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XKM2Z

智能型塑壳式断路器



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产品介绍

PRODUCT
INTRODUCTION


适用范围及标准

- XKM2Z系列塑料外壳式断路器适用于AC50/60Hz、额定绝缘电压690V、额定工作电压AC400V，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。
- 大气的相对湿度在周围最高温度+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

XKM2Z series circuit breaker with plastic shell is suitable for the circuit with AC50/60Hz, rated insulation voltage 690V, rated working voltage AC400V, rated current 32A-800A, it can be 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" certification.

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 24 hours does not exceed +35℃.

Note 1: When the ambient air temperature is -10℃ or -25℃, the user needs to notify the manufacturer when ordering.

Note 2: 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 electromagnetic environment A.

The circuit breaker can be installed vertically and horizontally.

Transportation and storage humidity: between -25℃ and 55℃ and within short period (24 hours) 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.

XK M 2 □ — □ □ □ / □ □ □

- 接线方式(H-板后接线, R-插入式接线, C-抽出式接线, 板前接线无代号)
Wiring mode(H-Board connection, R-Plug in connection, C-Extraction connection, Board connection no code)
- 脱扣器方式及附件代号 Release and annex code
- 极数 Pole number
- 操作方式代号:手柄直接操作无代号, D:电动操作, Z:转动操作
Operation mode code: Handle direct operation no code, D:Electric operation, Z:Rotate Operation
- 额定极限短路分断能力级别 Rated ultimate short-circuit breaking capacity level
- 壳架等级额定电流: A Frame size rated current: A
- Z-智能型代号 Intelligent Type Code:Z
- 设计序号 Design No.
- 塑料外壳式断路器 Moulded case circuit breaker
- 企业代号:XK Enterprise code:XK

- 按产品极数分为三极与四极。四极产品中性极(N极)的型式为: 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)
- 按额定电流(A)分:
XKM2Z-32为32A; XKM2Z-100为100A;
XKM2Z-160为160A; XKM2Z-250为250A;
XKM2Z-400为400A; XKM2Z-630为630A;
XKM2Z-800为800A;

- 分断能力: 本断路器分S、H、R型
- 接线方式: 板前接线、板后接线、插入式接线、抽出式接线
- 内部附件: 分励脱扣器、欠电压脱扣器、辅助触头、报警触头
- 外部附件: 转动手柄操作机构、电动操作机构

- Products can be classified into 3-pole and 4-pole according to pole quantity. Neutral pole (N-pole) types among 4-pole products are as follows: 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.)
- Divide as follows according to rated current (A):
32A, 100A for XKM2Z- 100;
160A, 250A for XKM2Z-250;
400A for XKM2Z-400;
630A for XKM2Z- 630;
800A for XKM2Z- 800;
- Breaking ability: S, H and R type circuit breakers
- Wiring mode: Board connection, Back panel connection, Plug in connection and Extraction type wiring
- Internal accessories: Shunt release, under-voltage release, auxiliary contact and alarm contact
- External accessories: Rotation handle operating mechanism and electric operating mechanism
- Optional attachment module: alarm non-buckle module, Excitation module, leakage module, communication module

选择性配合:

XKM2Z系列断路器具有三段保护功能, 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;

具有三段保护动作电流、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($\geq 20I_n$), 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, 长延时能量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 $80^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 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。

Selective coordination: XKM2Z 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 $0.2I_n$ and single-phase current exceeds $0.3I_n$;

"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 I_p ; 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 ($\geq 20I_n$) when circuit breaker closes or operates;

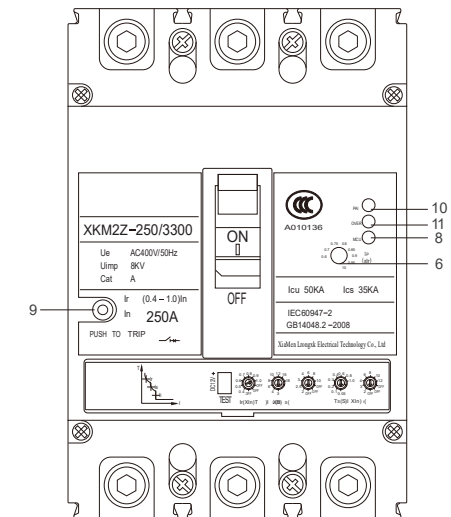
Hot memory function: Repeated overload may cause heat effect of analogize double-metal-disk characteristics after failure delay of conductor heating controller because of overload, etc; Long-delay energy release ends after 30min and short-delay energy release ends after 15min; Delay period reduces for 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 $80^{\circ}\text{C} + 5^{\circ}\text{C}$; MCU diode flickers or extinguishes under abnormal conditions of singlechip in controller.

型号 Model		XKM2Z-32/100	XKM2Z-160/250	XKM2Z-400	XKM2Z-630/800		
额定电流 Rated current In(A)		32、100	160、250	400	630、800		
极数 Pole number		3、4	3、4	3、4	3、4		
额定绝缘电压 Rated insulation voltage Ui(V)		AC690	AC690	AC690	AC690		
额定工作电压 Rated operating voltage Ue(V)		AC400	AC400	AC400	AC400		
额定冲击耐受电压 Rated shock withstand voltageUimp(V)		8000					
寿命次数 service life	通电 power supply	7000	7000	7000	7000		
	不通电 Without power supply	10000	10000	10000	10000		
分断能力级别 Breaking ability level					S	H	R
额定极限短路分断能力 Rated ultimate short-circuit breaking capacity Icu(KA)		AC400V	50	50	100	50	70 100
额定运行短路分断能力 Rated service short-circuit breaking capacity Ics(KA)		AC400V	50	50	65	50	70 70
额定短时耐受电流 Rated short-time withstand current Icw(KA)/1s					6	8	
使用类别 Use category		A	A	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		
外形尺寸 outline dimensions		W	92(3p) 122(4p)	107(3p) 142(4p)	140(3p) 185(4p)	210(3p) 280(4p)	
		L	150	165	257	275	
		H	92	90	103	103	
分励脱扣器 shunt release		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
欠电压脱扣器 Under-voltage release		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
辅助触头 Auxiliary contact		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
报警触头 Alarm contact		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
电动操作机构 Electric operating mechanism		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
转动操作手柄机构 Rotation handle mechanism		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
板前接线 Board connection		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
板后接线 Back panel connection		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
插入式接线 Plug in connection		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
抽出式接线 Extraction type wiring				<input type="radio"/>	<input type="radio"/>		

XKM2Z-32、100、160、250 系列智能型塑壳断路器正面指示

Front indication of XKM2Z-32、100、160 and 250 moulded case intelligent circuit breakers



XKM2Z 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 XKM2Z series of moulded case intelligent circuit breakers

注：出厂时已设置，用户一般不需调整

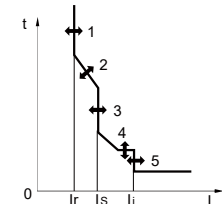
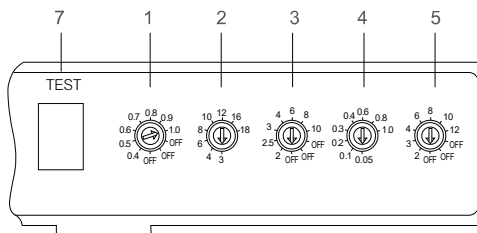
Note: In general, users doesn't adjust because of ex- factory setting.

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



保护功能

Protection function

M型控制器:

- 1—过载长延时整定电流 I_r 。 $I_r = (0.4、0.5、0.6、0.7、0.8、0.9、1.0) I_n + OFF$
- 2—过载长延时整定时间 T_L 。 $T_L = (3、4、6、8、10、12、16、18) S$
- 3—短路短延时整定电流 I_s 。 $I_s = (2、2.5、3、4、6、8、10) I_r + OFF$
- 4—短路短延时整定时间 T_s 。 $T_s = (0.05、0.1、0.2、0.3、0.4、0.6、0.8、1.0) S$
- 5—短路瞬时整定电流 I_i 。 $I_i = (2、3、4、6、8、10、12) I_n + OFF$
- 6—预报警整定电流 I_p 。 $I_p = (0.6、0.7、0.75、0.8、0.85、0.9、0.95、1.0) I_r$
或接地保护整定电流 I_g 。 $I_g = (0.2、0.3、0.4、0.5、0.6、0.7、0.9、1.0) I_n + OFF$

注: 1.接地保护动作时间 $t_g=0.4s$, 控制器出厂时设定

2.增选接地保护功能时, 预报警默认为 $0.9I_r$; 当 I_r 设定为OFF时, 预报警默认为 $1.0I_n$

M type controller :

- 1- Overload long-delay set current I_r . $I_r = (0.4、0.5、0.6、0.7、0.8、0.9、1.0) I_n + OFF$
- 2- Overload long-delay set current T_L . $T_L = (3、4、6、8、10、12、16、18) S$
- 3- Short-circuit short-delay set current I_s . $I_s = (2、2.5、3、4、6、8、10) I_r + OFF$
- 4- Short-circuit short-delay set current T_s . $T_s = (0.05、0.1、0.2、0.3、0.4、0.6、0.8、1.0) S$
- 5- Short-circuit transient set current I_i . $I_i = (2、3、4、6、8、10、12) I_n + OFF$
- 6- Pre-alarm set current I_p . $I_p = (0.6、0.7、0.75、0.8、0.85、0.9、0.95、1.0) I_r$
Or ground protection set current I_g . $I_g = (0.2、0.3、0.4、0.5、0.6、0.7、0.9、1.0) I_n + OFF$

Note: 1. Ground protection action time $t_g=0.4s$, controller's Factory setting.

2. When the ground protection function is added, the default for the pre alarm is $0.9I_r$; When the set of I_r is OFF, the pre alarm default is $1.0I_n$.

H型控制器:

- 1—过载长延时整定电流 I_r 。 $I_r = (0.4 - 1) I_n + OFF$, 步长1A
- 2—过载长延时整定时间 T_L 。 $T_L = 3 - 18s$, 步长1s
- 3—短路短延时整定电流 I_s 。 $I_s = (0.4 - 10) I_n$, 步长1A
- 4—短路短延时整定时间 T_s 。 $T_s = 0.05 - 1.0s$, 在 $0.6s$ 内步长为 $0.05s$, 大于 $0.6s$ 步长为 $0.1s$
- 5—短路瞬时整定电流 I_i 。 $I_i = (1 - 12) I_n + OFF$, 步长1A
- 6—预报警整定电流 I_p 。 $I_p = (0.2 - 1) I_n$, 步长1A
或 $I_g = (0.2 - 1.0) I_n + OFF$, 步长1A

注: 1.预报警动作时间 $t_p=0.1 - 1s$, 步长 $0.1s$

2.接地保护动作时间 $t_g=0.1 - 0.8s + OFF$, 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 I_r . $I_r = (0.4 - 1) I_n + OFF$, step width is 1A
- 2- Overload long-delay set current T_L . $T_L = 3 - 18s$, step width is 1s
- 3- Short-circuit short-delay set current I_s . $I_s = (0.4 - 10) I_n$, step width is 1A
- 4- Short-circuit short-delay set current T_s . $T_s = 0.05 - 1.0s$, within $0.6s$ step width is $0.05s$, $> 0.6s$ step width is $0.1s$
- 5- Short-circuit transient set current I_i . $I_i = (1 - 12) I_n + OFF$, step width is 1A
- 6- Pre-alarm set current I_p . $I_p = (0.2 - 1) I_n$, step width is 1A
Or $I_g = (0.2 - 1.0) I_n + OFF$, step width is 1A

Note: 1.Pre alarm action time is $t_p=0.1-1s$, step width is $0.1s$.

2. Ground protection action time $t_g=0.1-0.8s+OFF$, 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—紧急脱扣按钮
- 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;

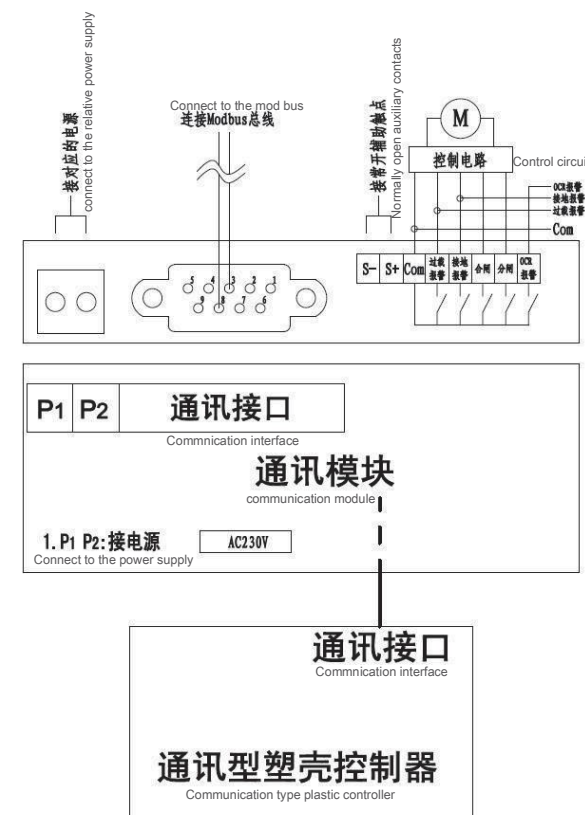
通讯接口可用于连接ST编程器进行外部参数设定, 与ST-CM 模块连接进行运行电流和故障状态监视, 亦可用于和ST-DP 相连进行现场总线组网, 与上位机通讯实现遥调、遥测、通讯、遥控"四遥" 监控管理功能。

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 external parameter setup, connect with the ST-CM module for monitoring the operating current and fault status, also can be used to connect 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 communicating with the host computer.

H-type controller has the communication address setting function, address can be set as 3-127.



漏电功能

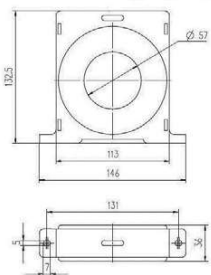
Leakage function

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。

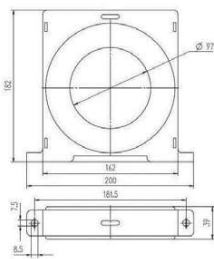
- 1.漏电功能模块控制电源电压分AC220V、AC380V 两种；
- 2.外置零序电流互感器的外形及安装尺寸如下；
- 3.断路器所有相需穿过外置式零序电流互感器，并注意进行绝缘处理。

Circuit breaker can realize leakage function by external zero sequence current transformer and leakage function module.

- 1.The control supply voltage of leakage function module is AC220V and AC380V two types.
- 2.The outline and installation 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.



XKM2Z-100/250互感器外形及安装尺寸
The outline and installation dimension of
XKM2Z-100/250 transformer



XKM2Z-400/800 (630) 互感器外形及安装尺寸
The outline and installation dimension of
XKM2Z-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。

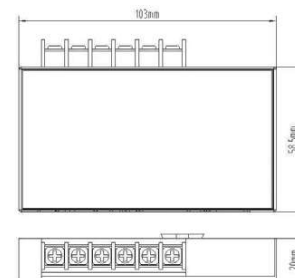
Circuit breaker can be out installed with Overload alarm module, to realize the function of overload alarm but no trip. The control supply voltage for the overload alarm module is 220V and 380V two types. Action characteristics is same as overload long delay protection, the circuit breaker alarms but 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, leakage module, shunt trip module, overload alarm module are the same as below:



模块尺寸 Module function

过载长延时反时限保护特性见表一
短路短延时定时限保护特性见表二
短路瞬时保护特性见表三
过载预报警特性见表四
接地故障保护动作特性见表五

Please refer to From 1 for overload long-delay and time-lag protection characteristics
Please refer to From 2 for short-circuit short-delay and constant time-lag protection characterist
Please refer to From 3 for short-circuit transient protection characteristics
Please refer to From 4 for overload pre-alarm characteristics
Please refer to From 5 for ground fault protection action features

表一 Form1

电流Current	动作时间 Operating period(S)								
1.05I _r	>2h不动作 Non-operating								
1.3I _r (配电)	<1h动作 Operating								
1.3I _r (power distribution)									
1.2I _r (电动机)									
1.2I _r (electromotor)	整定时间T _L Set period	3	4	6	8	10	12	16	18
1.5I _r	动作时间 operating period	48	64	96	128	160	192	256	288
2I _r		27	36	54	72	90	108	144	162
6I _r		3	4	6	8	10	12	16	18
7.2I _r		2.08	2.78	4.17	5.56	6.95	8.33	11.1	12.5
脱扣级别 release level		10A		10		20		30	

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

Note: 1. operating period $T = (6Ir/I)^2 T_L$;
2. allowance of operating period is $\pm 10\%$;
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)								
$I \leq 0.9I_n$	不动作 Non-operating								
$I > 1.1I_n$	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)
$I \leq 0.85I_n$	不动作 Non-operating
$I \geq 1.15I_n$	< 0.1

表四 Form 4

电流 Current	报警时间 Alarm time(S)
$I \leq 0.9I_p$	不报警 Without alarm
$I \geq 1.1I_p$	< 0.2

表五 Form 5

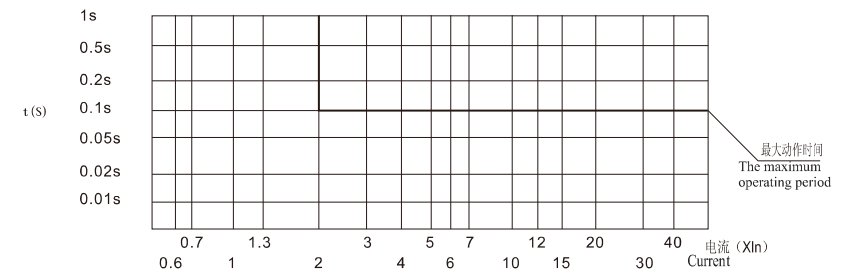
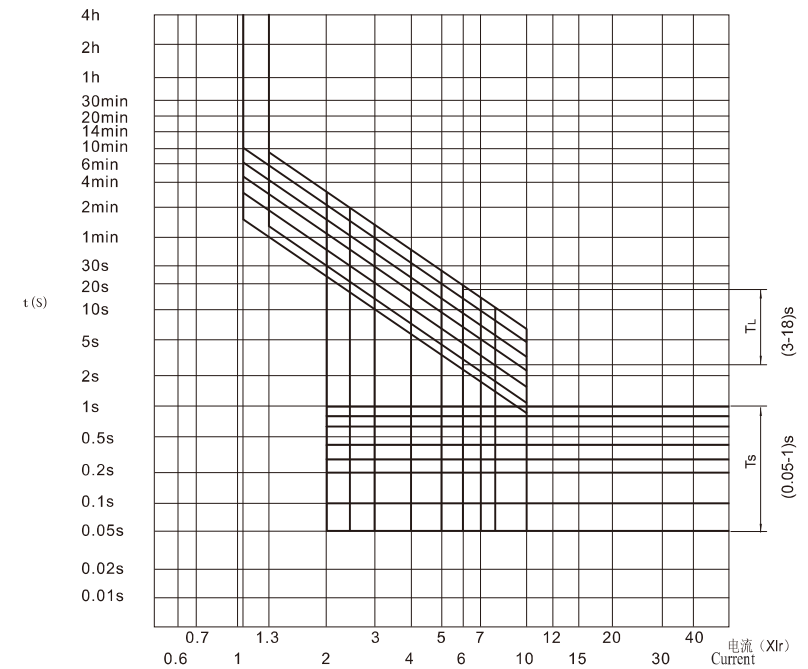
电流 Current	动作时间 Operating period(S)
$I \leq 0.5I_g$	不动作
$I \geq 1.1I_g$	0.4

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) TL	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

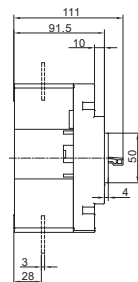
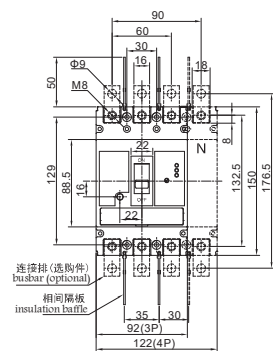
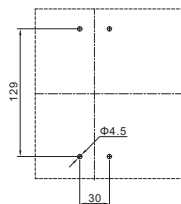
Operating characteristic curve diagram



XKM2Z-32/100

板前接线

Board connection

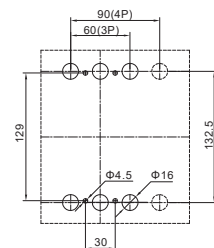
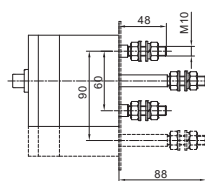
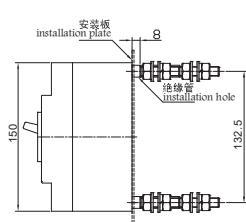
板前接线安装板开孔尺寸
installation hole dimensions for the Board connection

板后接线

Back panel connection

板后接线安装板开孔尺寸

installation hole dimensions for the Back panel connection

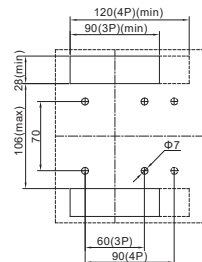
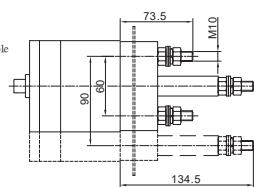
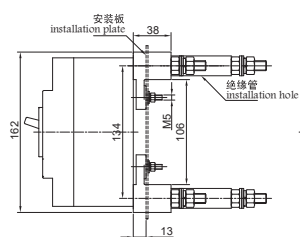


插入式接线

Plug in connection

插入式板后接线安装板开孔尺寸

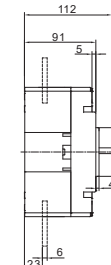
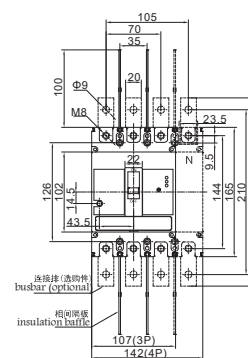
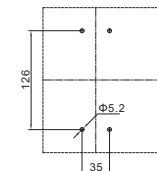
installation hole dimensions for the Plug in connection



XKM2Z-160/250

板前接线

Board connection

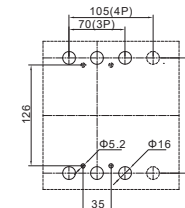
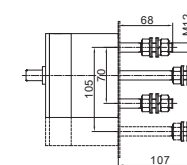
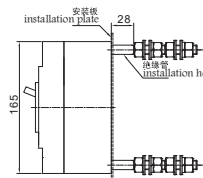
板前接线安装板开孔尺寸
installation hole dimensions for the Board connection

板后接线

Back panel connection

板后接线安装板开孔尺寸

installation hole dimensions for the Back panel connection

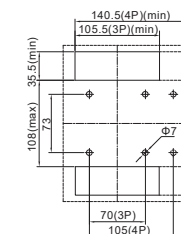
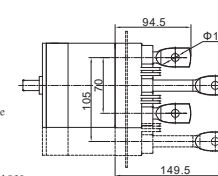
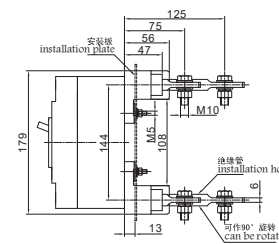


插入式接线

Plug in connection

插入式板后接线安装板开孔尺寸

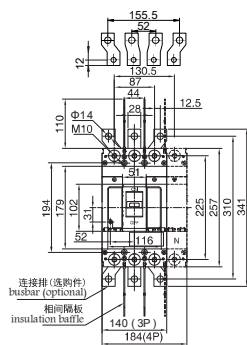
installation hole dimensions for the Plug in connection



XKM2Z-400

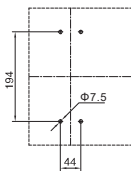
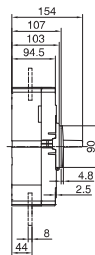
板前接线

Board connection



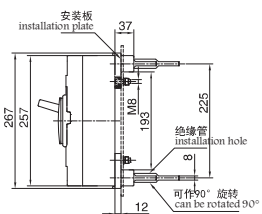
板前接线安装板开孔尺寸

installation hole dimensions for the Board connection



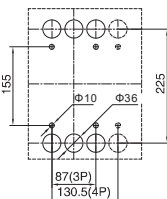
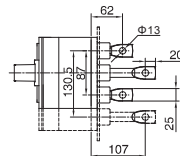
板后接线

Back panel connection



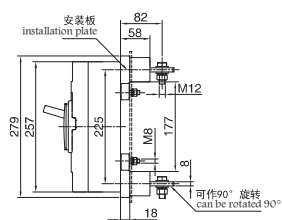
板后接线安装板开孔尺寸

installation hole dimensions for the Back panel connection



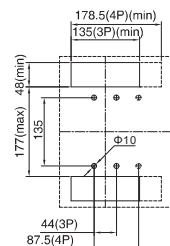
插入式接线

Plug in connection



插入式板后接线安装板开孔尺寸

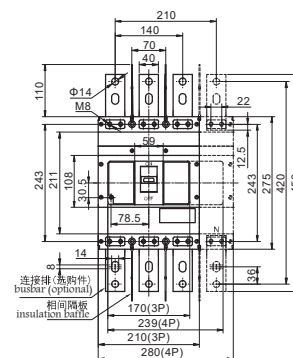
installation hole dimensions for the Plug-in connection



XKM2Z-630/800

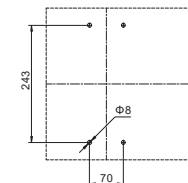
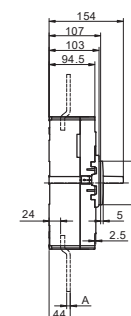
板前接线

Board connection



板前接线安装板开孔尺寸

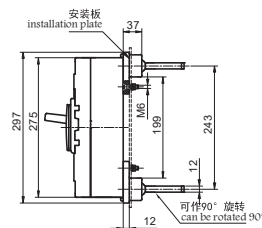
installation hole dimensions for the Board connection



额定电流 In Rated current	A
630A	8mm
800A	10mm

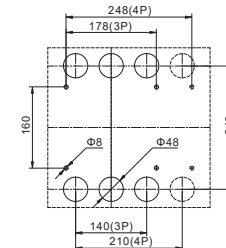
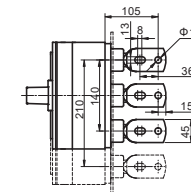
板后接线

Back panel connection



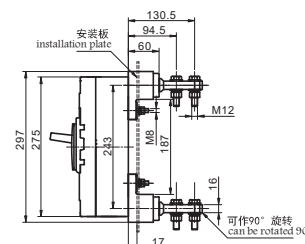
板后接线安装板开孔尺寸

installation hole dimensions for the Back panel connection



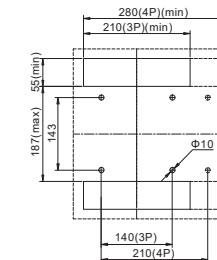
插入式接线

Plug in connection



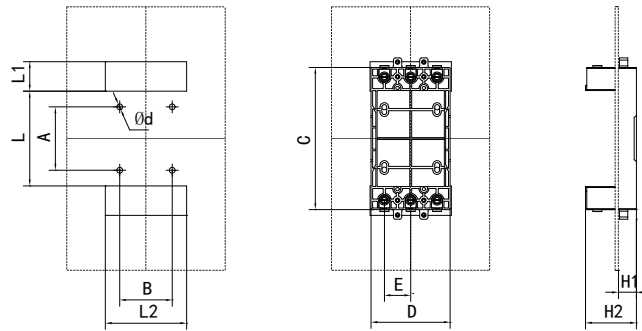
插入式板后接线安装板开孔尺寸

installation hole dimensions for the Plug-in connection



板后安装

Back panel connection



型号规格 Type Specificationg	选用插入式型号 Optional Plug in type	外形及安装尺寸 (mm) Outline and installation dimensions (mm)											备注 Remak
		A	B	L	L1	L2	d	C	D	E	H1	H2	
XKM2Z-32,100	MZ3-100/XKM2Z	65	60	90	51	94	6.5	160	90	30	20	56.2	
XKM2Z-160,250	MZ3-250/XKM2Z	74	70	100	55	110	6.5	179	105	35	27	73.2	
XKM2Z-400	MZ3-400/XKM2Z	141	88	178	70	135	7	275	132	44	45	85	
XKM2Z-630,800	MZ3-800/XKM2Z	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

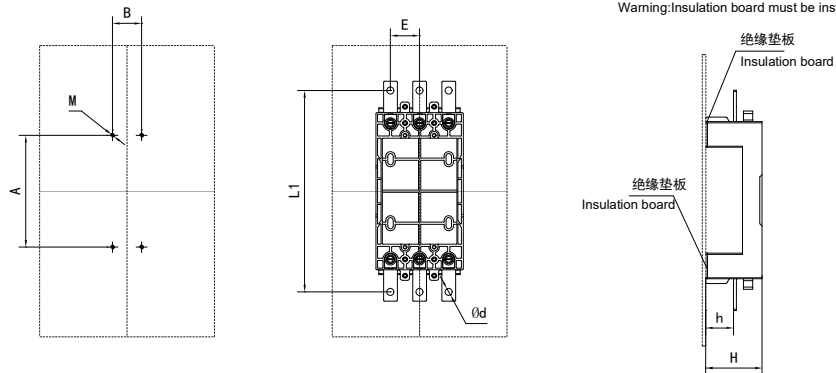
Note: for four pole breakers, Dimension B, L2, D should be added with Phase distance E.

板前安装

Board connection

(警告：板前安装必须垫绝缘垫板)

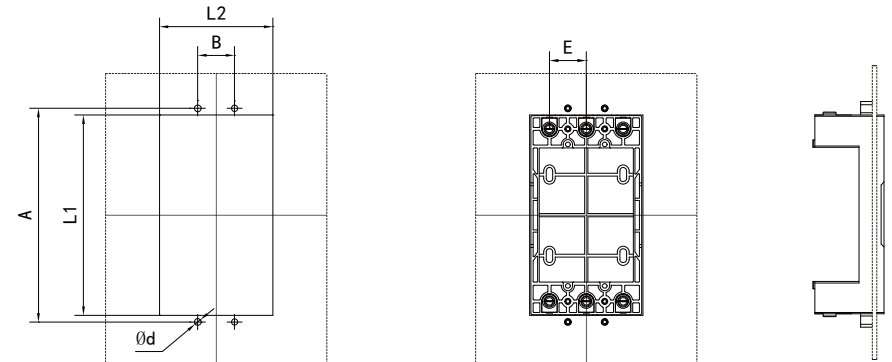
Warning: Insulation board must be installed



型号规格 Type Specificationg	选用插入式型号 Optional Plug in type	外形及安装尺寸 (mm) Outline and installation dimensions (mm)								备注 Remak
		A	B	L1	E	d	M	H	h	
XKM2Z-32,100	MZ3-100/XKM2Z	110	30	198	30	6.5	M4	57	28	
XKM2Z-160,250	MZ3-250/XKM2Z	150	35	223	35	8.5	M4	74	32	
XKM2Z-400	MZ3-400/XKM2Z	245	44	326	44	10.5	M5	85	36	
XKM2Z-630,800	MZ3-800/XKM2Z	283	70	363	70	12.5	M6	125	67	

大开孔式板后安装

Back panel installation for the type with big holes



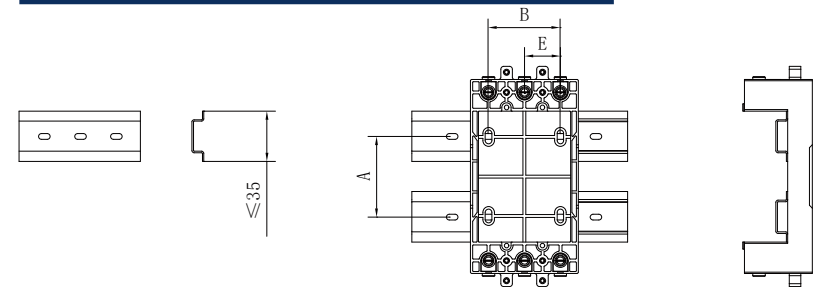
型号规格 Type Specificationg	选用插入式型号 Optional Plug in type	外形及安装尺寸 (mm) Outline and installation dimensions (mm)							备注 Remak
		A	B	L1	L2	d	E		
XKM2Z-32,100	MZ3-100/XKM2Z	170	30	161	92	5	30		
XKM2Z-160,250	MZ3-250/XKM2Z	191	35	180	107	5	35		
XKM2Z-400	MZ3-400/XKM2Z	291	44	277	134	6	44		
XKM2Z-630,800	MZ3-800/XKM2Z	327	70	313	212	6	70		

注：当四极开关时，开关是250A及以下尺寸B，L2均增加相距E；开关是400A及以上尺寸B不变，L2向增加的N相方向增加相距E

Note: When the four-pole switch is 250A and below, the size B is increased, and L2 increases the distance E. When the switch is 400A and above, the size B does not change, and L2 increases the distance E to the increased N phase direction.

条架式板后安装

Back panel installation for the Bar-type



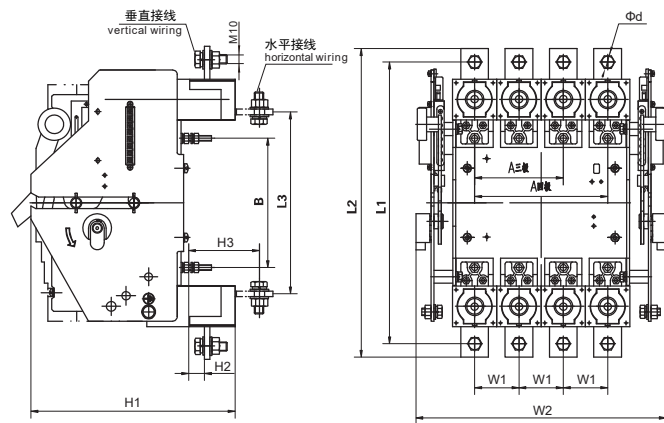
型号规格 Type Specificationg	选用插入式型号 Optional Plug in type	外形及安装尺寸 (mm) Outline and installation dimensions (mm)			备注 Remak
		A	B	E	
XKM2Z-32,100	MZ3-100/XKM2Z	65	60	30	
XKM2Z-160,250	MZ3-250/XKM2Z	74	70	35	
XKM2Z-400	MZ3-400/XKM2Z	141	88	44	
XKM2Z-630,800	MZ3-800/XKM2Z	143	140	70	

注：当四极开关时，尺寸B增加相距E

Note: for four pole breakers, Dimension B should be added with Phase distance E.

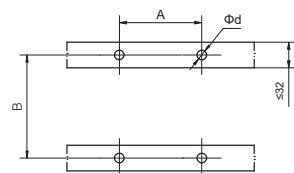
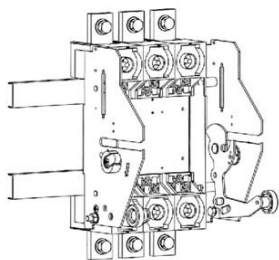
外形尺寸

Outline dimensions



安装尺寸

Installation dimensions



规格型号 Type specification	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	A	B	Φd
XKM2Z-400	CH2-400/XKM2Z	3P	311	340	197	227	17.5	77	44	219	88	141	Φ6.5
		4P	311	340	197	227	17.5	77	44	263	132	141	Φ6.5
XKM2Z-630	CH2-630/XKM2Z	3P	368	411	231	213	24	74	70	297	140	131	Φ7
		4P	368	411	231	213	24	74	70	367	210	131	Φ7

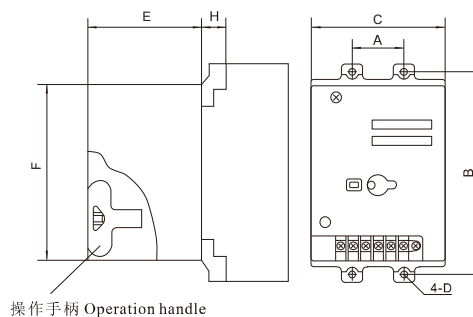
电动操作机构技术参数

Technical parameters of electric operating mechanism

电动操作机构型号 Model of electric operating mechanism	配用断路器 Sorted circuit breaker	电压可选 Operating voltage	动作电流(A) Operating current	操作时间 Operating time
CD2-100/XKM2Z	XKM2Z-32,100	AC380V	≤0.3	≤0.7S
		AC220V, DC220V AC110V, DC110V	≤0.5	
		DC24V	≤3	
CD2-250/XKM2Z	XKM2Z-160,250	AC380V	≤0.3	
		AC220V, DC220V AC110V, DC110V	≤0.5	
		DC24V	≤3	
CD2-400/XKM2Z	XKM2Z-400	AC380V	≤1	
		AC220V, DC220V AC110V, DC110V	≤2	
		DC24V	≤6	
CD2-800/XKM2Z	XKM2Z-630,800	AC380V	≤1	
		AC220V, DC220V AC110V, DC110V	≤2	
		DC24V	≤6	

CD2-100/CM1E、CD2-225/CM1E 电动操作机构外型尺寸

CD2-100/CM1E、CD2-225/CM1E Outline dimensions of electric operating mechanism



型号规格 Model and dimensions	A	B	C	D	E	F	H
CD2-100/XKM2Z	30	129	90	Φ4.5	77	116	16
CD2-250/XKM2Z	35	126	90	Φ4.5	77	116	22
CD2-400/XKM2Z	44	195	130	Φ6.5	115	176	37
CD2-630/XKM2Z	70	243	130	Φ6.5	115	176	38

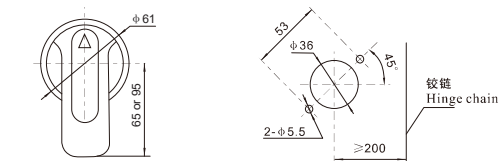
转动手柄操作机构

Rotation handle operating mechanism

手柄: XKM系列塑料外壳式断路器转动手柄有三种可选,分别为“A”型、“F1”型、“F2”型
Handle: A, F1 and F2 kinds of rotation handles of HTS series of moulded case type circuit breakers can be selected.

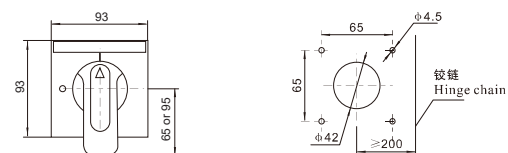
开孔尺寸: A型

Perforation dimensions: A type



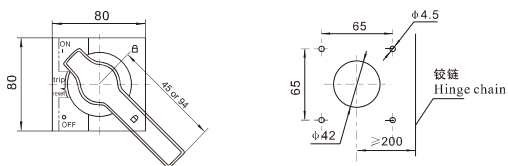
开孔尺寸: F1型

Perforation dimensions: F1 type



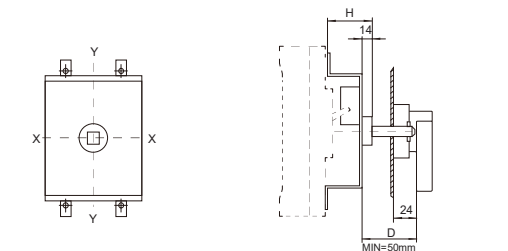
开孔尺寸: F2型

Perforation dimensions: F2 type



中心式齿轮结构

Central gear structure



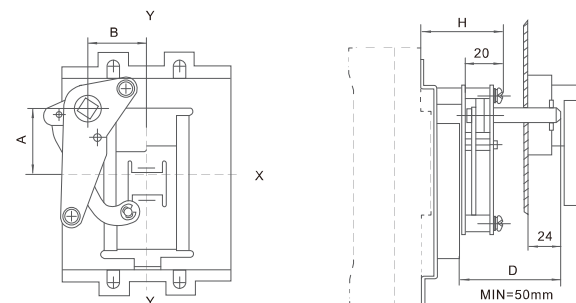
型号规格 Model and dimensions	配断路器 Sorted circuit breaker	安装尺寸H Installation dimensions	操作手柄相对于断路器中心Y值 Deviation of operation handle from circuit breaker center, Y value
SC1-100/XKM2Z	XKM2Z-32,100	62	0
SC1-225/XKM2Z	XKM2Z-160,250	62	0
SC1-400/XKM2Z	XKM2Z-400	92	0
SC1-630/XKM2Z	XKM2Z-630,800	92	0

注: X, Y 轴为对应断路器的中心, A, B 为机构操纵杠对应柜体面板及手柄的开孔中心。

Note: X and Y axes are centers of corresponding circuit breakers. A and B are perforation centers of mechanism manipulation rods which correspond to cabinet body panel and handle.

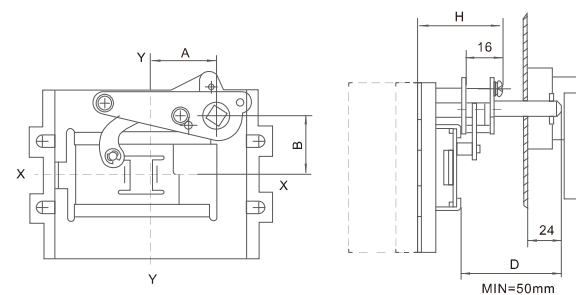
偏心式连杆结构:横装

Eccentricity type connecting rod structure: Transverse assembly



偏心式连杆结构:竖装

Eccentricity type connecting rod structure: Vertical assembly



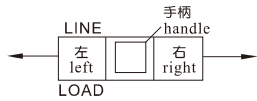
型号规格 Model and dimensions	配断路器 Sorted circuit breaker	A	B	H
CS2-100/XKM2Z	XKM2Z-32,100	35	11.5	49.5
CS2-225/XKM2Z	XKM2Z-160,250	35	31	47
CS2-400/XKM2Z	XKM2Z-400	68	15	63
CS2-800/XKM2Z	XKM2Z-630,800	65	15	66

注: X, Y 轴为对应断路器的中心, A, B 为机构操纵杠对应柜体面板及手柄的开孔中心。

Note: X and Y axes are centers of corresponding circuit breakers. A and B are perforation centers of mechanism manipulation rods which correspond to cabinet body panel and handle.

脱扣器及附件代号、符号

Release and accessory 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
- 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 annex code	附件名称 Accessory name	断路器型号 circuit breaker model		XKM2Z-32,100		XKM2Z-160,250		XKM2Z-400		XKM2Z-630,800	
		极数Pole number		3	4	3	4	3	4	3	4
208,308	报警触头 alarm contact	← ● □ □		← ● □ □	← ● □ □	← ● □ □	← ● □ □	← ● □ □	← ● □ □	← ● □ □	← ● □ □
210,310	分励脱扣器 shunt release	← △ □ □		← △ □ □	← △ □ □	□ □ △ →	□ □ △ →	□ □ △ →	□ □ △ →	□ □ △ →	□ □ △ →
220,320	辅助触头 auxiliary contact	← ○ □ □		← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □
230,330	欠电压脱扣器 under-voltage release	← ▲ □ □		← ▲ □ □	← ▲ □ □	□ □ ▲ →	□ □ ▲ →	□ □ ▲ →	□ □ ▲ →	□ □ ▲ →	□ □ ▲ →
240,340	分励脱扣器,辅助触头 shunt release, auxiliary contact	← ○ □ □ △ →		← ○ □ □ △ →	← ○ □ □ △ →	← ○ □ □ △ →	← ○ □ □ △ →	← ○ □ □ △ →	← ○ □ □ △ →	← ○ □ □ △ →	← ○ □ □ △ →
250,350	欠压脱扣器,分励脱扣器 under-voltage release, shunt release	← ▲ □ □ △ →		← ▲ □ □ △ →	← ▲ □ □ △ →	← ▲ □ □ △ →	← ▲ □ □ △ →	← ▲ □ □ △ →	← ▲ □ □ △ →	← ▲ □ □ △ →	← ▲ □ □ △ →
260,360	二组辅助触头 2 groups of auxiliary contacts	← ○ □ □		← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □	← ○ □ □
270,370	欠压脱扣器,辅助触头 under-voltage release, auxiliary contact					← ○ □ □ ▲ →	← ○ □ □ ▲ →	← ○ □ □ ▲ →	← ○ □ □ ▲ →	← ○ □ □ ▲ →	← ○ □ □ ▲ →
218,318	分励脱扣器,报警触头 shunt release, alarm contact	← ● □ □ △ →		← ● □ □ △ →	← ● □ □ △ →	□ □ △ →	□ □ △ →	□ □ △ →	□ □ △ →	□ □ △ →	□ □ △ →
228,328	辅助触头,报警触头 auxiliary contact, 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,报警触头 shunt release, auxiliary contact, alarm contact	← ● □ □ △ →		← ● □ □ △ →	← ● □ □ △ →	← ● □ □ △ →	← ● □ □ △ →	← ● □ □ △ →	← ● □ □ △ →	← ● □ □ △ →	← ● □ □ △ →
268,368	二组辅助触头,报警触头 2 groups of auxiliary contact, alarm contact					← ● □ □	← ● □ □	← ● □ □	← ● □ □	← ● □ □	← ● □ □
278,378	欠压脱扣器,报警触头,辅助触头 under-voltage release, alarm contact, auxiliary contact					← ● □ □ ▲ →	← ● □ □ ▲ →	← ● □ □ ▲ →	← ● □ □ ▲ →	← ● □ □ ▲ →	← ● □ □ ▲ →

附件类型 Accessory type

附件名称 Accessory name	外形 Photo	功能 Function	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		指示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.	
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.	

注: 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 contact

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

- 用户在使用前,须详细阅读“使用说明书”,了解本产品的特点和性能以及使用方法。
- 安装调试时,用户应注意对控制器的保护以防重击或擦伤。控制器面罩不得随意打开,以免设定参数被改变或面板元件被损坏。投运前应由专人检查参数是否正确。控制器是否在正常运行状态,运作过程中用户可通过观察指示灯查看负荷情况,以便及时处理。
- 设定保护参数时,各参数不得交叉,要求 $I_r < I_s < I_i$ 。
- 断路器不能后进线,即“LINE”接电流端,“LOAD”接负载端。
- 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。
- 在用户妥善保管和使用条件下,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。
- Before using the user, must read the "User's Guide" to understand the characteristics and performance of this product and the use of methods.
- During installation and commissioning, the user should be aware of the protection of the controller against blows or abrasions.
- The controller face mask should not be opened at will, so that the setting parameters are changed or the panel elements are damaged. Before commissioning, check whether the parameters are correct. Whether the controller is in normal operation, during operation, the user can view the load situation by observing the indicator light for timely processing.
- Set the protection parameters, the parameters can not pay, and asked $I_r < I_s < I_i$.
- Circuit breaker cannot be backward, that is, "LINE" then the current side, "LOAD" then load side.
- Circuit breaker cannot be backward, that is, "LINE" then the current side, "LOAD" then load side.
- Circuit breaker handle can be in three states, respectively, said closed, broken, free tripping three positions. When the handle is in the free tripping position closing, the handle should be forced to the open position so that the short circuit breaker can be closed to operate.
- In the user custody and use conditions, since the date of shipment from the factory within 18 months of the circuit breaker seal intact, the product due to manufacturing quality problems caused by damage or can not be used normally, the company promised to replace or repair free of charge.

XKM2Z 智能型塑壳断路器订货规范

(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	XKM2Z-	32 □ 100 □ 160 □ 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 $I_r =$ _____ X 整定时间 $T_I =$ _____ s	
	短路短延时	整定电流 $I_s =$ _____ X 整定时间 $T_s =$ _____ s	
	短路瞬时	整定电流 $I_i =$ _____ X I_n	
	热记忆特性选择	ON □ OFF □	
	预警报警	整定电流 $I_p =$ _____ X I_r	
脱扣器代号	接地保护(增选)	整定电流 $I_q =$ _____ X I_n	
		200 □ 208 □ 210 □ 220 □ 230 □ 240 □ 250 □ 260 □ 270 □ 218 □ 228 □ 238 □ 248 □ 268 □ 278 □	备注
接线方式		200 □ 208 □ 210 □ 220 □ 230 □ 240 □ 250 □ 260 □ 270 □ 218 □ 228 □ 238 □ 248 □ 268 □ 278 □	备注
		板前接线(带连接排) □ 插入式接线 分体式 □ 抽出式接线 □ 板后接线 □ 插入式接线 整体式 □	
附件	操作方式	转动 手柄 操作	中心式拐臂机构 □ 偏心式连杆机构 □ 中心式齿轮机构 □
		手柄	A型 □ F1型 □ F2型 □
	电动操作		AC380V □ AC220V □ AC110V □ DC220V □ DC110V □ DC24V □
	欠电压脱扣器	AC380V □ AC220V □	
分励脱扣器		AC380V □ AC220V □ DC110V □ DC24V □	

XKM2Z Series of moulded case intelligent 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	XKM2Z-	32 <input type="checkbox"/>	100 <input type="checkbox"/>	Breaking ability	Standard type <input type="checkbox"/>		
		160 <input type="checkbox"/>	250 <input type="checkbox"/>		High segment type <input type="checkbox"/>		
		400 <input type="checkbox"/>	630 <input type="checkbox"/>		Limiting current type <input type="checkbox"/>		
		800 <input type="checkbox"/>					
Rated current	32A <input type="checkbox"/> 100A <input type="checkbox"/> 160A <input type="checkbox"/> 250A <input type="checkbox"/> 400A <input type="checkbox"/> 630A <input type="checkbox"/> 800A <input type="checkbox"/>						
Pole	3 <input type="checkbox"/> 4 <input type="checkbox"/>						
Extended function	Electric leakage protection function <input type="checkbox"/> Overload alarm function <input type="checkbox"/> Shunt function <input type="checkbox"/>						
Controller type	M type <input type="checkbox"/> H type <input type="checkbox"/>						
Intelligent release model	Overload long-delay	Set current Ir = _____ X In		Set period TI = _____ s			
	Short-circuit short-delay	Set current Is = _____ X Ir		Set period Ts = _____ s			
	Short-circuit transient	Set current Ii = _____ X In					
	hot memory characteristic selection	ON <input type="checkbox"/> OFF <input type="checkbox"/>					
	Pre-alarm	Set current Ip = _____ X Ir					
	Ground protection (cooptation)	Set current Iq = _____ X In					
Release code	200 <input type="checkbox"/> 208 <input type="checkbox"/> 210 <input type="checkbox"/> 220 <input type="checkbox"/> 230 <input type="checkbox"/> 240 <input type="checkbox"/> 250 <input type="checkbox"/> 260 <input type="checkbox"/>						remark
	270 <input type="checkbox"/> 218 <input type="checkbox"/> 228 <input type="checkbox"/> 238 <input type="checkbox"/> 248 <input type="checkbox"/> 268 <input type="checkbox"/> 278 <input type="checkbox"/>						
	200 <input type="checkbox"/> 208 <input type="checkbox"/> 210 <input type="checkbox"/> 220 <input type="checkbox"/> 230 <input type="checkbox"/> 240 <input type="checkbox"/> 250 <input type="checkbox"/> 260 <input type="checkbox"/>						remark
Wiring		Board connection(with connecting line) <input type="checkbox"/> Plug in connection (split type) <input type="checkbox"/> Extraction Type connection <input type="checkbox"/> Back panel connection <input type="checkbox"/> Plug in connection (integrated type) <input type="checkbox"/>					
Accessories	Operation method	rotary-handle operation	Operation mechanism	Central crank arm mechanism <input type="checkbox"/> Eccentricity connecting rod mechanism <input type="checkbox"/> Central gear mechanism <input type="checkbox"/>			
		handle	A type <input type="checkbox"/> F1 type <input type="checkbox"/> F2 type <input type="checkbox"/>				
	Electric operation	AC400V <input type="checkbox"/>		AC230V <input type="checkbox"/>		AC110V <input type="checkbox"/>	
		DC220V <input type="checkbox"/>		DC110V <input type="checkbox"/>		DC24V <input type="checkbox"/>	
		under-voltage release		AC230V <input type="checkbox"/>		AC400V <input type="checkbox"/>	
shunt release	AC400V <input type="checkbox"/>		AC230V <input type="checkbox"/>				
	DC220V <input type="checkbox"/>		DC110V <input type="checkbox"/>		DC24V <input type="checkbox"/>		