

UKM30RT

系列塑料外壳式断路器

Series Moulded Case Circuit Breaker



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Outline

概述

UKM30RT系列塑壳断路器(以下简称断路器)是设计先进、性能指标高、外形美观、体积精巧的一款断路器,具有过载电流整定值可调或不可调及瞬时短路电流整定值可调或不可调多重选择的功能设计,极大的满足用户的更多自主选择需求。

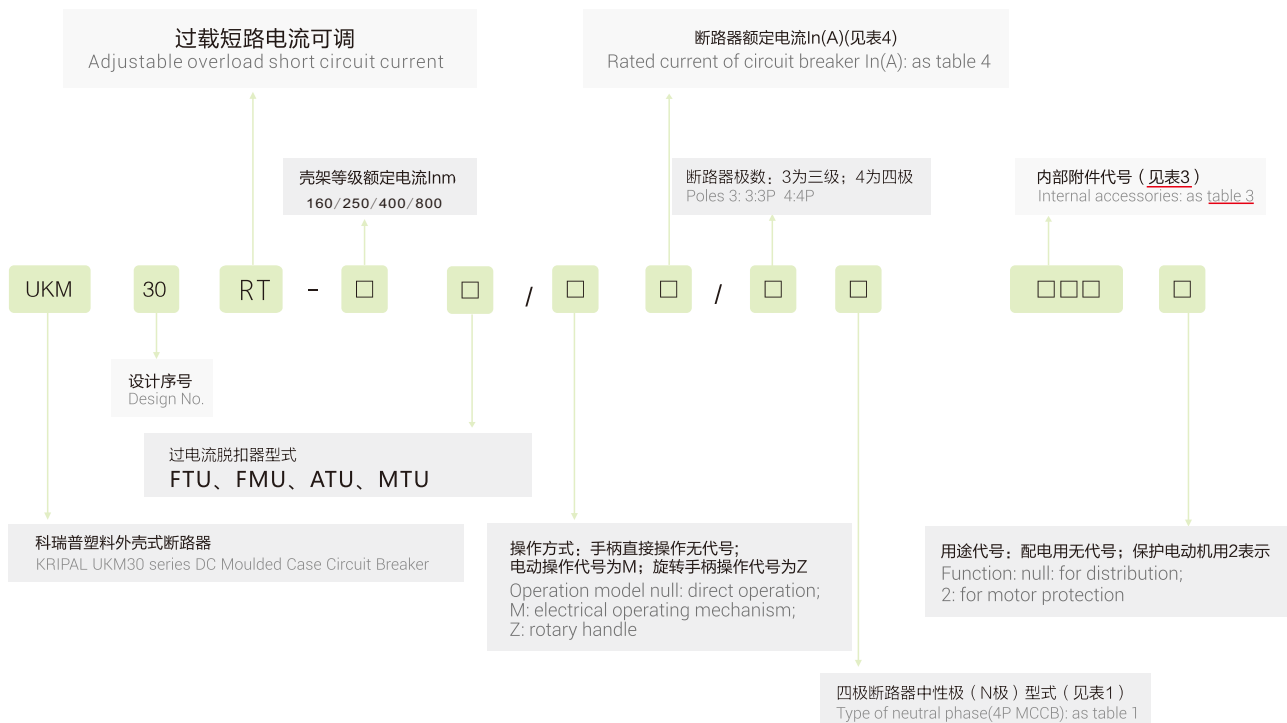
符合GB/T14048.2《低压开关设备和控制设备 低压断路器》和IEC60947-2《低压开关设备和控制设备 第二部分: 低压断路器》等标准。

UKM30RT series moulded case circuit breakers (circuit breakers for short) are advanced in design and performance, with high indicators, beautiful appearance, and exquisite volume, with overload current setting value that can adjustable or non-adjustable instantaneous short-circuit current setting value with multiple choices of adjustable or non-adjustable, Functional design greatly meets the needs of users for more independent choices.

It is complied with GB/T 1408.2<low-voltage switch device and controlling device low-voltage circuit breaker> and IEC60947-2 section 2<low voltage switch device and control device part II: low-voltage circuit breaker> and etc.

Product model & definition

产品型号及含义



Usage & Appliance

用途及使用范围

该断路器适用于交流50/60Hz, 额定电压至690V, 额定电流25-800A的电力系统, 使系统免受过载、短路、欠电压等故障的危害, 也可用来控制电动机不频繁的操作。

The circuit breaker is used in the electrical system of AC 50Hz, related voltage of up to 690V, rated current of up to 1600A to prevent the system from overload, short-circuit and under-voltage and to control the infrequent operation of motor.

Normal operation condition

正常工作条件

断路器适用于下列工作环境:

- 1、周围空气温度不高于+40℃和低于-5℃
- 2、海拔高度不超过2000m
- 3、空气相对湿度在最高温度为+40℃时不超过50%, 在较低温度下可允许有较高相对湿度、最湿月的月平均最低温度不超过+25℃该月平均最大相对湿度不超过90%。
- 4、污染等级: 3级周围空气中无爆炸危险、且无腐蚀金属和破坏绝缘的气体及导电尘埃。
- 5、安装类别为Ⅲ
- 6、断路器的“1, 3, 5, N1”端子接电源, “2, 4, 6, N2”端子接负载, 不可反接。

The circuit breaker could be used in the following working conditions:

1. Ambient air temperature not higher than +40℃ and not lower than -5℃.
2. Altitude no more than 2000m
3. The relative air humidity is not more than 50% in the max. at the temperature. The lowest monthly average temperature not higher than 25℃ in the most moist month and the max. relative humidity should be no more than 90%.
4. Pollution degree: Grade 3. There is no explosion factor, corrosive metal and the gas destroying the insulation and the electric dust.
5. Installation type: III
6. The terminals of 1,3,5,N1 should be connected with the power supply and the terminals of 2,4,6,N2 should be connected with the load. Reverse wiring is forbidden.

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Series Moulded Case Circuit Breaker 系列塑料外壳式断路器

低压配电网络保护
Low-voltage power distribution network

电动机的控制和保护
Control and protection of motor

双电源转换系统
Dual power changeover system

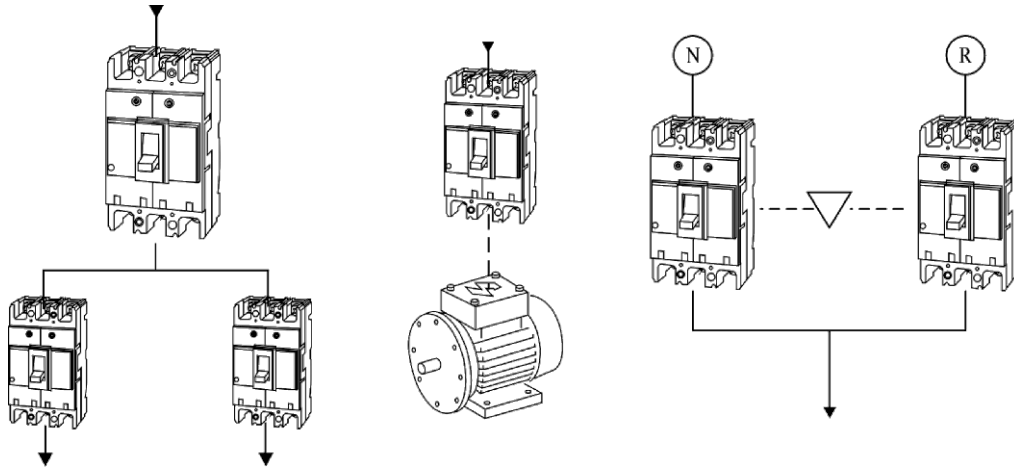


表 (table)1

代号 Code	型号 Type	说明 Specification
A	A型	N极不装过电流脱扣器, 且N极始终接通, 不与其他三极一起合分 N phase without overcurrent trip unit is normal open and do not make and break along with other 3 poles
B	B型	N极不装过电流脱扣器, 与其他三极一起合分 N phase without overcurrent trip unit make and break along with other 3 poles

表 (table)2

代号 Code	名称 Title	说明 Description
1	延时脱扣器 Delay trip	具有过电流反时限保护特性 The protection of overcurrent reverse time.
2	瞬时脱扣器 Instantaneous trip	即电磁脱扣器, 具有过电流瞬时动作保护特性 Electromagnetic release of overcurrent instantaneous protection
3	复式脱扣器 Multiple trip	同时具有上述两种功能 With the above two performances

表 (table)3

Inm (A)	I			II	III		备注 Note
	代号 Code	说明 Description	代号 Code	说明 Description	代号 Code	说明 Description	
63 100 250	0	无 Null	0~2	辅助触头组数 Pairs of auxiliary contacts	0~2	报警触头组数 Pairs of alarm contacts	
	1	分励脱扣器 Shunt trip	0~1		0~1		
	2	欠电压脱扣器 Under-voltage trip	0~1		0~1		
400	0	无 Null	0~5		0~2		Ⅱ + Ⅲ ≤5
	1	分励脱扣器 Shunt trip	0~3		0~2		Ⅱ + Ⅲ ≤3
	2	欠电压脱扣器 Under-voltage trip	0~3		0~2		Ⅱ + Ⅲ ≤3
	3	分励、欠电压脱扣器 Shunt trip & Under-voltage trip	0~1		0~1		Ⅱ + Ⅲ ≤1
630 800 1250 1600	0	无 Null	0~8		0~3		Ⅱ + Ⅲ ≤8
	1	分励脱扣器 Shunt trip	0~5		0~3		Ⅱ + Ⅲ ≤5
	2	欠电压脱扣器 Under-voltage trip	0~5		0~3		Ⅱ + Ⅲ ≤5
	3	分励、欠电压脱扣器 Shunt trip & Under-voltage trip	0~3		0~2		Ⅱ + Ⅲ ≤3

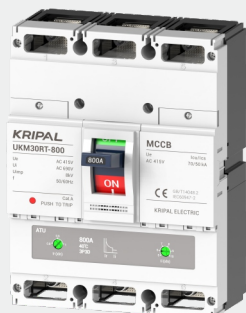
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Main technical parameter

主要技术性能指标

壳架等级额定电流 Inm(A)		160		250		400		630(800)	
产品型号 Model		UKM30RT-160		UKM30RT-250		UKM30RT-400		UKM30RT-800	
外形 Photo									
额定电流 Rated current(A)		25/32/40/50/63 80/100/125/160		125/160/175/200/250		250/300/350/400		500/630/700/800	
极数 Poles		3	4	3	4	3	4	3	4
额定瞬时短路电流整定值 Ii		Inx(5~10)		Inx(5~10)		Inx(5~10)		Inx(5~10)	
额定过载电流整定值 Ir		Inx(0.8~1.0)		Inx(0.8~1.0)		Inx(0.8~1.0)		Inx(0.8~1.0)	
额定绝缘电压 Rated Insulation Voltage Ui(V)		AC690		AC690		AC690		AC690	
飞弧距离(mm) Arcing distance		≤50(0°)		≤50(0°)		≤50(0°)		≤50(0°)	
额定极限/运行 短路分断能力 Rated ultimate/ service short-circuit breaking capacity(Ka)	AC690V	5/3		5/3		10/7		10/7	
	AC415V	35/22		35/22		70/50		70/50	
	AC230V	50/30		50/30		100/70		100/70	
操作性能(次) Operational performance (times)	通电 ON	2500		2500		1500		1000	
	不通电 OFF	8500		8500		5000		4000	
外形尺寸 Dimension(mm)	a	90	120	105	140	140	184	212	282
	b	155		165		258		275	
	c	68		68		103		103	
重量 Weight (Kg)		1.15	1.53	1.5	1.8	5.5	6	9	11.5
额定操作频率(次/h) Rated Operation Frequency(per hour)		120		120		60		20	

*0°飞弧需在订货时注明。*0° arcing distance: please specify when ordering if you require.

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配电用断路器过电流保护特性见表1

电动机保护用断路器过电流保护特性见表2

过电流保护特性曲线见下图

a-冷态热过载保护特性;

b-热态热过载保护特性;

c-电磁脱扣器保护特性;

The overcurrent protection characteristics of circuit breakers for power distribution are shown in Table1.

The overcurrent protection characteristics of circuit breakers for motor protection are shown in Table2.

Over current protection characteristic curve is shown in figure below.

a-Thermal overload protection characteristic in cold state.

b-Thermal overload protection characteristic in thermal state.

c-Electro magnetic release protection characteristics.

Overcurrent protection characteristics of circuit breakers for power distribution

配电用断路器过电流保护特性

表(table)1

额定电流In(A) Rated current In(A)	热脱扣器(环境温度+40℃) Thermal tripper (ambient temperature +40℃)		电磁脱扣器动作电流 (A) The operating current of electromagnetic tripper(A)
	1.05 In 不动作时间 (h) (超始状态: 冷态) 1.05 In non-operating time(h)(starting state: cold)	1.30 In 不动作时间 (h) (超始状态: 热态) 1.30 In non-operating time(h)(starting state: hot)	
≤63	> 1	≤ 1	(10 ± 2)In (注)
> 63	> 2	≤ 2	

Motor Circuit Breaker Overcurrent Protection Characteristic

电动机用断路器过电流保护特性

表(table)2

额定电流In(A) Rated current In(A)	热脱扣器(环境温度+40℃) Thermal tripper (ambient temperature +40℃)				电磁脱扣器 动作电流 (A) The operating current of electromagnetic tripper(A)
	1.0 In 不动作时间 (h) (超始状态: 冷态) 1.0 In non-operating time(h) (starting state: cold)	1.2 In 动作时间 (h) (超始状态: 热态) 1.2 In operating time(h) (starting state: hot)	1.5 In 动作时间 (min) (超始状态: 热态) 1.5 In operating time(h) (starting state: hot)	7.2 In 动作时间TP (s) (超始状态: 冷态) 7.2 In operating time(h) (starting state: cold)	
≤63	> 2	≤ 2	≤ 2	2 < Tp ≤ 10	(12 ± 2.4)In (注)
63 < In ≤ 250			≤ 4	4 < Tp ≤ 10	
250 < In ≤ 800			≤ 8	6 < Tp ≤ 20	

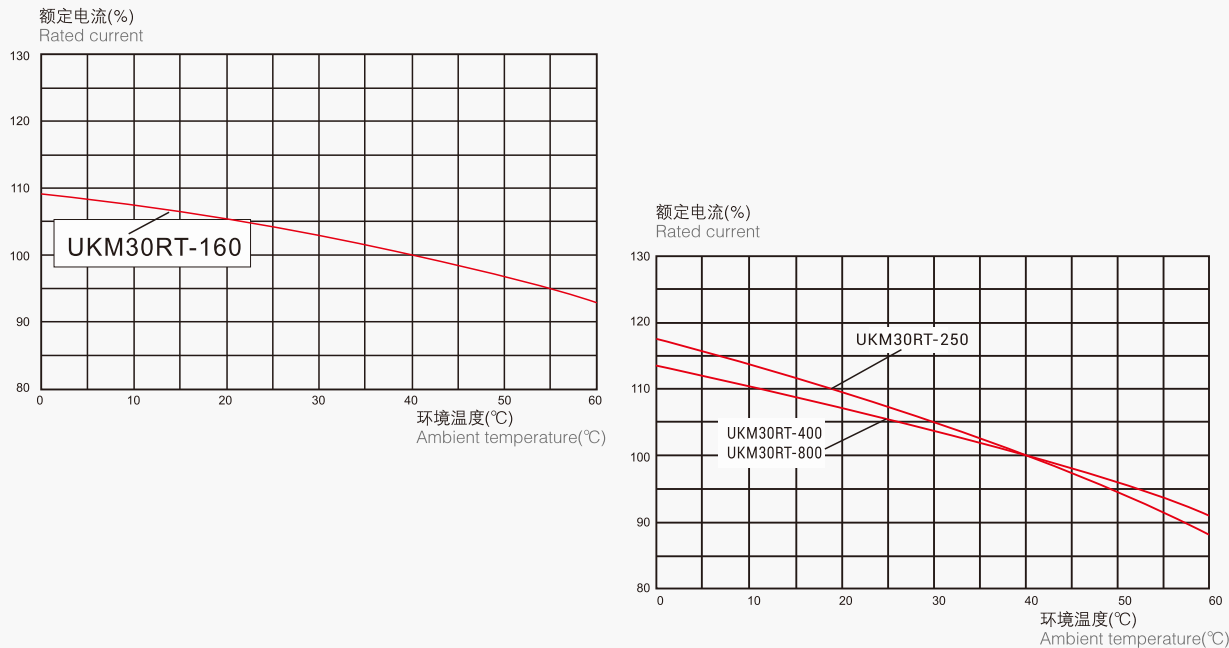
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系列塑料外壳式断路器

UKM30RT Series Thermal-Trip Curve

UKM30RT系列热脱扣器温度校正曲线



Power Losses of MCCB

断路器的功率损耗

壳架等级额定电流 Inm(A)	额定电流In(A) Rated current In(A)	每极电阻(mΩ) Resistance of each pole	三极总功率损耗(W) Gross power consumption of three-pole	
			固定式 Fixed	插入式或抽出式 Plug-in / Withdrawal
160	160	0.55	42	38
250	250	0.32	60	75
400	400	0.18	85	105
630-800	800	0.11	210	260

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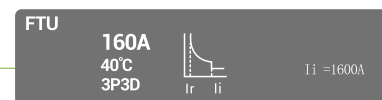
Series Moulded Case Circuit Breaker 系列塑料外壳式断路器



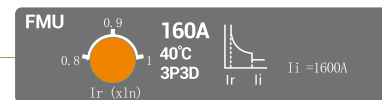
UKM30RT-160ATU/160A/3300

Release type 脱扣器类型

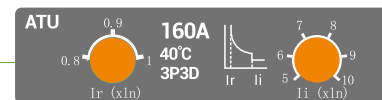
FTU 热磁固定式
FTU Fixed-thermal, fixed-magnetic



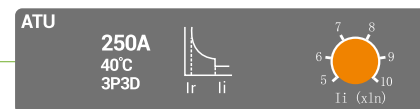
FMU 热可调、磁固定式
FMU Adjustable-thermal, fixed-magnetic



ATU 热磁可调节式
ATU Adjustable-thermal, adjustable-magnetic



MTU 仅有磁保护的磁可调型
MTU Magnetic only

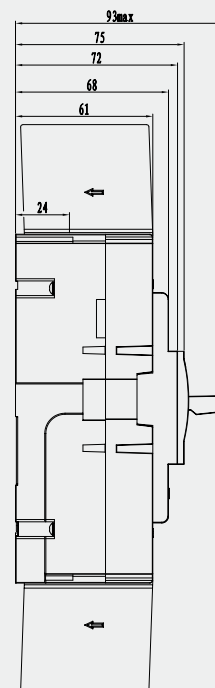
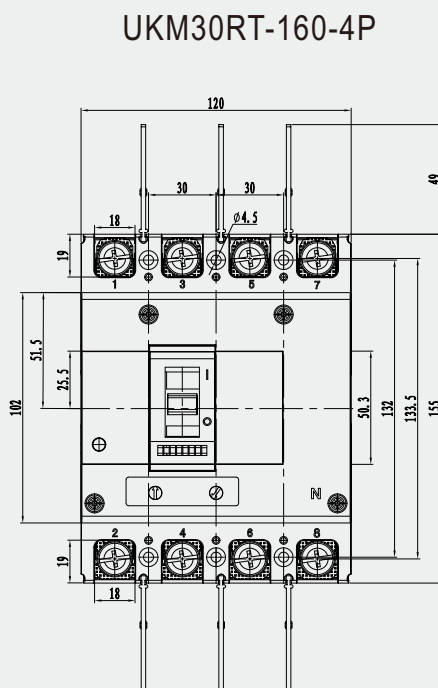


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系列塑料外壳式断路器

外形及安装尺寸

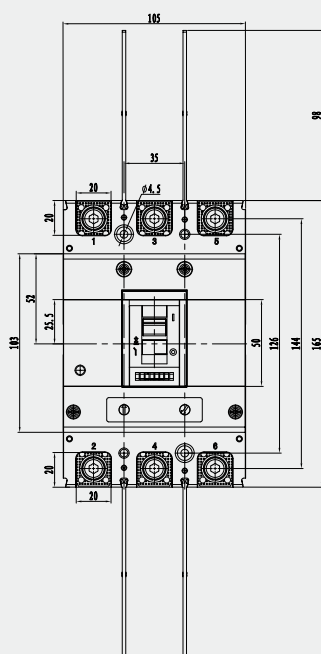


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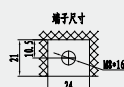
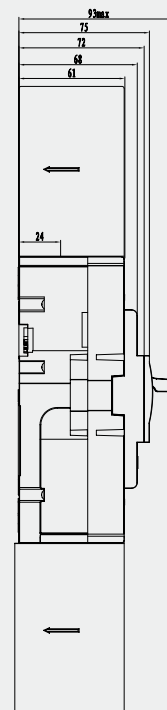
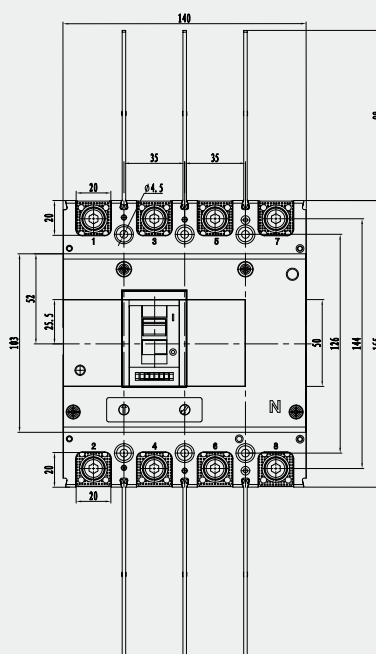
Series Moulded Case Circuit Breaker 系列塑料外壳式断路器

Outline & Mounting Dimension 外形及安装尺寸

UKM30RT-250-3P



UKM30RT-250-4P

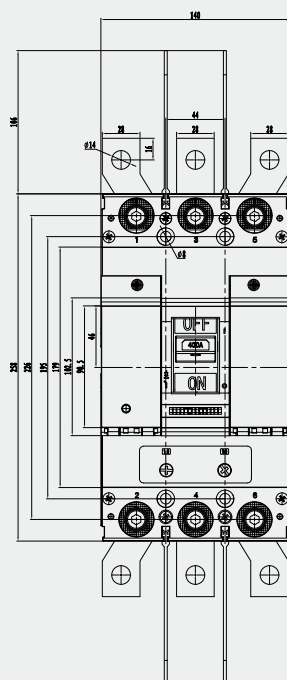


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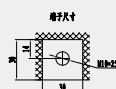
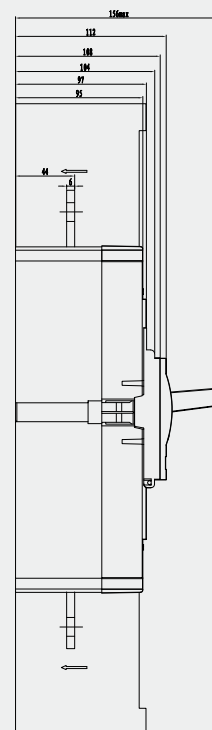
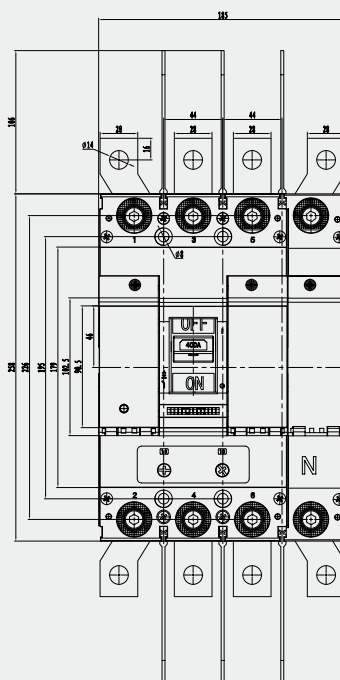
Series Moulded Case Circuit Breaker 系列塑料外壳式断路器

Outline & Mounting Dimension 外形及安装尺寸

UKM30RT-400-3P



UKM30RT-400-4P

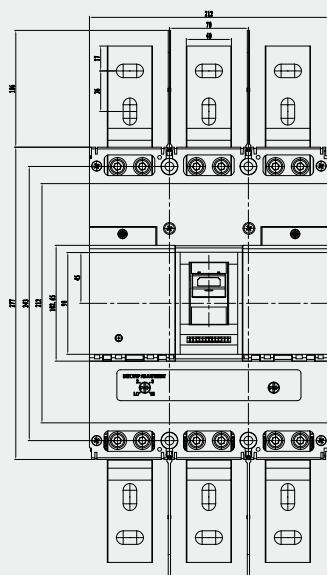


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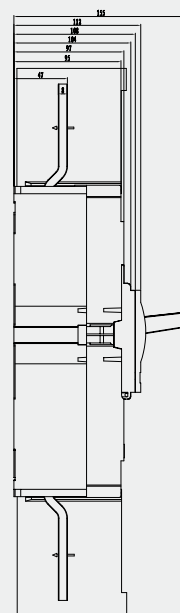
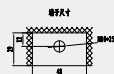
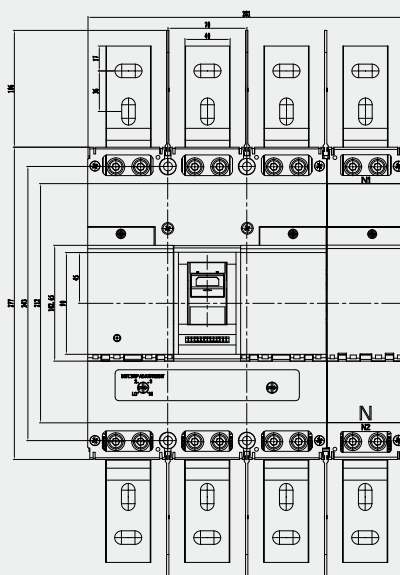
Series Moulded Case Circuit Breaker 系列塑料外壳式断路器

Outline & Mounting Dimension 外形及安装尺寸

UKM30RT-800-3P



UKM30RT-800-4P



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系列塑料外壳式断路器

Accessories of Circuit breaker

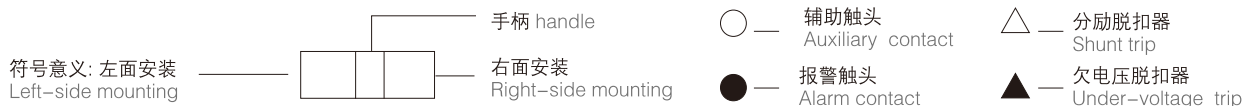
断路器的附件

附件型号一览表 General table

壳架等级额定电流 Inm(A)		160	250	400	630,800
内部附件 Internal accessories	报警触头 Alarm contact	B2	B3	B4	
	辅助触头 Auxiliary contact	F2	F3	F4	
	分励脱扣器 Shunt trip	FL2	FL3	FL4	
	欠电压脱扣器 Under-voltage trip	QY2	QY3	QY4	
内部附件接线端子座 Connection terminal block as internal accessories					
外部附件 External accessories	旋转操作手柄 Rotary operating handle	CS1-100	CS1-250	CS1-400	CS1-630,800
	电动操作机构 Electrical operating mechanism	MD1	MD2	-	-
	电动操作机构 Electrical operating mechanism	MDX1	MDX2	MDX3	MDX4

内部附件代号及安装位置图

Code & Installation

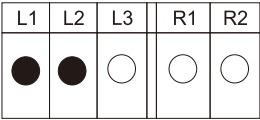
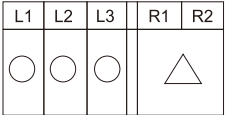
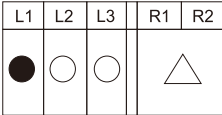
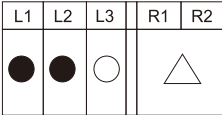
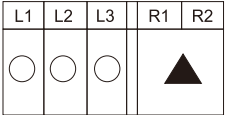
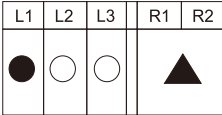
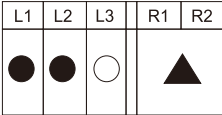
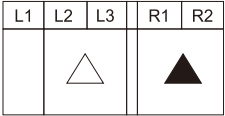
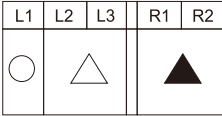
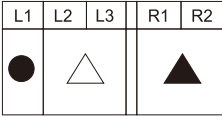


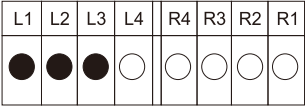
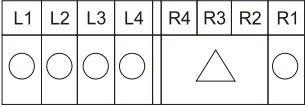
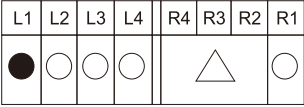
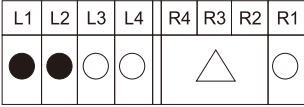
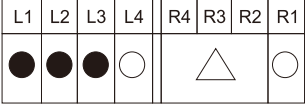
壳架等级额定电流 Inm(A)	160A,250A		
附件代号 Code	0 (0~2) 0	0 (0~2) 1	0 (0~2) 2
位置图 Position			
附件代号 Code	1 (0~1) 0	1 (0~1) 1	
位置图 Position			
附件代号 Code	2 (0~1) 0	2 (0~1) 1	
位置图 Position			

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壳架等级额定电流 Inm(A)	400A		
附件代号 Code	0 (0~5) (0~2)		
位置图 Position	 注:后两位数字相加≤5 Note: the sum of last two digits : ≤5		
附件代号 Code	1 (0~3) 0	1 (0~2) 1	1 (0~2) 1
位置图 Position			
附件代号 Code	2 (0~3) 0	2 (0~2) 1	2 (0~1) 2
位置图 Position			
附件代号 Code	300	310	301
位置图 Position			

壳架等级额定电流 Inm(A)	630A ~ 800A		
附件代号 Code	0 (0~8) (0~3)		
位置图 Position	 注:后两位数字相加≤5 Note: the sum of last two figures: ≤5		
附件代号 Code	1 (0~5) 0	1 (0~4) 1	1 (0~3) 2
位置图 Position			
附件代号 Code	1 (0~2) 3		
位置图 Position			

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附件代号 Code	2 (0~5) 0	2 (0~4) 1	2 (0~3) 2
位置图 Position			
附件代号 Code	2 (0~2) 3		
位置图 Position			
附件代号 Code	3 (0~3) 0	3 (0~2) 1	3 (0~1) 2
位置图 Position			

Parameter of auxiliary & alarm contact

辅助触头报警触头参数

断路器不同工作状态下的辅助、报警触头线路图 The circuit drawings of auxiliary contact & alarm contact in different working status

断路器工作状态 Working status of circuit breaker	辅助触头 Auxiliary contact	报警触头 Alarm contact
合 Close		
分 Open		
脱扣 Tripping		

Main technical parameter

主要技术参数

额定绝缘电压 $U_i=400V, AC$

额定发热电流 $I_{th}=6A$;

额定工作电压 U_e 及对应的额定工作电流 I_e
AC400V, 1A; AC230V, 3A。

DC220V, 0.15A

Rated insulation voltage $U_i=400V, AC$

Rated thermal current $I_{th}=6A$

Rated operation voltage(U_e) & rated operation current (I_e)
current I_e AC400V, 1A; AC230V, 3A

DC220V, 0.15A

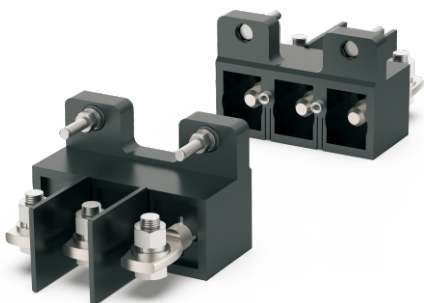
电寿命和接通、分断能力 Electrical life & making and breaking capacity

使用类别 Using categories		接通 Making			分断 Breaking			循环次数 Cycle time	操作频率 (次/min) Operating frequency (time/min)	通电时间(s) Time of making
AC		I/I_e	U/U_e	$\cos \phi$	I/I_e	U/U_e	$\cos \phi$			
AC-15	电寿命 Electrical life	10	1	0.3	1	1	0.3	6050	6	≥ 0.05
	接通、分断能力 Making & breaking capacity	10	1.1	0.3	10	1.1	0.3	10	6	≥ 0.05
DC		I/I_e	U/U_e	$T/0.95$	I/I_e	U/U_e	$T/0.95$			
DC-13	电寿命 Electrical life	1	1	300ms	1	1	300ms	6050	6	≥ 0.3
	接通、分断能力 Making & breaking capacity	1.1	1.1	300ms	1.1	1.1	300ms	10	6	≥ 0.3

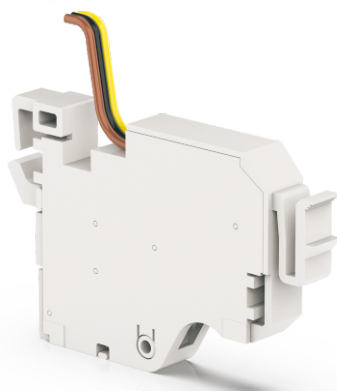
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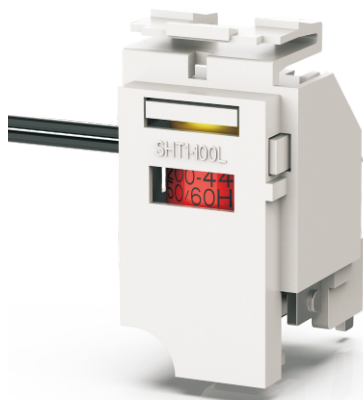
系列塑料外壳式断路器



插入式板后接线



报警辅助



分励脱扣器

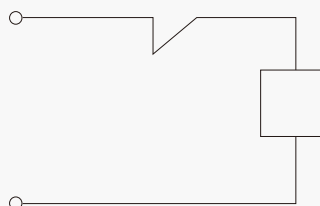


欠压脱扣器单元

The parameter of shunt trip

分励脱扣器参数

分励脱扣器线路图 Circuit figure of shunt trip



额定电压(Rated voltage)

Us: 110V, 230V, 400V

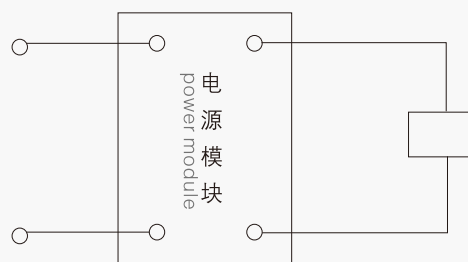
DC: 24V, 48V, 110V,

输入容量(Input capability)

AC: 180VA DC: 60W

The parameter of Under-voltage trip

欠电压脱扣器参数



电源模块

1. 电源模块可插挂在断路器的侧面,也可独立安装
 2. 额定电压: U_e : AC: 110V、230V、400V; DC: 24V、48V、110V;
 3. 输入容量: AC: 5VA; DC: 2W;
 4. 动作电压: $U = (70\% \sim 35\%) U_e$; 断路器脱扣分断;
 5. 动作时间: (10~30)ms;
- $U \geq 85\% U_e$, 断路器能够闭合;
- $U \leq 35\% U_e$, 断路器不能闭合。

Power module

1. power module can be fitted at the side of the circuit breaker, and the independent installation available
 2. rated voltage U_e : AC: 110V、230V、400V; DC: 24V、48V、110V;
 3. input capability AC: 5VA; DC: 2W;
 4. operating voltage: $U = (70\% \sim 35\%) U_e$; circuit breaker tripping & breaking
 5. operating time: (10~30)ms ;
- $U \geq 85\% U_e$, circuit breaker could be closed
- $U \leq 35\% U_e$, circuit breaker can not be closed

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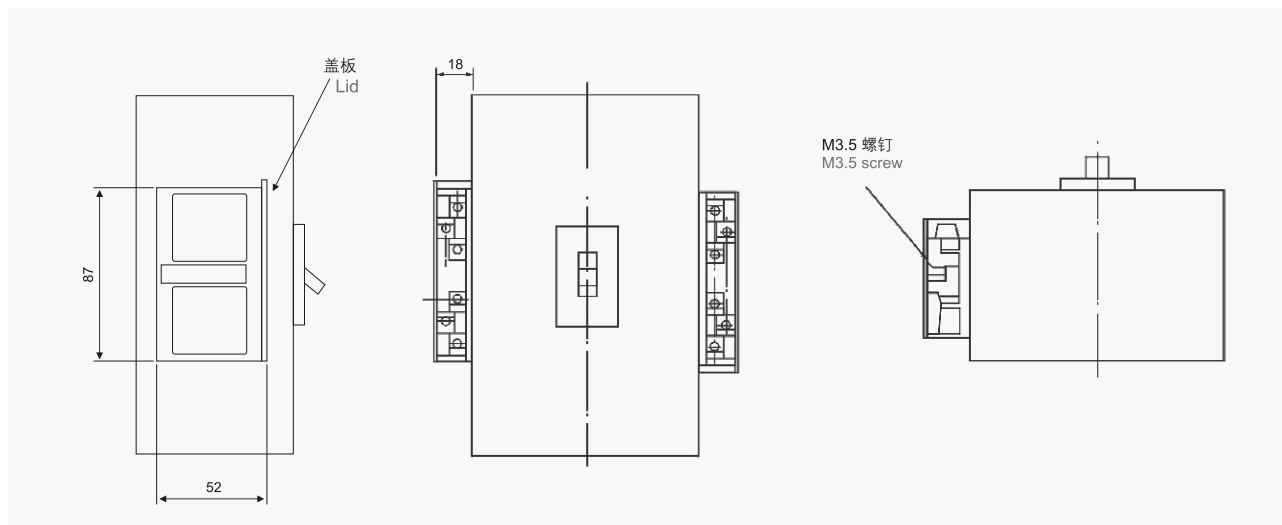
系列塑料外壳式断路器

JX series wiring terminal block-internal accessories

Jx型内部附件接线端子座

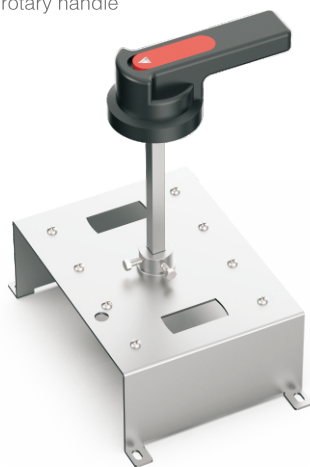
该接线端子座插挂在断路器侧面

The wiring terminal block is hanged at the side of circuit breaker



CS1型旋转操作手柄

Model CS1 rotary handle



安装于断路器产品上可用挂锁防止断路器闭合或分断

It is mounted on the circuit breaker and can be locked by padlock to prevent the making / breaking of circuit breaker



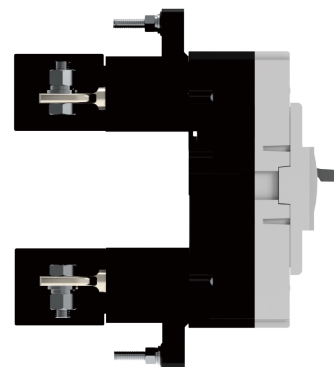
MDX型电动操作机构

MDX series electrical operating mechanism



MDX型用于Inm=100A V800A的断路器

For circuit breaker: Model(AF) 100A-800A



UKM30RT Series Moulded Case Circuit Breaker

系列塑料外壳式断路器

Cs1 series rotary operating mechanism

Cs1 型旋转操作机构

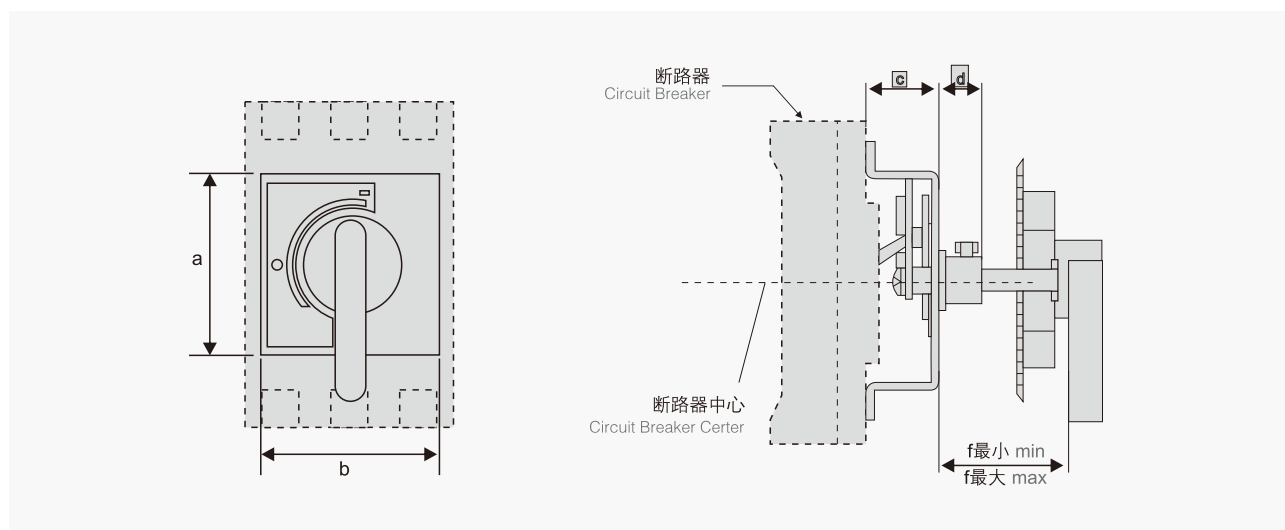
该操作机构采用齿轮一齿条机构推动断路器手柄，摩擦力小，操作轻松，使用寿命长。可选择A型（方形）操作手柄或B型（圆形）操作手柄。可用挂锁锁定手柄，防止断路器闭合或分断

The operating mechanism adopts gear-rack mechanism to drive the circuit breaker handle, with features of small friction, easy operation and long life. It can be locked by padlock to prevent making & breaking of circuit breaker.

型号 Model	壳架等级额定电流 Inm(A)	a	b	c	d	F最小 F min	F最大 F max
CS1-100	160	110	80	44	13.5	50	400
CS1-250	250	110	90	46	13.5	50	400
CS1-400	400	185	140	80	20	50	350
CS1-630,800	630,800	226	210	80	20	50	350

一般出厂方轴长f=150mm,如需其它长度，订货时注明

The general length of square shaft: f=150mm Other requirements, please specify when ordering.



手柄的中心与铰链的距离不应小于200mm

The distance between the handle center and hinge should not be less than 200mm

A型手柄安装尺寸

Mounting size of A type handle

框架等级 Model (AF)	160~250	400~800
φ 1	φ 42	φ 63
φ 2	φ 4.5	φ 5.5
e	65	88
L	60	140

B型手柄安装尺寸

Mounting size of B type handle

框架等级 Model (AF)	160~250	400~800
φ 1	φ 33	φ 33
φ 2	φ 4.5	φ 4.5
φ 3	φ 53	φ 53
L	65	125

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Series Moulded Case Circuit Breaker

系列塑料外壳式断路器

Electric operating mechanism

电动操作机构

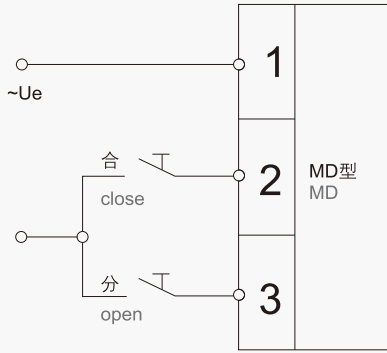
MD型电动操作机构由电磁铁拉动断路器的操作手柄，用来闭合和分断断路器。MDX型电动操作机构由电动机、齿轮和凸轮将电动机的旋转运动变为直线运动，用来闭合和分断断路器。

The MD series electrical operating mechanism is to make the electromagnet to drive the operating handle of the circuit breaker which is to close and open the circuit breaker. The MDX series electrical operating mechanism by motor, gear and cam turns the revolving morement of the motor into the beeline morement to close and open the circuit breaker.

Main technology parameter of MD series electrical operating mechanism

MD型电动操作机构主要技术参数

壳架等级额定电流 Inm(A)	160		250		MD型电动操作机构接线图 Wiring figureing of MD electrical operating mechanism
电动操作机构型号 Model	MD1		MD2		
交流额定工作电压Ue(V) AC rated working voltage Ue(V)	AC400V	AC230V	AC400V	AC230V	
起动电流(A) Starting current (A)	4.4	7.5	5.5	9.5	
动作时间(S) Operating time (S)	≤0.2				
额定操作频率(次/h) Rated operating frequency (time/n)	120				
机械寿命(次) Mechanical life	15000		9000		



合 开
close open

MD型
MD

Main technology parameter of MDX series electrical operating mechanism

MDX型电动操作机构主要技术参数

壳架等级额定电流 Inm(A)	160	250	400	600-800	MDX 型电动操作机构接线图 Wiring figuring of MD electrical operating mechanism
电动操作机构型号 Model	MDX1	MDX2	MDX3	MDX4	
交流额定工作电压Ue(V) AC rated working voltage Ue(V)	AC110~230V 50Hz DC110~220V				
起动电流(A) Starting current (A)	≤0.5		≤2		
动作时间(S) Operating time (S)	≤0.8				
额定操作频率(次/h) Rated operating frequency (time/h)	180		120		
机械寿命(次) Mechanical life	15000	9000	5000	3000	

