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XKM5Z

智能型塑壳式断路器

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PRODUCT INTRODUCTION

适用范围及标准

- XKM5Z系列塑料外壳式断路器适用于AC50/60Hz、额定绝缘电压800V、额定工作电压AC400V/690V，额定电流从32A至800A的电路中，作配电保护用，也可作为电动机保护用。
- 本断路器可作为线路不频繁转换及电动机不频繁启动之用，具有过载长延时、短路短延时、短路瞬时三段保护及欠电压保护。
- 本断路器具有隔离功能,其 相应的符号为“ ”。
- 本断路器不能倒进线、只可“ LINE”接电源端,“ LOAD”接负载端。
- 本断路器符合 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第二部分低压断路器》、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）。
- 本断路器均获国家强制性产品认证“ CCC”标志。

适用工作环境

- 安装地点周围空气温度不高于+40℃和不低于-5℃，且24h的平均值不超过+35℃；
  注1：周围空气温度为-10℃或-25℃的工作条件，在订货时用户须向制造厂申明；
  注2：周围空气温度上限超过+40℃或下限低于-25℃的工作条件，用户应与制造厂商协商。
- 安装地点的海拔不超过2000m。
- 大气的相对温度在周围最高温度+40℃时不超过50%；在较低的温度下可以有较高的湿度；在最湿月的月平均最低温度为+25℃时，该月的月平均最大相对湿度为90%，并考虑到因温度变化发生在产品表面上的凝露。
  注：提供特殊产品：湿热带型（通过GB/T 2423.4 和GB/T 2423.18 的试验要求）
- 污染等级：断路器本体为3级，装于断路器内部的附件为2级。
- 断路器主电路及欠压脱扣器，过电压类别Ⅲ，辅助电路和控制电路，过电压类别Ⅱ。
- 断路器适用于电磁环境A;
- 断路器可以垂直安装(竖 装),也 可水平安装(横 装)。
- 运输和存储温度：-25℃至+55℃之间，短时间内（24 小时内）可达+70℃；
- 断路器应安装在无爆炸危险和无导电尘埃、无足以腐蚀金属和破坏绝缘的地方；
- 断路器应安装在没有雨雪侵袭的地方。

Applicable Scope and Standard

XKM5Z series circuit breaker with plastic shell is suitable for the circuit with AC50/60Hz, rated insulation voltage 800V,rated working voltage AC400V/690V, rated current 32A-800A,it canbe used for the protection of the power distribution, also can be used for the protection of the motor.
This circuit breaker can be used for the infrequent conversion of the circuit and the infrequent start of the motor. It has functions of overload ,short circuit, and undervoltage protection.
This circuit breaker has the isolation function, the symbol for it is “ ”.
The wiring of this circuit breaker can not be backward, with only "LINE" to the power supply side and "LOAD" to the load side.
This circuit breaker conforms to IEC60947-1 and GB/T14048.1(General requirements for low voltage switchgear and controlgear), IEC60947-2 and GB/T14048.2(Low voltage switchgear and controlgear second section-Low Voltage circuit breakers), IEC60947-4-1 and GB/T14048.4(Low voltage switchgear and controlgear-Electromechanical contactors and motor-starters(including motor protector).
This circuit breaker has "CCC" cirtification.

Applicable working environment

The ambient air temperature of the installation location should be no higher than +40℃and no lower than -5℃, meanwhile the average of 24hours does not exceed +35℃.
Note 1:When the ambient air temperature is -10℃ or -25℃, the user needs to notify the manufacturer when ordering.
Note2: When the ambient temperature is higher than +40℃ or lower than -25℃, the user needs to consult with the manufacturer.
Altitude of the installation location should be no more than 2000m.
The relative humidity of the atmosphere is no more than 50% at the maximum temperature of +40℃,allowing a higher relative humidity at a lower temperature. The average maximum relative humidity is 90%, in the wettest month with lowest temperature of +25℃, taking into account the condensation on the product surface due to the temperature variation.
Note: Can provide special product, Hot and humid zone type(Pass the GB/T2423.4 and GB/2423.18 test requirement).
Pollution level: this circuit breaker is third-class,and the internal accessories installed in the circuit breaker is second-class.
Overvoltage category of the circuit breaker main circuit and undervoltage stripper is Ⅲ，overvoltage category of auxiliary circuit and control circuit is Ⅱ
This circuit breaker can be used in electromagneticenvironment A.
The circuit breaker can be installed vertically and horizontally.
Transportation and storage humidity:between -25℃ and55℃ and within short period(24hours) can be +70℃.
Circuit breaker should be installed in locations without explosion hazard, conductance dust, metal corrosion or insulation destruction.
Circuit breakers shall be installed in locations without rain or snow invasion.

断路器技术参数 Technical parameters of circuit breaker

断路器技术参数

型号 Model		XKM5Z-100			XKM5Z-250			XKM5Z-400			XKM5Z-630			XKM5Z-800		
额定电流 Rated current In(A)		32,100			160,250			400			630			800		
极数 Pole number		3P/4P			3P/4P			3P/4P			3P/4P			3P/4P		
额定绝缘电压 Ui(V) Rated insulation voltage		800			800			800			800			800		
额定工作电压 Ue(V) Rated operating voltage		AC400 / AC690			AC400 / AC690			AC400 / AC690			AC400 / AC690			AC400 / AC690		
额定冲击耐受电压 Uimp(V) Rated shock withstand voltage		8000			8000			8000			8000			8000		
机械寿命 mechanical life	免维护 maintenance-free	20000			20000			10000			10000			10000		
电气寿命 electrical life	AC400V	8000			8000			8000			8000			8000		
	AC690V	1500			1500			1000			1000			1000		
分断能力级别 Breaking ability level		S	H	R	S	H	R	S	H	R	S	H	R	S	H	R
额定极限短路分断能力 Rated ultimate short-circuit breaking capacity Icu(kA)	AC400V	50	70	100	50	70	100	50	70	100	50	70	100	50	70	100
	AC690V	10	10	10	10	10	10	15	15	15	15	15	15	15	15	15
额定运行短路分断能力 Rated service short-circuit breaking capacity Ics(kA)	AC400V	50	70	70	50	70	70	50	70	70	50	70	70	50	70	70
	AC690V	10	10	10	10	10	10	15	15	15	15	15	15	15	15	15
额定短时耐受电流 Rated short-time withstand current Icw(kA)/1s		-			-			5			8			10		
使用类别 Use category		A			A			B			B			B		
飞弧距离 Flashover distance(mm)		0或(or)≤50			0或(or)≤50			0或(or)≤100			0或(or)≤100			0或(or)≤100		
外形尺寸 outline dimensions	W	92(3p) 122(4p)			107(3p) 142(4p)			140(3p) 184(4p)			210(3p) 280(4p)			210(3p) 280(4p)		
	L	150			165			257			275			275		
	H	91			91			103			103			103		
分励脱扣器 shunt release		○			○			○			○			○		
欠电压脱扣器 Under-voltage release		○			○			○			○			○		
辅助触头 Auxiliary contact		○			○			○			○			○		
报警触头 Alarm contact		○			○			○			○			○		
电动操作机构 Electric operating mechanism		○			○			○			○			○		
转动操作手柄机构 Rotation handle mechanism		○			○			○			○			○		
板前接线 Board connection		○			○			○			○			○		
板后接线 Back panel connection		○			○			○			○			○		
插入式接线 Plug in connection		○			○			○			○			○		
抽出式接线 Extraction type wiring								○			○			○		

断路器的型号和含义 Circuit breaker model and meaning

因产品技术不断改进，所有数据以本公司最新数据为准，如有变动，恕不另行通知
All data shall be subject to the latest data of our company because of continuous improvement of product techniques without prior notice

- 分断能力：本断路器分S、H、 R型
- 脱扣器代号可选 首位数字表示脱扣式，后两位数字表示内部附件代号。
  “2”仅有电磁式脱扣器
  “3”复式脱扣器

- Breaking ability: S, H and R type circuit breakers
- Optional frame size level current
  The 1st digit refers to release type. Former 2 digits refer tointernal fitting code.
  2-electromagnetic type release
  3-complex release

温度降容

断路器所处环境温度超过+40℃时的电流-温度特性：

型号	40℃	45℃	50℃	55℃	60℃
XKM5Z-100	1In	0.97In	0.94In	0.91In	0.85In
XKM5Z-250	1In	0.93In	0.9In	0.87In	0.82In
XKM5Z-400	1In	0.95In	0.92In	0.88In	0.83In
XKM5Z-630	1In	0.96In	0.94In	0.89In	0.85In
XKM5Z-800	1In	0.96In	0.94In	0.86In	0.82In

高海拔降容

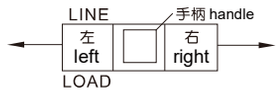
海拔超过标准规定的2000m，断路器电气性能按下表修正：

海拔(m)	2000	3000	4000	5000
工频耐压	3000	2500	2000	1800
绝缘电压（V）	800	720	630	530
最大工作电压（V）	690	620	540	460
修正系数	1	0.94	0.85	0.83

内部附件 Internal accessories

脱扣器及附件代号、符号

Release and annex code and symbol



● 报警触头 alarm contact
○ 辅助触头 auxiliary contact
▲ 欠电压脱扣器 under-voltage release
△ 分励脱扣器 shunt release
注：标红为外挂分励模块 Note：the red is the external dhunt module
●○ 辅助报警触头 auxiliary alarm contact
○○ 双辅助触头 double auxiliary contact
右边引线即右装式 right downlead, namely, right installation
左边引线即左装式 left downlead, namely, left installation

脱扣器及附件代号 Release and accessory code	附件名称 Accessory name / 断路器型号 circuit breaker modle / 极数Pole Number	XKM5Z-100/250 3P	XKM5Z-100/250 4P	XKM5Z-400/630/800 3P、4P
200,300	无附件 without accessory	200-电磁式脱扣器（仅有短路瞬时保护） 200-electromagnetic type release (of only short-circuit transient protection) 300-复式脱扣器（兼有过载和短路瞬时保护） 300-complex release (of both over-load and short-circuit transient protection)		
208,308	报警触头 alarm contact			
210,310	分励脱扣器 shunt release			
220,320	辅助触头（1NO1NC） auxiliary contact（1NO1NC）			
202, 302	辅助触头（2NO2NC） auxiliary contact（2NO2NC）			
230,330	欠电压脱扣器 under-voltage release			
240,340	分励脱扣器,辅助触头（1NO1NC） shunt release,auxiliary contact（1NO1NC）			
212,312	分励脱扣器,辅助触头（2NO2NC） shunt release,auxiliary contact（2NO2NC）			
250,350	分励脱扣器,欠电压脱扣器 shunt release,under- voltage release			
260,360	二组辅助触头（2NO2NC） 2 groups of auxiliary contacts（2NO2NC）			
222, 322	二组辅助触头（3NO3NC） 2 groups of auxiliary contacts（3NO3NC）			
223, 323	二组辅助触头（4NO4NC） 2 groups of auxiliary contacts（4NO4NC）			
270,370	欠压脱扣器,辅助触头（1NO1NC） under-voltage release, auxiliary contact（1NO1NC）			
232,332	欠压脱扣器,辅助触头（2NO2NC） under-voltage release, auxiliary contact（2NO2NC）			
218,318	分励脱扣器,报警触头 shunt release,alarm contact			
228,328	辅助触头（1NO1NC）,报警触头 auxiliary contact（1NO1NC）, alarm contact			
238,338	欠压脱扣器,报警触头 under-voltage release, alarm contact			
248,348	分励脱扣器,辅助触头（1NO1NC）,报警触头 shunt release, auxiliary contact（1NO1NC）, alarm contact			
268,368	二组辅助触头（2NO2NC）,报警触头 2 groups of auxiliary contact（2NO2NC）, alarm contact			
205, 305	二组辅助触头（3NO3NC）,报警触头 2 groups of auxiliary contact（3NO3NC）, alarm contact			
278,378	欠压脱扣器, 辅助触头（1NO1NC）,报警触头 under-voltage release,auxiliary alarm contact（1NO1NC）, alarm contact			

主要特点 Main characteristics

中性极（N极）的型式：
N极过电流保护，电流时间参数与相极整定值一致，且N极与其它三极一起合分（N极先合后分）；

选择性配合：
XKM5Z系列断路器具有三断保护功能，使用类别为 B的断路器与连接在同一电路中的其它短路保护装置在短路条件下具有选择性配合；

具有三断保护动作电流、动作时间选择：
用户可根据负载电流要求对脱扣器进行设置调整；

自供电：
智能化脱扣器由断路器自身提供能量，电流信号及脱扣器工作电源来自安装于断路器内的电流互感器；当主回路三相电流大于0.2In，单相电流大于0.3In时，脱扣器即能可靠工作；

具有"预报警"指示：
当流过断路器的实际运行电流达到或超过预报警动作电流 Ip时，断路器面盖孔的"预报警"发光二极管指示为闪亮，当电流值达到或超过长延时整定电流时，该二极管转为恒定发光；

具有过载指示：
当负载电流超出过载长延时动作电流时，断路器面盖上的发光二极管指示为黄色；

大电流瞬时脱扣功能：
当断路器闭合时或在运行时，遇短路大电流(≥20Inm)，断路器由电磁脱扣机构直接脱扣；

热记忆功能：
反复的过负荷可能引起导体发热控制器因过载等故障延时动作后，具有模拟双金属片特性的热效应，长效时能量30min释放结束，短延时能量15min释放结束，在此期间如再次闭合断路器发生过载故障，则延时动作时间变短，可使线路或设备得到较合适的保护(该功能根据用户需要可开启或关闭)。

控制器自诊断功能：
用于对自身单片机芯片的工作运行的检查和保护，当控制器内部环境温度超过80°C+5°C，MCU发光二极管闪烁；当控制器内部单片机工作，出现异常现象时，MCU二极管闪烁或熄灭。

Neutral pole (N-pole) types:Current time parameters of N-pole over-current protection are consistent with set phase pole value; Besides, N-pole is connected or disconnected with other 3 poles. (N pole is connected or disconnected.)

Selective coordination: XKM5Z series of circuit breakers have 3-section protection function; Circuit breakers of Class B use category and other short-circuit protectors connected to the same circuit have selective coordination under short-circuit conditions;

Selection of 3-section protection operating current and Operating period: User can set and adjust releases according to load current requirements;
Self-powered: Circuit breakers provide energy for intelligent releases; Current signals and release operating power come from current transformers installed in circuit breakers; Releases can operate reliably when three-phase current of main loop exceeds 0.2In and single-phase current exceeds 0.3In;

"Pre-alarm" indication: "Pre-alarm" luminescence diode indication of circuit breaker cover hole flickers when actual operating current of circuit breaker reaches or exceeds pre-alarm operating current Ip; This diode changes to constant luminescence when current reaches or exceeds long-delay set current;

Overload indication: Luminescence diode on circuit breaker cover is yellow when load current exceeds overload long-delay operating current;

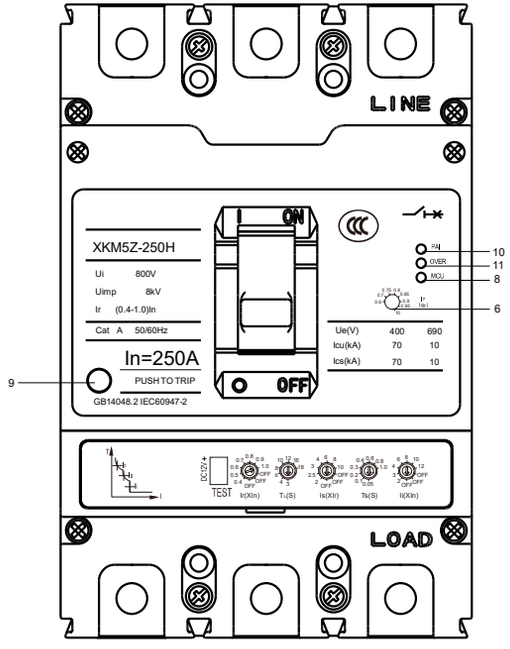
Large current transient release function: Electromagnetic release mechanism releases circuit breaker directly under short-circuit large current (=20Inm) when circuit breaker closes or operates;

Hot memory function: Repeated overload may cause heat effect of analogize double-metal-disk characteristics after failure delay of conductor heating controller because of overload, etc; Long-delay energy release ends after 30min and short-delay energy release ends after 15min; Delay period reduces for suitable protection of wires or equipment if re-closing circuit breaker has overload failure during the period;

Controller self-diagnosis function: It is used for operation inspection and protection of singlechip. MCU luminescence diode flickers when ambient temperature in controller exceeds 80℃ + 5℃; MCU diode flickers or extinguishes under abnormal conditions of singlechip in controller.

XKM5Z-100、250 系列智能型塑壳断路器正面指示

Front indication of XKM5Z-100 and 250 moulded case intelligent circuit breakers



XKM5Z系列智能型塑壳断路器保护特性参数的设定

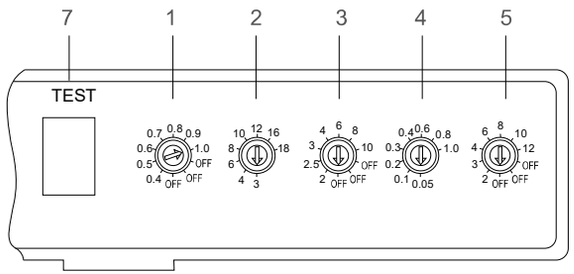
Setting of protection characteristic parameters of XKM5Z series of moulded case intelligent circuit breakers

注：用户可根据需求自行调整。

Note:The users can adjust according to the demand.

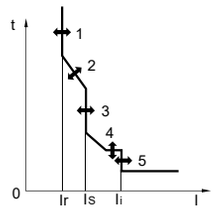
XKM2Z-250,In=250智能化断路器

XKM2Z-250 intelligent circuit breakers of In=250



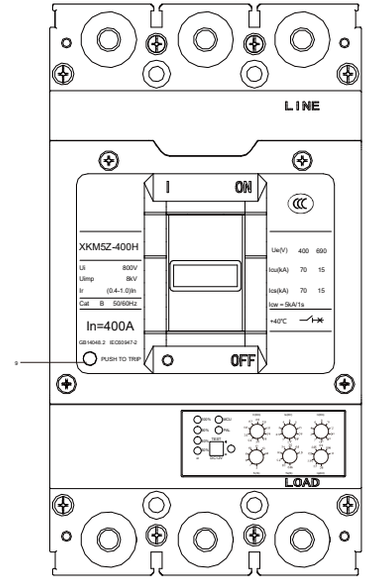
保护特性曲线

Protection characteristic curve



XKM5Z-400、630、800系列智能型塑壳断路器正面指示

Front indication of XKM5Z-400、630 and 800 moulded case intelligent circuit breakers



XKM5Z系列智能型塑壳断路器保护特性参数的设定

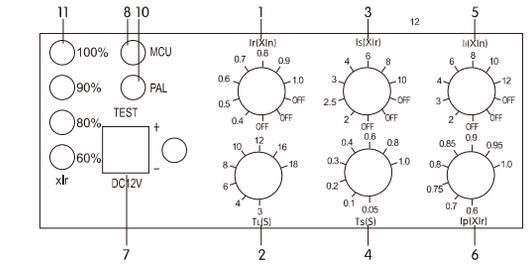
Setting of protection characteristic parameters of XKM5Z series of moulded case intelligent circuit breakers

注：用户可根据需求自行调整。

Note:The users can adjust according to the demand.

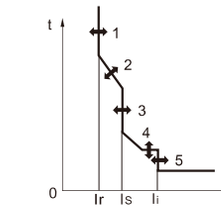
XKM5Z-400,In=400A智能化断路器

XKM5Z-400 intelligent circuit breakers of In=400A



保护特性曲线

Protection characteristic curve



控制器功能分类 Controller function classify

功能 Function			M型(通讯型) Type M (Communication type)	H型(通讯型) Type H (Communication type)
保护功能 Protective Function	基本功能 Basic Function	过载长延时保护（可OFF） Overload long delay protection (Can be OFF)	√	√
		短路短延时保护（可OFF） Short circuit short delay protection (Can be OFF)	√	√
		短路瞬时保护（可OFF） Short circuit instantaneous protection (Can be OFF)	√	√
	附加功能 Additional Function	接地故障保护（可OFF） Ground fault protection(Can be OFF)	○	○
		过载预报警（可OFF） Neutral pole protection(Can be OFF)	√	√
		热记忆功能（可OFF） Thermal memory(Can be OFF)	√	√
	扩展功能 Extended Function	过载报警不脱扣Overload alarm, no tripping	○	○
		分励模块Shunt trip	○	○
		漏电保护Leakage protection	○	○
维护功能 Maintenance Function	指示功能 Indicating Function	预报警指示Pre-alarm indication	√	√
		过载指示Overload indication	√	√
		控制器自诊断指示 Controller self-diagnostic indication	√	√
		脱扣测试Tripping test	√	√
	历史记录 History record	故障记录查询Fault record searching	-	√
通讯功能 Communication Function	通讯模块 Communication Function	标准RS485通信协议 Standard RS485 communication protocol	-	√
	信号输出功能 Signal output Function	合闸、分闸信号输出 Closing and opening signal output	-	√
		接地触点输出Earthing contacts output	-	√
		故障触点输出Fault contacts output	-	√
		过载预报警触点输出 Overload alarm contacts output	-	√
	信号输入功能 Signal input Function	合分状态检测输入功能 Closing and opening status test input	-	√

“√”表示必备功能，“○”表示可选功能，“—”表示无此功能。

“√ ” indicates essential function,“○ ” indicates optional fucntion,“—” indicates no this fucntion.

保护功能 Protection function

M型控制器：

1—过载长延时整定电流Ir。Ir=（0.4、0.5、0.6、0.7、0.8、 0.9、1.0）In+0FF
2—过载长延时整定时间TL。TL=（3、4、6、8、10、12、16、18）S
3—短路短延时整定电流Is。Is=（2、2.5、3、4、6、8、10）Ir+0FF
4—短路短延时整定时间Ts。Ts=（0.05、0.1、0.2、0.3、0.4、0.6、0.8、1.0）S
5—短路瞬时整定电流Ii。Ii=（2、3、4、6、8、10、12）In+0FF
6—预报警整定电流Ip。Ip=（0.6、0.7、0.75、0.8、0.85、0.9、0.95、1.0）Ir
或接地保护整定电流Ig。Ig=（0.2、0.3、0.4、0.5、0.7、0.9、1.0）In+OFF

注：1.接地保护动作时间tg=0.4s ，控制器出厂时设定
2.增选接地保护功能时，预报警默认为0.9Ir；当Ir设定为OFF时，预报警默认为1.0In

M type controller:
1- Overload long-delay set current Ir。Ir=(0.4、 0.5、 0.6、 0.7、 0.8、 0.9、1.0)In+0FF
2- Overload long-delay set current TL。TL=(3、4、6、8、10、12、16、18)S
3- Short-circuit short-delay set current Is。Is=(2、2.5、3、4、6、8、10)Ir+0FF
4- Short-circuit short-delay set current Ts。Ts=(0.05、0.1、0.2、0.3、0.4、0.6、0.8、1.0)S
5- Short-circuit transient set current Ii。 Ii=(2、3、4、6、8、10、12) In+0FF
6- Pre-alarm set current Ip。Ip=(0.6、 0.7、0.75、0.8、0.85、0.9、0.95、1.0)Ir
Or ground protection set current Ig.Ig=（0.2、0.3、0.4、0.5、0.7、0.9、1.0）In+OFF
Note: 1. Ground protection action time tg=0.4s, controller's Factory setting.
2. When the ground protection fucntion is added, the default for the pre alarm is 0.9Ir; When the set of Ir is OFF, the pre alarm default is 1.0In.

H型控制器：

1—过载长延时整定电流Ir。Ir=（0.4 - 1）In+OFF，步长1A
2—过载长延时整定时间TL。TL=3 - 18s，步长1s
3—短路短延时整定电流Is。Is=（0.4 - 10）In，步长1A
4—短路短延时整定时间Ts。Ts=0.05 - 1.0s，在0.6s 内步长为0.05s，大于0.6s 步长为0.1 s
5—短路瞬时整定电流Ii。Ii=（1 - 12）In+OFF，步长1A
6—预报警整定电流Ip。Ip=（0.2 - 1）In，步长1A
或Ig=（0.2 - 1.0）In+OFF，步长1A

注：1.预报警动作时间tp=0.1 - 1s，步长0.1s
2.接地保护动作时间tg=0.1 - 0.8s+OFF，步长为0.1，设置在OFF 时只报警不跳闸

H type controller:
1- Overload long-delay set current Ir。Ir=（0.4 - 1）In+OFF，step width is 1A
2- Overload long-delay set current TL。TL=3 - 18s，step width is 1s
3- Short-circuit short-delay set current Is。Is=（0.4 - 10）In，step width is 1A
4- Short-circuit short-delay set current Ts。Ts=0.05 - 1.0s，within 0.6s step width is 0.05s，＞0.6s step width is 0.1 s
5- Short-circuit transient set current Ii。 Ii=（1 - 12）In+OFF，step width is 1A
6- Pre-alarm set current Ip。Ip=（0.2 - 1）In，step width is 1A
Or Ig=（0.2 - 1.0）In+OFF，step width is 1A
Note: 1.Pre alarm action time is tp=0.1-1s, step width is 0.1s.
2. Ground protection action time tg=0.1-0.8s+OFF, step width is 0.1s, when the set is OFF, only alarm works, not trip.

辅助功能 Auxiliary function

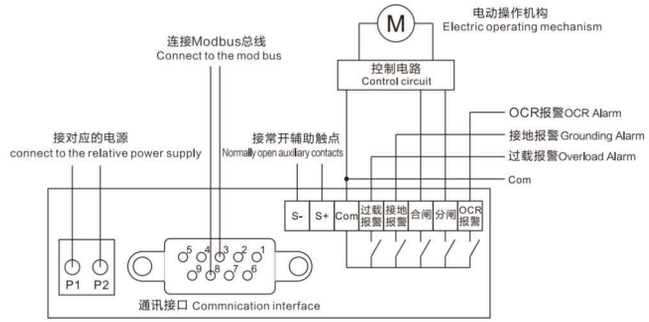
7—测试端,可用直流电压检测脱扣器
8—电源及自诊断指示
9—紧急脱扣按扭
10—预报警指示
11—运行电流负载指示

7- Test end by using DC detection release
8- Power and self-diagnosis indication
9- Emergency release button
10- Pre-alarm indication
11- Operating current load indication

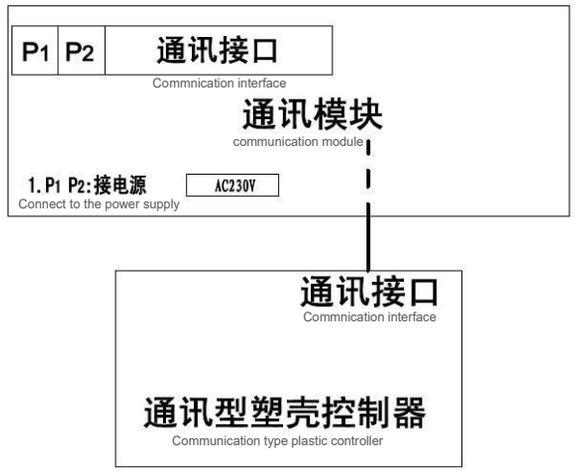
通讯功能 Communication function

H型控制器具有输入输出接口和通讯接口。输入输出接口可用于光隔的预报警、接地报警、故障跳闸指示等信号输出，合闸、分闸光隔信号输出和断路器合、分状态信号输入；
通讯接口可用于连接ST编程器进行外部参数设定，与ST-CM 模块连接进行运行电流和故障状态监视，亦可用于和ST-DP相连进行现场总线组网，与上位机通讯实现遥调、遥测、遥讯、遥控"四遥"监控管理功能。
H型控制器具有通讯地址设定功能，通讯地址可设定为3-127。

H-type controller has input and output interface and communication interface. Input and output interface can be used as the signal output of optical isolation pre alarm, earthing alarm,and fault trip indication,etc., opening and closing optical isolation signal output, opening and closing status signal output of the circuit breaker.
Communication interface can be used to connect with the ST programmer for the extermal pamameter setup, connect with the ST-CM module for monitoring the operating current and fault status, also can be used to connnect with the ST-DP for the networking of field bus, and realize the remote adjusting, remote testing, remote communication, remote control, these "Four remotes" controlling and management functions by cmmunicating with the host computer.
H-type controller has the communication address setting function, address can be set as 3-127.



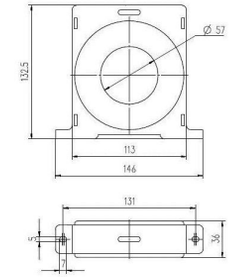
通讯模块 communication module



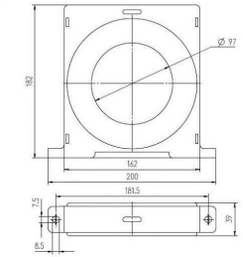
漏电功能 Leakage function

断路器可通过外置零序电流互感器与漏电功能模块，以实现漏电功能。
1.漏电功能模块控制电源电压分AC220V、AC380V 两种；
2.外置零序电流互感器的外形及安装尺寸如下；
3.断路器所有相需穿过外置式零序电流互感器，并注意进行绝缘处理。

Circuit breaker can realizes leakage function by external zero sequence current transformer and leakage fucntion module.
1.The control supply voltage of leakage function module is AC220V and AC380V two types.
2.The outline and intallaion dimension of the external zero sequence current transformer is as below:
3.All the phases of the circuit breaker need to be through external zero sequence current mutual inductor, and with insulation treatment.



XKM5Z-100/250互感器外形及安装尺寸
The outline and installation dimension of XKM5Z-100/250 transformer



XKM5Z-400/800（630）互感器外形及安装尺寸
The outline and installation dimension of XKM5Z-400/800（630） transformer

分励功能 Shunt trip function

断路器可外挂分励模块，以实现分励脱扣器相同的功能，分励模块控制电源电压分AC220V、AC380V 两种，其最低动作电压在70%以上（用户需考虑电压降）。
注意：分励模块不允许长时间通电，推荐在使用时在控制电源侧串接断路器辅助常开触点。

Circuit breaker can be out installed with Shut trip module, to realize the same function as shunt tripper.The control supply voltage for the shunt trip is AC220V,AC380V two types, and the lowest working voltage is above 70%.(The user needs to consider the reduce of the voltage).
Note: The shunt trip module should not be electrified for too long, so an auxiliary normally open contact connected in series with the control supply is suggested to use.

过载报警功能 Overload alarm function

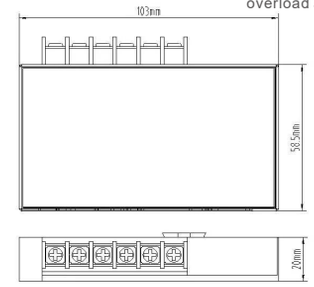
断路器可外挂过载报警模块，以实现过载报警不脱扣功能，过载报警模块控制电源电压分220V、380V两种，动作特性同过载长延时保护,断路器只报警不动作,提供常开,常闭触点，用于输出信号。触点容量：AC220V/5A。

Circuit breaker can be out installed with Overload alarm module, to realize the function of overload alarm but no trip. The control supply voltage for the overload alarm module is 220V and 380V two types. Action characteristics is same as overload long delay protection, the circuit breaker alarms but no action, providing normally open, close contacts, for signal output. Contact capacity is AC220V/5A.

功能模块外形尺寸 Outline dimension for the function module

所有功能模块包括通讯模块、漏电模块、分励模块、过载报警模块，外形尺寸均一致，如下图：

The outline dimensions for all the function modules including communication module,leadkage module, shunt trip module, overload alarm module are the same as below:



模块尺寸Module fucntion

过载长延时反时限保护特性见表一 Please refer to From 1 for overload long-delay and time-lag protection charccteristics
短路短延时定时限保护特性见表二 Please refer to From 2 for short-circuit short-delay and constant time-lag protection characterist
短路瞬时保护特性见表三 Please refer to From 3 for short-circuit transient protection characteristics
过载预报警特性见表四 Please refer to From 4 for overload pre-alarm characteristics
接地故障保护动作特性见表五 Please refer to From 5 for ground fault protection action features

表一 Form1

电流Current		动作时间 Operating period(S)							
1.05Ir		>2h不动作 Non-operating							
1.3Ir(配电) 1.3Ir(power distribution)		<1h动作 Operating							
1.2Ir(电动机) 1.2Ir(electromotor)									
	整定时间T_L Set period	3	4	6	8	10	12	16	18
1.5Ir	动作时间 operating period	48	64	96	128	160	192	256	288
2Ir		27	36	54	72	90	108	144	162
6Ir		3	4	6	8	10	12	16	18
7.2Ir		2.08	2.78	4.17	5.56	6.95	8.33	1.1	12.5
脱扣级别 release level		10A		10		20		30	

注：1.动作时间符合$T=(6Ir/I)^2T_L$；
2.动作时间允差为±10%；
3.可返回时间不小于动作时间的70%

Note: 1. operating period$T=(6Ir/I)^2T_L$;
2. allowance of operating period is±10%;
3. returnable period is not less than 70% of operating period.

表二 Form 2

电流Current		动作时间 Operating period(S)							
I≤ 0.9I_s		不动作 Non-operating							
I_i > I≥ 1.1I_s	整定时间 Set period（Ts）	0.05	0.1	0.2	0.3	0.4	0.6	0.8	1.0
	允差 Tolerance	±0.04	±0.04	±0.04	±0.04	±0.04	±0.06	±0.08	±0.1
	可返回时间 Returnable period			0.14	0.21	0.28	0.42	0.56	0.7

表三 Form 3

电流 Current	动作时间 Operating period(S)
I≤ 0.85I_i	不动作 Non-operating
I≥ 1.15I_i	< 0.1

表四 Form 4

电流 Current	报警时间 Alarm time(S)
I≤ 0.9Ip	不报警 Without alarm
I≥ 1.1Ip	< 0.2

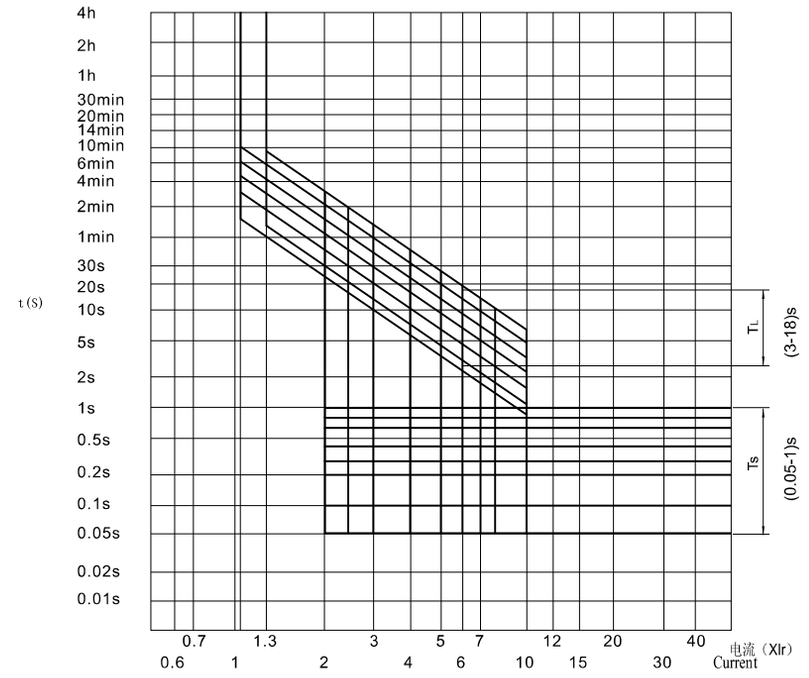
表五 Form 5

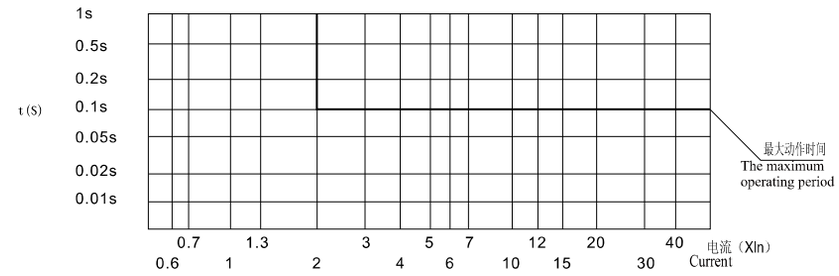
电流 Current	动作时间 Operating period(S)
I≤0.5Ig	不动作
I≥1.1Ig	0.4

保护特性常规整定表 Ordinary set list of protection characteristics

过载长延时 Overload long-delay	整定电流(Set current) Ir	1.0In
	整定时间(Set period)T_L	18s
短路短延时 Short-circuit short-delay	整定电流(Set current)Is	6Ir
	整定时间(Set period)Ts	0.4s
短路瞬时 Short-circuit transient	整定电流(Set current)Ii	10In
预报警 Pre-alarm	整定电流(Set current)Ip	0.9Ir
过载、短延时热记忆特性 Overload, short-delay hot memory characteristics	关闭 Closing	

动作特性曲线图 Operating characteristic curve diagram

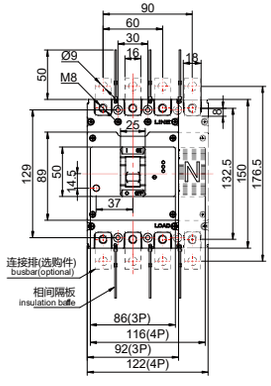


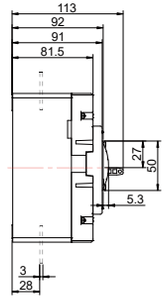


外形及安装尺寸 Overall & Installation

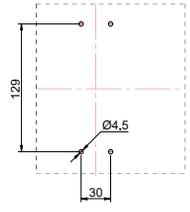
XKM5Z-100S、H、R

板前接线 Board connection

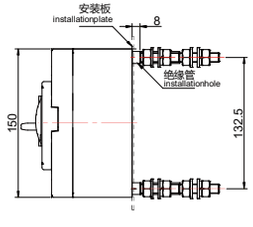


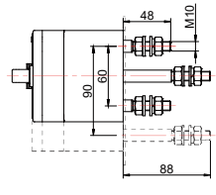


板前接线安装板开孔尺寸
installationholedimensionsfor theBoardconnection



板后接线 Back panel connection





板后接线安装板开孔尺寸
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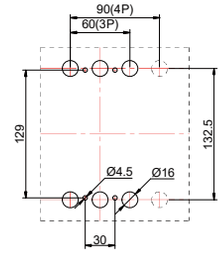
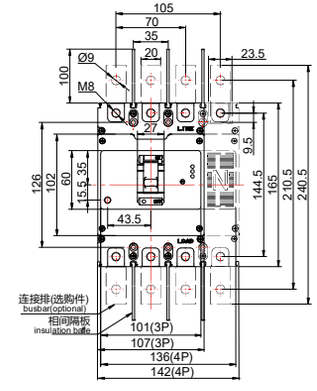
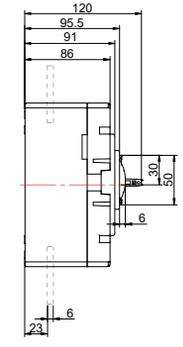


外形及安装尺寸 Overall & Installation

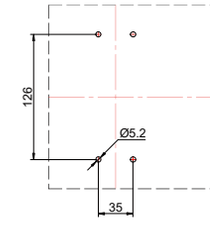
XKM5Z-250S、H、R

板前接线 Board connection

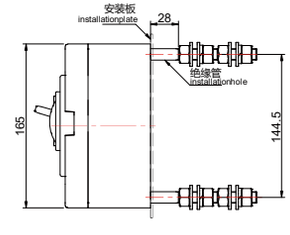


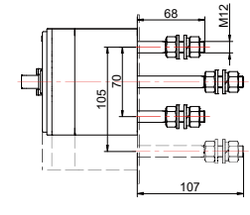


板前接线安装板开孔尺寸
installationholedimensionsfor theBoardconnection

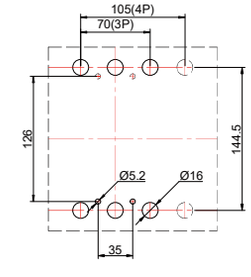


板后接线 Back panel connection





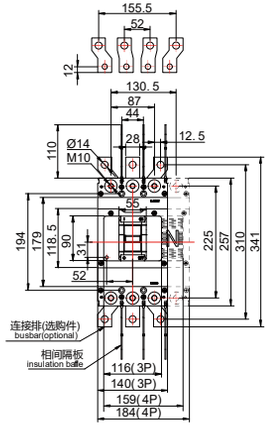
板后接线安装板开孔尺寸
installationholedimensionsfor theBackpanelconnection

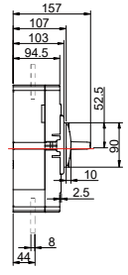


外形及安装尺寸 Overall & Installation

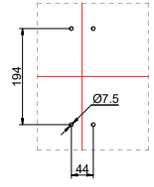
XKM5Z-400S、H、R

板前接线 Board connection

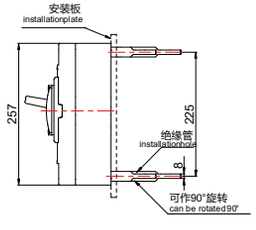


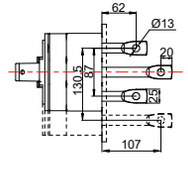


板前接线安装板开孔尺寸
installationholedimensionsfor theBoardconnection

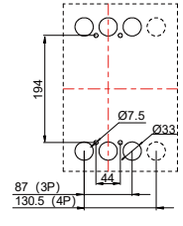


板后接线 Back panel connection





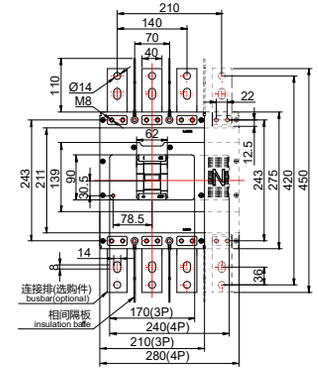
板后接线安装板开孔尺寸
installationholedimensionsfor theBackpanelconnection

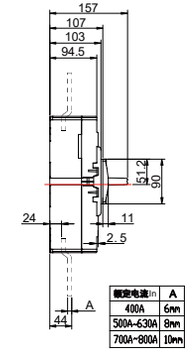


外形及安装尺寸 Overall & Installation

XKM5Z-630/800S、H、R

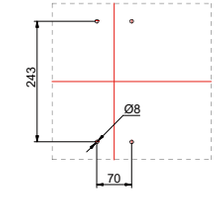
板前接线 Board connection



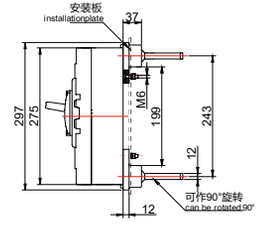


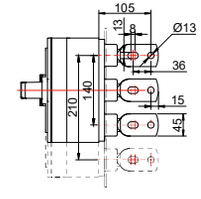
额定电流In	A
400A	6mm
500A-630A	8mm
700A-800A	10mm

板前接线安装板开孔尺寸
installationholedimensionsfor theBoardconnection

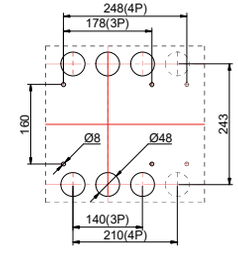


板后接线 Back panel connection

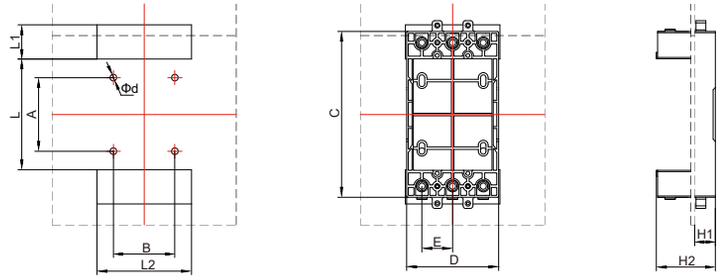




板后接线安装板开孔尺寸
installationholedimensionsfor theBackpanelconnection



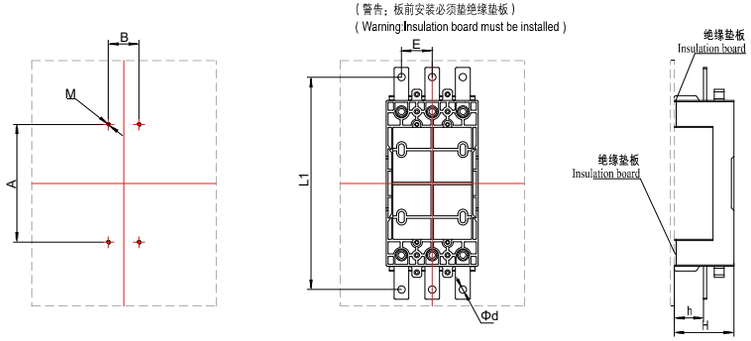
板后安装 Back panel connection



型号规格 Model and dimensions	选用插入式型号 Optional Plug in type	外形&安装尺寸 Outline &Installation dimensions										
		A	B	L	L1	L2	Φd	C	D	E	H1	H2
XKM5Z-100	MZ3-100/XKM5	65	60	90	51	94	6.5	160	90	30	20	56.2
XKM5Z-250	MZ3-250/XKM5	74	70	100	55	110	6.5	179	105	35	27	73.2
XKM5Z-400	MZ3-400/XKM5	141	88	178	70	135	7	275	132	44	45	85
XKM5Z-800(630)	MZ3-800/XKM5	143	140	181	87	213	7	311	210	70	50	125

注：当四极开关时，尺寸B，L2，D均增加相距E
Note：for four pole breakers ,Dimension B,L2,D should be added with Phase distance E

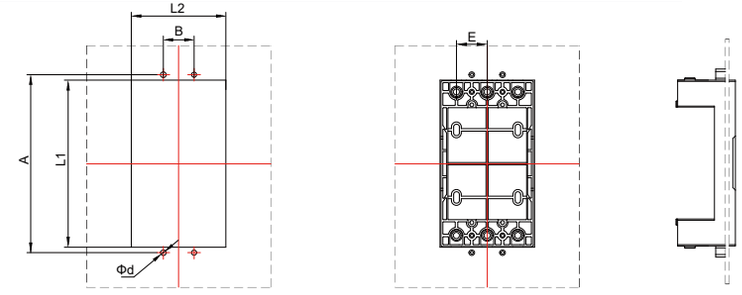
板前安装 Board connection



型号规格 Model and dimensions	选用插入式型号 Optional Plug in type	外形&安装尺寸 Outline &Installation dimensions							
		A	B	L1	E	d	M	H	h
XKM5Z-100	MZ3-100/XKM5	110	30	198	30	6.5	M4	57	28
XKM5Z-250	MZ3-250/XKM5	150	35	223	35	8.5	M4	74	32
XKM5Z-400	MZ3-400/XKM5	245	44	326	44	10.5	M5	85	36
XKM5Z-800(630)	MZ3-800/XKM5	283	70	363	70	12.5	M6	125	67

注：当四极开关时，250A及以下时尺寸B增加相距E；开关是400A及以上时尺寸B不变
Note：for four pole breakers,when 250A and below,dimension B should be added with Phase distance E；Dimension B remains unchanged when the switch is 400A and above.

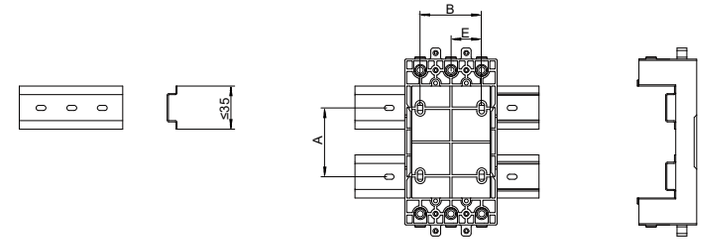
大开孔式板后安装 Back panel installation for the type with big holes



型号规格 Model and dimensions	选用插入式型号 Optional Plug in type	外形&安装尺寸 Outline &Installation dimensions					
		A	B	L1	L2	Φd	E
XKM5Z-100	MZ3-100/XKM5	170	30	161	92	5	30
XKM5Z-250	MZ3-250/XKM5	191	35	180	107	5	35
XKM5Z-400	MZ3-400/XKM5	291	44	277	134	6	44
XKM5Z-800(630)	MZ3-800/XKM5	327	70	313	212	6	70

注：当四极开关时，250A及以下时尺寸B，L2均增加相距E；开关是400A及以上时尺寸B不变，L2向增加的N相方向增加相距E
Note：for four pole breakers ,when it's 250A,Dimension B and L2 should be added with Phase distance E;When it's 400A or above, Dimension B remains the same,L2 should be added with Phase distance E

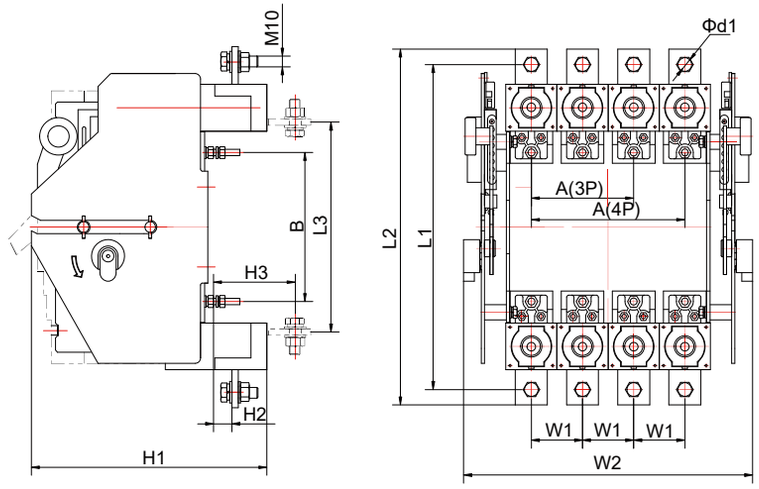
条架式板后安装 Back panel installation for the Bar-type



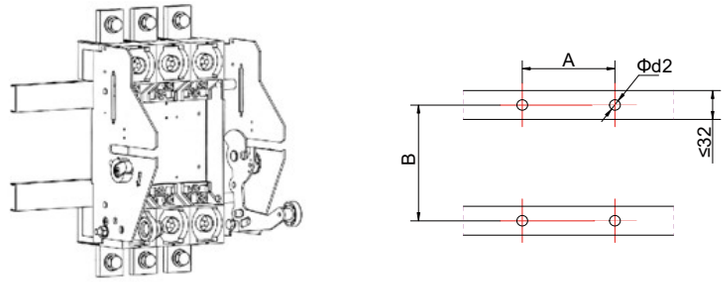
型号规格 Model and dimensions	选用插入式型号 Optional Plug in type	外形&安装尺寸 Outline &Installation dimensions		
		A	B	E
XKM5Z-100	MZ3-100/XKM5	65	60	30
XKM5Z-250	MZ3-250/XKM5	74	70	35
XKM5Z-400	MZ3-400/XKM5	141	88	44
XKM5Z-800(630)	MZ3-800/XKM5	143	140	70

注：当四极开关时，尺寸B均增加相距E
Note：for four pole breakers， Dimension B should be added with Phase distance E

外形尺寸 Outline dimensions



安装尺寸 Installation dimensions



型号规格 Model and dimensions	选用抽出式型号 Selected extraction type model	极数 Pole number	外形尺寸 Outline dimensions									安装尺寸 Installation dimensions		
			L1	L2	L3	H1	H2	H3	W1	W2	Φd1	A	B	Φd2
XKM5Z-400	CH2-400/XKM5	3P	311	340	197	227	17.5	77	44	219	11	88	141	6.5
		4P	311	340	197	227	17.5	77	44	263	11	132	141	6.5
XKM5Z-800(630)	CH2-630/XKM5	3P	368	411	231	213	24	74	70	297	13	140	131	6.5
		4P	368	411	231	213	24	74	70	367	13	210	131	6.5

DC3 系列电动操作机构技术参数

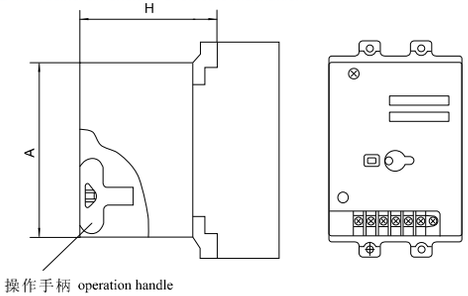
DC3 Technical parameters of electric mechanism

电动操作机构型号 Model of electric operating mechanism	配用断路器 Sorted circuit breaker	功率 (W) Operating current	操作时间 Operating time	电压可选 Operating voltage	动作电流 Operating current
DC3-100/XKM5	XKM5Z-100	≤14	≤0.7s	AC400V AC230V DC220V AC110V DC110V	≤2A
DC3-250/XKM5	XKM5Z-250	≤14			
DC3-400/XKM5	XKM5Z-400	≤35			
DC3-630/XKM5	XKM5Z-800(630)	≤35		DC24V	≤3A

DC3 系列电动操作机构外形尺寸

DC3电操：（民用供配电使用）

DC3 Outline dimensions of electric mechanism



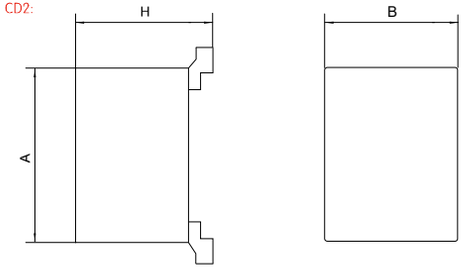
操作手柄 operation handle

型号规格 Type specification	A	H
DC3-100/XKM5	117	97
DC3-250/XKM5	117	97
DC3-400/XKM5	176	151
DC3-630/XKM5	176	153

CD2电操：（发电机组行业专用）

如需低温电操，对应的型号为CD2，外形尺寸如下：

CD2:



型号规格 Type specification	A	B	H
CD2-100/XKM5	116	90	89
CD2-250/XKM5	116	90	91
CD2-400/XKM5	176	130	152
CD2-630/XKM5	176	130	153

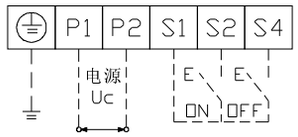
*：更多尺寸详见P24

DC3 系列电动操作机构电气接线图

DC3 wiring dimensions of electric mechanism

电动操作机构的额定控制电源电压为：AC400V、AC230V、AC110V、DC220V、DC110V、DC24V

The rated control power supply voltage of the electric operating mechanism is:AC400V、AC230V、AC110V、DC220V、DC110V、DC24V

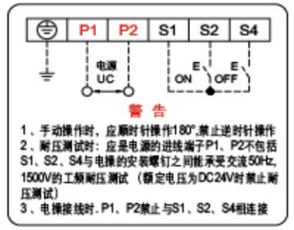


型号	电操机构	安装图
XKM5Z-100		
XKM5Z-250		
XKM5Z-400		
XKM5Z-630(800)		

通用型电动操作机构（低温型电动操作机构CD2参数同DC3）特性

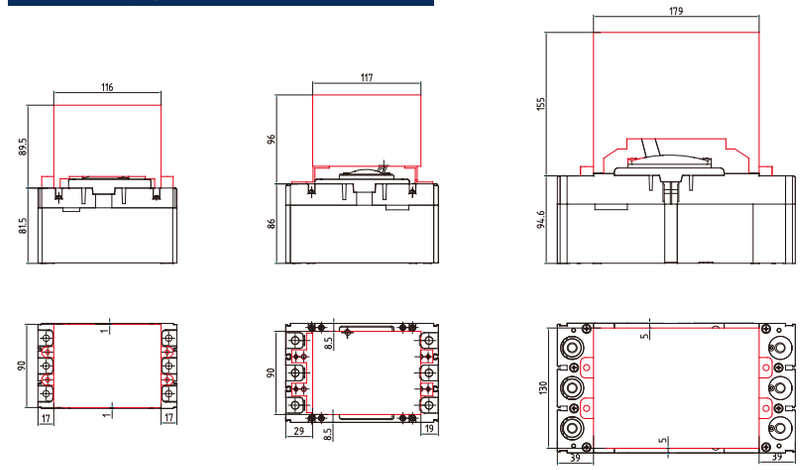
		DC3-100	DC3-250	DC3-400	DC3-630(800)
响应时间(ms)	打开	＜700ms	＜700ms	＜700ms	＜700ms
	闭合	＜700ms	＜700ms	＜700ms	＜700ms
操作频率	每分钟的最大次数	4	4	2	2
控制电压（V）	DC	24，110~230			
	AC 50/60Hz	110~230，400			
电气寿命		14000	10000	5000	
功耗 DC（W）	打开	14	14	35	35
	闭合	14	14	35	35
功耗 AC（W）	打开	14	14	35	35
	闭合	14	14	35	35
动作电流	DC	≤0.5 24VDC≤3		≤2 24VDC≤5	
	AC 50/60Hz				

接线图

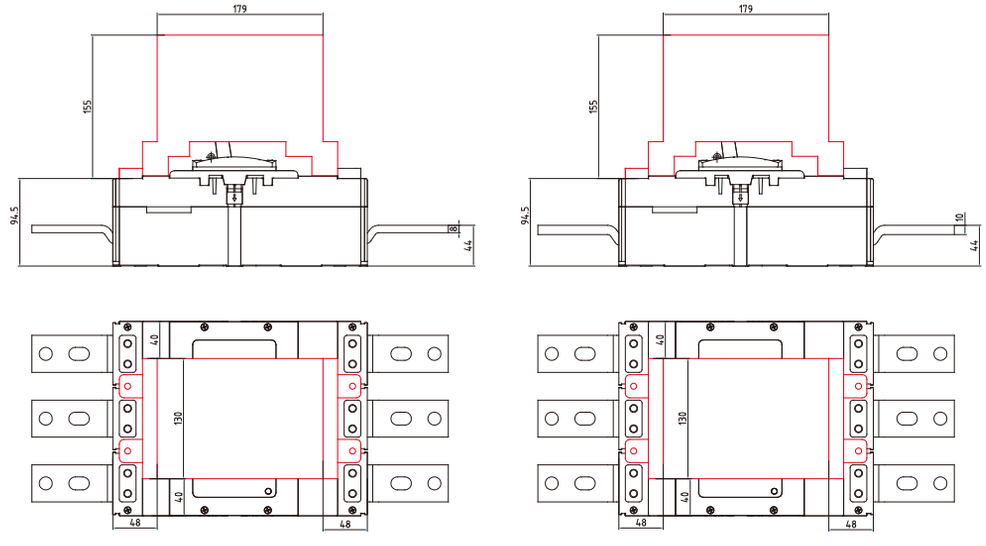


1：脱扣按钮
2：位置指示（分闸/合闸/脱扣）
3：手动/自动选择滑盖（切换手动/自动模式）
4：手动操作手柄
5：手柄插槽

装配CD2电操机构的尺寸参数



XKM5Z-100S/H/R　　XKM5Z-250S/H/R　　XKM5Z-400S/H/R

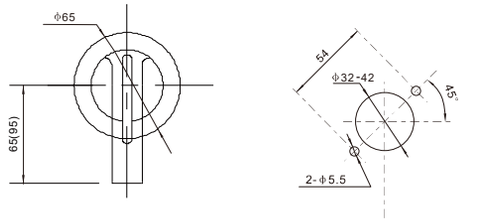


XKM5Z-630 S/H/R(抽)　　XKM5Z-800 S/H/R(抽)

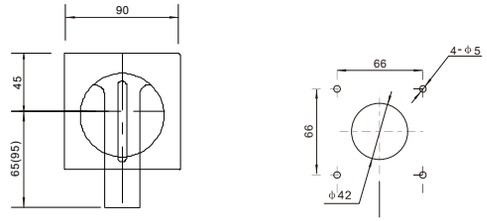
转动手柄操作机构 Rotation handle operating mechanism

手柄：XKM5Z系列塑料外壳式断路器转动手柄有两种可选,分别为“ Y”型、“ F ”型
Handle: Y, F kinds of rotation handles of XKM5Z series of moulded case type circuit breakers can be selected.

开孔尺寸：Y型
Perforation dimensions: Y type



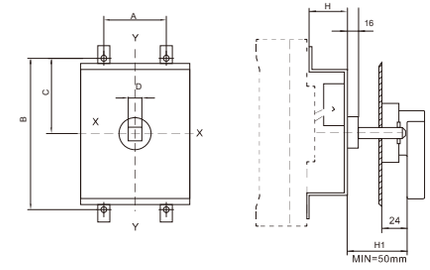
开孔尺寸：F型
Perforation dimensions: F type



操作机构：有“中心式转动手柄操作机构”，“偏心式转动手柄操作机构”
Operation handle: “Centered rotary-handle mechanism” , “Acentric rotary-handle mechanism”

中心式转动手柄操作机构

Centered rotary-handle mechanism

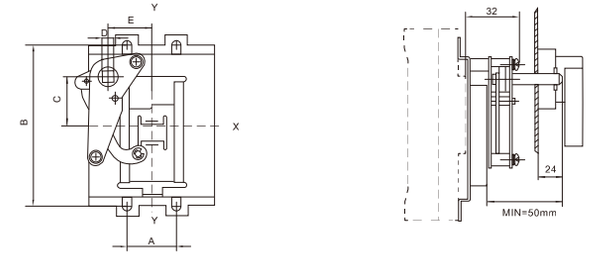


型号规格 Model and dimensions	配用断路器 Sorted circuit breaker	A	B	C	D	H	操作手柄相对于断路器中心Y值 Deviation (Y value) of operation handles from circuit breaker center
SC1-100/XKM5	XKM5Z-100	30	132	66	8	46	0
SC1-250/XKM5	XKM5Z-250	35	126	63	8	46	0
SC1-400/XKM5	XKM5Z-400	128	195	97.5	10	76	0
SC1-630/XKM5	XKM5Z-800(630)	128	243	121.5	10	76	0

注：X,Y轴为对应断路器的中心, Note: X and Y axles are centers of corresponding circuit breakers.

偏心式转动手柄操作机构

Acentric rotary-handle mechanism

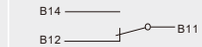
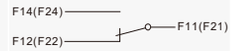
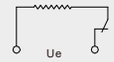


型号规格 Model and dimensions	配用断路器 Sorted circuit breaker	A	B	C	D	E	操作手柄相对于断路器中心Y值 Deviation (Y value) of operation handles from circuit breaker center
SC2-100/XKM5	XKM5Z-100	30	132	32	8	11	0
SC2-250/XKM5	XKM5Z-250	35	126	40	8	11	0
SC2-400/XKM5	XKM5Z-400	128	195	60	10	15	0
SC2-630/XKM5	XKM5Z-800(630)	198	243	60	10	15	0

注：X,Y轴为对应断路器的中心, Note: X and Y axles are centers of corresponding circuit breakers.

内部附件 Internal accessories

附件类型 Accessory type

附件名称 Accessory name	功能 Function	电压可选 Voltage optional	接线图 Wiring diagram
报警触头 alarm contact	指示断路器已脱扣 It indicates release circuit breaker.		
辅助触头 auxiliary contact	指断路器处于断开或闭合 It indicates that circuit breaker is disconnected or connected.		
分励脱扣器 shunt release	在额定控制电源电压70%~110%之间时，应可靠使断路器脱扣 Circuit breaker shall release within scope of 70% to 110% of rated control power voltage.	AC400V AC230V DC220V DC110V DC24V	
欠电压脱扣器 under-voltage release	在额定工作电压的85%~110%时，欠压脱扣器应保证断路器能可靠闭合。在额定工作电 压的35%~75%时，欠压脱扣器 应可靠使断路器脱扣，在额定工作电压低于35%时欠压脱扣器应能防止断路器合闸。 Under-voltage release shall guarantee reliable connection of circuit breaker within scope of 85% to 110% of rated operating voltage. It shall release circuit breaker reliably within scope of 35% to 75% of rated operating voltage. It shall avoid connection of circuit breaker when voltage is less than 35% of rated operating voltage.	AC230V AC400V	

注意：欠电压脱扣器必须先通电后才能进行断路器的操作，否则将损坏断路器。

Note: Circuit breaker cannot be operated until power supply of under-voltage release or it may be damaged.

辅助触头和报警触头的技术参数

Technical parameters of auxiliary contact and alarm

额定发热电流(Ith) Rated heating current	额定工作电流(Ie) Rated operating current	
	AC-14	DC-13
	AC400V	DC220V
3	0.3	0.15

使用和维护 Use and maintenance

- 断路器特性和附件的动作值已经由制造厂调整好，用户在使用中不应随意开盖及调节。
- 使用中应注意周围清洁，有机会停电维修时，应把进线端积尘清除，检查铜排螺钉是否松动等。
- 断路器手柄可以处于三种状态，分别表示闭合、断开、自由脱扣三个位置。当手柄处于自由脱扣位置时合闸，应将手柄用力推向断开位置使断路器再扣才能进行闭合操作。
- 在用户遵守保管和使用条件下，自制造厂发货之日起18个月内断路器封签完好，产品因制造质量问题而产生的损坏或不能正常使用时，本公司承诺无偿更换或修理。

- Characteristics of circuit breaker and operating values of accessories have been adjusted by manufacturer. User cannot uncover or adjust randomly during use.
- Pay attention to surrounding cleanness during use. Collect dust in incoming wire end and check if copper bar screws are loose or not once power failure repair.
- Circuit breaker handles can be under 3 states, namely, closing, disconnection and free release positions respectively. Push handle to disconnection position for closing and circuit breaker re-release when handle is in free release position.
- Our company does not commit free replacement or repair for damage or abnormal use of products because of manufacturing quality problem unless users abide by storage and use conditions and circuit breaker seal is perfect within 18 months since delivery date of manufacturer.

XKM5Z系列塑料外壳断路器订货规范 Intenal accessories

(请根据需要在_内打"√",或填上数字)

用户单位			联系人及联系方式	
订货台数			订货日期	
壳架等级 额定电流	XKM5Z-	100 □ 250 □ 400 □ 630 □ 800 □	分断能力	S标准型 □ H高分段型 □ R限流型 □
额定电流	32A □ 100A □ 160A □ 250A □ 400A □ 630A □ 800A □			
极数	3 □ 4 □			
扩展功能	漏电保护功能 □ 过载报警功能 □ 分励功能 □			
控制器型号	M型 □ H型 □			
智能脱扣器型号	过载长延时	整定电流 Ir = _____ X In 整定时间 TI =_____ s		
	短路短延时	整定电流 Is = _____ X Ir 整定时间 Ts =_____ s		
	短路瞬时	整定电流 Ii =_____ X In		
	热记忆特性选择	ON □ OFF □		
	预报警	整定电流 Ip =_____ X Ir		
	接地保护（增选）	整定电流 Iq =_____ X In		
脱扣器 代 号	200 □ 208□ 210□ 220□ 202□ 230□ 240□ 212□ 250□ 260□ 222 □ 备注 223 □ 270□ 232□ 218□ 228□ 238□ 248□ 268□ 205□ 278□			
	300 □ 308□ 310□ 320□ 302□ 330□ 340□ 312□ 350□ 360□ 322 □ 备注 323 □ 370□ 332□ 318□ 328□ 338□ 348□ 368□ 305□ 378□			
接线方式	板前接线(带连接排) □ 插入式接线 板前 □ 抽出式接线 □ 板后接线 □ 插入式接线 板后 □			
附件	操作方式	转动手柄操作	操作机构	中心式转动手柄操作机构 □ 偏心式转动手柄操作机构 □
			手柄	Y型 □ F型 □
		电动操作	DC3电操（常规）□ CD2电操（低温）□	AC400V □ AC230V □ AC110V □ DC220V □ DC110V □ DC24V □
	欠电压脱扣器	AC400V □ AC230V □		
	分励脱扣器	AC400V □ AC230V □ DC220V □ DC110V □ DC24V □		

XKM5ZSeries of moulded case circuit breaker ordering code

(Please tick or fill in number according to demand.)

User unit				Contact and contact information	
Ordering quantity				The date of order	
Frame size	XKM5Z-	63 ☐ 100 ☐ 250 ☐ 400 ☐ 630 ☐ 800 ☐		Breaking ability	Standard type ☐ High segment type ☐ Imiting current type ☐
Rated current	32A ☐ 100A ☐ 160A ☐ 250A ☐ 400A ☐ 630A ☐ 800A ☐				
Pole	3 ☐ 4 ☐				
Extended function	Electric leakage protection function ☐ Overload alarm function ☐ Shunt function ☐				
Controller type	M type ☐ H type ☐				
Intelligent release model	Overload long-delay	Set current Ir = _____ X In	Set period Tl = _____ s		
	Short-circuit short-delay	Set current Is = _____ X Ir	Set period Ts = _____ s		
	Short-circuittransient	Set current Ii = _____ X In			
	hot memory characteristic selection	ON ☐ OFF ☐			
	Pre-alarm	Set current Ip = _____ X Ir			
	Ground protection (cooptation)	Set current Iq = _____ X In			
Release code	200 ☐ 208☐ 210☐ 220☐ 202☐ 230☐ 240☐ 212☐ 250☐ 260☐ 222 ☐ 223 ☐ 270☐ 232☐ 218☐ 228☐ 238☐ 248☐ 268☐ 205☐ 278☐				remark
	300 ☐ 308☐ 310☐ 320☐ 302☐ 330☐ 340☐ 312☐ 350☐ 360☐ 322 ☐ 323 ☐ 370☐ 332☐ 318☐ 328☐ 338☐ 348☐ 368☐ 305☐ 378☐				remark
Wiring	Board connection(with connecting line) ☐ Plug in connection board install ☐ Extraction Type connection ☐ Back panel connection ☐ Plug in connection back panel install ☐				
Accessories	Operation method	rotary-handle operation	Operation mechanism	Centered rotary-handle mechanism ☐ Acentric rotary-handle mechanism ☐	
			handle	Y type ☐ F type ☐	
		Electric operation	DC3 ☐ (conventional) CD2 ☐ (low temperature)	AC400V ☐ AC230V ☐ AC110V ☐ DC220V ☐ DC110V ☐ DC24V ☐	
	under-voltage release	AC230V ☐ AC400V ☐			
	shunt release	AC400V ☐ AC230V ☐ DC220V ☐ DC110V ☐ DC24V ☐			