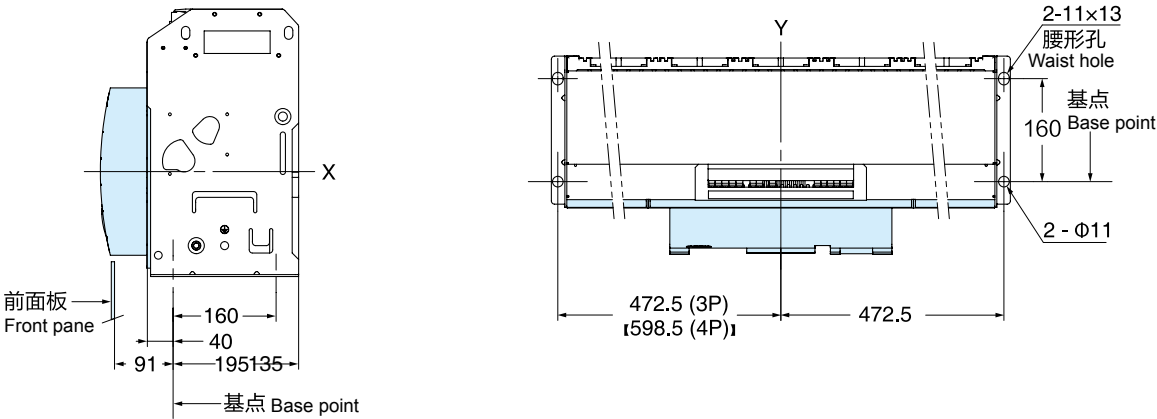
外形和安装尺寸  
Appearance and installation dimensions

SHTW3-8000系列断路器外形、安装及连接尺寸 3/4极固定式  
SHTW3-8000 series circuit breaker shape, installation and connection size 3/4 pole fixed style

外形 Outline



安装 Mounting



注:  
“X”和“Y”为断路器前罩壳对称轴

Note:  
"X" and "Y" are the front axle of the circuit breaker

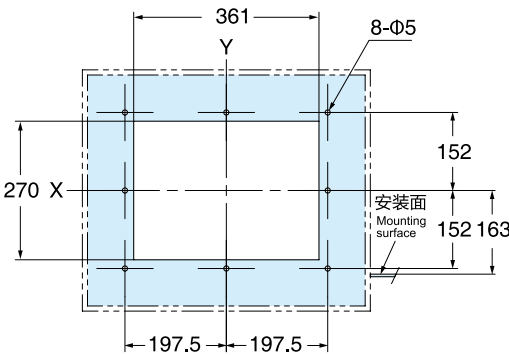
SHTW3-8000系列断路器外形、安装及连接尺寸 3/4极固定式

SHTW3-8000 series circuit breaker shape, installation and connection size 3/4 pole fixed style

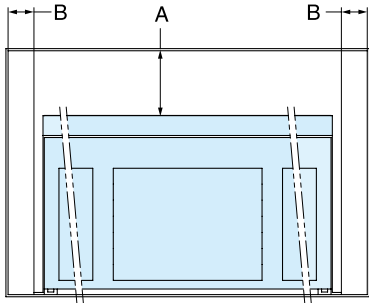
面板开孔及安全间距

Panel opening and safety spacing

面板开孔  
Panel opening



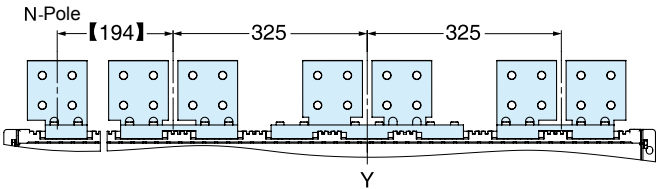
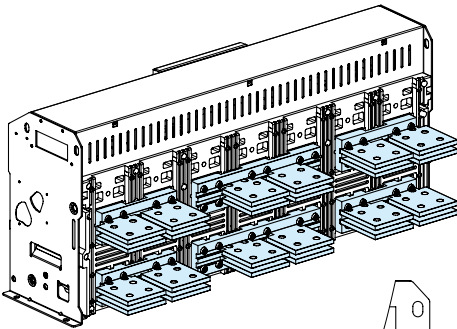
安全距离  
Safe distance



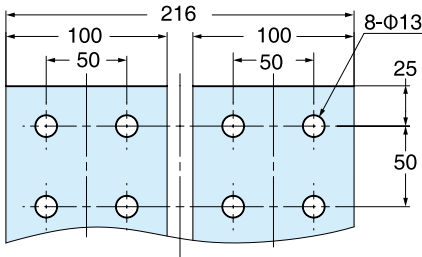
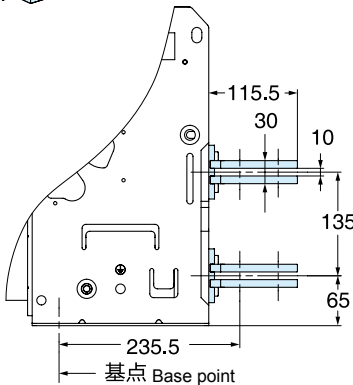
|   | 绝缘部分<br>Insulated part | 金属部分<br>Metal parts | 带电部分<br>Live part |
|---|------------------------|---------------------|-------------------|
| A | 0                      | 0                   | 100               |
| B | 0                      | 0                   | 60                |

水平后连接6300A（标准配置）

Horizontal rear connection 6300A (standard)



注：【 194 】内为N极=0.5In时的尺寸值  
Note: 【 194 】 for the N pole = 0.5In when the size value



注:

“X”和“Y”为断路器前罩壳对称轴

Note:

“X” and “Y” are the front axle of the circuit breaker

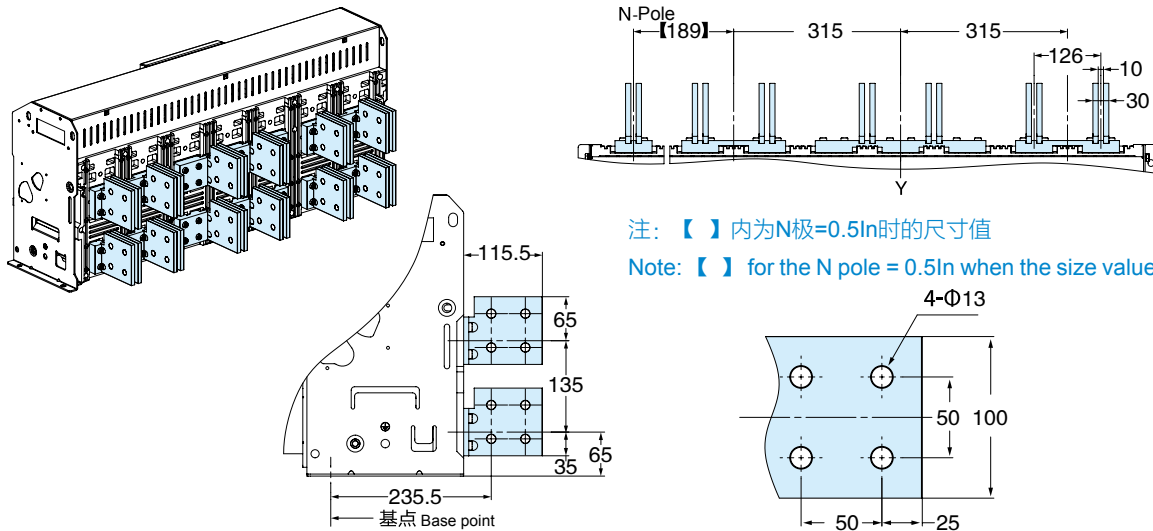
## 外形和安装尺寸 Appearance and installation dimensions

### SHTW3-8000系列断路器外形、安装及连接尺寸 3/4极固定式

SHTW3-8000 series circuit breaker shape, installation and connection size 3/4 pole fixed style

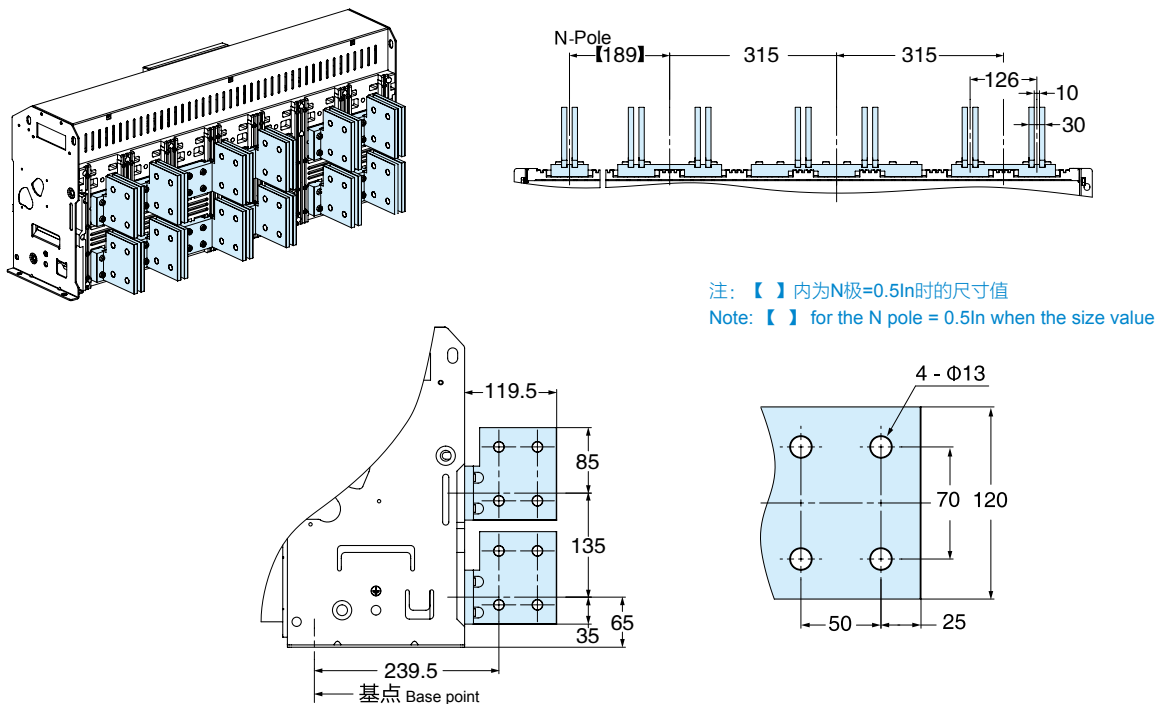
#### 垂直后连接6300A

Vertical rear connection 6300A



#### 垂直后连接7500A(只提供垂直方式)、8000A(只提供垂直方式)

Vertical rear connection 7500A (only provide vertical mode)、8000A (only provide vertical mode)



注:

"Y"为断路器前罩壳对称轴

Note:

"Y" is the front axle of the circuit breaker

使用与维护  
Use and maintenance

断路器功耗及降容  
Circuit breaker power consumption and derating

功耗及回路电阻  
断路器单台功耗为本台主回路进出线之间总的损耗，一般在断路器通以壳架电流 $I_{nm}$ 下测量所得。  
回路电阻（每极输入/输出电阻）为冷态下的数值。  
功率损耗及单极回路电阻：

Power consumption and loop resistance  
The single power consumption of the circuit breaker is the total loss between the main circuit in and out of the main line, usually measured by the circuit breaker through the shell current  $I_{nm}$ .  
The loop resistance (per pole input / output resistance) is the value in the cold state.  
Power loss and unipolar circuit resistance:

| Inm壳架电流 (A)<br>Inm shell current (A) | 抽屉式Draw-out type           |                                                   | 固定式Fixed type              |                                                   |
|--------------------------------------|----------------------------|---------------------------------------------------|----------------------------|---------------------------------------------------|
|                                      | 功耗(W)<br>Power consumption | 单极回路电阻( $\mu\Omega$ )<br>Unipolar loop resistance | 功耗(W)<br>Power consumption | 单极回路电阻( $\mu\Omega$ )<br>Unipolar loop resistance |
| SHTW3-1600                           | 460                        | 36                                                | 220                        | 26                                                |
| SHTW3-2500                           | 600                        | 20                                                | 260                        | 12                                                |
| SHTW3-4000                           | 900                        | 12                                                | 650                        | 8                                                 |
| SHTW3-5000                           | 1000                       | 10                                                | 850                        | 7                                                 |
| SHTW3-6300                           | 1200                       | 8                                                 | 1050                       | 5                                                 |
| SHTW3-8000                           | 1450                       | 7                                                 | 1350                       | 5                                                 |

海拔降容  
Altitude derating

断路器安装所处的海拔高度对其工作电压、绝缘等级、工作额定电流均有一定影响。其中额定电流需乘上其修正系数后选取。  
海拔超过标准值(2000m)时,断路器相关参数修正值:

The height of the installation of the circuit breaker has a certain influence on its working voltage, insulation grade and rated current. Where the rated current is multiplied by its correction factor.  
When the altitude exceeds the standard value (2000m), the relevant parameters of the circuit breaker correction:

| 海拔(m)<br>Altitude                           | 2000 | 3000 | 4000 | 5000 |
|---------------------------------------------|------|------|------|------|
| 绝缘电压等级 (V)<br>Insulation voltage class      | 1000 | 900  | 700  | 600  |
| 最大工作电压 (V)<br>Maximum operating voltage     | 690  | 590  | 520  | 460  |
| 额定电流修正系数<br>Rated current correction factor | 1.0  | 0.98 | 0.95 | 0.93 |



## 使用与维护 Use and maintenance

### 断路器的降容

#### 温度降容

断路器安装使用在不同的环境温度（包括配电柜内影响温度变化的因素）中对其额定工作电流会产生一定影响，需降容后选取。

环境温度高于+40℃时断路器最大额定工作电流：

### The derating of the circuit breaker

#### Temperature derating

The use of circuit breakers in the use of different ambient temperature (including the distribution cabinet to affect the temperature changes in the factors) in its rated current will have a certain impact, need to be selected after derating.

The ambient temperature is higher than +40℃ when the maximum rated circuit breaker current:

| Inm壳架电流 (A)<br>Inm shell current (A) | 额定电流(A)<br>Power consumption | 不同环境温度下最大额定工作电流 (A)<br>Maximum rated operating current at different ambient temperatures |      |      |
|--------------------------------------|------------------------------|------------------------------------------------------------------------------------------|------|------|
|                                      |                              | +40℃                                                                                     | +50℃ | +60℃ |
| SHTW3-1600                           | 200                          | 200                                                                                      | 200  | 200  |
|                                      | 400                          | 400                                                                                      | 400  | 400  |
|                                      | 630                          | 630                                                                                      | 630  | 630  |
|                                      | 800                          | 800                                                                                      | 800  | 800  |
|                                      | 1000                         | 1000                                                                                     | 900  | 800  |
|                                      | 1250                         | 1250                                                                                     | 1250 | 1000 |
|                                      | 1600                         | 1600                                                                                     | 1440 | 1280 |
| SHTW3-2500                           | 630                          | 630                                                                                      | 630  | 630  |
|                                      | 800                          | 800                                                                                      | 800  | 800  |
|                                      | 1000                         | 1000                                                                                     | 900  | 800  |
|                                      | 1250                         | 1250                                                                                     | 1250 | 1250 |
|                                      | 1600                         | 1600                                                                                     | 1600 | 1600 |
|                                      | 2000                         | 2000                                                                                     | 2000 | 2000 |
|                                      | 2500                         | 2500                                                                                     | 2250 | 2000 |
| SHTW3-4000                           | 2000                         | 2000                                                                                     | 2000 | 2000 |
|                                      | 2500                         | 2500                                                                                     | 2500 | 2500 |
|                                      | 2900                         | 2900                                                                                     | 2900 | 2880 |
|                                      | 3200                         | 3200                                                                                     | 3200 | 2880 |
|                                      | 3600                         | 3600                                                                                     | 3240 | 2880 |
|                                      | 4000                         | 4000                                                                                     | 3600 | 3200 |
| SHTW3-5000                           | 3200                         | 3200                                                                                     | 3200 | 3200 |
|                                      | 3600                         | 3600                                                                                     | 3600 | 3600 |
|                                      | 4000                         | 4000                                                                                     | 4000 | 4000 |
|                                      | 5000                         | 5000                                                                                     | 4500 | 4000 |
| SHTW3-6300                           | 4000                         | 4000                                                                                     | 4000 | 4000 |
|                                      | 5000                         | 5000                                                                                     | 4500 | 4000 |
|                                      | 6300                         | 6300                                                                                     | 5670 | 5040 |
| SHTW3-8000                           | 6300                         | 6300                                                                                     | 5670 | 5040 |
|                                      | 7500                         | 7500                                                                                     | 6750 | 6000 |
|                                      | 8000                         | 8000                                                                                     | 7200 | 6400 |

出厂保护参数设定

用户无特定要求时，控制器的主要保护参数按以下设定：

Factory protection parameter setting

When the user has no specific requirements, the main protection parameters of the controller are set as follows:

| 型号<br>Type | 过载长延时整定<br>Overload long delay setting |       | 短路短延时整定<br>Short circuit short delay setting |                     | 短路瞬时整定<br>Short circuit instantaneous setting | 接地故障保护整定<br>Earth fault protection setting |                    |
|------------|----------------------------------------|-------|----------------------------------------------|---------------------|-----------------------------------------------|--------------------------------------------|--------------------|
|            | IR                                     | tR(s) | I <sub>sd</sub>                              | T <sub>sd</sub> (s) | I <sub>i</sub>                                | I <sub>g</sub>                             | T <sub>g</sub> (s) |
| 1600A      | 1.0 × I <sub>n</sub>                   | 480S  | 8 × IR                                       | 0.2                 | 12 × I <sub>n</sub>                           | 0.8 × I <sub>n</sub>                       | 0.4                |
| 2500A      | 1.0 × I <sub>n</sub>                   | 480S  | 8 × IR                                       | 0.2                 | 12 × I <sub>n</sub>                           | 1200A                                      | 0.4                |
| 4000A      | 1.0 × I <sub>n</sub>                   | 480S  | 6 × IR                                       | 0.2                 | 10 × I <sub>n</sub>                           | 1200A                                      | 0.4                |
| 5000A      | 1.0 × I <sub>n</sub>                   | 480S  | 6 × IR                                       | 0.2                 | 10 × I <sub>n</sub>                           | 1200A                                      | 0.4                |
| 6300A      | 1.0 × I <sub>n</sub>                   | 480S  | 5 × IR                                       | 0.2                 | 8 × I <sub>n</sub>                            | 1200A                                      | 0.4                |
| 8000A      | 1.0 × I <sub>n</sub>                   | 480S  | 5 × IR                                       | 0.2                 | 8 × I <sub>n</sub>                            | 1200A                                      | 0.4                |

断路器在投入运行前，必须按下述步骤进行操作

The circuit breaker must be operated according to the following steps before being put into operation

必须认真阅读使用说明书。

断路器必须在正常工作条件下使用。

必须用控制器的试验功能做脱扣分闸试验 1—2 次，确保控制器和断路器处于正常运行状态。

长期搁置不用的断路器，在投入运行前应首先清除尘垢，必要时还应用干净的棉布蘸上工业酒精，将接触面擦干净。在此之后，还应测量断路器的绝缘电阻，若发现断路器已受潮应作干燥处理。特别是灭弧室，在使用前应先烘烤一次，以保证良好的绝缘，待合格后，才能投入运行。

You must read the instructions carefully.

Circuit breakers must be used under normal operating conditions.

It is necessary to use the test function of the controller to do a trip test for 1-2 times to ensure that the controller and circuit breaker are in normal operation.

Long-term use of the circuit breaker, before the operation should be the first to remove grime, when necessary, also apply a clean cotton cloth dipped in industrial alcohol, the contact surface will be wiped clean. After that, the insulation resistance of the circuit breaker should be measured. If the circuit breaker is found to be damp, it should be dried. In particular, the arc extinguishing chamber should be baked once before use to ensure good insulation. Only after qualified can it be put into operation.

维护

在使用过程中，各个转动部分定期注入润滑油，一般 1—2 年。

定期清刷灰尘，以保持其绝缘良好。

定期检查电流整定值，通过试验按钮检查是否可靠动作。

断路器的触头长期使用后，如发现其表面有毛刺或金属颗粒等，应加以清除，以保证良好的接触。

附：用户外接母排（最小）规格及数量（供用户参考）

maintenance

In the process of use, each rotating part is regularly injected with lubricating oil, generally 1-2 years.

Dust regularly to maintain good insulation.

Periodically check the current setting value and check the reliable operation through the test button.

After the contact of the circuit breaker is used for a long time, if any burrs or metal particles are found on its surface, it should be removed to ensure good contact.

Attachment : User external busbar (minimum) size and quantity(for user's reference)

用户外接母排（最小）规格及数量  
User external busbar (minimum) size and quantity

| Inm壳架电流 (A)<br>Inm shell current (A) | SHTW3-1600 |     |     |     |      |      |      | SHTW3-2500 |     |      |      |      |      |      |
|--------------------------------------|------------|-----|-----|-----|------|------|------|------------|-----|------|------|------|------|------|
| In额定电流 (A)<br>In rated current (A)   | 200        | 400 | 630 | 800 | 1000 | 1250 | 1600 | 630        | 800 | 1000 | 1250 | 1600 | 2000 | 2500 |
| 厚度 (mm) Thickness(mm)                | 5          | 5   | 5   | 5   | 5    | 5    | 5    | 5          | 5   | 5    | 5    | 10   | 10   | 10   |
| 宽度 (mm) Width(mm)                    | 20         | 50  | 50  | 50  | 50   | 50   | 50   | 40         | 50  | 60   | 60   | 60   | 60   | 60   |
| 每极根数<br>The number of poles per pole | 1          | 1   | 2   | 2   | 3    | 3    | 4    | 2          | 2   | 2    | 3    | 2    | 3    | 4    |

(续) (Continued)

| Inm壳架电流 (A)<br>Inm shell current (A) | SHTW3-4000 |      |      |      |      |      | SHTW3-5000 |      |      |                       |
|--------------------------------------|------------|------|------|------|------|------|------------|------|------|-----------------------|
| In额定电流 (A)<br>In rated current (A)   | 2000       | 2500 | 2900 | 3200 | 3600 | 4000 | 3200       | 3600 | 4000 | 5000                  |
| 厚度 (mm) Thickness(mm)                | 5          | 10   | 10   | 10   | 10   | 10   | 10         | 10   | 10   | 10                    |
| 宽度 (mm) Width(mm)                    | 100        | 100  | 100  | 100  | 100  | 100  | 100        | 100  | 100  | 100                   |
| 每极根数<br>The number of poles per pole | 3          | 2    | 3    | 3    | 4    | 4    | 3          | 4    | 4    | 5 (垂直)<br>5(vertical) |

(续) (Continued)

| Inm壳架电流 (A)<br>Inm shell current (A) | SHTW3-6300 |      |                       | SHTW3-8000 |                       |                       |
|--------------------------------------|------------|------|-----------------------|------------|-----------------------|-----------------------|
| In额定电流 (A)<br>In rated current (A)   | 4000       | 5000 | 6300                  | 6300       | 7500                  | 8000                  |
| 厚度 (mm) Thickness(mm)                | 10         | 10   | 10                    | 10         | 10                    | 10                    |
| 宽度 (mm) Width(mm)                    | 100        | 100  | 100                   | 100        | 120                   | 120                   |
| 每极根数<br>The number of poles per pole | 4          | 6    | 6 (垂直)<br>6(vertical) | 6          | 6 (垂直)<br>6(vertical) | 8 (垂直)<br>8(vertical) |

注: SHTW3-1600 扩展连接时可用80宽度母排, 厚度及根数用户自行等效换算后采用。

Note: SHTW3-1600 extended connection can be used 80-width busbar, thickness and number of users after the equivalent conversion.

订货规范  
Form of ordering specification

SHTW3-1600 系列智能型万能式断路器订货规范  
Ordering specification of SHTW3-1600 series of air circuit breakers

注：■标配，□选配勾取，\_\_\_自填

Note: ■Standard, □Optional-checked, \_\_\_self-administered

您的称呼 Your name: \_\_\_\_\_ 订货台（套）数 Orders (sets): \_\_\_\_\_

日期 Date: \_\_\_\_\_ 合同号 Contract No: \_\_\_\_\_

|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 万能式断路器 Air circuit breaker                                                                                                                                                                                                                                                                                                                                    |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 远程操作 Remote operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| N 普通型 normal type <input type="checkbox"/> 三极 3P <input type="checkbox"/> 固定式 Fixed style <input type="checkbox"/><br>H 高分断 High breaking <input type="checkbox"/> 四极 4P <input type="checkbox"/> 抽屉式 Draw-out type <input type="checkbox"/>                                                                                                                  |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 电动操作机 Electric operating mechanism<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC220V <input type="checkbox"/> DC110V <input type="checkbox"/> ___V <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                    |  |
| SHTW3 - 1600 In<br>200A <input type="checkbox"/> 400A <input type="checkbox"/> 630A <input type="checkbox"/> 800A <input type="checkbox"/><br>1000A <input type="checkbox"/> 1250A <input type="checkbox"/> 1600A <input type="checkbox"/>                                                                                                                    |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 闭合电磁铁 Closed electromagnet<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC220V <input type="checkbox"/> DC110V <input type="checkbox"/> ___V <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                            |  |
| 智能控制器 Intelligent controller                                                                                                                                                                                                                                                                                                                                  |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 分励脱扣器 Shunt release<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC220V <input type="checkbox"/> DC110V <input type="checkbox"/> ___V <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                   |  |
| SW3<br>L3 基本型 Basic type <input type="checkbox"/> L4 基本型 Basic type <input type="checkbox"/><br>A3 标准型 Standard type <input type="checkbox"/> A4 标准型 Standard type <input type="checkbox"/><br>HP 通讯型 Communication type <input type="checkbox"/><br>HQ 通讯型 Communication type <input type="checkbox"/><br>HG 通讯型 Communication type <input type="checkbox"/> |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 欠压脱扣器（附件） Under-voltage release (accessory)<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/> ___V <input type="checkbox"/><br>欠压瞬时 Under-voltage instantaneous <input type="checkbox"/><br>欠压延时不可调 Under-voltage delay is not adjustable<br>0S <input type="checkbox"/> 1S <input type="checkbox"/> 2S <input type="checkbox"/> 3S <input type="checkbox"/><br>欠压延时可调 Under-voltage delay adjustable<br>0S <input type="checkbox"/> 1S <input type="checkbox"/> 2S <input type="checkbox"/> 3S <input type="checkbox"/> |  |
| 辅助电源 Auxiliary power<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC24V <input type="checkbox"/> ___V <input type="checkbox"/>                                                                                                                                                                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 其它附件                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| 型增选<br>(含A、L)<br>H-type co-selection<br>(including A, L, )                                                                                                                                                                                                                                                                                                    | A型增选<br>(含L)<br>A-type co-selection<br>(including L, ) | L型增选<br>L-type co-selection<br><input type="checkbox"/> 接地故障grounding fault 3P+N (T)<br><input type="checkbox"/> 接地故障地电流<br>Ground fault ground current(W) <sup>(1)</sup><br><input type="checkbox"/> MCR<br><input type="checkbox"/> 负载监控 Load monitoring<br><input type="checkbox"/> 过载预警 Overload warning<br><input type="checkbox"/> 接地报警 Ground alarm<br><input type="checkbox"/> 区域联锁 Regional interlocking<br><input type="checkbox"/> 漏电保护 Leakage Protection<br><input type="checkbox"/> 欠电压保护 Under-voltage protection<br><input type="checkbox"/> 过电压保护 Overvoltage protection<br><input type="checkbox"/> 电压不平衡保护 Voltage unbalance protection<br><input type="checkbox"/> 相序保护 Phase sequence protection<br><input type="checkbox"/> modbus-RTU 通讯 communication | 摇手柄 The handle is used<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 隔离挂锁装置（挂锁装置） Isolated Padlock (Padlock)<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 三位置锁定装置 Three-position locking device<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 位置锁（挂锁装置） Position lock (padlock)<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 本体进退分断保护 Preserving and retracting protection of the body<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 相间隔板 Phase separator<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 相间隔板（含连接板） The spacer (including the connecting plate)<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 门框 Door frame<br>用于抽屉式 For Draw-out type <input checked="" type="checkbox"/><br>用于固定式 For fixed type <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 开关（断路器）防护罩 Switch (circuit breaker) protective cover<br>用于抽屉式 For Draw-out type <input type="checkbox"/><br>用于固定式 For fixed type <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                 |  |
|                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 二次回路端子防护罩 Secondary circuit terminal shield<br>用于抽屉式 For Draw-out type <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 三位置电气指示 Three-position electrical indication<br>用于抽屉式 For Draw-out type <input type="checkbox"/>                                                                                                                                                                                                                                                              |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 合闸准备就绪电气指示 Close the electrical instructions <input type="checkbox"/>                                                                                                                                                                                                                                                                                         |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 电动合闸按钮 Electric closing button <input type="checkbox"/>                                                                                                                                                                                                                                                                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 计数器 Counter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                          |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 按钮闭锁装置 Button lock <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                   |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 防合锁 Off key lock<br>一锁一钥匙 A lock a key <input type="checkbox"/><br>二锁一钥匙 Two locks a key <input type="checkbox"/><br>三锁二钥匙 Three locks two keys <input type="checkbox"/><br>五锁三钥匙 Five locks three keys <input type="checkbox"/>                                                                                                                              |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 门联锁 Door interlock<br>用于抽屉式（左） For Draw-out type (left) <input type="checkbox"/><br>用于抽屉式（右） For Draw-out type (right) <input type="checkbox"/>                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 位置钥匙锁 Position key lock <input type="checkbox"/>                                                                                                                                                                                                                                                                                                              |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 机械联锁 Mechanical interlocking<br>二台间钢缆 Two sets of cable <input type="checkbox"/><br>二台间杠杆 Two sets of leverage <input type="checkbox"/><br>三台间杠杆 Three sets of leverage <input type="checkbox"/>                                                                                                                                                              |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| WATSC自动电源转换系统 Automatic power transfer switching system<br>WATSC702 <input type="checkbox"/><br>WATSC802 <input type="checkbox"/>                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| JYY: 检有压合闸模块 JYY: Automatic closing when the voltage returns to normal <input type="checkbox"/>                                                                                                                                                                                                                                                               |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 长延时整定值 Long delay setting<br>1In ■ 时间 Time 480S ■ ___A <input type="checkbox"/> ___S <input type="checkbox"/>                                                                                                                                                                                                                                                 |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 短延时整定值 Short delay setting<br>8IR ■ 时间 Time 0.4S ■ ___A <input type="checkbox"/> ___S <input type="checkbox"/>                                                                                                                                                                                                                                                |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 瞬时整定值 Instantaneous setting value<br>12In ■                                                                                                                                                                                                                                                                                                                   |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 接地保护 Ground protection<br>0.8In ■ 时间 Time 0.4S ■ ___A <input type="checkbox"/> ___S <input type="checkbox"/>                                                                                                                                                                                                                                                  |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 控制器附件 Controller accessories<br>电源模块 Power supply module DC220V <input type="checkbox"/> DC110V <input type="checkbox"/><br>远程复位 Remote reset <input type="checkbox"/>                                                                                                                                                                                        |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 辅助开关                                                                                                                                                                                                                                                                                                                                                          |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 脱扣器故障指示触点 Detector fault indication contact ■<br>合闸指示触点 Closing indicator contact ■<br>分闸指示触点 Opening indicator ■<br>四常开四常闭触点(电气不可分) 4NO+4NC (Com) ■<br>六常开六常闭触点(电气不可分) 6NO+6NC (Com) <input type="checkbox"/>                                                                                                                                                |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 连接                                                                                                                                                                                                                                                                                                                                                            |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 水平 Horizontal                                                                                                                                                                                                                                                                                                                                                 |                                                        | 上端 Upper <input type="checkbox"/> 下端 End <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 垂直 vertical                                                                                                                                                                                                                                                                                                                                                   |                                                        | 上端 Upper <input type="checkbox"/> 下端 End <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 前置（附件） Front (attachment)                                                                                                                                                                                                                                                                                                                                     |                                                        | 上端 Upper <input type="checkbox"/> 下端 End <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| 扩展（附件） Extended (attachment)                                                                                                                                                                                                                                                                                                                                  |                                                        | 上端 Upper <input type="checkbox"/> 下端 End <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |

注：各类选配附件及用户特殊定制价格另计  
Note: All kinds of accessories and users of special custom prices separately

订货规范  
Form of ordering specification

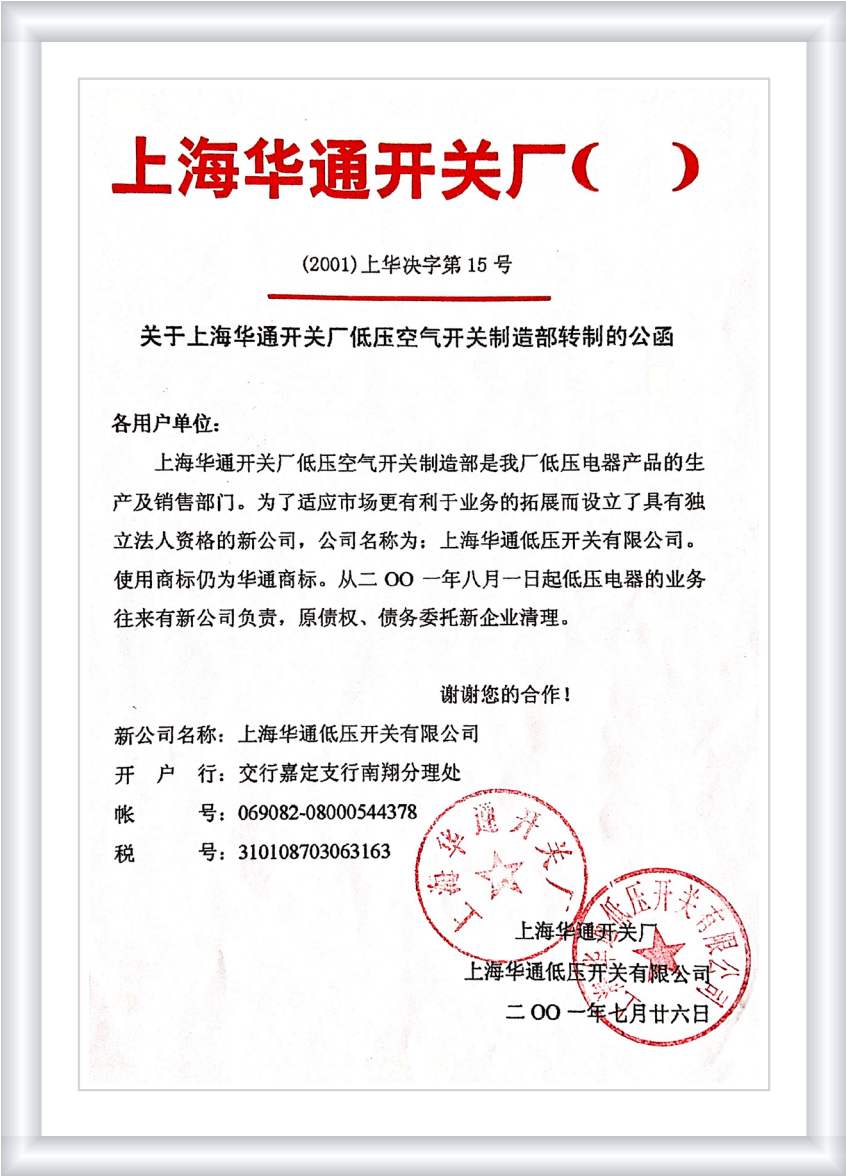
SHTW3-2500~8000 系列智能型万能式断路器订货规范  
Ordering specification of SHTW3-2500~8000 series of air circuit breakers

注: ■标配, □选配勾取, \_\_\_\_\_自填  
Note: ■Standard, □Optional-checked, \_\_\_\_\_self-administered  
您的称呼 Your name: \_\_\_\_\_ 订货台(套)数 Orders (sets): \_\_\_\_\_ 日期 Date: \_\_\_\_\_ 合同号 Contract No: \_\_\_\_\_

|                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                              |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------|--|
| 万能式断路器 Air circuit breaker                                                                                                                                                                                                                                                                                                                                          |  | 远程操作 Remote operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                              |  |
| N 普通型 normal type <input type="checkbox"/> 三极 3P <input type="checkbox"/> 固定式 Fixed style <input type="checkbox"/><br>H 高分断 High breaking <input type="checkbox"/> 四极 4P <input type="checkbox"/> 抽屉式 Draw-out type <input type="checkbox"/>                                                                                                                        |  | 电动操作机 Electric operating mechanism<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC220V <input type="checkbox"/> DC110V <input type="checkbox"/> _____V <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                              |  |
| SHTW3 - 2500 In 200A <input type="checkbox"/> 400A <input type="checkbox"/> 630A <input type="checkbox"/> 800A <input type="checkbox"/> 1000A <input type="checkbox"/> 1250A <input type="checkbox"/> 1600A <input type="checkbox"/>                                                                                                                                |  | 闭合电磁铁 Closed electromagnet<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC220V <input type="checkbox"/> DC110V <input type="checkbox"/> _____V <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                              |  |
| SHTW3 - 4000 In 2000A <input type="checkbox"/> 2500A <input type="checkbox"/> 2900A <input type="checkbox"/><br>3200A <input type="checkbox"/> 3600A <input type="checkbox"/> 4000A <input type="checkbox"/>                                                                                                                                                        |  | 分励脱扣器 Shunt release<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC220V <input type="checkbox"/> DC110V <input type="checkbox"/> _____V <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                              |  |
| SHTW3 - 5000 In 3200A <input type="checkbox"/> 3600A <input type="checkbox"/> 4000A <input type="checkbox"/> 5000A <input type="checkbox"/>                                                                                                                                                                                                                         |  | 欠压脱扣器(附件) Under-voltage release (accessory)<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/> _____V <input type="checkbox"/><br>欠压瞬时 Under-voltage instantaneous <input type="checkbox"/><br>欠压延时不可调 Under-voltage delay is not adjustable<br>0S <input type="checkbox"/> 1S <input type="checkbox"/> 2S <input type="checkbox"/> 3S <input type="checkbox"/><br>欠压延时可调 Under-voltage delay adjustable<br>0S <input type="checkbox"/> 1S <input type="checkbox"/> 2S <input type="checkbox"/> 3S <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                              |  |
| SHTW3 - 6300 In 4000A <input type="checkbox"/> 5000A <input type="checkbox"/> 6300A <input type="checkbox"/>                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                              |  |
| SHTW3 - 8000 In 6300A <input type="checkbox"/> 7500A <input type="checkbox"/> 8000A <input type="checkbox"/>                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                              |  |
| 智能控制器 Intelligent controller                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                              |  |
| SW3                                                                                                                                                                                                                                                                                                                                                                 |  | L3 基本型 Basic type <input type="checkbox"/> L4 基本型 Basic type <input type="checkbox"/><br>A3 标准型 Standard type <input type="checkbox"/> A4 标准型 Standard type <input type="checkbox"/><br>HP通讯型 Communication type <input type="checkbox"/><br>HQ通讯型 Communication type <input type="checkbox"/><br>HG通讯型 Communication type <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 辅助电源 Auxiliary power<br>AC230V <input type="checkbox"/> AC400V <input type="checkbox"/><br>DC24V <input type="checkbox"/> _____V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 型增选 (含A、L) H-type co-selection (including A, L, )<br>A型增选 (含L) A-type co-selection (including L, )<br>L型增选 <input type="checkbox"/> 接地故障grounding fault 3P+N (T) <input type="checkbox"/><br>L-type co-selection <input type="checkbox"/> 接地故障地电流 Ground fault ground current(W) <sup>1)</sup> <input type="checkbox"/><br><input type="checkbox"/> MCR <input type="checkbox"/> 负载监控 Load monitoring <input type="checkbox"/><br><input type="checkbox"/> 过载预警 Overload warning <input type="checkbox"/><br><input type="checkbox"/> 接地报警 Ground alarm <input type="checkbox"/><br><input type="checkbox"/> 区域联锁 Regional interlocking <input type="checkbox"/><br><input type="checkbox"/> 漏电保护 Leakage Protection <input type="checkbox"/><br><input type="checkbox"/> 欠电压保护 Under-voltage protection <input type="checkbox"/><br><input type="checkbox"/> 过电压保护 Overvoltage protection <input type="checkbox"/><br><input type="checkbox"/> 电压不平衡保护 Voltage unbalance protection <input type="checkbox"/><br><input type="checkbox"/> 相序保护 Phase sequence protection <input type="checkbox"/><br><input type="checkbox"/> modbus-RTU 通讯 communication <input type="checkbox"/> |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                              |  |
| 长延时整定值 Long delay setting 1In ■ 时间 Time 480S ■ _____A <input type="checkbox"/> _____S <input type="checkbox"/>                                                                                                                                                                                                                                                      |  | 其它附件                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                              |  |
| 短延时整定值 Short delay setting 8IR ■ 时间 Time 0.4S ■ _____A <input type="checkbox"/> _____S <input type="checkbox"/>                                                                                                                                                                                                                                                     |  | 摇手柄 The handle is used 用于抽屉式 For Draw-out type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                              |  |
| 瞬时整定值 Instantaneous setting value 12In ■                                                                                                                                                                                                                                                                                                                            |  | 隔离挂锁装置(挂锁装置) Isolated Padlock (Padlock) 用于抽屉式 For Draw-out type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                              |  |
| 接地保护 Ground protection 0.8In ■ 时间 Time 0.4S ■ _____A <input type="checkbox"/> _____S <input type="checkbox"/>                                                                                                                                                                                                                                                       |  | 三位锁锁定装置 Three-position locking device 用于抽屉式 For Draw-out type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                              |  |
| 控制器附件 Controller accessories 电源模块 Power supply module DC220V <input type="checkbox"/> DC110V <input type="checkbox"/><br>远程复位 Remote reset <input type="checkbox"/>                                                                                                                                                                                                 |  | 位置锁(挂锁装置) Position lock (padlock) 用于抽屉式 For Draw-out type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                              |  |
| 辅助开关                                                                                                                                                                                                                                                                                                                                                                |  | 本体进退分断保护 Preserving and retracting protection of the body 用于抽屉式 For Draw-out type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                              |  |
| 脱扣器故障指示触点Detector fault indication contact ■ 合闸指示触点Closing indicator contact ■<br>四常开四常闭触点(电气独立) 4NO+4NC (Sep) ■ 分闸指示触点Opening indicator ■<br>六常开六常闭触点(电气独立) 4NO+4NC (Sep) <input type="checkbox"/><br>四常开四常闭触点(电气不可分)为特殊订货 4NO+4NC (Com) is Special order <input type="checkbox"/><br>六常开六常闭触点(电气不可分)为特殊订货 6NO+6NC (Com) is Special order <input type="checkbox"/> |  | 相间隔板 Phase separator 用于抽屉式 For Draw-out type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 相间隔板(含连接板) The spacer (including the connecting plate) 用于抽屉式 For Draw-out type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 门框 Door frame 用于抽屉式 For Draw-out type ■<br>用于固定式 For fixed type ■                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 开关(断路器)防护罩 Switch (circuit breaker) protective cover 用于抽屉式 For Draw-out type <input type="checkbox"/><br>用于固定式 For fixed type <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 二次回路端子防护罩 Secondary circuit terminal shield 用于抽屉式 For Draw-out type <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                              |  |
| 连接                                                                                                                                                                                                                                                                                                                                                                  |  | 三位锁电气指示 Three-position electrical indication 用于抽屉式 For Draw-out type <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                              |  |
| 水平 Horizontal 上端 Upper <input type="checkbox"/> 下端 End <input type="checkbox"/>                                                                                                                                                                                                                                                                                     |  | 合闸准备就绪电气指示 Close the electrical instructions <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                              |  |
| 垂直 vertical 上端 Upper <input type="checkbox"/> 下端 End <input type="checkbox"/>                                                                                                                                                                                                                                                                                       |  | 电动合闸按钮 Electric closing button <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                              |  |
| 前置(附件) Front (attachment) 上端 Upper <input type="checkbox"/> 下端 End <input type="checkbox"/>                                                                                                                                                                                                                                                                         |  | 计数器 Counter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                              |  |
| 注: 各类选配件及用户特殊定制价格另计(*)为2500壳架, 其他壳架见出厂保护设定<br>Note:All kinds of accessories and users of special custom prices separately (*) is 2500 shell frame, See factory protection settings for other shell frames                                                                                                                                                           |  | 按钮闭锁装置 Button lock <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 防合锁 Off key lock<br>一锁一钥匙 A lock a key <input type="checkbox"/><br>二锁一钥匙 Two locks a key <input type="checkbox"/><br>三锁二钥匙 Three locks two keys <input type="checkbox"/><br>五锁三钥匙 Five locks three keys <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 门联锁 Door interlock 用于抽屉式(左) For Draw-out type (left) <input type="checkbox"/><br>用于抽屉式(右) For Draw-out type (right) <input type="checkbox"/> |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 位置钥匙锁 Position key lock <input type="checkbox"/>                                                                                             |  |
|                                                                                                                                                                                                                                                                                                                                                                     |  | 机械联锁 Mechanical interlocking<br>二台间钢缆 Two sets of cable <input type="checkbox"/><br>二台间杠杆 Two sets of leverage <input type="checkbox"/><br>三台间杠杆 Three sets of leverage <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                              |  |
| WATSC自动电源转换系统 Automatic power transfer switching system<br>WATSC702 <input type="checkbox"/><br>WATSC802 <input type="checkbox"/>                                                                                                                                                                                                                                   |  | JYY: 检有压合闸模块 JYY: Automatic closing when the voltage returns to normal <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                              |  |



转制公函 Conversion official document



资质证书 Qualification certificate



## 公司主要业绩 Main achievements of the company

巴基斯坦电厂  
Pakistan Power Plant

秦山核电站  
Qinshan Nuclear Power Plant

广东佛山供电局  
Guangdong Foshan Power Supply Bureau

上海市供电局  
Shanghai Power Supply Bureau

中国核工业连云港核电项目  
China Nuclear Industry Lianyungang Nuclear Power Project

福建晋江五十万伏变电站  
500,000 volt substation in Jinjiang, Fujian

上海飞机制造厂  
Shanghai aircraft factory

江西省江中制药厂  
Jiangzhong Pharmaceutical Factory in Jiangxi Province

北京东方化工厂  
Beijing Dongfang Chemical Plant

南京钢铁厂  
Nanjing Iron and Steel Plant

上海金山石化  
Shanghai Jinshan Petrochemical

云南玉溪卷烟厂  
Yunnan Yuxi Cigarette Factory

烟台卷烟厂  
Yantai Cigarette Factory

上海宝钢  
Shanghai Baosteel

北京首都钢铁公司日电 NEC 工程  
NEC Engineering of Beijing Capital Iron and Steel Company

青岛卷烟厂  
Qingdao Cigarette Factory

大连钢厂  
Dalian Steel Works

马鞍山钢铁公司  
Maanshan Iron and Steel Company

南京城南水厂  
Nanjing Chengnan Water Plant

武汉钢铁公司  
Wuhan Iron and Steel Company

云南电解铝厂  
Yunnan Electrolytic Aluminum Factory

贵州省电力科研试验办公楼  
Guizhou Electric Power Research Office

浙江省国贸中心  
Zhejiang International Trade Center

宝钢集团上海第一钢铁有限公司  
Baosteel Group Shanghai First Iron and Steel Co., Ltd.

北京电力设备总厂  
Beijing Power Equipment General Plant

上海东方明珠电视塔  
Shanghai Oriental Pearl TV Tower

上海振华港机股份有限公司  
Shanghai Zhenhua Port Machinery Co., Ltd.

上海船厂  
Shanghai Shipyard

青岛监狱  
Qingdao prison

云南昆明机场  
Kunming Airport, Yunnan

山西省太原机场  
Taiyuan Airport of Shanxi Province

广东白云机场  
Guangdong Baiyun Airport

青岛港  
Qingdao Port

宁波港  
Ningbo Port

北京首都机场  
Beijing Capital Airport

上海虹桥机场  
Shanghai hongqiao airport

南京市政综合大厦  
Nanjing Municipal Comprehensive Building

四川省成都市人民政府大楼  
Chengdu People's Government Building, Sichuan Province

北京加拿大驻华使馆  
Canadian Embassy Beijing

北京国家电网控制中心  
Beijing National Grid Control Center

北京人民大会堂  
Beijing Great Hall of the People

北京广播电视台  
Beijing Radio and TV Series

国家广播电视部大厦  
National Radio and Television Building

深圳国宾馆  
Shenzhen State Guest House

上海地铁  
Shanghai Metro

北京地铁  
Beijing subway

北京西客站  
Beijing West Railway Station

伊朗得黑兰地铁  
Tehran Metro, Iran

上海磁悬浮工程  
Shanghai Maglev Project

江苏扬州火车站  
Jiangsu Yangzhou Railway Station



- ① 秦山核电站  
Qinshan Nuclear Power Plant
- ② 巴基斯坦电厂  
Pakistan Power Plant
- ③ 上海东方明珠电视塔  
Shanghai Oriental Pearl TV Tower
- ④ 上海地铁  
Shanghai Metro
- ⑤ 广东佛山供电局  
Guangdong Foshan Power Supply Bureau





企业公告 Product Development



销售中心  
Sales Center



研发中心  
R & D Center



ACB生产线  
ACB assembly line



MCCB生产线  
MCCB assembly line



冲压工序  
Stamping process



温升试验  
Temperature rise test





鉴于样本中所涉及的标准，材料，技术要求，电气线路以及安装尺寸随着时间的推移都在不断地发展，因此这些技术条件均要以本厂最新的确认为准。

Due to the continuous development of Standards as well as of materials, the characteristics, electrical diagrams and reference only on confirmation from Hua Tong.

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