

本资料中的产品性能在不断改进中，如有更改，恕不另行通知。KFINE公司拥有最终解释权。 2025年12月印制。



江苏大全凯帆开关股份有限公司



KFINE 官方微信



KFINE 直播平台



KFINE 官方网站

地址：江苏省扬中市大全路66号  
电话：4008-010-608  
传真：0086-511-88418668  
网址：www.dqkfine.com

# KFM3X、KFM3XE、KFM3XL 系列塑料外壳式断路器

KFM3X、KFM3XE、KFM3XL  
Series Molded Case Circuit Breaker

成熟品质  
智能防护

MATURE QUALITY SMART PROTECTION

KF

MEIX

# About KFINE

## 关于凯帆

大全集团，主要从事高低压成套电气设备、智能元器件及光伏新材料的研发与制造；产业涵盖电气、新能源、轨道交通等领域；公司管理、制造水平及产品质量居行业前列；在全国拥有4大生产基地、23家制造企业、3个研究院、超万名员工；参与国家和行业标准制订11项、承担国家和省部级科技项目54项；先后荣获国家技术发明二等奖、国家科学技术进步一等奖、国家科学技术进步特等奖，是国家企业技术中心、智能制造试点示范、国家绿色工厂、全国用户满意标杆企业。

江苏大全凯帆开关股份有限公司是国家高新技术企业，主要生产低压配电电器、工业控制电器、智能配电系统等产品。低压断路器产品的核心部件操作机构、控制器、触头灭弧系统实现自主研发和完全自主知识产权，实现自主制造，具备模具加工中心、SMT贴片中心、零部件加工中心、检测中心、自动化装配线完整的生产制造体系。下设全资子公司昆山大全精密模具有限公司实现模具智能制造，保证产品开发进度和零件质量。荣获江苏省两化融合示范企业、江苏省示范智能车间等认定。

大全凯帆坚持质量第一，追求卓越管理，拥有行业领先的制造、检测、试验设备；通过信息化、数字化与自动化融合，推动数字制造新模式；建立了完善的管理体系，确保准时为客户提供性能优异、质量可靠的产品。公司各类产品深受用户好评，已广泛应用于电力、机械、交通、矿山、冶金、石化、建筑、船舶、核电和新能源等领域，多次获得省市级质量奖。

展望未来，大全凯帆将坚持观念创新、管理创新、科技创新和营销创新，加速推进企业标准化建设，全面推进产品数字化、低碳化、管理信息化、生产智能化、服务网络化，实现“数字制造”的转型升级，朝着先进制造企业的目标迈进，为客户提供智能可靠的数字化配电产品！

DAQO Group has been mainly engaged in research, development and manufacturing of low and high-voltage electrical equipment assemblies, intelligent components and new photovoltaic materials; it covers the industries such as electric power, new energy, rail transit, etc.; it has taken a leading position in the company management, manufacturing level and product quality; it has established 4 production bases, 23 manufacturing enterprises and 3 research institutes, with more than 10,000 employees; it has participated in the formulation of 11 national and industry standards, and undertook 54 national and provincial science and technology projects; it has won the second prize of National Technological Invention, the first prize of National Science and Technology Progress, and the special prize of National Science and Technology Progress. It has become a national enterprise technology center, demonstration pilot of intelligent manufacturing, national green factory and national benchmark enterprise for customer satisfaction.

As a national high-tech enterprise, Jiangsu DAQO KFINE Switch Co., Ltd. has been mainly engaged in the production of low-voltage distribution appliances, industrial control appliances, intelligent distribution systems and other products. For the core components of the low-voltage circuit breaker such as operating mechanism, controller and contact arc extinguishing system, it has achieved the independent research and development and the fully independent intellectual property rights, realized the independent manufacturing and established a complete production and manufacturing system with mold processing center, SMT patch center, parts processing center, testing center and automated assembly line. Kunshan DAQO Precision Mold Co., Ltd., a wholly-owned subsidiary, has achieved intelligent manufacturing of molds to ensure product development progress and component quality. It has been awarded as a demonstration enterprise for two-oriented integration in Jiangsu Province, and an intelligent demonstration workshop in Jiangsu Province.

DAQO KFINE has adhered to quality first and pursued excellence in management, with industry-leading equipment in manufacturing, inspection and testing; it has promoted the new model of digital manufacturing by the integration of informatization, digitalization and automation; it has established a sound management system to ensure timely supply of products with excellent performance and reliable quality. All kinds of products from DAQO KFINE have been well received by users, and have been widely used in electric power, machinery, transportation, mining, metallurgy, petrochemical industry, construction, shipbuilding, nuclear power, new energy and other fields, which have won provincial and municipal quality awards for many times.

In the future, DAQO KFINE will adhere to concept innovation, management innovation, scientific and technological innovation and marketing innovation, accelerate the standardization of enterprise construction, comprehensively promote digitalization of products, low-carbon production, IT management, intelligent production and networked services, realize the transformation and upgrading to "digital manufacturing", and move toward the goal of advanced manufacturing enterprises, in order to provide the customers with intelligent and reliable digital power distribution products!



大全凯帆专注技术创新，建有“博士后科研工作站”、“江苏省智能低压电器工程技术研究中心”、“江苏省研究生工作站”等创新平台，检测中心获中国合格评定国家认可委员会认可。公司拥有近 150 人的创新团队，各类创新成果多次获得省部级以上荣誉。

DAQO KFINE has focused on technological innovation and has built the innovation platforms such as "Postdoctoral Research Workstation", "Jiangsu Intelligent Low-voltage Electrical Engineering Technology Research Center", "Jiangsu Graduate Workstation", etc., and its testing center has been recognized by the China National Accreditation Service for Conformity Assessment. DAQO KFINE has established an innovation team of nearly 150 members and has won provincial and ministerial honors for many times with various innovation achievements.

PRODUCT DISPLAY

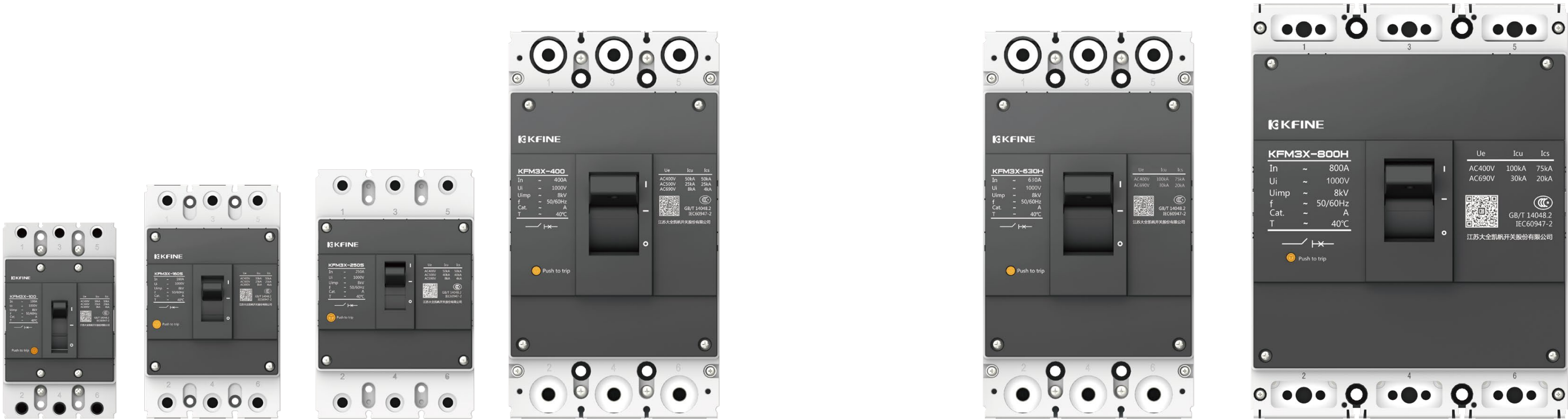
KFM3X

KFM3X 系列塑料外壳式断路器

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

专注于中高端配电市场解决方案

FOCUS ON MID-TO-HIGH-END DISTRIBUTION MARKET SOLUTIONS

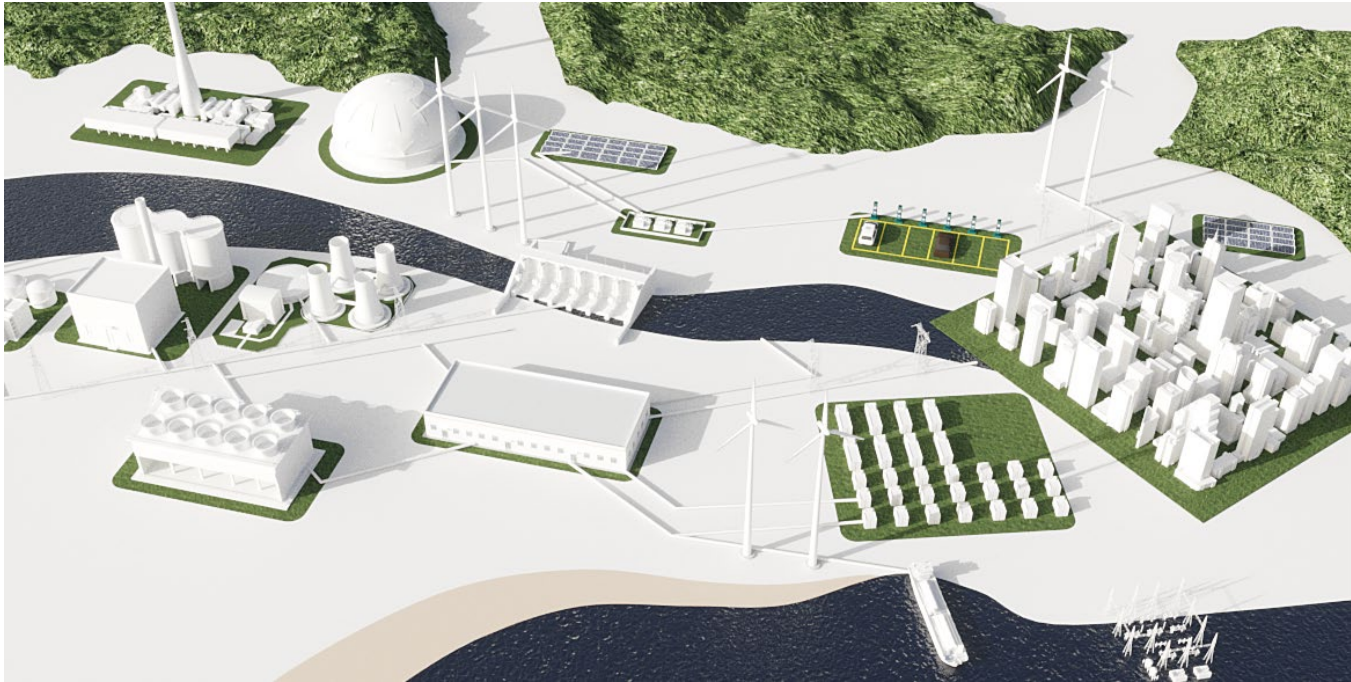


# TECHNOLOGY WISDOM TO SHARE WITH YOU

## 智慧科技 与您共享

凯帆通过积极探索、不断创新，为客户打造高品质、智能化产品。  
产品操作更简单，性能更优越，运行更可靠。

Through actively exploring and constantly innovating, Kfine is able to provide customers with high quality intellectual products, which is easier to operate, with better performance, and more reliable.



# CONTENT

## 目 录

|                                                                                                 |         |
|-------------------------------------------------------------------------------------------------|---------|
| <b>KFM3X系列塑料外壳式断路器</b><br>KFM3X series molded case circuit breaker                              | A01–A44 |
| <b>KFM3XE系列智能型塑壳断路器</b><br>KFM3XE Series Intelligent Molded Case Circuit Breaker                | B01–B42 |
| <b>KFM3XL系列剩余电流动作断路器</b><br>KFM3XL series residual operated current molded case circuit breaker | C01–C38 |

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

- 操作机构具有快速闭合和快速分断功能；
- 触头灭弧系统中动、静触头的安装具有平行导体的原理，H型的静触头可斥开，有利于大电流时的快速分断，动、静触头周围装有高耐弧材料制成的元件，有利于快速息弧；
- 结构紧凑，体积小；
- 零飞弧或短飞弧，操作安全可靠。
- 本产品适用高原、高低温、盐雾等特殊环境场所。

- The operating mechanism has the functions of fast closing and fast breaking;
- In the contact arc extinguishing system, the installation of the moving and static contacts has the principle of parallel conductor. The H-type static contact can be opened, which is conducive to the rapid breaking of large current. The moving and static contacts are surrounded by components made of high arc resistant materials, which is conducive to the rapid arc stopping;
- Compact structure and small volume;
- Zero or short flashover, safe and reliable operation.
- This product is suitable for plateau, high and low temperature, salt fog and other special environment.



KFM3X系列塑料外壳式断路器

| <b>适用范围</b><br>Scope of application                                            | A01 |
|--------------------------------------------------------------------------------|-----|
| <b>符合标准</b><br>Standards conformed to                                          | A01 |
| <b>工作环境及安装条件</b><br>Work environment and installation condition                | A02 |
| <b>快速选型表</b><br>Quick selection table                                          | A03 |
| <b>内部附件代号</b><br>Internal accessory code                                       | A04 |
| <b>断路器主要技术参数</b><br>Main technical parameters of breaker                       | A05 |
| <b>保护特性及特性曲线</b><br>Protective characteristics and Characteristic curve        | A07 |
| <b>外形及安装尺寸</b><br>Outline and installation dimensions                          | A12 |
| <b>断路器的内外部附件</b><br>Internal and external accessories of circuit breaker       | A28 |
| <b>使用及维护</b><br>Use and maintenance                                            | A39 |
| <b>断路器安装最小安全距离</b><br>Minimum safety distance for circuit breaker installation | A42 |
| <b>订货单</b><br>Order                                                            | A44 |
|                                                                                |     |

# KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

## KFM3X系列塑料外壳式断路器

### 适用范围

- KFM3X系列塑料外壳式断路器（以下简称断路器），适用于交流 50/60Hz，额定电压690V及以下，额定电流至800A的电路中，一般作配电用，额定电流630A及以下的断路器亦可作为电动机保护用。
- 配电用断路器在配电网络中用来分配电能,作为线路及电源设备的过载、短路和欠电压保护，满足GB50054关于“电器的选择”的要求。
- 保护电动机用断路器在配电网络中可用作鼠笼型电动机的起动和运转中分断及其过载和短路保护，保护特性满足GB/T14048.4，应用满足GB50055。
- 全系列断路器可靠的触头指示和隔离功能满足GB50054隔离电器要求。
- 断路器按其额定极限短路分断能力（Icu）的高低分为C型（经济型）、S型（标准型）、M型（较高分断型）、H型（高分断型）四类。
- KFM3X系列断路器分断能力级别为C、S、M型用于AC400V配电系统时可倒进线连接。

### 符合标准

- IEC60947-1及GB/T14048.1    低压开关设备和控制设备 总则
- IEC60947-2及GB/T14048.2    低压开关设备和控制设备 断路器
- IEC60947-4-1及GB/T14048.4    低压开关设备和控制设备 机电式接触器和电动机起动器（含电动机保护器）

### Scope of application

- KFM3X series plastic case circuit breaker (hereinafter referred to as circuit breaker) is suitable for circuits with AC 50 / 60Hz, rated voltage 690V and below and rated current 800A. It is generally used for power distribution. Circuit breakers with rated current 630A and below can also be used for motor protection.
- Circuit breaker for distribution is used to distribute electric energy in distribution network as overload, short circuit and undervoltage protection of lines and power supply equipment, meeting the requirements of "selection of electrical appliances" in GB 50054.
- The circuit breaker for motor protection can be used in the distribution network as the starting and running breaking of squirrel cage motor, as well as overload and short circuit protection. The protection characteristics meet the requirements of GB / t14048.4, and the application meets the requirements of GB 50055.
- The reliable contact indication and isolation function of the whole series of circuit breakers meet the requirements of isolation apparatus in GB 50054.
- According to the rated limiting short-circuit breaking capacity (ICU), circuit breakers can be divided into four types: type C (economic type), type s (standard type), type m (higher breaking type) and type H (high breaking type).
- The breaking capacity of kfm3x series circuit breakers is C, s and M type. When used in AC400V power distribution system, it can be connected with reverse lead.

### Standards conformed to

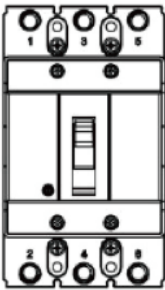
- IEC60947-1 and GB / t14048.1 general rules for low voltage switchgear and controlgear
- IEC60947-2 and GB / t14048.2 low voltage switchgear and controlgear circuit breakers
- IEC60947-4-1 and GB / t14048.4 low voltage switchgear and control equipment electromechanical contactor and motor starter (including motor protector)

### 工作环境及安装条件

- 使用环境温度  
周围空气温度为-40 ~ + 70℃。环境温度高于+40℃时，客户需降容使用，降容系数见“环境温度变化的降容系数表”。
- 存储条件  
周围空气温度为-40 ~ + 70℃
- 海拔  
安装地点海拔高度不超过2000m，高海拔降容系数见“高海拔降容系数表”；
- 使用相对湿度/存储相对湿度  
安装地点的空气相对湿度，最高温度为 + 40℃时不超过50%，在较低的温度下可以允许有较高的相对湿度，例如20℃时达90%。对由于温度变化偶尔产生的凝露应采取特殊的措施。
- 污染等级  
3级
- 安装类别  
断路器主电路的安装类别为Ⅲ类（配电及控制水平级），不接至主电路的辅助电路和控制电路安装类别为Ⅱ类（负载水平级）。
- 安装环境  
断路器应安装在空气中无爆炸危险的介质且无足以腐蚀金属和破坏绝缘的地方。  
断路器应安装在无雨雪侵袭的地方。  
湿热带型（TH型）断路器通过GB/T2423.4、GB/T2423.18试验要求，能耐受潮湿空气、盐雾、油雾、霉菌的影响；
- 安装方向  
产品垂直安装，安装面与垂直面的斜度≤ ± 22.5°

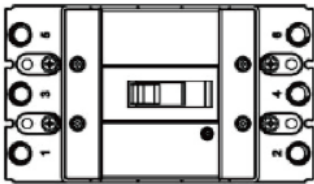
### Work environment and installation condition

- Ambient temperature used  
The ambient air temperature is -40 ~ + 70 ℃. When the ambient temperature is higher than +40 ℃, the customer needs to reduce the capacity for use. See "table of reduction coefficient of environmental temperature change".
- Storage conditions  
The ambient air temperature is -40 ~ + 70 ℃
- altitude  
The elevation of installation site shall not exceed 2000m, and the coefficient of high altitude capacity reduction is shown in the table of high altitude capacity reduction coefficient;
- Use relative humidity / store relative humidity  
The relative humidity of air at the installation site shall not exceed 50% at the maximum temperature of + 40 ℃, and higher relative humidity can be allowed at lower temperature, for example, 90% at 20 ℃. Special measures should be taken for condensation which is occasionally caused by temperature change.
- class of pollution  
Level 3
- Installation category  
The installation category of the main circuit of the circuit breaker is class III (distribution and control level level), and the installation category of auxiliary circuit and control circuit not connected to the main circuit is class II (load level level).
- Installation environment  
The circuit breaker shall be installed in the air without explosive hazard medium and not enough to corrode metal and damage insulation.  
The circuit breaker shall be installed in a place free from rain and snow.  
The wet hot belt (th type) circuit breaker can withstand the influence of humid air, salt fog, oil mist and mould through the test requirements of gb/t2423.4 and gb/t2423.18;
- Installation direction  
Vertical installation of products, inclination of installation surface and vertical surface is ≤ ± 22.5 °



垂直安装

Vertical installation



水平安装

Horizontal installation

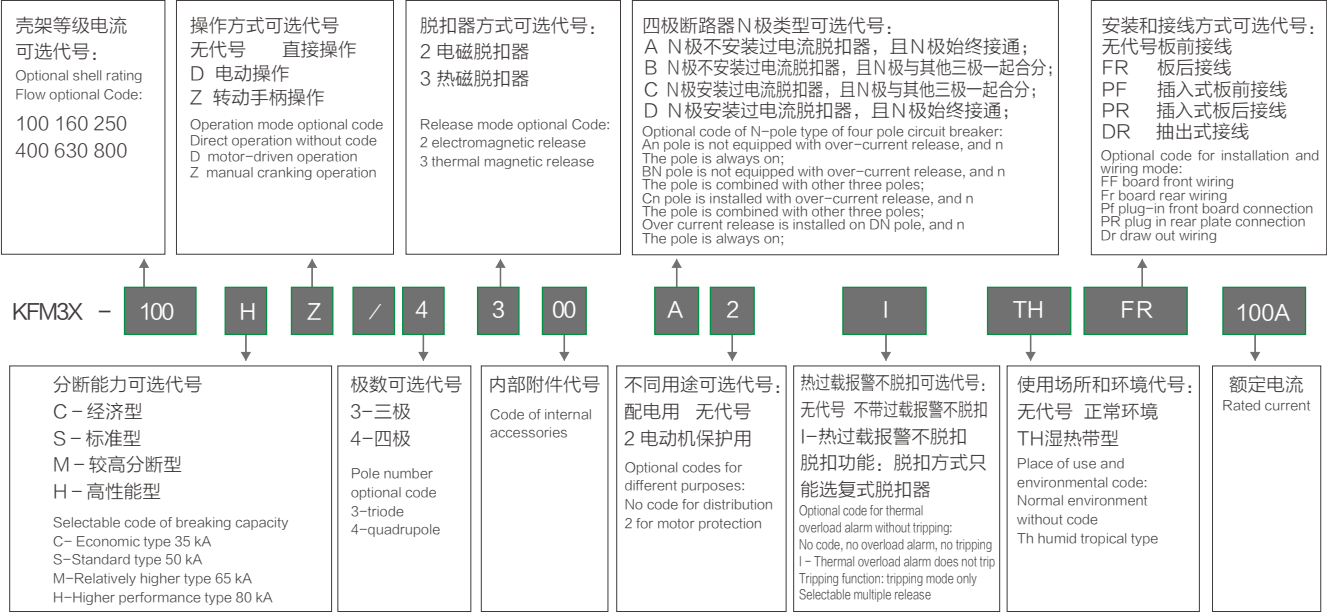
# KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

## KFM3X系列塑料外壳式断路器

### 功能损耗    Power loss

| 型号<br>TYPE   | 额定电流（A）<br>RATED CURRENT | 三相总功率损耗（W）    THREE-PHASE TOTAL POWER LOSS |                     |
|--------------|--------------------------|--------------------------------------------|---------------------|
|              |                          | 固定式    STATIONARY TYPE                     | 插入式    PLUG-IN TYPE |
| KFM3X-100C、S | 100                      | 20                                         | 25                  |
| KFM3X-100M、H | 100                      | 33                                         | 40                  |
| KFM3X-160    | 160                      | 48                                         | 50                  |
| KFM3X-250    | 250                      | 50                                         | 68                  |
| KFM3X-400    | 400                      | 65                                         | 90                  |
| KFM3X-630    | 630                      | 90                                         | 115                 |
| KFM3X-800    | 800                      | 140                                        | 185                 |

### 快速选用表    Quick selection table



KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

断路器主要技术参数

Main technical parameters of breaker

| 型号 Type                                                                              |                                    | KFM3X-100                                                                                                                                                           |                  |                            |                  | KFM3X-160                                                                         |    |                  |                            | KFM3X-250                                                                           |                  |    |     |
|--------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------|------------------|-----------------------------------------------------------------------------------|----|------------------|----------------------------|-------------------------------------------------------------------------------------|------------------|----|-----|
| 外形 Appearance                                                                        |                                    |   |                  |                            |                  |  |    |                  |                            |  |                  |    |     |
| 脱扣器额定电流In (A)<br>Rated current of release In (A)                                     |                                    | 10 <sup>1)</sup> 、16、20、25、32、40、50、63、80、100                                                                                                                       |                  |                            |                  | 100、125、140、160                                                                   |    |                  |                            | 100、125、140、160<br>180、200、225、250                                                  |                  |    |     |
| 额定绝缘电压Ui(V)<br>Rated insulation voltage Ui (V)                                       |                                    | 1000                                                                                                                                                                |                  |                            |                  | 1000                                                                              |    |                  |                            | 1000                                                                                |                  |    |     |
| 额定冲击耐受电压Uimp(kV)<br>Rated impulse withstand voltage Uimp (kV)                        |                                    | 8                                                                                                                                                                   |                  |                            |                  | 8                                                                                 |    |                  |                            | 8                                                                                   |                  |    |     |
| 额定工作电压 Ue (V)<br>50Hz/60Hz<br>Rated working voltage Ue (V)<br>50Hz/60Hz              |                                    | AC400V                                                                                                                                                              | AC400V<br>AC690V | AC400V<br>AC500V<br>AC690V | AC400V<br>AC690V | AC400V<br>AC500V<br>AC690V                                                        |    | AC400V<br>AC690V | AC400V<br>AC500V<br>AC690V |                                                                                     | AC400V<br>AC690V |    |     |
| 极数<br>Pole number                                                                    |                                    | 3、4                                                                                                                                                                 |                  |                            |                  | 3、4                                                                               |    |                  |                            | 3、4                                                                                 |                  |    |     |
| 短路分断能力级别<br>Short circuit breaking capacity level                                    |                                    | C                                                                                                                                                                   | S                | M                          | H                | C                                                                                 | S  | M                | H                          | C                                                                                   | S                | M  | H   |
| 额定极限短路<br>分断能力Icu(kA)<br>Rated limit short circuit<br>Breaking capacity Icu (kA)     | AC400V                             | 35                                                                                                                                                                  | 50               | 70                         | 100              | 35                                                                                | 50 | 70               | 100                        | 35                                                                                  | 50               | 70 | 100 |
|                                                                                      | AC500V                             | \                                                                                                                                                                   | \                | 50                         | \                | 20                                                                                | 25 | 50               | \                          | 20                                                                                  | 40               | 50 | \   |
|                                                                                      | AC690V                             | \                                                                                                                                                                   | 10               | 10                         | 20               | 8                                                                                 | 8  | 10               | 20                         | 8                                                                                   | 8                | 8  | 25  |
| 额定运行短路<br>分断能力Ics(kA)<br>Rated operating short circuit<br>Breaking capacity Ics (kA) | AC400V                             | 26                                                                                                                                                                  | 35               | 50                         | 70               | 26                                                                                | 50 | 50               | 70                         | 26                                                                                  | 50               | 50 | 70  |
|                                                                                      | AC500V                             | \                                                                                                                                                                   | \                | 40                         | \                | 20                                                                                | 25 | 40               | \                          | 20                                                                                  | 40               | 40 | \   |
|                                                                                      | AC690V                             | \                                                                                                                                                                   | 6                | 5                          | 10               | 4                                                                                 | 4  | 5                | 10                         | 4                                                                                   | 4                | 6  | 10  |
| 飞弧距离(mm)<br>Arcing distance (mm)                                                     |                                    | ≤50                                                                                                                                                                 |                  |                            |                  | ≤50                                                                               |    |                  |                            | ≤50                                                                                 |                  |    |     |
| 使用类型<br>Type of use                                                                  |                                    | A                                                                                                                                                                   |                  |                            |                  | A                                                                                 |    |                  |                            | A                                                                                   |                  |    |     |
| 操作循环次数<br>Number of<br>operation<br>cycles                                           | 预期电气寿命<br>Expected electrical life | 8000                                                                                                                                                                |                  | 8000                       |                  | 8000                                                                              |    |                  |                            | 8000                                                                                |                  |    |     |
|                                                                                      | 预期机械寿命<br>Expected mechanical life | 20000                                                                                                                                                               |                  | 20000                      |                  | 20000                                                                             |    |                  |                            | 20000                                                                               |                  |    |     |
| 外形尺寸(mm)<br>Overall<br>dimension(mm)                                                 | 宽W<br>(3P/4P)                      | 75/100                                                                                                                                                              |                  | 90/120                     |                  | 90/120                                                                            |    |                  |                            | 105/140                                                                             |                  |    |     |
|                                                                                      | 长L                                 | 133                                                                                                                                                                 |                  | 155                        |                  | 155                                                                               |    |                  |                            | 165                                                                                 |                  |    |     |
|                                                                                      | 高H<br>(3P/4P)                      | 61                                                                                                                                                                  |                  | 84                         |                  | 74                                                                                |    | 84               |                            | 72                                                                                  |                  | 90 |     |

注：1、KFM3X-100中额定电流为10A的断路器仅C、S型分断有热磁脱扣，M、H型分断仅有瞬时脱扣。  
Note: 1, KFM3X-100 rated current 10A circuit breaker only C, S type break has thermal magnetic trip, M, H type break only instantaneous trip.

断路器主要技术参数

Main technical parameters of breaker

| 型号 Type                                                                              |                                    | KFM3X-400                                                                           |     |                  |     | KFM3X-630                                                                           |    |                  |     | KFM3X-800                                                                           |    |                  |     |
|--------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|-----|------------------|-----|-------------------------------------------------------------------------------------|----|------------------|-----|-------------------------------------------------------------------------------------|----|------------------|-----|
| 外形 Appearance                                                                        |                                    |  |     |                  |     |  |    |                  |     |  |    |                  |     |
| 脱扣器额定电流In (A)<br>Rated current of release In (A)                                     |                                    | 200、225、250、315、350、400                                                             |     |                  |     | 400、500、630                                                                         |    |                  |     | 400、500、630、700、800                                                                 |    |                  |     |
| 额定绝缘电压Ui(V)<br>Rated insulation voltage Ui (V)                                       |                                    | 1000                                                                                |     |                  |     | 1000                                                                                |    |                  |     | 1000                                                                                |    |                  |     |
| 额定冲击耐受电压Uimp(kV)<br>Rated impulse withstand voltage Uimp (kV)                        |                                    | 8                                                                                   |     |                  |     | 8                                                                                   |    |                  |     | 8                                                                                   |    |                  |     |
| 额定工作电压 Ue (V)<br>50Hz/60Hz<br>Rated working voltage Ue (V)<br>50Hz/60Hz              |                                    | AC400V<br>AC500V<br>AC690V                                                          |     | AC400V<br>AC690V |     | AC400V<br>AC500V<br>AC690V                                                          |    | AC400V<br>AC690V |     | AC400V<br>AC500V<br>AC690V                                                          |    | AC400V<br>AC690V |     |
| 极数<br>Pole number                                                                    |                                    | 3、4                                                                                 |     |                  |     | 3、4                                                                                 |    |                  |     | 3、4                                                                                 |    |                  |     |
| 短路分断能力级别<br>Short circuit breaking capacity level                                    |                                    | C                                                                                   | S   | M                | H   | C                                                                                   | S  | M                | H   | C                                                                                   | S  | M                | H   |
| 额定极限短路<br>分断能力Icu(kA)<br>Rated limit short circuit<br>Breaking capacity Icu(kA)      | AC400V                             | 35                                                                                  | 50  | 70               | 100 | 35                                                                                  | 50 | 75               | 100 | 35                                                                                  | 65 | 75               | 100 |
|                                                                                      | AC500V                             | 25                                                                                  | 40  | 50               | \   | 25                                                                                  | 40 | 50               | 50  | 25                                                                                  | 40 | 50               | \   |
|                                                                                      | AC690V                             | 10                                                                                  | 10  | 15               | 25  | 10                                                                                  | 10 | 15               | 25  | 10                                                                                  | 15 | 20               | 30  |
| 额定运行短路<br>分断能力Ics(kA)<br>Rated operating short circuit<br>Breaking capacity Ics (kA) | AC400V                             | 35                                                                                  | 50  | 70               | 75  | 35                                                                                  | 50 | 75               | 75  | 35                                                                                  | 65 | 75               | 75  |
|                                                                                      | AC500V                             | 25                                                                                  | 40  | 50               | \   | 25                                                                                  | 40 | 50               | 50  | 25                                                                                  | 40 | 50               | \   |
|                                                                                      | AC690V                             | 7.5                                                                                 | 7.5 | 7.5              | 15  | 10                                                                                  | 10 | 10               | 15  | 10                                                                                  | 10 | 15               | 20  |
| 飞弧距离(mm)<br>Arcing distance (mm)                                                     |                                    | ≤100                                                                                |     |                  |     | ≤100                                                                                |    |                  |     | ≤100                                                                                |    |                  |     |
| 使用类型<br>Type of use                                                                  |                                    | A                                                                                   |     |                  |     | A                                                                                   |    |                  |     | A                                                                                   |    |                  |     |
| 操作循环次数<br>Number of<br>operation<br>cycles                                           | 预期电气寿命<br>Expected electrical life | 7500                                                                                |     |                  |     | 7500                                                                                |    |                  |     | 7500                                                                                |    |                  |     |
|                                                                                      | 预期机械寿命<br>Expected mechanical life | 15000                                                                               |     |                  |     | 15000                                                                               |    |                  |     | 15000                                                                               |    |                  |     |
| 外形尺寸(mm)<br>Overall<br>dimension(mm)                                                 | 宽W<br>(3P/4P)                      | 140/185                                                                             |     |                  |     | 140/185                                                                             |    |                  |     | 210/280                                                                             |    |                  |     |
|                                                                                      | 长L                                 | 257                                                                                 |     |                  |     | 257                                                                                 |    |                  |     | 275                                                                                 |    |                  |     |
|                                                                                      | 高H<br>(3P/4P)                      | 103                                                                                 |     |                  |     | 103                                                                                 |    |                  |     | 103                                                                                 |    |                  |     |

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

保护特性    Protective characteristics

配电用断路器保护特性 / Protective characteristics of power distribution breaker

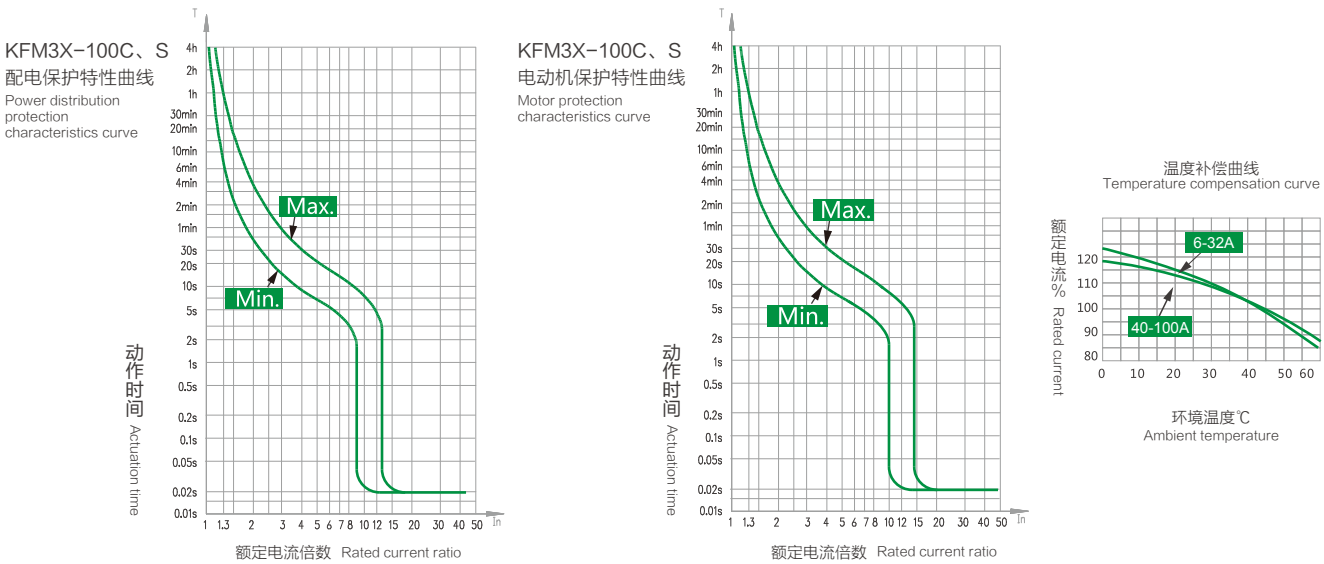
| 脱扣器额定电流(A)<br>Rated current of tripping device | 反时限动作特性(周围空气温度 + 40℃)<br>Inverse time-delay operation feature (ambient air temperature +40℃) |                                                       | 瞬时动作电流(A)<br>Instantaneous action current |
|------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------|
|                                                | 1.05In(冷态)不动作时间<br>1.05 In (Cold state) None actuation time                                  | 1.3In(热态)动作时间<br>1.3In (Thermal state) Actuation time |                                           |
| In≤63                                          | ≥1h                                                                                          | <1h                                                   | 10In±20%                                  |
| 63<In≤800                                      | ≥2h                                                                                          | <2h                                                   |                                           |

电动机用断路器保护特性 / Protective characteristics of motor breaker

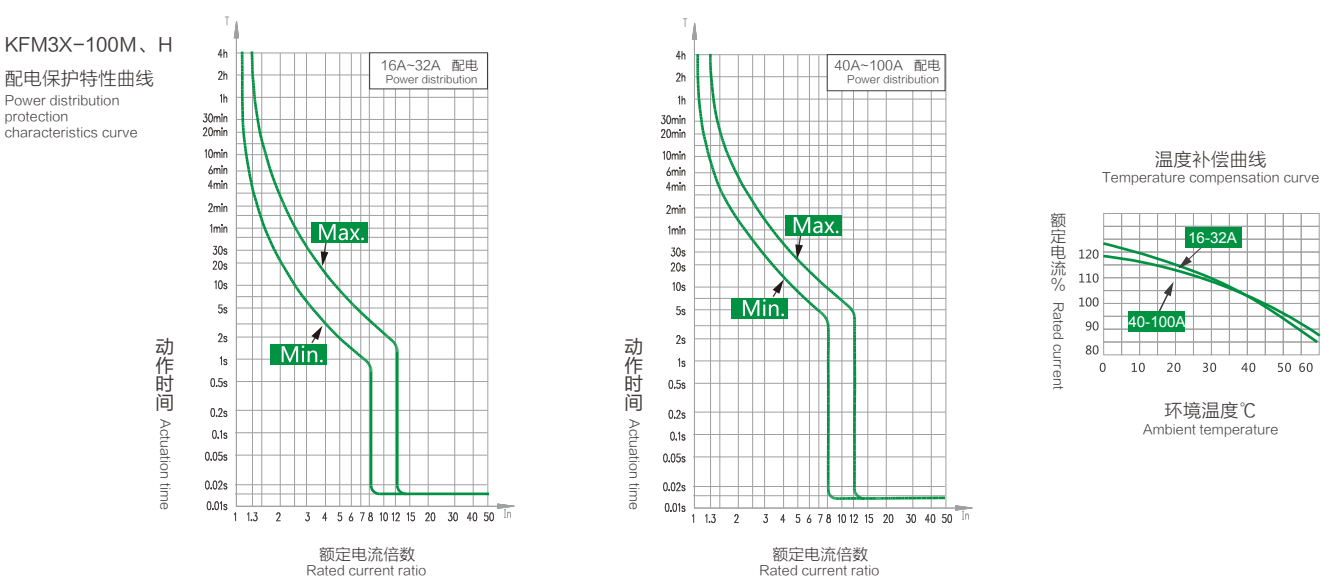
| 脱扣器额定电流(A)<br>Rated current of tripping device | 反时限动作特性(周围空气温度 + 40℃)<br>Inverse time-delay operation feature (ambient air temperature +40℃) |                                                       |                                                       |                                                    | 瞬时动作电流(A)<br>Instantaneous action current |
|------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------|-------------------------------------------|
|                                                | 1.0In(冷态)不动作时间<br>1.0In (Cold state) None actuation time                                     | 1.2In(热态)动作时间<br>1.2In (Thermal state) Actuation time | 1.5In(热态)动作时间<br>1.5In (Thermal state) Actuation time | 7.2In(冷态)动作时间<br>7.2In (Cold state) Actuation time |                                           |
| In≤100                                         | ≥2h                                                                                          | ≤2h                                                   | ≤2min                                                 | 2s<T <sub>P</sub> ≤10s                             | 12In±20%                                  |
| 100<In≤630                                     |                                                                                              |                                                       | ≤4min                                                 | 4s<T <sub>P</sub> ≤10s                             |                                           |

注：10～32A瞬时动作电流为400A±20%    Note: 10～32A instantaneous action current is 400A±20%.

特性曲线    Characteristic curve



特性曲线    Characteristic curve

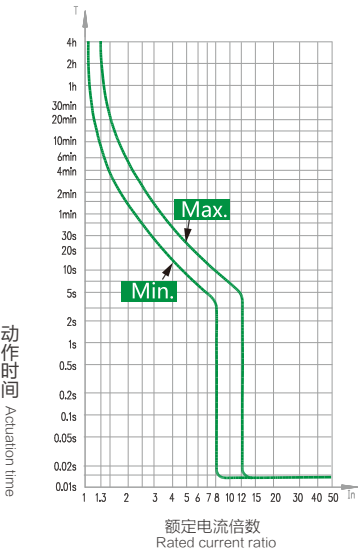


KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

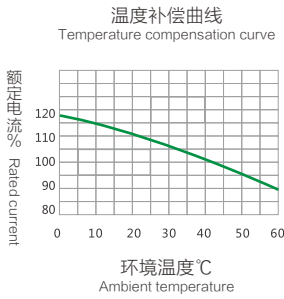
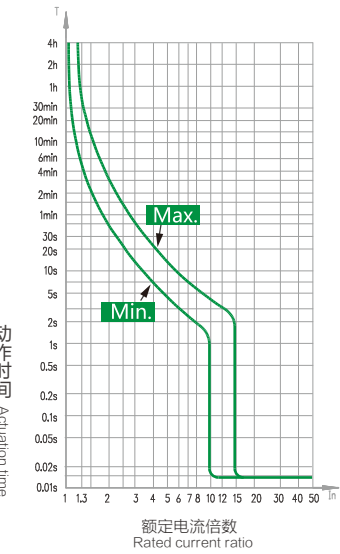
KFM3X系列塑料外壳式断路器

特性曲线    Characteristic curve

KFM3X-160C  
KFM3X-160S    配电保护特性曲线  
KFM3X-160M    Power distribution protection characteristics curve  
KFM3X-160H

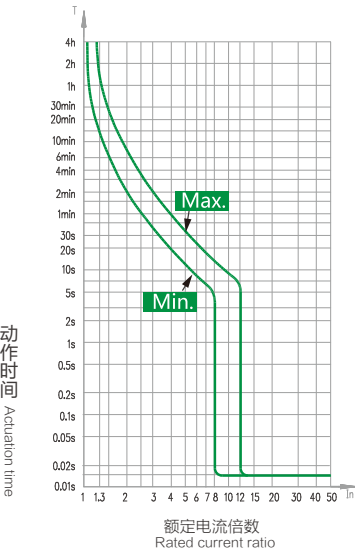


KFM3X-160C  
KFM3X-160S    电动机保护特性曲线  
KFM3X-160M    Motor protection characteristics curve  
KFM3X-160H

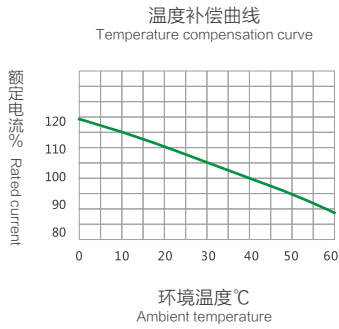
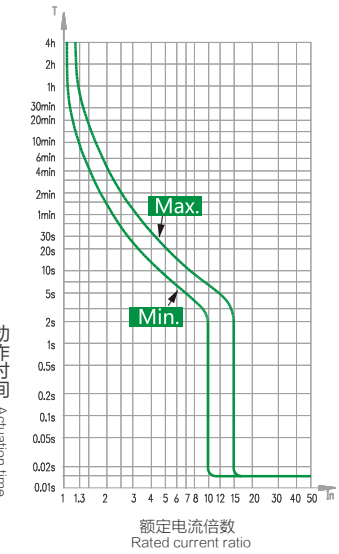


特性曲线    Characteristic curve

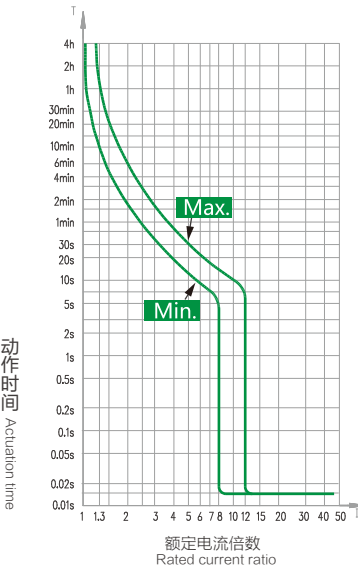
KFM3X-400C  
KFM3X-400S    配电保护特性曲线  
KFM3X-400M    Power distribution protection characteristics curve  
KFM3X-400H



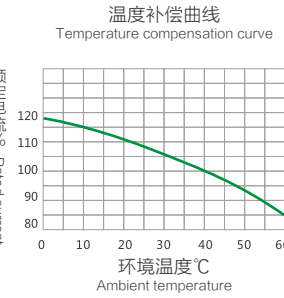
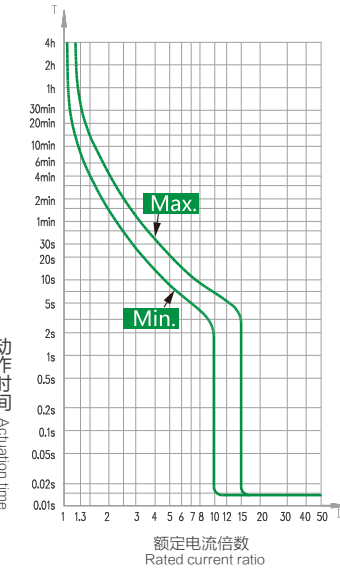
KFM3X-400C  
KFM3X-400S    电动机保护特性曲线  
KFM3X-400M    Motor protection characteristics curve  
KFM3X-400H



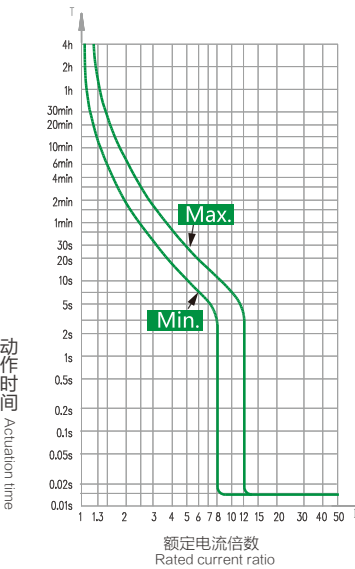
KFM3X-250C  
KFM3X-250S    配电保护特性曲线  
KFM3X-250M    Power distribution protection characteristics curve  
KFM3X-250H



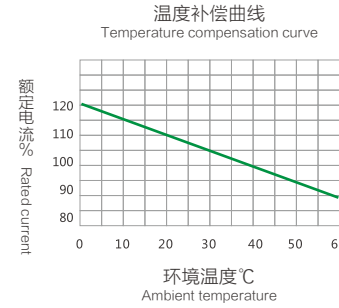
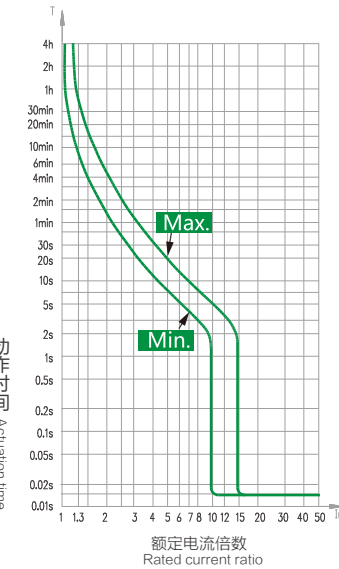
KFM3X-250C  
KFM3X-250S    电动机保护特性曲线  
KFM3X-250M    Motor protection characteristics curve  
KFM3X-250H



KFM3X-630C  
KFM3X-630S    配电保护特性曲线  
KFM3X-630M    Power distribution protection characteristics curve  
KFM3X-630H



KFM3X-630C    (额定电流400~630A)  
KFM3X-630S    (Rated current 400a ~ 630A)  
KFM3X-630M    电动机保护特性曲线  
KFM3X-630H    Motor protection characteristics curve



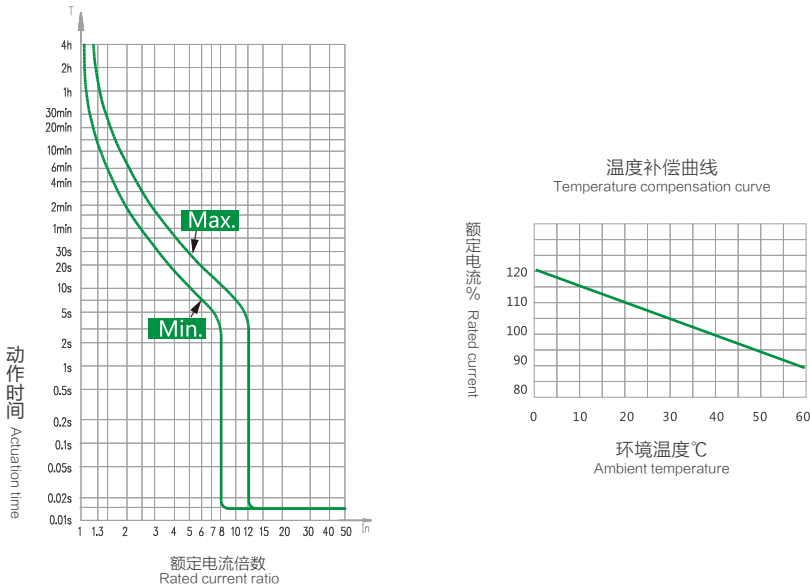
KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

特性曲线

Characteristic curve

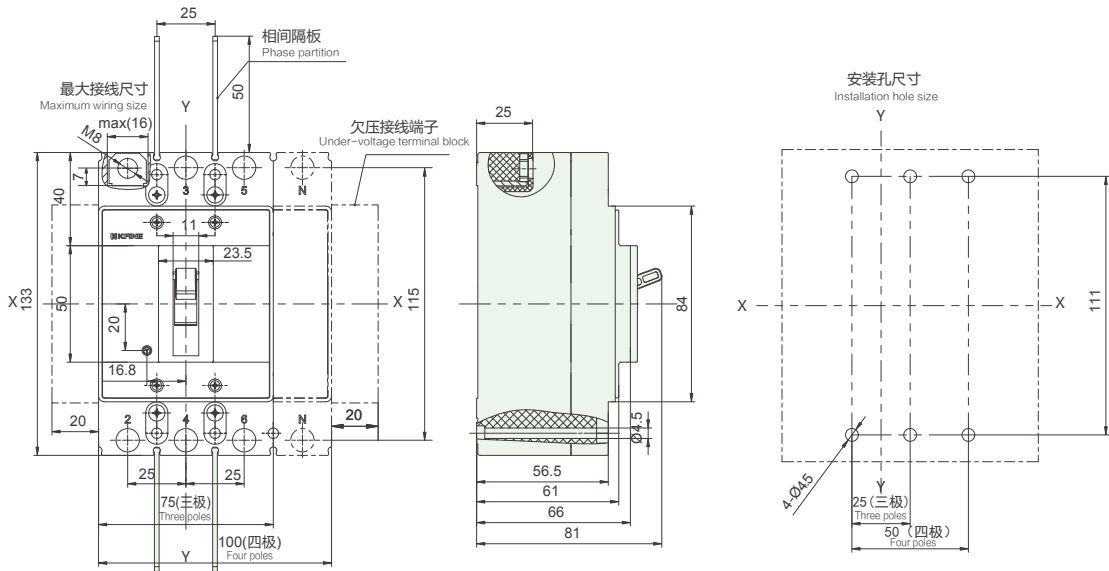
KFM3X-800C  
KFM3X-800S    配电保护特性曲线  
KFM3X-800M    Power distribution protection characteristics curve  
KFM3X-800H



外形及安装尺寸

Boundary and installing dimensions

KFM3X-100C、S | 板前接线  
Front-panel wiring



KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

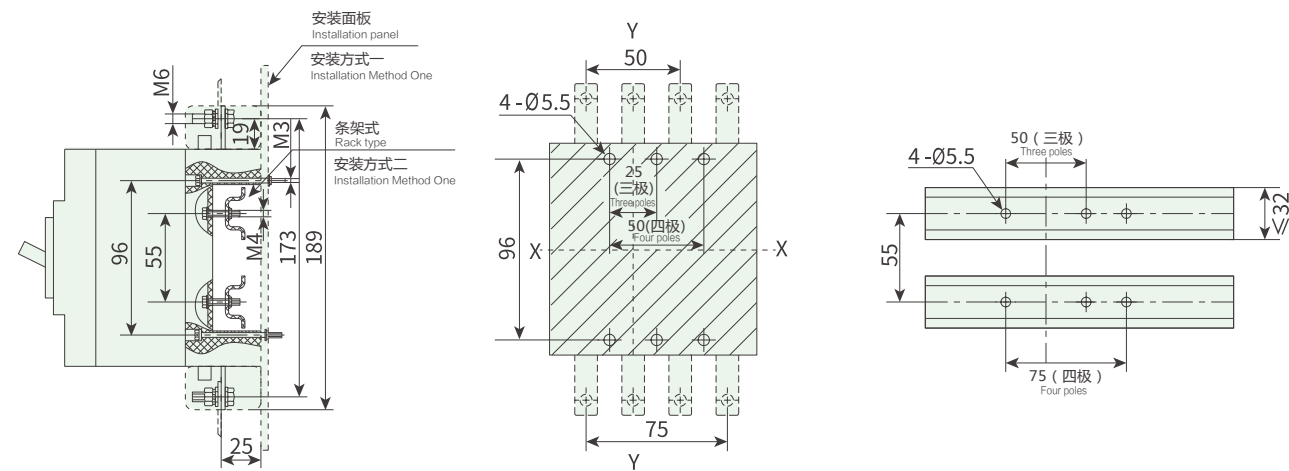
KFM3X系列塑料外壳式断路器

外形及安装尺寸

Boundary and installing dimensions

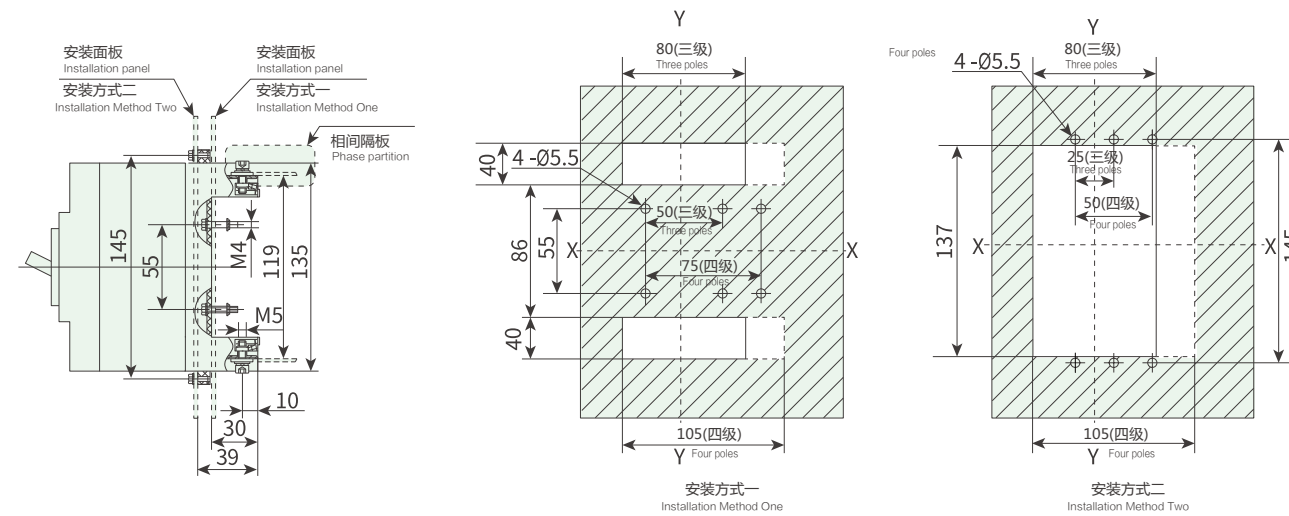
KFM3X-100C、S

插入式板前接线  
Plug-in Front-panel wiring



KFM3X-100C、S

插入式板后接线  
Plug-in Back-panel wiring

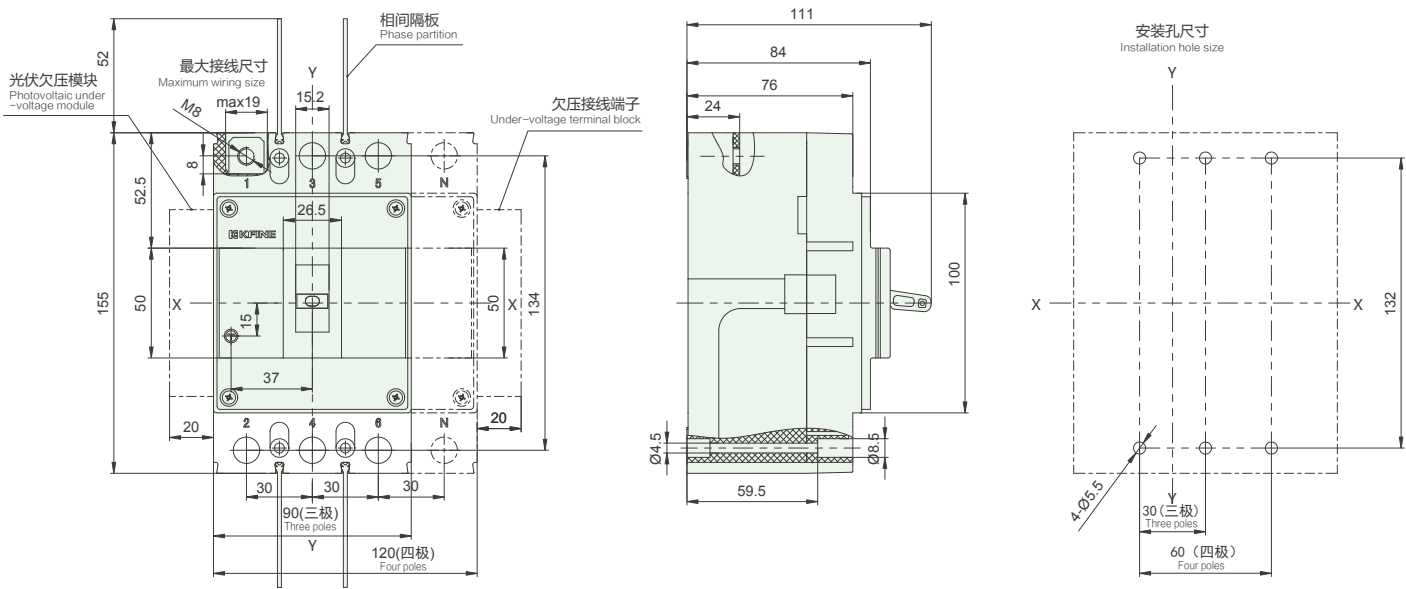


外形及安装尺寸

Boundary and installing dimensions

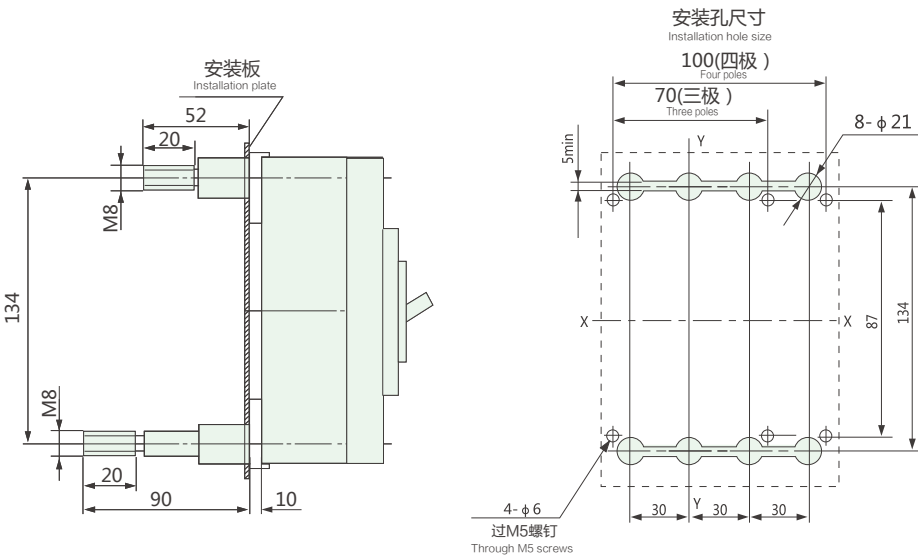
KFM3X-100M、H  
KFM3X-100C、S、M、H (过载报警不脱扣)

板前接线  
Front-panel wiring



KFM3X-100M、H  
KFM3X-100C、S、M、H (过载报警不脱扣)

板后接线  
Rear panel wiring



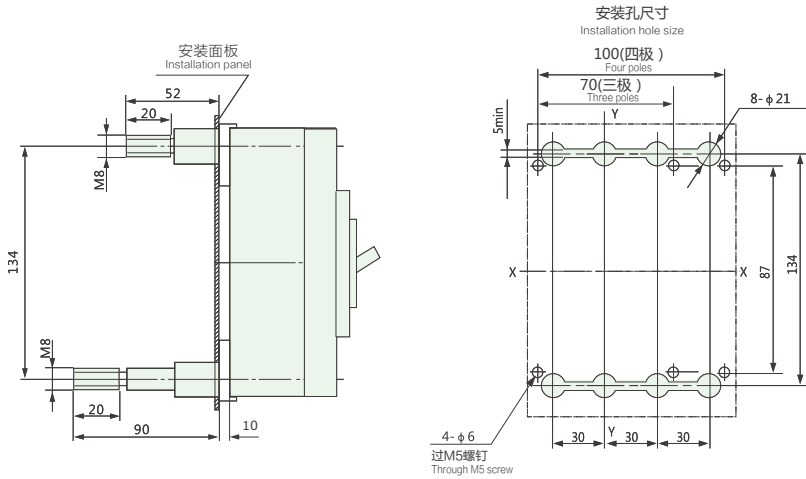


KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

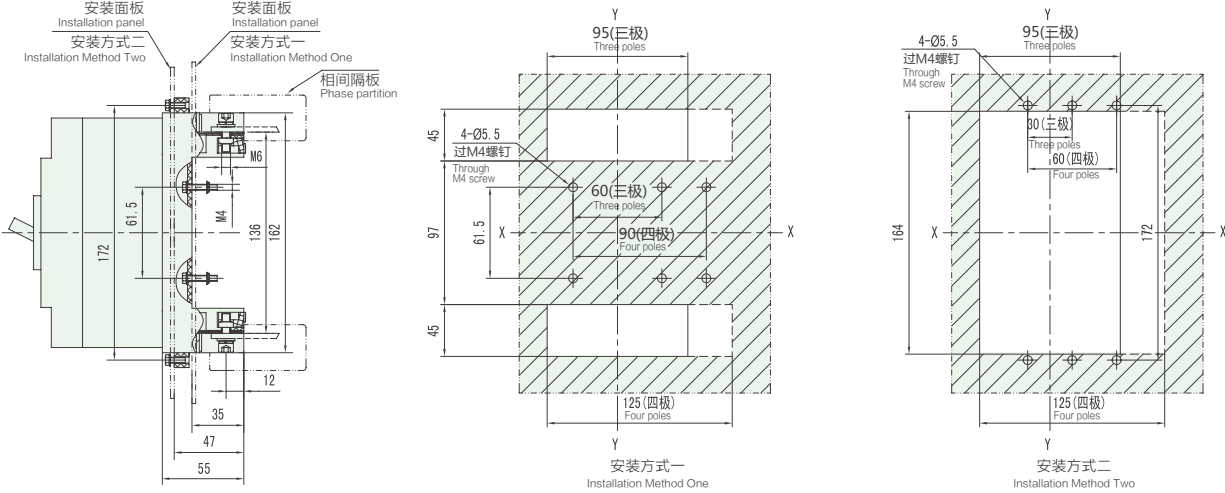
外形及安装尺寸    Boundary and installing dimensions

KFM3X-160    板后接线  
Rear panel wiring

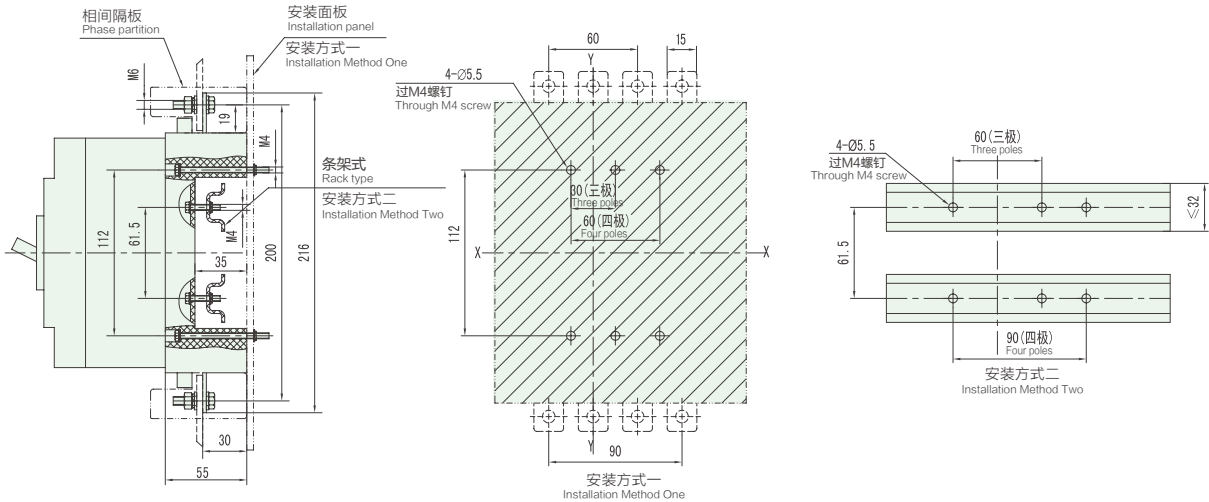


外形及安装尺寸    Boundary and installing dimensions

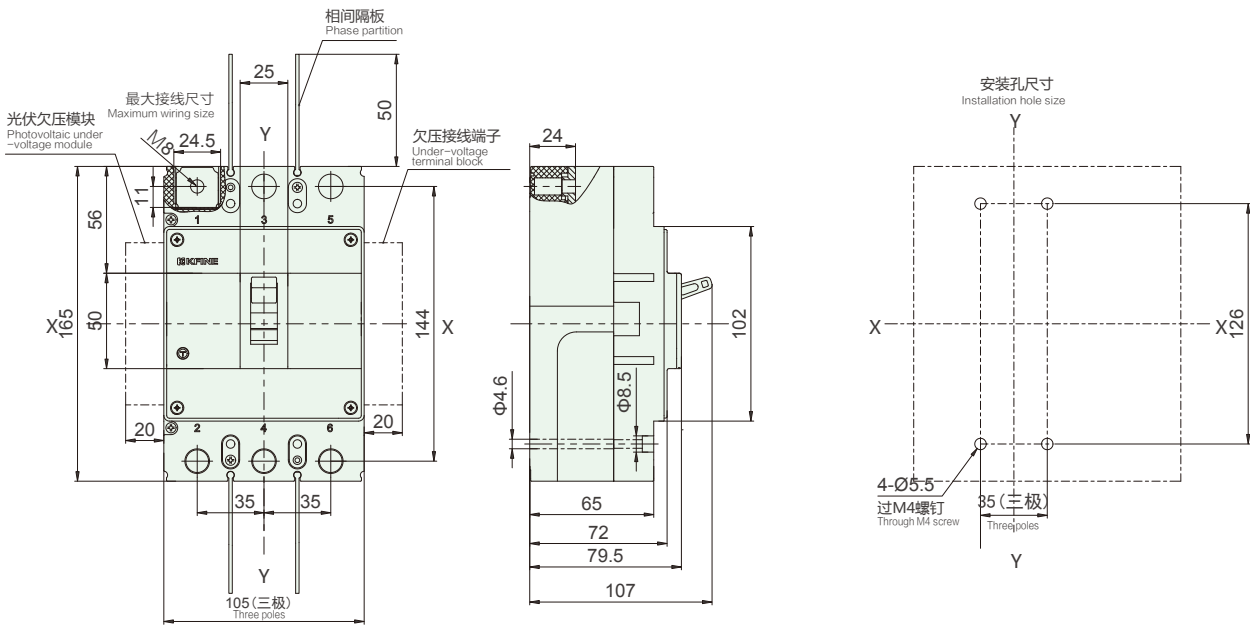
KFM3X-160    插入式板后接线  
Plug-in Back-panel wiring



KFM3X-160    插入式板前接线  
Plug-in Front-panel wiring



KFM3X-250C、S (三极)    板前接线  
Front-panel wiring



## KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

## KFM3X系列塑料外壳式断路器

## 外形及安装尺寸 Boundary and installing dimensions

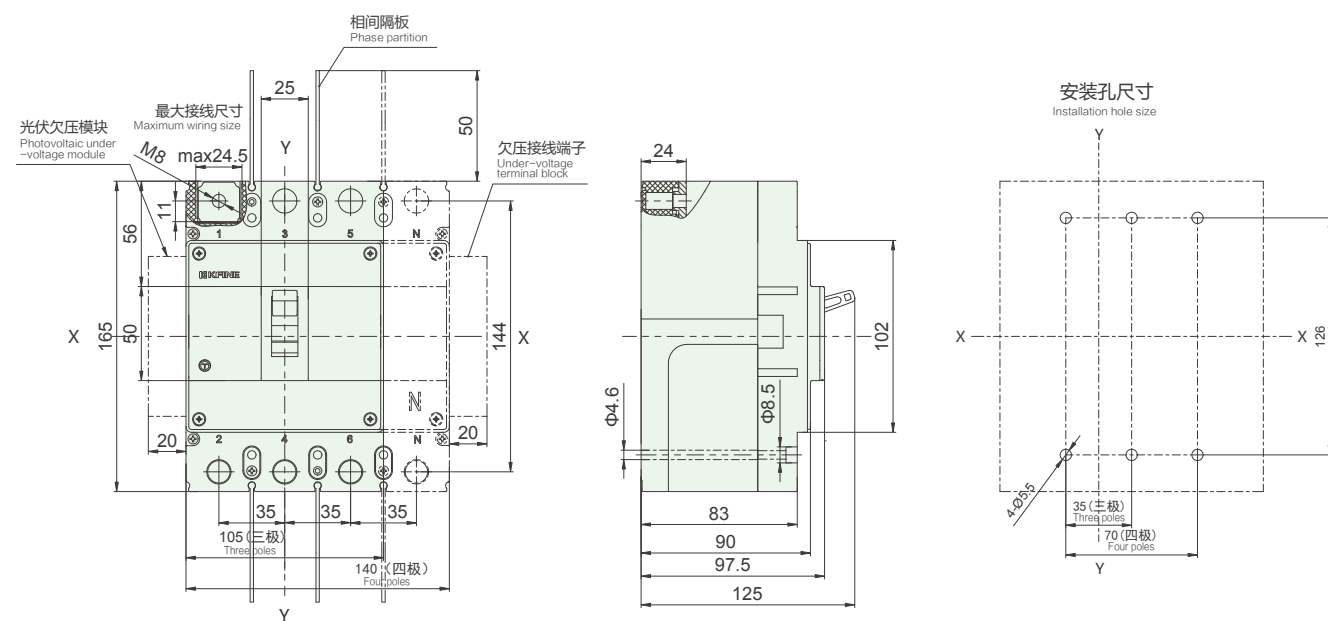
KFM3X-250M、H (三极)

KFM3X-250C、S、M、H(四极)

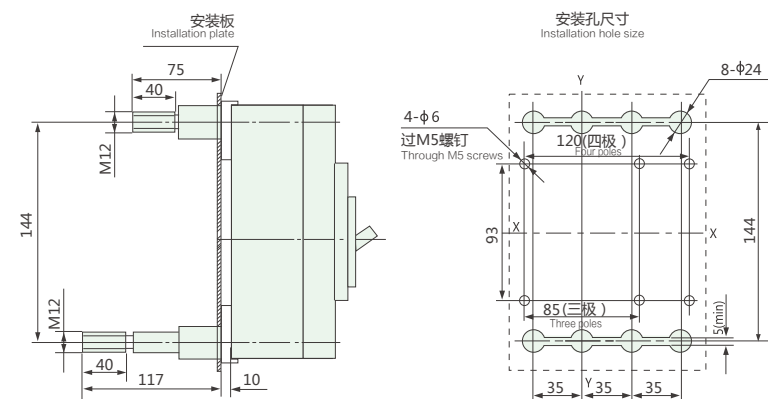
KFM3X-250C、S、M、H (过载报警不脱扣)

## 板前接线

Front-panel wiring



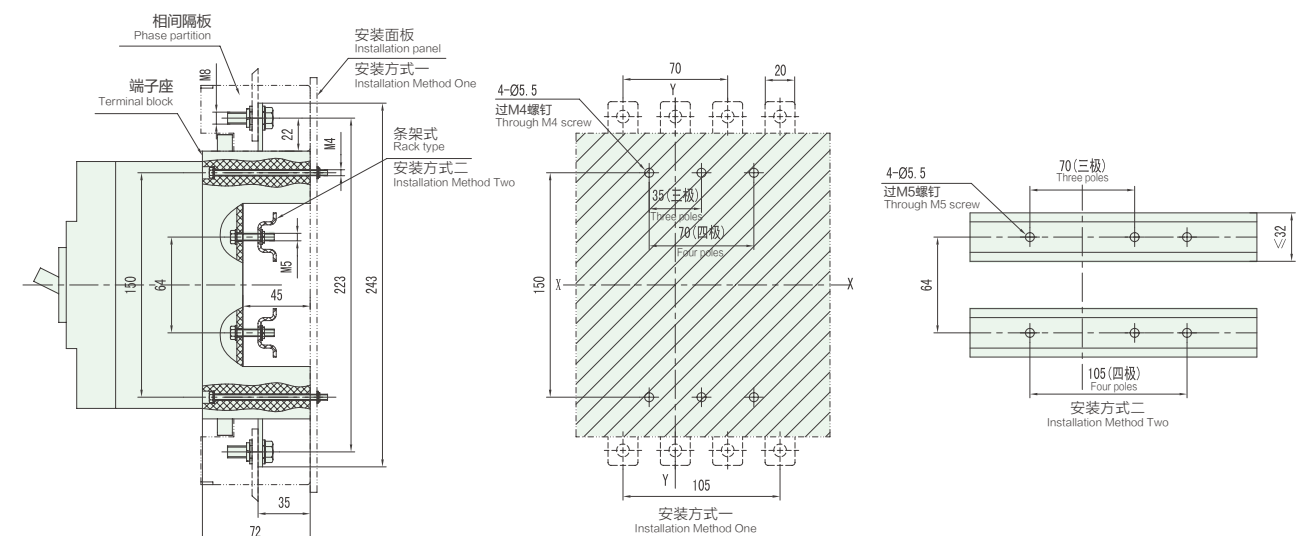
**KFM3X-250** | 板后接线  
Rear panel wiring



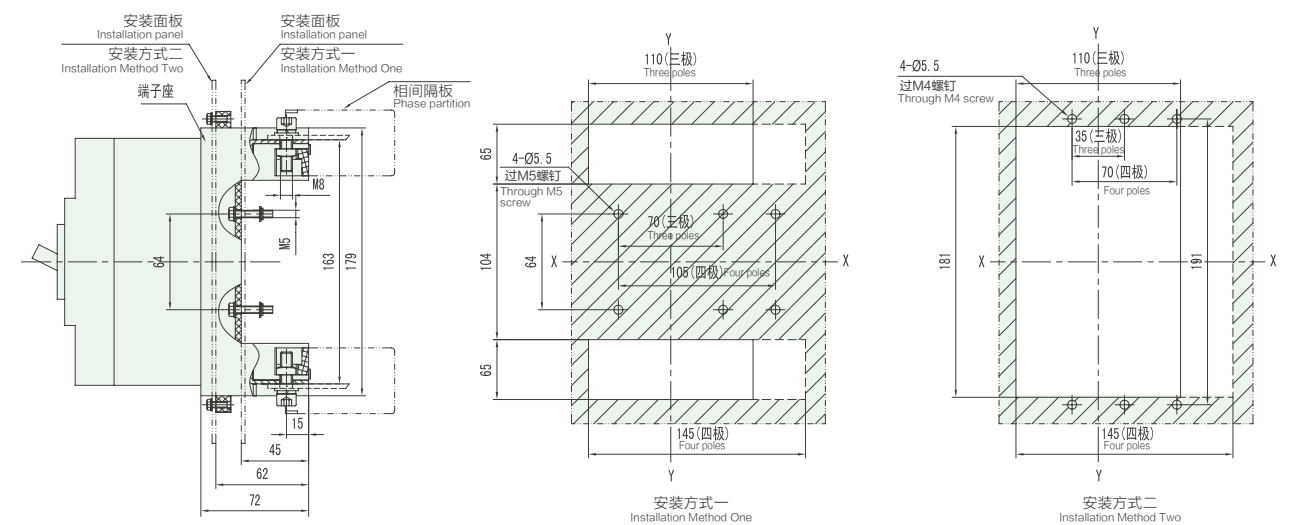
KFM3X-250

## 插入式板前接线

### Plug-in Front-panel wiring



**KFM3X-250** | 插入式板后接线  
Plug-in Back-panel wiring

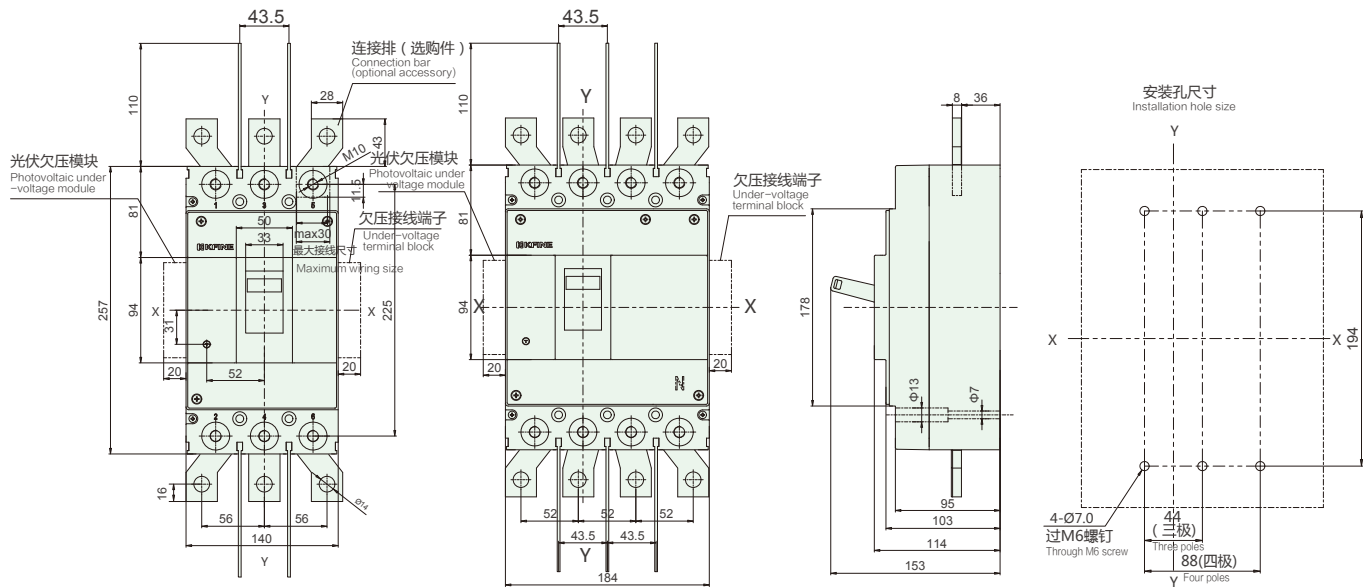


KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

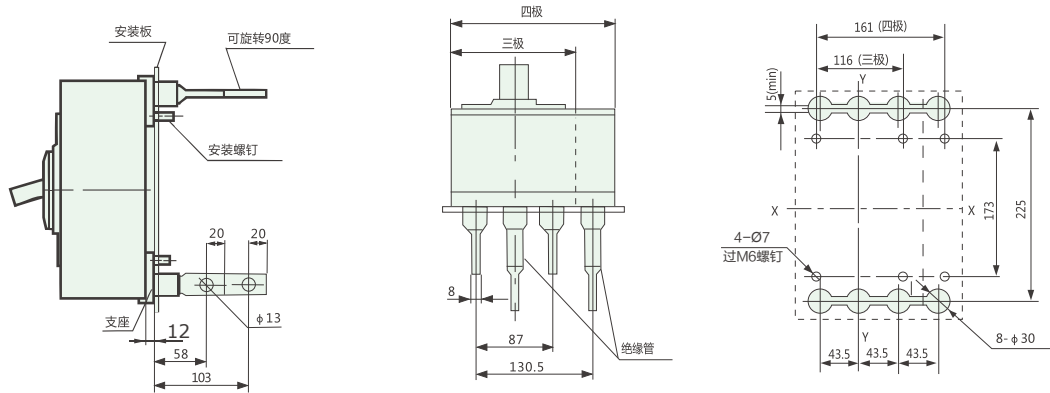
KFM3X系列塑料外壳式断路器

外形及安装尺寸    Boundary and installing dimensions

KFM3X-400    板前接线  
Front-panel wiring

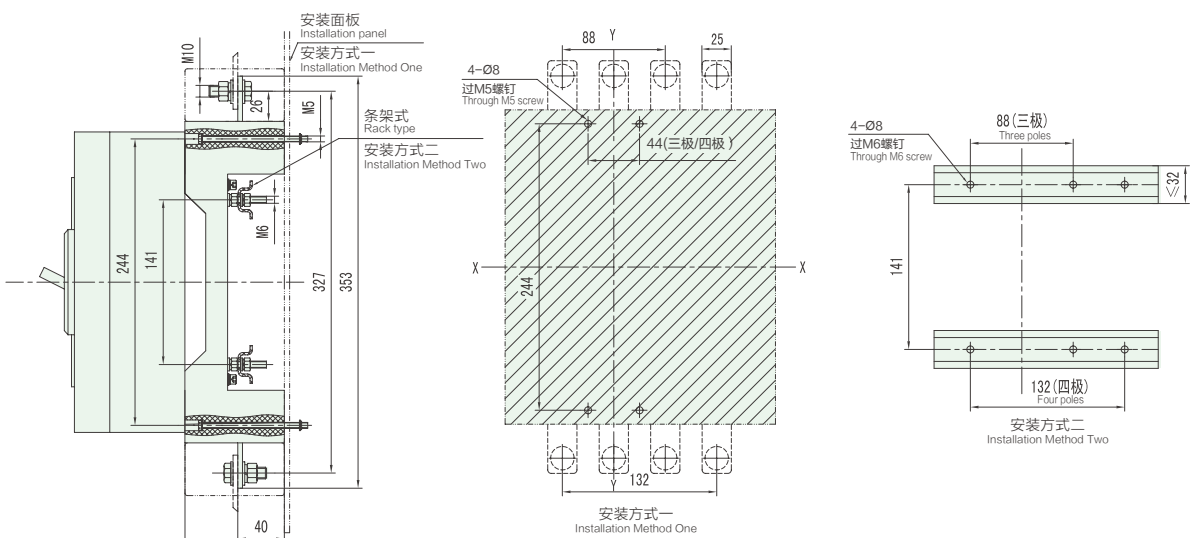


KFM3X-400    板后接线  
Rear panel wiring

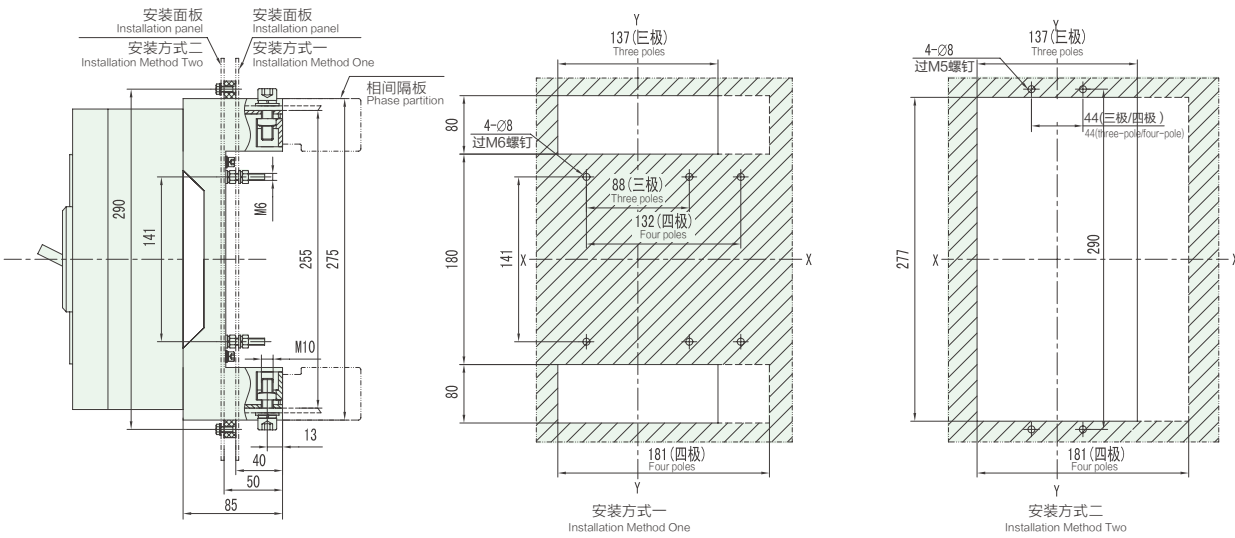


外形及安装尺寸    Boundary and installing dimensions

KFM3X-400    插入式板前接线  
Plug-in Front-panel wiring

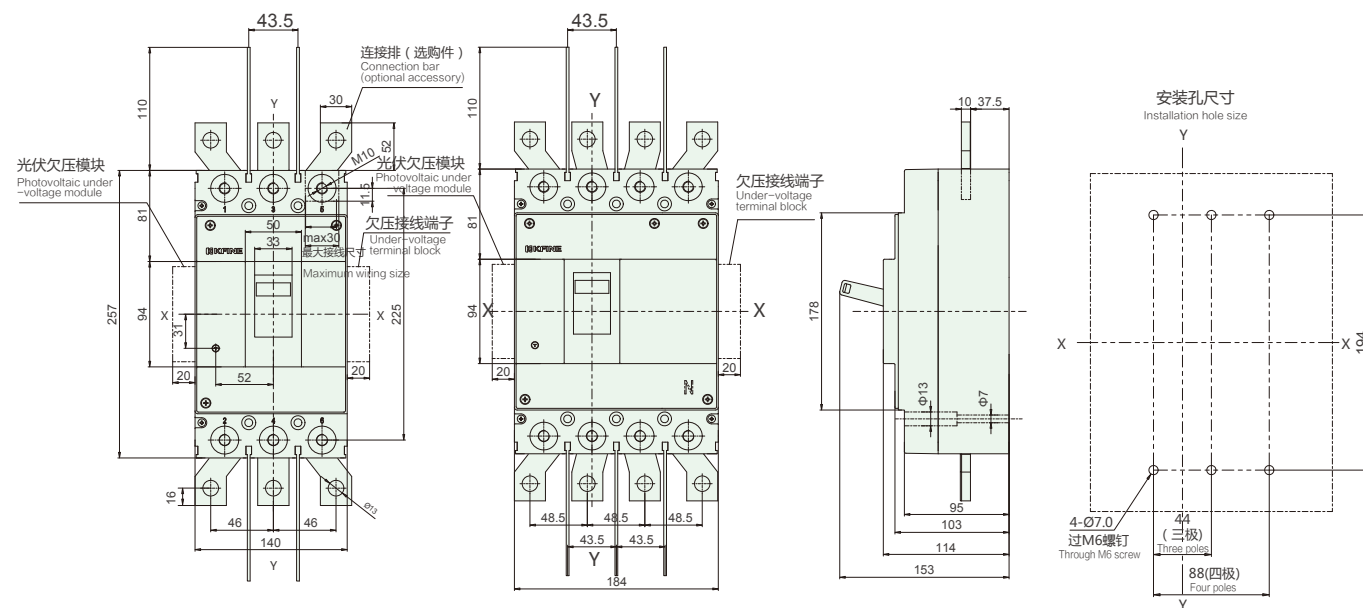


KFM3X-400    插入式板后接线  
Plug-in Back-panel wiring

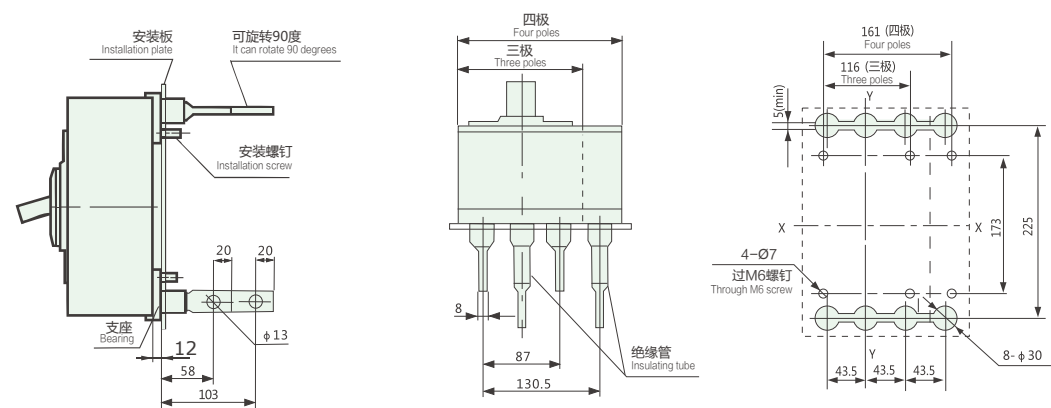


## KFM3X系列塑料外壳式断路器

## KFM3X-630

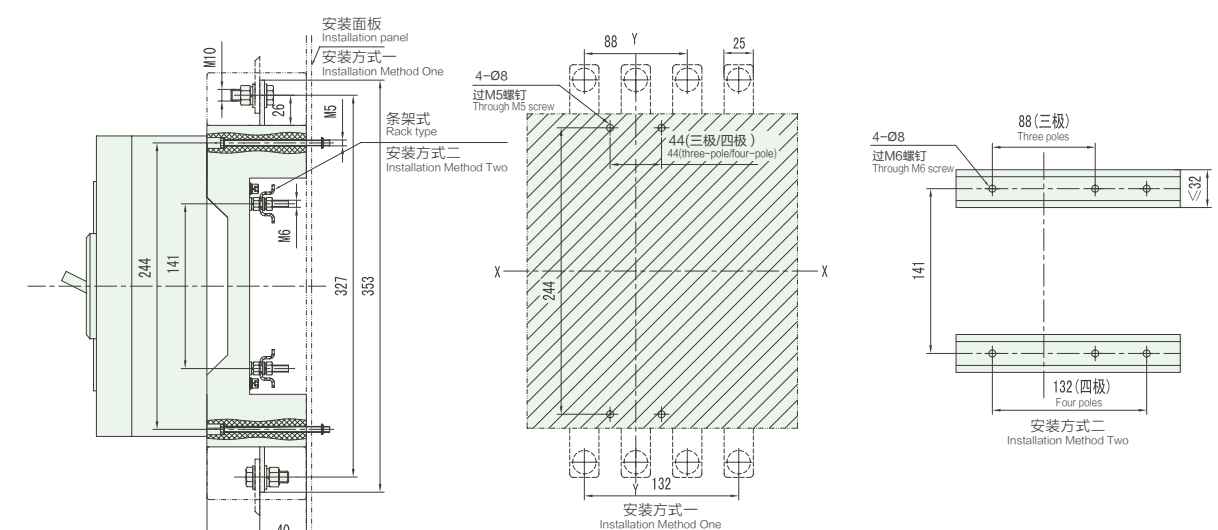


KFM3X-630 板后接线  
Rear panel wiring

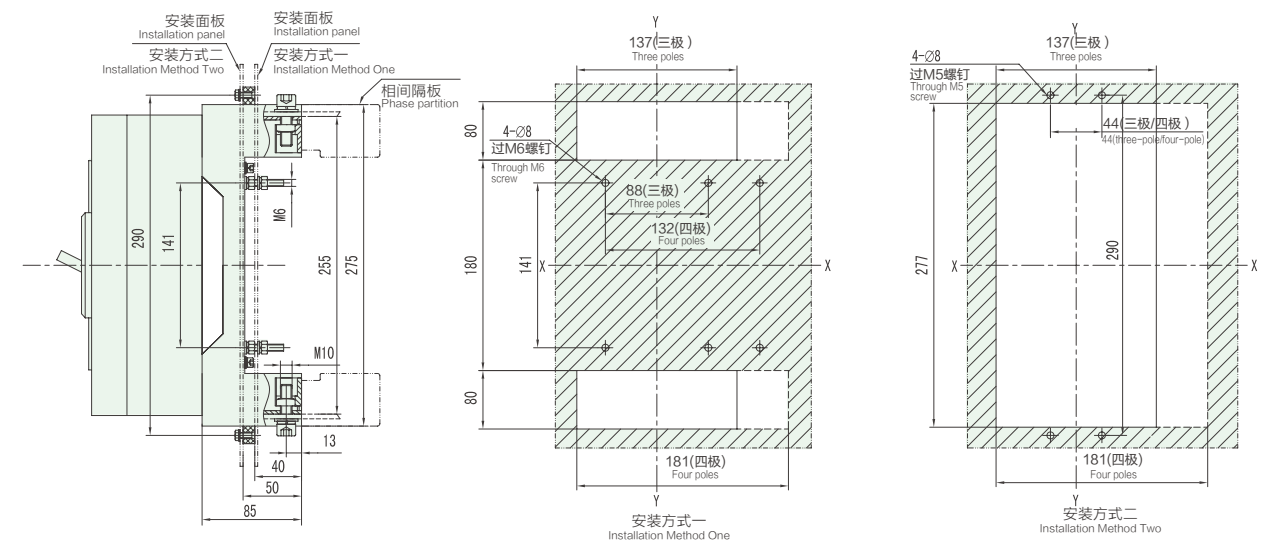


## | A24 |

**KFM3X-630** | 插入式板前接线  
Plug-in Front-panel wiring



**KFM3X-630** | 插入式板后接线  
Plug-in Back-panel wiring



插入式最大使用电流550A  
Plug-in maximum operating current 550A

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

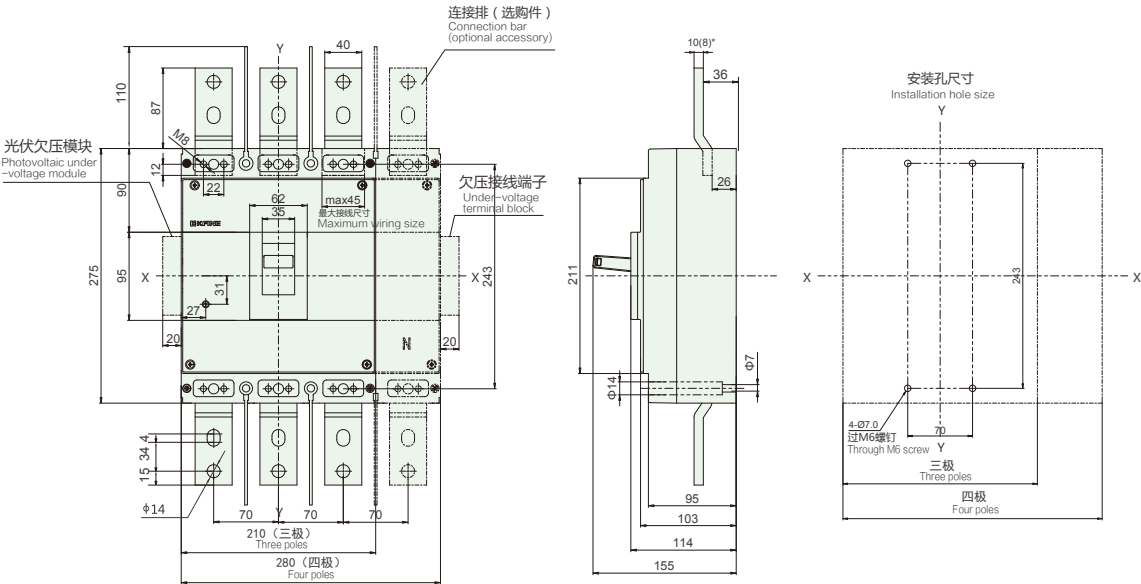
外形及安装尺寸

Boundary and installing dimensions

KFM3X-800

板前接线

Front-panel wiring

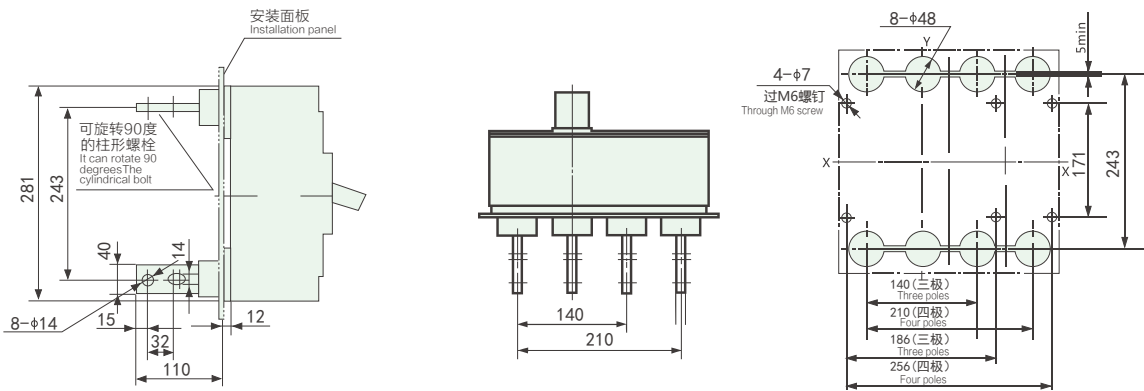


注：（ ）内为KFM3X-800中“630A及以下电流”的尺寸。  
Note: the dimensions of “Current up to 630A” in KFM3X-800 are shown in ( ).

KFM3X-800

板后接线

Rear panel wiring



外形及安装尺寸

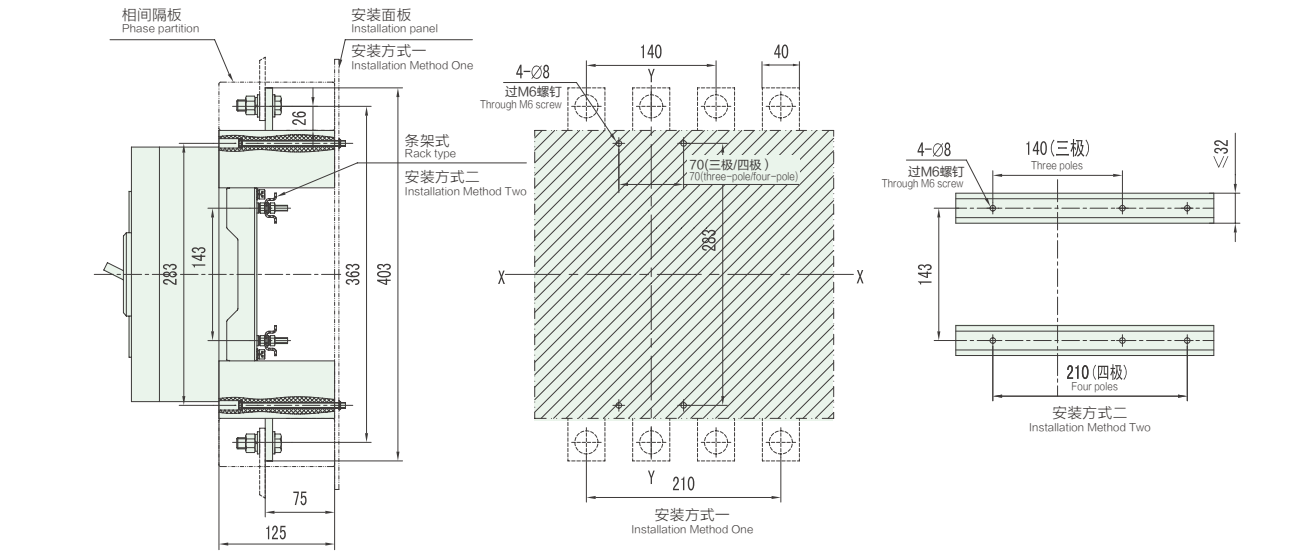
Boundary and installing dimensions

KFM3X-800

(In≤630A)

插入式板前接线

Plug-in Front-panel wiring

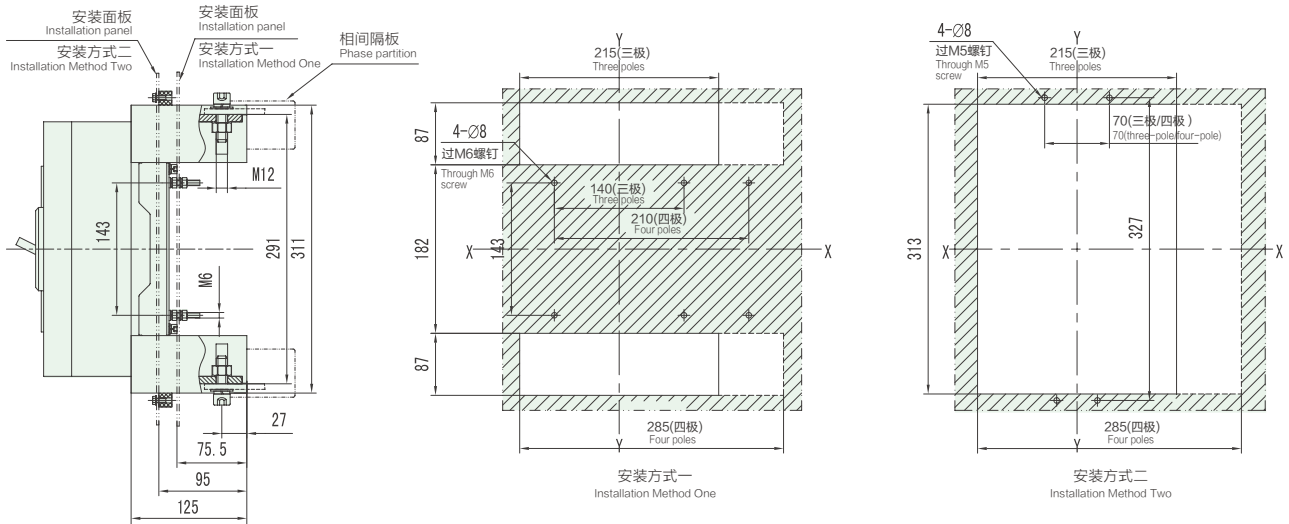


KFM3X-800

(In≤630A)

插入式板后接线

Plug-in Back-panel wiring

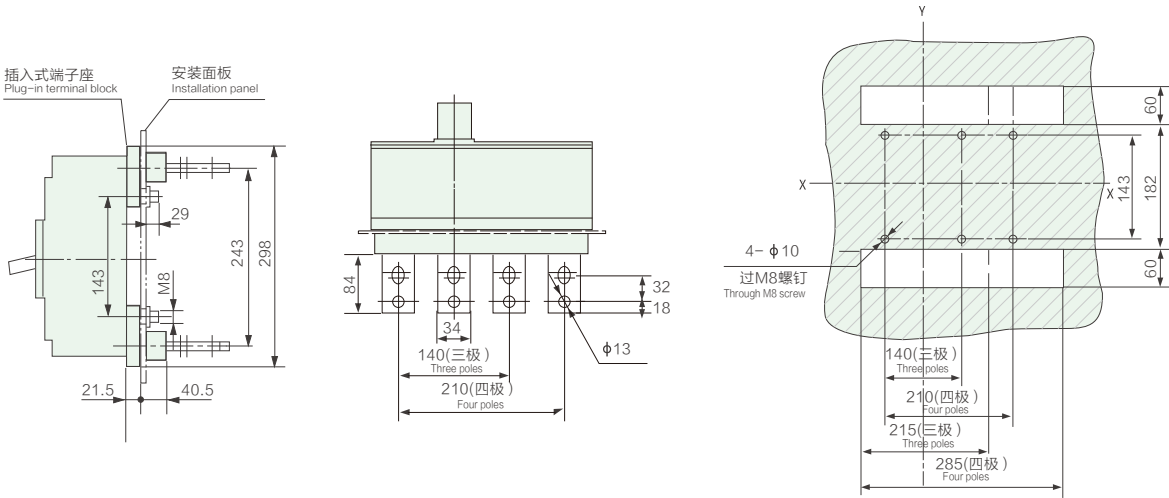


KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

外形及安装尺寸    Boundary and installing dimensions

**KFM3X-800**    插入式板后接线  
(In=700A,800A)    Plug-in Back-panel wiring



断路器内外部附件    Internal and external accessories of the breaker

欠电压脱扣器，符号 ▼    UNDERVOLTAGE RELEASE, SYMBOL ▼

控制电压：50Hz AC230V,AC400V

在额定电压的35% ~70%时，欠电压脱扣器应可靠使断路器脱扣；

在额定电压的85% ~110%时，欠电压脱扣器应保证断路器能合闸；

在额定电压低于35%时，欠电压脱扣器应防止断路器合闸。

注意：欠电压脱扣器必须先通电，断路器才能再扣及合闸，否则将损坏断路器。

Control voltage: 50 Hz, AC230 V, AC400 V

When the rated voltage is between 35% and 70%, the under voltage release shall trip the circuit breaker reliably;

When the rated voltage is 85% - 110%, the under voltage release shall ensure that the circuit breaker can be closed;

When the rated voltage is lower than 35%, the under voltage release shall prevent the circuit breaker from closing.

Note: the undervoltage release must be powered on before the circuit breaker can be switched on or it will be damaged.

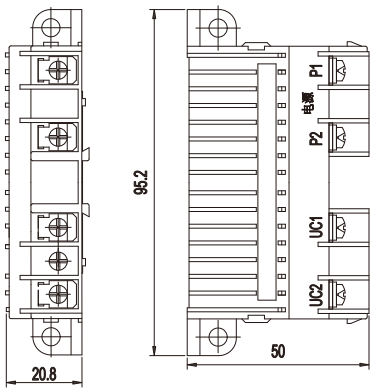
欠电压脱扣器功耗    POWER CONSUMPTION OF UNDER VOLTAGE RELEASE

| 产品型号<br>Product model               | 功耗（W）    Power consumption (W) |        |
|-------------------------------------|--------------------------------|--------|
|                                     | AC400V                         | AC230V |
| KFM3X-100C/S                        | 5                              | 3.5    |
| KFM3X-100M/H<br>KFM3X-160           | 3.9                            | 3.2    |
| KFM3X-250                           | 4.4                            | 3.4    |
| KFM3X-400<br>KFM3X-630<br>KFM3X-800 | 3.6                            | 2.5    |

欠电压模块接线图  
WIRING DIAGRAM OF EXTERNAL UNDER VOLTAGE MODULE



欠电压模块尺寸图  
DIMENSION DRAWING OF UNDERVOLTAGE MODULE



# KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

## KFM3X系列塑料外壳式断路器

### 断路器内外部附件 Internal and external accessories of the breaker

#### 光伏并网专用欠电压脱扣器模块 UNDERVOLTAGE RELEASE MODULE FOR PHOTOVOLTAIC GRID CONNECTION

在KFM3X塑壳断路器基础上，配置光伏并网专用欠电压脱扣器模块、电动操作机构，组成光伏并网专用断路器，确保分布式光伏并网安全。

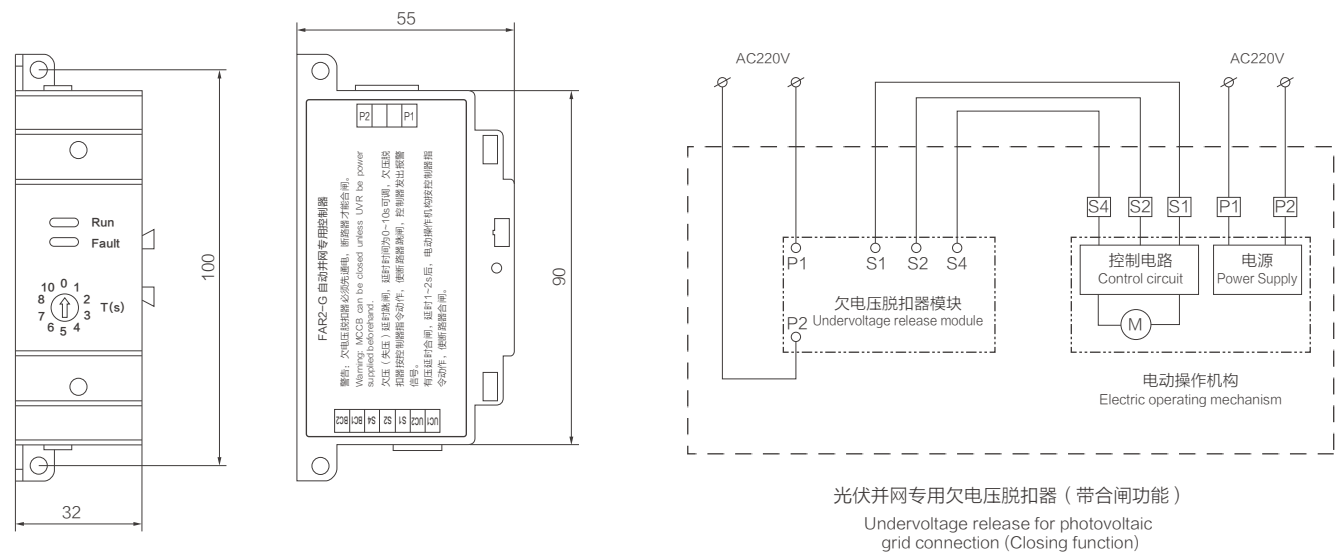
- 欠压脱扣，在额定工作电压的70%~20%之间，欠电压脱扣器可靠动作
- 失压跳闸，当电压低于额定工作电压的20%时，脱扣器能使断路器可靠断开
- 过压保护，电压超过135%Un时，脱扣器动作，断路器断开
- 配合电动操作机构可实现检有压自动合闸
- 欠压（或失压）动作时间可调，范围0~10s（无9s），最小调整步长为1s

On the basis of KFM3X molded circuit breaker, the special low-voltage release module and the electric operation mechanism of the photovoltaic grid connection are configured to form a special circuit breaker for photovoltaic grid connected, so as to ensure the safety of the distributed PV grid connected.

- Undervoltage tripping between the rated operating voltage of 70%~20% and undervoltage tripping is reliable
- The tripping device can reliably break the circuit breaker when the voltage is less than 20% of the rated working voltage
- Overvoltage protection, when voltage exceeds 135% Un, the release trip action, disconnect the circuit breaker.
- With the electric operating mechanism, the automatic closing of the detector can be realized
- The action time of undervoltage (or loss of voltage) is adjustable, the range is 0 ~ 10s (no 9S), and the minimum adjustment step is 1s

#### 两种型号 TWO MODELS

- AC220V光伏专用欠压脱扣器带过压保护
- AC220V光伏专用欠压脱扣器（失压延时）带过压保护
- AC220V dedicated photovoltaic undervoltage release with overvoltage protection
- AC220V dedicated photovoltaic undervoltage release (loss of pressure delay) with over-voltage protection



### 断路器内外部附件 Internal and external accessories of the breaker

#### 分励脱扣器，符号■ SHUNT RELEASE, SYMBOL ■

控制电压：50Hz AC230V,AC400V  
DC110V，DC220V，DC24V

在额定控制电源电压的70%~110%之间时，分励脱扣器能可靠地使断路器脱扣。

分励脱扣器，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。

Control voltage: 50 Hz, AC230 V, AC400 V  
DC110V，DC220V，DC24V  
When the rated control power supply voltage is between 70% and 110%, the shunt release can trip the circuit breaker reliably.  
Shunt release, the terminal is the outgoing line, the default line length is 50cm, and the specification of 100cm, 150cm and longer can be provided.

#### 分励脱扣器接线图 WIRING DIAGRAM OF SHUNT RELEASE



#### 分励脱扣器瞬动电流及功耗 WIRING DIAGRAM OF EXTERNAL UNDER VOLTAGE MODULE

| 产品型号<br>Product model               | 功耗（W）<br>Power consumption (W) |        |        |        |       |
|-------------------------------------|--------------------------------|--------|--------|--------|-------|
|                                     | AC400V                         | AC230V | DC220V | DC110V | DC24V |
| KFM3X-100C/S                        | 160                            | 105    | 50     | 55     | 88.6  |
| KFM3X-100M/H<br>KFM3X-160           | 160                            | 105    | 50     | 55     | 88.6  |
| KFM3X-250                           | 100                            | 60     | 55     | 61     | 76.3  |
| KFM3X-400<br>KFM3X-630<br>KFM3X-800 | 100                            | 60     | 55     | 61     | 76.3  |

注：当额定控制电源电压为DC24V时，有两种解决方案：

- 采用DC24V分励脱扣器，但应满足如下三个条件：导线横截面积≥2.5mm²；导线长度不得超过200m；脱扣器接线端处的电源功率应≥50W。
- 采用DC24V中间继电器控制AC230V或AC400V分励脱扣器，中间继电器触点容量不小于1A。

Note: when the rated control power supply voltage is DC24 V, there are two solutions:  
1. DC24 V shunt release shall be adopted, but the following three conditions shall be met: conductor cross-sectional area ≥ 2.5 mm²; conductor length not exceeding 200 m; The power supply at the terminal of the release shall be ≥ 50W.  
2. DC24 V intermediate relay is used to control AC 230 V or AC 400 V shunt release, and the contact capacity of intermediate relay is not less than 1a.

# KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

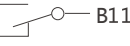
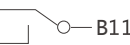
## KFM3X系列塑料外壳式断路器

### 断路器内外部附件 Internal and external accessories of the breaker

**报警触头**    ALARM CONTACT    **符号：** ●    SYMBOL: ●

断路器正常合分时，触头不动作，只有在自由脱扣（或故障跳闸）后，触头状态才会改变，即常开变成常闭，常闭变成常开，待断路器再扣后，触头恢复原始位置。

When the circuit breaker is normally opened and closed, the contact does not act. Only after free tripping (or fault tripping), the contact state will change, that is, the normally open will become normally closed, and the normally closed will become normally open. After the circuit breaker is re buckled, the contact will return to its original position.

|                                                                              |                                                                                                              |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 断路器处于“分”“合”时的位置<br>The position of the circuit breaker at "ON" and "OFF"     | <b>B14</b><br><b>B12</b>  |
| 断路器处于“自由脱扣”时的位置<br>Position of circuit breaker when it is in "free tripping" | <b>B14</b><br><b>B12</b>  |

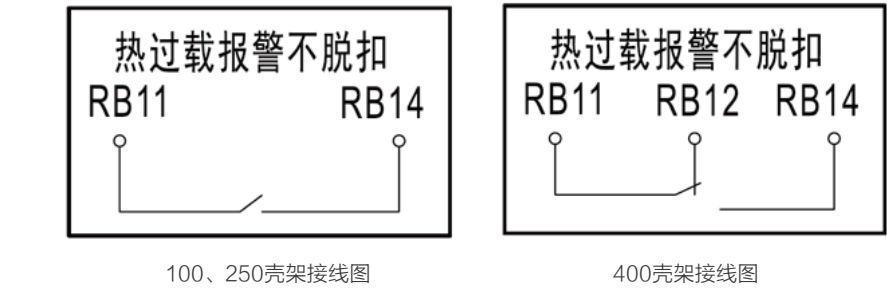
报警触头，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。  
Alarm contact, terminal for outgoing line, default line length 50cm, also can provide 100cm, 150cm specifications, longer specifications ordering instructions.

### 报警触头电流参数 CURRENT PARAMETERS OF ALARM CONTACT

| 产品型号<br>Product model               | 约定发热电流(A)<br>Conventional heating current (A) | 额定工作电流(A)<br>Rated working current (A) |        |
|-------------------------------------|-----------------------------------------------|----------------------------------------|--------|
|                                     |                                               | AC400V                                 | DC220V |
| KFM3X-100C/S                        | 1                                             | 0.3                                    | 0.15   |
| KFM3X-100M/H<br>KFM3X-160           |                                               |                                        |        |
| KFM3X-250                           |                                               |                                        |        |
| KFM3X-400<br>KFM3X-630<br>KFM3X-800 | 3                                             | 0.4                                    | 0.15   |

### 过载报警（不脱扣）开关 OVERLOAD ALARM (NON-TRIP) SWITCH

当发生过载时，RB11、RB14常开转常闭，RB11、RB12常闭转常开，但断路器不脱扣。  
When overload occurs, RB11, RB14 normally open to normal close, RB11, RB12 normally closed to normal open, but the circuit breaker does not trip.



### 断路器内外部附件 Internal and external accessories of the breaker

**辅助触头**    AUXILIARY CONTACT    **符号：** ○    SYMBOL: ○

辅助触头，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。

Auxiliary contact, terminal for outgoing line, default line length 50cm, also can provide 100cm, 150cm specifications, longer specifications ordering instructions.

| 辅助触头<br>AUXILIARY CONTACT                                                                  | 产品型号<br>Product model               | 约定发热电流(A)<br>Conventional heating current (A) | 额定工作电流(A)<br>Rated working current(A) |        |
|--------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------|---------------------------------------|--------|
|                                                                                            |                                     |                                               | AC400V                                | DC220V |
| 断路器处于“分”<br>“自由脱扣”时的位置<br>When the breaker is in the<br>position of "open" and "free trip" | KFM3X-100C/S                        | 1                                             | 0.3                                   | 0.15   |
|                                                                                            | KFM3X-100M/H<br>KFM3X-160           |                                               |                                       |        |
|                                                                                            | KFM3X-250                           |                                               |                                       |        |
| 断路器处于“合”<br>时的位置<br>When the breaker is in the<br>position of "close"                      | KFM3X-400<br>KFM3X-630<br>KFM3X-800 | 3                                             | 0.4                                   | 0.15   |

### 辅助触头正常条件下的接通和分断能力 THE CONNECT AND BREAKING CAPACITY OF AUXILIARY CONTACT UNDER NORMAL OPERATION

| 使用类型<br>USING CLASS | 接通 CONNECT |      |      |       | 分断 BREAKING |      |      |       | 次数<br>TIME | 操作频率 次/分<br>OPERATION FREQUENCY<br>(TIME/ MINUTE) |
|---------------------|------------|------|------|-------|-------------|------|------|-------|------------|---------------------------------------------------|
|                     | I/Ie       | U/Ue | cosø | T0.95 | I/Ie        | U/Ue | cosø | T0.95 |            |                                                   |
| AC-14               | 6          | 1    | 0.3  |       | 1           | 1    | 0.3  |       | 6050       | 6                                                 |
| DC-13               | 1          | 1    |      | 6xPe  | 1           | 1    |      | 6xPe  |            |                                                   |

### 辅助触头非正常条件下的接通和分断能力 THE ABILITY TO CONNECT AND BREAK UNDER ABNORMAL CONDITIONS

| 使用类型<br>USE TYPE | 接通 CONNECT |      |      |       | 分断 BREAKING |      |      |       | 次数<br>TIME | 操作频率 次/分<br>OPERATION FREQUENCY<br>(TIME/ MINUTE) | 通电时间<br>CONDUCTION TIME |
|------------------|------------|------|------|-------|-------------|------|------|-------|------------|---------------------------------------------------|-------------------------|
|                  | I/Ie       | U/Ue | cosø | T0.95 | I/Ie        | U/Ue | cosø | T0.95 |            |                                                   |                         |
| AC-14            | 6          | 1.1  | 0.7  |       | 6           | 1.1  | 0.7  |       | 10         | 6                                                 | ≥0.05                   |
| DC-13            | 1.1        | 1.1  |      | 6xPe  | 1.1         | 1.1  |      | 6xPe  |            |                                                   |                         |

注 / Note:

当断路器操作次数小于6050次时，则辅助触头操作次数与断路器相同，当Pe≥50W，T<sub>0.95</sub>的上限≈6Pe≤300ms  
When the number of operations of the breaker is less than 6050, then that of auxiliary contact is the same with the breaker, when Pe ≥ 50 W, the upper limit of T<sub>0.95</sub> ≈ 6 Pe ≤ 300 ms

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

断路器内外部附件

Internal and external accessories of the breaker

电动操作机构

ELECTRIC OPERATING MECHANISM

本系列断路器配备DC3型新一代电动操作机构

Electric operating mechanism  
This series of breakers are equipped with DC3 type new generation of electric operation mechanism.



KFM3X-100  
KFM3X-160  
KFM3X-250

电动操作机构  
Electric operating mechanism

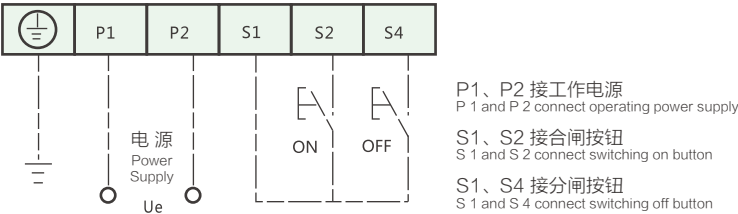


KFM3X-400  
KFM3X-630  
KFM3X-800

电动操作机构  
Electric operating mechanism

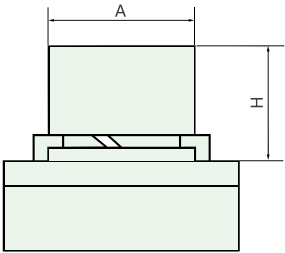
电动操作机构接线图

WIRING DIAGRAM OF THE ELECTRIC OPERATING MECHANISM



电动操作机构有关尺寸

RELATED DIMENSION OF THE ELECTRIC OPERATING MECHANISM



电动操作机构尺寸

ELECTRIC OPERATING MECHANISM DIMENSIONS

| 断路器型号<br>BREAKER TYPE                              | KFM3X-100C、S               | KFM3X-100M、H<br>KFM3X-160 | KFM3X-250 | KFM3X-400 | KFM3X-630 | KFM3X-800 |
|----------------------------------------------------|----------------------------|---------------------------|-----------|-----------|-----------|-----------|
| 电操尺寸<br>Electric operating<br>mechanism dimensions | A                          | 102                       | 116       | 116       | 176       | 176       |
|                                                    | H                          | 95                        | 101       | 105       | 151       | 151       |
|                                                    | 前面板宽度<br>Front panel width | 74                        | 91        | 91        | 130       | 130       |

电动操作机构技术数据

TECHNICAL DATA OF THE ELECTRIC OPERATING MECHANISM

| 断路器型号<br>BREAKER TYPE               | 电操参数<br>ELECTRIC OPERATING<br>MECHANISM PARAMETERS | 额定控制电压 V<br>RATED CONTROL VOLTAGE | 工作电流 A<br>WORKING CURRENT | 电机功率 W<br>MOTOR POWE |
|-------------------------------------|----------------------------------------------------|-----------------------------------|---------------------------|----------------------|
| KFM3X-100<br>KFM3X-160<br>KFM3X-250 |                                                    | AC: 110、230、400<br>DC: 24、110、220 | ≤0.5                      | 14                   |
| KFM3X-400<br>KFM3X-630<br>KFM3X-800 |                                                    | AC: 110、230、400<br>DC: 24、110、220 | ≤2                        | 35                   |

断路器内外部附件

Internal and external accessories of the breaker

转动手柄操作机构

TURNING HANDLE OPERATION MECHANISM

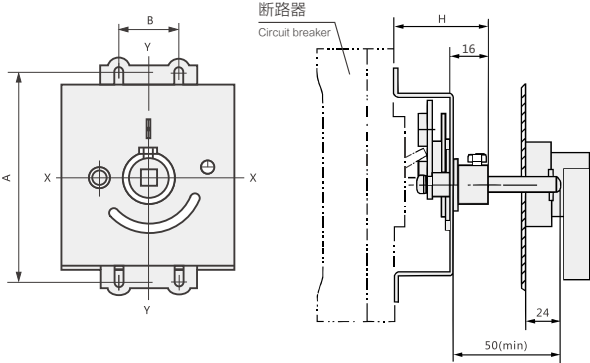
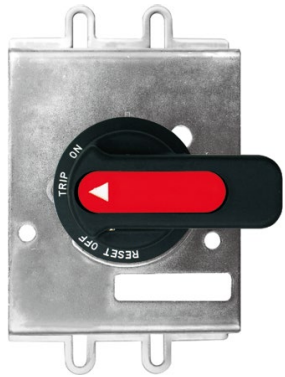
转动手柄操作机构有中心式(CS1型)和偏心式(CS2型)两种，可配用A型(圆形)或F1型(方形)手柄。

出厂默认转动手柄操作结构为中心式，配圆形手柄，轴长150mm。

There are two kinds of rotary handle operating mechanisms: central type (CS1 type) and eccentric type (CS2 type), which can be equipped with A-type (circular) or F-type (square) handle.  
The factory default rotating handle operation structure is central type, equipped with circular handle, and the shaft length is 150mm.

中心式转动手柄操作机构

CENTER TYPE TURNING HANDLE OPERATING MECHANISM



中心式转动手柄与断路器配用表

EQUIP TABLE OF CENTER TYPE TURNING HANDLE OPERATING MECHANISM AND BREAKER

| 断路器型号<br>BREAKER TYPE        | 配用转动手柄型号<br>EQUIPPED TURNING<br>HANDLE TYPE | 安装尺寸 INSTALLATION DIMENSIONS |     |      |                                                                       |
|------------------------------|---------------------------------------------|------------------------------|-----|------|-----------------------------------------------------------------------|
|                              |                                             | A                            | B   | H    | 操作手柄相对断路器中心Y值(mm)<br>OPERATING HANDLE RELATIVE BREAKER CENTER Y VALUE |
| KFM3X-100C、S                 | CS1A-100C/KFM3X                             | 111                          | 25  | 54   | 0                                                                     |
|                              | CS1F1-100C/KFM3X                            |                              |     |      |                                                                       |
| KFM3X-100M、H<br>KFM3X-160    | CS1A-100/KFM3X                              | 132                          | 30  | 65.5 | 0                                                                     |
|                              | CS1F1-100/KFM3X                             |                              |     |      |                                                                       |
| KFM3X-250                    | CS1A-250/KFM3X                              | 126                          | 35  | 75   | 0                                                                     |
|                              | CS1F1-250/KFM3X                             |                              |     |      |                                                                       |
| KFM3X-400/3P<br>KFM3X-630/3P | CS1A-400/KFM3X                              | 194                          | 128 | 92   | +5                                                                    |
|                              | CS1F1-400/KFM3X                             |                              |     |      |                                                                       |
| KFM3X-400/4P<br>KFM3X-630/4P | CS1A-400/KFM3X                              | 194                          | 172 | 92   | +5                                                                    |
|                              | CS1F1-400/KFM3X                             |                              |     |      |                                                                       |
| KFM3X-800                    | CS1A-800/KFM3X                              | 243                          | 198 | 92   | +10                                                                   |
|                              | CS1F1-800/KFM3X                             |                              |     |      |                                                                       |

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

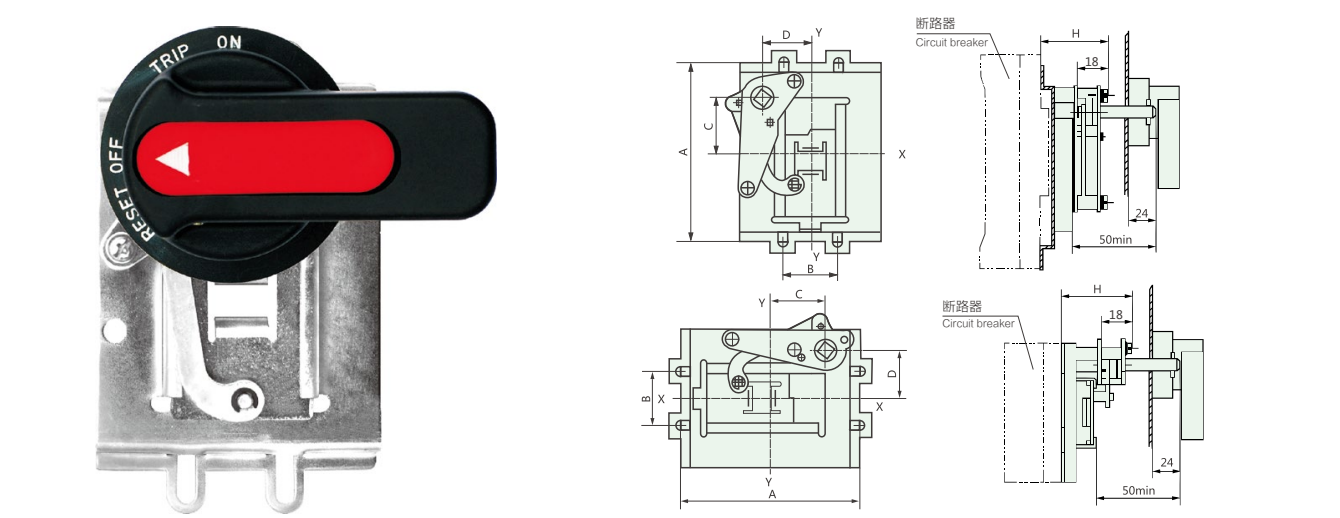
KFM3X系列塑料外壳式断路器

断路器内外部附件

Internal and external accessories of the breaker

偏心式转动手柄操作机构

ECCENTRIC TURNING HANDLE OPERATING MECHANISM



偏心式转动手柄与断路器配用表

EQUIP TABLE OF ECCENTRIC TYPE TURNING HANDLE OPERATING MECHANISM AND BREAKER

| 断路器型号<br>BREAKER<br>TYPE     | 配用转动手柄型号<br>EQUIPPED TURNING<br>HANDLE TYPE |     |     |    |    |      | 备注     |
|------------------------------|---------------------------------------------|-----|-----|----|----|------|--------|
|                              |                                             | A   | B   | C  | D  | H    | REMARK |
| KFM3X-100M、H<br>KFM3X-160    | CS2A-100/KFM3X<br>CS2F1-100/KFM3X           | 132 | 30  | 44 | 11 | 56.5 |        |
| KFM3X-250                    | CS2A-250/KFM3X<br>CS2F1-250/KFM3X           | 126 | 35  | 44 | 11 | 56.5 |        |
| KFM3X-400/3P<br>KFM3X-630/3P | CS2A-400/KFM3X<br>CS2F1-400/KFM3X           | 194 | 128 | 75 | 15 | 61   |        |
| KFM3X-400/4P<br>KFM3X-630/4P | CS2A-400/KFM3X<br>CS2F1-400/KFM3X           | 194 | 172 | 75 | 15 | 61   |        |
| KFM3X-800                    | CS2A-800/KFM3X<br>CS2F1-800/KFM3X           | 243 | 198 | 68 | 15 | 61   |        |

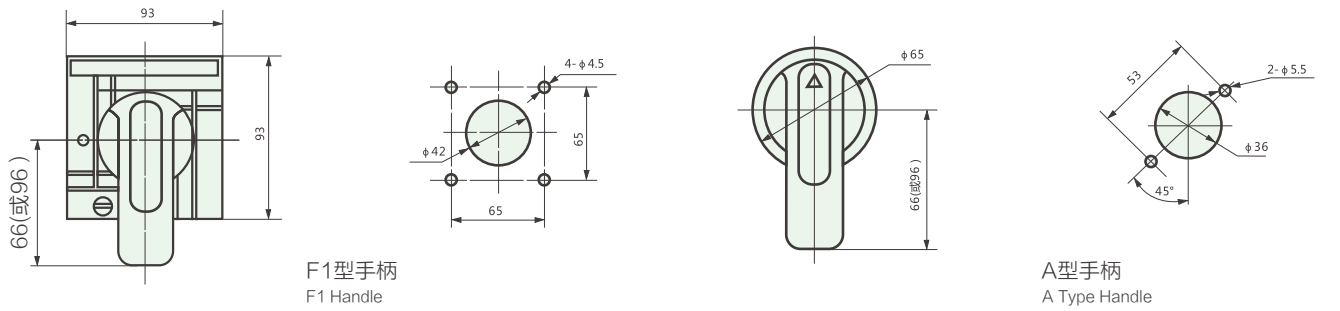
断路器内外部附件

Internal and external accessories of the breaker

转动手柄外形及面板开孔尺寸图

TURNING HANDLE SHAPE AND PANEL HOLE DIMENSION FIGURE

孔中心距离柜门转动轴心 $\geq 200\text{mm}$   
Distance between hole center and cabinet door rotation axis  $\geq 200\text{ mm}$

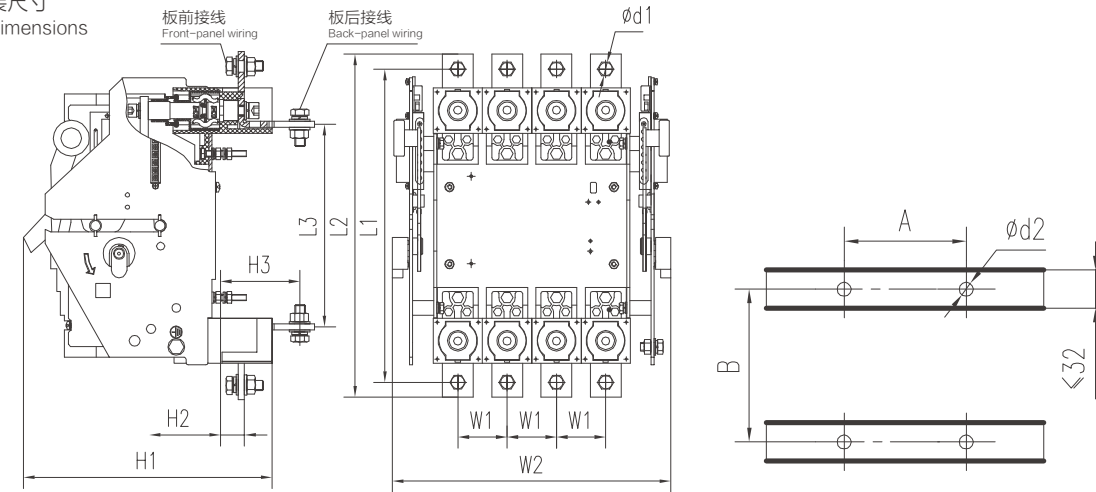


400壳架及以上，手柄长度按括号内尺寸。  
400 shell frame and above, and the length of the handle is according to the size in brackets.

抽出式装置

DRAW-OUT DEVICE

抽出式装置外形以及安装尺寸  
Boundary and installing dimensions  
of draw-out device



| 规格型号<br>SPECIFICATIONS<br>AND MODELS | 极数<br>POLE<br>NUMBER | 外形尺寸(mm) BOUNDARY DIMENSIONS |     |     |     |    |    |    |     |     | 安装尺寸(mm) INSTALLING DIMENSIONS |     |     |
|--------------------------------------|----------------------|------------------------------|-----|-----|-----|----|----|----|-----|-----|--------------------------------|-----|-----|
|                                      |                      | L1                           | L2  | L3  | H1  | H2 | H3 | W1 | W2  | Φd1 | A                              | B   | Φd2 |
| KFM3X-400                            | 3P                   | 311                          | 340 | 205 | 260 | 23 | 77 | 44 | 211 | Φ11 | 88                             | 141 | Φ7  |
|                                      | 4P                   | 311                          | 340 | 205 | 260 | 23 | 77 | 44 | 255 | Φ11 | 132                            | 141 | Φ7  |
| KFM3X-800                            | 3P                   | 367                          | 410 | 241 | 251 | 26 | 73 | 70 | 289 | Φ13 | 140                            | 131 | Φ7  |
|                                      | 4P                   | 367                          | 410 | 241 | 251 | 26 | 73 | 70 | 359 | Φ13 | 210                            | 131 | Φ7  |

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

断路器内外部附件

Internal and external accessories of the breaker

抽出式装置小室后板开孔图及相关尺寸(仅适用于板后出线)

HOLE DRAWING AND RELEVANT DIMENSIONS OF REAR PANEL OF DRAW OUT UNIT CHAMBER (ONLY APPLICABLE TO OUTGOING LINE BEHIND THE PANEL)

| 规格型号<br>SPECIFICATIONS<br>AND MODELS | 极数<br>POLE<br>NUMBER | 小室后板开孔尺寸，仅使用于板后接线(mm)<br>CUBICLE BACKBOARD HOLE FIGURE AND RELATIVE DIMENSIONS, ONLY APPLICABLE TO BACK-PANEL COIL OUT |     |     |    |     |    |  |
|--------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------|-----|-----|----|-----|----|--|
|                                      |                      | A                                                                                                                      | B   | C   | D  | E   | Φd |  |
| KFM3X-400                            | 3P                   | 88                                                                                                                     | 141 | 179 | 47 | 135 | Φ7 |  |
|                                      | 4P                   | 132                                                                                                                    | 141 | 179 | 47 | 179 | Φ7 |  |
| KFM3X-800                            | 3P                   | 140                                                                                                                    | 131 | 170 | 77 | 213 | Φ7 |  |
|                                      | 4P                   | 210                                                                                                                    | 131 | 170 | 77 | 283 | Φ7 |  |

备注：目前只有KFM3X-400、KFM3X-800系列断路器可以提供抽出式装置，其他型号的断路器暂时无法提供抽出式。

Note: at present, only KFM3X-400 and KFM3X-800 series circuit breakers can provide withdrawable devices, while other types of circuit breakers cannot provide withdrawable devices temporarily.

端子罩

Terminal cover

安装在产品的上下两端，可实现端子防护，其高度、宽度和产品一致，长度见下表。

It is installed at the upper and lower ends of the product to realize the terminal protection. Its height and width are consistent with the product. See the following table for the length.

| 产品型号<br>Product model | 安装位置<br>Installation position            | 长度 (mm)<br>length(mm) | 只数<br>Count only                            |
|-----------------------|------------------------------------------|-----------------------|---------------------------------------------|
| KFM3X-100C/S          | /                                        | /                     | /                                           |
| KFM3X-100M/H-3P       | 进、出线端<br>Incoming and outgoing terminals | 10                    | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3X-160C/S-3P       | 进、出线端<br>Incoming and outgoing terminals | 10                    | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3X-160M/H-3P       | 进、出线端<br>Incoming and outgoing terminals | 10                    | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3X-250C/S-3P       | 进、出线端<br>Incoming and outgoing terminals | 10                    | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3X-250M/H-3P       | 进、出线端<br>Incoming and outgoing terminals | 10                    | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3X-400C/S/M/H-3P   | 进、出线端<br>Incoming and outgoing terminals | 12                    | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3X-630C/S/M/H-3P   | 进、出线端<br>Incoming and outgoing terminals | 12                    | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3X-800C/S/M/H-3P   | 进、出线端<br>Incoming and outgoing terminals | 12                    | 进、出线各1<br>1 inlet and 1 outlet respectively |

状态上传通讯模块

Status upload communication module

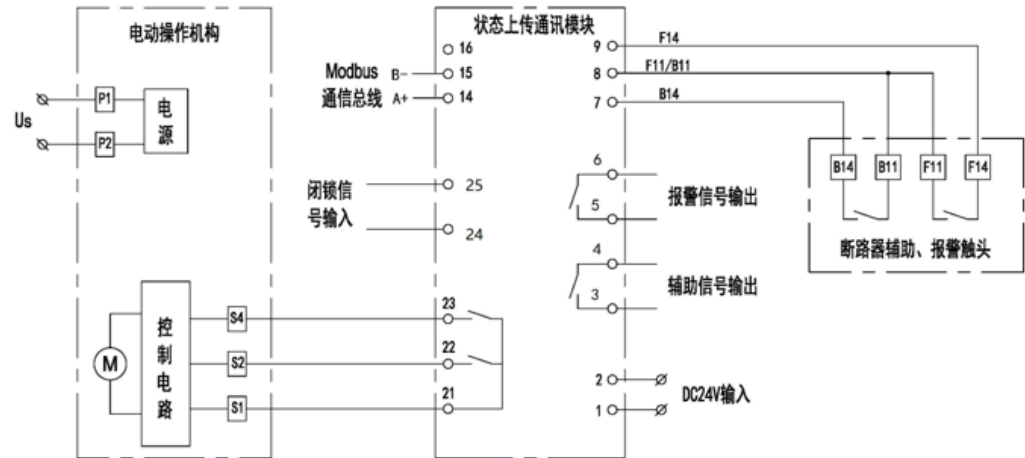
KFM3X系列热磁断路器装配状态上传通讯模块后，可实现如下功能：

遥信：断路器（必须装配辅助、报警触点）的合闸、分闸、脱扣三位置状态可上传至上位机；

遥控：通过上位机可控制断路器（必须装配辅助、报警触点和电动操作机构）的合分闸；

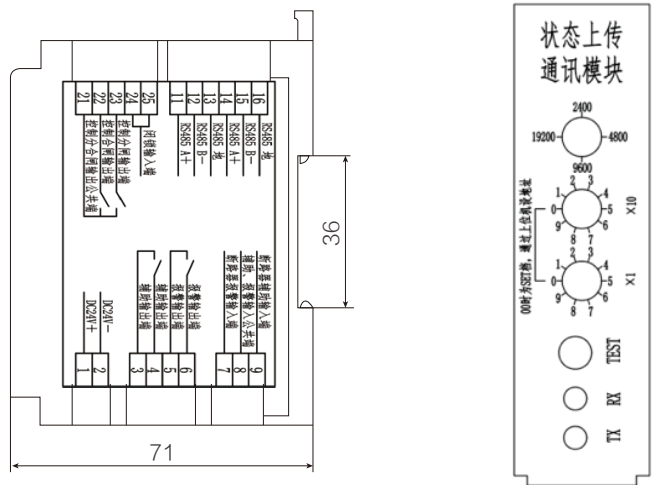
状态上传通讯模块接线图：

After the installation status of the KFM3X series thermal magnetic circuit breaker is uploaded to the communication module, the following functions can be realized:  
Remote signaling: The three position states of closed, open and trip of the circuit breaker (which must be equipped with auxiliary and alarm contacts) can be uploaded to the upper computer.  
Remote control: The opening and closing of the circuit breaker (which must be equipped with auxiliary, alarm contacts and electric operating mechanisms) can be controlled through the upper computer.  
Communication module wiring diagram



导轨安装状态上传通讯模块外形尺寸图：

Overall dimension drawing of communication module uploaded from the installation status of guide rail:



KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

使用与维修    Use and maintenance

不同额定电流的连接导体参考截面

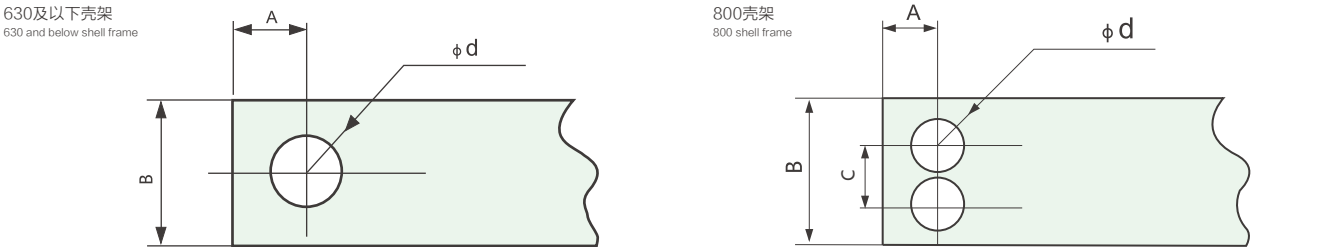
Reference cross sections of connecting conductors with different current ratings

| 额定电流值(A)<br>Rated current value              | 6 | 10  | 16<br>20 | 25 | 32 | 40<br>50 | 63 | 80 | 100 | 125<br>140 | 160 | 180<br>200<br>225 | 250 | 315<br>350 | 400 |
|----------------------------------------------|---|-----|----------|----|----|----------|----|----|-----|------------|-----|-------------------|-----|------------|-----|
| 铜导线截面积(mm²)<br>Sectional area of copper lead | 1 | 1.5 | 2.5      | 4  | 6  | 10       | 16 | 25 | 35  | 50         | 70  | 95                | 120 | 185        | 240 |

| 额定电流值(A)<br>Rated current value | 铜导线 Cooper lead |                                          | 铜排尺寸 Copper bar size |                                                 |
|---------------------------------|-----------------|------------------------------------------|----------------------|-------------------------------------------------|
|                                 | 根数<br>Number    | 每根截面积(mm²)<br>Sectional area of each one | 根数<br>Number         | 每根截面积(mm²)<br>Number Sectional area of each one |
| 500                             | 2               | 150                                      | 2                    | 30x5                                            |
| 630                             | 2               | 185                                      | 2                    | 40x5                                            |
| 700                             | 2               | 240                                      | 2                    | 50x5                                            |
| 800                             | 2               | 240                                      | 2                    | 50x5                                            |

采用铜排连接时，铜排开孔尺寸见下图和表。

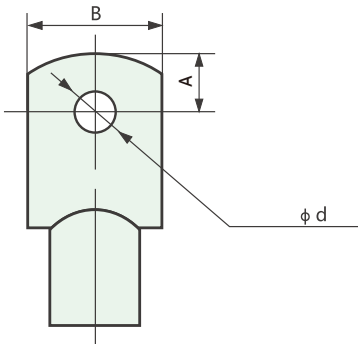
When adopting copper bar connection, see the figure and table below for the copper bar hole dimensions.



| 尺寸 DIMENSIONS             |      |     |    |      |
|---------------------------|------|-----|----|------|
| 型号 TYPE                   | A    | B   | C  | D    |
| KFM3X-100C/S              | 7    | ≤16 | /  | 8.5  |
| KFM3X-100M/H    KFM3X-160 | 8    | ≤19 | /  | 8.5  |
| KFM3X-250                 | 10   | ≤24 | /  | 8.5  |
| KFM3X-400                 | 11.5 | ≤30 | /  | 10.5 |
| KFM3X-630                 | 11.5 | ≤30 | /  | 10.5 |
| KFM3X-800                 | 12   | ≤40 | 22 | 8.5  |

250A壳架等级及以下采用电缆连接时配用的接线端子型号见下表。

See the table below for the equipped terminal blocks of 250 A shell frame grade and below adopting cable connection.



| 断路器型号<br>BREAKER TYPE     | 电流(A)<br>CURRENT | 导线截面(mm²)<br>LEAD SECTIONAL AREA | 端子型号<br>TERMINAL TYPE | A  | B     | Φd  |
|---------------------------|------------------|----------------------------------|-----------------------|----|-------|-----|
| KFM3X-100C/S              | 16、20            | 2.5                              | JBC2.5-8              | 7  | 15    | 8.2 |
|                           | 25               | 4                                | JBC4-8                |    | 15    |     |
|                           | 32               | 6                                | JBC6-8                |    | 15    |     |
|                           | 40、50            | 10                               | JBC10-8               |    | 15    |     |
|                           | 63               | 16                               | JBC16-8               |    | 16    |     |
|                           | 80               | 25                               | JBC25-8               |    | 16    |     |
| KFM3X-100M/H<br>KFM3X-160 | 100              | 35                               | JGC35-8               | 8  | 16    | 8.2 |
|                           | 16、20            | 2.5                              | JBC2.5-8              |    | 15    |     |
|                           | 25               | 4                                | JBC4-8                |    | 15    |     |
|                           | 32               | 6                                | JBC6-8                |    | 15    |     |
|                           | 40、50            | 10                               | JBC10-8               |    | 15    |     |
|                           | 63               | 16                               | JBC16-8               |    | 17    |     |
| KFM3X-250                 | 80               | 25                               | JBC25-8               | 10 | 17    | 8.2 |
|                           | 100              | 35                               | JGC35-8               |    | 17    |     |
|                           | 125、140          | 50                               | JGC50-8               |    | 17    |     |
|                           | 160              | 70                               | JGC70-8               |    | 17    |     |
|                           | 100              | 35                               | JGC35-8               |    | 22    |     |
|                           | 125、140          | 50                               | JGC50-8               |    | 22    |     |
|                           | 160              | 70                               | JGC70-8               |    | 22    | 8.2 |
|                           | 180、200          | 95                               | JGC95-8               |    | 22    |     |
|                           | 250              | 120                              | JGC120-8              |    | 24max |     |

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

降容系数表    Derating factor table

环境温度变化的降容系数表    DERATING FACTOR TABLE OF AMBIENT TEMPERATURE CHANGE

| 型号 TYPE                   | 温度 TEMPERATURE | +40℃                    | +45℃    | +50℃    | +55℃    | +60℃    | +65℃    | +70℃    |
|---------------------------|----------------|-------------------------|---------|---------|---------|---------|---------|---------|
|                           | 系数 FACTOR      | 降容系数    DERATING FACTOR |         |         |         |         |         |         |
| KFM3X-100C、S              |                | 1.0In                   | 0.97In  | 0.95In  | 0.91In  | 0.90In  | 0.89In  | 0.85In  |
| KFM3X-100M、H<br>KFM3X-160 |                | 1.0In                   | 0.95In  | 0.94In  | 0.93In  | 0.92In  | 0.90In  | 0.89In  |
| KFM3X-250                 |                | 1.0In                   | 0.985In | 0.968In | 0.952In | 0.935In | 0.919In | 0.887In |
| KFM3X-400                 |                | 1.0In                   | 0.981In | 0.962In | 0.942In | 0.922In | 0.901In | 0.879In |
| KFM3X-630                 |                | 1.0In                   | 0.979In | 0.958In | 0.936In | 0.915In | 0.894In | 0.873In |
| KFM3X-800                 |                | 1.0In                   | 0.98In  | 0.96In  | 0.939In | 0.918In | 0.897In | 0.877In |

高海拔降容系数    HIGH ALTITUDE DERATING PARAMETERS

海拔超过适用工作环境2000m，断路器电气性能可参照下面数据修正。  
The breaker electrical performance can be amended with reference to the following data when the altitude is 2000 m more than the suitable working environment.

| 海拔高度 (m)    ALTITUDE                            | 2000 | 3000 | 4000 | 5000 |
|-------------------------------------------------|------|------|------|------|
| 工频耐压 (V)    Power frequency withstand voltage   | 3500 | 3150 | 2800 | 2500 |
| 工作电流修正系数    Operating current correction factor | 1    | 0.98 | 0.95 | 0.93 |
| 绝缘电压 (V)    Insulation voltage                  | 1000 | 900  | 810  | 730  |
| 最大工作电压 (V)    Maximum operating voltage         | 690  | 600  | 500  | 440  |

断路器的接线方式为插入式和板后接线时降容系数为0.75。  
The derating factor is 0.75 when the wiring modes of breaker are plug-in type and back-panel wiring.

断路器安装最小安全距离    Minimum safety distance for circuit breaker installation

关于断路器线路侧裸露部件及带电部件的绝缘性能，至少采用绝缘胶带、绝缘管或端子盖确保带电导体的绝缘。

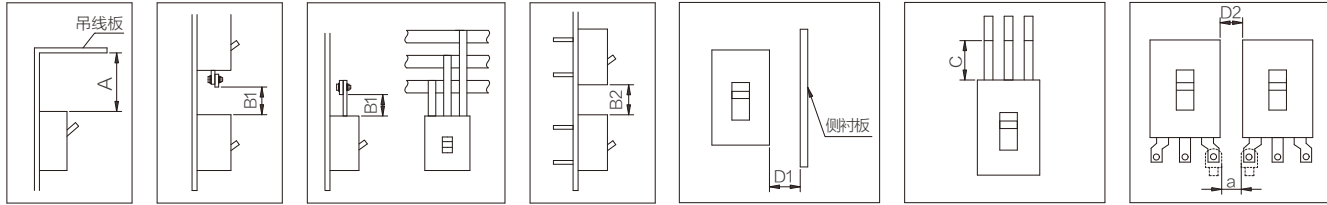
- ① A：断路器至吊线板（有接地金属）间的距离。
- ② B1：断路器至上断路器端子侧未遮盖导电部分的距离（板前接线）。
- ③ B2：下断路器至上断路器端面间的距离（板后接线）。
- ④ D1：断路器侧至侧衬板（有接地金属）间的距离。
- ⑤ C：断路器电源端子的绝缘长度（板前接线）。

请使用绝缘胶带、绝缘管、绝缘隔板或端子板确保该尺寸范围内裸露带电部件间的相互绝缘。关于尺寸范围，参见绝缘距离表。

- 当同时采用绝缘胶带、绝缘管、绝缘隔板及端子盖板时，确保相互间至少有10mm 的重叠部分。
- 如果根据标准要求必须采用绝缘隔板，请确保务必采用隔板。
  - a：标准中规定的间距。
- ⑥ D2：断路器侧部距离

如果安装时断路器间可不留间隔，务必遵守以下规定：

- 在相邻断路器间安装绝缘隔板或根据切断气体隔离裸露部件及带电部件。
- 必须确保最小的绝缘距离（尺寸a）。
- 当漏电断路器及漏电报警断路器安装在一起时，如果2,500A以上的电流流经其中一个断路器时，另一个断路器会出现误动作。确保相互间至少50mm 的距离。
- 当400A以上的断路器配有分励脱扣器或欠压脱扣器时，如果50kA以上的电流流过其中一个断路器时，另一个断路器会出现误动作。至少确保断路器间留有50mm 的距离。



As for the insulation performance of the exposed parts and live parts on the line side of the circuit breaker, at least the insulating tape, insulating tube or terminal cover shall be used to ensure the insulation of the live conductor.

- ① A: distance between circuit breaker and suspension plate (with grounding metal).
  - ② B1: the distance from the circuit breaker to the uncovered conductive part on the terminal side of the circuit breaker (wiring in front of the board).
  - ③ B2: distance between lower circuit breaker and upper circuit breaker end face (wiring behind board).
  - ④ D1: distance between circuit breaker side and side lining plate (with grounding metal).
  - ⑤ C: insulation length of power terminal of circuit breaker (wiring in front of board).
- Please use insulating tape, insulating tube, insulating partition board or terminal board to ensure mutual insulation between exposed live parts within the size range. See insulation distance table for size range.

When using insulating tape, insulating tube, insulating partition and terminal cover plate at the same time, ensure that there is at least 10 mm overlap between them.

- if the insulation partition must be used according to the standard requirements, please make sure that the partition must be used.
- a: The spacing specified in the standard.
- ⑥ D2: side distance of circuit breaker
- If there is no space between circuit breakers during installation, the following regulations must be observed:
- Install insulating partition between adjacent circuit breakers or isolate exposed parts and live parts according to cut-off gas.
- The minimum insulation distance (dimension a) must be ensured.
- When the leakage circuit breaker and the leakage alarm circuit breaker are installed together, if the current above 2500A flows through one of the circuit breakers, the other circuit breaker will malfunction. Ensure at least 50 mm distance from each other.
- When the circuit breaker above 400A is equipped with shunt release or undervoltage release, if the current above 50kA flows through one of the circuit breakers, the other circuit breaker will malfunction. Ensure that there is at least 50mm distance between circuit breakers.

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER

KFM3X系列塑料外壳式断路器

断路器安装最小安全距离    Minimum safety distance for circuit breaker installation

| 型号<br>Type   | 吊线板<br>Temperature        |                                         | 垂直间距<br>Vertical spacing  |                                         | C   | 水平间距<br>Horizontal spacing |
|--------------|---------------------------|-----------------------------------------|---------------------------|-----------------------------------------|-----|----------------------------|
|              | A                         |                                         | B1, B2                    |                                         |     | D1                         |
|              | 无端子罩<br>No Terminal cover | 配端子罩<br>Equipped with<br>Terminal cover | 无端子罩<br>No Terminal cover | 配端子罩<br>Equipped with<br>Terminal cover |     |                            |
| KFM3X-100C/S | 60                        | /                                       | 60                        | /                                       | 50  | 30                         |
| KFM3X-100M/H | 60                        | 50                                      | 60                        | 50                                      | 80  | 30                         |
| KFM3X-160    | 60                        | 50                                      | 60                        | 50                                      | 80  | 30                         |
| KFM3X-250    | 60                        | 50                                      | 60                        | 50                                      | 80  | 30                         |
| KFM3X-400    | 120                       | 110                                     | 120                       | 110                                     | 110 | 35                         |
| KFM3X-630    | 120                       | 110                                     | 120                       | 110                                     | 110 | 35                         |
| KFM3X-800    | 120                       | 110                                     | 120                       | 110                                     | 110 | 35                         |

订货须知    Ordering Information

| 订 货 单    ORDER                                                      |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 订货单位名称    Name                                                      |                                                                                                                                                                                                                  | 电 话    Tel                                                                                                                                                                                                                                                                                                                                                                            |                                           | 订货数量    Quantity                                                        |                                                                                                                                                             |
| 订货单位地址    Address                                                   |                                                                                                                                                                                                                  | 传 真    Fax                                                                                                                                                                                                                                                                                                                                                                            |                                           | 订货日期    Date                                                            |                                                                                                                                                             |
| 联系人    Contacts                                                     |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 型号    Model                                                         | KFM3X-                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 分断能力级别<br>Level of breaking capacity                                | <input type="checkbox"/> C 经济型    Economic <input type="checkbox"/> S 标准型    Standard <input type="checkbox"/> M 较高分型    Relatively higher breaking <input type="checkbox"/> H 高分断型    High breaking             |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 壳架等级电流<br>Shell level current                                       | <input type="checkbox"/> 100 <input type="checkbox"/> 160 <input type="checkbox"/> 250 <input type="checkbox"/> 400 <input type="checkbox"/> 630 <input type="checkbox"/> 800                                    |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 操作方式<br>Operation mode                                              | <input type="checkbox"/> 手动    Manual operation <input type="checkbox"/> D 电动机操作    Motor-driven operation <input type="checkbox"/> Z 转动手柄    Manual cranking operation                                          |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 极数<br>Number of poles                                               | <input type="checkbox"/> 三极    3P <input type="checkbox"/> 四极    4P                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 脱扣方式<br>Alarm contact                                               | <input type="checkbox"/> 电磁式    Electromagnetic trip <input type="checkbox"/> 复式    Complex trip                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 用途    Use                                                           | <input type="checkbox"/> 配电用    Power distribution <input type="checkbox"/> 电动机保护    Motor Protection                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 四极产品<br>N极类型<br>Quadrupole product<br>N pole type                   | <input type="checkbox"/> A型：N极不安装过电流脱扣器元件，且N极始终接通，不与其它三极一起合分<br>Type A: N-pole without over-current release unit, it has been connected all along, and does not act with other three poles to turn on or off.    |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
|                                                                     | <input type="checkbox"/> B型：N极不安装过电流脱扣器元件，且N极与其它三极一起合分(N极先合后分)<br>Type B: N-pole without overcurrent release unit, it could act with other three poles. (N-pole turns-on primarily, and turns-off posterior.)    |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
|                                                                     | <input type="checkbox"/> C型：N极安装过电流脱扣器元件，且N极与其它三极一起合分(N极先合后分)<br>Type C: N-pole fixed with over-current release unit, it could act with other three poles. (N-pole turns-on primarily, and turns-off posterior.) |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
|                                                                     | <input type="checkbox"/> D型：N极安装过电流脱扣器元件，且N极始终接通，不与其它三极一起合分<br>Type D: N-pole fixed with over-current release unit, it has been connected all along, and does not act with other three poles to turn on or off.  |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 脱扣器额定电流<br>Rated current of release                                 | <input type="checkbox"/> 10A <input type="checkbox"/> 16A <input type="checkbox"/> 20A <input type="checkbox"/> 25A <input type="checkbox"/> 32A <input type="checkbox"/> 40A                                    |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
|                                                                     | <input type="checkbox"/> 50A <input type="checkbox"/> 63A <input type="checkbox"/> 80A <input type="checkbox"/> 100A <input type="checkbox"/> 125A <input type="checkbox"/> 140A                                 |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
|                                                                     | <input type="checkbox"/> 160A <input type="checkbox"/> 180A <input type="checkbox"/> 200A <input type="checkbox"/> 225A <input type="checkbox"/> 250A <input type="checkbox"/> 315A                              |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
|                                                                     | <input type="checkbox"/> 350A <input type="checkbox"/> 400A <input type="checkbox"/> 500A <input type="checkbox"/> 630A <input type="checkbox"/> 700A <input type="checkbox"/> 800A                              |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 安装和接线方式<br>Installation and connection mode                         |                                                                                                                                                                                                                  | <input type="checkbox"/> 板前    Front-panel wiring <input type="checkbox"/> 板后    Back-panel wiring <input type="checkbox"/> 插入式    Plug-in <input type="checkbox"/> * 抽出式    Withdrawable    ( <input type="checkbox"/> 板前接线    Front-panel wiring<br><input type="checkbox"/> 板后垂直接线    Back-panel perpendicular wiring <input type="checkbox"/> 板后水平接线    Back-panel level wiring ) |                                           |                                                                         |                                                                                                                                                             |
| 欠电压脱扣器额定电压<br>Under voltage release rated voltage                   |                                                                                                                                                                                                                  | <input type="checkbox"/> AC400V <input type="checkbox"/> AC230V                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 分励脱扣器额定电压<br>Shunt tripping device rated voltage                    |                                                                                                                                                                                                                  | <input type="checkbox"/> AC400V <input type="checkbox"/> AC230V <input type="checkbox"/> DC220V <input type="checkbox"/> DC110V <input type="checkbox"/> DC24V                                                                                                                                                                                                                        |                                           |                                                                         |                                                                                                                                                             |
| 电操机构<br>Electric operation mechanism                                | 额定电压<br>rated voltage                                                                                                                                                                                            | <input type="checkbox"/> AC400V <input type="checkbox"/> AC230V <input type="checkbox"/> DC220V                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| 转动手柄型式<br>Rotary handle type                                        |                                                                                                                                                                                                                  | <input type="checkbox"/> 中心式<br>Center-based<br>方轴长度    The length of the square shaft                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> 偏心式<br>Eccentric | <input type="checkbox"/> A 型<br>Type A<br><input type="checkbox"/> 50mm | <input type="checkbox"/> F1 型<br>Type F1<br><input type="checkbox"/> 100mm <input type="checkbox"/> 150mm    其它长度需定制<br>Other lengths need to be customized |
| 备 注    Remarks                                                      |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |
| *抽出式仅限400、630、800壳架。<br>* Draw-out type contains only 400、630、800 . |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                                                                         |                                                                                                                                                             |

注：1.请在□内打√，规格及附件要求不完全一致时，请分别填单。

2.若需两台或两台以上断路器并装，请在订货时注明。

Note: 1.please mark √in□. When the specifications and accessories is not completely consistent, please fill in respectively.

2.If you need two or more than two circuit breaker installed together, please write clearly in order.

成熟品质  
智能防护

MATURE QUALITY SMART PROTECTION

KFM EXE

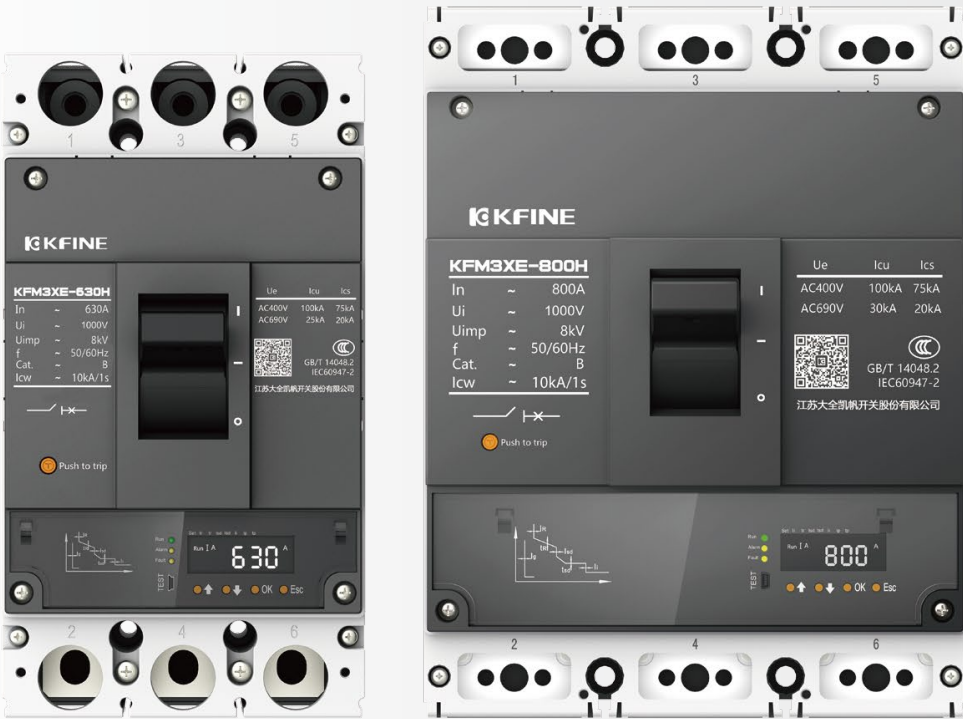
PRODUCT DISPLAY

KFM3XE



KFM3XE 系列智能型塑壳断路器  
KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

专注于中高端配电市场解决方案  
FOCUS ON MID-TO-HIGH-END DISTRIBUTION MARKET SOLUTIONS



KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

- 操作机构具有快速闭合和快速分断功能；
- 触头灭弧系统中动、静触头的安装具有平行导体的原理，H型的静触头可斥开，有利于大电流时的快速分断，动、静触头周围装有高耐弧材料制成的元件，有利于快速息弧；
- 结构紧凑，体积小；
- 零飞弧或短飞弧，操作安全可靠。
- 本产品适用高原、高低温、盐雾等特殊环境场所。

- The operating mechanism has the functions of fast closing and fast breaking;
- In the contact arc extinguishing system, the installation of the moving and static contacts has the principle of parallel conductor. The H-type static contact can be opened, which is conducive to the rapid breaking of large current. The moving and static contacts are surrounded by components made of high arc resistant materials, which is conducive to the rapid arc stopping;
- Compact structure and small volume;
- Zero or short flashover, safe and reliable operation.
- This product is suitable for plateau, high and low temperature, salt fog and other special environment.



KFM3XE 系列智能型塑壳断路器

适用范围及主要特点

Scope of application

B01

工作环境及安装条件

Working environment and installation conditions

B 02

快速选型表

Quick selection table

B 03

内部附件代号

Internal accessory code

B 04

断路器主要技术参数

Main technical parameters of circuit breaker

B 05

智能控制器调整面板（液晶型）

Intelligent controller adjustment panel (LCD)

B 06

智能断路器的保护特性

Protective characteristics of intelligent breaker

B 08

智能断路器的外部配置模块（可选用）

External configuration module of intelligent breaker (optional accessory)

B 12

保护特性常规整定表

General setting table of protection characteristics

B 13

外形及安装尺寸

Boundary and installing dimensions

B 15

断路器内外部附件

Internal and external accessories of the breaker

B 26

断路器的最小安全距离

Minimum safe clearance of the breaker

B 41

订货单

Order

B 43

# KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

## KFM3XE 系列智能型塑壳断路器

### 适用范围及主要特点

KFM3XE系列智能型塑壳断路器（以下简称断路器），属KFM3X系列产品之一，是本厂采用国际先进设计和制造技术研制开发的新型断路器。其额定绝缘电压为1000V，适用于交流50H（可定制60Hz），额定工作电压690V及以下，额定工作电流至800A的电路中作不频繁转换及电动机不频繁起动之用。断路器具有过载长延时反时限、短路短延时反时限、短路短延时定时限、短路瞬时和欠电压保护功能,能保护线路和电源设备不受损坏。

本系列断路器具有结构紧凑、体积小、分断高、飞弧短、内外附件齐全等特点。过载长延时反时限，短路短延时反时限，短路短延时定时限，短路瞬时动作等保护功能参数的整定，方便直观，用户也可自行设定组成所需的保护特性，方便地实现选择性保护，使配电网络中使用的断路器上下级配备更为合理；

断路器具有运行电流光柱指示、预报警指示、过载指示等；具有智能控制器的自诊断功能；  
断路器内的互感器可提供自生电源，单相大于0.2In时，即能可靠实现长延时、短延时和瞬时保护特性；”

接地保护功能（选配）；  
本系列断路器具有隔离功能。其相应的符号为： —/ —

### 符合标准

KFM3XE系列断路器符合下列标准:

- IEC60947-1及GB/T14048.1 低压开关设备和控制设备 总则
- IEC60947-2及GB/T14048.2 低压开关设备和控制设备 断路器
- IEC60947-4及GB/T14048.4 《低压开关设备和控制设备 低压机电式接触器和电动机启动器》
- IEC60947-5及GB/T14048.5 《低压开关设备和控制设备 控制电路电器和开关元件 第一部分 机电式控制电路电器》

### Scope of application and main characteristics

KFM3XE series intelligent moulded case circuit breaker (hereinafter referred to as circuit breaker) is one of kfm3x series products. It is a new type of circuit breaker developed by our factory with international advanced design and manufacturing technology. Its rated insulation voltage is 1000V. It is suitable for infrequent switching and motor starting in circuits with 50h AC (60Hz can be customized), 690V rated working voltage and below, and 800A rated working current. The circuit breaker has the functions of overload long time delay inverse time limit, short circuit short time delay inverse time limit, short circuit short time delay definite time limit, short circuit instantaneous and under voltage protection, which can protect the line and power supply equipment from damage.

This series circuit breaker has the characteristics of compact structure, small volume, high breaking height, short flashover, complete internal and external accessories, etc. The setting of overload long delay inverse time limit, short circuit short delay inverse time limit, short circuit short delay definite time limit, short circuit instantaneous action and other protection function parameters is convenient and intuitive. Users can also set the required protection characteristics by themselves to realize the selective protection conveniently, which makes the upper and lower levels of circuit breakers used in the distribution network more reasonable;  
The circuit breaker has operation current light column indication, pre alarm indication, overload indication, etc;  
It has the self diagnosis function of intelligent controller;  
The transformer in the circuit breaker can provide self generated power supply. When the single phase is greater than 0.2In, it can reliably achieve long delay, short delay and instantaneous protection characteristics;"  
Grounding protection function (optional)  
This series of circuit breaker has isolation function. The corresponding symbols are: —/ —

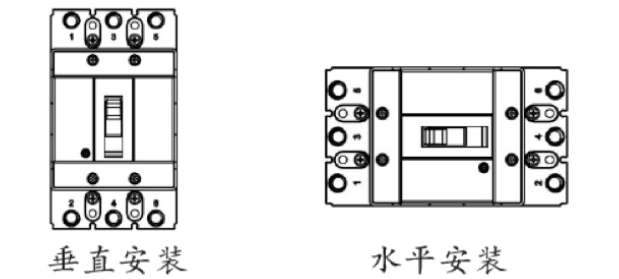
### Standards conformed to

KFM3XE series circuit breaker conform to the following standards:

- IEC60947-1 and GB/T14048.1 general rules for low voltage switchgear and controlgear
- IEC60947-2 and GB/T14048.2 low voltage switchgear and controlgear circuit breakers
- IEC60947-4 and GB/T14048.4 low voltage switchgear and controlgear low voltage electromechanical contactors and motor starters
- IEC60947-5 and GB/T14048.5 low voltage switchgear and controlgear control circuit apparatus and switching elements Part 1 electromechanical control circuit apparatus

### 工作环境及安装条件

- 使用环境温度  
周围空气温度为-40 ~ + 70℃。环境温度高于+40℃时，客户需降容使用，降容系数见“环境温度变化的降容系数表”。
- 存储条件  
周围空气温度为-40 ~ + 70℃
- 海拔  
安装地点海拔高度不超过2000m，高海拔降容系数见“高海拔降容系数表”；
- 使用相对湿度/存储相对湿度  
安装地点的空气相对湿度，最高温度为 + 40℃时不超过50%，在较低的温度下可以允许有较高的相对湿度，例如20℃时达90%。  
对由于温度变化偶尔产生的凝露应采取特殊的措施。
- 污染等级  
3级
- 安装类别  
断路器主电路的安装类别为Ⅲ类（配电及控制水平级），不接至主电路的辅助电路和控制电路安装类别为Ⅱ类（负载水平级）。
- 安装环境  
断路器应安装在空气中无爆炸危险的介质且无足以腐蚀金属和破坏绝缘的地方。  
断路器应安装在无雨雪侵袭的地方。  
湿热带型（TH型）断路器通过GB/T2423.4、GB/T2423.18试验要求，能耐受潮湿空气、盐雾、油雾、霉菌的影响；
- 安装方式  
本系列断路器可以垂直安装，也可以横装。  
产品垂直安装，安装面与垂直面的斜度≤ ± 22.5°



本断路器不可倒进线，即只允许1、3、5接电源线，2、4、6接负载线。  
The circuit breaker can not reverse the incoming line, that is, only 1, 3 and 5 are allowed to connect the power line, and 2, 4 and 6 are allowed to connect the load line.

### Working environment and installation conditions

- Operating ambient temperature  
The ambient air temperature is - 40 ~ + 70 ℃. When the ambient temperature is higher than + 40 ℃, the customer needs to reduce the capacity. For the reduction coefficient, see "table of reduction coefficient of ambient temperature change".
- Storage conditions  
The ambient air temperature is - 40 ~ + 70 ℃
- altitude  
The altitude of the installation site shall not exceed 2000m, and the high altitude capacity reduction coefficient is shown in the "high altitude capacity reduction coefficient table";
- Use relative humidity / store relative humidity  
The relative humidity of the air at the installation site shall not exceed 50% when the maximum temperature is + 40 ℃. A higher relative humidity can be allowed at a lower temperature, such as 90% at 20℃. Special measures should be taken for occasional condensation due to temperature change.
- class of pollution  
Level 3
- Installation category  
The installation category of the main circuit of the circuit breaker is class III (distribution and control level), and the installation category of the auxiliary circuit and control circuit not connected to the main circuit is class II (load level).
- Installation environment  
The circuit breaker shall be installed in a place where there is no explosive medium in the air and where there is no place to corrode metal and damage insulation.  
The circuit breaker shall be installed in a place free from rain and snow.  
Th type circuit breaker has passed the test requirements of GB / t2423.4 and GB / t2423.18, and can withstand the influence of humid air, salt spray, oil spray and mold;
- Installation method  
This series of circuit breakers can be installed vertically or horizontally.  
The product is installed vertically, and the inclination between the installation surface and the vertical surface is not more than ± 22.5 degrees

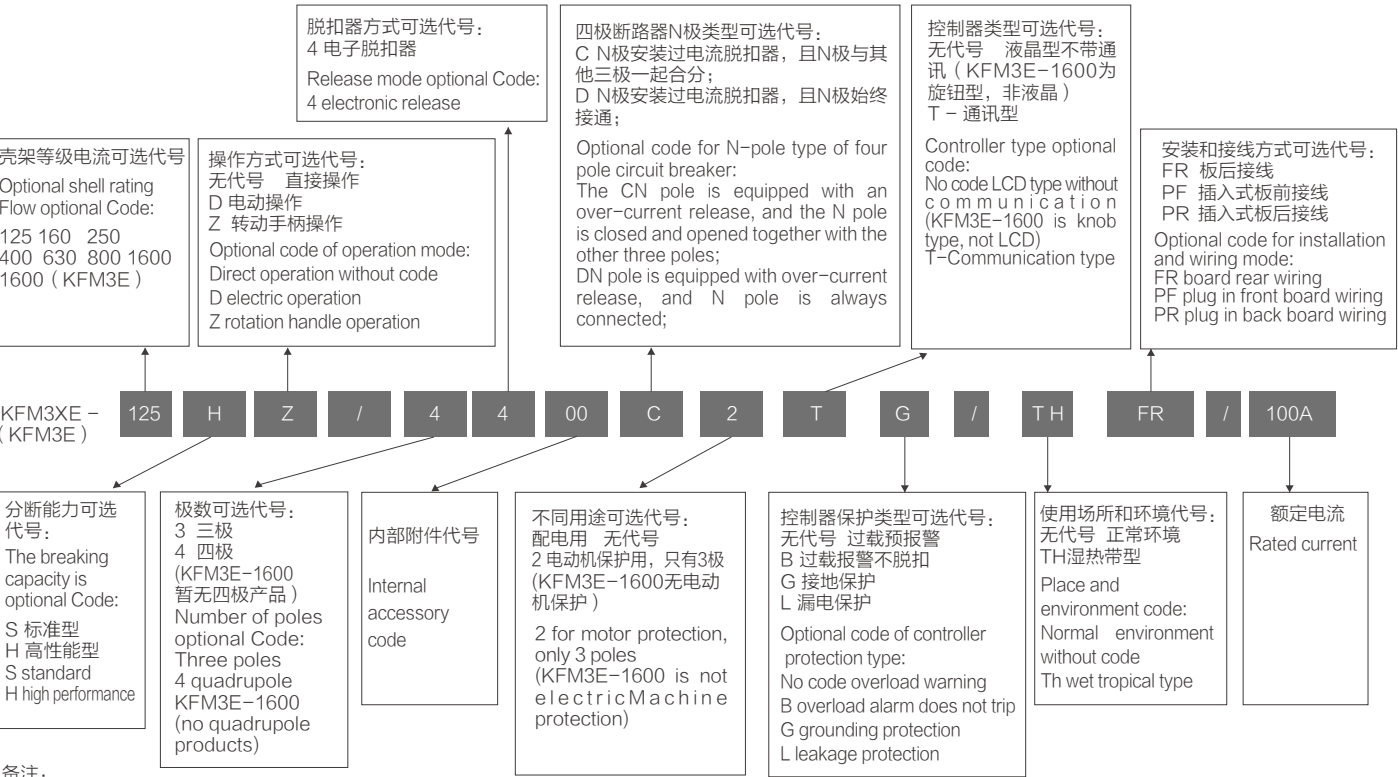
KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

功能损耗    Power loss

| 型号<br>TYPE | 额定电流（A）<br>RATED CURRENT | 三相总功率损耗（VA）    THREE-PHASE TOTAL POWER LOSS |                     |
|------------|--------------------------|---------------------------------------------|---------------------|
|            |                          | 固定式    STATIONARY TYPE                      | 插入式    PLUG-IN TYPE |
| KFM3XE-125 | 100                      | 33                                          | 40                  |
| KFM3XE-160 | 160                      | 40                                          | 51                  |
| KFM3XE-250 | 250                      | 50                                          | 68                  |
| KFM3XE-400 | 400                      | 65                                          | 90                  |
| KFM3XE-630 | 630                      | 90                                          | 115                 |
| KFM3XE-800 | 800                      | 140                                         | 185                 |

快速选型表    Quick selection table



- 备注：
- 1、分别选装长为10MM（KFM3XE-125S/H、KFM3XE-160S/H、KFM3XE-250S/H）、12MM(KFM3XE-400S/H、KFM3XE-630S/H、KFM3XE-800S/H)的端子罩，实现端子防护，KFM3E-1600无端子罩。
  - 2、订购湿热带型产品，请咨询本公司。
  - 3、KFM3XE-630(IN=630A) 无插入式/抽出式，KFM3XE-800(IN=700A、800A)插入式只有板后接线。
  - 4、KFM3XE-160壳架无电动机保护型产品。

Remarks:

1. A 10 mm (KFM3XE-100S / H,KFM3XE-160S / H,KFM3XE-250S / H) and 12 mm (KFM3XE-400S / H, KFM3XE-630S / H, KFM3XE-800S / H) terminal cover hood is selected to realize terminal protection, KFM3XE-1600 has no terminal cover.
2. Please consult our company when ordering wet tropical products.
3. KFM3XE-630(In=630A) has no plug-in/withdrawable, KFM3XE-800 (In = 700A, 800A) plug-in type has only rear board wiring.
4. KFM3XE-160 shell frame without motor protection product.

KFM3XE列内部附件代号    KFM3XE series internal accessory code



KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

断路器主要技术参数

Main technical parameters of breaker

| 型 号    Type                                                                          |                                    | KFM3XE-125                                                                        |     | KFM3XE-160                                                                        |     | KFM3XE-250                                                                        |     | KFM3XE-400                                                                        |     | KFM3XE-630                                                                         |     | KFM3XE-800                                                                          |     | KFM3E-1600                                                                          |    |
|--------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|----|
| 壳架等级电流Inm (A)<br>Shell frame grade current Inm                                       |                                    | 125                                                                               |     | 160                                                                               |     | 250                                                                               |     | 400                                                                               |     | 630                                                                                |     | 800                                                                                 |     | 1600                                                                                |    |
| 外形    Appearance                                                                     |                                    |  |     |  |     |  |     |  |     |  |     |  |     |  |    |
| 额定电流In (A)<br>Shell rating current In (A)                                            |                                    | 32、100、125                                                                        |     | 160                                                                               |     | 160、180、200、225、250                                                               |     | 400                                                                               |     | 630                                                                                |     | 800                                                                                 |     | 1000、1250、1600                                                                      |    |
| 额定绝缘电压Ui(V)<br>Rated insulation voltage Ui(V)                                        |                                    | 1000                                                                              |     | 1000                                                                              |     | 1000                                                                              |     | 1000                                                                              |     | 1000                                                                               |     | 1000                                                                                |     | 800                                                                                 |    |
| 额定冲击耐受电压Uimp(kV)<br>Rated impulse withstand voltage Uimp (kV)                        |                                    | 8                                                                                 |     | 8                                                                                 |     | 8                                                                                 |     | 8                                                                                 |     | 8                                                                                  |     | 8                                                                                   |     | 8                                                                                   |    |
| 额定工作电压 Ue (V)<br>50Hz/60Hz<br>Rated working voltage Ue (V)<br>50Hz/60Hz              |                                    | AC400V<br>AC690V                                                                  |     | AC400V<br>AC690V                                                                  |     | AC400V<br>AC690V                                                                  |     | AC400V<br>AC690V                                                                  |     | AC400V<br>AC690V                                                                   |     | AC400V<br>AC690V                                                                    |     | AC400V<br>AC690V                                                                    |    |
| 极数<br>Pole number                                                                    |                                    | 3、4                                                                               |     | 3、4                                                                               |     | 3、4                                                                               |     | 3、4                                                                               |     | 3、4                                                                                |     | 3、4                                                                                 |     | 3                                                                                   |    |
| 短路分断能力级别<br>Short circuit breaking capacity level                                    |                                    | S                                                                                 | H   | S                                                                                 | H   | S                                                                                 | H   | S                                                                                 | H   | S                                                                                  | H   | S                                                                                   | H   | S                                                                                   | H  |
| 额定极限短路<br>分断能力Icu(kA)<br>Rated limit short circuit<br>Breaking capacity Icu (kA)     | AC400V                             | 50                                                                                | 100 | 50                                                                                | 100 | 50                                                                                | 100 | 50                                                                                | 100 | 50                                                                                 | 100 | 50                                                                                  | 100 | 50                                                                                  | 70 |
|                                                                                      | AC690V                             | 8                                                                                 | 20  | 8                                                                                 | 20  | 8                                                                                 | 25  | 10                                                                                | 25  | 10                                                                                 | 25  | 15                                                                                  | 30  | 25                                                                                  | 30 |
| 额定运行短路<br>分断能力Ics(kA)<br>Rated operating short circuit<br>Breaking capacity Ics (kA) | AC400V                             | 50                                                                                | 70  | 50                                                                                | 70  | 50                                                                                | 70  | 50                                                                                | 75  | 50                                                                                 | 75  | 50                                                                                  | 75  | 50                                                                                  | 70 |
|                                                                                      | AC690V                             | 4                                                                                 | 10  | 4                                                                                 | 10  | 4                                                                                 | 10  | 7.5                                                                               | 15  | 7.5                                                                                | 15  | 10                                                                                  | 20  | 25                                                                                  | 30 |
| 额定短路<br>耐受电流Icw(kA)/(1s)<br>Rated short circuit<br>Withstand current Icw(kA) / (1s)  | AC400V                             | 2                                                                                 |     | 2                                                                                 |     | 3                                                                                 |     | 5                                                                                 |     | 10                                                                                 |     | 10                                                                                  |     | 20                                                                                  |    |
|                                                                                      | AC690V                             | 1.2                                                                               |     |                                                                                   |     |                                                                                   |     |                                                                                   |     |                                                                                    |     |                                                                                     |     |                                                                                     |    |
| 飞弧距离(mm)<br>Arcing distance (mm)                                                     |                                    | ≤50                                                                               |     | ≤50                                                                               |     | ≤50                                                                               |     | ≤100                                                                              |     | ≤100                                                                               |     | ≤100                                                                                |     | ≤100                                                                                |    |
| 使用类型<br>Type of use                                                                  |                                    | A                                                                                 |     | A                                                                                 |     | A                                                                                 |     | B                                                                                 |     | B                                                                                  |     | B                                                                                   |     | B                                                                                   |    |
| 操作循环次数<br>Number of<br>operation<br>cycles                                           | 预期电气寿命<br>Expected electrical life | 8000                                                                              |     | 8000                                                                              |     | 8000                                                                              |     | 7500                                                                              |     | 7500                                                                               |     | 7500                                                                                |     | 1500                                                                                |    |
|                                                                                      | 预期机械寿命<br>Expected mechanical life | 20000                                                                             |     | 20000                                                                             |     | 20000                                                                             |     | 10000                                                                             |     | 10000                                                                              |     | 10000                                                                               |     | 10000                                                                               |    |
| 外形尺寸(mm)<br>Overall<br>dimension(mm)                                                 | 宽W<br>(3P/4P)                      | 90/120                                                                            |     | 90/120                                                                            |     | 105/140                                                                           |     | 140/185                                                                           |     | 140/185                                                                            |     | 210/280                                                                             |     | 210                                                                                 |    |
|                                                                                      | 长 L                                | 155                                                                               |     | 155                                                                               |     | 165                                                                               |     | 257                                                                               |     | 257                                                                                |     | 275                                                                                 |     | 380                                                                                 |    |
|                                                                                      | 高H<br>(3P/4P)                      | 96                                                                                |     | 96                                                                                |     | 103.5                                                                             |     | 103                                                                               |     | 103                                                                                |     | 104                                                                                 |     | 127                                                                                 |    |

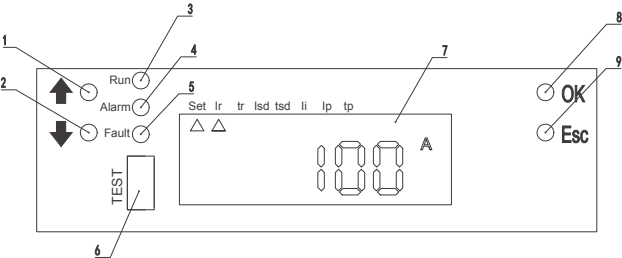
备注：1、订货60Hz产品时，请咨询本公司；2、KFM3E-1600壳架无4P产品，且无通讯功能。

Note: 1. When ordering 60Hz products, please consult our company; 2, KFM3E-1600 shell frame without 4P products, and no communication function.

智能控制器调整面板（液晶型）

Intelligent controller adjustment panel (LCD)

KFM3XE-125、KFM3XE-160、  
KFM3XE-250（ 三极、四极 ）

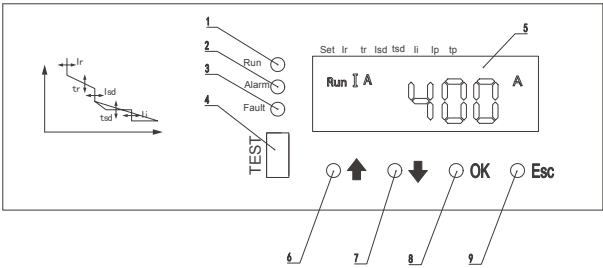


注 / Note:

- 1) “向上”调节按钮；
- 2) “向下”调节按钮；
- 3) 运行指示灯（绿色）：正常工作时常亮，控制器异常时闪亮，控制器不工作时不亮；
- 4) 报警指示灯（黄色）：电流正常不亮，电流达到Ip 时闪亮，电流达到100%Ir时恒亮；
- 5) 故障指示灯（黄色）：有过载故障时常亮，接地故障时闪亮；
- 6) 测试接口：与KFM3XE专用测试仪连接可进行测试及调试操作，同时可与PC机连接实现在线编程调试操作；
- 7) 液晶屏：复位状态（上电缺省状态）、参数设置状态、故障显示状态、故障查询状态、报警状态；
- 8) “OK” 确认按钮；
- 9) “ESC” 返回按钮；

- 1) "Up" adjustment button;
- 2) "Down" adjustment button;
- 3) Operation indicator light (green): it is always on when it works normally, flashes when the controller is abnormal, and does not light when the controller is not working;
- 4) Alarm indicator (yellow): the current does not work normally, it flashes when the current reaches IP, and it is always on when the current reaches 100% IR;
- 5) Fault indicator light (yellow): always on in case of overload fault and flashing in case of grounding fault;
- 6) Test interface: it can be connected with kfm3xe special tester for testing and debugging, and can be connected with PC for online programming and debugging;
- 7) LCD: reset state (power on default state), parameter setting state, fault display state, fault query state, alarm state;
- 8) "OK" confirmation button;
- 9) "ESC" return button;

KFM3XE-400、KFM3XE-630、  
KFM3XE-800（ 三极、四极 ）



注 / Note:

- 1) 运行指示灯（绿色）：正常工作时常亮，控制器异常时闪亮，控制器不工作时不亮；
- 2) 报警指示灯（黄色）：电流正常不亮，电流达到Ip 时闪亮，电流达到100%Ir时恒亮；
- 3) 故障指示灯（黄色）：有过载故障时常亮，接地故障时闪亮；
- 4) 测试接口：与KFM3XE专用测试仪连接可进行测试及调试操作，同时可与PC机连接实现在线编程调试操作；
- 5) 液晶屏：复位状态（上电缺省状态）、参数设置状态、故障显示状态、故障查询状态、报警状态；
- 6) “向上”调节按钮；
- 7) “向下”调节按钮；
- 8) “OK” 确认按钮；
- 9) “ESC” 返回按钮；

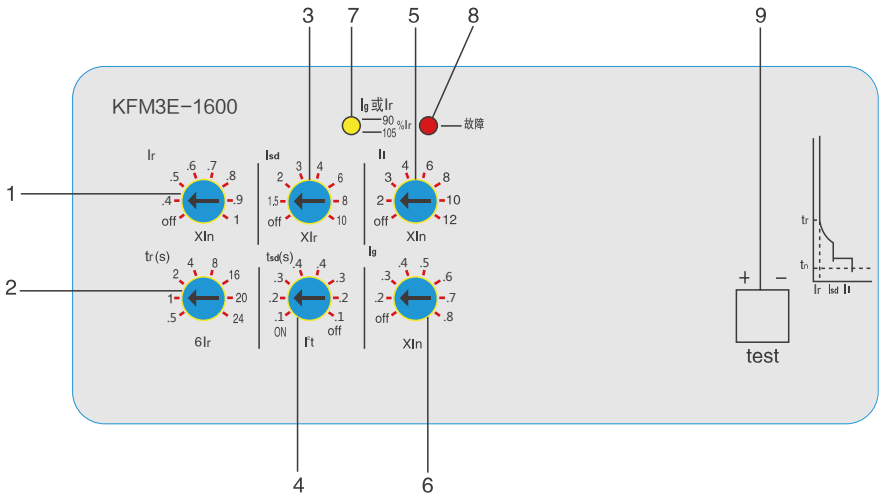
- 1) Operation indicator light (green): it is always on when it works normally, flashes when the controller is abnormal, and does not light when the controller is not working;
- 2) Alarm indicator (yellow): the current does not work normally, it flashes when the current reaches IP, and it is always on when the current reaches 100% IR;
- 3) Fault indicator light (yellow): always on in case of overload fault and flashing in case of grounding fault;
- 4) Test interface: it can be connected with kfm3xe special tester for testing and debugging, and can be connected with PC for online programming and debugging;
- 5) LCD: reset state (power on default state), parameter setting state, fault display state, fault query state, alarm state;
- 6) "Up" adjustment button;
- 7) "Down" adjustment button;
- 8) "OK" confirmation button;
- 9) "ESC" return button;

# KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

## KFM3XE 系列智能型塑壳断路器

### 智能控制器调整面板（KFM3E-1600）系列 Intelligent controller adjustment panel (kfm3e-1600) series

电子脱扣器 KFM3E-1600  
Electronics release



- 1) 长延时保护整定值
- 2) 长延时保护延时时间
- 3) 短路短延时保护整定值
- 4) 短路短延时保护延时时间
- 5) 瞬时保护整定值
- 6) 接地/预报警电流整定值
- 7) 负荷指示灯
- 8) 故障指示灯
- 9) 测试孔

- 1) Long time-delay protection setting value
- 2) Time-delay protection delay time
- 3) Short circuit short time-delay protection setting value
- 4) Circuit short time-delay protection delay time
- 5) Instantaneous protection setting value
- 6) Grounding/pre-alarm current setting value
- 7) Load indicator
- 8) Failure indicator
- 9) Testing hole

- LT(长延时)根据实际电流有效值整定
- ☆ 脱扣电流(1)Ir用8位选择开关整定，调节范围0.4~1，可关闭。
- ☆ 调整脱扣器时间(2)
- ST(短延时)短路电流保护:
- ☆ 整定电流调整Isd(3)
- ☆ 可调延时时间(4)，可带I²t功能
- Ii (瞬时)短路电流保护，脱扣电流可调(5)
- Ig(接地/预报警)脱扣器电流可调(6)

#### 指示

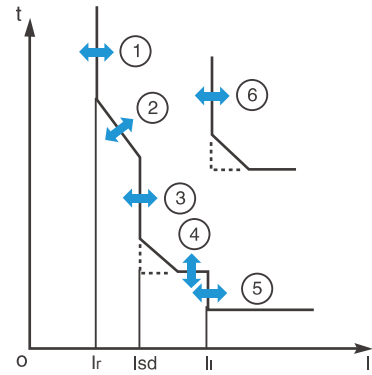
- 到达90%Ir时，指示灯(7)亮
- 大于等于105%Ir时，指示灯(7)闪烁
- 断路器故障时，指示灯(8)亮

#### 测试

- 测试孔在面板上(9)，可接小型测试仪或标定仪器，用于测试脱扣器工作情况

#### 自检功能

- 断路器脱扣器的故障监测:
- 微处理器故障
- 不正常温度



- LT (long time-delay) setting is based on actual current valid value
- ☆ Tripping current (1) Ir is set by 8 positions selecting switch, with adjustment range of 0.4 ~ 1, and it can be closed.
- ☆ adjust the time for the release (2)
- ST (short time-delay) short circuit current protection
- ☆ setting current adjustment Isd (3)
- ☆ Adjustable delay time (4), it can have I²t function
- Ii (instantaneous) short-circuit current protection, tripping current is adjustable (5)
- Ig (grounding / pre-alarm) release current is adjustable (6)

#### indication

- When reaching 90%Ir, the indicator (7) is on.
- When it is greater than or equal to 105% Ir, indicator (7) flashes.
- When circuit breaker fails, the indicator (8) is on

#### testing

- The testing hole is on the panel (9), it can be connected with small-scale testing instrument or calibration instrument and used for testing the working condition of release.

#### self-check function

- microprocessor failure
- abnormal temperature

### 智能断路器的保护特性（配电保护）Protective characteristics of intelligent breaker(distribution protection)

#### 长延时过电流保护反时限动作特性 / LONG-TIME DELAY OVER-CURRENT PROTECTION INVERSE TIME LIMIT ACTION CHARACTERISTICS

| 控制器类型<br>Controller type                                                                                            | 液晶型<br>Liquid crystal type                  | KFM3E-1600（旋钮型）<br>KFM3E-1600 (knob type) |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------|
| 整定电流<br>Setting current                                                                                             | Ir= (0.4~1.0) In+OFF，步长1A                   |                                           |
| 电流 Current                                                                                                          | 动作时间 Actuation time                         |                                           |
| 1.05Ir                                                                                                              | 2h内不动作 Non-action for more than 2 hours     |                                           |
| 1.3Ir                                                                                                               | <2h动作 Action for less than 2 hours          |                                           |
| 6Ir整定时间tr(s)<br>6 Ir setting time tr                                                                                | 3s – 18s(最小步进1s) Minimum step               | tr= (0.5、1、2、4、8、16、20、24)s               |
| 热记忆<br>Thermal memory                                                                                               | 30min，断电可清除<br>The outage can be eliminated |                                           |
| ☆ 动作时间符合I²T=(6Ir)²tr ☆ 动作时间误差为±10%<br>☆ Actuation time conforms to I²T = (6Ir)²tr ☆ Error of actuation time is ±10% |                                             |                                           |

#### 过载预报警特性 / OVERLOAD PRE-ALARM CHARACTERISTICS

| 控制器类型<br>Controller type    | 液晶型<br>Liquid crystal type                | KFM3E-1600（旋钮型）<br>KFM3E-1600 (knob type) |
|-----------------------------|-------------------------------------------|-------------------------------------------|
| 整定电流 Setting current        | Ip=(0.6~1.0)xIr，步长1A                      | Ip=(0.6、0.7、0.75、0.8、0.85、0.9、1.0)xIr     |
| 动作特性 Action characteristics | 在0.9Ip-1.1Ip之间报警 Alarm within 0.9Ip-1.1Ip |                                           |

#### 短延时过电流保护动作特性 / SHORT-TIME DELAY OVER-CURRENT PROTECTIVE ACTION CHARACTERISTICS

| 控制器类型<br>CONTROLLER TYPE                                                                                                                                           |                                    |                            | 液晶型<br>Liquid crystal type                                       | KFM3E-1600（旋钮型）<br>KFM3E-1600 (knob type) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------|------------------------------------------------------------------|-------------------------------------------|
| 整定电流<br>Setting current                                                                                                                                            |                                    |                            | I <sub>sd</sub> =(2-10)I <sub>r</sub> + OFF，步长1A                 |                                           |
| 电 流    Current                                                                                                                                                     |                                    |                            | 动 作 时 间    Actuation time                                        |                                           |
| I <sup>2</sup> TOFF                                                                                                                                                | 1.3I <sub>sd</sub>                 | 定时限<br>Definite time delay | 0.05s-1s(最小步进0.05s)<br>Minimum step                              | t <sub>sd</sub> = (0.1、0.2、0.3、0.4)s      |
| I <sup>2</sup> TON                                                                                                                                                 | I <sub>sd</sub> <I≤8I <sub>r</sub> | 反时限<br>Inverse time delay  | I <sup>2</sup> T=(8I <sub>r</sub> ) <sup>2</sup> t <sub>sd</sub> |                                           |
|                                                                                                                                                                    | I>8I <sub>r</sub>                  | 定时限<br>Definite time delay | 0.05s-1s(最小步进0.05s)<br>Minimum step                              | t <sub>sd</sub> = (0.1、0.2、0.3、0.4)s      |
| 热记忆    Thermal memory                                                                                                                                              |                                    |                            | 15min，断电可清除    15 min, the outage can be eliminated              |                                           |
| ☆ I <sup>2</sup> TOFF – 短路短延时为定时限保护    ☆ I <sup>2</sup> TON – 短路短延时为定时反时限保护                                                                                        |                                    |                            |                                                                  |                                           |
| ☆ I <sup>2</sup> TOFF- short delay for the definite time short-circuit protection    ☆ I <sup>2</sup> TON- short circuit short delay is timed anti-time protection |                                    |                            |                                                                  |                                           |

KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

智能断路器的保护特性（配电保护）

Protective characteristics of intelligent breaker(distribution protection)

短路电流保护动作特性（瞬时） / SHORT CIRCUIT CURRENT PROTECTIVE ACTION CHARACTERISTICS (INSTANTANEOUS)

| 控制器类型<br>Controller type       | 液晶型<br>Liquid crystal type               | KFM3E-1600（旋钮型）<br>KFM3E-1600 (knob type) |
|--------------------------------|------------------------------------------|-------------------------------------------|
| 整定电流    Setting current        | $I_i = (2\sim 12)I_n + \text{OFF}$ ，步长1A |                                           |
| 动作特性    Action characteristics | $I \leq 0.8I_i$ 不动作    Non-action        |                                           |
|                                | $I \geq 1.2I_i$ 动作    Action             |                                           |

接地保护特性 / GROUND PROTECTION CHARACTERISTICS

| 控制器类型<br>Controller type       | 液晶型<br>Liquid crystal type                          | KFM3E-1600（旋钮型）<br>KFM3E-1600 (knob type)                                             |
|--------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------|
| 整定电流<br>Setting current        | $I_g = (0.2\sim 1.0) \times I_n + \text{OFF}$ ，步长1A | $I_g = (0.2\sim 0.3\sim 0.4\sim 0.5\sim 0.6\sim 0.7\sim 0.8) \times I_n + \text{OFF}$ |
| 延时时间<br>Delay Time             | 0.1~0.8s，级差0.1    Differential 0.1                  |                                                                                       |
| 动作特性<br>Action characteristics | $I \leq 0.9I_g$ 不动作    Non-action                   |                                                                                       |
|                                | $I > 1.1I_g$ 动作    Action                           |                                                                                       |

剩余电流保护特性 / CHARACTERISTICS OF RESIDUAL CURRENT PROTECTION

| 控制器类型<br>Controller type                                                                                                                                                                                          | 液晶型、KFM3E-1600（旋钮型）<br>Liquid crystal type、KFM3E-1600 (knob type) |                                                                                                                                |      |      |      |     |      |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------|------|------|-----|------|-----|
| 整定电流 $I_{\Delta n}$ Rated current                                                                                                                                                                                 | $I_{\Delta n}=0.3A, 0.5A, 0.6A, 0.8A, 1A, 2A, 3A+OFF$             |                                                                                                                                |      |      |      |     |      |     |
| 额定不动作电流 Rated non-action current                                                                                                                                                                                  | $0.5I_{\Delta n}$                                                 |                                                                                                                                |      |      |      |     |      |     |
| 额定动作电流 Rated action current                                                                                                                                                                                       | $1.0I_{\Delta n}$                                                 |                                                                                                                                |      |      |      |     |      |     |
| 动作时间(s) Actuation time(s)                                                                                                                                                                                         | 非延时型<br>Non time<br>-delay type                                   | 延时型 Time-delay type                                                                                                            |      |      |      |     |      |     |
|                                                                                                                                                                                                                   |                                                                   | 延时时间设定：（ $2I_{\Delta n}$ 时，极限不驱动时间）（单位：秒）<br>Delayed time setting: ( $2I_{\Delta n}$ hour, limit non-actuating time) (unit: s) |      |      |      |     |      |     |
|                                                                                                                                                                                                                   |                                                                   | 0.06                                                                                                                           | 0.1  | 0.2  | 0.3  | 0.4 | 0.5  | 1   |
|                                                                                                                                                                                                                   |                                                                   | $I_{\Delta n}$                                                                                                                 | 0.18 | 0.36 | 0.5  | 1   | 1.5  | 2   |
| $2I_{\Delta n}$                                                                                                                                                                                                   | 0.09                                                              | 0.18                                                                                                                           | 0.25 | 0.5  | 0.75 | 1   | 1.25 | 2.5 |
| $5I_{\Delta n}$                                                                                                                                                                                                   | 0.03                                                              | 0.072                                                                                                                          | 0.1  | 0.2  | 0.3  | 0.4 | 0.5  | 1   |
| $10I_{\Delta n}$                                                                                                                                                                                                  |                                                                   |                                                                                                                                |      |      |      |     |      |     |
| ☆ 动作时间误差为±10% ☆ 延时时间出厂默认设定为0.4秒，其他整定要求，需特殊订货。<br>☆ Error of actuation time is ±10% ☆ The default setting of delayed time of leaving the factory is 0.4 s; it needs special orders for other setting requirements. |                                                                   |                                                                                                                                |      |      |      |     |      |     |

智能断路器的保护特性（电动机保护）

Protective characteristics of intelligent breaker(Motor protection)

长延时过电流保护反时限动作特性 /INVERSE TIME ACTION CHARACTERISTICS OF LONG DELAY OVER CURRENT PROTECTION

| 控制器类型<br>Controller type                                                                                                  | 液晶型<br>Liquid crystal type   |        |        |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------|--------|--------|
| 整定电流<br>Setting current                                                                                                   | Ir = (0.4～1.0)In + OFF，步长1A  |        |        |
| 脱扣级别 class<br>Trip level                                                                                                  | 5、10、20                      |        |        |
| 热记忆<br>Thermal memory                                                                                                     | 30min、O F F                  |        |        |
| ☆ 动作时间符合I²T=(6Ir)²tr    ☆ 动作时间误差为±10%<br>☆ Actuation time conforms to I²T = (6Ir)²tr    ☆ Error of actuation time is ±10% |                              |        |        |
| 电 流    electric current                                                                                                   | 动作时间（秒）Action time (seconds) |        |        |
| 1.0 x Ir                                                                                                                  | >2h不动作                       |        |        |
| 1.2 x Ir                                                                                                                  | 125                          | 250    | 500    |
| 1.5 x Ir                                                                                                                  | 80                           | 160    | 320    |
| 6 x Ir                                                                                                                    | 5                            | 10     | 20     |
| 7.2 x Ir                                                                                                                  | 0.5<t≤5                      | 4<t≤10 | 6<t≤20 |

过载预警特性 / OVERLOAD PRE-ALARM CHARACTERISTICS

| 控制器类型    Controller type       | 液晶型<br>Liquid crystal type                                     |
|--------------------------------|----------------------------------------------------------------|
| 整定电流    Setting current        | $I_p = 0.9 \times I_r$                                         |
| 动作特性    Action characteristics | 在 $0.9I_p\sim 1.1I_p$ 之间报警    Alarm within $0.9I_p\sim 1.1I_p$ |

堵转保护动作特性 / ACTION CHARACTERISTICS OF LOCKED ROTOR PROTECTION

| 控制器类型    Controller type               | 液晶型<br>Liquid crystal type                          |
|----------------------------------------|-----------------------------------------------------|
| 堵转整定电流<br>Locked rotor setting current | $I_{jam} = (2\sim 8) \times I_r + \text{OFF}$ ，步长1A |
| 堵转延时时间<br>Locked rotor delay time      | 0.5s、1s、1.5s、2s、2.5s、3s                             |
| 动作特性<br>Action characteristics         | $I \geq 1.1 I_{jam}$ 动作                             |

短路电流保护动作特性（瞬时） / SHORT CIRCUIT CURRENT PROTECTIVE ACTION CHARACTERISTICS (INSTANTANEOUS)

| 控制器类型<br>Controller type       |                                 | 液晶型<br>Liquid crystal type               |
|--------------------------------|---------------------------------|------------------------------------------|
| 整定电流<br>Setting current        | 100-250壳架<br>100-250shell frame | $I_i = (6\sim 15)I_r + \text{OFF}$ ，步长1A |
|                                | 400-800壳架<br>400-800shell frame | $I_i = (4\sim 13)I_r + \text{OFF}$       |
| 动作特性    Action characteristics |                                 | $I \leq 0.8I_i$ 不动作    Non-action        |
|                                |                                 | $I \geq 1.2I_i$ 动作    Action             |

KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

智能断路器的保护特性（电动机保护）

Protective characteristics of intelligent breaker(Motor protection)

电流不平衡保护特性 / GROUND PROTECTION CHARACTERISTICS

| 控制器类型<br>Controller type       | 液晶型<br>Liquid crystal type     |
|--------------------------------|--------------------------------|
| 整定电流<br>Setting current        | $I_{unbal}=10\% \sim 90\%+OFF$ |
| 动作特性<br>Action characteristics | 0.5 ~ 10s, 级差0.5s              |

电流不平衡率选择OFF时，控制器同时也关闭了断相保护功能，电流不平衡率的计算是：三相电流的最大值与三相电流平均值的最大差值，与三相电流的平均值之间的比值，即三相电流的不平衡率。

When the current unbalance rate is off, the controller also turns off the phase break protection function. The calculation of the current unbalance rate is: the maximum difference between the maximum value of three-phase current and the average value of three-phase current, and the ratio between the maximum value of three-phase current and the average value of three-phase current, that is, the unbalance rate of three-phase current.

接地保护特性 / GROUND PROTECTION CHARACTERISTICS

| 控制器类型<br>Controller type       | 液晶型<br>Liquid crystal type               |
|--------------------------------|------------------------------------------|
| 整定电流<br>Setting current        | $I_g = (0.2-1.0) \times I_n + OFF$ ，步长1A |
| 延时时间<br>Delay Time             | 0.1~0.8s, 级差0.1      differential 0.1    |
| 动作特性<br>Action characteristics | $I \leq 0.9I_g$ 不动作    Non-action        |
|                                | $I > 1.1I_g$ 动作      Action              |

剩余电流保护特性 / CHARACTERISTICS OF RESIDUAL CURRENT PROTECTION

| 控制器类型<br>Controller type                                                                                                                                                                                                   | 液晶型<br>Liquid crystal type                            |                                                                                                                                |      |     |      |     |      |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------|-----|------|-----|------|-----|
| 整定电流 $I_{\Delta n}$ Rated current                                                                                                                                                                                          | $I_{\Delta n}=0.3A, 0.5A, 0.6A, 0.8A, 1A, 2A, 3A+OFF$ |                                                                                                                                |      |     |      |     |      |     |
| 额定不动作电流 Rated non-action current                                                                                                                                                                                           | $0.5I_{\Delta n}$                                     |                                                                                                                                |      |     |      |     |      |     |
| 额定动作电流 Rated action current                                                                                                                                                                                                | $1.0I_{\Delta n}$                                     |                                                                                                                                |      |     |      |     |      |     |
| 动作时间(s) Actuation time                                                                                                                                                                                                     | 非延时型<br>Non time-delay type                           | 延时型 Time-delay type                                                                                                            |      |     |      |     |      |     |
|                                                                                                                                                                                                                            |                                                       | 延时时间设定：（ $2I_{\Delta n}$ 时，极限不驱动时间）（单位：秒）<br>Delayed time setting: ( $2I_{\Delta n}$ hour, limit non-actuating time) (unit: s) |      |     |      |     |      |     |
|                                                                                                                                                                                                                            |                                                       | 0.06                                                                                                                           | 0.1  | 0.2 | 0.3  | 0.4 | 0.5  | 1   |
| $I_{\Delta n}$                                                                                                                                                                                                             | 0.18                                                  | 0.36                                                                                                                           | 0.5  | 1   | 1.5  | 2   | 2.5  | 5   |
| $2I_{\Delta n}$                                                                                                                                                                                                            | 0.09                                                  | 0.18                                                                                                                           | 0.25 | 0.5 | 0.75 | 1   | 1.25 | 2.5 |
| $5I_{\Delta n}$                                                                                                                                                                                                            | 0.03                                                  | 0.072                                                                                                                          | 0.1  | 0.2 | 0.3  | 0.4 | 0.5  | 1   |
| $10I_{\Delta n}$                                                                                                                                                                                                           |                                                       |                                                                                                                                |      |     |      |     |      |     |
| ☆ 动作时间误差为 ± 10%    ☆ 延时时间出厂默认设定为0.4秒，其他整定要求，需特殊订货。<br>☆ Error of actuation time is ± 10%    ☆ The default setting of delayed time of leaving the factory is 0.4 s; it needs special orders for other setting requirements. |                                                       |                                                                                                                                |      |     |      |     |      |     |

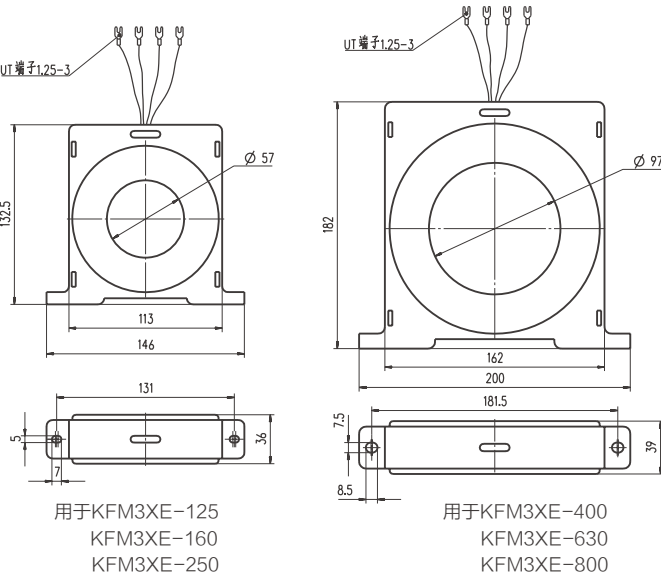
智能断路器的外部配置模块（可选用）

External configuration module of intelligent breaker (optional accessory)

智能型漏电互感器

KFM3XE带漏电保护功能时，出厂时每台断路器右侧装配1个漏电模块，宽度20毫米。模块上的P1，P2接漏电模块的工作电源（AC230V或AC400V订货时指定），P3~P6，连接至配套的外置漏电互感器，线长2米。在安装时，需要将ABCN极，一起穿过此互感器。互感器尺寸如下：

Intelligent leakage transformer  
KFM3XE is with earth leakage protection, when exit factory, install on the right side of each circuit breaker with a leakage module, the width is 20 mm. P1, P2 on the module are connected to the working power supply of the leakage module (AC230V or AC400V specify when ordering), P3 ~ P6 connected to the external leakage transformer, the cable length is 2 meters. During installation, ABCN poles need to be passed through the transformer together. Transformer size is as follows:



保护特性常规整定表

General setting table of protection characteristics

配电保护特性出厂整定值 / FACTORY SETTING VALUE OF DISTRIBUTION PROTECTION CHARACTERISTICS

| 控制器类型<br>Controller type                |                                                        | 液晶型<br>Liquid crystal type                                      | KFM3E-1600（旋钮型）<br>KFM3E-1600 (knob type)                       |
|-----------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| 过载长延时<br>Overload long time delay       | 整定电流I <sub>r</sub><br>Setting current I <sub>r</sub>   | 1.0 x I <sub>n</sub>                                            | 1.0 x I <sub>n</sub>                                            |
|                                         | 整定时间t <sub>r</sub><br>Setting time t <sub>r</sub>      | 18s（当 I = 6I <sub>r</sub> 时）<br>18S (when I = 6I <sub>r</sub> ) | 24s（当 I = 6I <sub>r</sub> 时）<br>24S (when I = 6I <sub>r</sub> ) |
| 短路短延时<br>Short circuit short time delay | 整定电流I <sub>sd</sub><br>Setting current I <sub>sd</sub> | 6.0 x I <sub>r</sub>                                            | 6.0 x I <sub>r</sub>                                            |
|                                         | 整定时间t <sub>sd</sub><br>Setting time t <sub>sd</sub>    | 0.3s（默认为定时限保护）<br>0.03s (time limit protection by default)      | 0.4s                                                            |
| 短路瞬时<br>Short circuit instantaneous     | 整定电流I <sub>i</sub><br>Setting current I <sub>i</sub>   | 10 x I <sub>n</sub>                                             | 10 x I <sub>n</sub>                                             |
| 接地保护<br>Grounding protection            | 整定电流I <sub>g</sub><br>Setting current I <sub>g</sub>   | 0.6 x I <sub>n</sub>                                            | 0.6 x I <sub>n</sub>                                            |
|                                         | 整定时间<br>Setting time                                   | 0.4s                                                            | 0.4s                                                            |
| 漏电保护<br>Leakage protection              | 整定电流I <sub>Δn</sub><br>Setting current I <sub>Δn</sub> | 1A（延时0.4s）<br>1A (delay 0.4s)                                   | 1A（延时0.4s）<br>1A (delay 0.4s)                                   |
| 过载预报警<br>Overload warning               | 整定电流I <sub>p</sub><br>Setting current I <sub>p</sub>   | 0.9 x I <sub>r</sub>                                            | 1.0xI <sub>r</sub>                                              |

KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

保护特性常规整定表    General setting table of protection characteristics

电动机保护特性出厂整定值 / FACTORY SETTING VALUE OF MOTOR PROTECTION CHARACTERISTICS

| 控制器类型<br>Controller type            |                                           | 液晶型<br>Liquid crystal type       |
|-------------------------------------|-------------------------------------------|----------------------------------|
| 过载长延时<br>Overload long time delay   | 整定电流I <sub>r</sub><br>Setting current     | 1.0 x I <sub>n</sub>             |
|                                     | 脱扣级别class<br>Trip level class             | 10                               |
| 堵转保护<br>Locked rotor protection     | 整定电流I <sub>jam</sub><br>Setting current   | 6.0 x I <sub>r</sub>             |
|                                     | 延时时间<br>Delay Time                        | 2s                               |
| 短路瞬时<br>Short circuit instantaneous | 整定电流I <sub>i</sub><br>Setting current     | 12 x I <sub>r</sub>              |
| 电流不平衡<br>Current unbalance          | 整定电流I <sub>unbal</sub><br>Setting current | OFF                              |
|                                     | 延时时间<br>Delay Time                        | 4s                               |
| 接地保护<br>Grounding protection        | 整定电流I <sub>g</sub><br>Setting current     | 0.6 x I <sub>n</sub>             |
|                                     | 整定时间<br>Setting time                      | 0.4s                             |
| 漏电保护<br>Leakage protection          | 整定电流I $\Delta$ n<br>Setting current       | 1A ( 延时0.4s )    1A (delay 0.4s) |
| 过载预警<br>Overload warning            | 整定电流I <sub>p</sub><br>Setting current     | 0.9 x I <sub>r</sub>             |

各种保护特性的出厂整定值，用户应按“订货规范”注明，如用户订货时无特殊需求，各保护特性在出厂时即按“保护特性出厂常规整定表”配置。

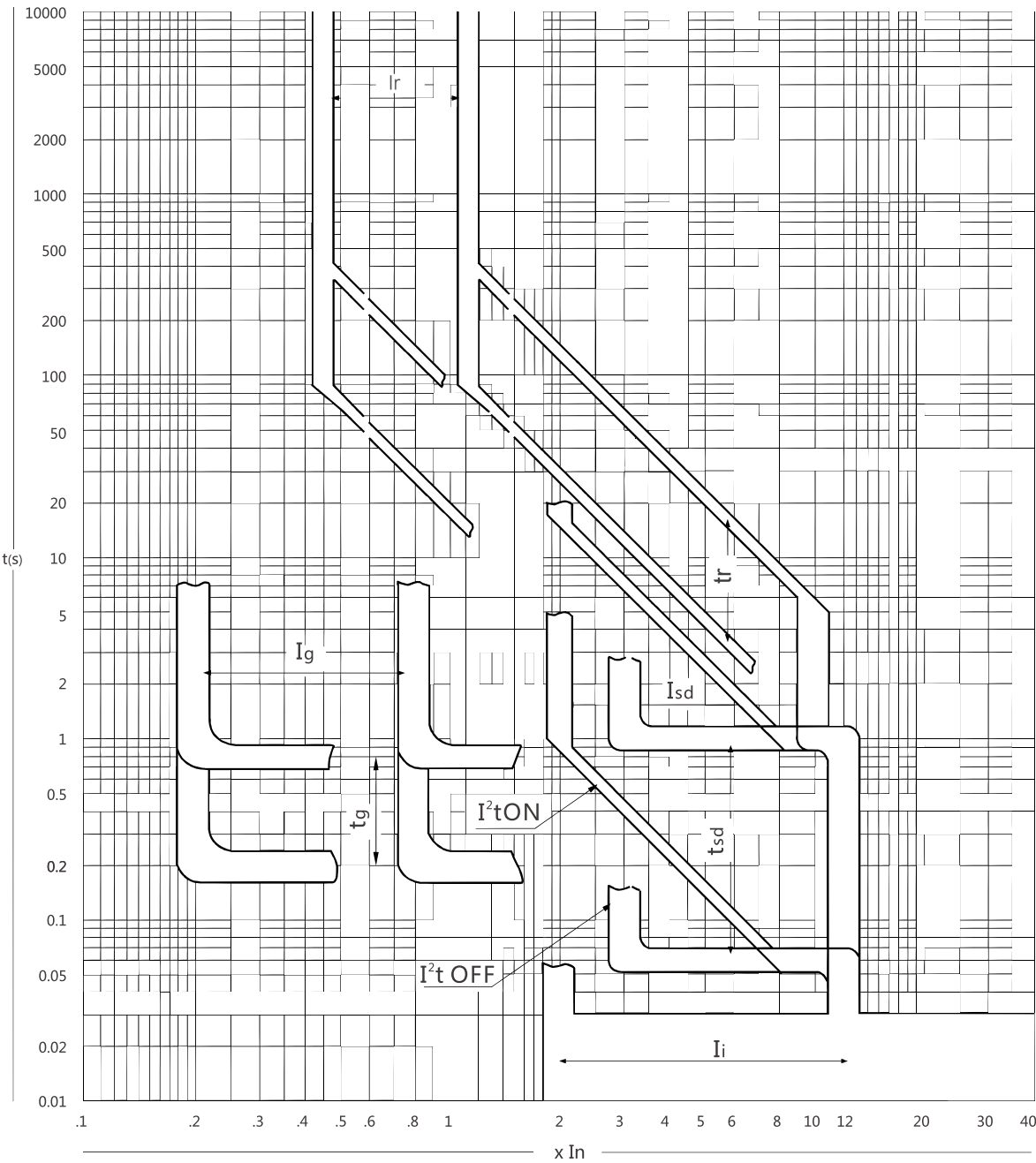
可选配Type-C通讯线（线长1米），对各种保护特性进行设置。

The factory setting values of various protection features shall be indicated by the user according to the "order specification". If the user has no special requirements when ordering, the protection features shall be configured according to the "factory routine setting table of protection features" when leaving the factory.

Type-C communication line (1m long) can be optionally configured to set various protection characteristics.

动作特性曲线    Action characteristic curve

过电流保护动作特性曲线    Action characteristic curve of over current protection



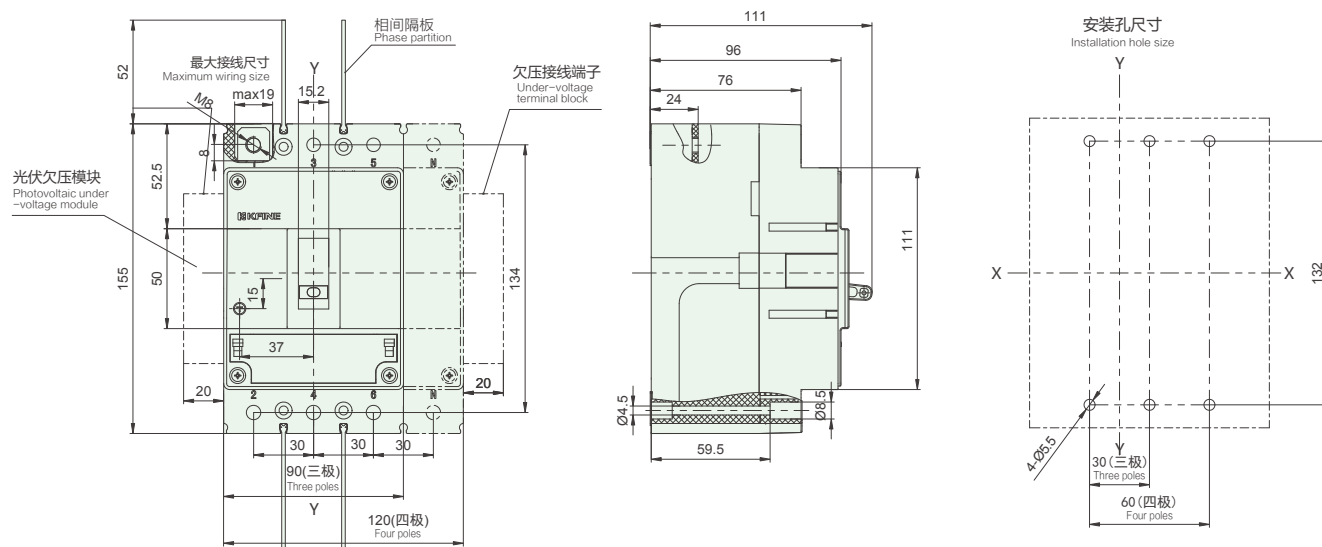
注：当选配接地保护时，才有I<sub>g</sub>和t<sub>g</sub>  
Note: I<sub>g</sub> and t<sub>g</sub> are available only when grounding protection is selected

## KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

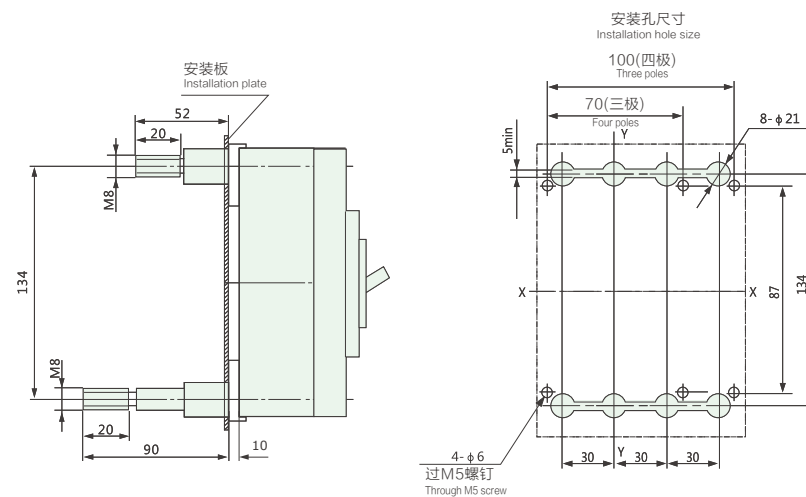
## KFM3XE 系列智能型塑壳断路器

## 外形及安装尺寸 Boundary and installing dimensions

KFM3XE-125  
KFM3XE-160



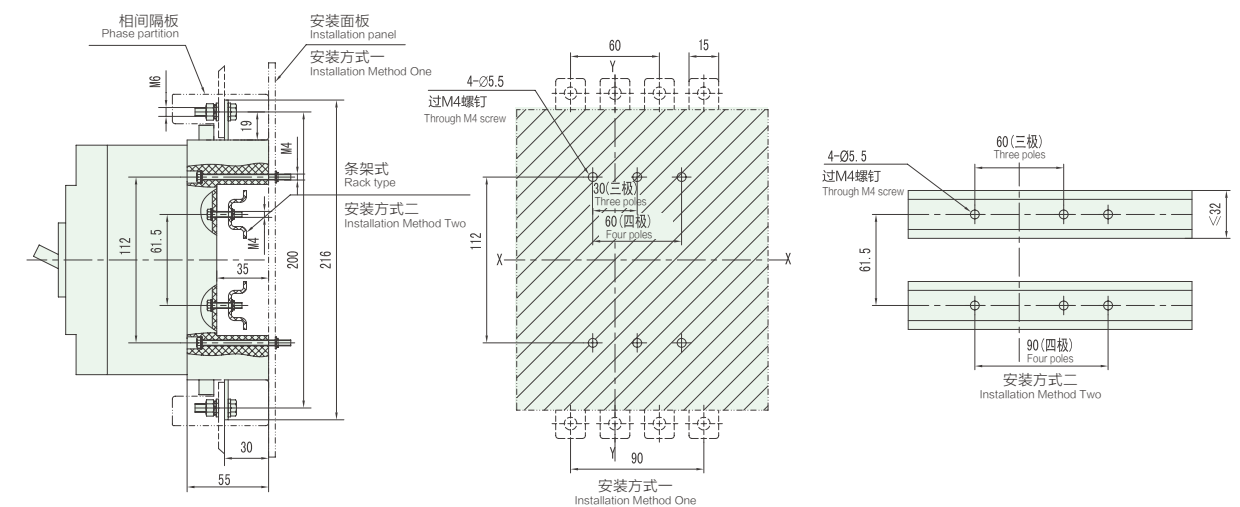
KFM3XE-125  
KFM3XE-160



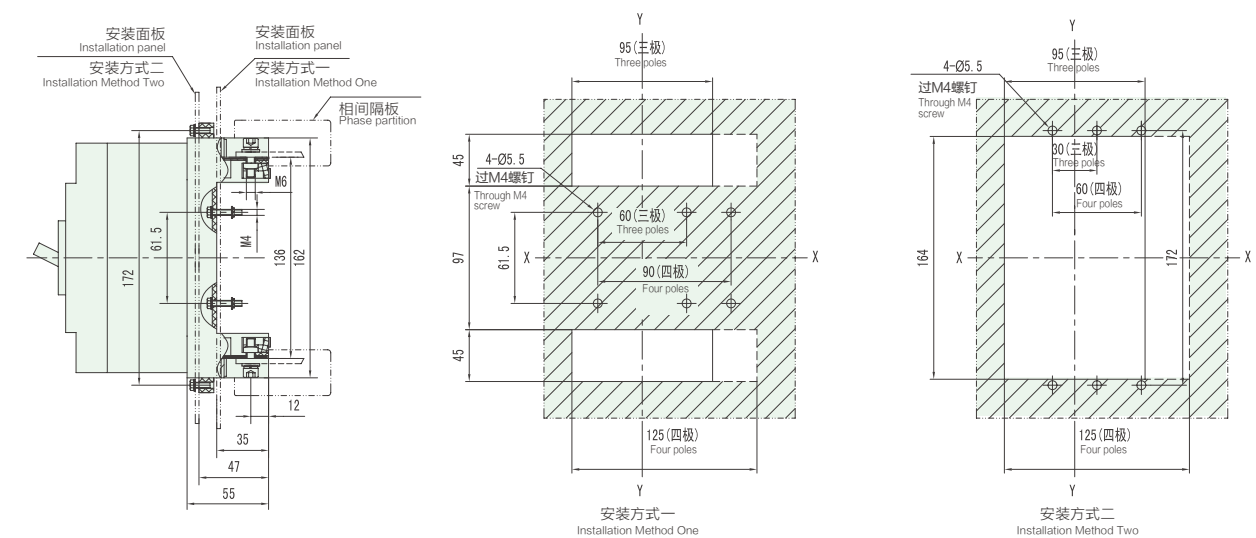
| B 15 |

## 外形及安装尺寸 Boundary and installing dimensions

**KFM3XE-125** | 插入式板前接线  
**KFM3XE-160** | Plug-in Front-panel wiring



**KFM3XE-125** | 插入式板后接线  
**KFM3XE-160** | Plug-in Back-panel wiring



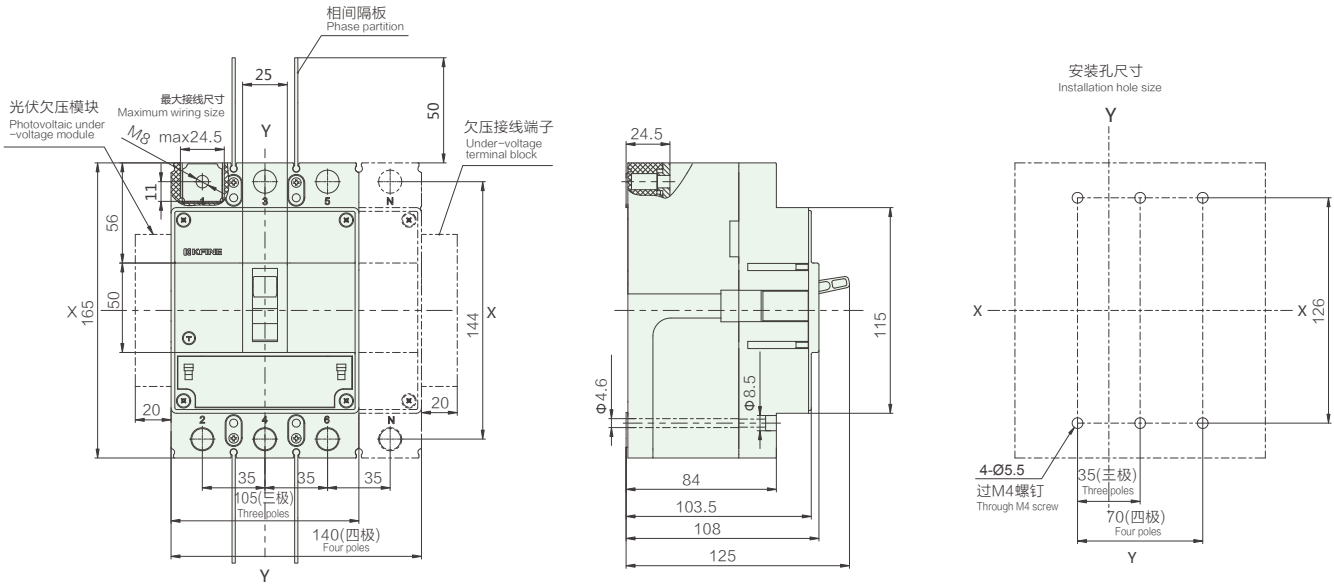
| B 16 |

KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

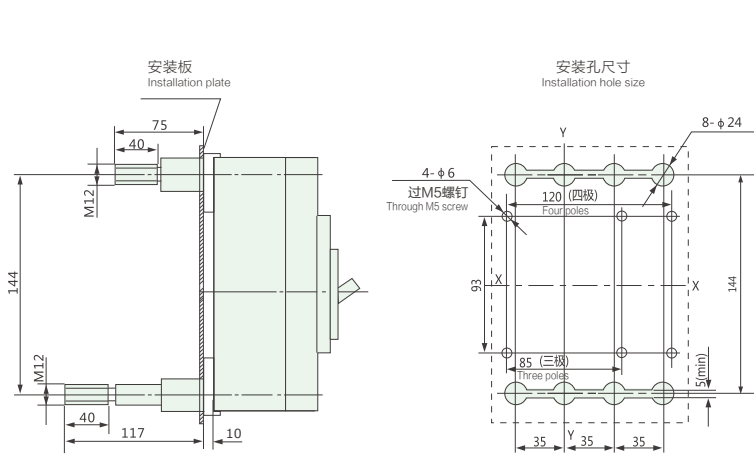
KFM3XE 系列智能型塑壳断路器

外形及安装尺寸    Boundary and installing dimensions

KFM3XE-250    板前接线  
Front-panel wiring

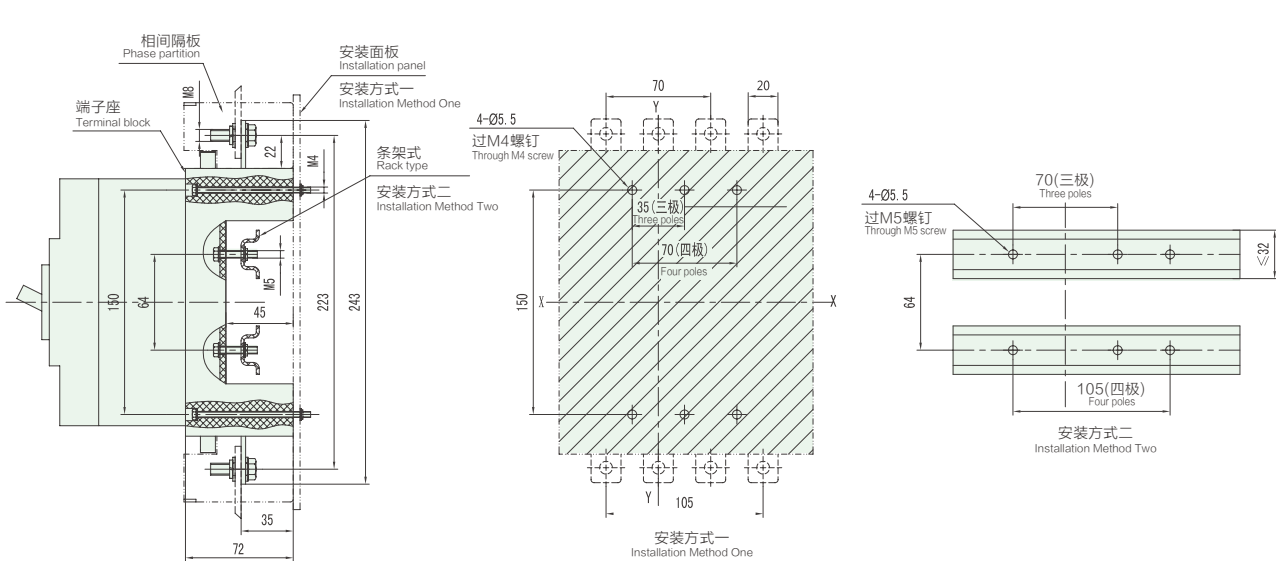


KFM3XE-250    板后接线  
Rear panel wiring

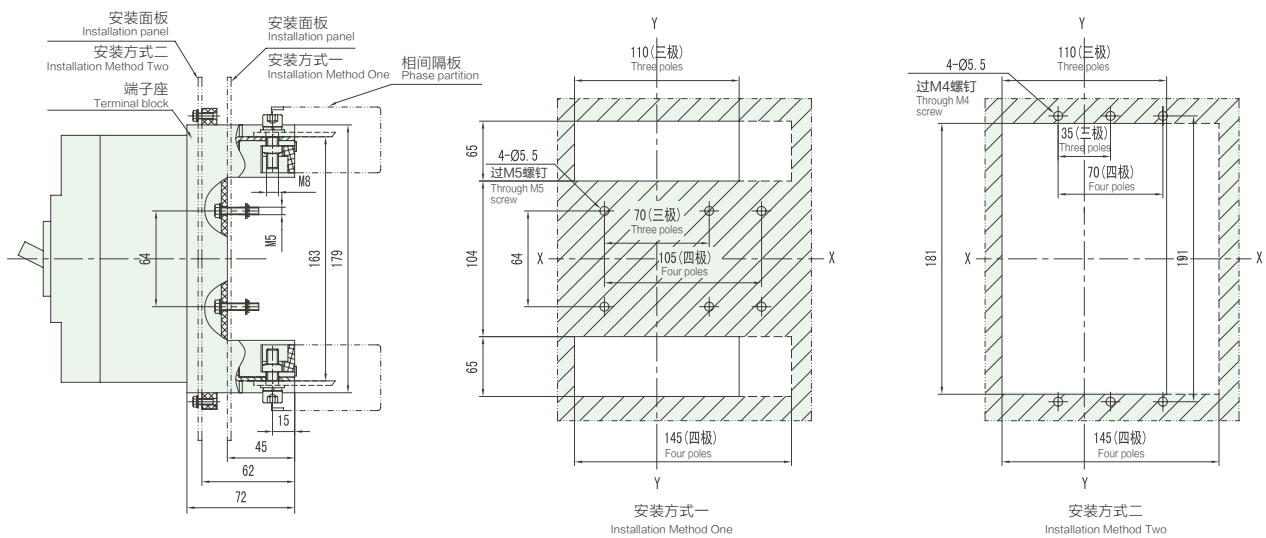


外形及安装尺寸    Boundary and installing dimensions

KFM3XE-250    插入式板前接线  
Plug-in Front-panel wiring



KFM3XE-250    插入式板后接线  
Plug-in Back-panel wiring



## KFM3XE 系列智能型塑壳断路器

## 外形及安装尺寸 Boundary and installing dimensions

The technical drawings illustrate the dimensions and components of the PV module assembly:

- Front View (Left):** Shows the overall dimensions of the module assembly. Key dimensions include a total width of 435mm, a height of 257mm, and a central width of 140mm. It identifies components like the "欠压模块" (Under-voltage module), "光伏欠压模块" (Photovoltaic under-voltage module), and "欠压接线端子" (Under-voltage terminal block). A "连接排 (选购件)" (Connection bar, optional accessory) is shown at the top.
- Front View (Middle):** Provides a detailed view of the module assembly, showing the "欠压接线端子" (Under-voltage terminal block) and the "连接排 (选购件)" (Connection bar, optional accessory). Dimensions include a total width of 435mm, a height of 257mm, and a central width of 140mm.
- Side View (Right):** Shows the side profile of the module assembly. Key dimensions include a total height of 178mm, a base width of 153mm, and a central width of 103mm. It identifies the "欠压接线端子" (Under-voltage terminal block) and the "连接排 (选购件)" (Connection bar, optional accessory).
- Installation View (Far Right):** Shows the installation hole size and the mounting bracket. Key dimensions include a total width of 194mm, a height of 178mm, and a central width of 103mm. It identifies the "安装孔尺寸" (Installation hole size) and the "过M6螺钉" (Through M6 screw).

The technical drawings illustrate the 161 series motor's components and dimensions:

- Side View (Left):** Shows the motor's profile with labels for the **安装板** (Installation plate), **可旋转90度** (It can rotate 90 degrees), **安装螺钉** (Installation screw), and **支座** (Bearing). Dimensions include a total width of 103, a bearing offset of 12, a mounting hole offset of 58, and a mounting hole diameter of  $\phi 13$ . Two 20mm segments are also indicated.
- Top View of Motor Body (Middle):** Shows the motor's footprint with labels for **四极** (Four poles), **三极** (Three poles), and **绝缘管** (Insulating tube). Dimensions include a total width of 130.5, a pole pitch of 87, and a mounting hole offset of 18.
- Terminal Box Detail (Right):** Shows the terminal box with labels for **161 (四极)** (Four poles), **116 (三极)** (Three poles), **4- $\phi 7$**  (Through M6 screw), and **8- $\phi 30$** . Dimensions include a total width of 225, a mounting hole offset of 173, a mounting hole diameter of  $\phi 7$ , and a terminal hole diameter of  $\phi 30$ . The terminal box is shown with a 5mm offset from the motor body.

## 外形及安裝尺寸 Boundary and installing dimensions

The technical drawings illustrate the 44 series terminal block in three views:

- Side View (Left):** Shows the profile of the terminal block with dimensions 244 (total width), 141 (height), 327 (height to top of mounting flange), and 333 (height to bottom of mounting flange). It details two installation methods:
  - 安装方式一 (Installation Method One):** Uses an M5 screw through the top flange.
  - 安装方式二 (Installation Method Two):** Uses an M6 screw through the bottom flange.
- Top View (Middle):** Shows the 44 (three-pole/four-pole) terminal block with dimensions 88 (pole pitch), 25 (width of mounting flange), and 132 (width of terminal block). It shows 4-Ø8 mounting holes with a 40mm spacing between them.
- Detail View (Right):** Shows the 88 (three-pole) and 132 (four-pole) terminal blocks with dimensions 141 (height) and 32 (height of mounting flange). It shows 4-Ø8 mounting holes with a 40mm spacing between them.

[illegible]

## KFM3XE 系列智能型塑壳断路器

## 外形及安裝尺寸 Boundary and installing dimensions

[illegible]

Technical drawings of the M6-4000 series terminal block, showing side, front, and top views with dimensions and labels.

**Side View (Left):**

- 安装板 (Installation plate)
- 可旋转90度 (It can rotate 90 degrees)
- 安装螺钉 (Installation screw)
- 支座 (Bearing)
- Dimensions: 12, 58, 103, 20, 20,  $\phi 13$

**Front View (Middle):**

- 四极 (Four poles)
- 三极 (Three poles)
- 绝缘管 (Insulating tube)
- Dimensions: 8, 87, 130.5

**Top View (Right):**

- 161 (四极) (Four poles)
- 116 (三极) (Three poles)
- 4- $\phi 7$  过M6螺钉 (Through M6 screw)
- 8- $\phi 30$
- Dimensions: 43.5, 43.5, 43.5, 173, 225

I B 21 I

## 外形及安装尺寸 Boundary and installing dimensions

The technical drawings illustrate the 3000V AC busbar assembly with the following details:

- Top View (Left):** Shows the busbar profile with dimensions 244 (width) and 141 (height). It details the installation of the "安装面板" (Installation panel) using "安装方式一" (Installation Method One) with M10 screws and "安装方式二" (Installation Method Two) with M5 and M6 screws. The "条架式" (Rack type) is also indicated.
- Front View (Middle):** Shows the busbar with a width of 88mm and a height of 25mm. It details the "过M6螺钉" (Through M6 screw) and the "44(三极/四极)" (44(three-pole/four-pole)) configuration. The dimensions 4-28, 88, and 25 are shown.
- Side View (Right):** Shows the busbar with a height of 141mm and a width of 132mm. It details the "过M6螺钉" (Through M6 screw) and the "88(三极)" (88(three poles)) and "132(四极)" (132(four poles)) configurations. The dimensions 4-28, 88, and 132 are shown.
- Bottom View (Bottom):** Shows the busbar with a width of 132mm and a height of 40mm. It details the "安装方式一" (Installation Method One) and "安装方式二" (Installation Method Two).

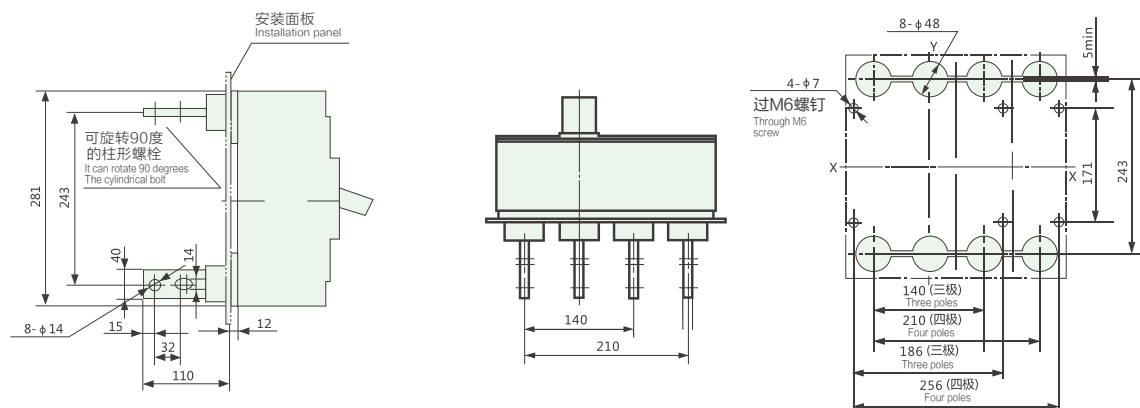
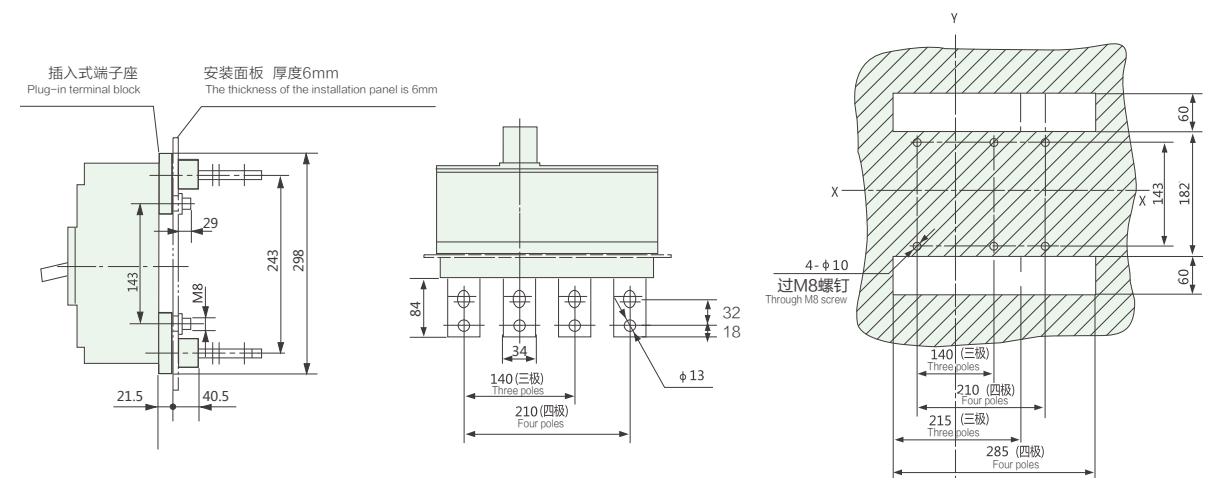
The technical drawings illustrate the dimensions and installation methods for the 3P/4P terminal block. The side view on the left shows the profile of the terminal block with dimensions: 290 (total width), 141 (width of the main body), 255 (height of the main body), 275 (total height), 13 (height of the base), 40 (height of the base), 50 (height of the base), and 85 (height of the base). The front view on the right shows the terminal block with dimensions: 137 (Three poles), 88 (Three poles), 132 (Four poles), 181 (Four poles), 141 (height of the main body), 180 (height of the main body), 80 (height of the main body), 4-Ø8 (Through M6 screw), 4-Ø8 (Through M5 screw), 44 (Three-pole/four-pole), 290 (width of the main body), 181 (Four poles), 277 (height of the main body), 137 (Three poles), 44 (Three-pole/four-pole), 181 (Four poles), 277 (height of the main body), 137 (Three poles), 44 (Three-pole/four-pole), 181 (Four poles), 277 (height of the main body).

插入式最大使用电流550A  
Plug-in maximum operating current 550A

## KFM3XE 系列智能型塑壳断路器

## 外形及安裝尺寸 Boundary and installing dimensions

**KFM3XE-800** | 插入式板后接线  
Plug-in Back-panel wiring

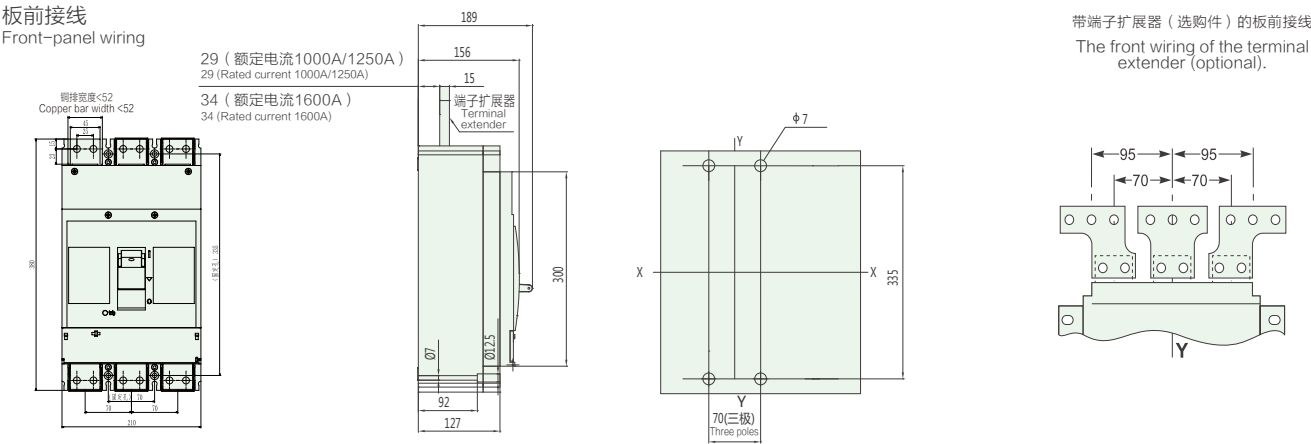


KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

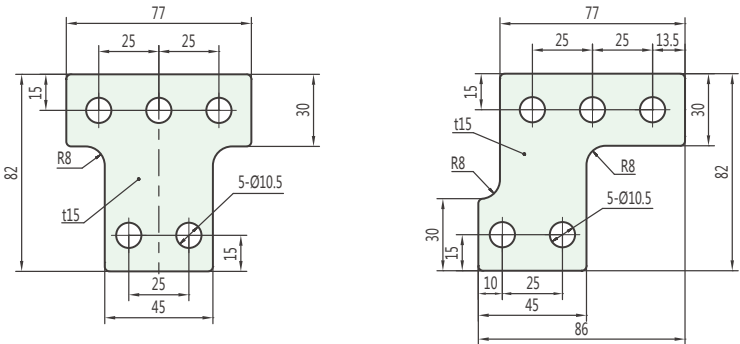
KFM3XE 系列智能型塑壳断路器

外形及安装尺寸    Boundary and installing dimensions

KFM3E-1600



端子扩展器详图  
Terminal Expander detail



断路器内外部附件    Internal and external accessories of the breaker

欠电压脱扣器，符号 ▼    UNDERVOLTAGE RELEASE, SYMBOL ▼

控制电压：50Hz AC230V,AC400V

在额定电压的35% ~70%时，欠电压脱扣器应可靠使断路器脱扣；

在额定电压的85% ~110%时，欠电压脱扣器应保证断路器能合闸；

在额定电压低于35%时，欠电压脱扣器应防止断路器合闸。

注意：欠电压脱扣器必须先通电，断路器才能再扣及合闸，否则将损坏断路器。

Control voltage: 50 Hz, AC230 V, AC400 V

When the rated voltage is between 35% and 70%, the under voltage release shall trip the circuit breaker reliably;

When the rated voltage is 85% – 110%, the under voltage release shall ensure that the circuit breaker can be closed;

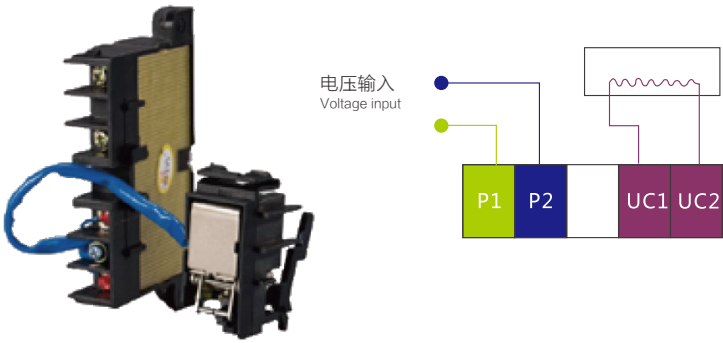
When the rated voltage is lower than 35%, the under voltage release shall prevent the circuit breaker from closing.

Note: the undervoltage release must be powered on before the circuit breaker can be switched on or it will be damaged.

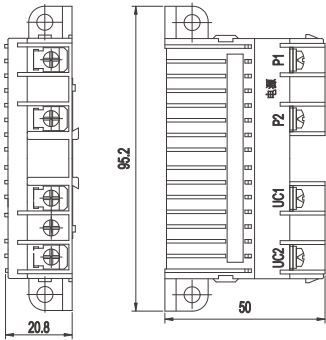
欠电压脱扣器功耗    POWER CONSUMPTION OF UNDER VOLTAGE RELEASE

| 产品型号<br>Product model                  | 功耗（ W ）    Power consumption (W) |        |
|----------------------------------------|----------------------------------|--------|
|                                        | AC400V                           | AC230V |
| KFM3XE-125<br>KFM3XE-160               | 3.9                              | 3.2    |
| KFM3XE-250                             | 4.4                              | 3.4    |
| KFM3XE-400<br>KFM3XE-630<br>KFM3XE-800 | 3.6                              | 2.5    |

欠电压模块接线图  
WIRING DIAGRAM OF EXTERNAL UNDER VOLTAGE MODULE



欠电压模块尺寸图  
DIMENSION DRAWING OF UNDERVOLTAGE MODULE



欠电压模块尺寸图

# KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

## KFM3XE 系列智能型塑壳断路器

### 断路器内外部附件 Internal and external accessories of the breaker

#### 光伏并网专用欠电压脱扣器模块    UNDERVOLTAGE RELEASE MODULE FOR PHOTOVOLTAIC GRID CONNECTION

在KFM3XE塑壳断路器基础上，配置光伏并网专用欠电压脱扣器模块、电动操作机构，组成光伏并网专用断路器，确保分布式光伏并网安全。

- 欠压脱扣，在额定工作电压的70%~20%之间，欠电压脱扣器可靠动作
- 失压跳闸，当电压低于额定工作电压的20%时，脱扣器能使断路器可靠断开
- 过压保护，电压超过135%Un时，脱扣器动作，断路器断开
- 配合电动操作机构可实现检有压自动合闸
- 欠压（或失压）动作时间可调，范围0~10s（无9s），最小调整步长为1s

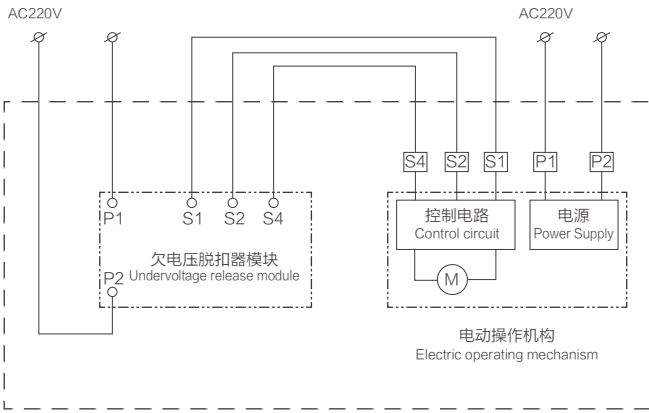
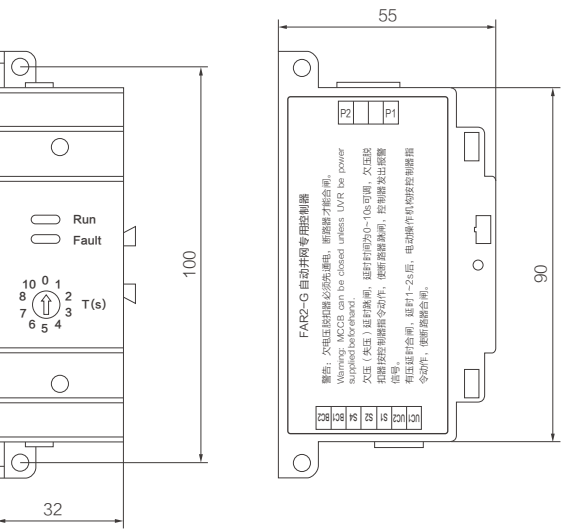
On the basis of KFM3XE molded circuit breaker, the special low-voltage release module and the electric operation mechanism of the photovoltaic grid connection are configured to form a special circuit breaker for photovoltaic grid connected, so as to ensure the safety of the distributed PV grid connected.

- Undervoltage tripping between the rated operating voltage of 70%~20% and undervoltage tripping is reliable
- The tripping device can reliably break the circuit breaker when the voltage is less than 20% of the rated working voltage
- Overvoltage protection, when voltage exceeds 135% Un, the release trip action, disconnect the circuit breaker.
- With the electric operating mechanism, the automatic closing of the detector can be realized
- The action time of undervoltage (or loss of voltage) is adjustable, the range is 0 ~ 10s (no 9S), and the minimum adjustment step is 1s

#### 两种型号

#### TWO MODELS

- AC220V光伏专用欠压脱扣器带过压保护
- AC220V光伏专用欠压脱扣器（失压延时）带过压保护
- AC220V dedicated photovoltaic undervoltage release with overvoltage protection
- AC220V dedicated photovoltaic undervoltage release (loss of pressure delay) with over-voltage protection



光伏并网专用欠电压脱扣器（带合闸功能）  
Undervoltage release for photovoltaic grid connection (Closing function)

### 断路器内外部附件 Internal and external accessories of the breaker

#### 分励脱扣器，符号 ■    SHUNT RELEASE, SYMBOL ■

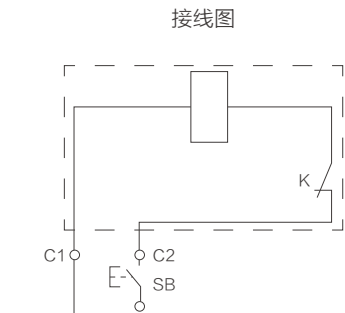
控制电压：50Hz AC230V，AC400V  
DC110V，DC220V，DC24V

在额定控制电源电压的70%~110%之间时，分励脱扣器能可靠地使断路器脱扣。

分励脱扣器，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。

Control voltage: 50 Hz, AC230 V, AC400V  
DC110V, DC220V, DC24V  
When the rated control power supply voltage is between 70% and 110%, the shunt release can trip the circuit breaker reliably.  
Shunt release, the terminal is the outgoing line, the default line length is 50cm, and the specification of 100cm, 150cm and longer can be provided.

#### 分励脱扣器接线图    WIRING DIAGRAM OF SHUNT RELEASE



K为分励脱扣器内部与线圈串联的微动开关，当断路器处于合闸状态时，该微动开关触头处于闭合状态，当断路器处于分闸或脱扣状态时，该触头处于断开状态。其中SB操作按钮需用户自备。

K is the micro switch in series with the coil in the shunt release. When the circuit breaker is closed, the contact of the micro switch is closed. When the circuit breaker is in the opening or tripping state, the contact is in the off state. The sb operation button needs to be provided by the user.

#### 分励脱扣器瞬动电流及功耗    WIRING DIAGRAM OF EXTERNAL UNDER VOLTAGE MODULE

| 产品型号<br>Product model                  | 功耗（W）<br>Power consumption (W) |        |        |        |       |
|----------------------------------------|--------------------------------|--------|--------|--------|-------|
|                                        | AC400V                         | AC230V | DC220V | DC110V | DC24V |
| KFM3XE-125<br>KFM3XE-160               | 160                            | 105    | 50     | 55     | 88.6  |
| KFM3XE-250                             | 100                            | 60     | 55     | 61     | 76.3  |
| KFM3XE-400<br>KFM3XE-630<br>KFM3XE-800 | 100                            | 60     | 55     | 61     | 76.3  |

注：当额定控制电源电压为DC24V时，有两种解决方案：

- 1、采用DC24V分励脱扣器，但应满足如下三个条件：导线横截面积 $\geq 2.5\text{mm}^2$ ；导线长度不得超过200m；脱扣器接线端处的电源功率应 $\geq 50\text{W}$ 。
- 2、采用DC24V中间继电器控制AC230V或AC400V分励脱扣器，中间继电器触点容量不小于1A。

Note: when the rated control power supply voltage is DC24 V, there are two solutions:  
1. DC24 V shunt release shall be adopted, but the following three conditions shall be met: conductor cross-sectional area  $\geq 2.5 \text{ mm}^2$ ; conductor length not exceeding 200 m; The power supply at the terminal of the release shall be  $\geq 50\text{W}$ .  
2. DC24 V intermediate relay is used to control AC 230 V or AC 400 V shunt release, and the contact capacity of intermediate relay is not less than 1a.

# KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

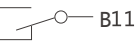
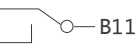
## KFM3XE 系列智能型塑壳断路器

### 断路器内外部附件 Internal and external accessories of the breaker

#### 报警触头 ALARM CONTACT      符号：●    SYMBOL: ●

断路器正常合分时，触头不动作，只有在自由脱扣（或故障跳闸）后，触头状态才会改变，即常开变成常闭，常闭变成常开，待断路器再扣后，触头恢复原始位置。

When the circuit breaker is normally opened and closed, the contact does not act. Only after free tripping (or fault tripping), the contact state will change, that is, the normally open will become normally closed, and the normally closed will become normally open. After the circuit breaker is re buckled, the contact will return to its original position.

|                                                                           |                                                                                                |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 断路器处于“分”“合”时的位置<br>When the breaker is in the position of "close"         | B14<br>B12  |
| 断路器处于“自由脱扣”时的位置<br>The circuit breaker is in the "free tripping" position | B14<br>B12  |

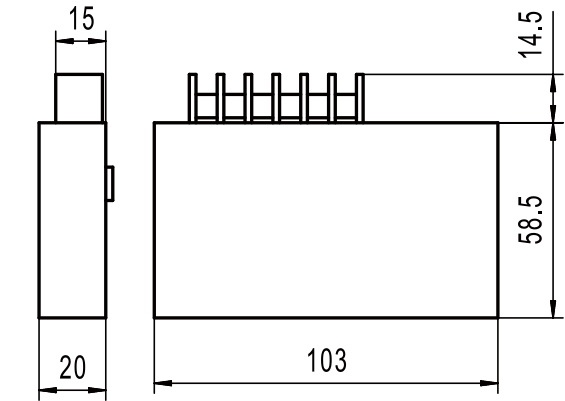
报警触头，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。  
Alarm contact, terminal for outgoing line, default line length 50cm, also can provide 100cm, 150cm specifications, longer specifications ordering instructions.

#### 报警触头电流参数 CURRENT PARAMETERS OF ALARM CONTACT

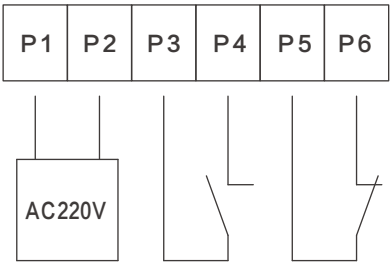
| 产品型号<br>Product model                  | 约定发热电流(A)<br>Conventional heating current (a) | 额定工作电流<br>Rated working current |        |
|----------------------------------------|-----------------------------------------------|---------------------------------|--------|
|                                        |                                               | AC400V                          | DC220V |
| KFM3XE-125<br>KFM3XE-160               | 1                                             | 0.3                             | 0.15   |
| KFM3XE-250                             |                                               |                                 |        |
| KFM3XE-400<br>KFM3XE-630<br>KFM3XE-800 | 3                                             | 0.4                             | 0.15   |

#### 过载报警不脱扣模块 OVERLOAD ALARM NON TRIPPING MODULE

当发生过载时，过载报警模块发出信号，P3、P4常开转常闭，P5、P6常闭转常开，但断路器不脱扣。  
When overload occurs, the overload alarm module sends a signal, P3, P4 normally open to normal close, P5, P6 normally closed to normal open, but the circuit breaker does not trip.



报警不脱扣模块尺寸  
Size of alarm non tripping module



- 1、P1、P2：接电源  
2、P3、P4：常开触头，触点容量：5A 250VAC  
3、P5、P6：常闭触头，触点容量：5A 250VAC

报警不脱扣模块接线图  
Wiring diagram of alarm non tripping module

### 断路器内外部附件 Internal and external accessories of the breaker

#### 辅助触头 AUXILIARY CONTACT      符号：○    SYMBOL: ○

辅助触头，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。

Auxiliary contact, terminal for outgoing line, default line length 50cm, also can provide 100cm, 150cm specifications, longer specifications ordering instructions.

| 辅助触头<br>AUXILIARY CONTACT                                                                                    | 产品型号<br>Product model                  | 约定发热电流(A)<br>Conventional heating current (a) | 额定工作电流(A)<br>Rated working current(A) |        |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------|---------------------------------------|--------|
|                                                                                                              |                                        |                                               | AC400V                                | DC220V |
| 断路器处于“分”<br>“自由脱扣”时的位置<br>When the breaker is in the<br>position of "open" and "free trip"                   | KFM3XE-125<br>KFM3XE-160               | 1                                             | 0.3                                   | 0.15   |
| 断路器处于“合”<br>时的位置<br>When the breaker is in the<br>position of "close"                                        | KFM3XE-250                             |                                               |                                       |        |
| 上表为一组辅助触头在“分”“合”时的位置<br>The above table is a set of auxiliary contacts in the position of "open" and "close" | KFM3XE-400<br>KFM3XE-630<br>KFM3XE-800 | 3                                             | 0.4                                   | 0.15   |

#### 辅助触头正常条件下的接通和分断能力 THE CONNECT AND BREAKING CAPACITY OF AUXILIARY CONTACT UNDER NORMAL OPERATION

| 使用类型<br>USING CLASS | 接通 CONNECT |      |      |       | 分断 BREAKING |      |      |       | 次数<br>TIME | 操作频率 次/分<br>OPERATION FREQUENCY<br>(TIME/ MINUTE) |
|---------------------|------------|------|------|-------|-------------|------|------|-------|------------|---------------------------------------------------|
|                     | I/le       | U/Ue | cosØ | T0.95 | I/le        | U/Ue | cosØ | T0.95 |            |                                                   |
| AC-14               | 6          | 1    | 0.3  |       | 1           | 1    | 0.3  |       | 6050       | 6                                                 |
| DC-13               | 1          | 1    |      | 6xPe  | 1           | 1    |      | 6xPe  |            |                                                   |

#### 辅助触头非正常条件下的接通和分断能力 THE ABILITY TO CONNECT AND BREAK UNDER ABNORMAL CONDITIONS

| 使用类型<br>USE TYPE | 接通 CONNECT |      |      |       | 分断 BREAKING |      |      |       | 次数<br>TIME | 操作频率 次/分<br>OPERATION FREQUENCY<br>(TIME/ MINUTE) | 通电时间<br>CONDUCTION TIME |
|------------------|------------|------|------|-------|-------------|------|------|-------|------------|---------------------------------------------------|-------------------------|
|                  | I/le       | U/Ue | cosØ | T0.95 | I/le        | U/Ue | cosØ | T0.95 |            |                                                   |                         |
| AC-14            | 6          | 1.1  | 0.7  |       | 6           | 1.1  | 0.7  |       | 10         | 6                                                 | ≥0.05                   |
| DC-13            | 1.1        | 1.1  |      | 6xPe  | 1.1         | 1.1  |      | 6xPe  |            |                                                   |                         |

注 / Note:

当断路器操作次数小于6050次时，则辅助触头操作次数与断路器相同，当Pe≥50W，T<sub>0.95</sub>的上限≈6Pe≤300ms  
When the number of operations of the breaker is less than 6050, then that of auxiliary contact is the same with the breaker, when Pe ≥ 50 W, the upper limit of T0.95 ≈ 6 Pe ≤ 300 ms

# KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

## KFM3XE 系列智能型塑壳断路器

### 断路器内外部附件 Internal and external accessories of the breaker

#### 电动操作机构 ELECTRIC OPERATING MECHANISM

本系列断路器配用DC3型新一代电动操作机构  
This series of breakers are equipped with DC3 type new generation of electric operation mechanism.



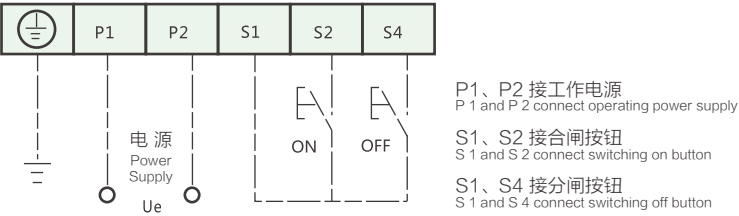
KFM3XE-125  
KFM3XE-160  
KFM3XE-250  
电动操作机构  
Electric operating mechanism



KFM3XE-400  
KFM3XE-630  
KFM3XE-800  
KFM3E-1600  
电动操作机构  
Electric operating mechanism

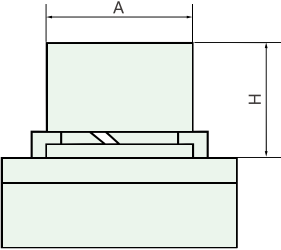
#### 电动操作机构接线图

WIRING DIAGRAM OF THE ELECTRIC OPERATING MECHANISM



#### 电动操作机构有关尺寸

RELATED DIMENSION OF THE ELECTRIC OPERATING MECHANISM



#### 电动操作机构尺寸 ELECTRIC OPERATING MECHANISM DIMENSIONS

| 断路器型号<br>BREAKER TYPE                              | KFM3XE-125<br>KFM3XE-160    KFM3XE-250    KFM3XE-400    KFM3XE-630    KFM3XE-800    KFM3E-1600 |     |     |     |     |     |
|----------------------------------------------------|------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|
| 电操尺寸<br>Electric operating<br>mechanism dimensions | A                                                                                              | 116 | 116 | 176 | 176 | 176 |
|                                                    | H                                                                                              | 101 | 105 | 151 | 151 | 153 |

#### 电动操作机构技术数据 TECHNICAL DATA OF THE ELECTRIC OPERATING MECHANISM

| 断路器型号<br>BREAKER TYPE                  | 电操参数<br>ELECTRIC OPERATING<br>MECHANISM PARAMETERS | 额定控制电压 V<br>RATED CONTROL VOLTAGE | 工作电流 A<br>WORKING CURRENT | 电机功率 W<br>MOTOR POWE |
|----------------------------------------|----------------------------------------------------|-----------------------------------|---------------------------|----------------------|
| KFM3XE-125<br>KFM3XE-160<br>KFM3XE-250 |                                                    | AC: 110、230、400<br>DC: 24、110、220 | ≤0.5                      | 14                   |
| KFM3XE-400<br>KFM3XE-630<br>KFM3XE-800 |                                                    | AC: 110、230、400<br>DC: 24、110、220 | ≤2                        | 35                   |
| KFM3E-1600                             |                                                    | AC: 110、230、400<br>DC: 24、110、220 | ≤2                        | 45                   |

### 断路器内外部附件 Internal and external accessories of the breaker

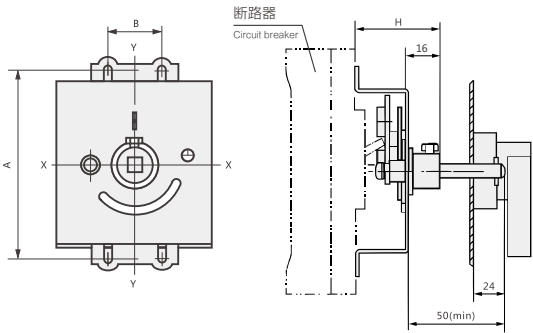
#### 转动手柄操作机构 TURNING HANDLE OPERATION MECHANISM

转动手柄操作机构有中心式(CS1型)和偏心式(CS2型)两种，  
可配用A型(圆形)或F1型(方形)手柄。  
出厂默认转动手柄操作结构为中心式，配圆形手柄，轴长150mm。  
注：KFM3E-1600只有偏心式（CS2型），默认配圆形手柄，轴长300mm。

There are two kinds of rotary handle operating mechanisms: central type (CS1 type) and eccentric type (CS2 type), which can be equipped with A-type (circular) or F1-type (square) handle.  
The factory default rotating handle operation structure is central type, equipped with circular handle, and the shaft length is 150mm.  
Note: KFM3E-1600 is only eccentric (CS2 type), with a circular handle and a shaft length of 300mm by default.

#### 中心式转动手柄操作机构

CENTER TYPE TURNING HANDLE OPERATING MECHANISM



#### 中心式转动手柄与断路器配用表

EQUIP TABLE OF CENTER TYPE TURNING HANDLE OPERATING MECHANISM AND BREAKER

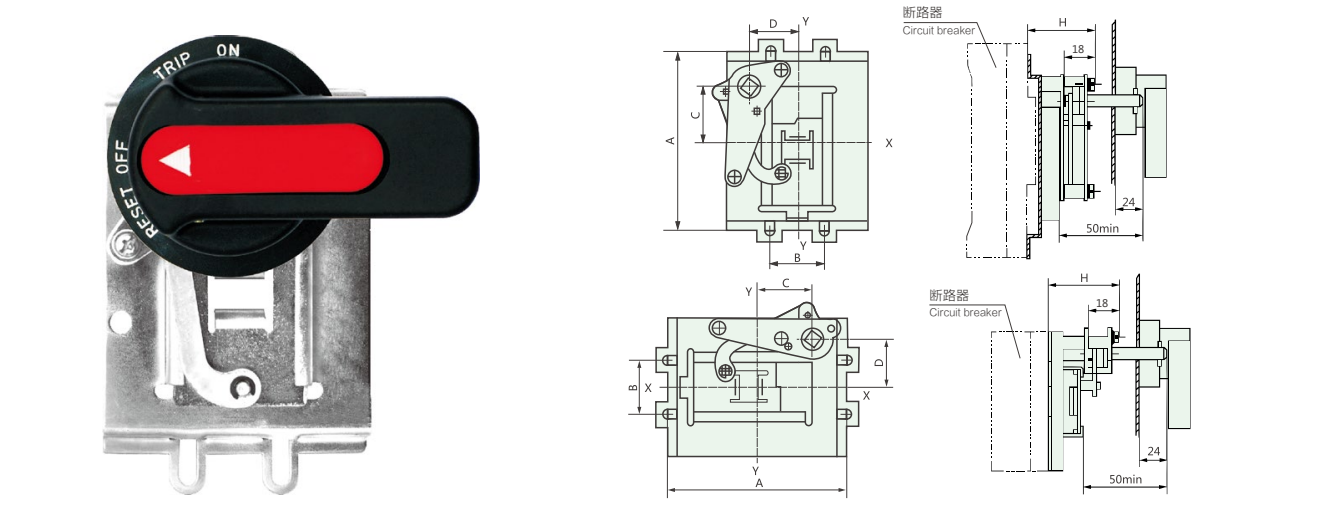
| 断路器型号<br>BREAKER TYPE          | 配用转动手柄型号<br>EQUIPPED TURNING<br>HANDLE TYPE | 安装尺寸 INSTALLATION DIMENSIONS |     |      |                                                                       |
|--------------------------------|---------------------------------------------|------------------------------|-----|------|-----------------------------------------------------------------------|
|                                |                                             | A                            | B   | H    | 操作手柄相对断路器中心Y值(mm)<br>OPERATING HANDLE RELATIVE BREAKER CENTER Y VALUE |
| KFM3XE-125<br>KFM3XE-160       | CS1A-100/KFM3XE                             | 132                          | 30  | 65.5 | 0                                                                     |
|                                | CS1F1-100/KFM3XE                            |                              |     |      |                                                                       |
| KFM3XE-250                     | CS1A-250/KFM3XE                             | 126                          | 35  | 75   | 0                                                                     |
|                                | CS1F1-250/KFM3XE                            |                              |     |      |                                                                       |
| KFM3XE-400/3P<br>KFM3XE-630/3P | CS1A-400/KFM3XE                             | 194                          | 128 | 92   | +5                                                                    |
|                                | CS1F1-400/KFM3XE                            |                              |     |      |                                                                       |
| KFM3XE-400/4P<br>KFM3XE-630/4P | CS1A-400/KFM3XE                             | 194                          | 172 | 92   | +5                                                                    |
|                                | CS1F1-400/KFM3XE                            |                              |     |      |                                                                       |
| KFM3XE-800                     | CS1A-800/KFM3XE                             | 243                          | 198 | 92   | +10                                                                   |
|                                | CS1F1-800/KFM3XE                            |                              |     |      |                                                                       |

KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

断路器内外部附件 Internal and external accessories of the breaker

偏心式转动手柄操作机构 ECCENTRIC TURNING HANDLE OPERATING MECHANISM

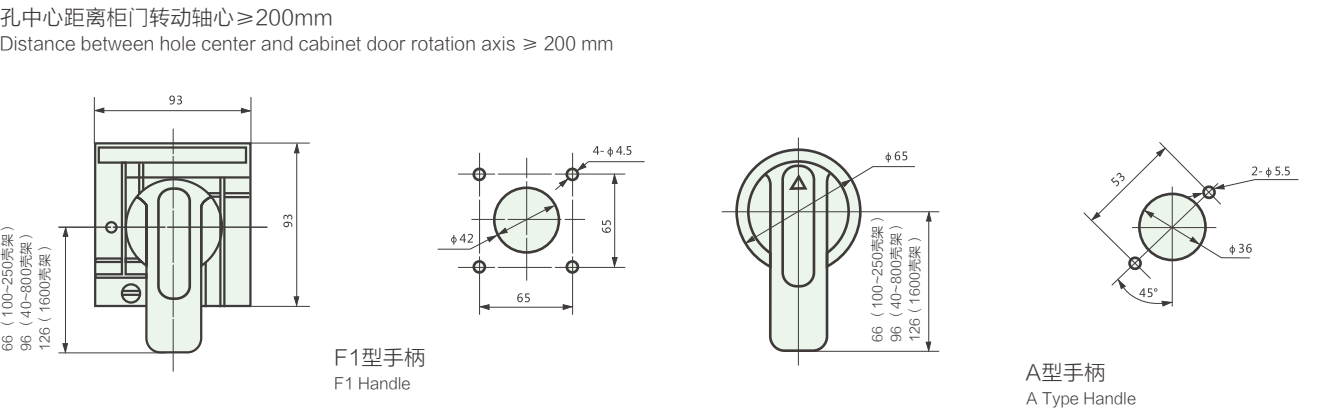


偏心式转动手柄与断路器配用表 EQUIP TABLE OF ECCENTRIC TYPE TURNING HANDLE OPERATING MECHANISM AND BREAKER

| 断路器型号<br>BREAKER<br>TYPE       | 配用转动手柄型号<br>EQUIPPED TURNING<br>HANDLE TYPE |     |     |    |                                                                                                         |      | 备注<br>REMARK |
|--------------------------------|---------------------------------------------|-----|-----|----|---------------------------------------------------------------------------------------------------------|------|--------------|
|                                |                                             | A   | B   | C  | D                                                                                                       | H    |              |
| KFM3XE-125<br>KFM3XE-160       | CS2A-100/KFM3XE<br>CS2F1-100/KFM3XE         | 132 | 30  | 44 | 11                                                                                                      | 56.5 |              |
| KFM3XE-250                     | CS2A-250/KFM3XE<br>CS2F1-250/KFM3XE         | 126 | 35  | 44 | 11                                                                                                      | 56.5 |              |
| KFM3XE-400/3P<br>KFM3XE-630/3P | CS2A-400/KFM3XE<br>CS2F1-400/KFM3XE         | 194 | 128 | 75 | 15                                                                                                      | 61   |              |
| KFM3XE-400/4P<br>KFM3XE-630/4P | CS2A-400/KFM3XE<br>CS2F1-400/KFM3XE         | 194 | 172 | 75 | 15                                                                                                      | 61   |              |
| KFM3XE-800                     | CS2A-800/KFM3XE<br>CS2F1-800/KFM3XE         | 243 | 198 | 68 | 15                                                                                                      | 61   |              |
| KFM3E-1600                     | CS2A-1600/KFM3E<br>CS2F1-1600/KFM3E         | 311 | 70  | 84 | -23<br>(在断路器本体<br>手柄中线的右侧)<br>(on the right side of the middle<br>of the circuit breaker's body handle) | 68   |              |

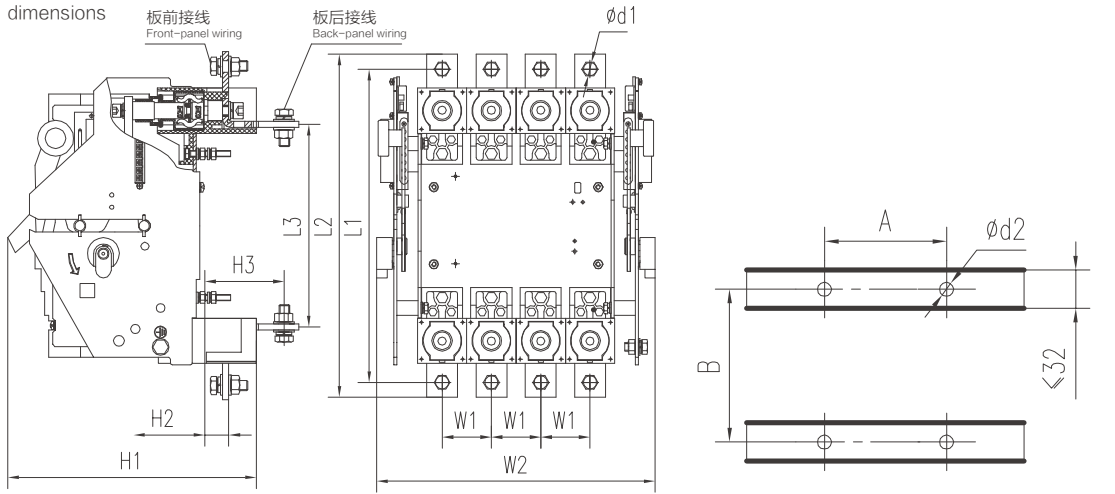
断路器内外部附件 Internal and external accessories of the breaker

转动手柄外形及面板开孔尺寸图 TURNING HANDLE SHAPE AND PANEL HOLE DIMENSION FIGURE



抽出式装置 DRAW-OUT DEVICE

抽出式装置外形以及安装尺寸  
Boundary and installing dimensions  
of draw-out device



| 规格型号<br>SPECIFICATIONS<br>AND MODELS | 极数<br>POLE<br>NUMBER | 外形尺寸(mm) BOUNDARY DIMENSIONS |     |     |     |    |    |    |     |     | 安装尺寸(mm) INSTALLING DIMENSIONS |     |     |
|--------------------------------------|----------------------|------------------------------|-----|-----|-----|----|----|----|-----|-----|--------------------------------|-----|-----|
|                                      |                      | L1                           | L2  | L3  | H1  | H2 | H3 | W1 | W2  | Φd1 | A                              | B   | Φd2 |
| KFM3XE-400                           | 3P                   | 311                          | 340 | 205 | 260 | 23 | 77 | 44 | 211 | Φ11 | 88                             | 141 | Φ7  |
|                                      | 4P                   | 311                          | 340 | 205 | 260 | 23 | 77 | 44 | 255 | Φ11 | 132                            | 141 | Φ7  |
| KFM3XE-800                           | 3P                   | 367                          | 410 | 241 | 251 | 26 | 73 | 70 | 289 | Φ13 | 140                            | 131 | Φ7  |
|                                      | 4P                   | 367                          | 410 | 241 | 251 | 26 | 73 | 70 | 359 | Φ13 | 210                            | 131 | Φ7  |

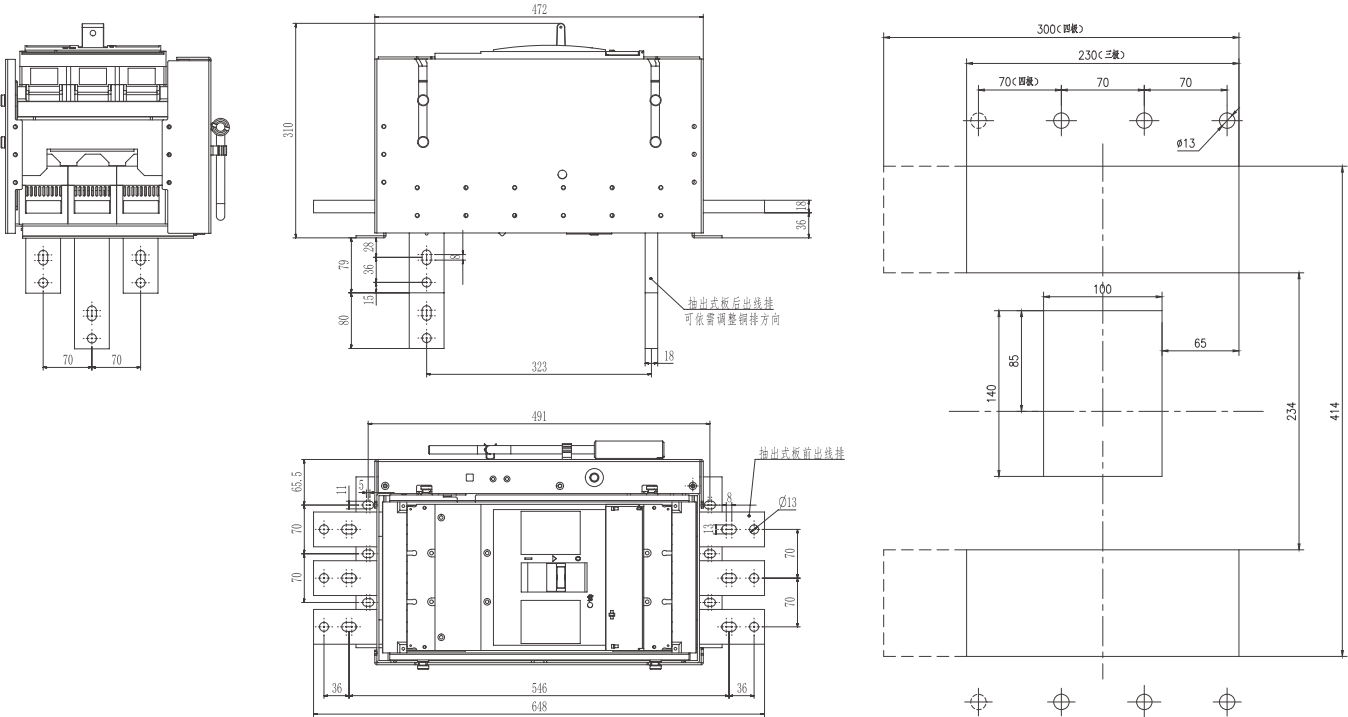
KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

断路器内外部附件 Internal and external accessories of the breaker

抽出式装置 DRAW-OUT DEVICE

抽出式装置外形以及安装尺寸  
Boundary and installing dimensions  
of draw-out device

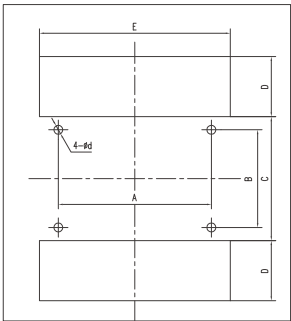


注：插出式的最大使用电流1250A。  
Note: The maximum operating current of the plug-in type is 1250A.

断路器内外部附件 Internal and external accessories of the breaker

抽出式装置小室后板开孔图及相关尺寸(仅适用于板后出线)

CUBICLE BACKBOARD HOLE FIGURE AND RELATIVE DIMENSIONS OF DRAW-OUT DEVICE (ONLY APPLICABLE TO BACK-PANEL COIL OUT)



| 规格型号<br>SPECIFICATIONS<br>AND MODELS | 极数<br>POLE<br>NUMBER | 小室后板开孔尺寸，仅使用于板后接线(mm)<br>CUBICLE BACKBOARD HOLE FIGURE AND RELATIVE DIMENSIONS, ONLY APPLICABLE TO BACK-PANEL COIL OUT |     |     |    |     |          |
|--------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------|-----|-----|----|-----|----------|
|                                      |                      | A                                                                                                                      | B   | C   | D  | E   | $\Phi d$ |
| KFM3XE-400                           | 3P                   | 88                                                                                                                     | 141 | 179 | 47 | 135 | $\Phi 7$ |
|                                      | 4P                   | 132                                                                                                                    | 141 | 179 | 47 | 179 | $\Phi 7$ |
| KFM3XE-800                           | 3P                   | 140                                                                                                                    | 131 | 170 | 77 | 213 | $\Phi 7$ |
|                                      | 4P                   | 210                                                                                                                    | 131 | 170 | 77 | 283 | $\Phi 7$ |

备注：目前只有KFM3XE-400、KFM3XE-800系列断路器可以提供抽出式装置，其他型号的断路器暂时无法提供抽出式。

Remark: currently only the KFM3XE-400、KFM3XE-800 series of breakers can provide draw-out devices, other types of breakers can't provide draw-out devices temporarily.

端子罩 Terminal cover

It is installed on both sides of the product, and can realize the terminal protection. Its height, width and product are the same. See the table below for the length.

| 产品型号<br>Product model          | 安装位置<br>Installation position            | 长度<br>length | 只数<br>Count only                            |
|--------------------------------|------------------------------------------|--------------|---------------------------------------------|
| KFM3XE-125-3P<br>KFM3XE-160-3P | 进、出线端<br>Incoming and outgoing terminals | 10           | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3XE-250-3P                  | 进、出线端<br>Incoming and outgoing terminals | 10           | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3XE-400-3P<br>KFM3XE-630-3P | 进、出线端<br>Incoming and outgoing terminals | 12           | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3XE-800-3P                  | 进、出线端<br>Incoming and outgoing terminals | 12           | 进、出线各1<br>1 inlet and 1 outlet respectively |

KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

通讯模块

Status upload communication module

KFM3XE系列塑壳断路器装配通讯模块后，可实现如下功能：

遥信：断路器（必须装配辅助、报警触点）的合闸、分闸、脱扣三位置状态可上传至上位机；

遥控：通过上位机可控制断路器（必须装配辅助、报警触点和电动操作机构）的合分闸；

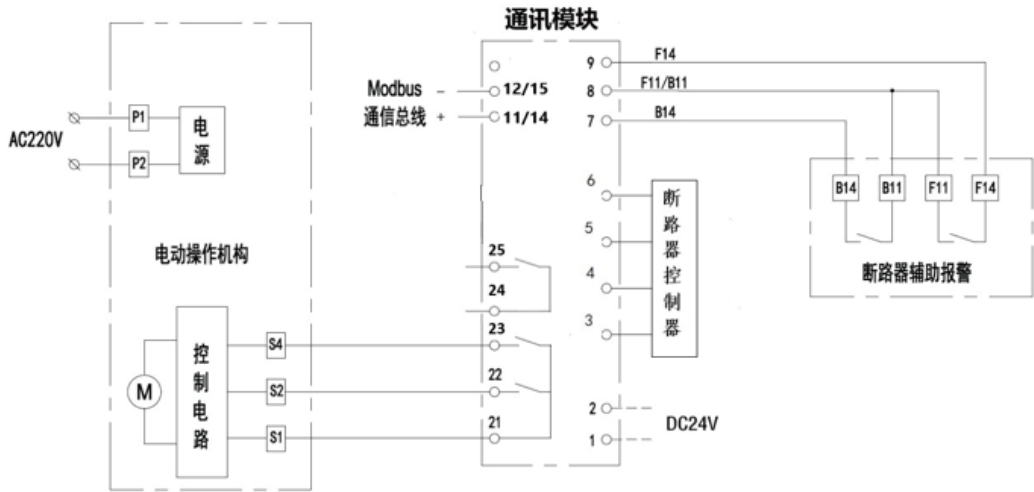
通讯模块接线图：

After being equipped with a communication module, the KFM3XE series molded case circuit breaker can achieve the following functions:

Remote signaling: The three position states of closed, open and trip of the circuit breaker (which must be equipped with auxiliary and alarm contacts) can be uploaded to the upper computer.

Remote control: The opening and closing of the circuit breaker (which must be equipped with auxiliary, alarm contacts and electric operating mechanisms) can be controlled through the upper computer.

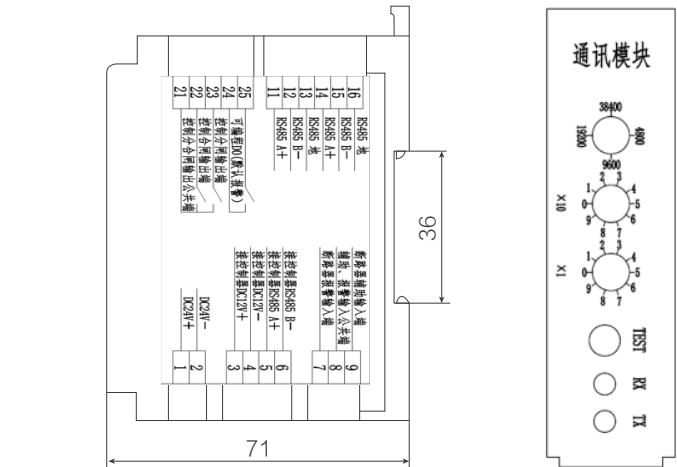
Communication module wiring diagram



备注：3、4、5、6号线为通讯模块标配线束  
Note: Lines 3, 4, 5 and 6 are standard wiring harnesses for communication modules

导轨安装通讯模块外形尺寸图：

Diagram of the external dimensions of the communication module installed on the rail:



使用与维修

Use and maintenance

断路器可垂直安装，也可水平安装。水平安装时,其技术性能不变。安装前应检查确认断路器铭牌上所列技术参数是否符合使用要求。电源进线端应接在断路器1，3，5端子上，负载接在2，4，6端子上。连接导线截面积应符合下表的要求。

The breaker can be installed vertically or horizontally. Its technical performance is the same when adopting horizontal installation. Check whether the technical parameters listed on the breaker data plate meet the operating requirements before installation.

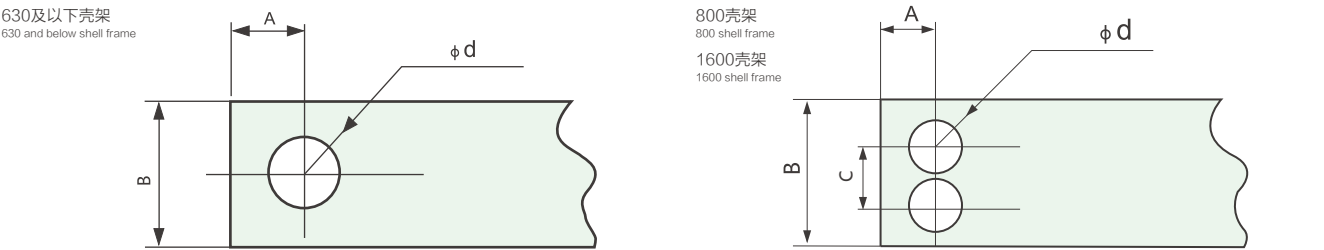
The power supply coil in end shall be connected to terminal 1, 3 and 5; the load shall be connected to terminal 2, 4 and 6. The sectional area of connecting lead shall meet the requirements of the table below.

|                                 |   |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |
|---------------------------------|---|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 额定电流值(A)<br>Rated current value | 6 | 10 | 16 | 25 | 32 | 40 | 63 | 80 | 100 | 125 | 160 | 180 | 200 | 250 | 315 | 400 |
|                                 |   |    | 20 |    |    | 50 |    |    |     | 140 |     | 225 |     |     | 350 |     |

|                                              |   |     |     |   |   |    |    |    |    |    |    |    |     |     |     |
|----------------------------------------------|---|-----|-----|---|---|----|----|----|----|----|----|----|-----|-----|-----|
| 铜导线截面积(mm²)<br>Sectional area of copper lead | 1 | 1.5 | 2.5 | 4 | 6 | 10 | 16 | 25 | 35 | 50 | 70 | 95 | 120 | 185 | 240 |
|----------------------------------------------|---|-----|-----|---|---|----|----|----|----|----|----|----|-----|-----|-----|

| 额定电流值(A)<br>Rated current value | 铜导线 Cooper lead |                                          | 铜排尺寸 Copper bar size |                                                 |
|---------------------------------|-----------------|------------------------------------------|----------------------|-------------------------------------------------|
|                                 | 根数<br>Number    | 每根截面积(mm²)<br>Sectional area of each one | 根数<br>Number         | 每根截面积(mm²)<br>Number Sectional area of each one |
| 500                             | 2               | 150                                      | 2                    | 30x5                                            |
| 630                             | 2               | 185                                      | 2                    | 40x5                                            |
| 700                             | 2               | 240                                      | 2                    | 50x5                                            |
| 800                             | 2               | 240                                      | 2                    | 50x5                                            |

采用铜排连接时，铜排开孔尺寸见下图和表。  
When adopting copper bar connection, see the figure and table below for the copper bar hole dimensions.



| 型号 TYPE                  | 尺寸 DIMENSIONS | A       | B   | C  | D    |
|--------------------------|---------------|---------|-----|----|------|
| KFM3XE-125<br>KFM3XE-160 |               | 8       | ≤19 | /  | 8.5  |
| KFM3XE-250               |               | 10      | ≤24 | /  | 8.5  |
| KFM3XE-400               |               | 11.5    | ≤30 | /  | 10.5 |
| KFM3XE-630               |               | 11.5    | ≤30 | /  | 10.5 |
| KFM3XE-800               |               | 12      | ≤40 | 22 | 8.5  |
| KFM3E-1600/KFM3XE-1600   |               | 20(Max) | ≤50 | 25 | 10.5 |

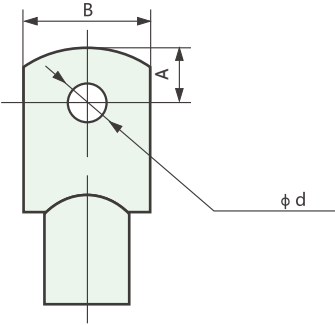
KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

使用与维修    Use and maintenance

250A壳架等级及以下采用电缆连接时配用的接线端子型号见下表。

See the table below for the equipped terminal blocks of 250 A shell frame grade and below adopting cable connection.



| 断路器型号<br>BREAKER TYPE    | 电流(A)<br>CURRENT | 导线截面(mm²)<br>LEAD SECTIONAL AREA | 端子型号<br>TERMINAL TYPE | A  | B     | Φd  |
|--------------------------|------------------|----------------------------------|-----------------------|----|-------|-----|
| KFM3XE-125<br>KFM3XE-160 | 16、20            | 2.5                              | JBC2.5-8              | 8  | 15    | 8.2 |
|                          | 25               | 4                                | JBC4-8                |    | 15    |     |
|                          | 32               | 6                                | JBC6-8                |    | 15    |     |
|                          | 40、50            | 10                               | JBC10-8               |    | 15    |     |
|                          | 63               | 16                               | JBC16-8               |    | 17    |     |
|                          | 80               | 25                               | JBC25-8               |    | 17    |     |
|                          | 100              | 35                               | JGC35-8               |    | 17    |     |
|                          | 125、140          | 50                               | JGC50-8               |    | 17    |     |
| KFM3XE-250               | 160              | 70                               | JGC70-8               | 10 | 17    | 8.2 |
|                          | 100              | 35                               | JGC35-8               |    | 22    |     |
|                          | 125、140          | 50                               | JGC50-8               |    | 22    |     |
|                          | 160              | 70                               | JGC70-8               |    | 22    |     |
|                          | 180、200          | 95                               | JGC95-8               |    | 22    |     |
|                          | 250              | 120                              | JGC120-8              |    | 24max |     |

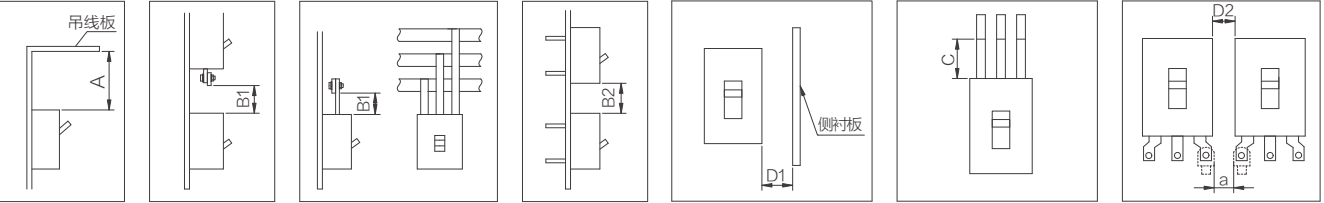
断路器安装最小安全距离    Minimum safety distance for circuit breaker installation

关于断路器线路侧裸露部件及带电部件的绝缘性能，至少采用绝缘胶带、绝缘管或端子盖确保带电导体的绝缘。

- ① A：断路器至吊线板（有接地金属）间的距离。
- ② B1：断路器至上断路器端子侧未遮盖导电部分的距离（板前接线）。
- ③ B2：下断路器至上断路器端面间的距离（板后接线）。
- ④ D1：断路器侧至侧衬板（有接地金属）间的距离。
- ⑤ C：断路器电源端子的绝缘长度（板前接线）。

请使用绝缘胶带、绝缘管、绝缘隔板或端子板确保该尺寸范围内裸露带电部件间的相互绝缘。关于尺寸范围，参见绝缘距离表。

- 当同时采用绝缘胶带、绝缘管、绝缘隔板及端子盖板时，确保相互间至少有10mm 的重叠部分。
  - 如果根据标准要求必须采用绝缘隔板，请确保务必采用隔板。
    - a：标准中规定的间距。
  - ⑥ D2：断路器侧部距离
- 如果安装时断路器间可不留间隔，务必遵守以下规定：
- 在相邻断路器间安装绝缘隔板或根据切断气体隔离裸露部件及带电部件。
  - 必须确保最小的绝缘距离（尺寸a）。
  - 当漏电断路器及漏电报警断路器安装在一起时，如果2,500A 以上的电流流经其中一个断路器时，另一个断路器会出现误动作。确保相互间至少50mm 的距离。
  - 当400A以上的断路器配有分励脱扣器或欠压脱扣器时，如果50kA以上的电流流过其中一个断路器时，另一个断路器会出现误动作。至少确保断路器间留有50mm 的距离。



As for the insulation performance of the exposed parts and live parts on the line side of the circuit breaker, at least the insulating tape, insulating tube or terminal cover shall be used to ensure the insulation of the live conductor.

- ① A: distance between circuit breaker and suspension plate (with grounding metal).
  - ② B1: the distance from the circuit breaker to the uncovered conductive part on the terminal side of the circuit breaker (wiring in front of the board).
  - ③ B2: distance between lower circuit breaker and upper circuit breaker end face (wiring behind board).
  - ④ D1: distance between circuit breaker side and side lining plate (with grounding metal).
  - ⑤ C: insulation length of power terminal of circuit breaker (wiring in front of board).
- Please use insulating tape, insulating tube, insulating partition board or terminal board to ensure mutual insulation between exposed live parts within the size range. See insulation distance table for size range.
- When using insulating tape, insulating tube, insulating partition and terminal cover plate at the same time, ensure that there is at least 10 mm overlap between them.
- if the insulation partition must be used according to the standard requirements, please make sure that the partition must be used.
  - a: The spacing specified in the standard.
  - ⑥ D2: side distance of circuit breaker
  - If there is no space between circuit breakers during installation, the following regulations must be observed:
  - Install insulating partition between adjacent circuit breakers or isolate exposed parts and live parts according to cut-off gas.
  - The minimum insulation distance (dimension a) must be ensured.
  - When the leakage circuit breaker and the leakage alarm circuit breaker are installed together, if the current above 2500A flows through one of the circuit breakers, the other circuit breaker will malfunction. Ensure at least 50 mm distance from each other.
  - When the circuit breaker above 400A is equipped with shunt release or undervoltage release, if the current above 50kA flows through one of the circuit breakers, the other circuit breaker will malfunction. Ensure that there is at least 50mm distance between circuit breakers.

KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

KFM3XE 系列智能型塑壳断路器

断路器安装最小安全距离

Minimum safety distance for circuit breaker installation

| 型号<br>Type               | 吊线板<br>Temperature        |                                      | 垂直间距<br>Vertical spacing  |                                      | C   | 水平间距<br>Horizontal spacing |
|--------------------------|---------------------------|--------------------------------------|---------------------------|--------------------------------------|-----|----------------------------|
|                          | A                         |                                      | B1, B2                    |                                      |     | D 1                        |
|                          | 无端子罩<br>No Terminal cover | 配端子罩<br>Equipped with Terminal cover | 无端子罩<br>No Terminal cover | 配端子罩<br>Equipped with Terminal cover |     |                            |
| KFM3XE-125<br>KFM3XE-160 | 60                        | 50                                   | 60                        | 50                                   | 80  | 30                         |
| KFM3XE-250               | 60                        | 50                                   | 60                        | 50                                   | 80  | 30                         |
| KFM3XE-400               | 120                       | 110                                  | 120                       | 110                                  | 110 | 35                         |
| KFM3XE-630               | 120                       | 110                                  | 120                       | 110                                  | 110 | 35                         |
| KFM3XE-800               | 120                       | 110                                  | 120                       | 110                                  | 110 | 35                         |

降容系数表

Derating factor table

环境温度变化的降容系数表

DERATING FACTOR TABLE OF AMBIENT TEMPERATURE CHANGE

| 型号<br>TYPE               | 温度<br>TEMPERATURE | +40℃                    | +45℃  | +50℃  | +55℃    | +60℃    | +65℃   | +70℃   |
|--------------------------|-------------------|-------------------------|-------|-------|---------|---------|--------|--------|
|                          | 系数<br>FACTOR      | 降容系数<br>DERATING FACTOR |       |       |         |         |        |        |
| KFM3XE-125<br>KFM3XE-160 |                   | 1.0In                   | 1.0In | 1.0In | 0.973In | 0.95In  | 0.92In | 0.9In  |
| KFM3XE-250               |                   | 1.0In                   | 1.0In | 1.0In | 0.976In | 0.952In | 0.93In | 0.9In  |
| KFM3XE-400               |                   | 1.0In                   | 1.0In | 1.0In | 0.978In | 0.957In | 0.94In | 0.92In |
| KFM3XE-630               |                   | 1.0In                   | 1.0In | 1.0In | 0.976In | 0.952In | 0.93In | 0.9In  |
| KFM3XE-800               |                   | 1.0In                   | 1.0In | 1.0In | 0.98In  | 0.958In | 0.94In | 0.92In |
| KFM3E-1600               |                   | 1.0In                   | 1.0In | 1.0In | 0.96In  | 0.93In  | 0.89In | 0.86In |

高海拔降容系数

HIGH ALTITUDE DERATING PARAMETERS

海拔超过适用工作环境2000m，断路器电气性能可参照下面数据修正。  
The breaker electrical performance can be amended with reference to the following data when the altitude is 2000 m more than the suitable working environment.

| 海拔高度 (m)<br>ALTITUDE                            | 2000 | 3000 | 4000 | 5000 |
|-------------------------------------------------|------|------|------|------|
| 工频耐压 (V)<br>Power frequency withstand voltage   | 3500 | 3150 | 2800 | 2500 |
| 工作电流修正系数<br>Operating current correction factor | 1    | 0.98 | 0.95 | 0.93 |
| 绝缘电压 (V)<br>Insulation voltage                  | 1000 | 900  | 810  | 730  |
| 最大工作电压 (V)<br>Maximum operating voltage         | 690  | 600  | 500  | 440  |

断路器的接线方式为插入式和板后接线时降容系数为0.75。  
The derating factor is 0.75 when the wiring modes of breaker are plug-in type and back-panel wiring.

## KFM3XE SERIES INTELLIGENT MOLDED CASE CIRCUIT BREAKER

## KFM3XE 系列智能型塑壳断路器

## 订货须知 Ordering Information

备注 Remarks

| 订 货 单 Order                           |                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                           |               |                                        |  |                                                                                  |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------|---------------|----------------------------------------|--|----------------------------------------------------------------------------------|
| 订货单位名称 Name                           |                                                                                                                                                                             |  | 电 话 Tel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                           | 订货数量 Quantity |                                        |  |                                                                                  |
| 订货单位地址 Address                        |                                                                                                                                                                             |  | 传 真 Fax                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                           | 订货日期 Date     |                                        |  |                                                                                  |
| 联系人 Contacts                          |                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                           |               |                                        |  |                                                                                  |
| 型号 Model                              |                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                           |               |                                        |  |                                                                                  |
| 智能脱扣器型号<br>Smart tripping type number | 长延时<br>Long-time delay                                                                                                                                                      |  | 整定电流 Ir<br>Setting current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | <input type="text"/> x In                 |               | 整定时间 tr <input type="text"/> s         |  |                                                                                  |
|                                       | 短延时<br>Short-time delay                                                                                                                                                     |  | 整定电流 Isd<br>Setting current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | <input type="text"/> x Ir                 |               | 整定时间 tsd <input type="text"/> s        |  |                                                                                  |
|                                       | 瞬时<br>Instantaneous                                                                                                                                                         |  | 整定电流 li<br>Setting current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | <input type="text"/> x In                 |               |                                        |  |                                                                                  |
|                                       | 接地保护<br>Ground Protection                                                                                                                                                   |  | 整定电流 lg<br>Setting current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | <input type="text"/> x In                 |               | ●                                      |  |                                                                                  |
|                                       | 过载预报警<br>Overload pre-alarm                                                                                                                                                 |  | 整定电流 lp<br>Setting current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | <input type="text"/> x Ir                 |               |                                        |  |                                                                                  |
|                                       | 漏电保护<br>Leakage Protection                                                                                                                                                  |  | 整定漏电流 IΔn<br>Setting current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <input type="text"/>                      |               | ●                                      |  |                                                                                  |
|                                       | 安装和接线方式<br>Installation and connection mode                                                                                                                                 |  | <input type="checkbox"/> 板前 Front-panel wiring <input type="checkbox"/> 板后 Back-panel wiring <input type="checkbox"/> 插入式 Plug-in <input type="checkbox"/> * 抽出式 Withdrawable<br>( <input type="checkbox"/> 板前接线 Front-panel wiring <input type="checkbox"/> 板后垂直接线 Back-panel perpendicular wiring <input type="checkbox"/> 板后水平接线 Back-panel level wiring )                                                                                                                                                                                          |  |                                           |               |                                        |  |                                                                                  |
| 可选附件<br>Optional accessories          | 欠压脱扣器<br>Undervoltage release                                                                                                                                               |  | AC230V <input type="text"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | AC400V <input type="text"/>               |               |                                        |  |                                                                                  |
|                                       | 分励脱扣器<br>Shunt release                                                                                                                                                      |  | AC230V <input type="text"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | AC400V <input type="text"/>               |               | DC24V <input type="text"/>             |  |                                                                                  |
|                                       | 电操机构<br>Electric operating mechanism                                                                                                                                        |  | AC230V <input type="text"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | AC400V <input type="text"/>               |               | DC220V <input type="text"/>            |  |                                                                                  |
|                                       | 转动手柄型式<br>Rotary handle type                                                                                                                                                |  | <input type="checkbox"/> 中心式<br>Center-based                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <input type="checkbox"/> 偏心式<br>Eccentric |               | <input type="checkbox"/> A 型<br>Type A |  | <input type="checkbox"/> F1 型<br>Type F1                                         |
| 备注<br>Remarks                         |                                                                                                                                                                             |  | 方轴长度<br>The length of the square shaft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <input type="checkbox"/> 50mm             |               | <input type="checkbox"/> 100mm         |  | <input type="checkbox"/> 150mm    其他长度需定制<br>Other lengths need to be customized |
|                                       | 1.订货时型号要写完整、正确；<br>2.断路器的接线方式，板前接线不写，其余方式要说明，例：板后、插入式。<br>3.如对脱扣器的特性整定无特别要求，亦可不填此表，产品将按B12~B13 “保护特性常规整定表”进行整定出厂，此时用户只需写清楚型号即可。<br>4.*抽出式仅限400、800壳架。<br>5.●表示为非标配功能，为可选功能。 |  | 1.Please fill in the purchase order, complete and correct model.<br>2.The wiring of circuit breaker,front-panel wiring may not be stated, the other must be written clearly,for example:back-panle wiring,plug-in wiring.<br>3.If there is no special requirement for the characteristics of the trip setting, also can not fill out the form. Please write clearly the user model,products will be set according to the B12~B13 "original factory Settings".<br>4.* Draw-out type is limited to 400,800 shells.<br>5.● Represents optional Functions. |  |                                           |               |                                        |  |                                                                                  |

请在  内打√或填上数值    please mark √ or fill numbers in

成熟品质  
智能防护

MATURE QUALITY SMART PROTECTION

KFMEXL

PRODUCT DISPLAY

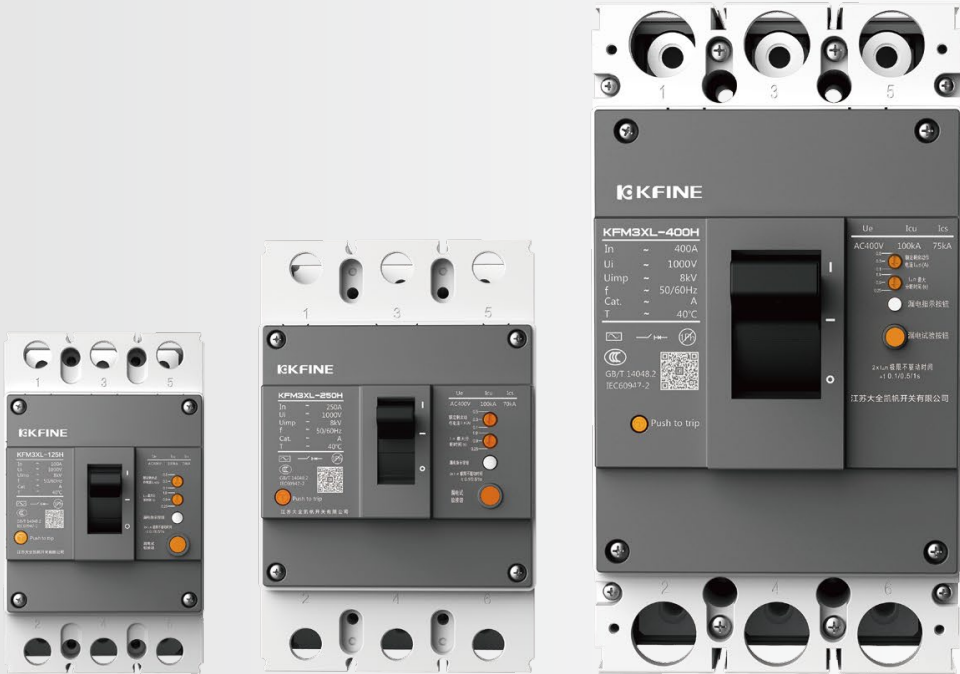
KFM3XL

KFM3XL系列剩余电流动作断路器

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

专注于中高端配电市场解决方案

KFM3X SERIES MOLDED CASE CIRCUIT BREAKER



KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

- 操作机构具有快速闭合和快速分断功能；
- 触头灭弧系统中动、静触头的安装具有平行导体的原理，H型的静触头可斥开，有利于大电流时的快速分断，动、静触头周围装有高耐弧材料制成的元件，有利于快速息弧；
- 结构紧凑，体积小；
- 零飞弧或短飞弧，操作安全可靠。
- 本产品适用高原、高低温、盐雾等特殊环境场所。

- The operating mechanism has the functions of fast closing and fast breaking;
- In the contact arc extinguishing system, the installation of the moving and static contacts has the principle of parallel conductor, and the H-type static contacts can be excluded, It is good for quick breaking when the current is high, and components made of high arc resistant materials are installed around the moving and static contacts, which is good for quick arc stopping;
- Compact structure and small volume;
- Zero or short flashover, safe and reliable operation.
- This product is suitable for plateau, high and low temperature, salt fog and other special environment.



KFM3XL系列剩余电流动作断路器

| 适用范围及主要特点<br>Scope of application and main features                       | C01 |
|---------------------------------------------------------------------------|-----|
| 工作环境及安装条件<br>Working environment and installation conditions              | C02 |
| 快速选型表<br>Quick selection table                                            | C03 |
| 内部附件代号<br>Internal accessory code                                         | C04 |
| 断路器主要技术参数<br>Main technical parameters of circuit breaker                 | C05 |
| 特性曲线<br>characteristic curve                                              | C07 |
| 外形及安装尺寸<br>Outline and installation dimensions                            | C12 |
| 断路器内外部附件<br>Internal and external accessories of circuit breaker          | C20 |
| 应用于AC690V剩余电流保护方案<br>Applied to AC690V residual current protection scheme | C31 |
| 剩余电流互感器外形图<br>Outline drawing of residual current transformer:            | C32 |
| 使用与维修<br>Use and maintenance                                              | C33 |
| 阵容系数表<br>Lineup coefficient table                                         | C38 |
| 订货单<br>Purchase order                                                     | C39 |

# KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

## KFM3XL系列剩余电流动作断路器

### 适用范围

KFM3XL系列剩余电流动作断路器（以下简称断路器），属KFM3X系列产品之一，是公司采用先进的设计和制造技术，研制、开发的新型断路器之一。其额定绝缘电压为1000V，适用于交流50/60Hz，额定工作电压400V，额定工作电流至800A的电路中作不频繁转换及电动机不频繁起动之用。

断路器具有过载、短路和欠电压保护功能，能保护线路和电源设备不受损坏，同时，可对人提供间接接触保护，还可以对过电流保护不能检测出的长期存在的接地故障可能引起火灾危险提供保护。在其它保护装置失灵时，额定剩余动作电流为30mA的KFM3XL断路器可以直接接触起附加保护作用。

KFM3XL断路器可提供交流叠加脉动直流场合的A型剩余电流保护功能，满足GB50054、GB13955对剩余电流保护装置的选用要求。

KFM3XL断路器可带漏电报警不脱扣模块，避免停电造成重大损失，满足GB13955第4.6条要求。

本系列断路器具有隔离功能。其相应的符号为： — / I X

### 符合标准

KFM3XL系列断路器符合下列标准：

- IEC60947-1及GB/T14048.1    低压开关设备和控制设备 总则
- IEC60947-2及GB/T14048.2    低压开关设备和控制设备 断路器
- IEC60947-4及GB/T 14048.4    《低压开关设备和控制设备 低压机电式接触器和电动机启动器》
- IEC60947-5及GB/T 14048.5    《低压开关设备和控制设备 控制电路电器和开关元件 第一部分 机电式控制电路电器》
- GB/Z 6829《剩余电流保护器的一般要求》

### Scope of application

KFM3XL series residual current operated circuit breaker (hereinafter referred to as circuit breaker) is one of kfm3x series products. It is one of the new circuit breakers developed by the company with advanced design and manufacturing technology. Its rated insulation voltage is 1000V, suitable for The circuit with AC 50 / 60Hz, rated working voltage of 400V and rated working current of 800A is used for infrequent conversion and infrequent motor starting. The circuit breaker has the functions of overload, short circuit and undervoltage protection, which can protect the line and power supply equipment from damage. At the same time, it can provide indirect contact protection for people, and can also provide protection against fire hazards caused by long-term grounding faults that cannot be detected by overcurrent protection. In case of failure of other protective devices, kfm3xl circuit breaker with rated residual operating current of 30mA can be directly contacted for additional protection. Kfm3xl circuit breaker can provide type a residual current protection function in AC superimposed pulsating DC occasions, and meet the selection requirements of residual current protection devices in gb50054 and gb13955. Kfm3xl circuit breaker can be equipped with leakage alarm non tripping module to avoid heavy losses caused by power failure and meet the requirements of article 4.6 of gb13955. This series of circuit breakers have isolation function. The corresponding symbols are: — / I X

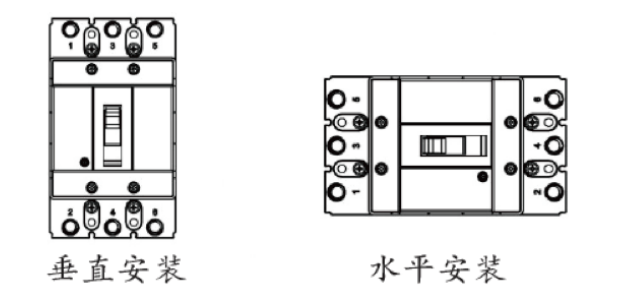
### Standards conformed to

KFM3XL series circuit breaker conform to the following standards:

- IEC60947-1 and GB / T14048.1 low voltage switchgear and controlgear – General
- IEC60947-2 and GB / T14048.2 low voltage switchgear and controlgear circuit breakers
- IEC60947-4 and GB / T 14048.4 low voltage switchgear and controlgear Electromechanical contactors and motor starters
- IEC60947-5 and GB / T 14048.5 low voltage switchgear and controlgear Electromechanical switching and control circuits Part I
- GB / Z 6829 General requirements for residual current protectors

### 工作环境及安装条件

- 使用环境温度  
周围空气温度为-40 ~ + 70℃。环境温度高于+40℃时，客户需降容使用，降容系数见“环境温度变化的降容系数表”。
- 存储条件  
周围空气温度为-40 ~ + 70℃
- 海拔  
安装地点海拔高度不超过2000m，高海拔降容系数见“高海拔降容系数表”；
- 使用相对湿度/存储相对湿度  
安装地点的空气相对湿度，最高温度为 + 40℃时不超过50%，在较低的温度下可以允许有较高的相对湿度，例如20℃时达90%。对由于温度变化偶尔产生的凝露应采取特殊的措施。
- 污染等级  
3级
- 安装类别  
断路器主电路的安装类别为Ⅲ类（配电及控制水平级），不接至主电路的辅助电路和控制电路安装类别为Ⅱ类（负载水平级）。
- 安装环境  
断路器应安装在空气中无爆炸危险的介质且无足以腐蚀金属和破坏绝缘的地方。  
断路器应安装在无雨雪侵袭的地方。  
湿热带型（TH型）断路器通过GB/T2423.4、GB/T2423.18试验要求，能耐受潮湿空气、盐雾、油雾、霉菌的影响；
- 安装方式  
本系列断路器可以垂直安装，也可以横装。  
产品垂直安装，安装面与垂直面的斜度≤ ± 22.5°



本断路器不可倒进线，即只允许1、3、5接电源线，2、4、6接负载线。  
The circuit breaker can not reverse the incoming line, that is, only 1, 3 and 5 are allowed to connect the power line, and 2, 4 and 6 are allowed to connect the load line.

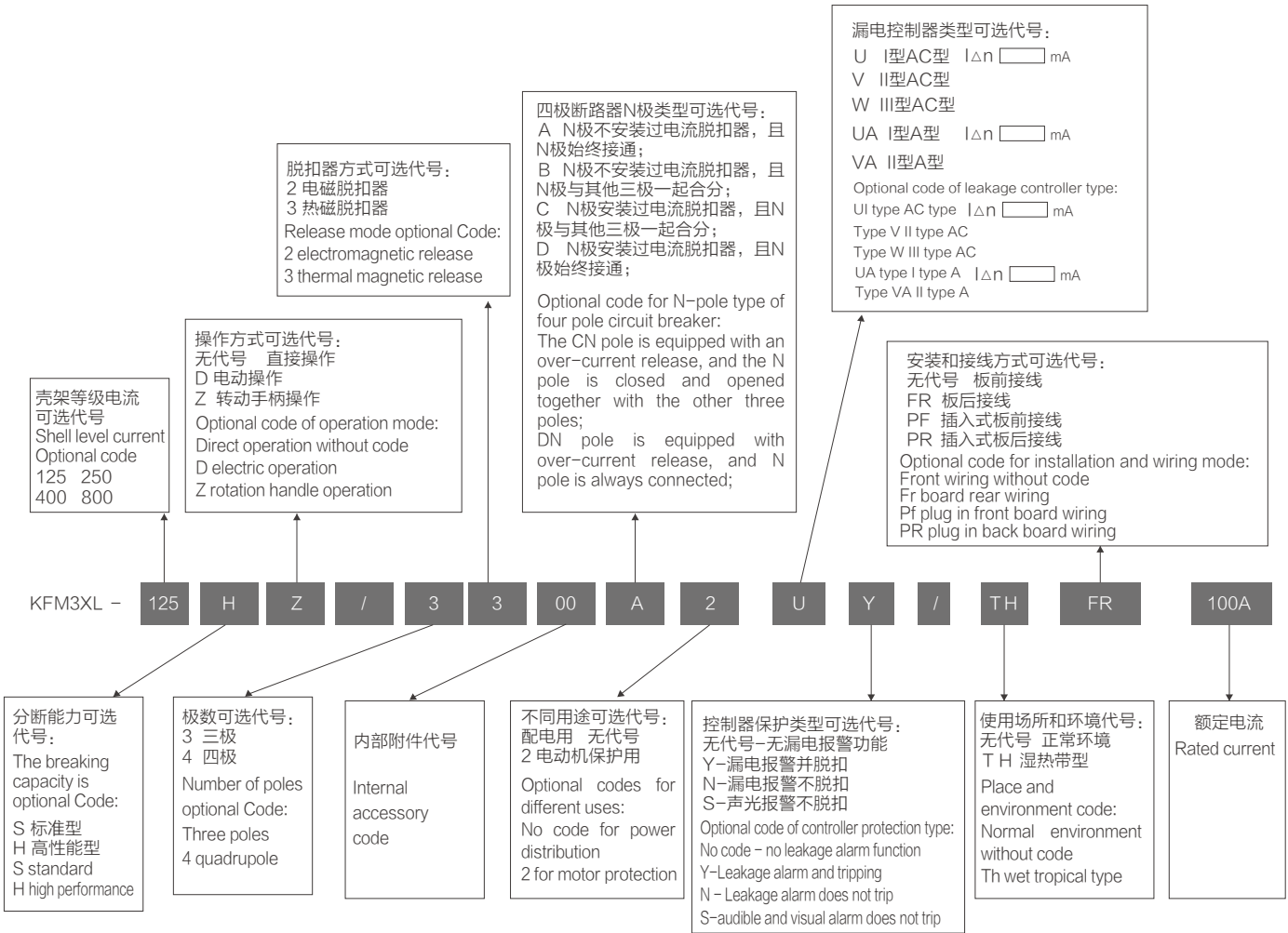
### Working environment and installation conditions

- Operating ambient temperature  
The ambient air temperature is -40 ~ + 70℃. When the ambient temperature is higher than + 40 ℃, the customer needs to reduce the capacity. For the reduction coefficient, see "table of reduction coefficient of ambient temperature change".
- Storage conditions  
The ambient air temperature is - 40 ~ + 70 ℃
- altitude  
The altitude of the installation site shall not exceed 2000m, and the high altitude capacity reduction coefficient is shown in the "high altitude capacity reduction coefficient table";
- Use relative humidity / store relative humidity  
The relative humidity of the air at the installation site shall not exceed 50% when the maximum temperature is + 40 ℃. A higher relative humidity can be allowed at a lower temperature, such as 90% at 20℃. Special measures should be taken for occasional condensation due to temperature change.
- class of pollution  
Level 3
- Installation category  
The installation category of the main circuit of the circuit breaker is class III (distribution and control level), and the installation category of the auxiliary circuit and control circuit not connected to the main circuit is class II (load level).
- Installation environment  
The circuit breaker shall be installed in a place where there is no explosive medium in the air and where there is no place to corrode metal and damage insulation.  
The circuit breaker shall be installed in a place free from rain and snow.  
Th type circuit breaker has passed the test requirements of GB / t2423.4 and GB / t2423.18, and can withstand the influence of humid air, salt spray, oil spray and mold;
- Installation method  
This series of circuit breakers can be installed vertically or horizontally.  
The product is installed vertically, and the inclination between the installation surface and the vertical surface is not more than ± 22.5 degrees

# KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

## KFM3XL系列剩余电流动作断路器

### 快速选型表    Quick selection table



- 备注:
- 1、订货湿热带型产品，请咨询本公司。
  - 2、分别选装长为10mm（KFM3XL-125S/H、KFM3XL-250S/H）、12mm(KFM3XL-400S/H、KFM3XL-800S/H)的端子罩，实现端子防护。  
I型非延时剩余电流脱扣器，剩余电流默认为不可调，下单时剩余电流0.03/0.1/0.3A需要注明（三选一）；订货I型非延时剩余电流可调产品须咨询本公司。
  - 3、三相四线400V/230V或单相与三相共用的线路，应选用四极断路器。

remarks:

1. Please consult our company when ordering wet tropical products.
2. The terminal cover with the length of 10mm (KFM3XL-125S / H, KFM3XL-250S / H) and 12mm (KFM3XL-400S / H, KFM3XL-800S / H) are respectively selected to realize terminal protection.  
For type I non time delay residual current release, the residual current is not adjustable by default. When placing an order, the residual current is 0.03/0.1/0.3a, which needs to be indicated (one of three); When ordering type I non delay residual current adjustable products, you must consult our company.
3. Four pole circuit breaker shall be selected for three-phase four wire 400V / 230V or single-phase and three-phase shared lines.

### 内部附件代号    Internal accessory code

■ 分励脱扣器  
shunt release

▼ 欠压脱扣器  
undervoltage release

○ 辅助触头  
auxiliary contact

● 报警触头  
alarm contact

左装  
Left installation

右装  
Right installation

手柄  
Handle

| 代号<br>Code | 附件名称<br>Accessory name                                                    | KFM3XL-125 |     | KFM3XL-250 |     | KFM3XL-400  |   | KFM3XL-800  |   |
|------------|---------------------------------------------------------------------------|------------|-----|------------|-----|-------------|---|-------------|---|
|            |                                                                           | 3          | 4   | 3          | 4   | 3           | 4 | 3           | 4 |
| 00         | 无<br>nothing                                                              | —          |     | —          |     | —           |   | —           |   |
| 10         | 分励脱扣器<br>Shunt release                                                    | ■          |     | ■          |     | ■           |   | ■           |   |
| 20         | 单辅助触头<br>Single auxiliary contact                                         | ○          |     | ○          |     | ○           |   | ○           |   |
| 21         | 双辅助触头<br>Double auxiliary contact                                         | ○          | ○   | ○          | ○   | ○           | ○ | ○           | ○ |
| 30         | 欠电压脱扣器<br>Under voltage release                                           | ▼          |     | ▼          |     | ▼           |   | ▼           |   |
| 40         | 分励脱扣器、单辅助触头<br>Shunt release, single auxiliary contact                    | ○          | ■ 注 | ○          | ■ 注 | ○<br>■      |   | ○<br>■      |   |
| 41         | 分励脱扣器、双辅助触头<br>Shunt release, double auxiliary contact                    | ○          | ■ 注 | ○          | ■ 注 | ○<br>■ 注    |   | ○<br>■      |   |
| 50         | 分励脱扣器、欠电压脱扣器<br>Shunt release, undervoltage release                       | ▼          | ■ 注 | ▼          | ■ 注 | ▼<br>■ 注    |   | ▼<br>■ 注    |   |
| 70         | 欠电压脱扣器、单辅助触头<br>Under voltage release, single auxiliary contact           |            |     |            |     | ○<br>▼      |   | ○<br>▼      |   |
| 71         | 欠电压脱扣器、双辅助触头<br>Under voltage release, double auxiliary contact           |            |     |            |     |             |   | ○<br>▼      |   |
| 08         | 报警触头<br>Alarm contact                                                     | ●          |     | ●          |     | ●           |   | ●           |   |
| 18         | 分励脱扣器、报警触头<br>Shunt release and alarm contact                             | ●          | ■ 注 | ●          | ■ 注 | ●<br>■      |   | ●<br>■      |   |
| 28         | 单辅助、报警触头<br>Single auxiliary and alarm contact                            | ○<br>●     |     | ○<br>●     |     | ○<br>●      |   | ○<br>●      |   |
| 38         | 欠电压脱扣器、报警触头<br>Under voltage release and alarm contact                    |            |     |            |     | ○<br>●<br>▼ |   | ○<br>●<br>▼ |   |
| 48         | 分励脱扣器、单辅助、报警触头<br>Shunt release, single auxiliary, alarm contact          | ○<br>●     | ■ 注 | ○<br>●     | ■ 注 | ○<br>●<br>■ |   | ○<br>●<br>■ |   |
| 58         | 双辅助触头、报警触头<br>Double auxiliary contact and alarm contact                  |            |     |            |     | ○<br>●<br>■ |   | ○<br>●<br>■ |   |
| 78         | 欠电压脱扣器、单辅助、报警触头<br>Under voltage release, single auxiliary, alarm contact |            |     |            |     | ○<br>●<br>▼ |   | ○<br>●<br>▼ |   |

注：附件代号40、41、50、18、48的分励为外挂分励，分励外挂包尺寸见“外形及安装尺寸”。

Note: the shunt exciter of accessory codes40、41、50、18、48 is external shunt exciter, and the dimensions of external shunt exciter package are shown in "outline and installation dimensions".

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

断路器主要技术参数

Main technical parameters of breaker

| 型 号    Type                                                            |                                                             |                                                         | KFM3XL-125                                                                        |     | KFM3XL-250                                                                        |     | KFM3XL-400                                                                          |     | KFM3XL-800                                                                          |     |
|------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|
| 壳架等级电流Inm (A)    Shell frame grade current Inm                         |                                                             |                                                         | 125                                                                               |     | 250                                                                               |     | 400                                                                                 |     | 800                                                                                 |     |
| 外形    Appearance                                                       |                                                             |                                                         |  |     |  |     |  |     |  |     |
| 额定电流Inm (A)<br>Shell rating current Inm (A)                            |                                                             |                                                         | 16、20、25、32、40<br>50、63、80、100、125                                                |     | 100、125、140、160<br>180、200、225、250                                                |     | 225、250、315、<br>350、400                                                             |     | 400、500、630、<br>700、800                                                             |     |
| 额定绝缘电压Ui(V)<br>Rated insulation voltage                                |                                                             |                                                         | 1000                                                                              |     | 1000                                                                              |     | 1000                                                                                |     | 1000                                                                                |     |
| 额定冲击耐受电压Uimp(KV)<br>Rated impulse withstand voltage Uimp               |                                                             |                                                         | 8                                                                                 |     | 8                                                                                 |     | 8                                                                                   |     | 8                                                                                   |     |
| 额定工作电压 Ue (V)50Hz/60Hz<br>Rated operational voltage                    |                                                             |                                                         | AC400V                                                                            |     | AC400V                                                                            |     | AC400V                                                                              |     | AC400V                                                                              |     |
| 极数<br>Pole number                                                      |                                                             |                                                         | 3、4                                                                               |     | 3、4                                                                               |     | 3、4                                                                                 |     | 3、4                                                                                 |     |
| 短路分断能力级别<br>Short circuit breaking capacity level                      |                                                             |                                                         | S                                                                                 | H   | S                                                                                 | H   | S                                                                                   | H   | S                                                                                   | H   |
| 额定极限短路分断能力Icu(kA)<br>Rated ultimate short-circuit breaking capacity    |                                                             | AC400V                                                  | 50                                                                                | 100 | 50                                                                                | 100 | 50                                                                                  | 100 | 50                                                                                  | 100 |
| 额定运行短路分断能力Ics(kA)<br>Rated operational short-circuit breaking capacity |                                                             | AC400V                                                  | 50                                                                                | 70  | 50                                                                                | 70  | 50                                                                                  | 75  | 50                                                                                  | 75  |
| 额定剩余<br>动作电流(A )<br><br>Rated residual<br>operating<br>current ( A )   | AC型剩余<br>电流保护<br><br>AC type residual<br>Current protection | I 型，非延时<br>Type I, non delay                            | 0.03/0.1/0.3                                                                      |     | 0.03/0.1/0.3                                                                      |     | 0.03/0.1/0.3                                                                        |     | 0.03/0.1/0.3                                                                        |     |
|                                                                        |                                                             | II 型，非延时、延时可调<br>Type II, non delay, delay adjustable   | 0.1/0.3/0.5                                                                       |     | 0.1/0.3/0.5                                                                       |     | 0.1/0.3/0.5                                                                         |     | 0.1/0.3/0.5                                                                         |     |
|                                                                        |                                                             | III 型，非延时、延时可调<br>Type III, non delay, delay adjustable | 1/3/10                                                                            |     | 1/3/10                                                                            |     | 1/3/10                                                                              |     | 1/3/10                                                                              |     |
|                                                                        | A型剩余<br>电流保护<br><br>Type A surplus<br>Current protection    | I 型，非延时<br>Type I, non delay                            | 0.03/0.1/0.3                                                                      |     | 0.03/0.1/0.3                                                                      |     | 0.03/0.1/0.3                                                                        |     | 0.03/0.1/0.3                                                                        |     |
|                                                                        |                                                             | II 型，非延时、延时可调<br>Type II, non delay, delay adjustable   | 0.1/0.3/0.5                                                                       |     | 0.1/0.3/0.5                                                                       |     | 0.1/0.3/0.5                                                                         |     | 0.1/0.3/0.5                                                                         |     |
|                                                                        |                                                             |                                                         |                                                                                   |     |                                                                                   |     |                                                                                     |     |                                                                                     |     |
| 飞弧距离(mm)<br>Arcing distance (mm)                                       |                                                             |                                                         | ≤50                                                                               |     | ≤50                                                                               |     | ≤100                                                                                |     | ≤100                                                                                |     |
| 操作循环次数<br>Number of operation<br>cycles                                |                                                             | 电气寿命<br>Electrical life                                 | 8000                                                                              |     | 8000                                                                              |     | 7500                                                                                |     | 7500                                                                                |     |
|                                                                        |                                                             | 机械寿命<br>Mechanical life                                 | 20000                                                                             |     | 20000                                                                             |     | 10000                                                                               |     | 10000                                                                               |     |
| 外形尺寸 ( mm )<br>Overall dimension (mm)                                  |                                                             | 宽W<br>( 3P/4P )                                         | 90/120                                                                            |     | 105/140                                                                           |     | 140/185                                                                             |     | 210/280                                                                             |     |
|                                                                        |                                                             | 长L                                                      | 155                                                                               |     | 165                                                                               |     | 257                                                                                 |     | 275                                                                                 |     |
|                                                                        |                                                             | 高H<br>( 3P/4P )                                         | 85                                                                                |     | 91                                                                                |     | 103                                                                                 |     | 103                                                                                 |     |

漏电技术参数

Electric leakage technical parameters

剩余电流保护特性 / LONG DELAY OVER-CURRENT PROTECTION INVERSE TIME ACTION CHARACTERISTIC

| 型号<br>Type                                                                           | KFM3XL-125                                                          | KFM3XL-250 | KFM3XL-400   | KFM3XL-800   |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------|--------------|--------------|
| 壳架电流Inm (A)<br>Shell frame grade current Inm                                         | 125                                                                 | 250        | 400          | 800          |
| 额定剩余动作<br>电流IΔn(A)<br>Rated residual<br>action current IΔn                           | Ⅰ型, 非延时<br>Type I, non time delay                                   |            | 0.03/0.1/0.3 | 0.03/0.1/0.3 |
|                                                                                      | Ⅱ型, 非延时、延时可调<br>Type II, non time delay, time delay and adjustable  |            | 0.1/0.3/0.5  | 0.1/0.3/0.5  |
|                                                                                      | Ⅲ型, 非延时、延时可调<br>Type III, non time delay, time delay and adjustable |            | 1/3/10       | 1/3/10       |
| 额定剩余不动作电流IΔno(A)<br>Rated residual non-action current IΔno                           |                                                                     | 1/2 IΔn    |              |              |
| 额定剩余短路接通(分断)能力IΔm(kA)<br>Rated residual short circuit making (breaking) capacity IΔm |                                                                     | 1/4 Icu    |              |              |
| 剩余电流<br>Residual current                                                             |                                                                     | IΔn        | 2IΔn         | 5IΔn         |
| 非延时<br>Non time delay                                                                | 最大断开时间(s)<br>Maximum turn-off time                                  |            | 0.1          | 0.04         |
|                                                                                      |                                                                     |            | 0.2          | 0.04         |
| 延时<br>Time delay                                                                     | 最大断开时间(s)<br>Maximum turn-off time                                  |            | 0.25/0.9/1.9 |              |
|                                                                                      | 极限不驱动时间Δt(s)<br>Limit non-driven time Δt                            |            | 0.1/0.5/1    |              |

热磁型脱扣器动作特性

Thermo-magnetic tripping device action characteristics

配电用断路器保护特性 / POWER DISTRIBUTION BREAKER PROTECTION CHARACTERISTICS

| 脱扣器额定电流(A)<br>TRIPPING DEVICE RATED<br>CURRENT | 反时限动作特性(周围空气温度 + 40℃)<br>NVERSE TIME LIMIT ACTION CHARACTERISTICS (AMBIENT TEMPERATURE + 40℃) |                                             | 瞬时动作电流(A)<br>INSTANTANEOUS ACTION<br>CURRENT |
|------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------|
|                                                | 1.05In(冷态)不动作时间(h)<br>1.05 In (COLD STATE)                                                    | 1.3In(热态)动作时间(h)<br>1.30 In (THERMAL STATE) |                                              |
| In≤63                                          | ≥1                                                                                            | <1                                          | 10In ± 20%                                   |
| 63<In≤800                                      | ≥2                                                                                            | <2                                          |                                              |

电动机用断路器保护特性 / MOTOR PROTECTION BREAKER PROTECTIVE CHARACTERISTICS

| 脱扣器额定电流(A)<br>TRIPPING DEVICE<br>RATED CURRENT | 反时限动作特性(周围空气温度 + 40℃)<br>NVERSE TIME LIMIT ACTION CHARACTERISTICS (AMBIENT TEMPERATURE + 40℃) |                                                |                                             |                                             | 瞬时动作电流(A)<br>INSTANTANEOUS<br>ACTION CURRENT |
|------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------|---------------------------------------------|----------------------------------------------|
|                                                | 1.0In(冷态)<br>不动作时间(h)<br>1.01 In (COLD STATE)                                                 | 1.2In(热态)<br>动作时间(h)<br>1.2 In (THERMAL STATE) | 1.5In(热态)<br>动作时间<br>1.5 In (THERMAL STATE) | 7.2In(冷态)<br>动作时间<br>7.2 In (THERMAL STATE) |                                              |
| In≤100                                         | ≥2                                                                                            | ≤2                                             | ≤2min                                       | 2s<Tp≤10s                                   | 12In ± 20%                                   |
| 100<In≤630                                     |                                                                                               |                                                | ≤4min                                       | 4s<Tp≤20s                                   |                                              |

注：16~32A瞬时动作电流为400A ± 20%。Note: 16~32A instantaneous operating current is 400A ± 20%.

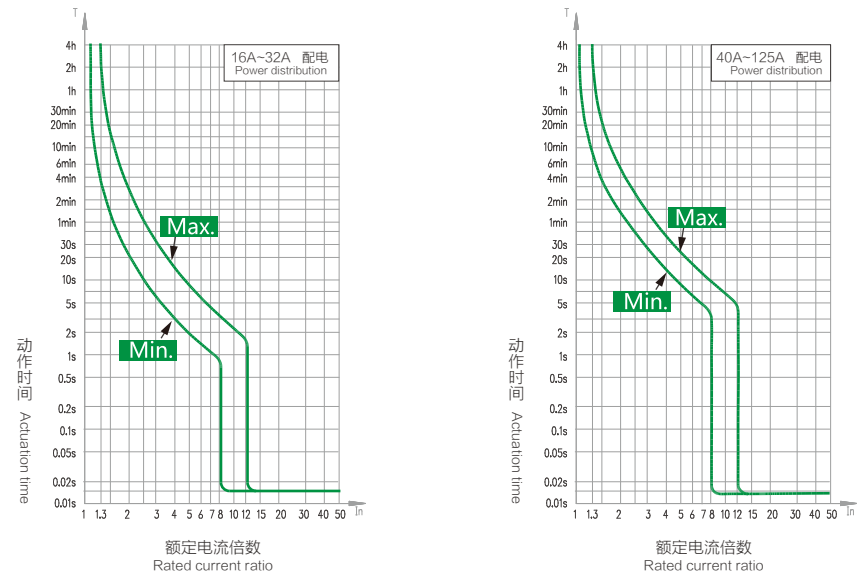
KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

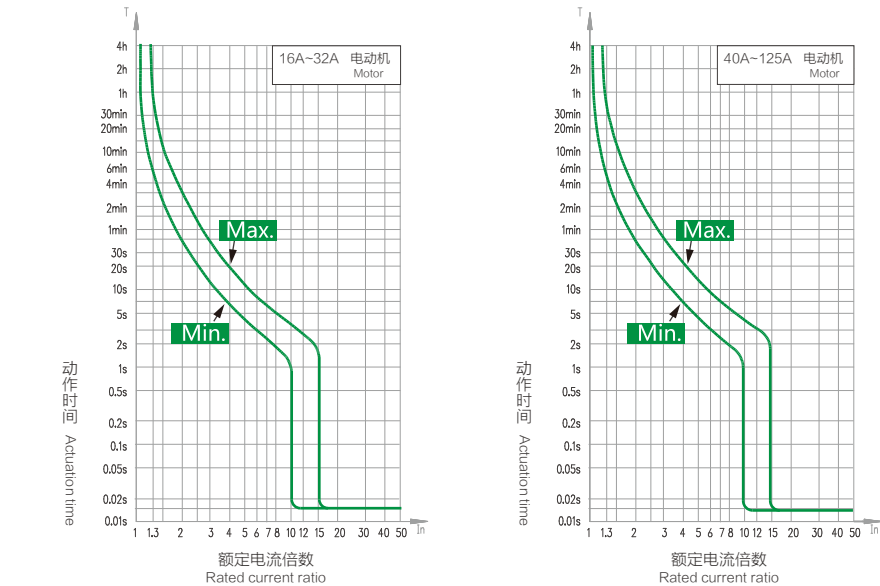
特性曲线 Characteristic curve

KFM3XL-125 (S、H)

配电时间 / 电流特性曲线  
Power distribution time / Current characteristic curve



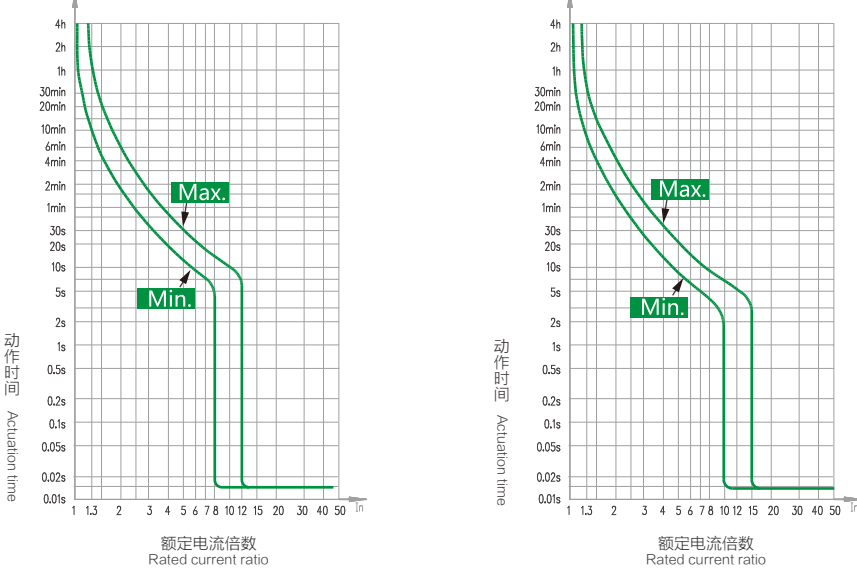
电动机时间 / 电流特性曲线  
Motor time / current characteristic curve



特性曲线 Characteristic curve

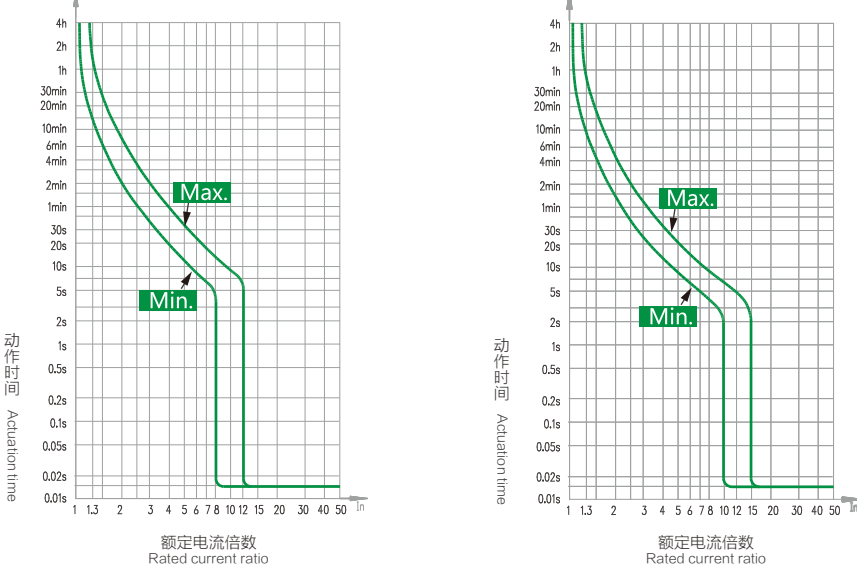
KFM3XL-250 (S、H)

配电时间 / 电流特性曲线  
Power distribution time / Current characteristic curve

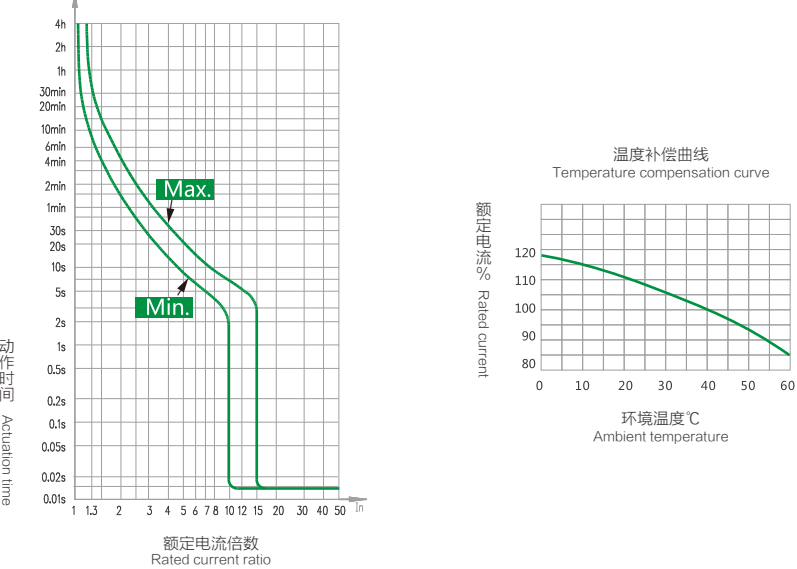


KFM3XL-400 (S、H)

配电时间 / 电流特性曲线  
Power distribution time / Current characteristic curve



电动机时间 / 电流特性曲线  
Motor time / current characteristic curve



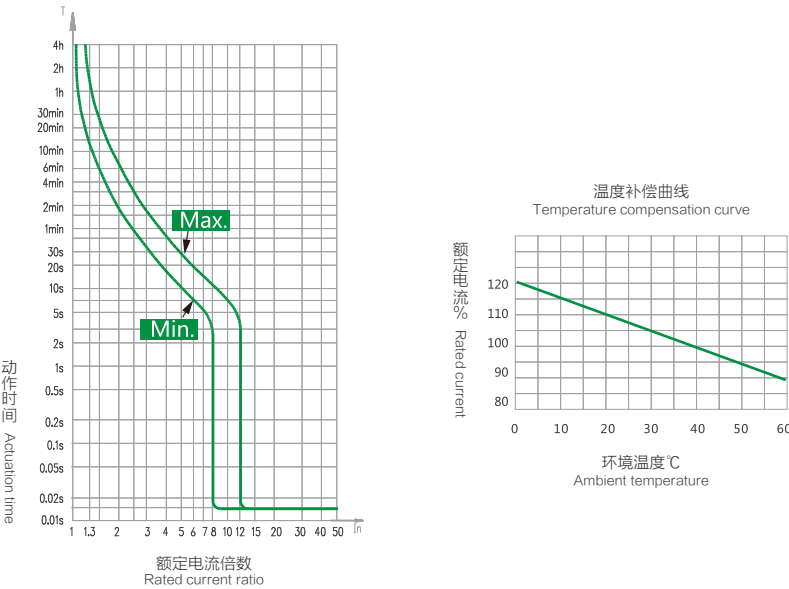
KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

特性曲线    Characteristic curve

KFM3XL-800 ( S、H )

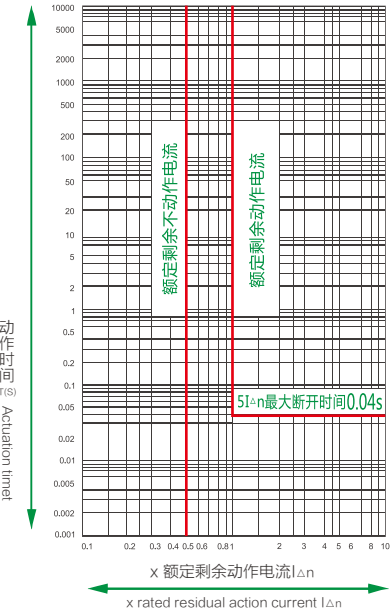
配电时间 / 电流特性曲线  
Power distribution time / Current characteristic curve



特性曲线    Characteristic curve

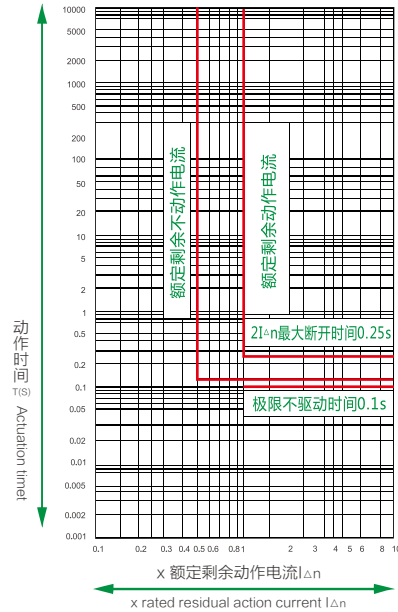
I<sub>Δn</sub>=0.03/0.1/0.3/0.5/1/3/10(A)

非延时剩余电流保护时间 / 电流特性曲线  
Non time-delay residual current protection time / Current characteristic curve



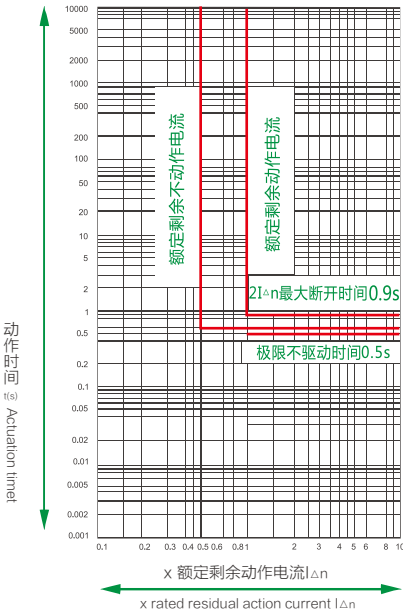
I<sub>Δn</sub>=0.1/0.3/0.5/1/3/10(A)

延时0.25秒剩余电流保护时间 / 电流特性曲线  
Delay of 0.25 seconds residual current protection time / current characteristic curve



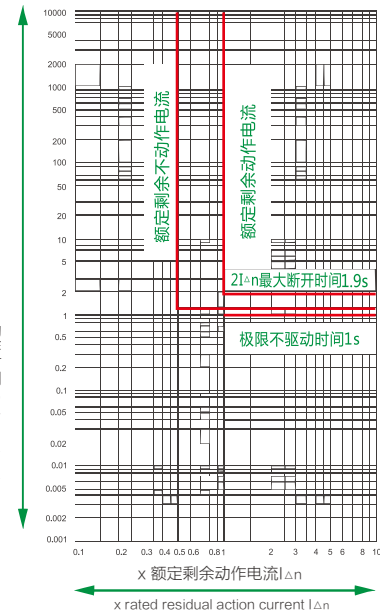
I<sub>Δn</sub>=0.1/0.3/0.5/1/3/10(A)

延时0.9秒剩余电流保护时间 / 电流特性曲线  
Residual current protection time after being delayed for 0.9 s / Current characteristic curve



I<sub>Δn</sub>=0.1/0.3/0.5/1/3/10(A)

延时1.9秒剩余电流保护时间 / 电流特性曲线  
Residual current protection time after being delayed for 1.9 s / Current characteristic curve



# KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

## KFM3XL系列剩余电流动作断路器

注意事项:

- 断路器各种特性由制造厂整定，用户在使用中不可随意调整；
- 断路器的额定剩余动作电流、剩余电流动作时间(非延时和延时)，用户可根据实际需要进行调整(专业人员进行)；
- 在主电路通电状态下，对额定剩余动作时间为非延时的断路器，手按模拟剩余电流动作试验按钮应立即脱扣。对延时的断路器，手按试验按钮且保持所调的延时的时间值，断路器才脱扣；
- 断路器漏电脱扣后，面板上漏电指示按钮向外凸出；
- 带漏报警警单元模块的断路器，当发生漏报警警后，必须对模块上的复位按钮进行复位，断路器漏电保护模块才能正常工作。

Note:

- The characteristics of breaker shall be set by the manufacturing plant, and the user can't adjust them optionally in use;
- The user can adjust the rated residual action current and residual current action time (non time-delay and time-delay) according to actual demand (conducted by professionals);
- When the main circuit is energized, for the breaker with non time-delay rated residual action time, it shall immediately trip while pressing the simulation current action testing. While the time-delay breaker will trip after pressing the testing button and keeping for the adjusted delay time;
- The electric leakage indicator button on the panel will bulge outward after the electric leakage tripping of the breaker;
- After the electric leakage occurred to the breaker equipped with electric alarm unit module, the reset button the module must be reset to recover the normal operation of the breaker electric leakage protection module.

剩余电流保护出厂整定值 RESIDUAL CURRENT PROTECTION FACTORY SETTING VALUE

| 型号 MODEL                                                                                   |            | KFM3XL-125                                                                                      | KFM3XL-250 | KFM3XL-400 | KFM3XL-800 |
|--------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------|------------|------------|------------|
| 相对应剩余电流<br>脱扣器型式的额定<br>剩余动作电流 $I_{\Delta n}$                                               | I 型 Type   | 按用户订货要求整定<br>Set according to the user's order requirements                                     |            |            |            |
| Corresponding residual current<br>Rated residual action current<br>of tripping device type | II 型 Type  | 0.1A                                                                                            | 0.1A       | 0.3A       | 0.3A       |
|                                                                                            | III 型 Type | 1A                                                                                              | 1A         | 1A         | 1A         |
| 额定剩余电流动作时间<br>Rated residual current action time                                           | I 型        | 非延时 Non time-delay                                                                              |            |            |            |
|                                                                                            | II 型 III 型 | 延时, $5I_{\Delta n}$ 时最大断开时间0.25s<br>Time-delay, $5I_{\Delta n}$ maximum turn-off time is 0.25 s |            |            |            |

注：以上是剩余电流保护默认出厂整定值，如客户有特殊要求，按用户要求出厂整定。

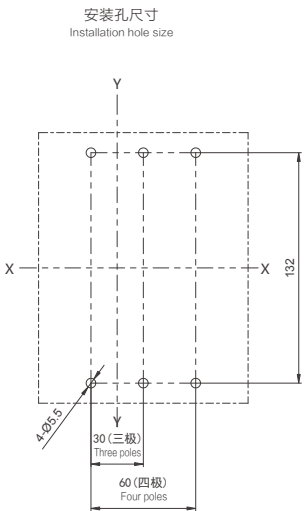
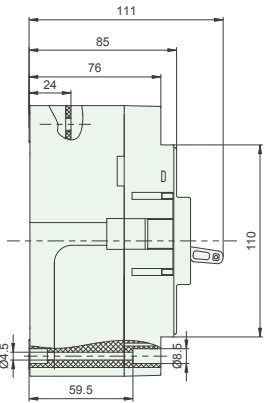
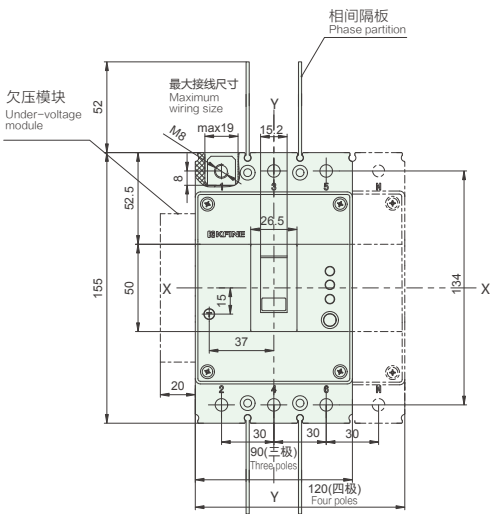
Note: The above are the default factory setting values of the residual current protection; it can be set according to user's requirements if they have any special requirements.

## 外形及安装尺寸 Boundary and installing dimensions

# KFM3XL-125

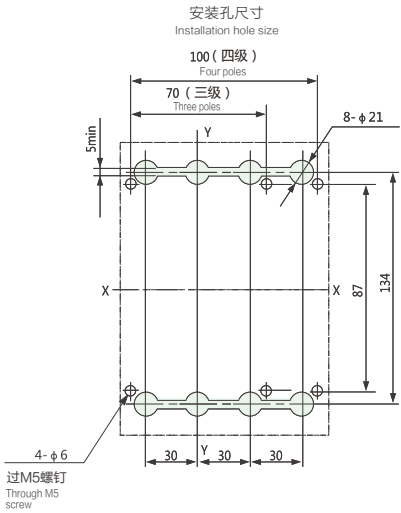
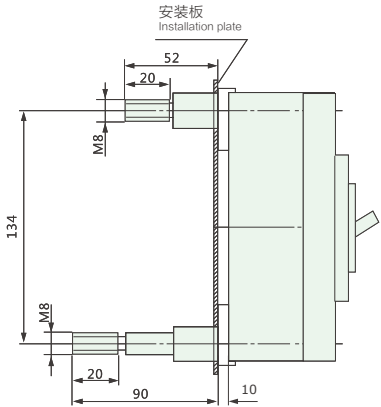
## 板前接线

### Front-panel wiring



# KFM3XL-125

## 板后接线 Rear panel wiring





KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

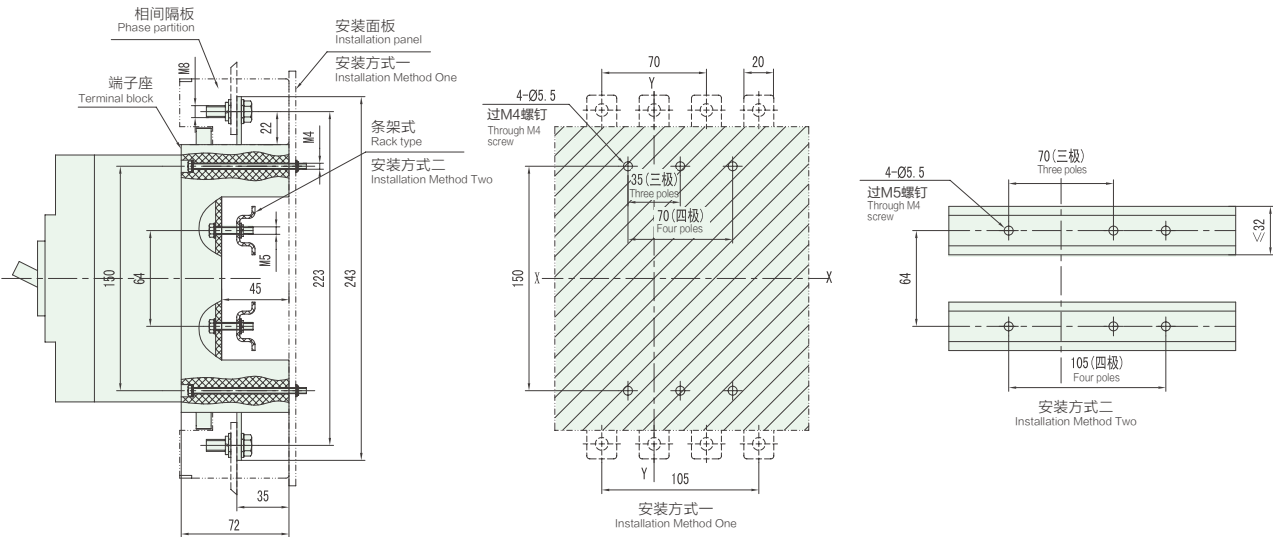
KFM3XL系列剩余电流动作断路器

外形及安装尺寸

Boundary and installing dimensions

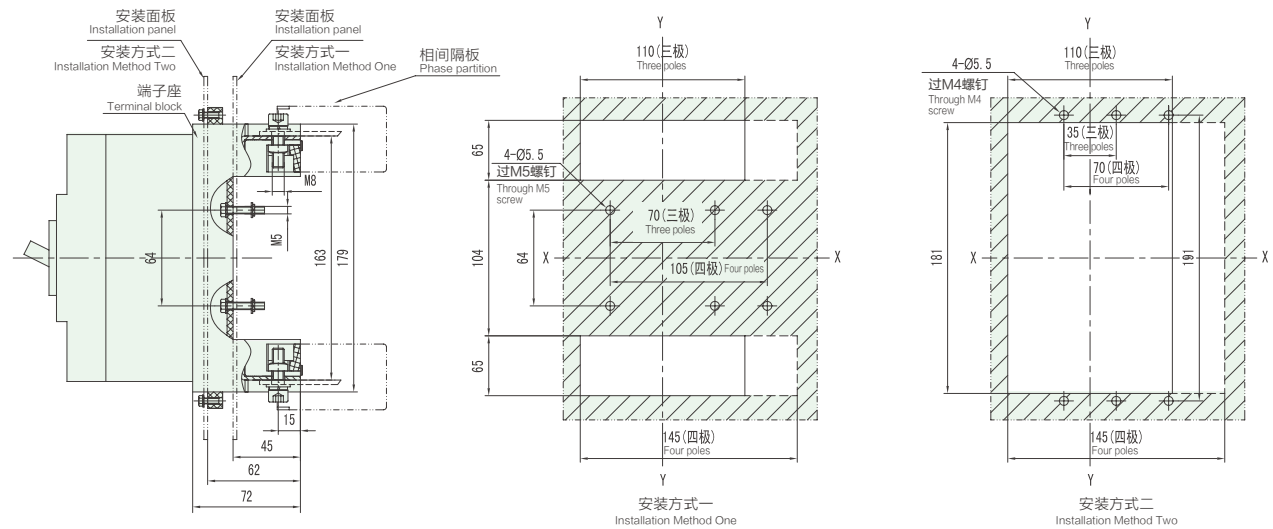
KFM3XL-250

插入式板前接线  
Plug-in Front-panel wiring



KFM3XL-250

插入式板后接线  
Plug-in Back-panel wiring

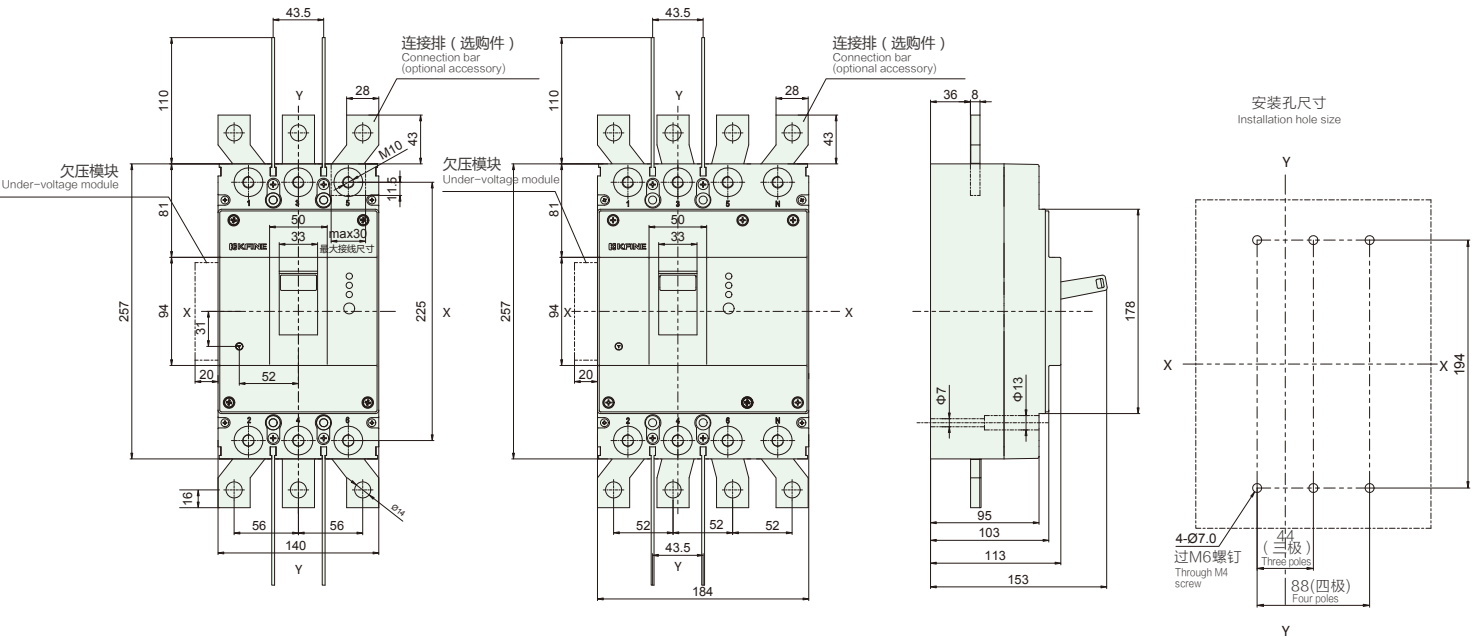


外形及安装尺寸

Boundary and installing dimensions

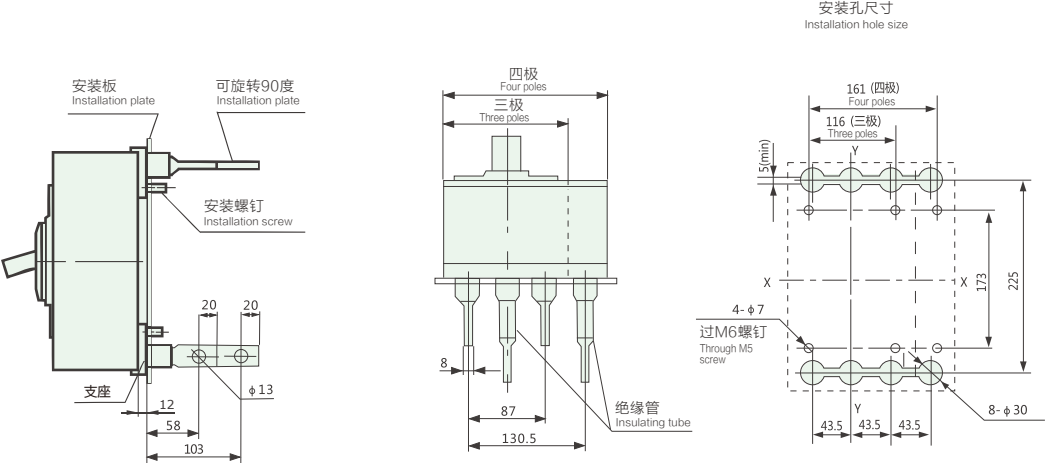
KFM3XL-400

板前接线  
Front-panel wiring



KFM3XL-400

板后接线  
Rear panel wiring

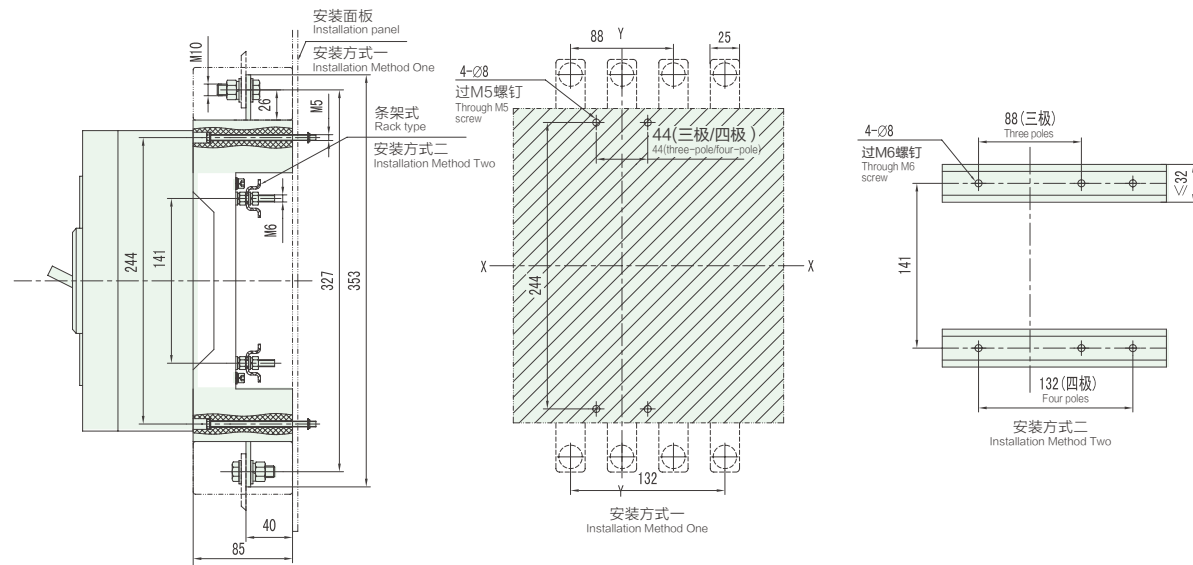


## KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

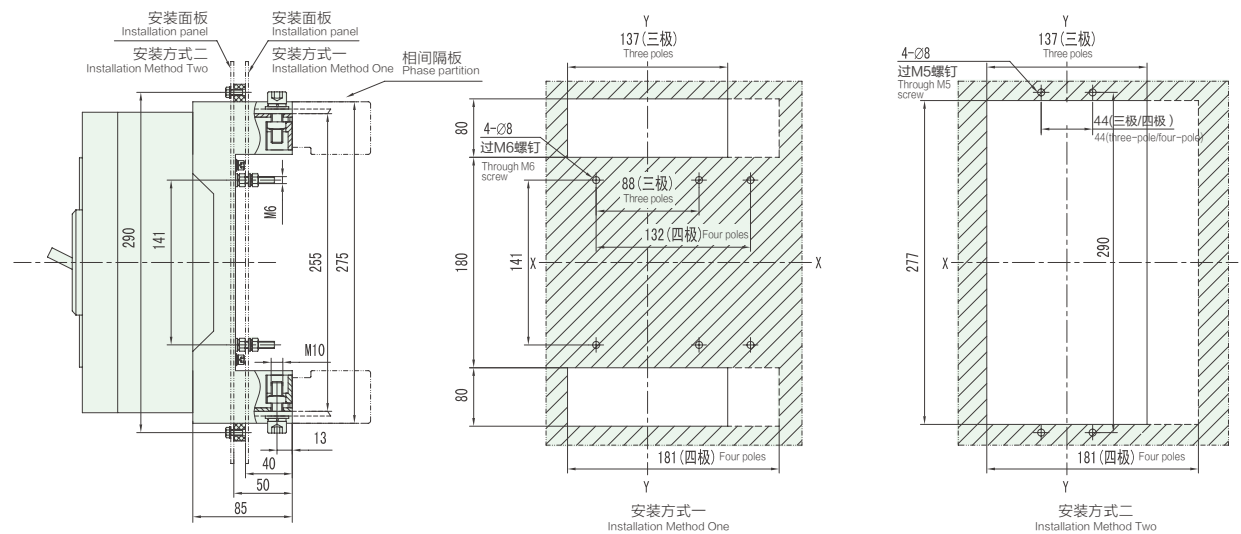
## KFM3XL系列剩余电流动作断路器

## 外形及安裝尺寸 Boundary and installing dimensions

## KFM3XL-400 插入式板前接线 Plug-in Front-panel wiring

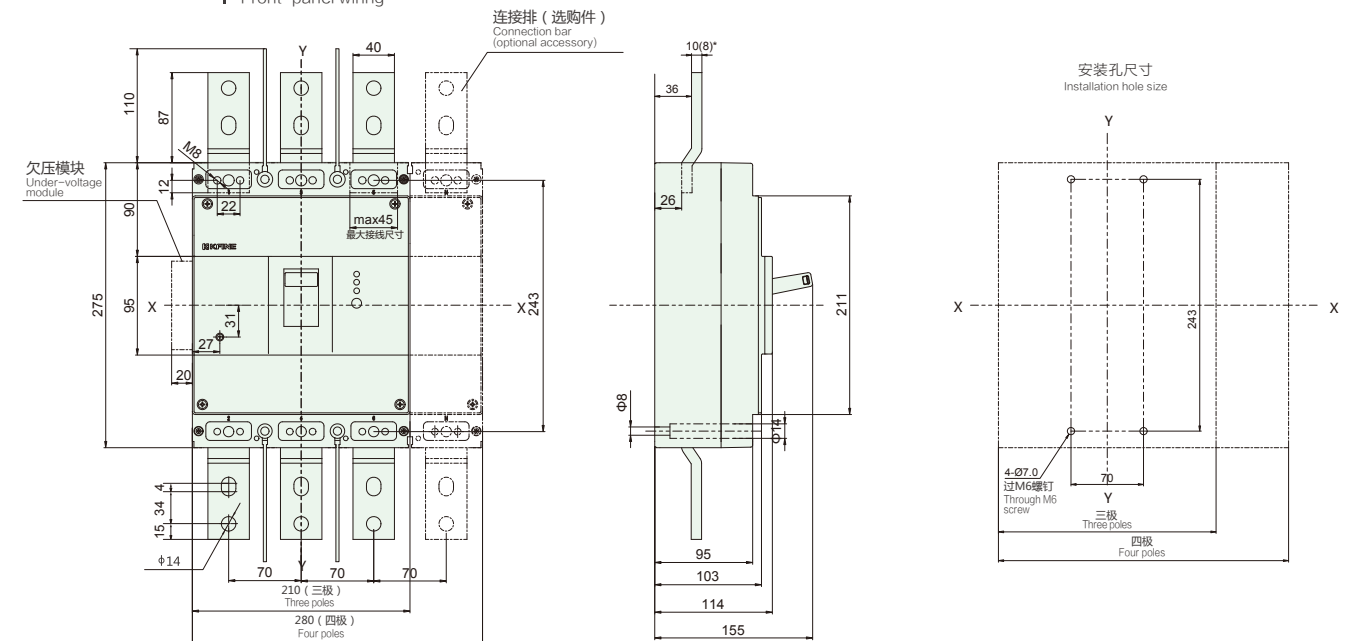


**KFM3XL-400** | 插入式板后接线  
Plug-in Back-panel wiring



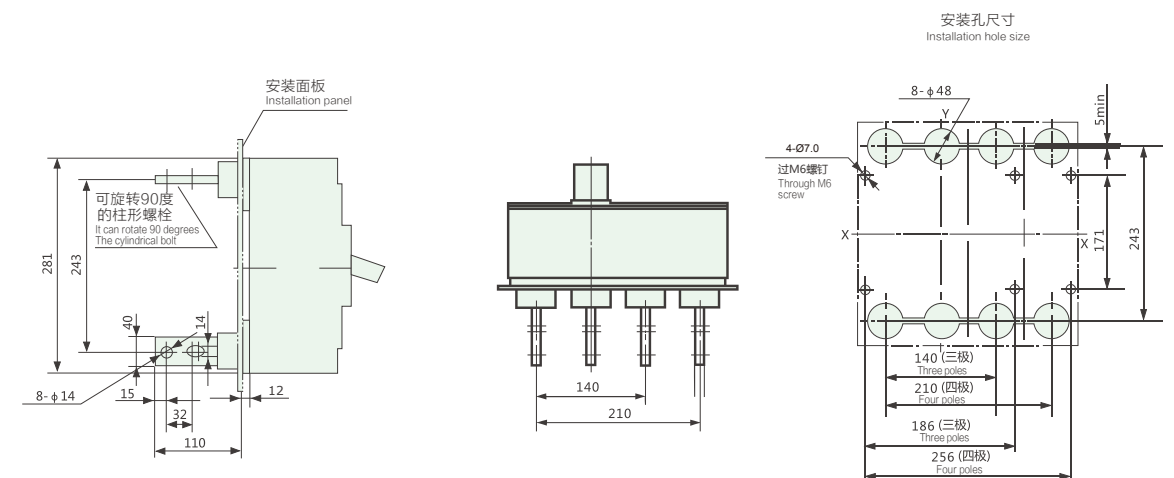
## 外形及安装尺寸 Boundary and installing dimensions

**KFM3XL-800** | 板前接线  
Front-panel wiring



注：( ) 内为KFM3XL-800中“630A及以下电流”的尺寸。  
Note: the dimensions of “Current up to 630A” in KFM3XL-800 are shown in ( ).

**KFM3XL-800** | 板后接线  
Rear panel wiring



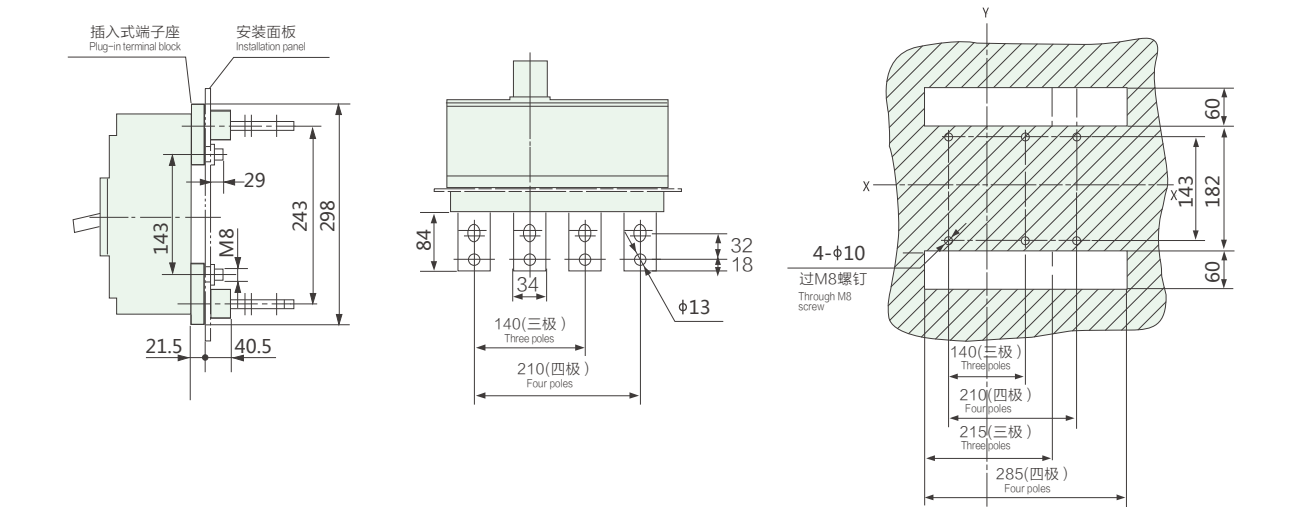
KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

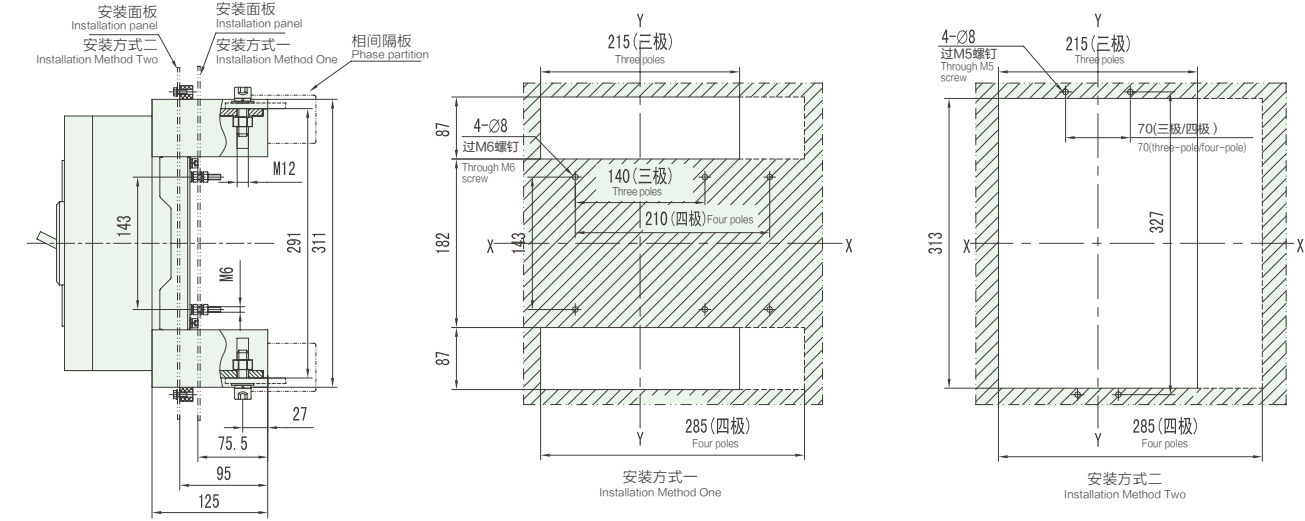
外形及安装尺寸    Boundary and installing dimensions

KFM3XL-800    插入式板后接线  
Plug-in Back-panel wiring

700A插入式



630A及以下插入式



断路器内外部附件    Internal and external accessories of the breaker

欠电压脱扣器，符号 ▼    UNDERVOLTAGE RELEASE, SYMBOL ▼

控制电压：50Hz AC230V, AC400V

在额定电压的35% ~70%时，欠电压脱扣器应可靠使断路器脱扣；

在额定电压的85% ~110%时，欠电压脱扣器应保证断路器能合闸；

在额定电压低于35%时，欠电压脱扣器应防止断路器合闸。

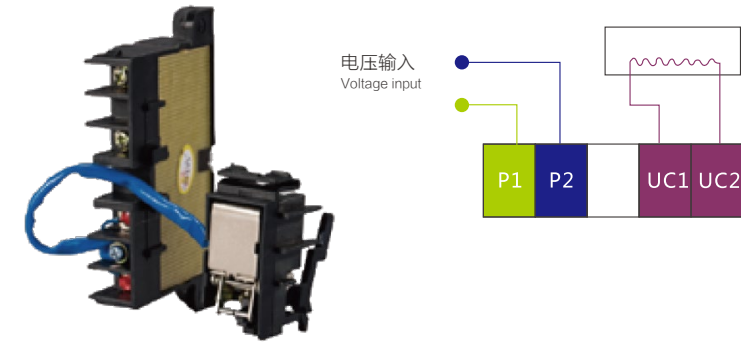
注意：欠电压脱扣器必须先通电，断路器才能再扣及合闸，否则将损坏断路器。

Control voltage: 50 Hz, AC230 V, AC400 V  
When the rated voltage is between 35% and 70%, the under voltage release shall trip the circuit breaker reliably;  
When the rated voltage is 85% - 110%, the under voltage release shall ensure that the circuit breaker can be closed;  
When the rated voltage is lower than 35%, the under voltage release shall prevent the circuit breaker from closing.  
Note: the undervoltage release must be powered on before the circuit breaker can be switched on or it will be damaged.

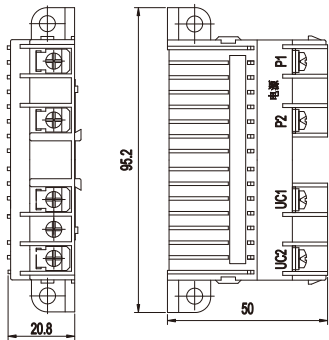
欠电压脱扣器功耗    POWER CONSUMPTION OF UNDER VOLTAGE RELEASE

| 产品型号<br>Product model    | 功耗（W）    Power consumption (W) |        |
|--------------------------|--------------------------------|--------|
|                          | AC400V                         | AC230V |
| KFM3XL-125               | 3.9                            | 3.2    |
| KFM3XL-250               | 4.4                            | 3.4    |
| KFM3XL-400<br>KFM3XL-800 | 3.6                            | 2.5    |

欠电压模块接线图    WIRING DIAGRAM OF EXTERNAL UNDER VOLTAGE MODULE



欠电压模块尺寸图    DIMENSION DRAWING OF UNDERVOLTAGE MODULE



KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

断路器内外部附件

Internal and external accessories of circuit breaker

光伏并网专用欠电压脱扣器模块

SPECIAL UNDERVOLTAGE RELEASE MODULE FOR PHOTOVOLTAIC GRID CONNECTION

在KFM3XL 塑壳断路器基础上，配置光伏并网专用欠电压脱扣器模块、电动操作机构，组成光伏并网专用断路器，确保分布式光伏并网安全。

- 欠压脱扣，在额定工作电压的70%–20%之间，欠电压脱扣器可靠动作
- 失压跳闸，当电压低于额定工作电压的20%时，脱扣器能使断路器可靠断开
- 过压保护，电压超过135%Un时，脱扣器动作，断路器断开
- 配合电动操作机构可实现检有压自动合闸
- 欠压（或失压）动作时间可调，范围0～10s（无9s），最小调整步长为1s

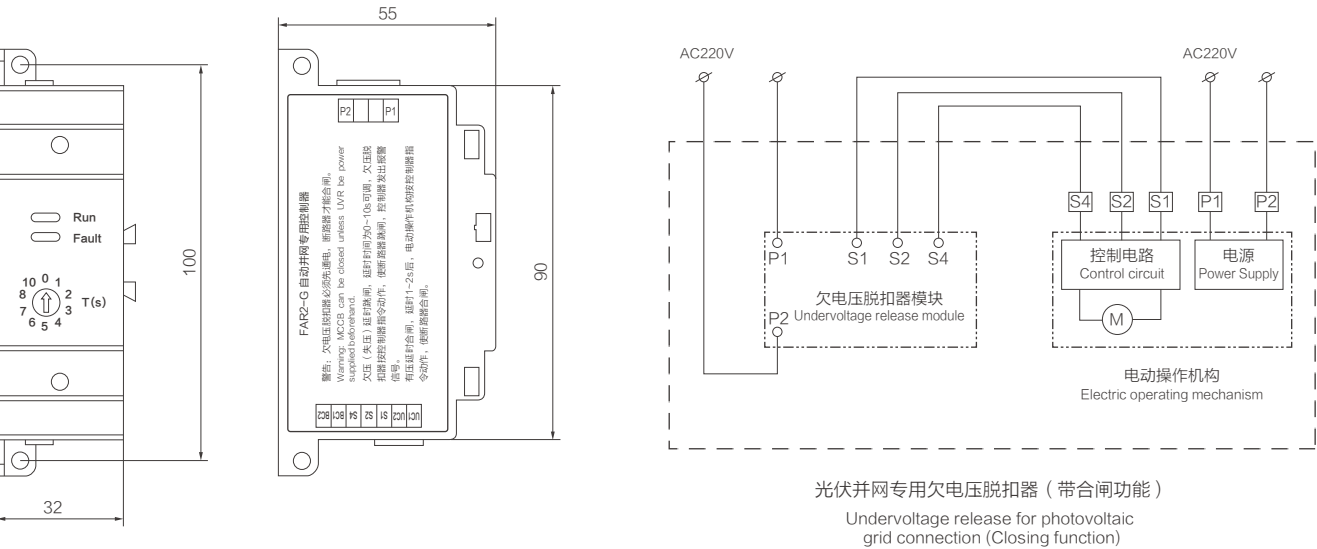
On the basis of KFM2 molded circuit breaker, the special low-voltage release module and the electric operation mechanism of the photovoltaic grid connection are configured to form a special circuit breaker for photovoltaic grid connected, so as to ensure the safety of the distributed PV grid connected.

- Undervoltage tripping between the rated operating voltage of 70%–20% and undervoltage tripping is reliable
- The tripping device can reliably break the circuit breaker when the voltage is less than 20% of the rated working voltage
- Overvoltage protection, when voltage exceeds 135% Un, the release trip action, disconnect the circuit breaker.
- With the electric operating mechanism, the automatic closing of the detector can be realized
- The action time of undervoltage (or loss of voltage) is adjustable, the range is 0 ~ 10s (no 9S), and the minimum adjustment step is 1s

两种型号

TWO MODELS

- AC220V光伏专用欠压脱扣器带过压保护
  - AC220V光伏专用欠压脱扣器（失压延时）带过压保护
- AC220V dedicated photovoltaic undervoltage release with overvoltage protection
  - AC220V dedicated photovoltaic undervoltage release (loss of pressure delay) with over-voltage protection



断路器内外部附件

Internal and external accessories of the breaker

分励脱扣器，符号

SHUNT RELEASE, SYMBOL

控制电压: 50Hz AC230V,AC400V  
DC110V, DC220V, DC24V

在额定控制电源电压的70%–110%之间时，分励脱扣器能可靠地使断路器脱扣。

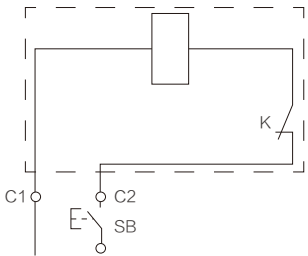
分励脱扣器，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。

Control voltage: 50 Hz, AC230 V, AC400 V  
DC110V, DC220V, DC24V  
When the rated control power supply voltage is between 70% and 110%, the shunt release can trip the circuit breaker reliably.  
Shunt release, the terminal is the outgoing line, the default line length is 50cm, and the specification of 100cm, 150cm and longer can be provided.

分励脱扣器接线图

WIRING DIAGRAM OF SHUNT RELEASE

接线图



K为分励脱扣器内部与线圈串联的微动开关，当断路器处于合闸状态时，该微动开关触头处于闭合状态，当断路器处于分闸或脱扣状态时，该触头处于断开状态。其中SB操作按钮需用户自备。

K is the micro switch in series with the coil in the shunt release. When the circuit breaker is closed, the contact of the micro switch is closed. When the circuit breaker is in the opening or tripping state, the contact is in the off state. The sb operation button needs to be provided by the user.

分励脱扣器瞬动电流及功耗

INSTANTANEOUS CURRENT AND POWER CONSUMPTION OF SHUNT RELEASE

| 产品型号<br>Product model    | 功耗（W）<br>Power consumption (W) |        |        |         |       |
|--------------------------|--------------------------------|--------|--------|---------|-------|
|                          | AC400V                         | AC230V | DC220V | DC 110V | DC24V |
| KFM3XL-125               | 160                            | 105    | 50     | 55      | 88.6  |
| KFM3XL-250               | 100                            | 60     | 55     | 61      | 76.3  |
| KFM3XL-400<br>KFM3XL-800 | 100                            | 60     | 55     | 61      | 76.3  |

- 注：当额定控制电源电压为DC24V时，有两种解决方案：
- 采用DC24V分励脱扣器，但应满足如下三个条件：导线横截面积 $\geq 2.5\text{mm}^2$ ；导线长度不得超过200m；脱扣器接线端处的电源功率应 $\geq 50\text{W}$ 。
  - 采用DC24V中间继电器控制AC230V或AC400V分励脱扣器，中间继电器触点容量不小于1A。

Note: when the rated control power supply voltage is DC24 V, there are two solutions:

- DC24 V shunt release shall be adopted, but the following three conditions shall be met: conductor cross-sectional area  $\geq 2.5 \text{ mm}^2$ ; conductor length not exceeding 200 m; The power supply at the terminal of the release shall be  $\geq 50\text{W}$ .
- DC24 V intermediate relay is used to control AC 230 V or AC 400 V shunt release, and the contact capacity of intermediate relay is not less than 1a.

# KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

## KFM3XL系列剩余电流动作断路器

断路器内外部附件 Internal and external accessories of circuit breaker

报警触头      ALARM CONTACT      符号: ●      SYMBOL: ●

断路器正常合分时，触头不动作，只有在自由脱扣（或故障跳闸）后，触头状态才会改变，即常开变成常闭，常闭变成常开，待断路器再次合分后，触头恢复原始位置。

When the circuit breaker is normally opened and closed, the contact does not act. Only after free tripping (or fault tripping), the contact state will change, that is, the normally open will become normally closed, and the normally closed will become normally open. After the circuit breaker is re buckled, the contact will return to its original position.

|                                                                                         |                                                                                     |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <p>断路器处于“分”“合”时的位置</p> <p>When the breaker is in the position of “close”</p>            |  |
| <p>断路器处于“自由脱扣”时的位置</p> <p>Position of circuit breaker when it is in “free tripping”</p> |  |

报警触头，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。

Alarm contact, terminal for outgoing line, default line length 50cm, also can provide 100cm, 150cm specifications, longer specifications ordering instructions.

### 报警触头电流参数 ALARM CONTACT CURRENT PARAMETERS

| 产品型号<br>Product model    | 约定发热电流(A)<br>Conventional heating current (a) | 额定工作电流 ( A )<br>Rated working current ( A ) |        |
|--------------------------|-----------------------------------------------|---------------------------------------------|--------|
|                          |                                               | AC400V                                      | DC220V |
| KFM3XL-125               | 1                                             | 0.3                                         | 0.15   |
| KFM3XL-250               |                                               |                                             |        |
| KFM3XL-400<br>KFM3XL-800 | 3                                             | 0.4                                         | 0.15   |

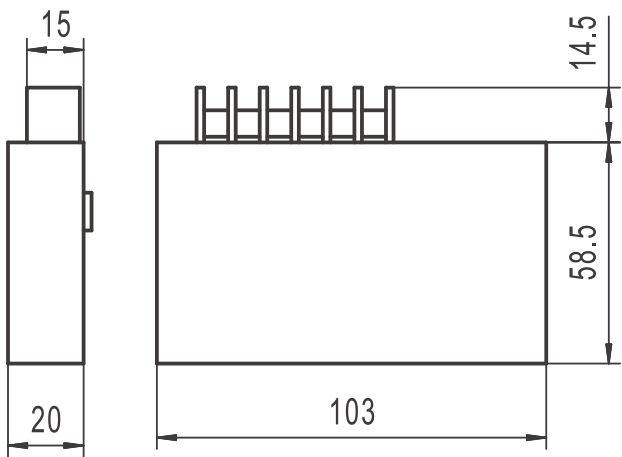
## 断路器内外部附件 Internal and external accessories of the breaker

漏电报警单元模块 ELECTRIC LEAKAGE ALARM UNIT MODULE

当发生漏电，漏电报警模块发出信号，但断路器不脱扣；漏电报警模块，仅适用于KFM3XL带漏电保护功能的断路器，装于断路器右侧，宽出本体20毫米。端子为螺钉压接端子。

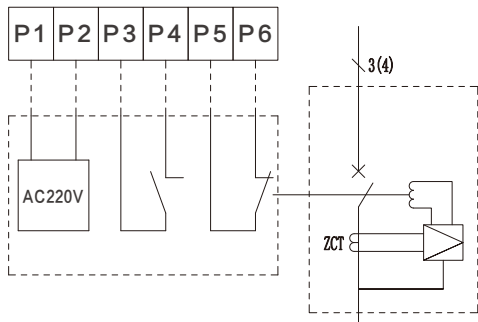
In case of leakage, the leakage alarm module sends a signal, but the circuit breaker does not trip; Leakage alarm module is only applicable to kfm3xl circuit breaker with leakage protection function. It is installed on the right side of the circuit breaker and is 20mm wider than the body. The terminals are screw crimping terminals.

漏电报警不脱扣模块 LEAKAGE ALARM NON TRIPPING MODULE



### 报警不脱扣模块尺寸

Size of alarm non tripping module



- 1、P1、P2: 接电源  
2、P3、P4: 常开触头, 触点容量: 5A 250VAC  
3、P5、P6: 常闭触头, 触点容量: 5A 250VAC

### 报警不脱扣模块接线图

Wiring diagram of alarm non tripping module

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

断路器内外部附件

Internal and external accessories of circuit breaker

辅助触头    AUXILIARY CONTACT      符号: ○    SYMBOL: ○

辅助触头，端子为引出线，默认线长50cm，另可提供100cm、150cm规格，更长规格订货说明。

Auxiliary contact, terminal for outgoing line, default line length 50cm, also can provide 100cm, 150cm specifications, longer specifications ordering instructions.

| 辅助触头<br>Auxiliary contact                                                                                    | 产品型号<br>Product model    | 约定发热电流(A)<br>Conventional heating current (A) | 额定工作电流 ( A )<br>Rated working current ( A ) |        |
|--------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------|---------------------------------------------|--------|
|                                                                                                              |                          |                                               | AC400V                                      | DC220V |
| 断路器处于“分”<br>“自由脱扣”时的位置<br>When the breaker is in the<br>position of “open” and “free trip”                   | KFM3XL-125               | 1                                             | 0.3                                         | 0.15   |
| 断路器处于“合”<br>时的位置<br>When the breaker is in the<br>position of “close”                                        | KFM3XL-250               |                                               |                                             |        |
| 上表为一组辅助触头在“分”“合”时的位置<br>The above table is a set of auxiliary contacts in the position of “open” and “close” | KFM3XL-400<br>KFM3XL-800 | 3                                             | 0.4                                         | 0.15   |

辅助触头正常条件下的接通和分断能力

THE CONNECT AND BREAKING CAPACITY OF AUXILIARY CONTACT UNDER NORMAL OPERATION

| 使用类型<br>Using class | 接通 Connect |      |      |       | 分断 Breaking |      |      |       | 次数<br>Time | 操作频率 次/分<br>Operation frequency<br>(Time/ minute) |
|---------------------|------------|------|------|-------|-------------|------|------|-------|------------|---------------------------------------------------|
|                     | I/Ie       | U/Ue | cosØ | T0.95 | I/Ie        | U/Ue | cosØ | T0.95 |            |                                                   |
| AC-14               | 6          | 1    | 0.3  |       | 1           | 1    | 0.3  |       | 6050       | 6                                                 |
| DC-13               | 1          | 1    |      | 6xPe  | 1           | 1    |      | 6xPe  |            |                                                   |

辅助触头非正常条件下的接通和分断能力

THE ABILITY TO CONNECT AND BREAK UNDER ABNORMAL CONDITIONS

| 使用类型<br>Use type | I/Ie | 接通<br>U/Ue | Connect<br>cosØ | T0.95 | I/Ie | 分断<br>U/Ue | Breaking<br>cosØ | T0.95 | 次数<br>TIME | 操作频率 次/分<br>Operation frequency<br>(Time/ minute) | 通电时间<br>Conduction time |
|------------------|------|------------|-----------------|-------|------|------------|------------------|-------|------------|---------------------------------------------------|-------------------------|
| AC-14            | 6    | 1.1        | 0.7             |       | 6    | 1.1        | 0.7              |       | 10         | 6                                                 | ≥0.05                   |
| DC-13            | 1.1  | 1.1        |                 | 6xPe  | 1.1  | 1.1        |                  | 6xPe  |            |                                                   |                         |

注 / Note:

当断路器操作次数小于6050次时，则辅助触头操作次数与断路器相同，当Pe≥50W，T<sub>0.95</sub>的上限≈6Pe≤300ms  
When the number of operations of the breaker is less than 6050, then that of auxiliary contact is the same with the breaker, when Pe ≥ 50 W, the upper limit of T0.95 ≈ 6 Pe ≤ 300 ms

断路器内外部附件

Internal and external accessories of the breaker

电动操作机构

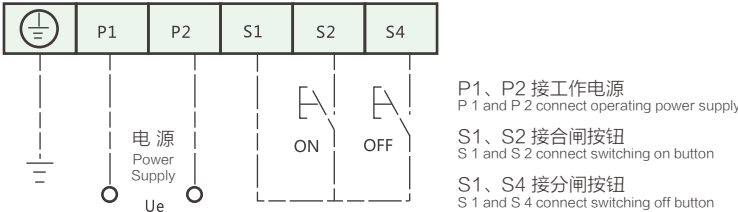
ELECTRIC OPERATING MECHANISM

本系列断路器配用DC3型新一代电动操作机构  
This series of breakers are equipped with DC3 type new generation of electric operation mechanism.



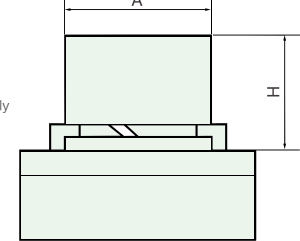
电动操作机构接线图

WIRING DIAGRAM OF THE ELECTRIC OPERATING MECHANISM



电动操作机构有关尺寸

RELATED DIMENSION OF THE ELECTRIC OPERATING MECHANISM



电动操作机构尺寸

ELECTRIC OPERATING MECHANISM DIMENSIONS

| 断路器型号<br>BREAKER TYPE                              | KFM3XL-125 |     | KFM3XL-250 |  | KFM3XL-400 |  | KFM3XL-800 |  |
|----------------------------------------------------|------------|-----|------------|--|------------|--|------------|--|
| 电操尺寸<br>Electric operating<br>mechanism dimensions | A          | 116 | 116        |  | 176        |  | 176        |  |
|                                                    | H          | 101 | 105        |  | 151        |  | 153        |  |

电动操作机构技术数据

TECHNICAL DATA OF THE ELECTRIC OPERATING MECHANISM

| 断路器型号<br>BREAKER TYPE    | 电操参数<br>ELECTRIC OPERATING<br>MECHANISM PARAMETERS | 额定控制电压 V<br>RATED CONTROL VOLTAGE | 工作电流 A<br>WORKING CURRENT | 电机功率 W<br>MOTOR POWE |
|--------------------------|----------------------------------------------------|-----------------------------------|---------------------------|----------------------|
| KFM3XL-125<br>KFM3XL-250 |                                                    | AC: 110、230、400<br>DC: 24、110、220 | ≤0.5                      | 14                   |
| KFM3XL-400<br>KFM3XL-800 |                                                    | AC: 110、230、400<br>DC: 24、110、220 | ≤2                        | 35                   |

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

断路器内外部附件

Internal and external accessories of the breaker

转动手柄操作机构

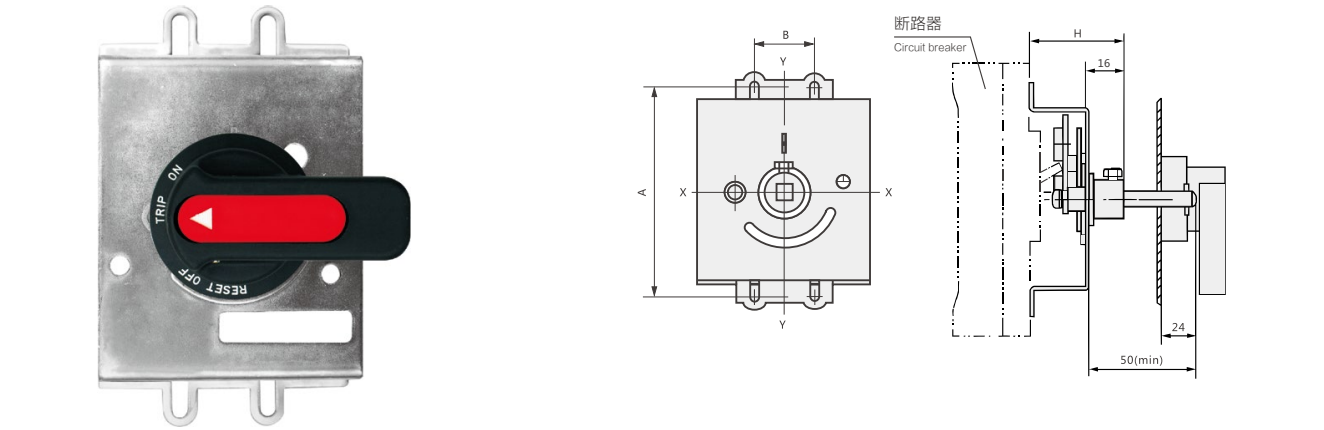
TURNING HANDLE OPERATION MECHANISM

转动手柄操作机构有中心式(CS1型)和偏心式(CS2型)两种，可配用A型(圆形)或F1型(方形)手柄。  
出厂默认转动手柄操作结构为中心式，配圆形手柄，轴长150mm。

There are two kinds of rotary handle operating mechanisms: central type (CS1 type) and eccentric type (CS2 type), which can be equipped with A-type (circular) or F-type (square) handle.  
The factory default rotating handle operation structure is central type, equipped with circular handle, and the shaft length is 150mm.

中心式转动手柄操作机构

CENTER TYPE TURNING HANDLE OPERATING MECHANISM



中心式转动手柄与断路器配用表

EQUIP TABLE OF CENTER TYPE TURNING HANDLE OPERATING MECHANISM AND BREAKER

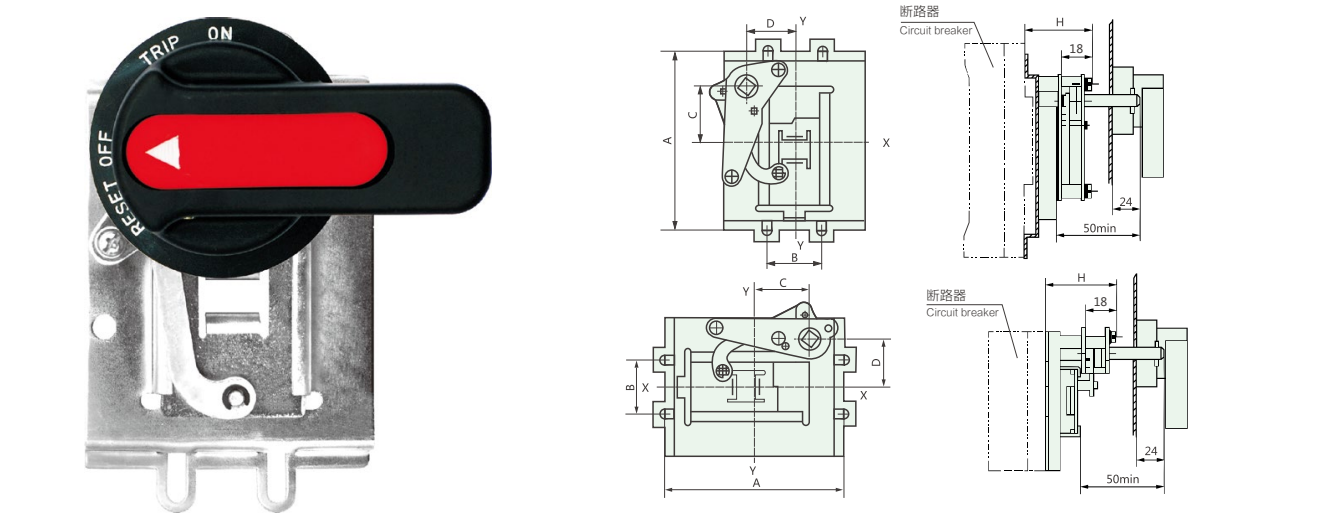
| 断路器型号<br>BREAKER TYPE | 配用转动手柄型号<br>EQUIPPED TURNING HANDLE TYPE | 安装尺寸 INSTALLATION DIMENSIONS |     |      |                                                                       |
|-----------------------|------------------------------------------|------------------------------|-----|------|-----------------------------------------------------------------------|
|                       |                                          | A                            | B   | H    | 操作手柄相对断路器中心Y值(mm)<br>OPERATING HANDLE RELATIVE BREAKER CENTER Y VALUE |
| KFM3XL-125            | CS1A-100/KFM3XL                          | 132                          | 30  | 65.5 | 0                                                                     |
|                       | CS1F1-100/KFM3XL                         |                              |     |      |                                                                       |
| KFM3XL-250            | CS1A-250/KFM3XL                          | 126                          | 35  | 75   | 0                                                                     |
|                       | CS1F1-250/KFM3XL                         |                              |     |      |                                                                       |
| KFM3XL-400/3P         | CS1A-400/KFM3XL                          | 194                          | 128 | 92   | +5                                                                    |
|                       | CS1F1-400/KFM3XL                         |                              |     |      |                                                                       |
| KFM3XL-400/4P         | CS1A-400/KFM3XL                          | 194                          | 172 | 92   | +5                                                                    |
|                       | CS1F1-400/KFM3XL                         |                              |     |      |                                                                       |
| KFM3XL-800            | CS1A-800/KFM3XL                          | 243                          | 198 | 92   | +10                                                                   |
|                       | CS1F1-800/KFM3XL                         |                              |     |      |                                                                       |

断路器内外部附件

Internal and external accessories of the breaker

偏心式转动手柄操作机构

ECCENTRIC TURNING HANDLE OPERATING MECHANISM



偏心式转动手柄与断路器配用表

EQUIP TABLE OF ECCENTRIC TYPE TURNING HANDLE OPERATING MECHANISM AND BREAKER

| 断路器型号<br>BREAKER TYPE | 配用转动手柄型号<br>EQUIPPED TURNING HANDLE TYPE |     |     |    |    |      | 备注<br>REMARK |
|-----------------------|------------------------------------------|-----|-----|----|----|------|--------------|
|                       |                                          | A   | B   | C  | D  | H    |              |
| KFM3XL-125            | CS2A-100/KFM3XL                          | 132 | 30  | 44 | 11 | 56.5 |              |
|                       | CS2F1-100/KFM3XL                         |     |     |    |    |      |              |
| KFM3XL-250            | CS2A-250/KFM3XL                          | 126 | 35  | 44 | 11 | 56.5 |              |
|                       | CS2F1-250/KFM3XL                         |     |     |    |    |      |              |
| KFM3XL-400/3P         | CS2A-400/KFM3XL                          | 194 | 128 | 75 | 15 | 61   |              |
|                       | CS2F1-400/KFM3XL                         |     |     |    |    |      |              |
| KFM3XL-400/4P         | CS2A-400/KFM3XL                          | 194 | 172 | 75 | 15 | 61   |              |
|                       | CS2F1-400/KFM3XL                         |     |     |    |    |      |              |
| KFM3XL-800            | CS2A-800/KFM3XL                          | 243 | 198 | 68 | 15 | 61   |              |
|                       | CS2F1-800/KFM3XL                         |     |     |    |    |      |              |

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

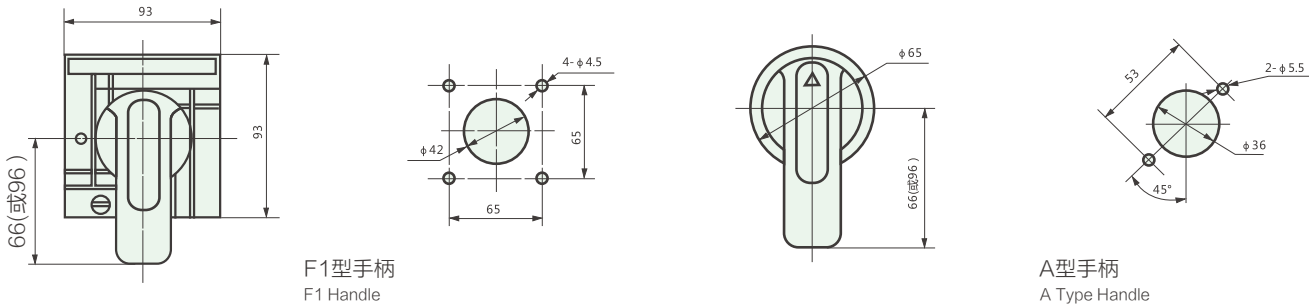
断路器内外部附件

Internal and external accessories of the breaker

转动手柄外形及面板开孔尺寸图

TURNING HANDLE SHAPE AND PANEL HOLE DIMENSION FIGURE

孔中心距离柜门转动轴心≥200mm  
Distance between hole center and cabinet door rotation axis ≥ 200 mm

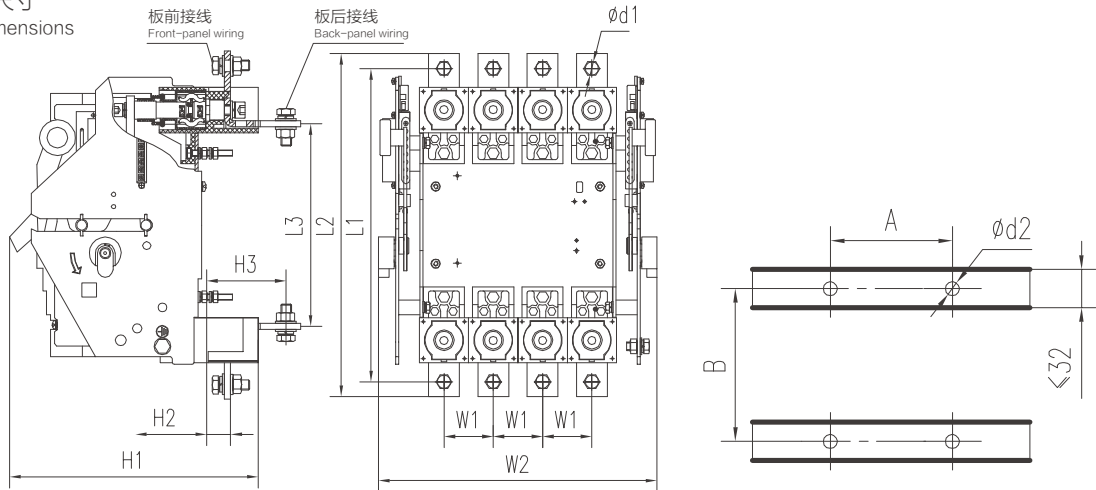


400壳架及以上，手柄长度按括号内尺寸  
400 shell frame and above, and the length of the handle is according to the size in brackets

抽出式装置

DRAW-OUT DEVICE

抽出式装置外形以及安装尺寸  
Boundary and installing dimensions  
of draw-out device



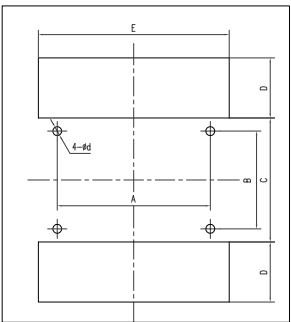
| 规格型号<br>SPECIFICATIONS<br>AND MODELS | 极数<br>POLE<br>NUMBER | 外形尺寸(mm) BOUNDARY DIMENSIONS |     |     |     |    |    |    |     |     | 安装尺寸(mm) INSTALLING DIMENSIONS |     |     |
|--------------------------------------|----------------------|------------------------------|-----|-----|-----|----|----|----|-----|-----|--------------------------------|-----|-----|
|                                      |                      | L1                           | L2  | L3  | H1  | H2 | H3 | W1 | W2  | Φd1 | A                              | B   | Φd2 |
| KFM3XL-400                           | 3P                   | 311                          | 340 | 205 | 260 | 23 | 77 | 44 | 211 | Φ11 | 88                             | 141 | Φ7  |
|                                      | 4P                   | 311                          | 340 | 205 | 260 | 23 | 77 | 44 | 255 | Φ11 | 132                            | 141 | Φ7  |
| KFM3XL-800                           | 3P                   | 367                          | 410 | 241 | 251 | 26 | 73 | 70 | 289 | Φ13 | 140                            | 131 | Φ7  |
|                                      | 4P                   | 367                          | 410 | 241 | 251 | 26 | 73 | 70 | 359 | Φ13 | 210                            | 131 | Φ7  |

断路器内外部附件

Internal and external accessories of the breaker

抽出式装置小室后板开孔图及相关尺寸(仅适用于板后出线)

CUBICLE BACKBOARD HOLE FIGURE AND RELATIVE DIMENSIONS OF DRAW-OUT DEVICE (ONLY APPLICABLE TO BACK-PANEL COIL OUT)



| 规格型号<br>SPECIFICATIONS<br>AND MODELS | 极数<br>POLE<br>NUMBER | 小室后板开孔尺寸，仅使用于板后接线(mm)<br>CUBICLE BACKBOARD HOLE FIGURE AND RELATIVE DIMENSIONS, ONLY APPLICABLE TO BACK-PANEL COIL OUT |     |     |    |     |    |
|--------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------|-----|-----|----|-----|----|
|                                      |                      | A                                                                                                                      | B   | C   | D  | E   | Φd |
| KFM3XL-400                           | 3P                   | 88                                                                                                                     | 141 | 179 | 47 | 135 | Φ7 |
|                                      | 4P                   | 132                                                                                                                    | 141 | 179 | 47 | 179 | Φ7 |
| KFM3XL-800                           | 3P                   | 140                                                                                                                    | 131 | 170 | 77 | 213 | Φ7 |
|                                      | 4P                   | 210                                                                                                                    | 131 | 170 | 77 | 283 | Φ7 |

备注：目前只有KFM3XL-400以及KFM3XL-800系列断路器可以提供抽出式装置，其他型号的断路器暂时无法提供抽出式。

Remark: currently only the KFM3XL-400 and KFM3XL-800 series of breakers can provide draw-out devices, other types of breakers can't provide draw-out devices temporarily.

端子罩

Terminal cover

安装在产品的两侧，可实现端子防护，其高度、宽度和产品一致，长度见下表。

It is installed on both sides of the product, and can realize the the terminal protection. Its height, width and product are the same. See the table below for the length.

| 产品型号<br>Product model | 安装位置<br>Installation position            | 长度<br>length | 只数<br>Count only                            |
|-----------------------|------------------------------------------|--------------|---------------------------------------------|
| KFM3XL-125-3P         | 进、出线端<br>Incoming and outgoing terminals | 10           | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3XL-250-3P         | 进、出线端<br>Incoming and outgoing terminals | 10           | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3XL-400-3P         | 进、出线端<br>Incoming and outgoing terminals | 12           | 进、出线各1<br>1 inlet and 1 outlet respectively |
| KFM3XL-800-3P         | 进、出线端<br>Incoming and outgoing terminals | 12           | 进、出线各1<br>1 inlet and 1 outlet respectively |

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

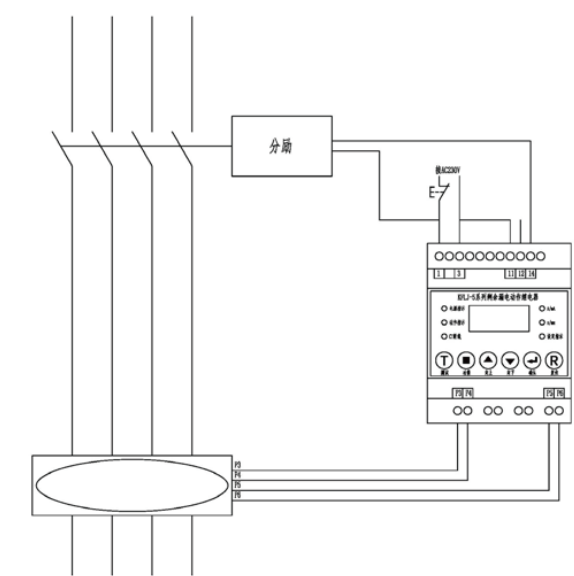
KFM3XL系列剩余电流动作断路器

应用于AC690V剩余电流保护方案    Applied to AC690V residual current protection scheme

KFM3X系列断路器+KFLJ5系列剩余电流动作继电器+剩余电流互感器  
Kfm3x series circuit breaker + kflj5 series residual current action relay + residual current transformer

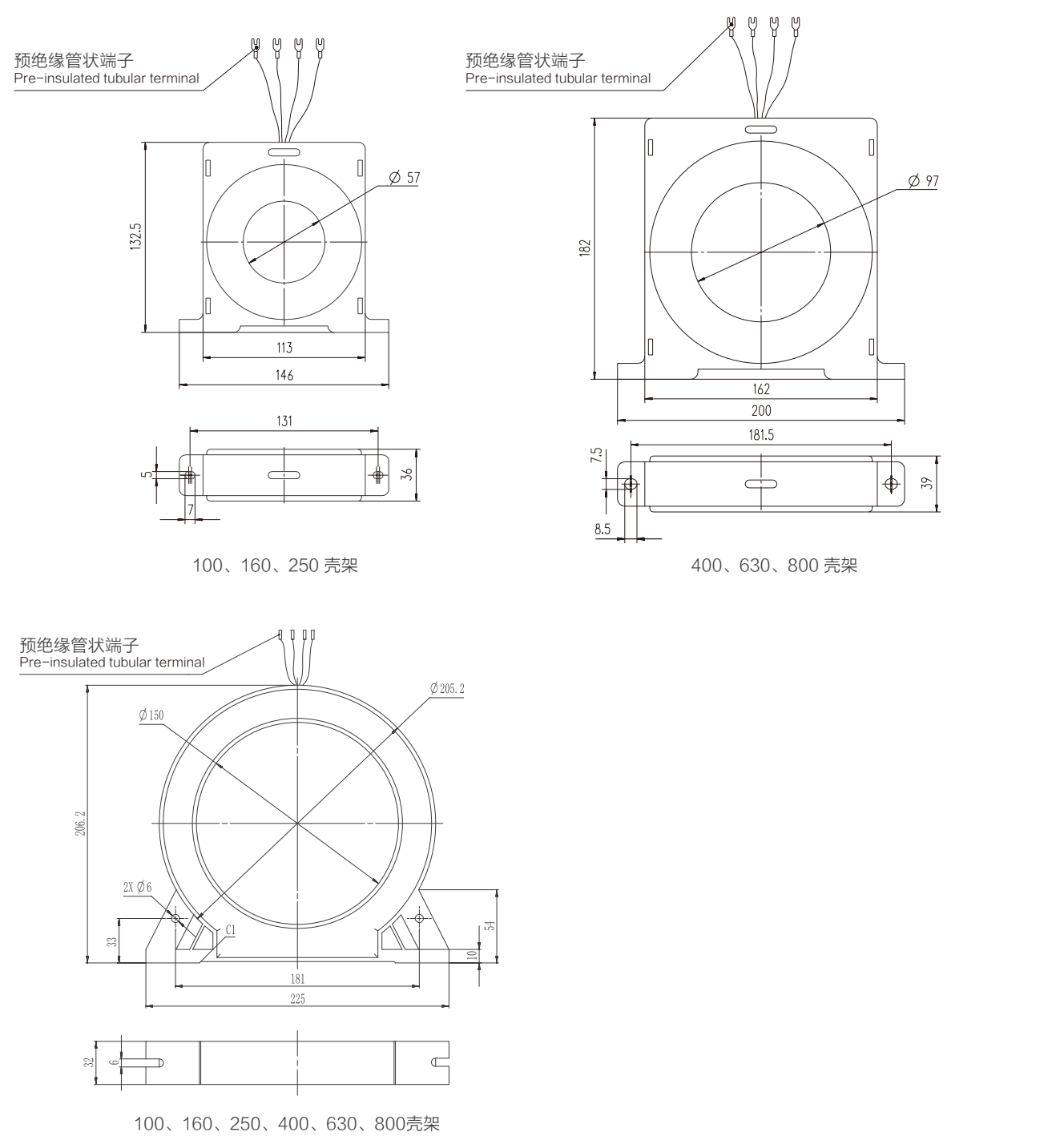
|                                                          |                                                                                                                                                  |                                          |                        |       |       |        |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------|-------|-------|--------|
| KFM3X系列断路器<br>KFM3X SERIES<br>CIRCUIT BREAKER            | KFM3X-100(M/H)/160/250/400/630/800  三级或四级断路器<br>Ue=690V<br>带有分励脱扣器，电压规格AC230V<br>WITH SHUNT RELEASE, VOLTAGE SPECIFICATION AC230V                |                                          |                        |       |       |        |
| 剩余电流动作继电器<br>Residual current<br>operated relay          | IΔn=0.03A/0.1A/0.3A/0.5A/1A/3A/5A                                                                                                                |                                          |                        |       |       |        |
| 剩余电流保护动作时间<br>Residual current<br>protection action time | 剩余电流    Residual current                                                                                                                         |                                          | IΔn                    | 2 IΔn | 5 IΔn | 10 IΔn |
|                                                          | 非延时<br>Non time-delay                                                                                                                            | 最大断开时间（s）<br>Maximum turn-off time       | 0.2                    | 0.1   | 0.04  | 0.04   |
|                                                          | 延时<br>Time-delay                                                                                                                                 | 最大断开时间（s）<br>Maximum turn-off time       | 0.08/0.14/0.25/0.4/1/2 |       |       |        |
|                                                          |                                                                                                                                                  | 极限不驱动时间Δt（s）<br>Limit non-driven time Δt | 0/0.06/0.1/0.2/0.5/1   |       |       |        |
|                                                          | 注：当剩余动作电流为0.03A，剩余电流保护动作时间为非延时。<br>Note: when the residual action current is 0.03A, the action time of residual current protection is non delay. |                                          |                        |       |       |        |

接线图（按钮由用户配置）  
Wiring diagram (buttons are configured by the user)



剩余电流互感器外形图    Outline drawing of residual current transformer:

圆形互感器  
CIRCULAR TRANSFORMER



KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

状态上传通讯模块    Status upload communication module

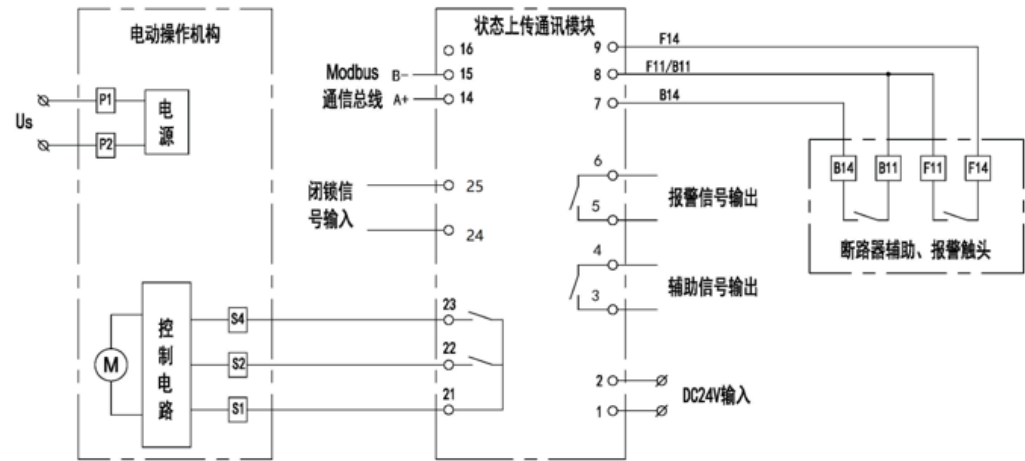
KFM3XL剩余电流动作断路器配装状态上传通讯模块后，可实现如下功能：

遥控：断路器（必须装配辅助、报警触点）的合闸、分闸、脱扣三位置状态可上传至上位机；

遥控：通过上位机可控制断路器（必须装配辅助、报警触点和电动操作机构）的合分闸；

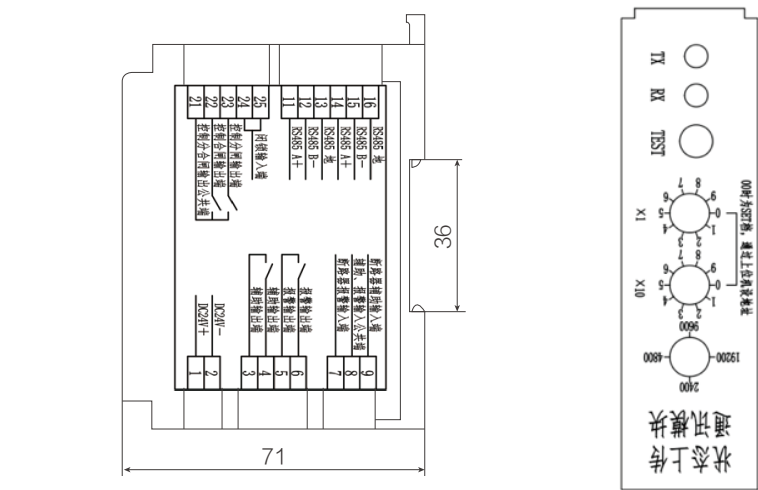
状态上传通讯模块接线图：

After the installation status of the KFM3XL residual current operated circuit breaker is uploaded to the communication module, the following functions can be realized:  
Remote signaling: The three position states of closed, open and trip of the circuit breaker (which must be equipped with auxiliary and alarm contacts) can be uploaded to the upper computer.  
Remote control: The opening and closing of the circuit breaker (which must be equipped with auxiliary, alarm contacts and electric operating mechanisms) can be controlled through the upper computer.  
Communication module wiring diagram



导轨安装状态上传通讯模块外形尺寸图：

Overall dimension drawing of communication module uploaded from the installation status of guide rail:



使用与维修    Use and maintenance

断路器可垂直安装，也可水平安装。水平安装时,其技术性能不变。安装前应检查确认断路器铭牌上所列技术参数是否符合使用要求。电源进线端应接在断路器1，3，5端子上，负载接在2，4，6端子上。连接导线截面积应符合下表的要求。

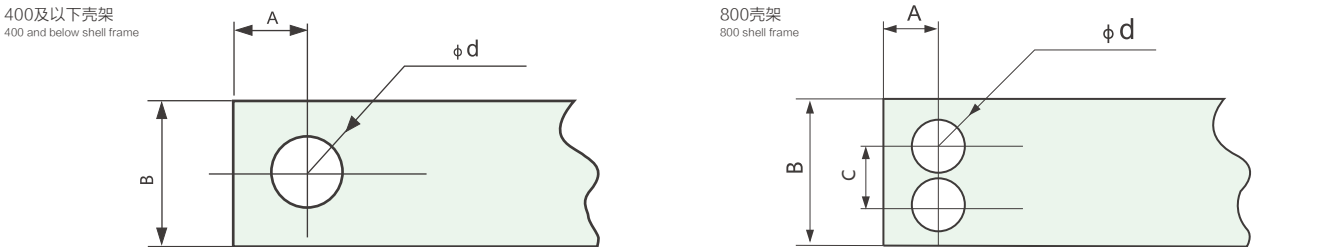
The breaker can be installed vertically or horizontally. Its technical performance is the same when adopting horizontal installation. Check whether the technical parameters listed on the breaker data plate meet the operating requirements before installation.  
The power supply coil in end shall be connected to terminal 1, 3 and 5; the load shall be connected to terminal 2, 4 and 6. The sectional area of connecting lead shall meet the requirements of the table below.

| 额定电流值(A)<br>RATED CURRENT VALUE              | 6 | 10  | 16<br>20 | 25 | 32 | 40<br>50 | 63 | 80 | 100 | 125<br>140 | 160 | 180<br>200<br>225 | 250 | 315<br>350 | 400 |
|----------------------------------------------|---|-----|----------|----|----|----------|----|----|-----|------------|-----|-------------------|-----|------------|-----|
| 铜导线截面积(mm²)<br>Sectional area of copper lead | 1 | 1.5 | 2.5      | 4  | 6  | 10       | 16 | 25 | 35  | 50         | 70  | 95                | 120 | 185        | 240 |

| 额定电流值(A)<br>RATED CURRENT VALUE | 铜导线 COOPER LEAD |                                          | 铜排尺寸 COPPER BAR SIZE |                                                 |
|---------------------------------|-----------------|------------------------------------------|----------------------|-------------------------------------------------|
|                                 | 根数<br>NUMBER    | 每根截面积(mm²)<br>SECTIONAL AREA OF EACH ONE | 根数<br>NUMBER         | 每根截面积(mm²)<br>NUMBER SECTIONAL AREA OF EACH ONE |
| 500                             | 2               | 150                                      | 2                    | 30x5                                            |
| 630                             | 2               | 185                                      | 2                    | 40x5                                            |
| 700                             | 2               | 240                                      | 2                    | 50x5                                            |
| 800                             | 2               | 240                                      | 2                    | 50x5                                            |

采用铜排连接时，铜排开孔尺寸见下图和表。

When adopting copper bar connection, see the figure and table below for the copper bar hole dimensions.



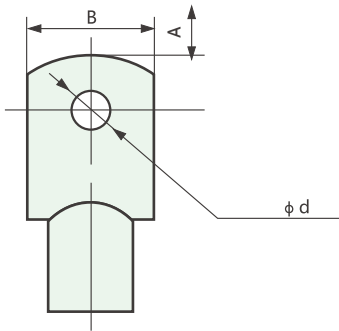
| 型号 TYPE    | A    | B   | C  | D    |
|------------|------|-----|----|------|
| KFM3XL-125 | 8    | ≤19 | /  | 8.5  |
| KFM3XL-250 | 10   | ≤24 | /  | 8.5  |
| KFM3XL-400 | 11.5 | ≤30 | /  | 10.5 |
| KFM3XL-800 | 12   | ≤40 | 22 | 8.5  |

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

250A壳架等级及以下采用电缆连接时配用的接线端子型号见下表。

See the table below for the equipped terminal blocks of 250 A shell frame grade and below adopting cable connection.



| 断路器型号<br>BREAKER TYPE | 电流(A)<br>CURRENT | 导线截面(mm²)<br>LEAD SECTIONAL AREA | 端子型号<br>TERMINAL TYPE | A  | B     | Φd  |
|-----------------------|------------------|----------------------------------|-----------------------|----|-------|-----|
| KFM3XL-125            | 16、20            | 2.5                              | JBC2.5-8              | 8  | 15    | 8.2 |
|                       | 25               | 4                                | JBC4-8                |    | 15    |     |
|                       | 32               | 6                                | JBC6-8                |    | 15    |     |
|                       | 40、50            | 10                               | JBC10-8               |    | 15    |     |
|                       | 63               | 16                               | JBC16-8               |    | 17    |     |
|                       | 80               | 25                               | JBC25-8               |    | 17    |     |
|                       | 100              | 35                               | JGC35-8               |    | 17    |     |
|                       | 125              | 50                               | JGC50-8               |    | 17    |     |
| KFM3XL-250            | 100              | 35                               | JGC35-8               | 10 | 22    | 8.2 |
|                       | 125、140          | 50                               | JGC50-8               |    | 22    |     |
|                       | 160              | 70                               | JGC70-8               |    | 22    |     |
|                       | 180、200          | 95                               | JGC95-8               |    | 22    |     |
|                       | 250              | 120                              | JGC120-8              |    | 24max |     |

断路器安装最小安全距离      Minimum safety distance for circuit breaker installation

关于断路器线路侧裸露部件及带电部件的绝缘性能，至少采用绝缘胶带、绝缘管或端子盖确保带电导体的绝缘。

- ① A：断路器至吊线板（有接地金属）间的距离。
- ② B1：断路器至上断路器端子侧未遮盖导电部分的距离（板前接线）。
- ③ B2：下断路器至上断路器端面间的距离（板后接线）。
- ④ D1：断路器侧至侧衬板（有接地金属）间的距离。
- ⑤ C：断路器电源端子的绝缘长度（板前接线）。

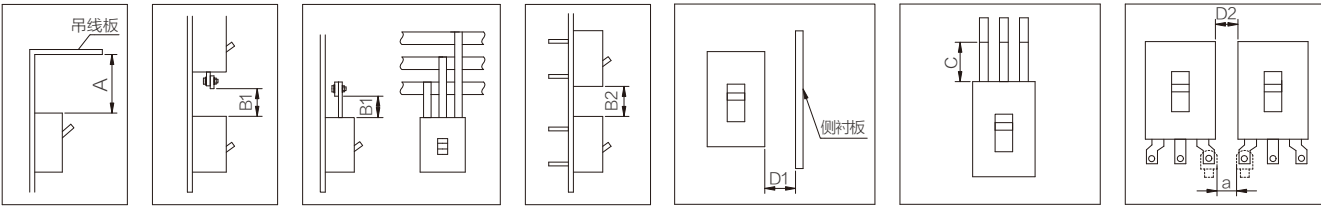
请使用绝缘胶带、绝缘管、绝缘隔板或端子板确保该尺寸范围内裸露带电部件间的相互绝缘。关于尺寸范围，参见绝缘距离表。

- 当同时采用绝缘胶带、绝缘管、绝缘隔板及端子盖板时，确保相互间至少有10mm 的重叠部分。
- 如果根据标准要求必须采用绝缘隔板，请确保务必采用隔板。
  - a：标准中规定的间距。

- ⑥ D2：断路器侧部距离

如果安装时断路器间可不留间隔，务必遵守以下规定：

- 在相邻断路器间安装绝缘隔板或根据切断气体隔离裸露部件及带电部件。
- 必须确保最小的绝缘距离（尺寸a）。
- 当漏电断路器及漏电报警断路器安装在一起时，如果2,500A 以上的电流流经其中一个断路器时，另一个断路器会出现误动作。确保相互间至少50mm 的距离。
- 当400A以上的断路器配有分励脱扣器或欠压脱扣器时，如果50kA以上的电流流过其中一个断路器时，另一个断路器会出现误动作。至少确保断路器间留有50mm 的距离。



As for the insulation performance of the exposed parts and live parts on the line side of the circuit breaker, at least the insulating tape, insulating tube or terminal cover shall be used to ensure the insulation of the live conductor.

- ① A: distance between circuit breaker and suspension plate (with grounding metal).
- ② B1: the distance from the circuit breaker to the uncovered conductive part on the terminal side of the circuit breaker (wiring in front of the board).
- ③ B2: distance between lower circuit breaker and upper circuit breaker end face (wiring behind board).
- ④ D1: distance between circuit breaker side and side lining plate (with grounding metal).
- ⑤ C: insulation length of power terminal of circuit breaker (wiring in front of board).

Please use insulating tape, insulating tube, insulating partition board or terminal board to ensure mutual insulation between exposed live parts within the size range. See insulation distance table for size range.

When using insulating tape, insulating tube, insulating partition and terminal cover plate at the same time, ensure that there is at least 10 mm overlap between them.

- if the insulation partition must be used according to the standard requirements, please make sure that the partition must be used.

a: The spacing specified in the standard.

- ⑥ D2: side distance of circuit breaker

- If there is no space between circuit breakers during installation, the following regulations must be observed:
- Install insulating partition between adjacent circuit breakers or isolate exposed parts and live parts according to cut-off gas.
- The minimum insulation distance (dimension a) must be ensured.
- When the leakage circuit breaker and the leakage alarm circuit breaker are installed together, if the current above 2500A flows through one of the circuit breakers, the other circuit breaker will malfunction. Ensure at least 50 mm distance from each other.
- When the circuit breaker above 400A is equipped with shunt release or undervoltage release, if the current above 50kA flows through one of the circuit breakers, the other circuit breaker will malfunction. Ensure that there is at least 50mm distance between circuit breakers.

KFM3XL SERIES RESIDUAL OPERATED CURRENT MOLDED CASE CIRCUIT BREAKER

KFM3XL系列剩余电流动作断路器

断路器安装最小安全距离

Minimum safety distance for circuit breaker installation

| 型号<br>Type | 吊线板<br>Temperature        |                                      | 垂直间距<br>Vertical spacing  |                                      | C   | 水平间距<br>Horizontal spacing |
|------------|---------------------------|--------------------------------------|---------------------------|--------------------------------------|-----|----------------------------|
|            | A                         |                                      | B1, B2                    |                                      |     | D1                         |
|            | 无端子罩<br>No terminal cover | 配端子罩<br>Equipped with terminal cover | 无端子罩<br>No terminal cover | 配端子罩<br>Equipped with terminal cover |     |                            |
| KFM3XL-125 | 60                        | 50                                   | 60                        | 50                                   | 80  | 30                         |
| KFM3XL-250 | 60                        | 50                                   | 60                        | 50                                   | 80  | 30                         |
| KFM3XL-400 | 120                       | 110                                  | 120                       | 110                                  | 110 | 35                         |
| KFM3XL-800 | 120                       | 110                                  | 120                       | 110                                  | 110 | 35                         |

降容系数表

Derating factor table

环境温度变化的降容系数表    DERATING FACTOR TABLE OF AMBIENT TEMPERATURE CHANGE

| 型号<br>TYPE | 温度<br>TEMPERATURE | +40℃                    | +45℃    | +50℃    | +55℃    | +60℃    | +65℃    | +70℃    |
|------------|-------------------|-------------------------|---------|---------|---------|---------|---------|---------|
|            | 系数<br>FACTOR      | 降容系数    DERATING FACTOR |         |         |         |         |         |         |
| KFM3XL-125 |                   | 1.0In                   | 0.977In | 0.954In | 0.931In | 0.92In  | 0.90In  | 0.89In  |
| KFM3XL-250 |                   | 1.0In                   | 0.985In | 0.968In | 0.952In | 0.935In | 0.919In | 0.887In |
| KFM3XL-400 |                   | 1.0In                   | 0.981In | 0.962In | 0.942In | 0.922In | 0.901In | 0.879In |
| KFM3XL-800 |                   | 1.0In                   | 0.979In | 0.958In | 0.937In | 0.915In | 0.893In | 0.871In |

高海拔降容系数

HIGH ALTITUDE DERATING PARAMETERS

海拔超过适用工作环境2000m，断路器电气性能可参照下面数据修正。  
The breaker electrical performance can be amended with reference to the following data when the altitude is 2000 m more than the suitable working environment.

| 海拔高度 (m)    ALTITUDE                            | 2000 | 3000 | 4000 | 5000 |
|-------------------------------------------------|------|------|------|------|
| 工频耐压 (V)    Power frequency withstand voltage   | 3500 | 3150 | 2800 | 2500 |
| 工作电流修正系数    Operating current correction factor | 1    | 0.98 | 0.95 | 0.93 |
| 绝缘电压 (V)    Insulation voltage                  | 1000 | 900  | 810  | 730  |
| 最大工作电压 (V)    Maximum operating voltage         | 690  | 600  | 500  | 440  |

断路器的接线方式为插入式和板后接线时降容系数为0.75。  
The derating factor is 0.75 when the wiring modes of breaker are plug-in type and back-panel wiring.

