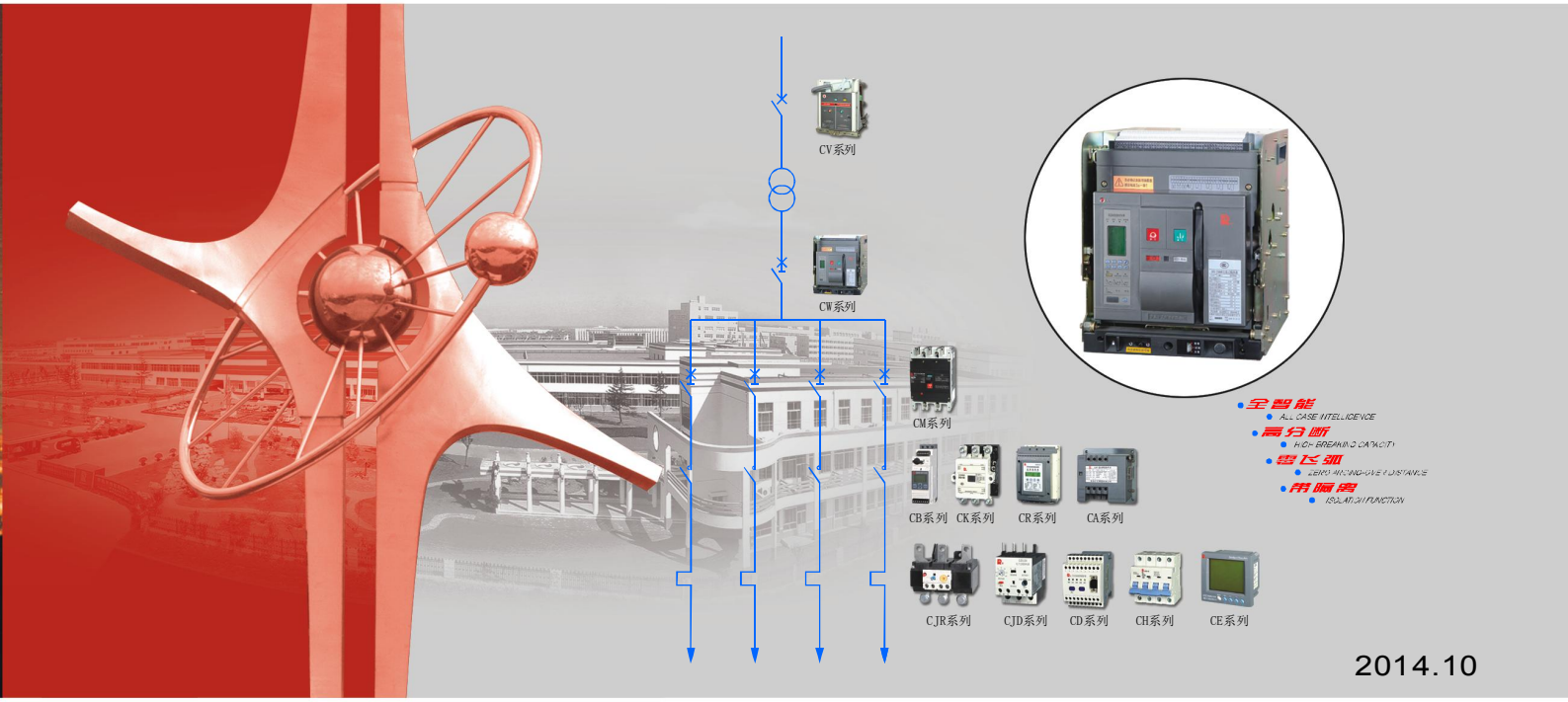
CW 3 系列
智能型万能式断路器
CW3 SERIES INTELLIGENT AIR CIRCUIT-BREAKERS



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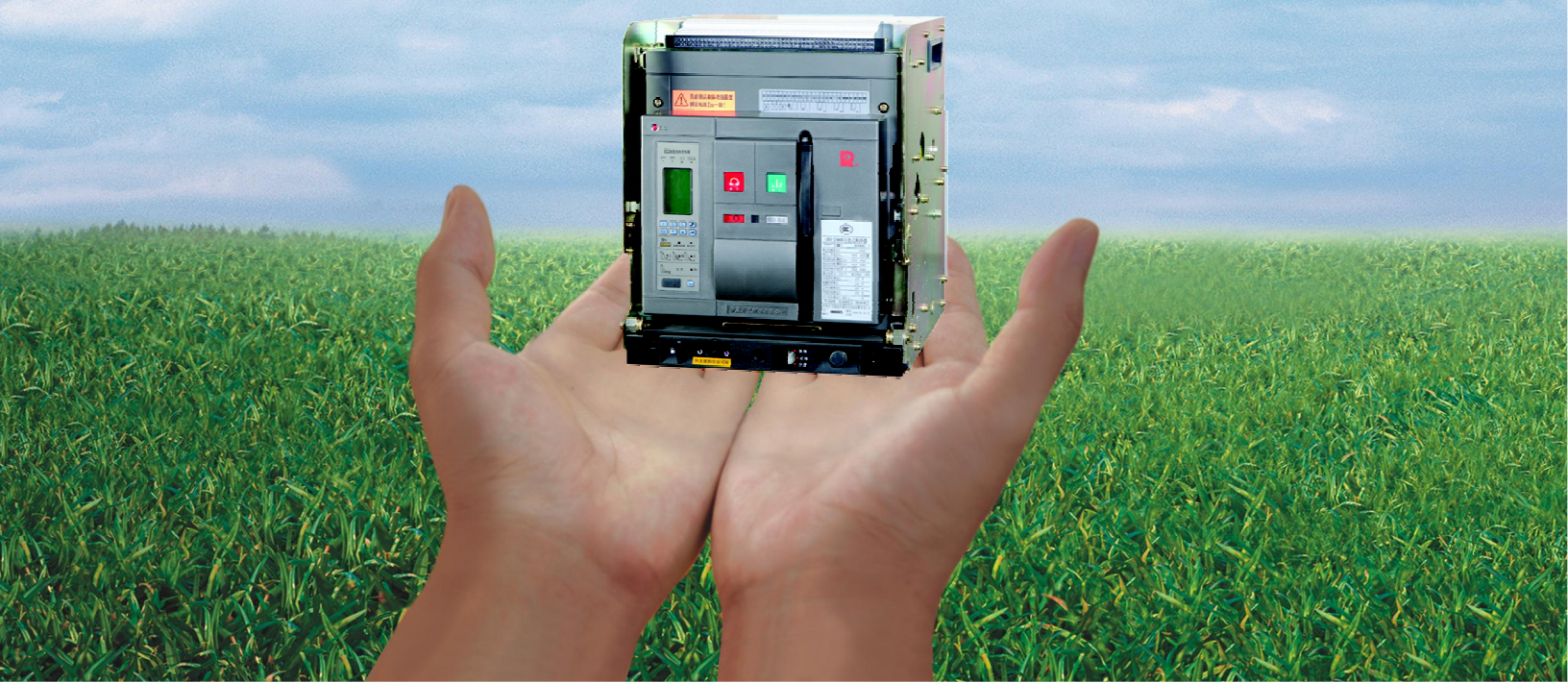
常熟开关制造有限公司
（原常熟开关厂）
CHANGSHU SWITCHGEAR MFG. CO.,LTD.
（FORMER CHANGSHU SWITCHGEAR PLANT）

优秀特色

- 应用广泛，可适用于交流400V、690V，行业首推最大额定电流等级7400A断路器；并且派生产品CW3G隔离开关交直流两用，直流电压可达1000V，满足光伏发电应用，还具备TH型断路器，满足湿热带地区使用要求
- 获得国际认可的CB证书
- 小体积、高性能，电能监测和保护控制一体化，功能完善
- 倡导断路器新理念，实现额定短时耐受能力Icw=额定运行短路分断能力Ics=额定极限短路分断能力Icu，实现全电流范围选择性保护，提高运行可靠性
  额定极限短路分断能力Icu：400V：65kA～150kA；690V：50kA～100kA
  额定运行短路分断能力Ics：400V：55kA～150kA；690V：42kA～100kA
  额定短时耐受电流Icw (1s)：400V：50kA～135kA；690V：42kA～100kA
- 断路器可选配不同智能控制器，实现更丰富的电力参数检测（如谐波监测、功率和电度显示），测量精度高，可满足监测级要求；多种曲线保护，满足不同应用场合（如发电机保护）；率先推出带剩余电流保护（A型/AC型）的智能控制器
- 导入最先进的断路器状态智能化可视新理念，实现内部温度、附件、本体及抽屉座运行状态的实时监测
- 全模块化设计理念，提供多种模块实现功能的扩展，如辅助触头可扩展至12组（最多），可选装三位置状态监视等
- 主回路接线端子连接方便，可实现水平连接、垂直连接、混合连接，辅助触头数量可选，增配方便
- 可选区域选择性联锁功能，确保各级保护的完全选择性
- 可选Modbus、Profibus、Devicenet、CAN任一协议直接通信输出，方便用户；并可通过本公司的CN1EG以太网适配器联接以太网网络
- 通过配置FDM3短消息通知模块，可实现断路器故障脱扣或报警信息无线监视
- 可配FWB1温度报警模块，实现连接点在线超温报警



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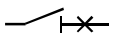
概 述 GENERAL

常熟开关制造有限公司（原常熟开关厂）又全新推出CW家庭新成员CW3系列智能型万能式断路器（以下简称断路器），该断路器是本公司设计人员把丰富的断路器研发经验、成熟的配电技术与人性化设计相结合的新一代产品，断路器可应用于各种低压配电领域，不但可实现对线路的保护，还可实现对电动机（断路器满足GB50055对电动机保护要求）、发电机（断路器满足GB755对发电机保护要求）等设备的保护，因此为用户提供了更安全、更可靠、更全面的低压配电保护方案。

- 断路器额定工作电压 AC50Hz/60Hz 400、690V
- 断路器额定电流200～7400A
- 断路器具有三极和四极
- 断路器具有抽屉式和固定式
- 断路器可倒进线连接
- 断路器可选用EN、EA、EP、EQ、EG等智能控制器
- 断路器具有隔离功能，符号为 
- 使用类别B
- 可提供低温至-40℃断路器
- 可提供无过电流保护要求的断路器，符合GB14048.2附录L CBI分类Y级
- 断路器符合以下标准：

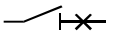
IEC60947-1及GB 14048.1-2006 低压开关设备和控制设备 总则

IEC60947-2及GB 14048.2-2008 低压开关设备和控制设备 断路器

IEC60947-4-1及GB 14048.4 低压开关设备和控制设备 机电式接触器和电动机起动器

- 断路器获国家强制性产品认证CCC标志

Changshu Switchgear Manufacturing Co., LTD (Former Changshu Switchgear Plant) has developed CW3 Series Intelligent Air Circuit-Breakers (ACB) (hereafter simply referred to as circuit breakers) as the new member of the CW family, which are the new generation of products that combine the rich experience of circuit breakers r&d, the mature distribution technology and human design by our company's designers. Circuit breakers can be used in various low-voltage distribution areas, they can not only achieve the protection of the circuits but also realize the protection of the motors (circuit breakers meet the requirements for motor protection according to GB50055) and the generators (circuit breakers meet the requirements for generator protection according to GB755), thus they provide users with more security, more reliable and more comprehensive programs to protect low-voltage distribution.

- The circuit breakers ' rated operational voltage: AC50Hz/60Hz 400、690V.
- The circuit breakers' rated current: 200～7400A.
- The circuit breakers have three or four poles.
- The circuit breakers have draw-out or fixed type.
- The circuit breakers can be mounted in the adverse direction.
- The circuit breakers can be selected EN、EA、EP、EQ、EG intelligent controller.
- The circuit breakers have isolation function and the symbol are shown as 
- Utilization category B
- Can be provided breaker of temperature down to -40℃
- Can provide circuit-breakers not fulfilling the requirements for overcurrent protection,compliance with GB14048.2 annex L class Y of CBI
- The circuit breakers comply with the demands of the following standards:

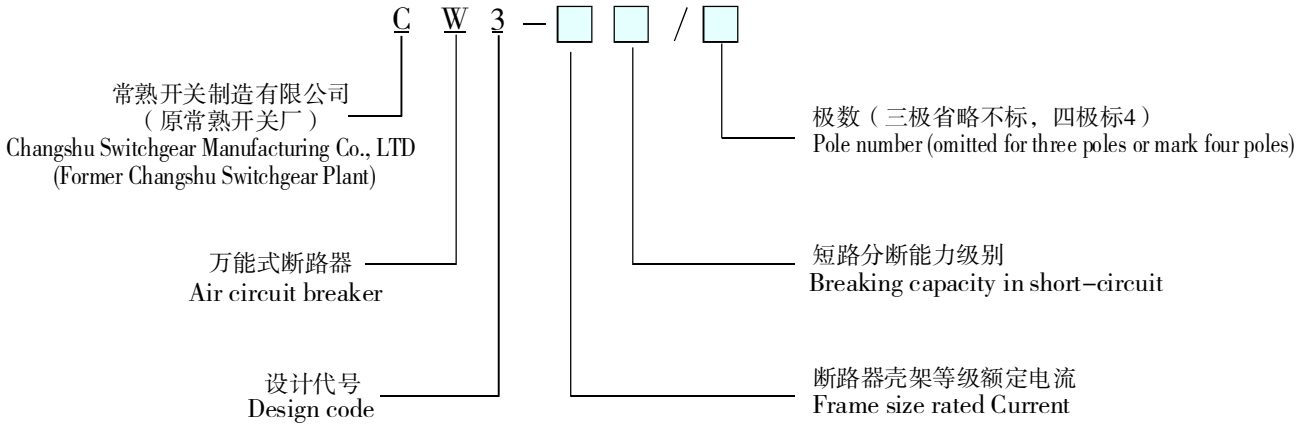
IEC60947-1 and GB14048.1-2006 Low-voltage switchgear and controlgear General rules

IEC60947-2 and GB14048.2-2008 Low-voltage switchgear and controlgear Circuit-breakers

IEC60947-4-1 and GB14048.4 Low-voltage switchgear and controlgear Electro-mechanical contactor and motor starter.

- The circuit breakers have obtained the CCC mark of CQC.

型号含义 TYPE DESIGNATION AND ITS MEANING



正常使用条件和安装条件 NORMAL SERVICE AND MOUNTING CONDITIONS

● 周围空气温度-5℃～+40℃；

● 安装地点的海拔不超过2000m；

● 空气的相对湿度在最高温度为+40℃时不超过50%，在较低温度下可以允许有较高的相对湿度，例如20℃时达90%，对由于温度变化偶尔产生的凝露应采取特殊的措施；

● 污染等级为3级；

● 断路器主电路的安装类别为Ⅳ，其余辅助电路、控制电路安装类别为Ⅲ；

● 断路器适用于电磁环境A；

● 湿热带型（TH型）断路器通过GB/T2423.4、GB/T2423.18试验要求，能耐受潮湿空气、盐雾、油雾、霉菌的影响；

● 断路器安装的垂直倾斜度不超过5°；

● 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；

● 断路器安装在柜体小室内，且加装门框，防护等级达IP40。

● 可运行条件：

断路器通过GB/T 2423.1和GB/T2423.2的试验要求，周围空气温度可低至-25℃（配EN型智能控制器可至-40℃）、高至+70℃（超过+40℃降容使用，详见本样本中的断路器功耗及降容系数）；

海拔超过2000m降容使用，详见本样本中的高海拔降容；

● 储存条件：周围空气温度为-40℃～+70℃。

● Ambient temperature: -5℃～+40℃；

● Altitude ≤2000m

● Relative humidity: not exceed 50% at the maximum ambient temperature of +40℃, but higher relative humidity at the lower temperature, for example, 90% at 20℃. Special measures should be taken considering the dews on product surface due to temperature change;

● Pollution protection: 3 grade;

● Installing categories: IV for the main circuit; III for other auxiliary and control circuits;

● The breaker is suitable in electromagnetic environment A;

● Damp heat type（TH）breakers are tested by GB/T2423.4、GB/T2423.18,can bear the influence of moisture in the air of salt fog and oil fog or mould.

● The vertical gradient isn't more than 5°;

● There must be not any explosive medium, and there must be not any gas which would corrode metal or any conducting dust which would destory the insulation;

● The circuit breaker should be installed in the compartment of switchgear cabinet and doorframe should be fixed additionally. Protection grade up to Ip40.

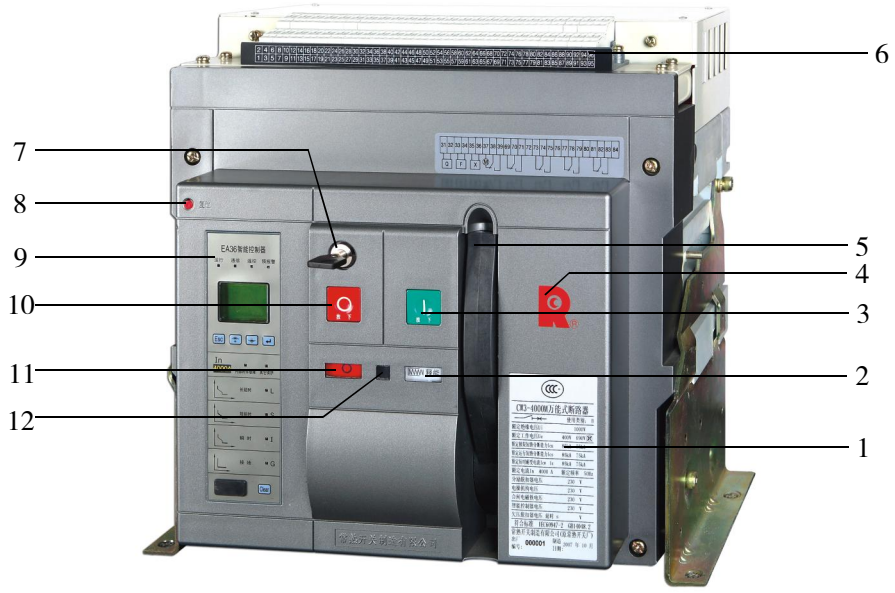
● Sevice condition:

The breakers are tested by GB/T 2423.1 and GB/T2423.2,ambient temperature lower -25℃（-40℃ for EN intelligent controller）、higher +70℃（temperature over +40℃,the breakers are used by reducing capacity;please seeing "power consumption and capacity lowering coefficient"）;

Elevation over 2000m,the breakers are used by reducing capacity,please seeing "capacity-reducing for high-elevation".

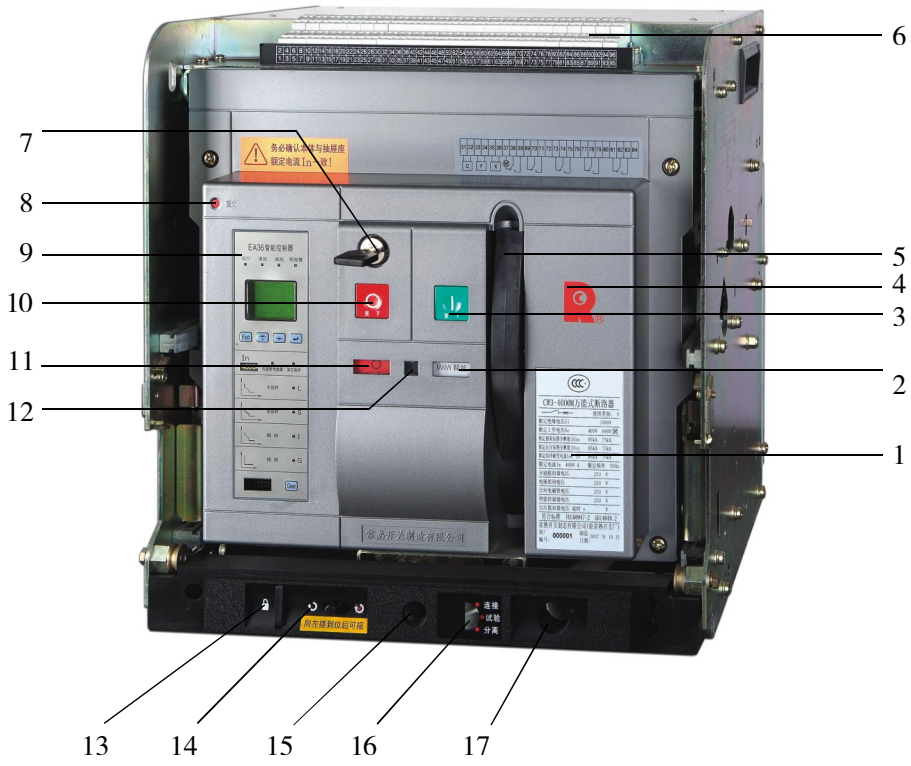
● Storage condiction:ambient temperature -40℃～+70℃.

断路器结构简介 SYNOP OF STRUCTURE



1 铭牌
2 贮能释能指示
3 合闸按钮
4 商标
5 手动贮能手柄
6 二次回路接线端子
7 断路器“分闸”锁定装置
8 脱扣指示和复位按钮
9 智能控制器
10 分闸按钮
11 合闸“I”、分闸“O”指示
12 合闸准备就绪时指示“OK”
13 抽屉式断路器“分离”位置安全挂锁装置
14 抽屉式断路器“分离”、“试验”、“连接”三位置“解锁拨钮”
15 抽屉式断路器摇杆工作孔
16 抽屉式断路器“分离”、“试验”、“连接”三位置指示
17 抽屉式断路器摇杆存放孔

1 Nameplate
2 Indications of charging and discharging
3 Closing button
4 Brand
5 Manual charging handle
6 Terminals of secondary circuit
7 “opening” lock mechanism
8 Trip indication and resetting button
9 Intelligent controller
10 Opening button
11 Indication of closing (“I”) and opening (“O”)
12 Indication of ready-for-close (“OK”)
13 Safety padlock mechanism as the draw-out circuit breaker indicates the position of “separated”
14 "Unlock button" of the three positions ("separated", "test" and "connected") for draw-out circuit breaker
15 Rocker operating hole of the draw-out circuit breaker
16 Indications of the three positions ("separated", "test" and "connected") of the draw-out circuit breaker
17 Rocker storage hole of the draw-out circuit breaker



注：

1“分离”：指示主回路与二次回路均为隔离状态；

“试验”：指示主回路为隔离状态，二次回路为连接状态；

“连接”：指示主回路与二次回路均为连接状态。

2 当断路器本体被摇至“分离”或“试验”或“连接”位置时即可被自动锁定（摇杆不可再摇动），可通过向左拨动“解锁拨钮”解锁。

Note:

1 "Separated": indicates that main circuit and secondary circuit are both in isolation.

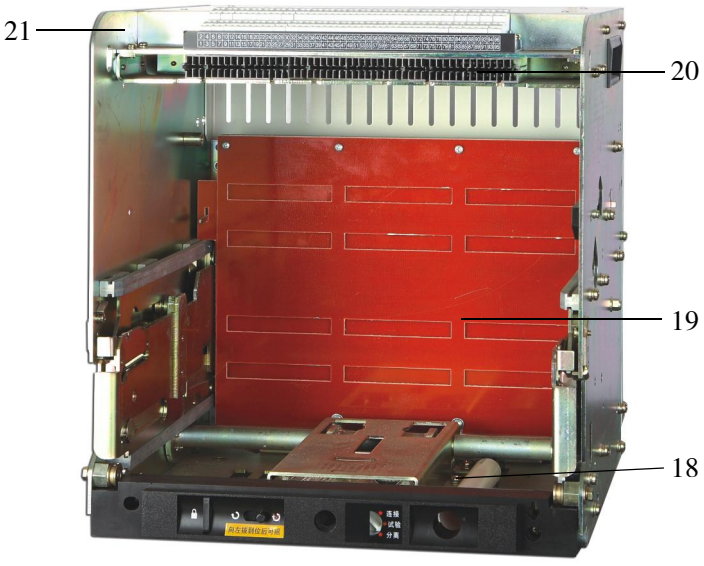
"Test": indicates that main circuit is in isolation and secondary circuit is in connection.

"Connected": indicates that main circuit and secondary circuit are both in connection.

2 The circuit breaker can be automatically locked (rocker can not be turned at this point) when its main part is at the position of "separated", "test" or "connected" by turning the rocker, and can be unlocked by pushing "unlock button" to the left side.

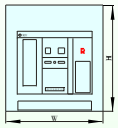
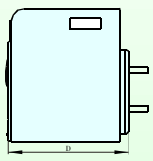
- 抽屉式断路器的抽屉座
- Draw-out socket of draw-out circuit breaker

抽屉式断路器的抽屉座具有隔离主回路母排的挡板，当断路器抽出时起安全保护作用。
The draw-out socket has the hack plate for isolating the copper bar of the main circuit, which takes the role of safety protection when the circuit breaker is draw out.



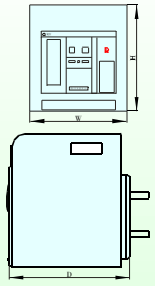
18	安装孔	18 Installation hole
19	安全挡板	19 Safety back plat
20	二次回路接线端子	20 Wiring terminals of secondary circuit
21	侧板	21 Side plate

主要技术指标 MAIN TECHNICAL INDEX

型号 Type designation				CW3-1600		
壳架等级额定电流Inm(A) Frame size rated current				1600		
额定电流In(A) Rated current				200、400、630、800、1000、1250、1600		
额定工作电压Ue(V) Rated operational voltage				AC50Hz/60Hz,400、690		
额定绝缘电压Ui(V) Rated insulation voltage				1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage				12		
工频耐受电压U(V) Power-frequency withstand voltage				3500		
极数 Pole number				3、4		
中性极额定电流I_N(A) Rated current of neutral pole				100%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V			65		
	AC690V			50		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V			55		
	AC690V			42		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V			143		
	AC690V			105		
额定短时耐受电流Icw(kA)(有效值) Rated short-time withstand current(r.m.s value)	AC400V			50/1s,55/0.5s		
	AC690V			42/1s		
全分断时间（无附加延时）(ms) Full-breaking time (without additional delay)				25~30		
闭合时间（ms） Closing time				最大70 Max		
电气寿命*（次 times） Electrical durability	AC400V			6500		
	AC690V			3000		
机械寿命*（次 times） Mechanical durability	免维护 Non-maintenance			15000		
	有维护 Maintenance			30000		
外形尺寸(mm) Outline dimensions  	宽×高×深 Width×height×depth			W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	248	351.5	297
			4P	后置Back set	318	351.5	297
		垂直连接 Vertical	3P	后置Back set	248	351.5	297
			4P	后置Back set	318	351.5	297
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	259	320	195
			4P	后置Back set	329	320	195
		垂直连接 Vertical	3P	后置Back set	259	320	195
			4P	后置Back set	329	320	195

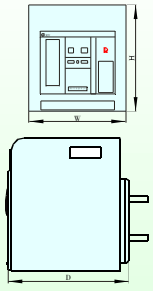
注：In=200A、400A、630A、800A、1000A断路器具有电动机保护型，其Ue=400V。
*注：根据GB14048.1-2006，术语“寿命”表示电器在修理或更换部件前能完成的操作循环次数的概率。
Note:Motor protection type of breakers,whose rated current(In)is equal to 200A、400A、630A、800A、1000A and rated operational voltage(Ue)is equal to 400V,will be available.
*Note:For GB14048.1-2006, the term "durability"expresses the expectancy of the number of operating cycles which can be performed by the equipment before repair or replacement parts.

主要技术指标 MAIN TECHNICAL INDEX

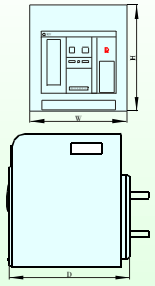
型号 Type designation					CW3-2500		
壳架等级额定电流Inm(A) Frame size rated current					2500		
额定电流In(A) Rated current					630、800、1000、1250、1600、2000、2500		
额定工作电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
短路分断能力级别 Short circuit breaking capacity					M	H	
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				65	85	
	AC690V				55	65	
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				65	85	
	AC690V				55	65	
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				143	187	
	AC690V				121	143	
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V				65	85	
	AC690V				55	65	
全分断时间（无附加延时）(ms) Full-breaking time (without additional delay)					25~30		
闭合时间（ms） Closing time					最大70 Max		
电气寿命（次 times） Electrical durability	AC400V				8000		
	AC690V				2500		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				12500		
	有维护 Maintenance				25000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width×height×depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	347	438	395
			4P	后置Back set	442	438	395
		垂直连接 Vertical	3P	后置Back set	347	438	395
			4P	后置Back set	442	438	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	362	395	290
			4P	后置Back set	457	395	290

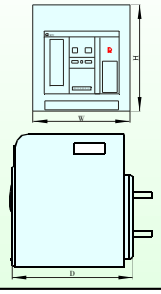
注：In=630A、800A、1000A断路器具有电动机保护型，其Ue=400V。
Note:Motor protection type of breakers,whose rated current(In)is equal to 630A、800A、1000A and rated operational voltage(Ue)is equal to 400V,will be available.

主要技术指标 MAIN TECHNICAL INDEX

<table>
<tr><td colspan="5">型号 Type designation</td><td colspan="3">CW3-4000</td></tr>
<tr><td colspan="5">壳架等级额定电流Inm(A) Frame size rated current</td><td colspan="3">4000</td></tr>
<tr><td colspan="5">额定电流In(A) Rated current</td><td colspan="3">1000、1250、1600、2000、2500、
2900、3200、3600、4000</td></tr>
<tr><td colspan="5">额定工作电压Ue(V) Rated operational voltage</td><td colspan="3">AC50Hz/60Hz,400、690</td></tr>
<tr><td colspan="5">额定绝缘电压Ui(V) Rated insulation voltage</td><td colspan="3">1000</td></tr>
<tr><td colspan="5">额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage</td><td colspan="3">12</td></tr>
<tr><td colspan="5">工频耐受电压U(V) Power-frequency withstand voltage</td><td colspan="3">3500</td></tr>
<tr><td colspan="5">极数 Pole number</td><td colspan="3">3、4</td></tr>
<tr><td colspan="5">中性极额定电流IN(A) Rated current of neutral pole</td><td colspan="3">100%In</td></tr>
<tr><td colspan="5">短路分断能力级别 Short circuit breaking capacity</td><td>M</td><td>H</td></tr>
<tr><td colspan="4" rowspan="2">额定极限短路分断能力Icu(kA)(有效值)
Rated ultimate short-circuit breaking capacity
(r.m.s value)</td><td>AC400V</td><td>85</td><td>100</td></tr>
<tr><td>AC690V</td><td>75</td><td>85</td></tr>
<tr><td colspan="4" rowspan="2">额定运行短路分断能力Ics(kA)(有效值)
Rated service short-circuit breaking capacity
(r.m.s value)</td><td>AC400V</td><td>85</td><td>100</td></tr>
<tr><td>AC690V</td><td>75</td><td>85</td></tr>
<tr><td colspan="4" rowspan="2">额定短路接通能力Icm(kA)(峰值)
Rated short-circuit making capacity (peak value)</td><td>AC400V</td><td>187</td><td>220</td></tr>
<tr><td>AC690V</td><td>165</td><td>187</td></tr>
<tr><td colspan="4" rowspan="2">额定短时耐受电流Icw(kA)(有效值)/1s
Rated short-time withstand current(r.m.s value)</td><td>AC400V</td><td>85</td><td>100</td></tr>
<tr><td>AC690V</td><td>75</td><td>85</td></tr>
<tr><td colspan="5">全分断时间(无附加延时)(ms) Full-breaking time (without additional delay)</td><td colspan="3">25~30</td></tr>
<tr><td colspan="5">闭合时间（ms）Closing time</td><td colspan="3">最大70
Max</td></tr>
<tr><td colspan="3" rowspan="2">电气寿命（次 times）
Electrical durability</td><td>AC400V</td><td colspan="3">2000</td></tr>
<tr><td>AC690V</td><td colspan="3">1500</td></tr>
<tr><td colspan="3" rowspan="2">机械寿命（次 times）
Mechanical durability</td><td>免维护
Non-maintenance</td><td colspan="3">10000</td></tr>
<tr><td>有维护
Maintenance</td><td colspan="3">20000</td></tr>
<tr><td rowspan="7">外形尺寸(mm)
Outline dimensions
  </td><td colspan="3">宽×高×深 Width×height×depth</td><td>W</td><td>H</td><td>D</td></tr>
<tr><td rowspan="4">抽屉式
Draw-out</td><td rowspan="2">水平连接
Horizontal</td><td>3P</td><td>后置Back set</td><td>401</td><td>438</td><td>395</td></tr>
<tr><td>4P</td><td>后置Back set</td><td>514</td><td>438</td><td>395</td></tr>
<tr><td rowspan="2">垂直连接
Vertical</td><td>3P</td><td>后置Back set</td><td>401</td><td>438</td><td>395</td></tr>
<tr><td>4P</td><td>后置Back set</td><td>514</td><td>438</td><td>395</td></tr>
<tr><td rowspan="2">固定式
Fixed</td><td rowspan="2">水平连接
Horizontal</td><td>3P</td><td>后置Back set</td><td>414</td><td>395</td><td>290</td></tr>
<tr><td>4P</td><td>后置Back set</td><td>527</td><td>395</td><td>290</td></tr>
</table>

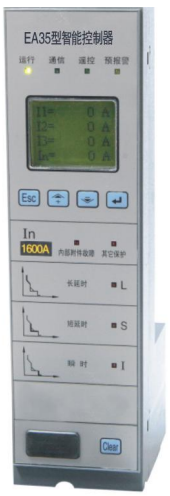
主要技术指标 MAIN TECHNICAL INDEX

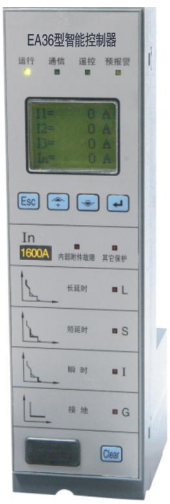
型号 Type designation					CW3-6300		
壳架等级额定电流Inm(A) Frame size rated current					6300		
额定电流In(A) Rated current					4000、5000、6300		
额定电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					100%In		
短路分断能力级别 Short circuit breaking capacity					M	H	
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				120	135	
	AC690V				85	100	
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				120	135	
	AC690V				85	100	
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				264	297	
	AC690V				187	220	
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V				120	135	
	AC690V				85	100	
全分断时间（无附加延时）(ms) Full-breaking time (without additional delay)					25~30		
闭合时间（ms） Closing time					最大70 Max		
电气寿命（次 times） Electrical durability	AC400V				1500		
	AC690V				1000		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				6500		
	有维护 Maintenance				13000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width×height×depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	754	475.5	395
			4P	后置Back set	980	475.5	395
		垂直连接 Vertical	3P	后置Back set	754	475.5	395
			4P	后置Back set	980	475.5	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	769	395	290
			4P	后置Back set	995	395	290

型号 Type designation					CW3-7400		
壳架等级额定电流Inm(A) Frame size rated current					7400		
额定电流In(A) Rated current					4000、5000、6300、7400		
额定电压Ue(V) Rated operational voltage					AC50Hz/60Hz,400、690		
额定绝缘电压Ui(V) Rated insulation voltage					1000		
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage					12		
工频耐受电压U(V) Power-frequency withstand voltage					3500		
极数 Pole number					3、4		
中性极额定电流I_N(A) Rated current of neutral pole					50%In		
额定极限短路分断能力Icu(kA)(有效值) Rated ultimate short-circuit breaking capacity (r.m.s value)	AC400V				150		
	AC690V				100		
额定运行短路分断能力Ics(kA)(有效值) Rated service short-circuit breaking capacity (r.m.s value)	AC400V				150		
	AC690V				100		
额定短路接通能力Icm(kA)(峰值) Rated short-circuit making capacity (peak value)	AC400V				330		
	AC690V				220		
额定短时耐受电流Icw(kA)(有效值)/1s Rated short-time withstand current(r.m.s value)	AC400V				135		
	AC690V				100		
全分断时间（无附加延时）(ms) Full-breaking time (without additional delay)					25~30		
闭合时间（ms） Closing time					最大70 Max		
电气寿命（次 times） Electrical durability	AC400V				1500		
	AC690V				1000		
机械寿命（次 times） Mechanical durability	免维护 Non-maintenance				5000		
	有维护 Maintenance				10000		
外形尺寸(mm) Outline dimensions 	宽×高×深 Width×height×depth				W	H	D
	抽屉式 Draw-out	水平连接 Horizontal	3P	后置Back set	980	475.5	395
			4P	后置Back set	980	475.5	395
		垂直连接 Vertical	3P	后置Back set	980	475.5	395
			4P	后置Back set	980	475.5	395
	固定式 Fixed	水平连接 Horizontal	3P	后置Back set	973	395	290
			4P	后置Back set	973	395	290

（一）智能控制器类型
（一）Selecting the intelligent controller

EN35型 Type EN35	EN36型 Type EN36	EA35型 Type EA35	EA36型 Type EA36	EP35型 Type EP35
LED显示，参数连续设定，具有电流、电压、电能、频率、功率测量功能	LED显示，参数连续设定，具有电流、电压、电能、频率、功率测量功能	LCD显示，参数连续设定，具有电流测量功能	LCD显示，参数连续设定，具有电流测量功能	LCD显示，参数连续设定，具有EA的所有功能且另具有电压、功率、频率、电能、相序、需用值测量功能及附加保护
With such performances as LED indication,consecutive parameter-setting and measurement function of current,voltage,energy,frequency and power	With such performances as LED indication,consecutive parameter-setting and measurement function of current,voltage,energy,frequency and power	With such performances as LCD indication,consecutive parameter-setting and measurement function of current	with such performances as LCD indication, consecutive parameter-setting and measu- rement function of current.	with such performances as LCD indication and consecutive parameter-setting, adds measurement function of voltage, power, frequency, energy, phase sequence and demand value and attached protection except the functions of EA.
过载长延时+短路短延时+短路瞬时	过载长延时+短路短延时+短路瞬时+接地故障	过载长延时＋短路短延时＋短路瞬时	过载长延时＋短路短延时＋短路瞬时＋接地故障	过载长延时＋短路短延时＋短路瞬时
Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit





智能控制器 INTELLIGENT CONTROLLER

EP36型 Type EP36	EQ35型 Type EQ35	EQ36型 Type EQ36	EG35型，发电机保护型 Type EG35 which is the generator protection type	EG36型，发电机保护型 Type EG36 which is the generator protection type
LCD显示，参数连续设定，具有EA的所有功能且另具有电压、功率、频率、电能、相序、需用值测量功能及附加保护	LCD显示，参数连续设定，具有EP的所有功能且另具有谐波分析和波形捕捉功能	LCD显示，参数连续设定，具有EP的所有功能且另具有谐波分析和波形捕捉功能	LCD显示，参数连续设定，具有EQ的所有功能，且另具有过频、欠频、逆功率保护功能	LCD显示，参数连续设定，具有EQ的所有功能，且另具有过频、欠频、逆功率保护功能
with such performances as LCD indication and consecutive parameter-setting, adds measurement function of voltage, power, frequency, energy, phase sequence and demand value and attached protection except the functions of EA.	with such performances as LCD indication and consecutive parameter-setting, adds harmonic analysis function and harmonic capture function except the functions of EP.	with such performances as LCD indication and consecutive parameter-setting, adds harmonic analysis function and harmonic capture function except the functions of EP.	with such performances as LCD indication and consecutive parameter-setting, adds protection of over-frequency, under-frequency and inverse power except the functions of EQ.	with such performances as LCD indication and consecutive parameter-setting, adds protection of over-frequency, under-frequency and inverse power except the functions of EQ.
过载长延时+短路短延时+短路瞬时+接地故障	过载长延时+短路短延时+短路瞬时	过载长延时+短路短延时+短路瞬时+接地故障	过载长延时+短路短延时+短路瞬时	过载长延时+短路短延时+短路瞬时+接地故障
Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection	Overload long-time delay & short-circuit short-time delay & instantaneous short- circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit	Overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & earth-fault protection

（二）智能控制器功能 （二）Functions of intelligent controller

一般配电回路用智能控制器EA、EP、EQ的功能（√表示基本功能；○表示选择功能；—表示无此功能）

Functions of type EA, EP and EQ intelligent controllers used in general distribution circuits (√ represents fundamental functions; ○ represents selective functions; – represents no such functions)

特性项目 Characteristic project			智能控制器Intelligent controller			
			EA	EP	EQ	EN
保护/报警 Protection/alarm	过载长延时保护（热模拟10分钟）Overload long-time delay protection (Thermal memory for 10min)		√	√	√	√
	短路短延时保护（热模拟5分钟）Short-circuit short-time delay protection (thermal memory for 5min)		√	√	√	√
	短路瞬时保护 Instantaneous short-circuit protection		√	√	√	√
	接地故障保护（二选一）Earth-fault protection (choose one of the two)	矢量和接地故障保护 Vector and earth-fault protection	○	○	○	○
		变压器中心点接地故障保护 Earth-fault protection of the center of transformer	○	○	○	○
	中性极保护 Neutral protection		√	√	√	√
	过载预报警 Overload pre-alarm		○	○	○	○
	电流不平衡保护 Current-unbalance protection		○	○	○	○
	断相保护 Open-phase protection		○	○	○	○
	需用电流保护 Demand current protection		—	○	○	—
	过电压保护 Over-voltage protection		—	○	○	—
	低电压保护 Under-voltage protection		—	○	○	—
	电压不平衡保护 Voltage-unbalance protection		—	○	○	—
	相序保护 Phase sequence protection		—	○	○	—
	电流卸载（可设置2路） Current shedding (by two ways)		○	○	○	○
	区域选择性连锁（ZSI）Zone selective interlocking		○	○	○	○
	MCR功能 MCR function		√	√	√	√
测量 Measurement	电流：三相电流、中性极电流、接地电流 Current: three-phase current, neutral current, earth current		√	√	√	√
	电压：线电压、相电压、平均电压、电压不平衡度 Voltage: line voltage, phase voltage, average voltage, voltage-unbalance		—	√	√	○注2 Note2
	功率：有功功率、无功功率、视在功率、功率因数 Power: active power, reactive power, apparent power, power factor		—	√	√	○注3 Note3
	频率 Frequency		—	√	√	○
	电能：有功电能、无功电能、视在电能 Energy: active energy, reactive energy, apparent energy		—	√	√	○
	谐波 Harmonic		—	—	√	—
	波形捕捉 Waveform capture		—	—	√	—
	相序 Phase sequence		—	√	√	—
	需用值：需用电流、需用功率 Demand value: demand current, demand power		—	√	√	—
维护功能 Maintenance function	断路器维护 Breaker maintenance	触头磨损指示 Contact wearing indication	√	√	√	√
		智能控制器有电时操作次数 Operation times of intelligent controller on electricity	√	√	√	√注4 Note4
		自诊断功能（存储器故障、处理器超温）Self-diagnosis function (memory fault or processor over-temperature)	√	√	√	√
		附件监测（分励、合闸电磁铁、欠压、电机断线）Accessories monitoring (Shunt release, closing electromagnet, under-voltage release and motor disconnected)	○	○	○	○
	历史记录 History	历史最大电流（控制器显示）Maximum current (controller indication)	√	√	√	—
		需用电流最大值（控制器显示）Maximum demand current value (controller indication)	—	√	√	—
		脱扣记录（10次）（控制器显示）Trip records (10) (controller indication)	√注1 Note1	√	√	√注1 Note1
		报警记录（10次）（控制器显示）Alarm records (10) (controller indication)	—	√	√	—
		历史最大、最小电流（通信输出）Maximum and minimum current (communication output)	√	√	√	√
		历史最大、最小电压（通信输出）Maximum and minimum voltage (communication output)	—	√	√	—
		峰值需用功率（通信输出）Demand power of peak (communication output)	—	√	√	—
		功率因数最大、最小值（通信输出）Maximum and minimum power factor (communication output)	—	√	√	—
		频率最大、最小值（通信输出）Maximum and minimum frequency (communication output)	—	√	√	—
		故障录波（通信输出），记录12个周波 Recording wave when error (communication output) (12 cycles)	—	—	√	—
其他 Other	通信功能 Communication function		○	○	○	○

注：与电压相关的测量或保护，须提供电压输入（见本样本接线图）。Note: Voltage input must be provided for voltage-related measurement or protection.

注1）：EA、EN型智能控制器脱扣记录为1次。Note1: Release record for type EA intelligent controller is 1.

注2）：EN智能控制器无电压不平衡度测量。Note2: Without voltage-unbalance for EN controller.

注3）：EN智能控制器无功率因数测量。Note3: Without power factor for EN controller.

注4）：EN智能控制器为通信输出。Note4:Communicative output for EN controller.

用于发电机保护智能控制器EG的功能（√表示基本功能；○表示选择功能）
Functions of type EG intelligent controllers used in generator protection(√ represents fundamental functions; ○ represents selective functions; represents no such functions)

特性项目 Characteristic project			智能控制器 Intelligent controller
			EG
保护/报警 Protection/ alarm	过载长延时保护（热模拟10分钟） Overload long-time delay protection (Thermal memory for 10min)		√
	短路短延时保护（热模拟5分钟） Short-circuit short-time delay protection (Thermal memory for 5min)		√
	短路瞬时保护 Instantaneous short-circuit protection		√
	接地故障保护（矢量和接地故障保护） Earth-fault protection (Vector and earth-fault protection)		○
	中性极保护 Neutral protection		√
	过载预报警 Overload pre-alarm		○
	电流不平衡保护 Current-unbalance protection		○
	断相保护 Open-phase protection		○
	需用电流保护 Demand current protection		○
	过电压保护 Over-voltage protection		○
	低电压保护 Under-voltage protection		○
	电压不平衡保护 Voltage-unbalance protection		○
	过频保护 Over-frequency protection		√
	欠频保护 Under-frequency protection		√
	相序保护 Phase sequence protection		○
	逆功率保护 Inverse power protection		√
	电流卸载（可设置2路） Current shedding (by two ways)		○
	区域选择性连锁（ZSI） Zone selective interlocking		○
	MCR功能 MCR function		√
测量 Measurement	电流：三相电流、中性极电流、接地电流 Current: three-phase current, neutral current, earth current		√
	电压：线电压、相电压、平均电压、电压不平衡度 Voltage: line voltage, phase voltage, average voltage, voltage-unbalance		√
	功率：有功功率、无功功率、视在功率、功率因数 Power: active power, reactive power, apparent power, power factor		√
	频率 Frequency		√
	电能：有功电能、无功电能、视在电能 Energy: active energy, reactive energy, apparent energy		√
	谐波 Harmonic		√
	波形捕捉 Waveform capture		√
	相序 Phase sequence		√
	需用值：需用电流、需用功率 Demand value: demand current, demand power		√
维护功能 Maintenance function	断路器维护功 能 Breaker maintenance	触头磨损指示 Contact wearing indication	√
		智能型控制器有电时操作次数 Operation times of intelligent controller on electricity	√
		自诊断功能（存储器故障、处理器超温） Self-diagnosis function (memory fault or processor over-temperature)	√
		附件监测（分励、合闸电磁铁、欠压、电机断线） Accessories monitoring (Shunt release, closing electromagnet, under-voltage release and motor disconnected)	○
		历史最大电流（控制器显示） Maximum current (controller indication)	√
	历史记录 History	需用电流最大值（控制器显示） Maximum demand current value (controller indication)	√
		脱扣记录（10次）（控制器显示） Trip records (10) (controller indication)	√
		报警记录（10次）（控制器显示） Alarm records (10) (controller indication)	√
		历史最大、最小电流（通信输出） Maximum and minimum current (communication output)	√
		历史最大、最小电压（通信输出） Maximum and minimum voltage (communication output)	√
		峰值需用功率（通信输出） Demand power of peak (communication output)	√
		功率因数最大、最小值（通信输出） Maximum and minimum power factor (communication output)	√
		频率最大、最小值（通信输出） Maximum and minimum frequency (communication output)	√
		故障录波（通信输出），记录12个周波 Recording wave when error (communication output) (12 cycles)	√
其他 Other	通信功能 Communication function		○

注：与电压相关的测量或保护，须提供电压输入（见本样本接线图）。
Note: Voltage input must be provided for voltage-related measurement or protection.

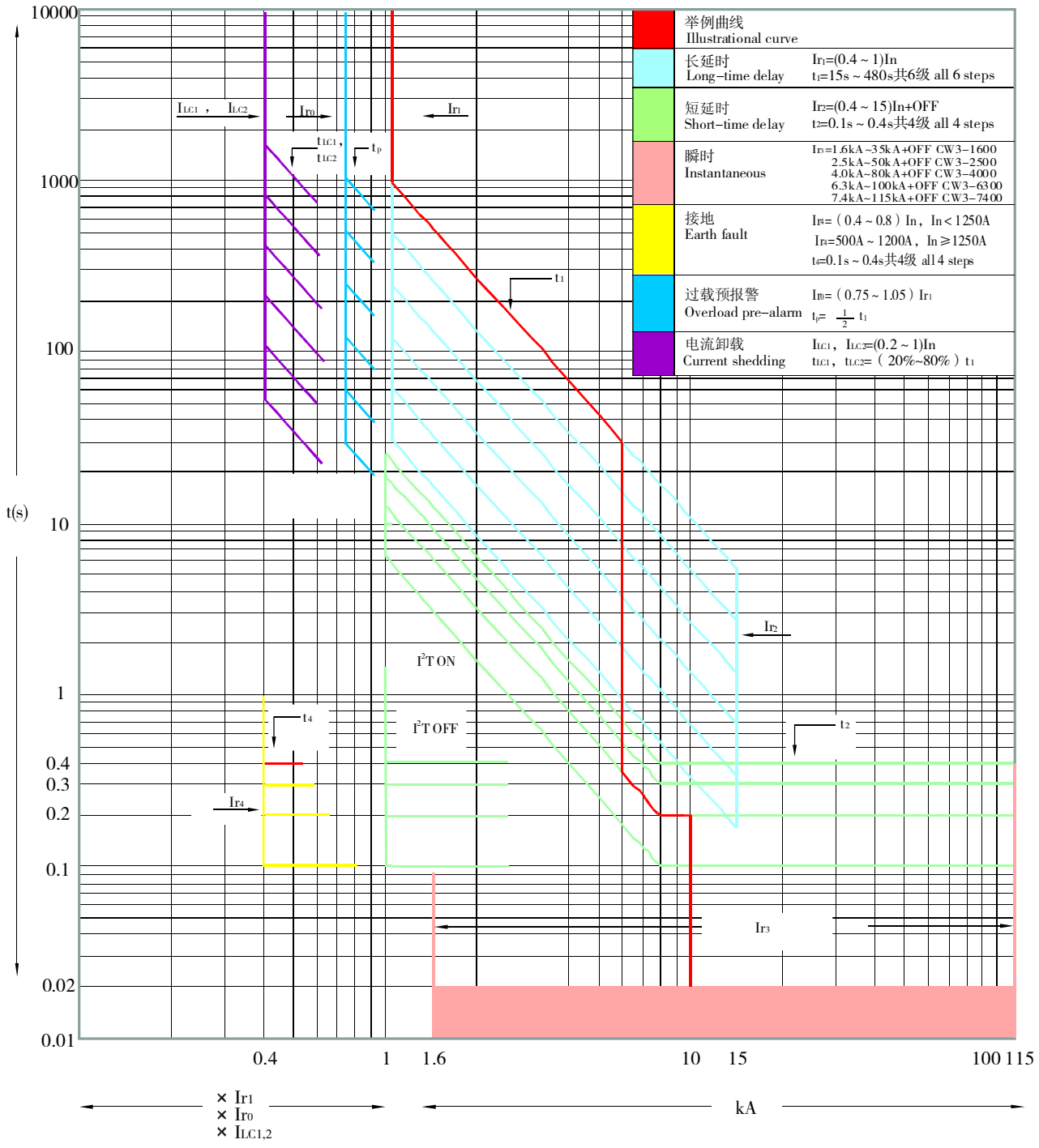
（三）智能控制器的保护特性及相关曲线
（三）Protection characteristics and related curves of intelligent controller

一般配电回路用智能控制器EN、EA、EP、EQ保护功能及设定值
Protection and settings of type EN,EA, EP, and EQ intelligent controllers used in general distribution circuits.

保护功能 Protection	动作值 Operating value	动作延时 Operating delay	可否关闭 Can off or not	热模拟 Thermal memory	ZSI
■ 过载长延时保护 Overload long-time delay	I_{r1}=(0.4~1)In	在1.5I_{r1}时 (At 1.5I_{r1})， I^2t: t_1=(15-30-60-120-240-480)s It: t_1=(10-15-30-60-90-120)s 〔符合 （Meets ）IEC60255-3〕 I^4t:t_1=(60-120-240-480-960-1440)s 〔符合 （Meets ） IEC60255-3〕	-	■	
递变级差 Successive grade	10A		注：EN控制器仅有I^2t过载长延时特性 Note:I^2t overload long-time delay characterictic for EN controller.		
动作允差 Operating tolerance		± 10%			
■ 短路短延时保护 Short-circuit short-time delay	I_{r2}=(0.4~15)In	在8I_{r1}时(At 8I_{r1})， t_2=(0.1-0.2-0.3-0.4)s	可OFF May OFF	■	■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 10%	± 10%			
注：I^2t ON，当I≤8I_{r1}时，则反时限整定时间对应8Ir1；当I＞8I_{r1}时，则按定时限动作。 I^2t OFF，则按定时限动作。		Note: I^2t ON, when I ≤8 I_{r1}, set time in inverse time Corresponding 8 I_{r1}, when I >8 Ir1, set time in definite time. I^2t OFF, act in definite time.			
■ 瞬时保护 Instantaneous	Inm=1600A，I_{r3}=(1.6~35)kA Inm=2500A，I_{r3}=(2.5~50)kA Inm=4000A，I_{r3}=(4~80)kA Inm=6300A，I_{r3}=(6.3~100)kA Inm=7400A，I_{r3}=(7.4~115)kA		可OFF May OFF		
递变级差 Successive grade	50A				
动作允差 Operating tolerance	＜3In: ± 10% ≥3In: ± 15%				
■ 接地故障保护 Earth-fault	In＜1250A时，I_{r4}=(0.4~0.8)In In≥1250A时，I_{r4}=500A-1200A	t_4=(0.1-0.2-0.3-0.4)s	可OFF May OFF		■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 15%	± 15%			
注：接地故障保护功能OFF后，发生接地故障时，断路器不跳闸只报警。		Note: With earth-fault protection is OFF circuit breaker alarms but not trips when earth-fault happened.			
■ 中性极保护 Neutral protection	三极断路器，I_N=0.5N,N,2N （CW3-6300、7400无2N中性极保护） Three-pole circuit breaker (Without 2N neutral protection for CW3-6300、7400)		可OFF May OFF		
	注：需外接中性线电流互感器 Note: External neutral current transformer is required. Four-pole circuit breaker.				
	四极断路器，I_N=0.5N,N （CW3-7400无N中性极保护） (Without N neutral protection for CW3-7400)				
■ 过载预报警 Overload pre-alarm	Iro=(0.75-1.05)I_{r1}	tp=1/2t_1	-		
递变级差 Successive grade	0.05I_{r1}				
动作允差 Operating tolerance		± 10%			
■ MCR	In≤1000A时，15In 1000A＜In＜2000A时，12In In≥2000A时，10In				
动作允差 Operating tolerance	± 15%				

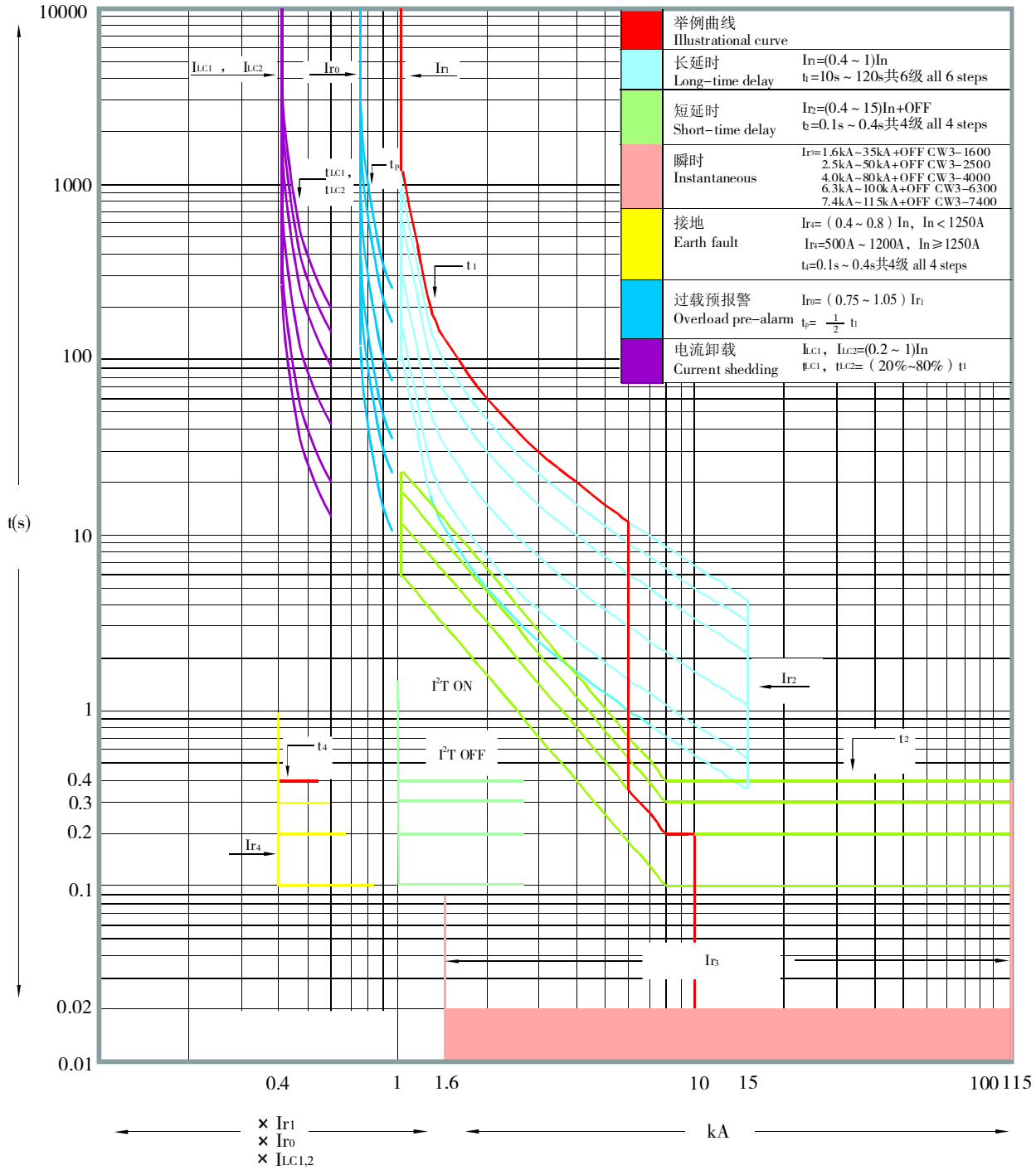
保护功能 Protection	动作阈值 Operating threshold	返回阈值 Return threshold	动作延时 Operating delay	返回延时 Return delay	可否关闭 Can off or not
■ 电流不平衡 Current unbalance protection	20%~80%	20%~动作阈值 20%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 断相保护 Open-phase protection	90%~99%	20%~动作阈值 20%~operating threshold	0.1s~3s	10s~360s	■
递变级差 Successive grade	1%	1%	0.1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 需用电流保护 Demand current protection	0.4In~1In	0.4In~动作阈值 0.4In~operating threshold	15s~1500s	15s~3000s	■
递变级差 Successive grade	1A	1A	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 低电压保护 Under-voltage protection	50V~690V	动作阈值~690V Operating threshold~690V	1s~30s	1s~100s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	± 5%	± 5%	
■ 过电压保护 Over-voltage protection	200V~1000V	200V~动作阈值 200V~operating threshold	1s~5s	1s~36s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	± 5%	± 5%	
■ 电压不平衡保护 Voltage unbalance protection	2%~50%	2%~动作阈值 2%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 相序保护 Phase sequence protection	1,2,3或1,3,2		0.3s		■
动作允差 Operating tolerance			± 10%		
■ 电流卸载 Current shedding	0.2In~1In	0.2In~动作阈值 0.2In~operating threshold	(20%~80%)t_1	10s~600s	■
递变级差 Successive grade	10A	10A	10%t_1	1s	
动作允差 Operating tolerance			± 10%	± 10%	

EN、EA、EP、EQ 智能控制器I^2t时间/电流特性曲线，CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400
T/I (time/current) curve of I^2t of type EN,EA, EP and EQ intelligent controllers



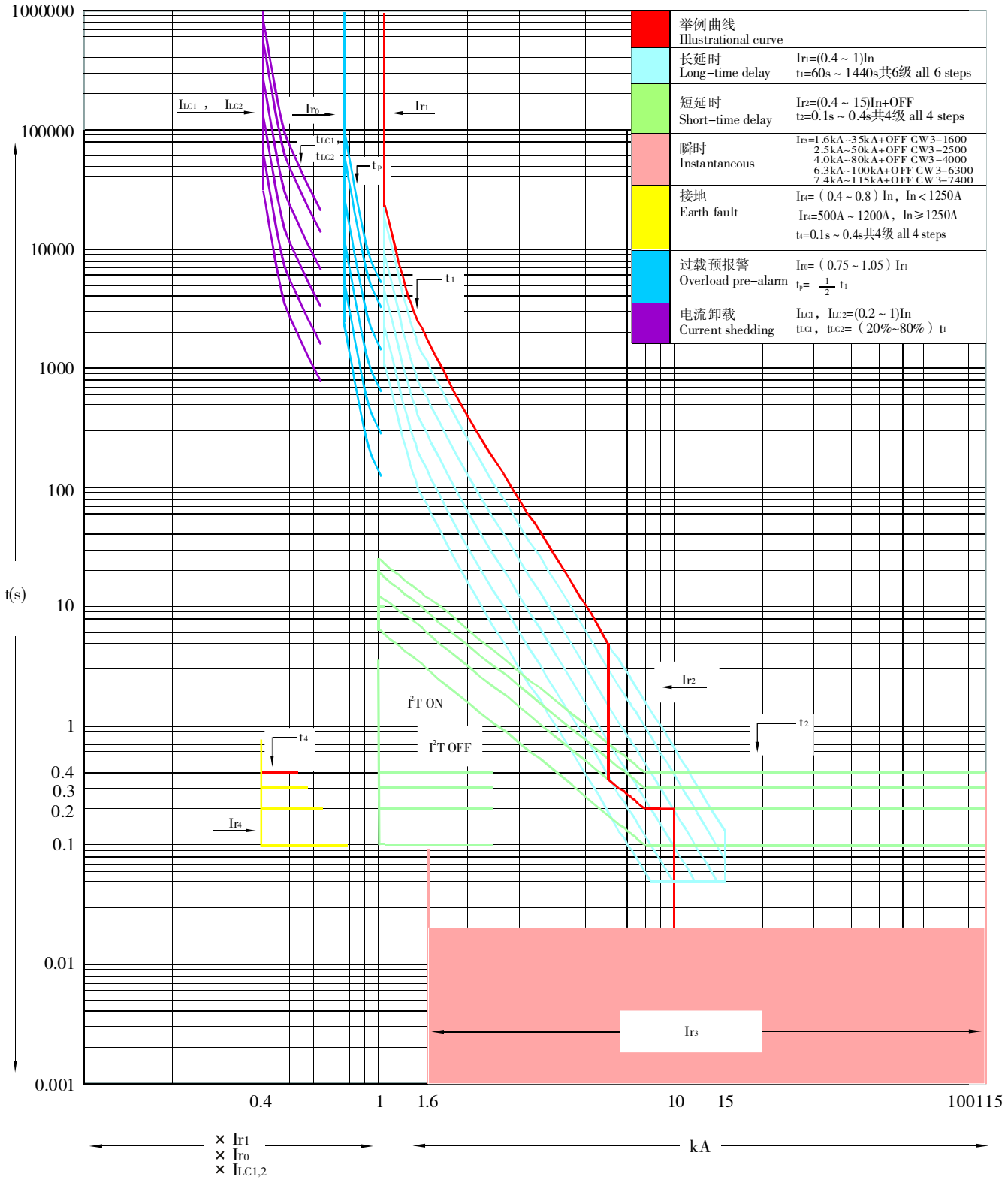
EA、EP、EQ 智能控制器非常反时限It时间/电流特性曲线，CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400

T/I (time/current) curve of uncommon inverse time It of type EA, EP and EQ intelligent controllers



EA、EP、EQ 智能控制器高压熔丝配合I^4t时间/电流特性曲线，CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400

T/I (time/current) curve of high-voltage fuse I^4t of type EA, EP and EQ intelligent controllers



EG智能控制器的保护功能及设定值
Protection and settings of type EG intelligent controller

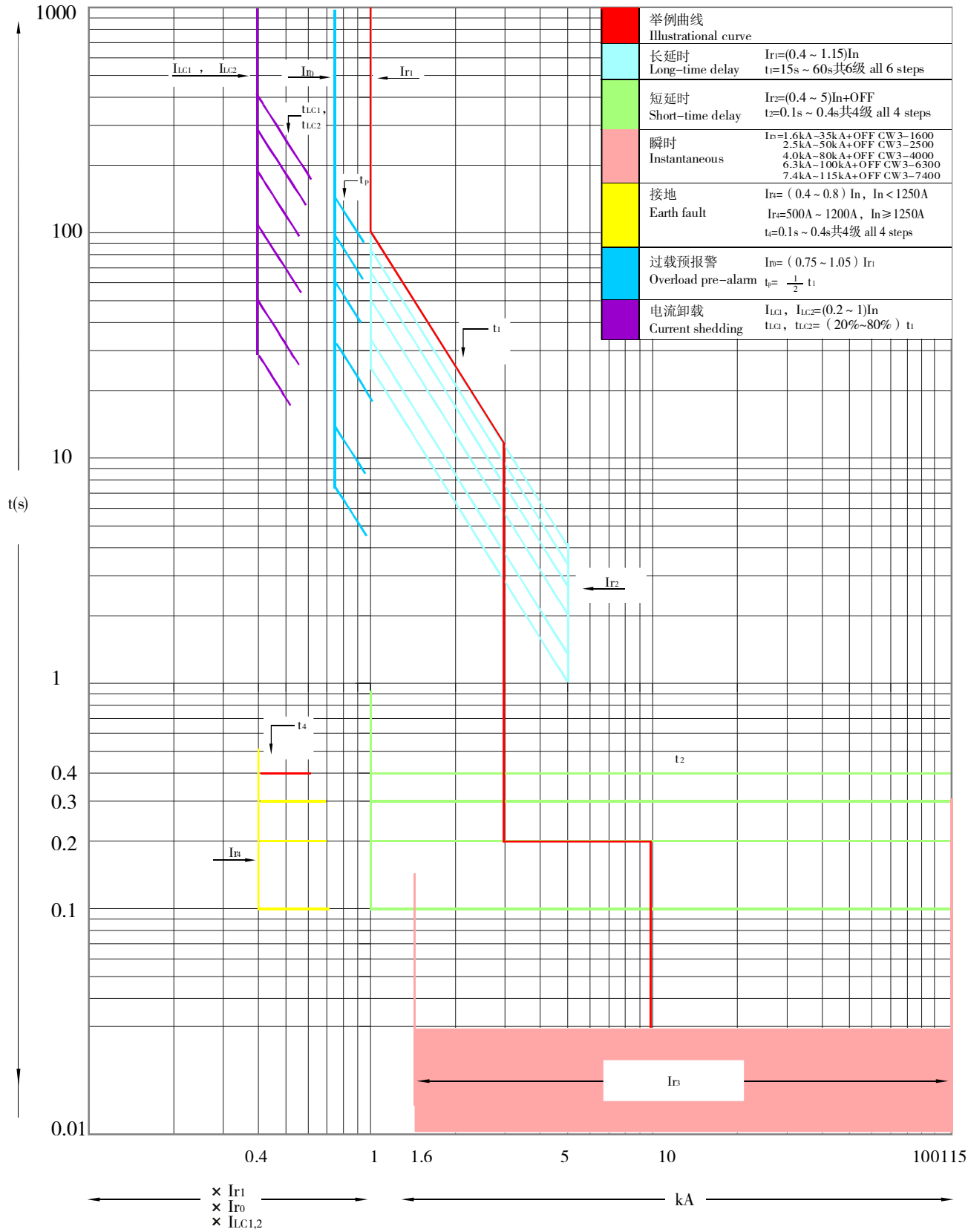
保护功能 Protection	动作值 Operating value	动作延时 Operating delay	可否关闭 Can off or not	热模拟 Thermal memory	ZSI
■ 过载长延时保护 Overload long-time delay	I_{r1}=(0.4~1.15)In	在1.3I_{r1}时 (At 1.3I_{r1})，I^2t: t_1=(15-20-30-40-50-60)s	–	■	
递变级差 Successive grade	10A				
动作允差 Operating tolerance		± 10%			
■ 短路短延时保护 Short-circuit short-time delay	I_{r2}=(0.4~5)In	t_2=(0.1-0.2-0.3-0.4)s	可OFF May OFF	■	■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 10%	± 10%			
注：动作特性为定时限 Note: Action characteristic definite.					
■ 瞬时保护 Instantaneous	Inm=1600A，I_{r3}=(1.6~35)kA Inm=2500A，I_{r3}=(2.5~50)kA Inm=4000A，I_{r3}=(4~80)kA Inm=6300A，I_{r3}=(6.3~100)kA Inm=7400A，I_{r3}=(7.4~115)kA		可OFF May OFF		
递变级差 Successive grade	50A				
动作允差 Operating tolerance	＜3In: ± 10% ≥3In: ± 15%				
■ 接地故障保护 Earth-fault	In＜1250A时，I_{r4}=(0.4~0.8)In In≥1250A时，I_{r4}=500A~1200A	t_4=(0.1-0.2-0.3-0.4)s	可OFF May OFF		■
递变级差 Successive grade	10A				
动作允差 Operating tolerance	± 15%	± 15%			
注：接地故障保护功能OFF后，发生接地故障时，断路器不跳闸只报警。 Note: With earth-fault protection is OFF circuit breaker alarms but not trips when earth-fault happened.					
■ 中性极保护 Neutral protection	三极断路器，I_N=0.5N,N Three-pole circuit breaker. 注：需外接中性线电流互感器 Note: External neutral current transformer is required. 四极断路器，I_N=0.5N,N（CW3-7400无N中性极保护） (Without N neatral protection for CW3-7400)		可OFF May OFF		
■ 过载预报警 overload pre-alarm	I_{ro}=(0.75-1.05)I_{r1}	t_p=1/2t_1	–		
递变级差 Successive grade	0.05I_{r1}				
动作允差 Operating tolerance		± 10%			
■ MCR	In≤1000A时，15In 1000A＜In＜2000A时，12In In≥2000A时，10In				
动作允差 Operating tolerance	± 15%				

保护功能 Protection	动作阈值 Operating threshold	返回阈值 Return threshold	动作延时 Operating delay	返回延时 Return delay	可否关闭 Can off or not
■ 电流不平衡 Current unbalance protection	20%~80%	20%~动作阈值 20%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 断相保护 Open-phase protection	90%~99%	20%~动作阈值 20%~operating threshold	0.1s~3s	10s~360s	■
递变级差 Successive grade	1%	1%	0.1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 需用电流保护 Demand current protection	0.4In~1In	0.4In~动作阈值 0.4In~operating threshold	15s~1500s	15s~3000s	■
递变级差 Successive grade	1A	1A	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	
■ 低电压保护 Under-voltage protection	50V~690V	动作阈值~690V Operating threshold~690V	1s~30s	1s~100s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	± 5%	± 5%	
■ 过电压保护 Over-voltage protection	200V~1000V	200V~动作阈值 200V~operating threshold	1s~5s	1s~36s	■
递变级差 Successive grade	5V	5V	0.2s	0.2s	
动作允差 Operating tolerance	± 5%	± 5%	± 5%	± 5%	
■ 电压不平衡保护 Voltage unbalance protection	2%~50%	2%~动作阈值 2%~operating threshold	1s~40s	10s~360s	■
递变级差 Successive grade	1%	1%	1s	1s	
动作允差 Operating tolerance	± 10%	± 10%	± 10%	± 10%	

保护功能 Protection	动作阈值 Operating threshold	返回阈值 Return threshold	动作延时 Operating delay	返回延时 Return delay	可否关闭 Can off or not
■ 逆功率保护 Inverse power protection	20kW~500kW	20kW~动作阈值 20kW~operating threshold	0.2s~20s	1s~360s	■
递变级差 Successive grade	5kW	5kW	0.1s	0.1s	
动作允差 Operating tolerance	± 5%	± 5%	± 10%	± 10%	
■ 过频保护 Over-frequency protection	50Hz~65Hz	45Hz~动作阈值 45Hz~operating threshold	0.2s~5s	1s~360s	■
递变级差 Successive grade	0.5Hz	0.5Hz	0.1s	0.1s	
动作允差 Operating tolerance	± 0.5Hz	± 0.5Hz	± 10%	± 10%	
■ 欠频保护 Under-frequency protection	45Hz~60Hz	动作阈值~60Hz Operating threshold ~ 60Hz	0.2s~5s	1s~360s	■
递变级差 Successive grade	0.5Hz	0.5Hz	0.1s	0.1s	
动作允差 Operating tolerance	± 0.5Hz	± 0.5Hz	± 10%	± 10%	
■ 相序保护 Phase sequence protection	1,2,3或1,3,2(1, 2, 3 or 1, 3, 2)		0.3s		■
动作允差 Operating tolerance			± 10%		
■ 电流卸载 Current shedding	0.2In~1In	0.2In~动作阈值 0.2In~operating threshold	(20%~80%)t_1	10s~600s	■
递变级差 Successive grade	10A	10A	10%t_1	1s	
动作允差 Operating tolerance			± 10%	± 10%	

EG 智能控制器I^2t时间/电流特性曲线，CW3-1600/CW3-2500/CW3-4000/CW3-6300/CW3-7400

T/I (time/current) curve of I^2t of type EG intelligent controller



（四）智能控制器的显示及测量准确度
（四）Indication and accuracy of intelligent controller

项目 Item			准确度测量范围 Measurement range of accuracy	准确度 Accuracy				
				EN	EA	EP	EQ	EG
电流测量 Current measurement		I_1、I_2、I_3、I_N	(0.2In ~ 1.2In)A	± 1.5%	± 1.5%	± 1.5%	± 1.5%	± 1.5%
		Ig	(0.2In ~ 2000)A	± 2.5%	± 2.5%	± 2.5%	± 2.5%	± 2.5%
电流需用值测量 Demand current measurement		$\overline{Ia}$、$\overline{Ib}$、$\overline{Ic}$、$\overline{IN}$	(0.2In ~ 1.2In)A	—	—	± 2.5%	± 2.5%	± 2.5%
电压测量 Voltage measurement		线电压(U_{12}、U_{23}、U_{31})及相电压 Line voltage And phase voltage（U_{1N}、U_{2N}、U_{3N}）、U_{avg}、U_{unbal}	30V~690V	± 1%	—	± 0.5%	± 0.5%	± 0.5%
功率测量 Power measurement		P Q S	-9999kW~+9999kW -9999kvar~+9999kvar -9999kVA~+9999kVA	± 2.5%	—	—	—	—
			-120MW~+120MW -120Mvar~+120Mvar -120MVA~+120MVA	—	—	± 2.5%	± 2.5%	± 2.5%
功率需用值测量 Demand power measurement		$\overline{P}$ $\overline{Q}$ S	-120MW~+120MW -120Mvar~+120Mvar -120MVA~+120MVA	—	—	± 2.5%	± 2.5%	± 2.5%
功率因数测量 Power factor measurement		PF	-1~1	—	—	± 2.5%	± 2.5%	± 2.5%
电能测量 Energy measurement		E.P E.Q E.S	-9999MWh~+9999MWh -9999Mvarh~+9999Mvarh -9999MVAh~+9999MVAh	± 2.5%	—	—	—	—
			-10^{10}GWh~+10^{10}GWh -10^{10}Gvarh~+10^{10}Gvarh -10^{10}GVAh~+10^{10}GVAh	—	—	± 2.5%	± 2.5%	± 2.5%
频率测量 Frequency measurement			45Hz ~ 65Hz	± 0.1Hz	—	± 0.1Hz	± 0.1Hz	± 0.1Hz
基波及谐波测量 Fundamental and harmonic measurement	基波测量 Fundamental measurement	基波电流I_{1-1}、I_{2-1}、I_{3-1}、I_{N-1} Fundamental current	(0.2In ~ 1.2In)A	—	—	—	± 1.5%	± 1.5%
		基波线电压（U_{12-1}、U_{23-1}、U_{31-1}） 基波相电压（U_{1N-1}、U_{2N-1}、U_{3N-1}） Fundamental line voltage Fundamental phase voltage	30V~690V	—	—	—	± 0.5%	± 0.5%
		基波功率 Fundamental power Pf Qf Sf	-120MW~+120MW -120Mvar~+120Mvar -120MVA~+120MVA	—	—	—	± 2.5%	± 2.5%
	谐波测量 Harmonic measurement	谐波电流含有率（HRIh） 谐波电压含有率（HRUh） Harmonic current ratio Harmonic voltage ratio	0~1000%	—	—	—	± 5%	± 5%
		电流总谐波畸变率[THDi、thdi] 电压总谐波畸变率[THDu、thdu] Total harmonic distortion of current Total harmonic distortion of voltage	0~1000%	—	—	—	± 5%	± 5%

Note: "－" means that the controller does not have the measurement function.
注：—为该类型控制器无此测量功能。

（五）维护功能

● 触头当量磨损能显示断路器主触头当量磨损次数占断路器通电操作循环次数的百分比数值。

● 智能型控制器有电时操作次数

在智能型控制器有电时，记录断路器操作次数的总和。

● 自诊断功能（存储器故障、微处理器超温）

当存储器不能正常存储信息发生故障的时候，智能控制器能发出报警信号。

当微处理器发生故障或局部环境温度超过80℃（允差±5℃）时，智能控制器能立即发出报警信号。

● 附件监测（分励脱扣器、合闸电磁铁、欠电压脱扣器、贮能电机断线）

智能控制器可在线监测分励脱扣器、合闸电磁铁、欠电压脱扣器、贮能电机及剩余电流互感器的线圈是否断线，当发生故障时可通过智能控制器查询具体发生故障的附件。

● 历史记录

智能控制器可显示从运行以来曾出现的历史最大电流、需用电流最大值；在通信时上位机可显示从运行以来曾出现的历史最大最小电流、需用电流最大值、历史最大最小电压、峰值需用功率、功率因数最大最小值、频率最大最小值。

● 故障记忆功能

EP、EQ、EG型智能控制器可显示最近10次报警记录和10次脱扣记录，报警原因、脱扣原因、报警阀值、脱扣阀值、故障时间，EN、EA型智能控制器显示最近1次故障脱扣记录。

● 故障录波功能

当线路发生故障断路器脱扣时，能记录此故障12个周波的波形图。

（五）Maintenance function

● The contact wearing can indicate the percentage of the equivalent to wearing times of main contact to power operation cycles of the circuit breaker.

● Peration times of intelligent controller on electricity

When intelligent controller is on electricity the total operation times of circuit breaker is recorded.

● Self-diagnosis function (against memory error, and microprocessor over-temperature)

Intelligent controller alarms when memory fails to work as normal.

When microprocessor breaks down or the local ambient temperature rises over 80℃ (tolerance is ±5℃) the intelligent controller sends out alarm signals immediately.

● Accessories monitoring (disconnecting of shunt release, closing electromagnet, under-voltage release or charging energy motor)

Intelligent controller online monitors if the disconnecting of shunt release, closing electromagnet, under-voltage release and charging motor and residual current transformer is disconnected. When error occurs it can be inquired by the intelligent controller that which accessory exactly fails.

● History

Intelligent controller displays the maximum of current and demand current since running. In communication the up-level device displays the maximum and minimum of current, voltage, power factor and frequency, the maximum of demand current and demand power at peak since running.

● Fault-memory function

Type EP, EQ, and EG intelligent controllers display last 10alarm records and release records, alarm reason, release reason, alarm threshold, release threshold and failure time. Type EN,EA intelligent controller displays last 1 release record.

● Fault-recorder function

12 cycles of waveform are recorded when the circuit breaker trips as a result of faults.

（六）智能控制器功能释义

一、过电流保护功能

过电流保护由相线过电流保护和中性线（N极）过电流保护（四极断路器及三极断路器带外接中性线电流互感器具有中性线过电流保护）组成，相线过电流保护的电流、时间参数一般由制造厂按用户订货要求整定（用户自己也可自行整定），中性线过电流保护的电流、时间参数按比例自动跟踪相线整定值，具体分以下两种情况：

三极断路器＋外接中性线电流互感器

中性线整定电流用户可由菜单设定四种方式：关闭（OFF）、50%In、100%In、200%In。200% In中性线保护（如3次谐波含量高的情况下）时，配电系统的中性线截面应为2倍相线截面。CW3-6300、7400及EG型智能控制器无200%In中性线保护。

四极断路器

中性线整定电流用户可由菜单设定三种方式：关闭（OFF）、50% In、100% In。CW3-7400无100%In中性线保护。

● 过载长延时保护

过载长延时反时限保护，整定电流I_{r1}可调；

过载长延时延时时间t_1可调；

EA/EP/EQ智能控制器过载长延时特性多曲线可调，分别有通用型（I^2t）、非常反时限(It)、高压熔丝配合型(I^4t)，以满足上下级过载保护选择性和匹配需要。EN型智能控制器仅有通用型I^2t。

● 短路短延时保护（可关断-OFF）

短路短延时反时限保护（I^2t ON）,整定电流I_{r2}可调；

短路短延时定时限保护（I^2t OFF），整定电流I_{r2}可调；

短路短延时延时时间t_2可调。

● 短路瞬时保护

短路瞬时（可关断-OFF），整定电流I_{r3}可调

（六）Functions of intelligent controller

一、Over-current protection

The over-current protection is composed of phase and neutral line protection (four-pole circuit breaker and three-pole circuit breaker with current transformer linking externally to neutral N) from over-current. The parameters of current and time of phase line over-current protection can be set by the company in terms of the requirements of users (can be set by customers themselves); the parameters of current and time of neutral line over-current protection can be set by tracking the phase lines automatically in proportion, all these mainly divided into the following two situations:

Three-pole circuit breaker current mutual inductor with the neutral line connected externally

Customers can setup into four types from menu: turn off, 50%In, 100%In, and 200%In. When 200%In neutral line protection (if it has a high triple frequency harmonic) is on, the neutral line cross-section should be double leg of a circuit cross-section in the electrical power distribution system. But to CW3-6300、7400 and type EG intelligent controller there is no 200%In neutral line protection.

Four-pole circuit breaker

Customers can setup into three types from menu: turn off, 50%In and 100%In.To CW3-7400 there is no 100% neutral line protection.

Overload long-time delay protection

● For inverse overload long-time delay protection the setting current I_{r1} can be adjusted.

The delay time t_1 of overload long-time delay can be adjusted.

For the overload long-time delay characteristics of the type EA/EP/EQ the curves can be adjusted. There are common type (I^2t), uncommon inverse time type (It) and high-voltage fuse concert type (I^4t) to match higher-up and lower-level' s overload protection needs,I^2t only for EN controller.

● Short-circuit short-time delay protection (can be OFF)

For inverse short-circuit short-time delay protection (I^2t ON) the setting current I_{r2} can be adjusted.

For inverse short-circuit short-time delay protection (I^2t OFF) the setting current I_{r2} can be adjusted.

Instantaneous short-circuit protection

● The setting current I_{r3} of instantaneous short circuit (can be OFF) can be adjusted.

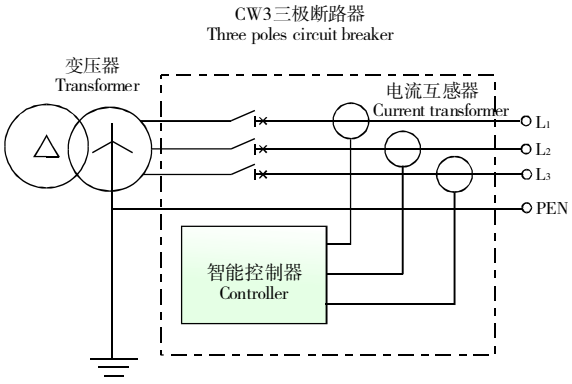
二、接地故障保护（可关断–OFF）

接地故障定时限保护，整定电流I_{r4}可调

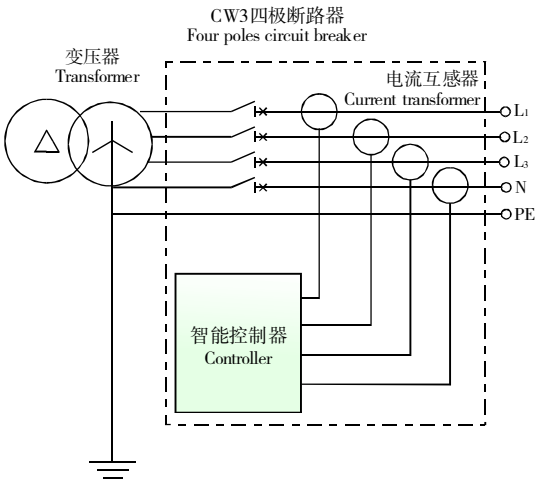
延时时间t_4可调

接地故障保护方式

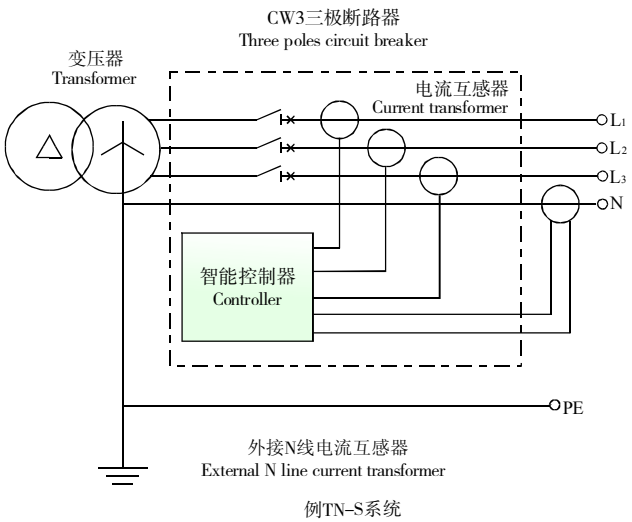
1. 矢量和型



例TN–C系统
For example TN–C



例TN–S系统
For example TN–S



例TN–S系统
For example TN–S

二、Earth–fault protection (can be OFF)

For definite earth–fault protection the setting current I_{r4} can be adjusted.

Delay time t_4 can be adjusted.

Protection ways of earth–fault

1.Vectorial summation type

● TN–C、TN–C–S、TN–S配电系统中选用CW3三极断路器未接外接中性线N电流互感器

接地故障保护信号只取三相电流的矢量和

保护特性为定时限保护

● CW3 circuit breakers with three poles are used in the power distribution system of TN–C, TN–C–S and TN–S without additional current transformer of neutral line N

The signal of earth–fault protection from the vectorial summation of three poles of current

Characteristic of definite protection

● TN–S配电系统中选用CW3四极断路器

接地故障保护信号取三相电流及N相电流矢量和

保护特性为定时限保护

● CW3 circuit breakers with four poles are used in the power distribution system of TN–S.

The signal of eath–fault protection from the vectorial summation of three poles of current and N phase current

Characteristic of definite protection

● TN–S配电系统中选用CW3三极断路器

外接中性线N电流互感器作接地故障保护用（接6号、7号二次回路接线端子），互感器安装地点距离断路器最大为2米

接地故障保护信号取三相电流及N相电流的矢量和

保护特性为定时限保护

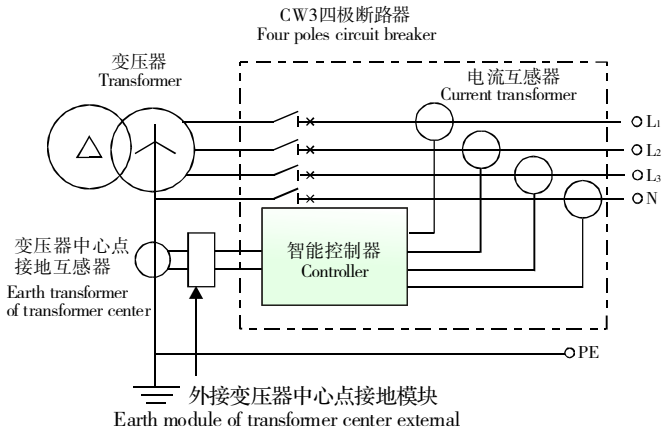
● CW3 circuit breakers with three poles are used in the power distribution system of TN–S.

N line current transformer connected externally, which is installed 2meters at maximum from the circuit breaker, takes the hole of earth–fault protection (in connection with No.6 and No.7 wiring terminals of secondary circuit)

The signal of earth–fault protection from the vectorial summation of three poles of current and N phase current

Characteristic of definite protection

2、变压器中心点接地型
Earth type of transformer center



例TN-S系统
For example TN-S

注：图中电流互感器为有效值采样。
Note:current transformer in diagrams is r.m.s. responsive.

TN-S配电系统中选用变压器中心点接地保护

变压器中心点接地互感器，作接地故障电流采样用

变压器中心点接地互感器距离需选配的外接变压器中心点接地模块可至100m，接地模块至断路器最长2m，接地模块接至端子号为48、50二次回路接线端子

接地故障保护信号直接取自变压器中心点接地线

保护特性为定时限保护

TN-S distribution system selects transformer's center earth type protection.

Earth transformer with transformer's center takes the hole of sampling earth-fault current.

The distance from earth transformer with transformer's center to externally connected transformer's center earth module which needs to select is up to 100m. The distance from earth module which is in connection with No.48 and No.50 wiring terminals of secondary circuit to circuit breaker is up to 2m.

Earth-fault protection signal is from earth line of transformer.

Characteristic of definite protection

三、过载预报警功能

主要用于对重要负荷的监测。智能控制器的一种附加功能，当断路器电流上升并超过预报警电流整定值时发生预报警信号，此时预报警灯闪烁；当超过一定时间(tp)后，预报警灯常亮，并且继电器输出信号；当电流降至设定值以下或过载脱扣后，预报警功能复位。

三、Overload pre-alarm function

It is mainly used for the monitoring of important load. An additional function of intelligent controller is that pre-alarm signal occurs when circuit breaker current rises over the setting value and pre-alarm light flashes at the moment. The pre-alarm light is always on after a period of time (tp) and circuit breaker outputs signals. Pre-alarm function resets when current reduces below the setting value or circuit breaker trips.

四、电流不平衡保护

主要用于对三相电流控制要求较高的场合。当三相电流不平衡度大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后三相电流不平衡度小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

电流不平衡保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

五、断相保护

主要用于发生断相会使设备不正常运行或使设备损坏场合，为电流不平衡的极端情况。当任意一相断电或三相电流不平衡度大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后三相电流不平衡度小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

此断相保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

六、电流需用保护

主要用于工艺过程控制的需要。当某相的需用电流大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后此相的需用电流小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

电流需用保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

七、低电压保护

主要用于低电压会使设备不正常运行或使设备损坏场合。当电路中任一相电压低于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电压大于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

四、Current unbalance protection

It is mainly used in occasions that need high control of three-phase current. The circuit breaker trips or sends out alarm signals when three-phase current disequilibrium reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent three-phase current disequilibrium is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

五、Open-phase protection

It is the extreme case of current imbalance and mainly used in occasions that open-phase makes equipment not run as normal or broken. The circuit breaker trips or sends alarm signals when any one phase is open or three-phase current disequilibrium reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent three-phase current disequilibrium is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

六、Demand current protection

It is mainly used for process control. The circuit breaker trips or sends alarm signals when demand current of some phase reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent demand current of the phase is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

七、Under-voltage protection

It is mainly used in occasions that under-voltage makes equipment not run as normal or broken. The circuit breaker trips or sends alarm signals when the voltage of any one phase is lower than the setting value of action threshold but rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent voltage is less than the setting value of return threshold and rises over the return delay (definite operation).

低电压保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

八、过电压保护

主要对外来的过电压或高压端对地故障引起低压端过电压的保护。当电路中任一相电压大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电压小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

过电压保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

九、电压不平衡保护

主要对由中心点电位漂移引起相间不平衡进行保护。当三相电压不平衡度大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后三相电压不平衡度小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

电压不平衡保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十、逆功率保护

用于发电机保护，当倒送功率时，发电机变为电动机运行，可能使发电机损坏。当功率的流向和设定功率方向相反，且大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电路中的功率小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

逆功率保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十一、过频保护

用于发电机保护。当电路频率大于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电路中的频率小于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

八、Over-voltage protection

It is mainly used in occasions that there is external over-voltage or the low-voltage side is over-voltage caused by high-voltage side's earth-fault. The circuit breaker trips or sends alarm signals when the voltage of any one phase reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent voltage is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

九、Voltage unbalance protection

It is mainly used in occasions that there is phase unbalance caused by center potential drift. The circuit breaker trips or sends out alarm signals when three-phase voltage disequilibrium reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent three-phase voltage disequilibrium is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

十、Inverse power protection

It is used to protect the generator. The generator turns to a motor that may cause damage to it when the power is inverse. The circuit breaker trips or sends alarm signals when power direction is in contrast with the setting one and reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent circuit power is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

十一、Over-frequency protection

It is used to protect the generator. The circuit breaker trips or sends alarm signals when circuit frequency reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent circuit power is less than the setting value of return threshold and rises over the return delay (definite operation).

过频保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十二、欠频保护

用于发电机保护。当电路频率低于动作阈值整定值，并超过动作延时（定时限动作），断路器跳闸或发出报警信号。如此后电路中的频率大于返回阈值整定值，并超过返回延时（定时限动作），断路器解除报警信号。

欠频保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十三、相序保护

用于对相序有要求场合。当检测到相序与动作阈值不同，超过动作延时（定时限动作），断路器跳闸或发出报警信号。如果一相或多相电压不存在时，此功能自动退出。

相序保护功能可设定开启或关闭，开启包括发出报警信号或跳闸。

十四、电流卸载功能

主要用于需监测主回路电流使主回路不过负荷运行场合。可设置2路卸载输出。当流过断路器电流大于动作阈值整定值，并超过动作延时（反时限动作），断路器发出信号分断次要负载或报警；以后当流过断路器电流小于返回阈值整定值，并超过返回延时（定时限动作），断路器发出信号解除报警。

电流卸载功能可设定开启或关闭。

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

十二、Under-frequency protection

It is used to protect the generator. The circuit breaker trips or sends alarm signals when circuit frequency is lower than the setting value of action threshold but rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent circuit power is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

十三、Phase sequence protection

It is used in occasions that the phase sequence is required. The circuit breaker trips or sends alarm signals when it detects that phase sequence is different from action threshold and rises over the action delay (definite operation). The function automatically quits when there is no one-phase voltage or multi-phase voltage.

The function can be ON or OFF. The circuit breaker sends out alarm signals or trips when it is ON.

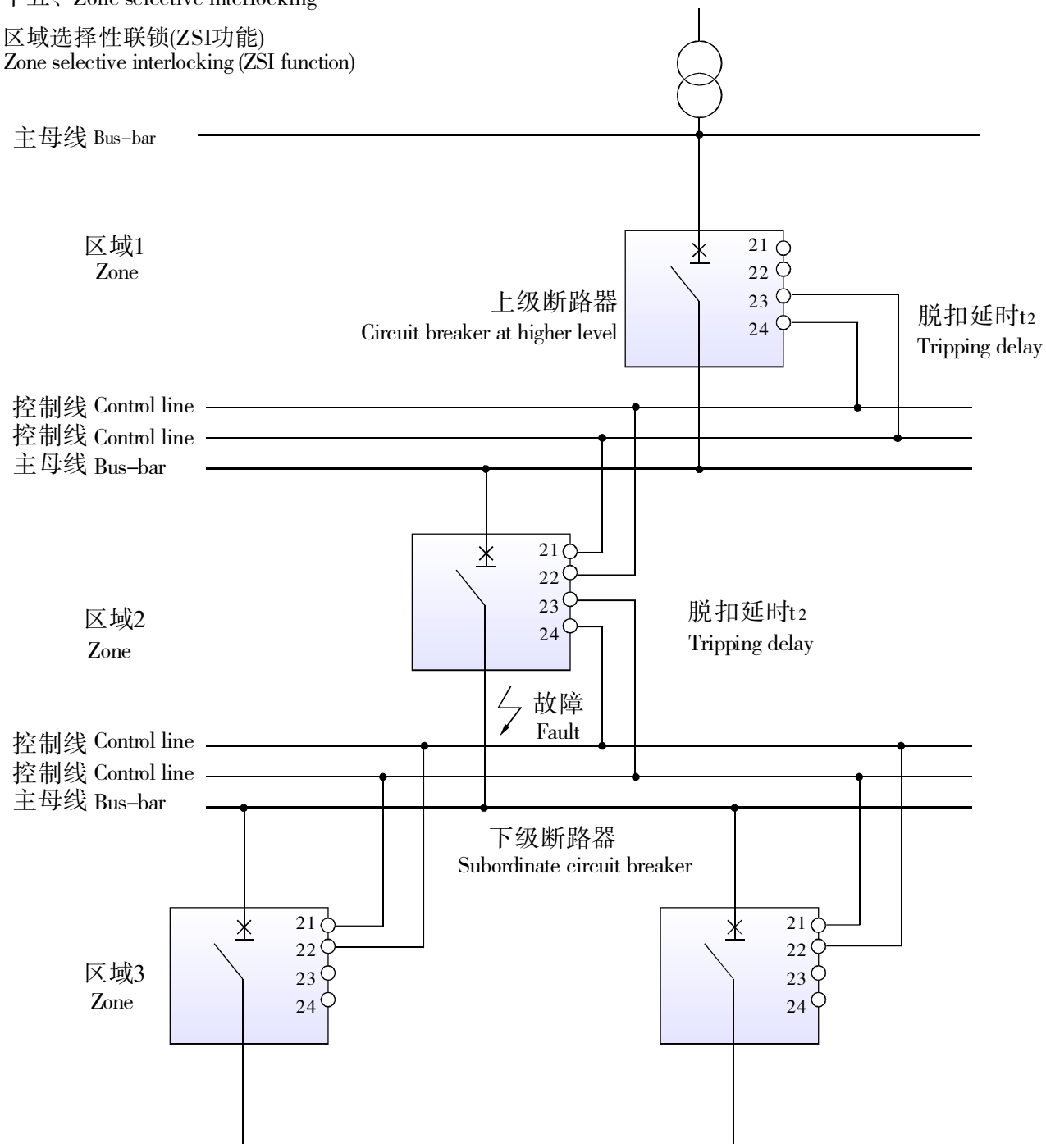
十四、Current shedding function

It is used in occasions that the main circuit current is monitored to keep the main circuit not to overload and it can be set to 2 lines shedding output. The circuit breaker alarms or sends alarm signals to trip the subordinate load when require current of some phase reaches the setting value of action threshold and rises over the action delay (definite operation). The circuit breaker lifts the alarm signals if the subsequent required current of the phase is less than the setting value of return threshold and rises over the return delay (definite operation).

The function can be ON or OFF.

十五、区域选择性联锁
十五、Zone selective interlocking

区域选择性联锁(ZSI功能)
Zone selective interlocking (ZSI function)



注：21,22,23,24为断路器二次回路接线端子。

Note: 21, 22, 23, 24serve as the wiring terminals of secondary circuit.

当多台CW3断路器上下连接在一起时，选择区域选择性联锁(ZSI)功能可确保断路器上下级完全选择性保护，这样减少了故障动作范围，并缩短了断路器的分断时间。此功能适用于断路器短路短延时(I^2t OFF)和接地故障保护。

如上图所示，控制线可联锁多个断路器。

检测到故障的智能控制器（区域2）送一个信号给上级断路器（区域1）并检查下级断路器（区域3）到达的信号。如果有下级断路器送过来的信号，断路器将在脱扣延时期间保持合闸。如果下级没有送过来信号，断路器将瞬时断开，不管脱扣保护是否有延时。

注：末级23，24应短接。

十六、MCR功能

断路器在合闸过程中或控制器在通电初始化时，遇到短路短延时故障能立即转为瞬时分闸。

十七、谐波分析功能

测量基波电流、基波线电压、基波相电压、基波功率及3-31次各次奇次谐波电流含有率(HRIh)、谐波电压含有率(HRUh)、谐波电流总畸变率[THDi、thdi]、谐波电压总畸变率[THDu、thdu]。

● 谐波含有率(HR)

周期性交流量中含有的第h次谐波分量的方均根值与基波分量的方均根值之比（用百分数表示）。

第h次谐波电流含有率以HRIh表示。

$$HRI_h = \frac{I_h}{I_{1-1}} \times 100\%$$

注：式中Ih为A相第h次谐波电流（方均根值）；

第h次谐波电压含有率以HRUh表示。

$$HRU_h = \frac{U_h}{U_{12-1}} \times 100\%$$

注：式中Uh为A-B相间第h次谐波线电压。

● 总谐波畸变率(THD、thd)

When several circuit breakers are linked together up and down zone selective interlocking (ZSI) can ensure fully-selective protection of circuit breakers at higher or lower level so as to reduce the range of action by fault and the breaking time of circuit breakers. This function serves for short circuit short-time delay (I^2t OFF) and earth-fault protection of circuit breakers.

As the sketch shown above, control lines can interlock with pieces of circuit breakers.

After detecting the fault the intelligent controller (zone2) will send out a signal to circuit breakers (zone1) at higher level and check whether the signal of circuit breakers (zone3) at lower level arrives. If circuit breakers at lower level send out a signal, the circuit breaker will be on at the time duration of release delay; if circuit breakers at lower level do not send out a signal, the circuit breaker will break off instantly no matter whether the release has the protection or delay.

Note: The end 23 and 24 should be short-circuited.

十六、MCR function

When the circuit breaker or the controller is initially electrified, the circuit breaker would trip instantly if short-time short circuit fault occurred.

十七、Harmonic analysis function

Fundamental current, fundamental line voltage, fundamental phase voltage, fundamental power, odd harmonic current ratio (HRIh) for the third to thirty-first, harmonic voltage ratio (HRUh), total harmonic distortion of current (THDi, thdi) and total harmonic distortion of voltage (THDu, thdu) can be measured.

● Harmonic ratio (HR)

The ratio of RMS of hth harmonic component in the periodical alternating quantum to RMS of fundamental component (express by percent)

Harmonic current ratio of hth expresses HRIh.

$$HRI_h = \frac{I_h}{I_{1-1}} \times 100\%$$

Note: Ih is harmonic current of hth of phase A (RMS).

Harmonic voltage ratio of hth expresses HRUh.

$$HRU_h = \frac{U_h}{U_{12-1}} \times 100\%$$

Note: Uh is harmonic line voltage of hth between phase A and phase B.

● Total harmonic distortion (THD, thd)

The ratio of harmonic content in the periodical alternating quantum to RMS of fundamental component

周期性交流量中的谐波含量与其基波分量的方均根值之比(THD)用百分数表示。

$$THD_i = \frac{\sqrt{\sum_{h=2}^{\infty} I_h^2}}{I_{1-1}} \times 100\%$$

$$THD_u = \frac{\sqrt{\sum_{h=2}^{\infty} U_h^2}}{U_{12-1}} \times 100\%$$

注：式中Ih为A相第h次谐波电流（方均根值）；Uh为A-B相间第h次谐波线电压（方均根值）。

周期性交流量中的谐波含量与该周期性交流量的方均根值之比(thd)(用百分数表示)。

$$thd_i = \frac{\sqrt{\sum_{h=2}^{\infty} I_h^2}}{I_1} \times 100\%$$

$$thd_u = \frac{\sqrt{\sum_{h=2}^{\infty} U_h^2}}{U_{12}} \times 100\%$$

注：式中Ih为A相第h次谐波电流（方均根值）；Uh为A-B相间第h次谐波线电压（方均根值）。

(THD) (express by percent)

$$THD_i = \frac{\sqrt{\sum_{n=2}^{\infty} I_n^2}}{I_{1-1}} \times 100\%$$

$$THD_u = \frac{\sqrt{\sum_{n=2}^{\infty} U_h^2}}{U_{12-1}} \times 100\%$$

Note: Ih is harmonic current of hth of phase A (RMS);

Uh is harmonic line voltage of hth between phase A and phase B (RMS).

The ratio of harmonic component in the periodical alternating quantum to RMS of periodical alternating quantum (thd) (express by percent).

$$thd_i = \frac{\sqrt{\sum_{h=2}^{\infty} I_h^2}}{I_1} \times 100\%$$

$$thd_u = \frac{\sqrt{\sum_{h=2}^{\infty} U_h^2}}{U_{12}} \times 100\%$$

Note: Ih is harmonic current of hth of phase A (RMS);

Uh is harmonic line voltage of hth between phase A and phase B (RMS).

标配附件 Normally deployed accessories

● 分励脱扣器 Shunt release

可远距离操纵使断路器断开 To break the circuit breaker by remote control

特性 Characteristics

型号 Type	FFT/W316	FFT/W325
配用断路器 Fitting breaker	CW3-1600	CW3-2500/4000/6300/7400
额定控制电源电压 Us(V) Rated voltage of control power supply 瞬时电流 (A) Instantaneous current	AC400 / AC230 / DC220 / DC110 0.7 / 1.3 / 1.3 / 2.4	
动作电压 (V) Operating voltage	(0.7~1.1)Us	
分断时间 (ms) Breaking time	不大于30No more than 30	

CW3-1600

CW3-2500及以上
CW3-2500 and over

注：根据用户需要，本公司可提供分励脱扣器长期工作型。
Note: The manufacture provides shunt release of long-term work type according to users' needs.

● 合闸电磁铁 Closing electromagnet

贮能结束后，合闸电磁铁能使操作机构的贮能弹簧力瞬间释放，使断路器快速闭合。
After the circuit breaker ends up its energy storage the closing electromagnet will make the energy storing spring to release its energy instantly so that the circuit breaker is closed quickly.

特性 Characteristics

型号 Type	FHD/W316	FHD/W325
配用断路器 Fitting breaker	CW3-1600	CW3-2500/4000/6300/7400
额定控制电源电压Us(V) Rated voltage of control power supply 瞬时电流(A) Instantaneous current	AC400 / AC230 / DC220 / DC110 0.7 / 1.3 / 1.3 / 2.4	
动作电压(V) Operating voltage	(0.85~1.1)Us	
合闸时间(ms) Closing time	不大于70No more than 70	

CW3-1600

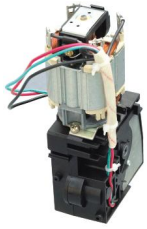
CW3-2500及以上
CW3-2500 and over

● 电动操作机构 Motor driven operating mechanism

断路器具有电动机贮能及自动再贮能功能；断路器亦可手动贮能
The circuit breaker has the function of motor driven energy storage and automatic energy-restoring. The energy storage can also be done manually.

特性 Characteristics

型号 Type	FDC/W316	FDC/W325	FDC/W340	FDC/W363
配用断路器 Fitting breaker	CW3-1600	CW3-2500	CW3-4000	CW3-6300/7400
额定控制电源电压Us(V) Rated voltage of control power supply	AC400 / AC230 / DC220 / DC110			
动作电压(V) Operating voltage	(0.85~1.1)Us			
功耗(VA/W)Power Consumption	192			
储能时间 (s)Charging time	不大于5No more than 5			



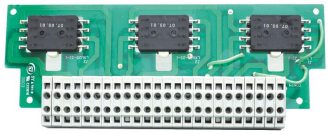
CW3-1600

CW3-2500及以上
CW3-2500 and over

● 辅助开关 Auxiliary switch

额定值 Rated value

型号 Type	FFC/W3164Z	FFC/W3254Z	FFC/W31644	FFC/W32544	FFC/W3166Z	FFC/W3256Z	FFC/W31666	FFC/W32566
型式 Specification	4组转换触头 4 groups of changeover contacts		4常开4常闭 4 pieces of normally-opened contacts (NO) and 4 pieces of normally-closed contacts(NC)		6组转换触头 6 groups of changeover contacts		6常开6常闭 6 pieces of normally-opened contacts(NO) and 6 pieces of normally-closed contacts(NC)	
配用断路器 Fitting breaker	CW3-1600	CW3-2500 /4000/6300 /7400	CW3-1600	CW3-2500 /4000/6300 /7400	CW3-1600	CW3-2500 /4000/6300 /7400	CW3-1600	CW3-2500 /4000/6300 /7400
额定工作电压(V) Rated operational voltage / 额定控制容量(VA/W) Rated capacity	AC400: 300	AC230: 300	DC220: 60	DC110: 60				
约定发热电流Ith(A) Conventional thermal current	6							



CW3-1600

CW3-2500及以上
CW3-2500 and over

● 抽屉式断路器“分离”位置安全挂锁装置

抽屉式断路器处于“分离”位置时，可拔出锁杆来锁定，锁定后断路器将无法摇至“试验”或“连接”位置。

挂锁用户自备，锁杆直径∅4mm~∅8mm。

Safety padlock mechanism of draw-out circuit breakers at the position of "separated"

When the draw-out circuit breaker indicates the positions of "separated" the locking stick can be locked with padlock after pulling out so that the rocker of the circuit breaker can not be turned to the position of "test" of "connected".

The padlock would be prepared by users, and its rod diameter should be in between ∅4mm to ∅8mm.

“分离”位置安全挂锁装置
Safety padlock mechanism at the position of "separated"

选择附件 Choice of accessories

● 专用电源模块（CW3-1600必配附件）

Special power module (the essential accessory of CW3-1600)

CW3-1600断路器智能控制器电源电压为AC230V、AC400V时，通过该电源模块转换成DC24V电源提供给控制器。当有外接DC24直流电源时，建议采用DC24V电源模块。 注意：输入至CW3-1600二次回路端子1、2电压必须为DC24V。

此模块卡装于成套柜内35mm标准导轨上。

When the power voltage of CW3-1600 circuit breaker's intelligent controller is AC230V or AC400V, it can be transformed into DC24V by this power module for power supply of the intelligent controller. DC24V power supply is recommended when there is external DC24V power supply. Note: The input voltage to 1 and 2 terminals of the secondary circuit must be DC24V.

The module is installed by getting stuck into the standard guide way with 35mm in width inside the switchgear cabinet.

特性 Characteristics

型号 Type	FDY/W316
配用断路器 Fitting breaker	CW3-1600
输入电压(V) Input voltage	AC400 / 230 ± 15%，DC24 ± 15%
输出电压(V) Output voltage	DC24 ±0.5
输出电流(A) Output current	0.2

● 直流电源模块 DC power supply module

当智能控制器外接二次回路电源为直流220V、110V时，须通过该模块转换成直流24V电源提供给智能控制器。

When power supply of the secondary circuit is DC220V or DC110V it should be transformed into DC24V by this module for power supply of the intelligent controller.

特性 Characteristics

型号 Type	FDY/WT
配用断路器 Fitting breaker	CW3-1600 / 2500 / 4000 / 6300 / 7400
输入电压(V) Input voltage	DC220 DC110 ± 15%
输出电压(V) Output voltage	DC24 ± 0.5
输出电流(A) Output current	0.5

● 电压转换模块Voltage changover module

当具有电压显示功能并且输入电压大于AC400V时需配备此模块，模块输入端A、B、C、N接至主回路，输出端A’、B’、C’、N’接断路器二次接线端子17、18、19、20。

When there has voltage display function and the input voltage is higher than AC400V,there should have this module;the module input terminals A、B、C、N connect to the main circuit and the output terminal A'、B'、C'、N' connect to the circuit breaker's secondary circui connection terminals 17、18、19、20.

型号 Type	配用断路器 Fitting breaker
FDZ/WT	CW3-1600 / 2500 / 4000 / 6300 / 7400

● 欠电压脱扣器 under-voltage release

欠电压脱扣器由脱扣器线圈和控制单元组成；

欠电压脱扣器动作分为瞬时动作和延时动作两种；

欠电压延时脱扣器延时时间常规分0.5s、1s、2s、3s四种，3s以上至9s作特殊规格处理，由用户与工厂协商解决，延时准确度 ± 10%；

CW3-1600欠电压延时脱扣器需外装延时模块，模块卡装于35mm标准导轨上。模块输入端接至主电路，输出端接至断路器二次回路31、32接线端子。

CW3-1600

CW3-2500及以上
CW3-2500 and over

The under-voltage release consists of release coil and control unit.

The under-voltage release works in two ways: acting instantaneously and acting in time delay.

There are four specifications of time delay for the under-voltage time delay release: 0.5s, 1s, 2s and 3s. Users should consult with the manufacture about special time delay specifications as from 3s up to 9s. The time delay accuracy is ± 10%.

The under-voltage release of CW3-1600 must be combined with the time-delay module which is installed by getting stuck into the standard guide way with 35mm in width. The module input terminals connect with main circuit and the output terminals connect with terminals 31, 32 of the circuit breaker.

特性 Characteristics

型号 Type	FQT/W316	FQT/W316 +FQY/W2163	FQT/W316 +FQY/W2169	FQT/W325	FQT/W325 +FQY/W3253	FQT/W325 +FQY/W3259
配用断路器 Fitting breaker	CW3-1600			CW3-2500 / 4000 / 6300 / 7400		
延时时间(s) Delay time	瞬时 Instantaneous	0.5 / 1 / 2 / 3	0.5 / 4 / 5 / 9	瞬时 Instantaneous	0.5 / 1 / 2 / 3	0.5 / 4 / 5 / 9
额定工作电压Ue(V) Rated work voltage	AC400 / AC230					
动作电压(V) Operating voltage	(0.35~0.7)Ue					
可靠合闸电压(V) Reliable closing voltage	(0.85~1.1)Ue					
可靠不能合闸电压(V) Reliable impossible voltage	≤0.35Ue					
功耗(VA) Power Consumption	12					

CW3-1600欠电压
延时脱扣器延时模块
Time delay module of
under-voltage time delay release

注：在雷雨多发地区或在供电电源电压不稳定的电网中，推荐使用带延时的欠电压脱扣器，可防止由于短时的电压降低而使断路器脱扣。延时时间一般为0.5s、1s、2s、3s，可供用户选择。

Note: In the electrified networks where thunder and rain often happens or whose power supply is not stable, under-voltage release with time delay is highly recommended to protect the circuit breaker from releasing due to transient voltage-lowering. Generally, the delay time which is selected by users is 0.5s, 1s, 2s or 3s.

● 可编程输出模块 Programmable output module

断路器内部提供2路可编程输出模块，如用户需要，另再可提供6路可编程扩展输出模块（此模块安装于导轨上），可编程内容见“可编程输出模块项目”表；2路可编程输出模块和6路可编程扩展输出模块触头类型见“可编程输出模块触头类型”表，其中时间延时触头时间整定见“时间延时触头时间整定”表；可编程模块继电器输出电气参数见“可编程输出模块继电器电气参数”表，通电操作性能次数为10^5。

2 lines programmable output module is stalled in the circuit breaker and 6 lines programmable output expansion module can be provided (getting stuck into the standard guide way) according to users' need-Programmable content is in the" Items of programmable output module" table; Content types of 2 lines programmable output module and 6 lines programmable output expansion module are in the" contact types of programmable output module" table; Setting time of time delay contact is in "Setting time of time delay contact" table; Electrical parameters of relay with programmable output module is in the" electrical parameters of relay with programmable output module" table. The operation times on electricity are 10^5.

型号 Type	FCM/W32	FCM/W36
配用断路器 Fitting breaker	CW3-1600 / 2500 / 4000 / 6300 / 7400	
型式 Specification	2路可编程输出模块 2 lines programmable output module	6路可编程输出扩展模块 6 lines programmable output expansion module

可编程输出模块项目
Items of programmable output module

编号 No	功 能 Function		备注 Remarks
A	I_{r0}	过载预报警 Overload pre-alarm	过载预报警及电流卸载 Overload pre-alarm and current shedding
B	I_{LC1}	电流卸载1 Current shedding 1	
C	I_{LC2}	电流卸载2 Current shedding 2	
D	I_{r1}	长延时脱扣报警 Long-time delay trip alarm	电流保护报警 Current protection alarm
E	I_{r2}	短延时脱扣报警 Short-time delay trip alarm	
F	I_{r3}	瞬时脱扣报警 Instantaneous trip alarm	
G	I_{r4}/I△n	接地/剩余电流脱扣报警 Earth residual current trip alarm	
H	Iunbal	电流不平衡动作报警 Current unbalance operating alarm	
I	断相 Open-phase	断相动作报警 Open-phase alarm	
J	超温 Over-temperature	控制器超温报警 Over-temperature alarm	内部故障报警 Internal fault alarm
K	存储器故障 Memory fault	存储器故障报警 Memory fault alarm	
L	内部附件故障 Internal accessories fault	内部附件故障报警 Internal accessories fault alarm	
M	$\overline{I_1}$max	最大需用电流动作报警 Maximum demand current operating alarm	电流保护报警 Current protection alarm
N	$\overline{I_2}$max	最大需用电流动作报警 Maximum demand current operating alarm	
O	$\overline{I_3}$max	最大需用电流动作报警 Maximum demand current operating alarm	
P	$\overline{I_n}$max	最大需用电流动作报警 Maximum demand current operating alarm	
Q	Umin	低电压动作报警 Under-voltage operating alarm	电压保护报警 Voltage protection alarm
R	Umax	过电压动作报警 Over-voltage operating alarm	
S	Uunbal	电压不平衡动作报警 Voltage unbalance operating alarm	
T	相序 phase sequence	相序保护动作报警 Phase sequence operating alarm	其它保护报警 Other protection alarm
U	F_{MIN}	欠频保护报警 Under-frequency operating alarm	
V	F_{MAX}	过频保护报警 Over- frequency operating alarm	
W	rPmax	逆功率动作报警 Inverse frequency operating alarm	

可编程输出模块触头类型
Contact types of programmable output module

非闭锁触头 Non-interlocking contact	故障引起的报警未消除，触头保持动作 It keeps operation until the failure alarm is gone.
闭锁触头 Interlocking contact	触头保持动作至被复位（复位菜单） It keeps operation until it is reset (reset menu).
时间延时触头 Time delay contact	触头保持在可调的时间延时内或被复位（复位菜单） It is kept in adjustable time delay or it is reset (reset menu).

时间延时触头时间整定
Setting time of time delay contact

项目 Item	范围 Range	步长 Step	精度 Precision
延时时间触头延时时间 Delay time of time delay contact	1-360s	1s	±10%

可编程输出模块继电器电气参数
Electrical parameters of relay with programmable output module

额定工作电压Ue/V Rated operational voltage		约定发热电流Ith/A Conventional thermal current	额定工作电流Ie/A Rated operational current	额定控制容量 Rated control capacity
AC	230	5（2路可编程输出模块为1A）(2 lines programmable output module is 1A)	AC-15：5（2路可编程输出模块为1A）(2 lines programmable output module is 1A)	1200VA（2路可编程输出模块为230VA）(2 lines programmable output module is 230VA)
	400		AC-15：3	1200VA
DC	220		DC-13：0.15	50W
	110		DC-13：0.4	

● 抽屉座位置电气指示装置 Electrical mechanism for the indication of draw-out socket' position

抽屉式断路器本体与抽屉座分别处于“分离”、“试验”、“连接”三位置时，三个位置电气指示装置可分别输出对应此三位置时电气状态信号，装置安装于抽屉座内。

When the main body of the draw-out circuit breaker and the draw-out socket are at the position of "separated","tested" and "connected" respectively, three electrical mechanisms for the indication of draw-out socket" location can output the electrical signals corresponding with three positions above respectively. These mechanisms are installed inside the draw-out socket.

特性 Characteristics

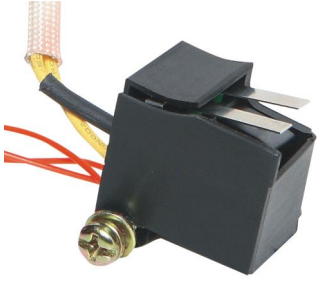
型号 Type	FWZ/W316	FWZ/W325
配用断路器 Fitting breaker	CW3-1600	CW3-2500 / 4000 / 6300 / 7400
额定工作电压 Ue (V)Rated operational voltage	AC 230	
约定发热电流 Ith (A)Conventional thermal current	6	
额定工作电流 Ie (A)Rated operational current	3	

● 合闸准备就绪电气指示模块

Electrical module for indication of ready-for-close

断路器合闸准备就绪电气指示模块，指示断路器可以准备合闸。

The electrical module indicates that the circuit breaker is ready for close.



特性 Characteristics

型号 Type	FHM/W316	FHM/W325
配用断路器 Fitting breaker	CW3-1600	CW3-2500 / 4000 / 6300 / 7400
额定工作电压 Ue (V) Rated operational voltage	AC 230	
约定发热电流 Ith (A) Conventional thermal current	1	
定工作电流 Ie (A) Rated operational current	1	

● 外接中性线N电流互感器

Current tramsformer with neutral line N connected externally

TN-S配电系统中与三极断路器一起使用，安装于中性线N上，安装点距离最大2m。

It is used together with circuit breaker with three poles in the power distribution system of TN-S and installed in the neutral line N with 2m at maximum far from the installation point.

型号 Type	配用断路器 Fitting breaker
FDH-60	CW3-1600
FDH-80	CW3-2500
FDH-120	CW3-4000 / 6300 / 7400
FDH-260	

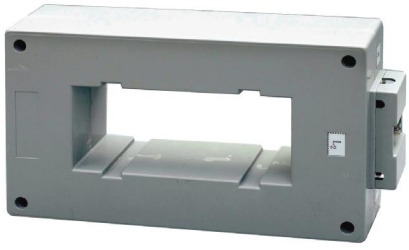
●外接变压器中心点接地单元

Externally transformer's center earth unit

型号 Type	配用断路器 Fitting breaker	配置 Configuration
FBM/W3	CW3-1600 / 2500 / 4000 / 6300 / 7400	接地模块+接地互感器 connected earth transformer + connected earth module

●外接变压器中心点接地互感器 Externally connected earth transformer with transformer's center

TN-S配电系统中与三极断路器或四极断路器一起使用，安装于变压器低压侧中心点接地线上，电流采样信号经外接变压器中心点接地单元输入断路器EN、EA、EP、EQ智能控制器，作接地故障保护用。



It is used together with three-phase circuit breakers or four-phase circuit breakers in TN-S distribution system and installed in the earth line of transformer at the low-voltage side. Current sampling signals used for earth-fault protection are sent to type EN,EA, EP and EQ intelligent circuits by the externally connected unit with transformer's center.

●外接变压器中心点接地模块 Externally connected earth module with transformer's center

用于变压器中心点接地故障保护用，与外接变压器中心点接地互感器配套使用。P1、P3接外接变压器中心点接地互感器，P2、P4分别接断路器二次回路接线端子48、50。此单元卡装于成套柜内35mm标准导轨上。

It is used together with the externally connected unit with transformer's center for transformer's center earth-fault protection. P1 and P3 connect with the externally connected unit with transformer's center and P2 and P4 connect with terminals 48 and 50 of the secondary circuit. The module is installed by getting stuck to the standord guide way with 35mm in width inside the switchgear cabinet.

● 附件监测单元 Accessories detection unit

断路器安装了附件监测单元后，可对分励脱扣器、合闸电磁铁、欠电压脱扣器、贮能电机的线圈是否断线进行在线监测，确保断路器正常动作。

With accessories detection unit installed the circuit breaker can online monitor that if the coil of shunt release, closing electromagnet, under-voltage release or charging motor is disconnected to ensure the normal work of the circuit breaker.

型号 Type	配用断路器 Fitting breaker
FFJ/W3	CW3-1600 / 2500 / 4000 / 6300 / 7400

● 远程复位 Remote reset

断路器脱扣后，远程复位功能可使复位按钮复位，并可撤除故障脱扣指示。
The function can reset the reset button and remove the instructions of tripping for fault after circuit breaker trips.

特性 Characteristics

型号 Type	FYF/W3
配用断路器 Fitting breaker	CW3-1600 / 2500 / 4000 / 6300 / 7400
额定控制电源电压Us(V)Rated voltage of control power supply	AC 230
动作电压(V) Operating voltage	(0.85~1.1)Us
瞬时电流(A) Instantaneous current	1

● 储能信号电气指示装置 Electrical mechanism for the indication of energy storage signals

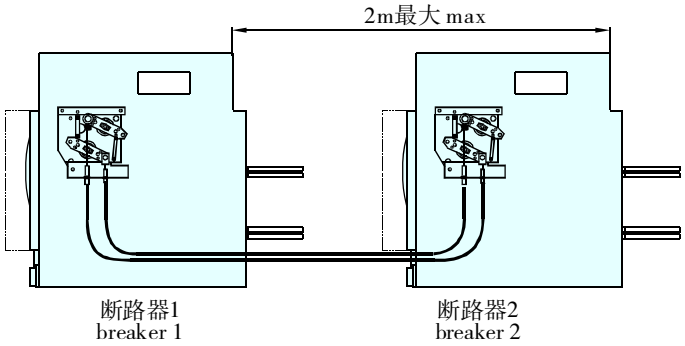
可电气指示断路器电动操作机构贮能、释能状况。
The function gives a electrical indication about charging and discharging situation of motor driven operating mechanism.

特性 Characteristics

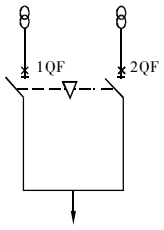
型号 Type	FCZ/W316	FCZ/W325
配用断路器 Fitting breaker	CW3-1600	CW3-2500 / 4000 / 6300 / 7400
额定工作电压Ue (V) Rated operational voltage	AC 230	
约定发热电流Ith (A) Conventional thermal current	1	
额定工作电流Ie (A) Rated operational current	1	

● 两台平放断路器的钢缆联锁或两台叠装断路器的联杆联锁
Two sets of circuit breakers put horizontally and interlocked with steel cable or stacked and interlocked with connecting rods

（两台CW3-2500～7400叠装断路器联杆联锁的型式及底板开孔尺寸参见三台断路器的型式及开孔尺寸）
(the style of interlock between two sets of circuit breakers with connecting rods and aperture dimensions of their bases see the counterpart of three sets of circuit breakers)



电路图 Wiring diagram　　可能的运行方式 Possible operation pattern



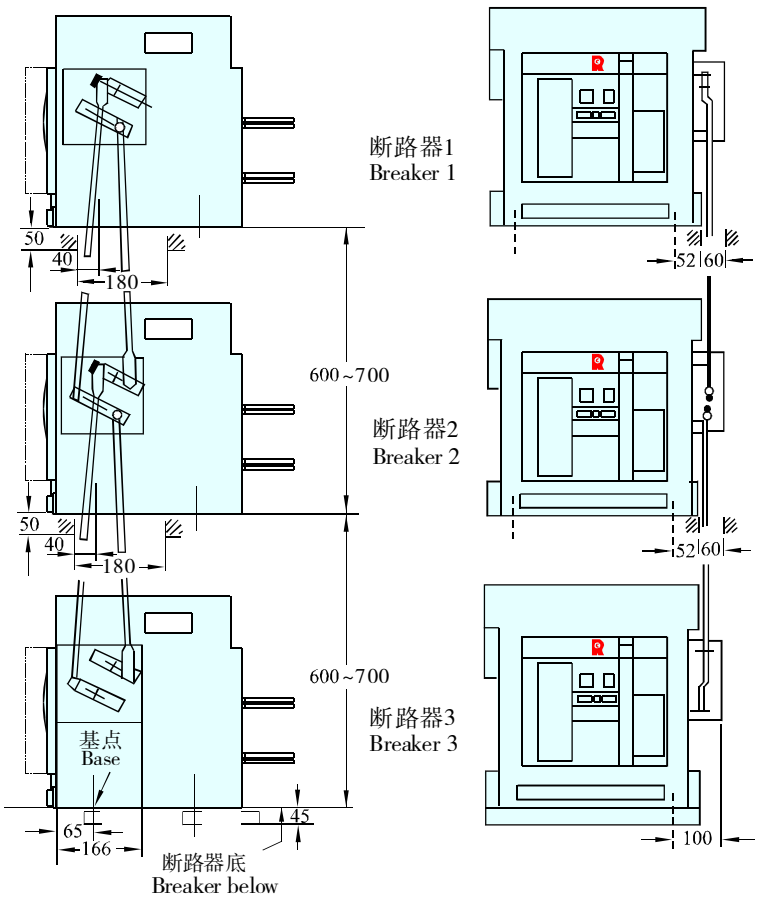
1QF	2QF
0	0
0	1
1	0

注：钢缆联锁的钢缆长度常规为2.5m，也可提供1.5m钢缆，但用户订货时需注明。
Note：Normally 2.5m steel cable of interlock is provided, either 1.5m is but an indication is needed when marking order.

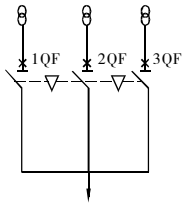
● 三台叠装断路器的联杆联锁或三台平放断路器的钢缆联锁
Three sets of circuit breakers stacked and interlocked with connecting rods or three sets of circuit breakers put horizontally and interlocked with steel cable

电路图 Wiring diagram　　可能的运行方式 Possible operation pattern

● 三台CW3-2500~7400抽屉式联杆联锁 Stacked and interlocked

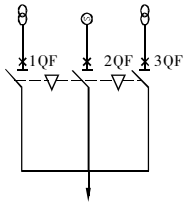


方式一：三个电源只能合一台断路器
Pattern one: three sets of power supply can only close one set of circuit breaker



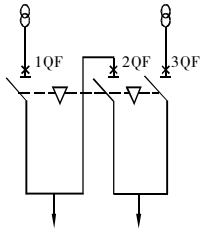
1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
0	0	1

方式二：二个常用电源+一个备用电源
Pattern two: three sets of common power apply plus one set of alternate power supply



1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
1	0	1
0	0	1

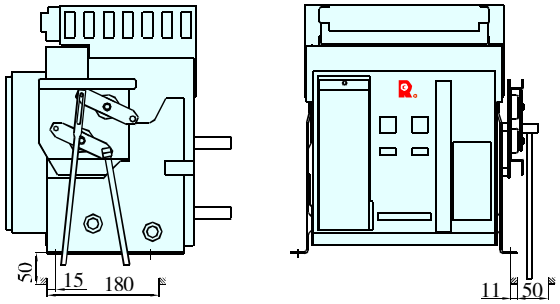
方式三：二个电源一个分段
Pattern three: three sets of power supply plus one piece of coupling bus-bar



1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
0	0	1
1	1	0
0	1	1
1	0	1

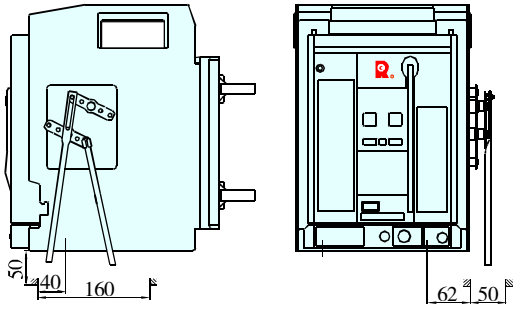
●三台CW3-2500~7400固定式联杆联锁
（上下安装板间距参考抽屉式）

Stacked and interlocked of fixed
（distamce from up to down,please seeing draw-out）



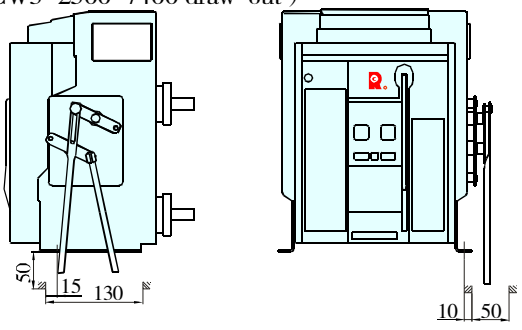
●两台CW3-1600抽屉式联杆联锁
（上下安装板间距参考CW3-2500~7400抽屉式）

Stacked and interlocked of draw-out
（distamce from up to down,please seeing CW3-2500~7400 draw-out）



●两台CW3-1600固定式联杆联锁
（上下安装板间距参考CW3-2500~7400抽屉式）

Stacked and interlocked of draw-out
（distamce from up to down,please seeing
CW3-2500~7400 draw-out）



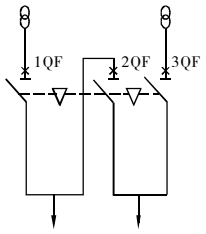
● 钢缆联锁

三台CW3-2500～7400断路器钢缆联锁的型式，参见两台断路器的型式，间距最大2m。

The style of interlock between three sets of circuit breakers see the interlock between two sets of circuit breakers. The maximum distance of two circuit breakers is 2m.

电路图 可能的运行方式
Wiring diagram Possible operation pattern

方式三：二个电源一个分段
Pattern three: three sets of power supply plus one piece of coupling bus-bar



1QF	2QF	3QF
0	0	0
1	0	0
0	1	0
0	0	1
1	1	0
0	1	1
1	0	1

型号 Type	联锁型式 Configuration	配用断路器 Fitting breaker
FLS/WG2	2台钢缆联锁 2 sets of circuit breakers steel lock interlock	CW3-1600 / 2500 / 4000 / 6300 / 7400
FLS/WL2	2台联杆联锁 2 sets of circuit breakers link rod interlock	CW3-1600 / 2500 / 4000 / 6300 / 7400
FLS/WG3	3台钢缆联锁 3 sets of circuit breakers steel lock interlock	CW3-2500 / 4000 / 6300 / 7400
FLS/WL31	3台联杆联锁方式一 3 sets of circuit breakers link rod interlock type	CW3-2500 / 4000 / 6300 / 7400
FLS/WL32	3台联杆联锁方式二 3 sets of circuit breakers link rod interlock type	CW3-2500 / 4000 / 6300 / 7400
FLS/WL33	3台联杆联锁方式三 3 sets of circuit breakers link rod interlock type	CW3-2500 / 4000 / 6300 / 7400

● “分闸”锁定装置 "opening" locking mechanism

“分闸”锁定装置可将断路器的断开按钮锁定在按下位置上，此时，断路器将不能闭合。

用户选装后，工厂提供锁和钥匙。一台断路器配一把锁和一把钥匙；二台断路器配二把相同的锁和一把钥匙；三台断路器配三把相同的锁和二把钥匙。

"opening" locking mechanism can lock the "OFF" button of the circuit breaker on the pressed position. As a result, the circuit breaker can not be closed.

After the lock mechanism is chosen by users the manufacture would provide locks and keys. One set of circuit breaker is outfitted with one lock and one key; two sets of circuit breakers are outfitted with two locks and one key; three sets of circuit breakers are outfitted with three same locks and two keys.

“分闸”锁定装置
"Opening" locking mechanism

型号 Type	型式 Configuration
FFS/W11	1锁1钥匙 One lock and one key
FFS/W21	2锁1钥匙 Two lock and one key
FFS/W32	3锁2钥匙 Three lock and two key

● 按钮锁定装置 "Pushbutton" locking device

加装按钮锁定装置可防止误操作合闸或分闸按钮。
挂锁用户自备，锁杆直径不大于∅4mm。

When "Pushbutton" locking device is installed it can prevent somebody from operating button of closing or opening by mistake.

Padlock should be provided by users themselves,and its rod should be no larger than ∅4mm.

按钮锁定装置
Pushbutton locking device

型号 Type	配用断路器 Fitting breaker
FAN/W3	CW3-1600 / 2500 / 4000 / 6300 / 7400

● 计数器 Counter

计数器累计断路器机械操作的次数，用户一目了然。

The counter can count mechanical operation times accumulatively and an exact number is presented.

型号 Type	配用断路器 Fitting breaker
FJS/W316	CW3-1600
FJS/W325	CW3-2500 / 4000 / 6300 / 7400

● 相间隔板 Interphase barriers

相间隔板加强母排间绝缘，为断路器选择件，用户需要时可配置。

Interphase barriers which strengthen insulation between bus-bars are optional and will be equipped when users need.

相间隔板
Interphase barriers

型号 Type	配用断路器 Fitting breaker	安装方式 The method of installation	数量（块） amount
FXG/W2163	CW3-1600三极 three poles	抽屉式 withdrawable	2
FXG/W1203C	CW3-2500/4000三极three poles		
FXG/W2633C	CW3-6300三极three poles		
FXG/W3743C	CW3-7400三极three poles		
FXG/W2164C	CW3-1600四极four poles		3
FXG/W1204C	CW3-2500四极four poles /4000四极four poles（In≤2500A）		
FXG/W2404C	CW3-4000四极four poles （In≥2900A）		
FXG/W2634C	CW3-6300四极four poles		
FXG/W3744C	CW3-7400四极four poles		
FXG/W2163G	CW3-1600三极three poles	固定式 fixed	2
FXG/W1203G	CW3-2500三极three poles		
FXG/W2403G	CW3-4000/6300/7400三极 three poles		
FXG/W2164G	CW3-1600四极four poles		3
FXG/W1204G	CW3-2500四极four poles		
FXG/W2404G	CW3-4000/6300/7400四极 four poles		

通信选择附件 Choice of communication accessories

● 本体通信模块 Body's communicative module

通过选择通信协议即选择了本体通信模块，而不需另选其他附件即可实现Modbus、Profibus、Devicenet、CAN任一协议进行通信，实现四遥功能。

Selecting body's communicative module by selecting communicative protocol,don't selecting other accessories,can achieve any protocol for Modus,Profibus,Devicenet,CAN to communicate and four remoting funcation.

● 抽屉座通信模块组件 Components of draw-out socket communication module

抽屉座通信模块基于Modbus-RTU通信协议，可通过CN1DP通信适配器应用于Profibus、Devicenet、CAN总线，抽屉座通信模块组件由断路器外部的抽屉座通信模块和内部的抽屉座通信部件两部分组成。抽屉座通信部件安装于抽屉座内，提供抽屉式断路器本体与抽屉座处于“分离”、“试验”、“连接”三位置状态通信信号；抽屉座通信模块卡装于成套柜内35mm标准导轨上，提供读写断路器地址功能，显示断路器本体与抽屉座三位置状态指示等。两部分用软导线联结。

Draw-out socket communicative moduce based on Modbus-RTU communtcative protocol,used to profibus、Devicenet、CAN bus through CN1DP adapter,The components of draw-out socket communication module consist of external draw-out socket communication module and internal draw-out socket communication parts. The draw-out socket communication parts are installed inside the draw-out socket to provide the status signals of such three positions as "separated", "test" and "connected" of the main body of the draw-out circuit breaker and the draw-out socket. The draw-out socket communication module which can provide the function of reading the address of the circuit breaker and display the status indication of the main body and three positions of the draw-out socket etc. is installed by getting stuck into the standard guide way with 35mm in width inside the switchgear cabinet. The two parts of the draw-out socket communication module are connected with soft conducting lines.

型号 Type	配用断路器 Fitting breaker
FCT/W2	CW3-1600 / 2500 / 4000 / 6300 / 7400

附件 ACCESSORIES

● 合闸准备就绪信号 Ready-for-close signal

通过上位机可获得指示断路器可以准备合闸状态的信息。

You can get the information through the up-level device that the circuit breaker is ready for close.

型号 Type	配用断路器 Fitting breaker
FHX/W316	CW3-1600
FHX/W325	CW3-2500 / 4000 / 6300 / 7400

● 欠电压信号 Under-voltage signal

通过上位机可获得断路器欠电压脱扣状态信息。

You can get the information through the up-level device that the circuit breaker is tripping under voltage.

型号 Type	配用断路器 Fitting breaker
FQX/W3	CW3-1600 / 2500 / 4000 / 6300 / 7400

● 故障脱扣信号 Faulty tripping signal

通过上位机可获得断路器由于线路或设备过载、短路或接地等保护跳闸状态信息。

You can get the information through the up-level device that the circuit breaker is tripping because of overload, short circuit or earth protection of the connection and devices.

型号 Type	配用断路器 Fitting breaker
FGT/W3	CW3-1600/2500/4000/6300/7400

● 储能信号 Charging signal

通过上位机可获得断路器电动操作机构“贮能”、“释能”状态信息。

You can get the information of charging or discharging of motor driven operating mechanism through the up-level device.

型号 Type	配用断路器 Fitting breaker
FNX/W316	CW3-1600
FNX/W325	CW3-2500 / 4000 / 6300 / 7400

断路器功耗及降容系数 POWER LOSS AND DERATING COEFFICIENT

功耗（环境温度+40℃）

Power loss (environment temperature +40℃)

功耗是在断路器通以壳架电流Inm情况下测量的总的损耗。

Power loss is the overall consumption measured with the circuit breaker which is electrified with current Inm.

型号 Type	三极/四极 功耗（W） Three/Four-poles power loss	
	固定式 Fixed type	抽屉式 Draw-out type
CW3-1600	123.5	331.5
CW3-2500	356.8	823.4
CW3-4000	486.7	856.8
CW3-6300	787	1145
CW3-7400	968	1530

降容系数 Derating coefficient

下表表示断路器在所处周围工作环境温度且满足GB14048.2中约定发热条件下持续承载电流的能力。

The following table shows continual current-loading capacity of circuit breakers at different ambient environment temperature and under the conditions of the satisfaction of conventional heating in GB14048.2.

周围工作环境温度 Ambient environment temperature		+40℃	+45℃	+50℃	+55℃	+60℃
持续承载电流能力 Continual current-loading capacity	Inm=1600A	1Inm	0.99Inm	0.96Inm	0.90Inm	0.87Inm
	Inm=2500A	1Inm	0.96Inm	0.90Inm	0.86Inm	0.80Inm
	Inm=4000A	1Inm	0.95Inm	0.89Inm	0.85Inm	0.78Inm
	Inm=6300A	1Inm	0.93Inm	0.87Inm	0.82Inm	0.75Inm
	Inm=7400A	1Inm	0.92Inm	0.86Inm	0.80Inm	0.74Inm

注：超过+60℃的降容系数，请咨询本公司。

Note: capacity derating coefficient of breaker when temperature over +60℃， please call us.

高海拔降容 ALTITUDE DERATING

海拔超过适用工作环境的2000m，断路器电气性能可参照下表修正：

If altitude exceeds work environment for 2000m the electric property of circuit breaker can be corrected according to the following table.

海拔(m)	2000	3000	4000	4500	5000
工频耐压(V)	3500	3500	3000	2500	2200
最大额定工作电压（V）	690	690	690	690	560
工作电流修正系数	1	0.93	0.88	0.85	0.82

注：CW3-1600安装处海拔≤2000m。

Note：altitude for CW3-1600≤2000m.

抽屉式断路器主回路接线铜排规格参照表 ROFERENCE TABLE OF MAIN CIRCUIT WIRING COOPER BAR FOR DRAW-OUT CIRCUIT BREAKERS

壳架等级额定电流Inm(A) frame size rated current	额定电流In(A) Rated current	铜排 Cooper bars	
		根数 Number	尺寸(mm × mm) Size
1600	200	1	20 × 5
	400	1	50 × 5
	630	2	40 × 5
	800	2	50 × 5
	1000	3	40 × 5
	1250	4	40 × 5
	1600	2	50 × 10
2500	630	2	50 × 5
	800	2	60 × 5
	1000	2	60 × 5
	1250	3	60 × 5
	1600	2	60 × 10
	2000	3	60 × 10
	2500	4	60 × 10
4000	1000	2	60 × 5
	1250	3	60 × 5
	1600	2	60 × 10
	2000	3	60 × 10
	2500	4	100 × 5
	2900	3	100 × 10
	3200	4	100 × 10
	3600	4	100 × 10
	4000	4	100 × 10
6300	4000	4	100 × 10
	5000	6	100 × 10
	6300	6	100 × 10
7400	4000	4	120 × 10
	5000	4	120 × 10
	6300	6	120 × 10
	7400	6	120 × 10

表中规格为断路器处于周围环境温度最高40℃，敞开安装且满足GB14048.2中约定发热条件。

The specification of cooper bars in the above table are introduced under the conditions that the circuit breakers open installed are at the maximum ambient environment temperature of 40℃ and satisfy conventional heating in GB14048.2.

自动电源转换系统可以实现两路AC400V电源之间的转换供电，确保用户供电可靠性。自动电源转换系统由自动转换控制器和转接器及控制电缆（厂方已连接）组成，同时，需与机械联锁配合使用。

● 转接器和自动转换控制器

转接器和自动转换控制器一起使用。转接器外形如图，它对常用电源的各相电压、备用电源的任一相电压进行检测，若被检测相发生115%Us过电压、75%Us欠电压、缺相或电源断电则发出动作指令。

自动转换控制器外形如图，可工作于四个状态：“自动”操作、强制采用“常用”电源、强制采用“备用”电源、“停止”（常用电源和备用电源均关断）。

转接器安装于开关柜安装板上，自动转换控制器安装于开关柜门板上，控制器至转接器及转接器至断路器的电缆长度为1.8m（超过1.8m用户订货时应注明）。

● 自动转换控制器按自动转换程序分：常用-备用间的自投自复（R型）、常用-备用间的自投不自复（S型）、常用-发电间的自投自复（F型）三种。自动转换控制器R型、S型、F型三种“自动”控制功能逻辑图如下：

Automatic power supply switching system guarantees reliable AC400V power supplying for users by providing two lines of power supply alternatively. It consists of automatic controllers, switching unit and cables (already prepared by the manufacturer). The system should be used together with the mechanical interlock.

● Switching unit and automatic controller

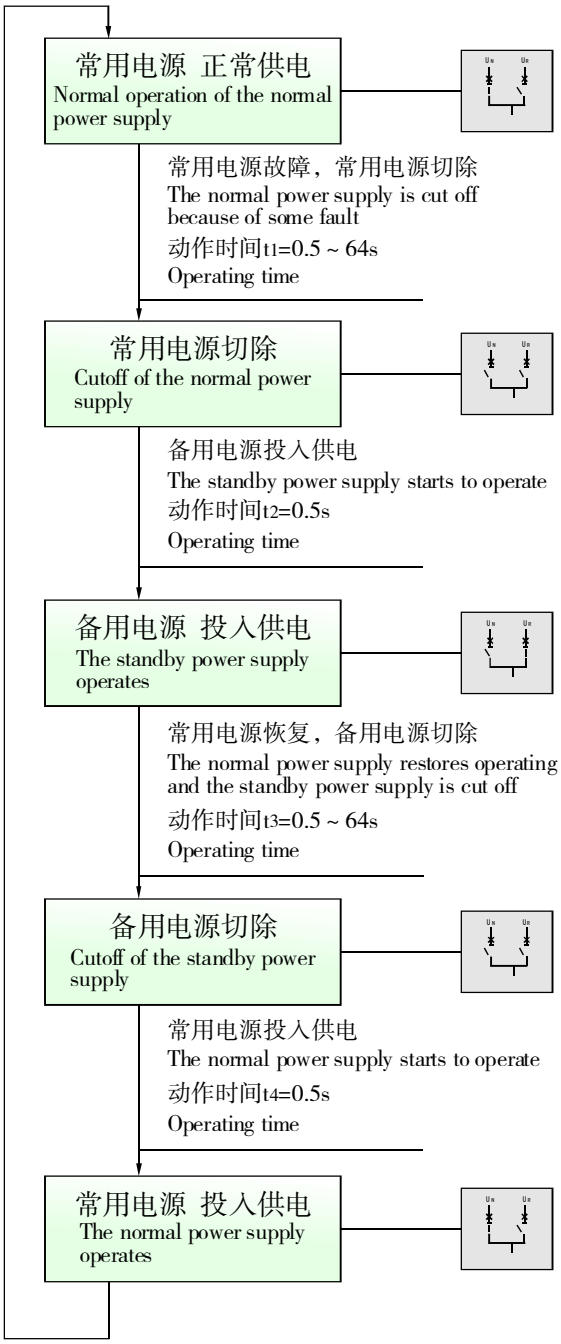
Switching unit works with the automatic controller. The switching unit detects voltage value on all phases of the normal power supply and the value on each phase of the standby power supply. In case of over-voltage of 115% Us, under-voltage of 75% Us, phase loss or power shortage happened at any phases, an operation command will be given out. The figure of the operation unit is as follows.

The automatic controller is shown on the page. It has four working positions that are "automatic" control, "normal"power supply, "standby" power supply and "stop" (both the normal power supply and the standby power supply can be turned off).

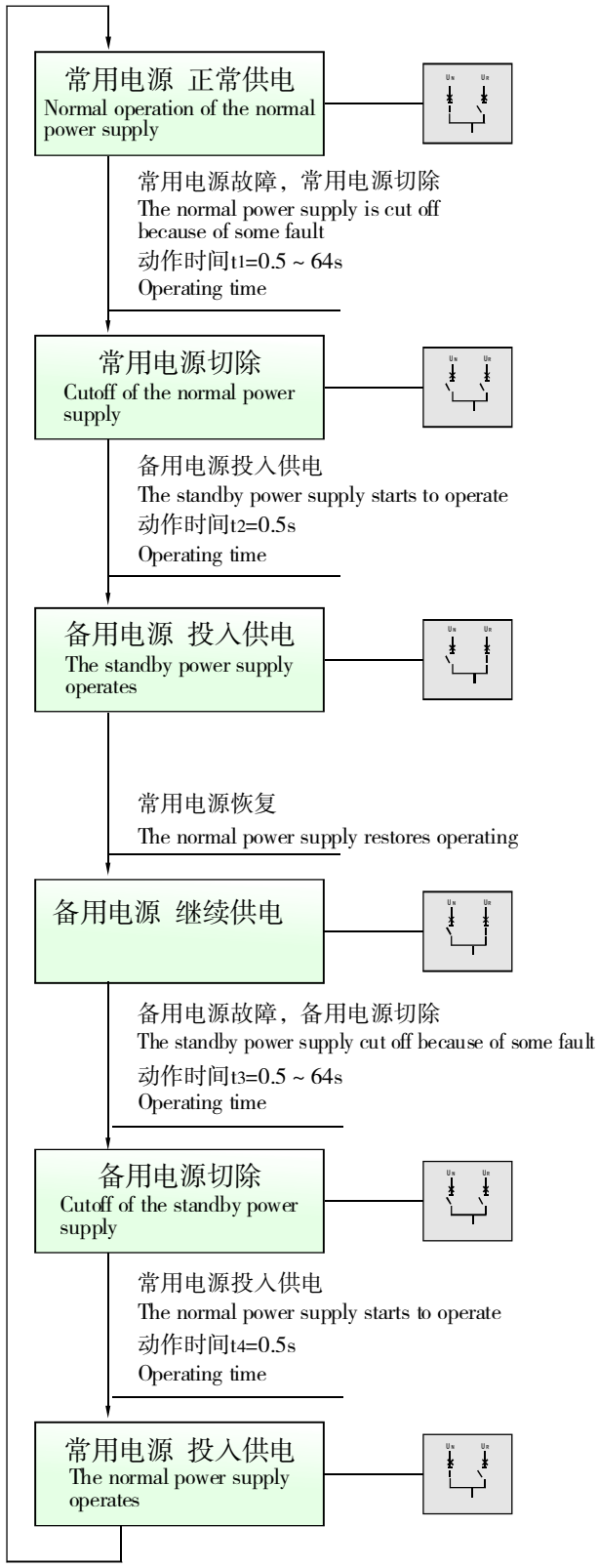
The switching unit is mounted on the mounting plate of switchboard while the controller is mounted on the panel door of the switchboard. There is cable connection between controller with switching unit and between switching unit with breaker no more than 1.8m (Users should make special order when requiring for distance more than 1.8m).

● According to operation order the controller can be classified as Type R with automatic switch with restoration for normal supply to standby supply system, Type S with automatic switch but without restoration function for normal supply to standby supply system, Type F with automatic switch with restoration for normal supply to power generation supply system. The logic control diagram of the automatic controller of Type R, S and F is as follows.

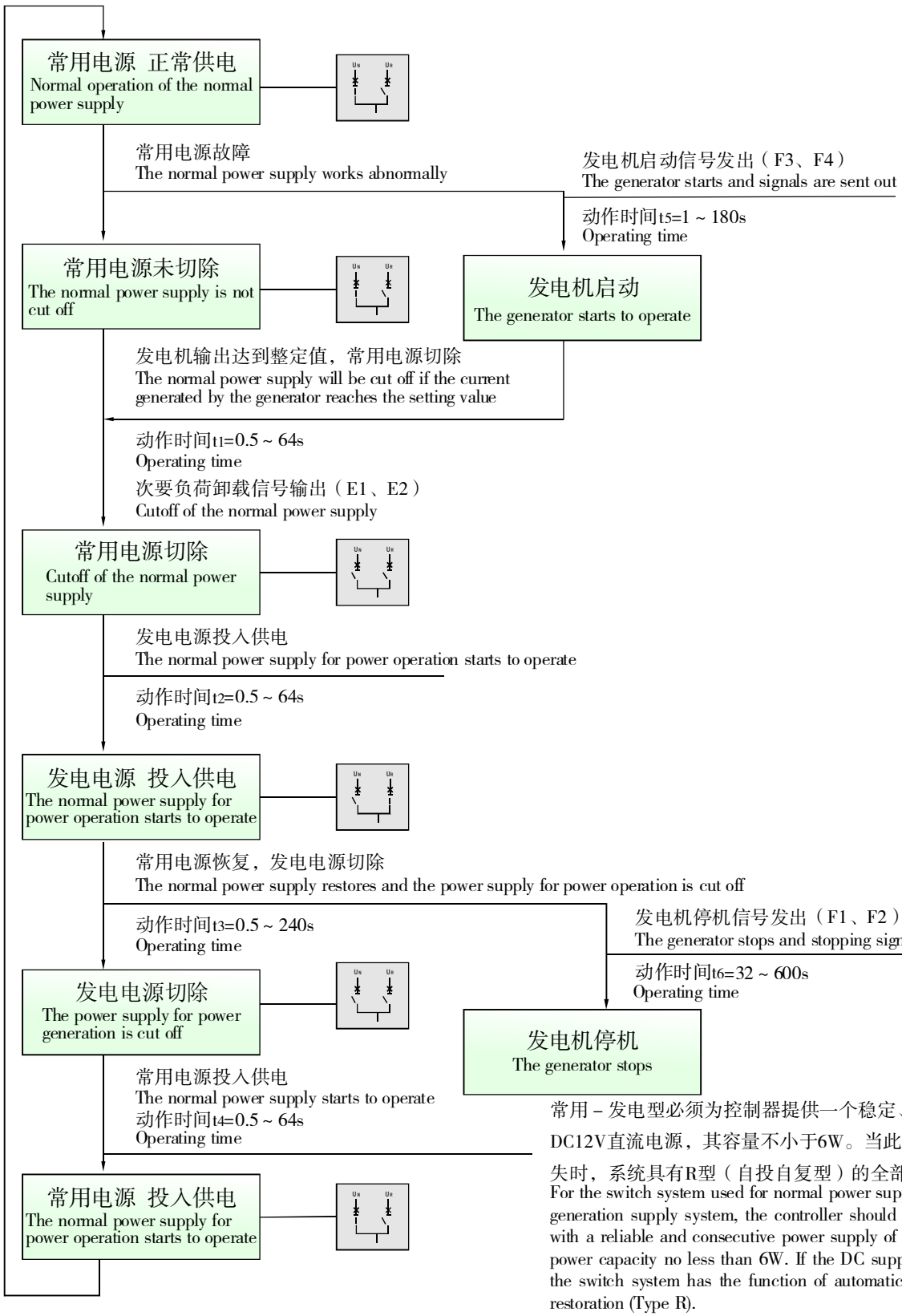
常用–备用间的自投自复（R型）
Automatic switch with restoration for normal supply to standly supply (type R)



常用–备用间的自投不自复（S型）
Automatic switch but without restoration for normal supply to standly supply (type S)



● 常用–发电电源间的自投自复（F型）
Automatic switch with restoration for normal supply to generation supply (type F)



常用－发电型必须为控制器提供一个稳定、不间断的DC12V直流电源，其容量不小于6W。当此直流电源缺失时，系统具有R型（自投自复型）的全部功能。

For the switch system used for normal power supply to power generation supply system, the controller should be supplied with a reliable and consecutive power supply of DC12V and power capacity no less than 6W. If the DC supply is cut off the switch system has the function of automatic switch and restoration (Type R).

● R型、S型、F型自动转换控制器控制特性：
Characteristics of the automatic controllers of type R, S and F

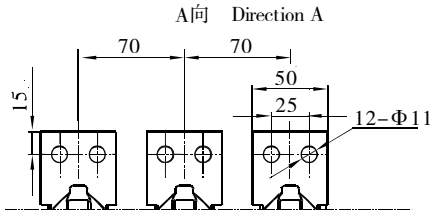
控制器种类 Controller type Adjustable for users	额定控制电源电压 Us(V) Rated voltage of power supply	转换断开延时时间 t1(s) Delay time before switching to open	转换接通延时时间 t2(s) Delay time before switching to close	返回断开延时时间 t3(s) Delay time before restoring opening	返回接通延时时间 t4(s) Delay time before restoring closing	发电指令延时时间 t5(s) Delay time before giving out the command to generate power	发电停机指令延时时间t6(s) Delay time before giving out the commandto stop power generation
R型 S型	AC230	0.5~64 用户可调 User adjustable	0.5	0.5~64 用户可调 User adjustable	0.5	–	–
F型	AC230	0.5~64 用户可调 User adjustable	0.5~64 用户可调 User adjustable	0.5~240 用户可调 User adjustable	0.5~64 用户可调 User adjustable	1~180 用户可调 User adjustable	32~600 用户可调 User adjustable

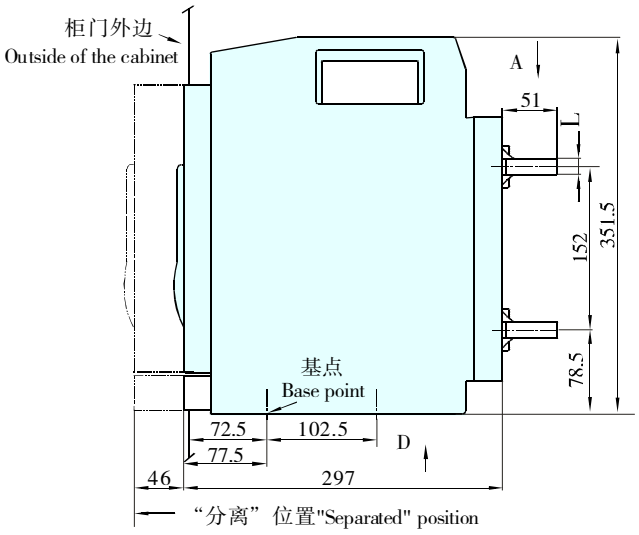
型号 Type	自动转换控制器型号 Automatic switch controller	配用断路器 Fitting breaker
FZZ/WTR	R	CW3-1600 / 2500 / 4000 / 6300 / 7400
FZZ/WTS	S	
FZZ/WTF	F	

注：可提供FLZ/WTT3两电源一母联自动电源转换系统，用户需要时请咨询本公司。
Note：can provide FLZ/WTT3 two incoming line one line automatic power supply switch system,please us..

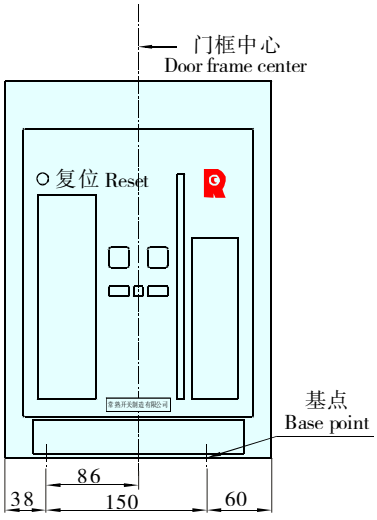
CW3-1600三极智能型万能式断路器（抽屉式）
CW3-1600 Intelligent Air Circuit Breaker with three poles (draw-out type)

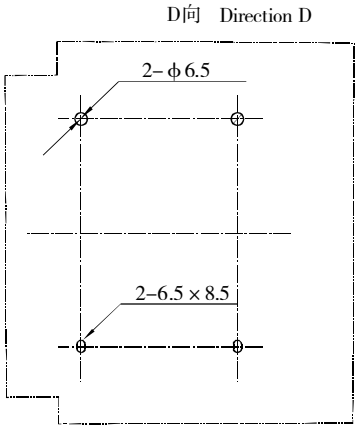
电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10

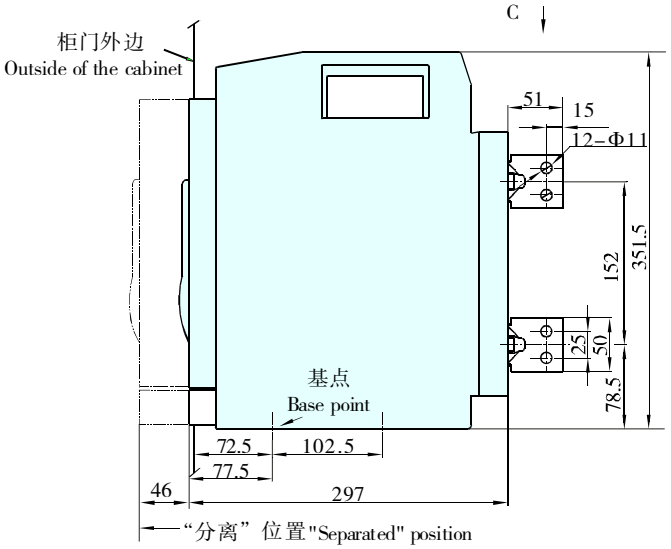




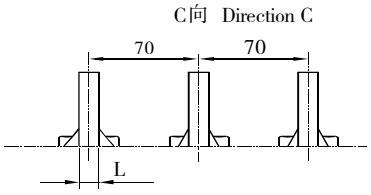
水平（后置） Horizontal (back set)





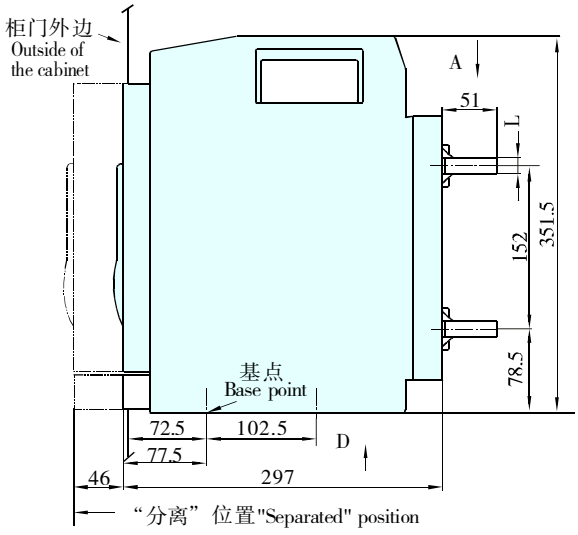


垂直（后置） Vertical (back set)

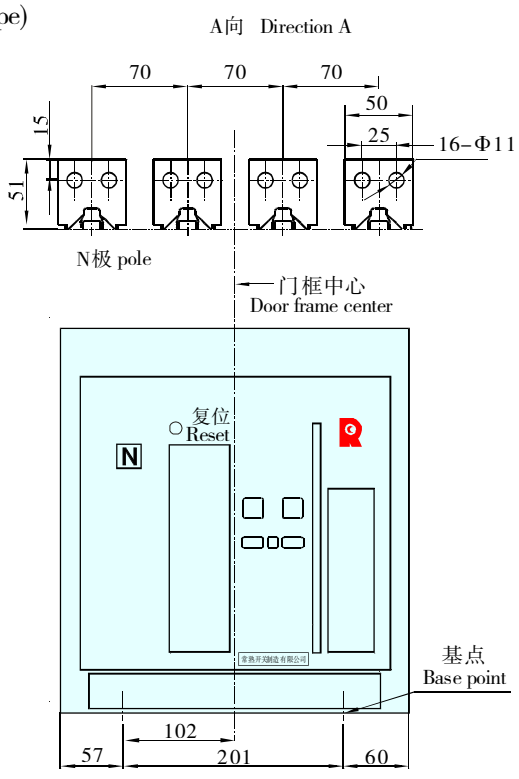


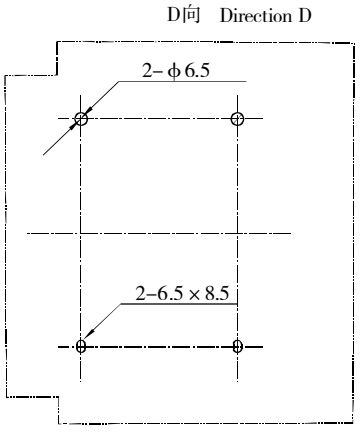
CW3-1600四极智能型万能式断路器（抽屉式）
CW3-1600 Intelligent Air Circuit Breaker with four poles (draw-out type)

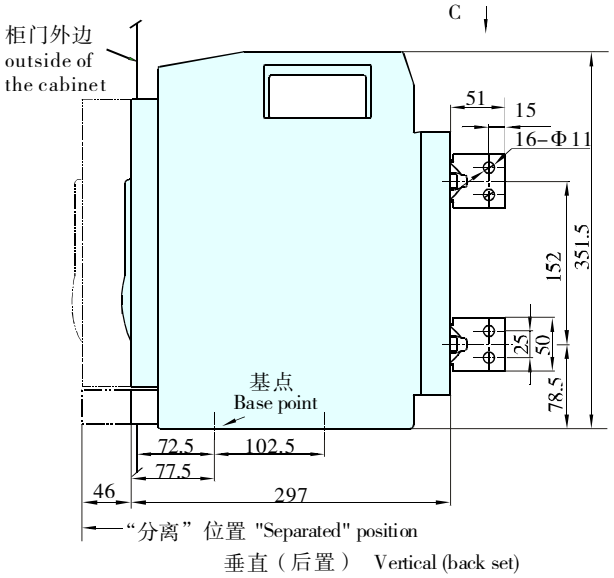
电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10



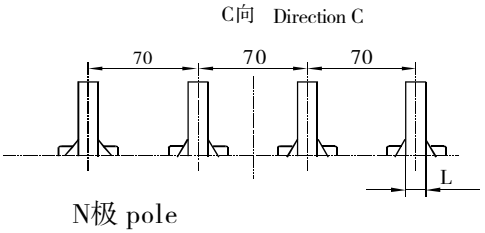
水平（后置） Horizontal (back set)







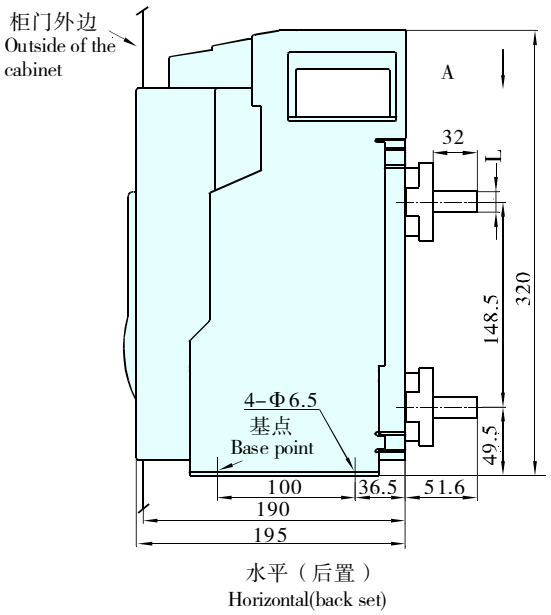
垂直（后置） Vertical (back set)



N极 pole

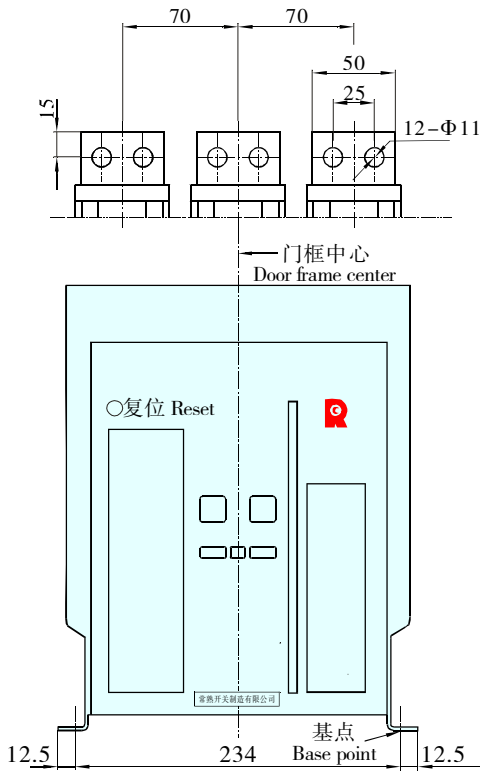
CW3-1600三极智能型万能式断路器（固定式）
CW3-1600 Intelligent Air Circuit Breaker with three poles (fixed type)

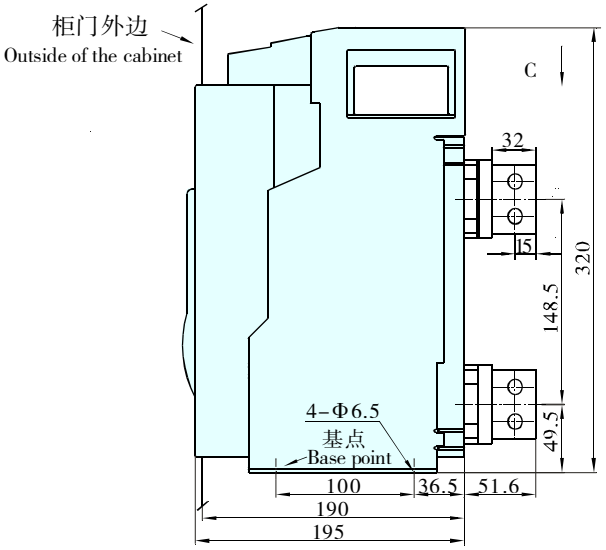
电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10



水平（后置）
Horizontal(back set)

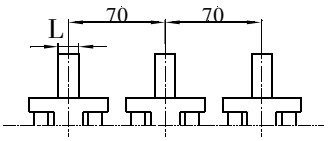
A向 Direction A





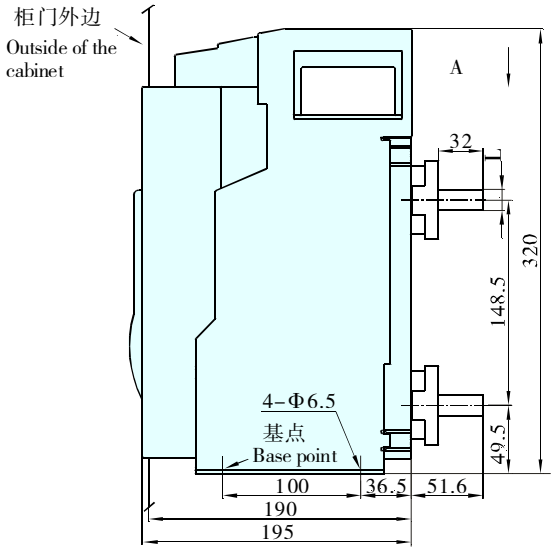
垂直（后置）
Vertical (back set)

C向 Direction C



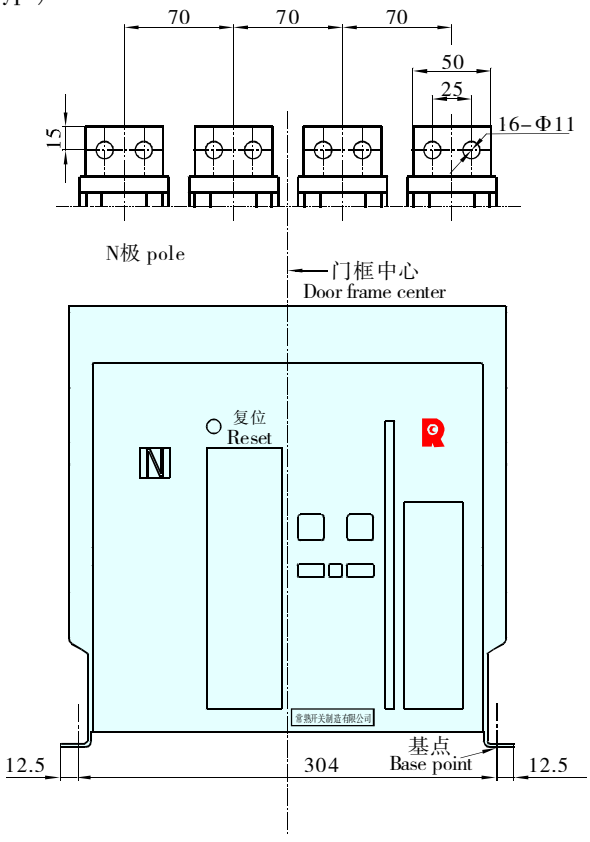
CW3-1600四极智能型万能式断路器（固定式）
CW3-1600 Intelligent Air Circuit Breaker with four poles (fixed type)

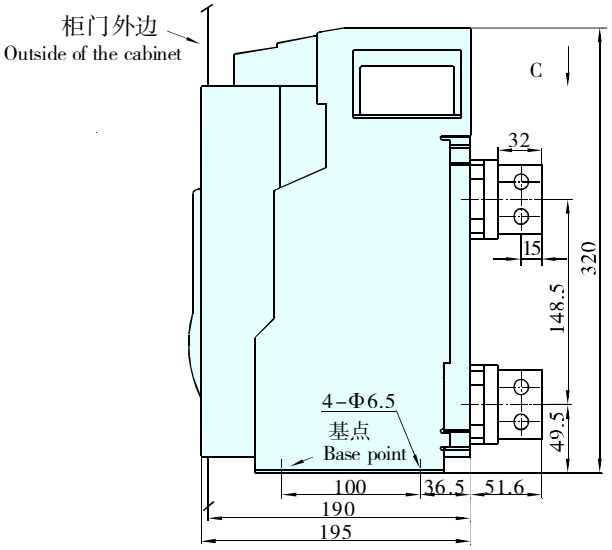
电流规格 Current specifications	L（mm）
800A，1000A，1250A，1600A	15
200A，400A，630A	10



水平（后置）
Horizontal(back set)

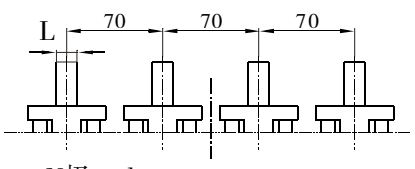
A向 Direction A





垂直（后置）
Vertical (back set)

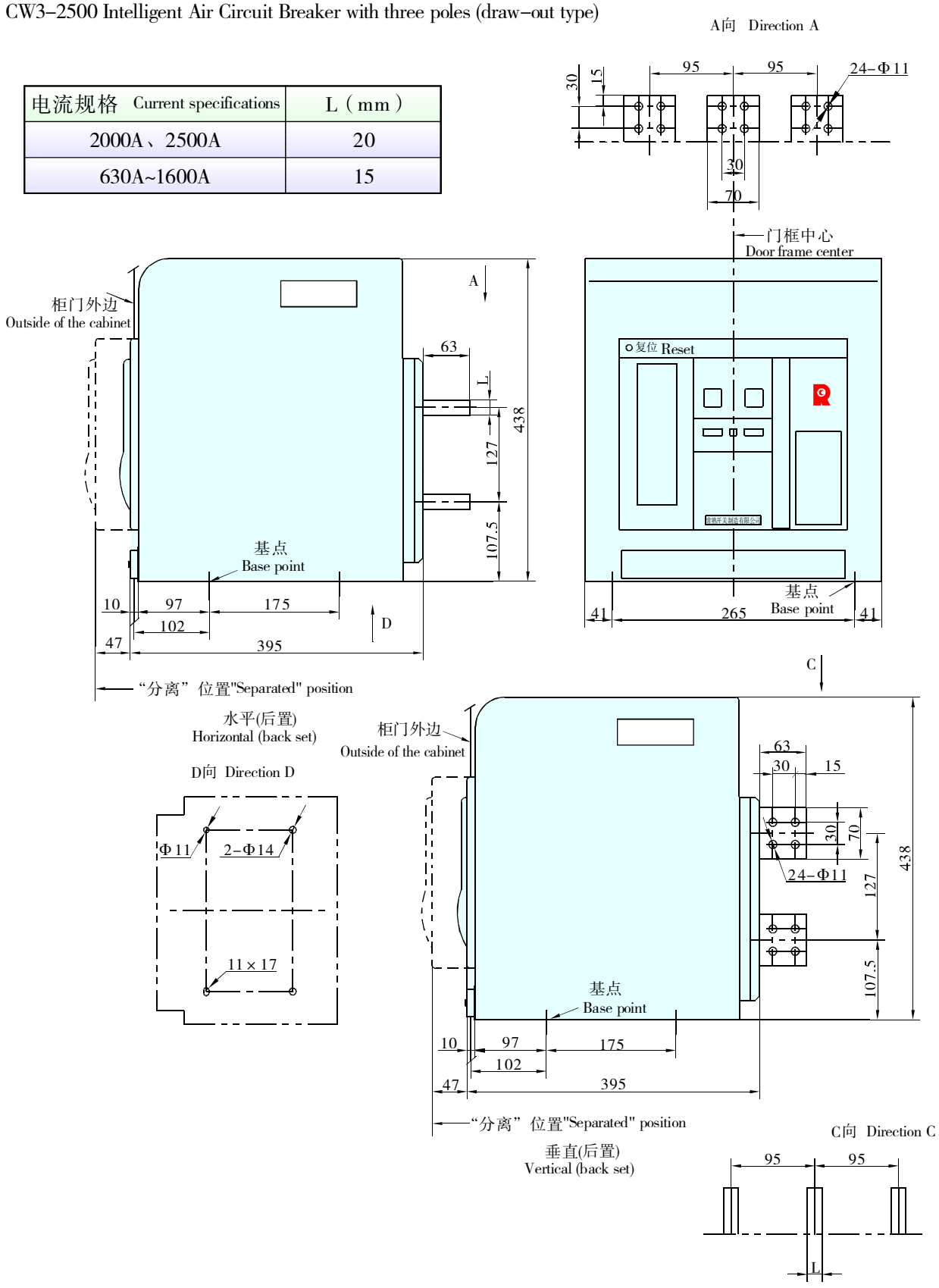
C向 Direction C



N极 pole

CW3–2500三极智能型万能式断路器（抽屉式）
CW3–2500 Intelligent Air Circuit Breaker with three poles (draw–out type)

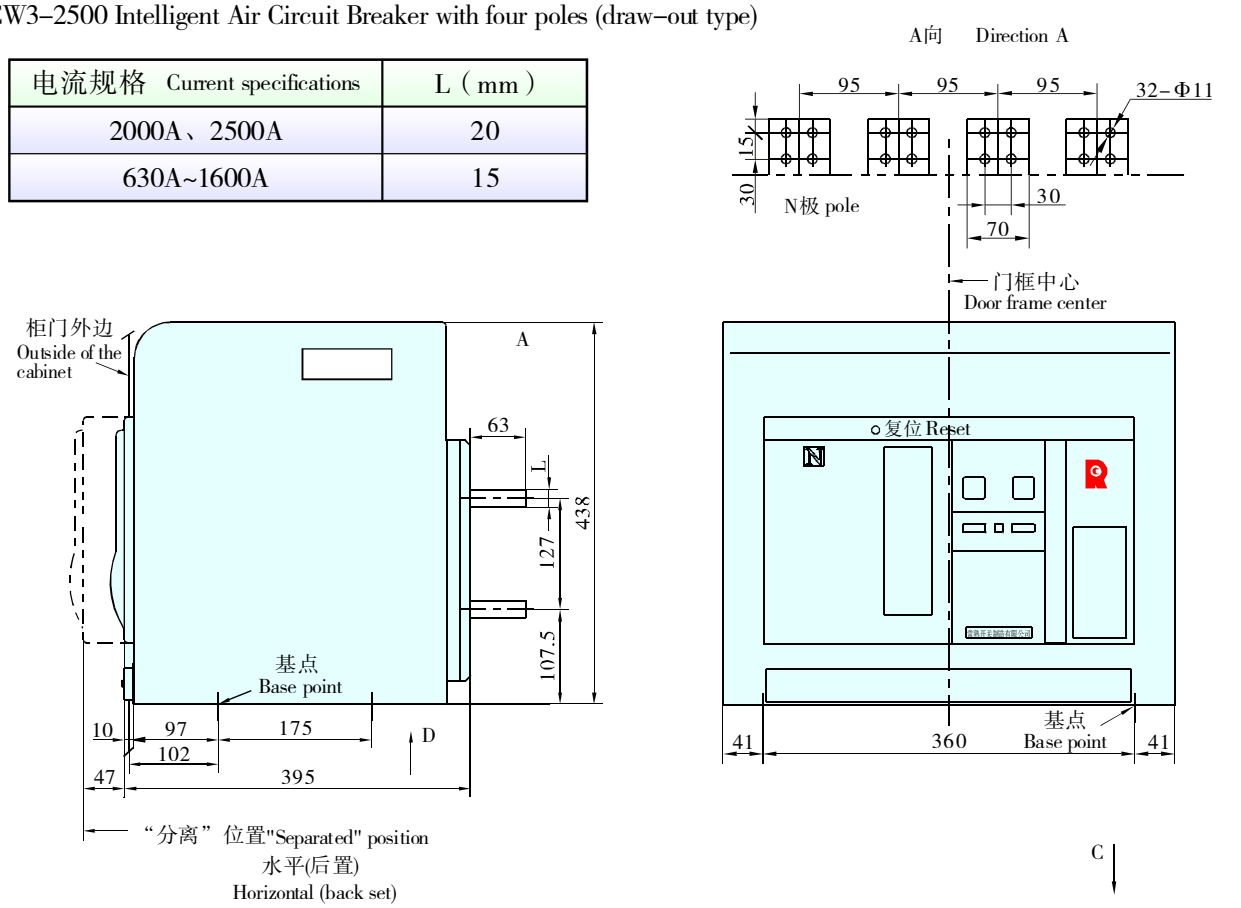
电流规格 Current specifications	L（mm）
2000A、2500A	20
630A~1600A	15

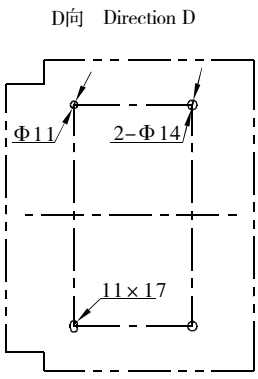


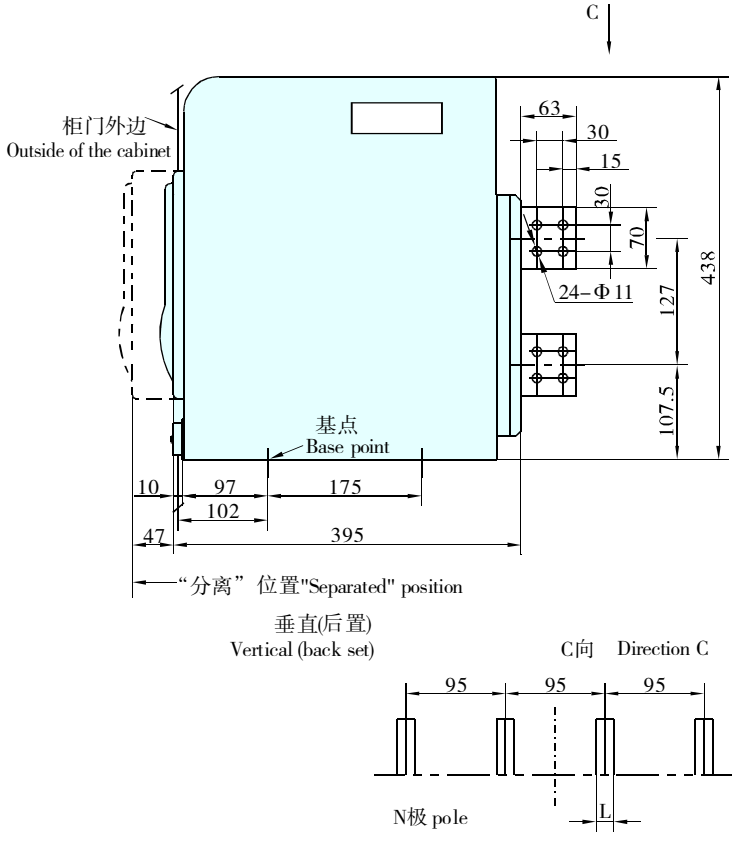
CW3-2500四极智能型万能式断路器（抽屉式）

CW3-2500 Intelligent Air Circuit Breaker with four poles (draw-out type)

电流规格 Current specifications	L（mm）
2000A、2500A	20
630A~1600A	15

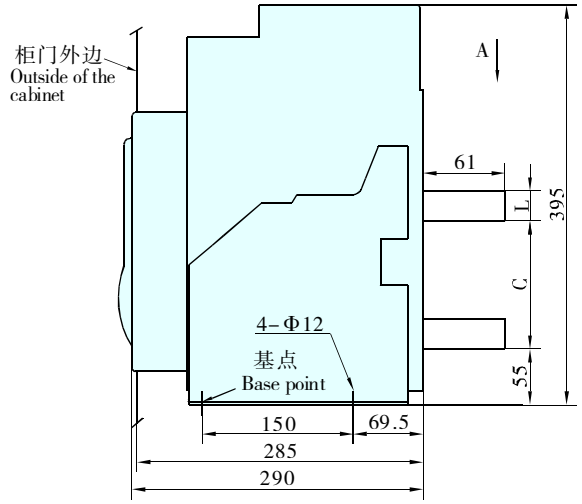


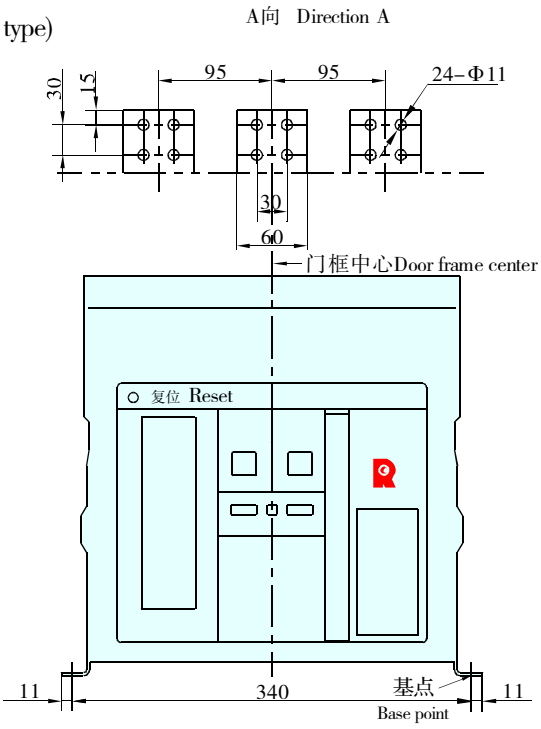




CW3–2500三极智能型万能式断路器（固定式）
CW3–2500 Intelligent Air Circuit Breaker with three poles (fixed type)

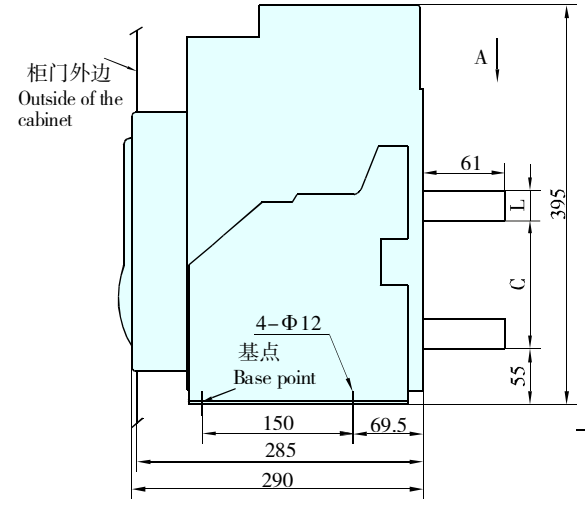
电流规格 Current specifications	L（mm）	C（mm）
2000A、2500A	20	132
630A~1600A	15	134.5

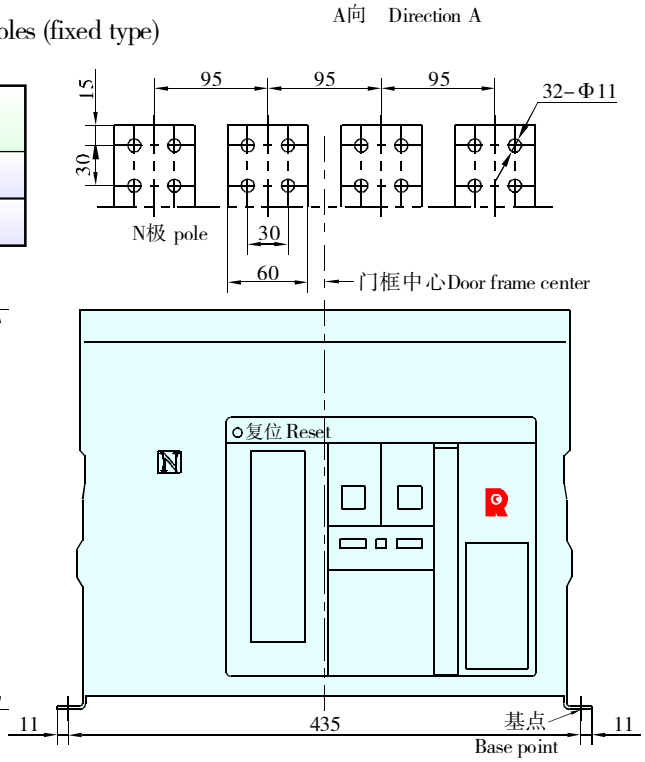




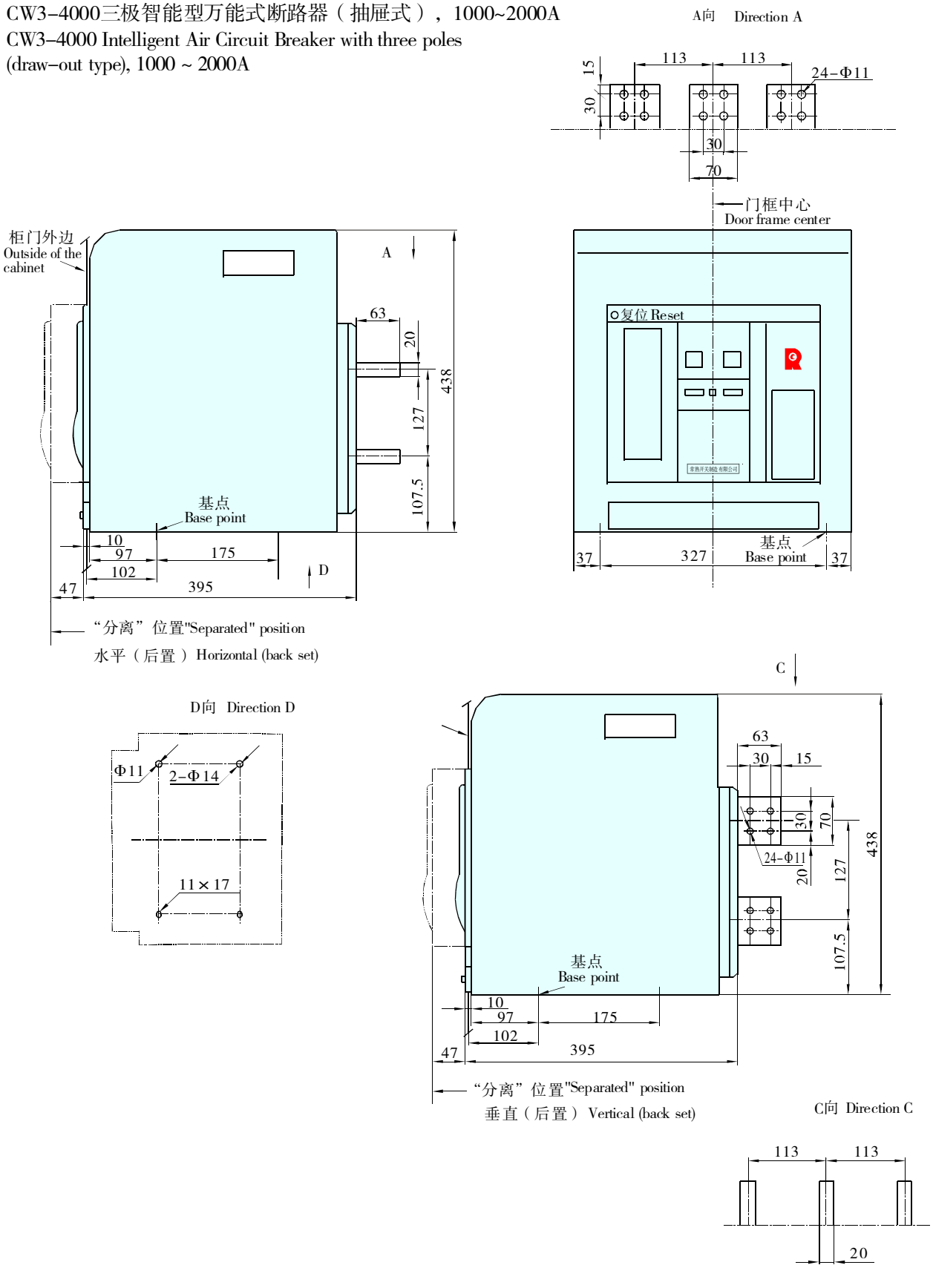
CW3–2500四极智能型万能式断路器（固定式）
CW3–2500 Intelligent Air Circuit Breaker with four poles (fixed type)

电流规格 Current specifications	L（mm）	C（mm）
2000A、2500A	20	132
630A~1600A	15	134.5

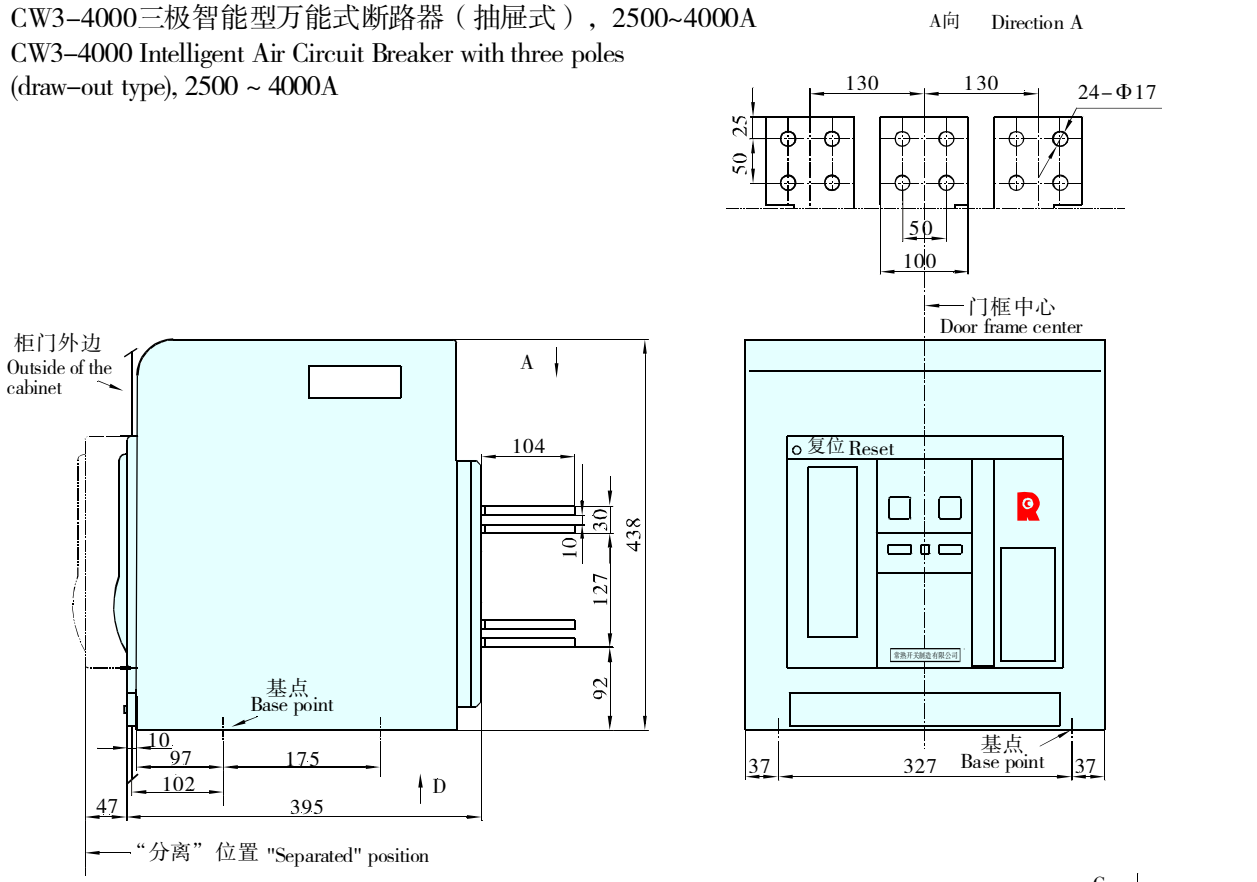




CW3-4000三极智能型万能式断路器（抽屉式），1000~2000A
CW3-4000 Intelligent Air Circuit Breaker with three poles (draw-out type), 1000 ~ 2000A

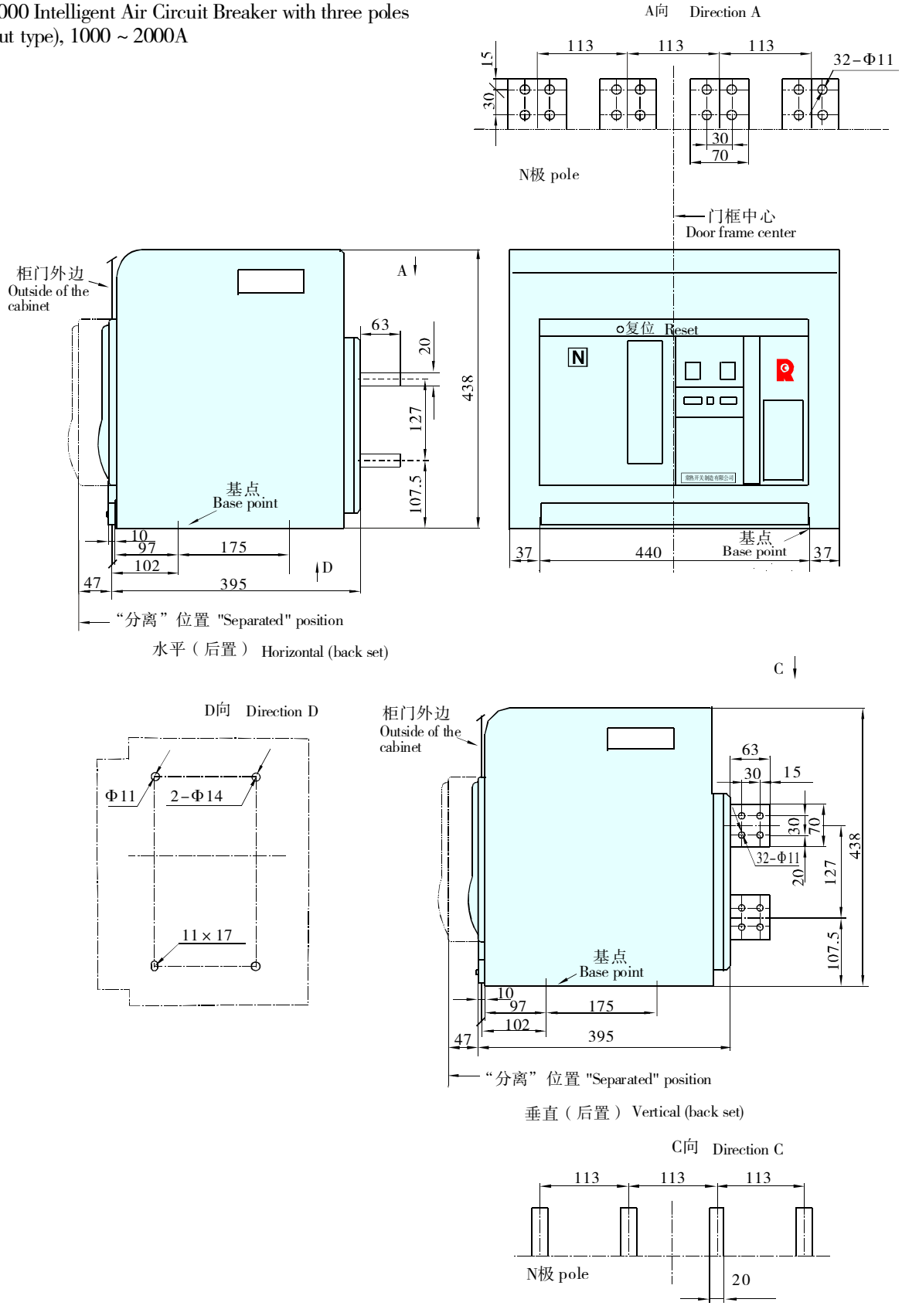


CW3-4000三极智能型万能式断路器（抽屉式），2500~4000A
CW3-4000 Intelligent Air Circuit Breaker with three poles (draw-out type), 2500 ~ 4000A

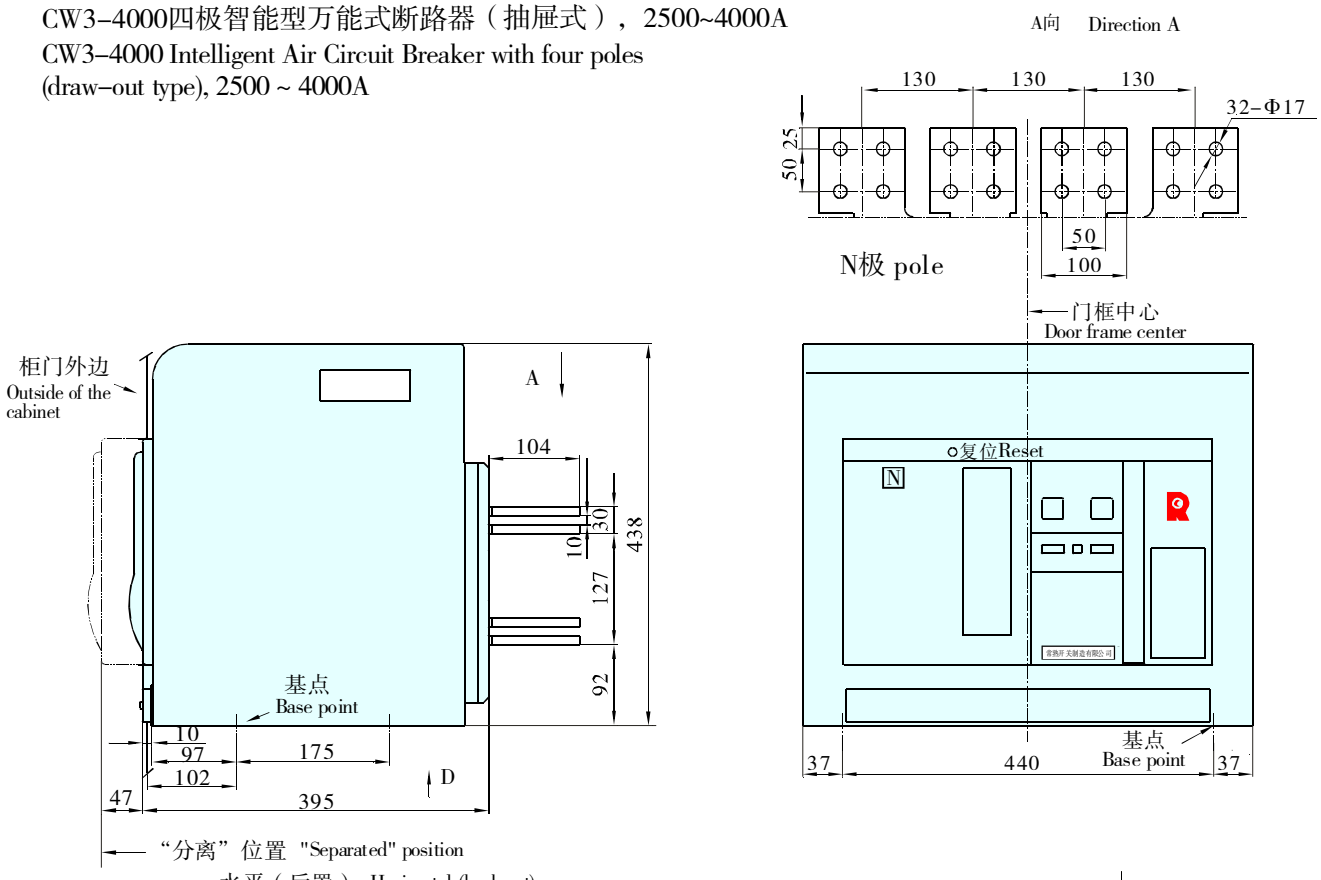


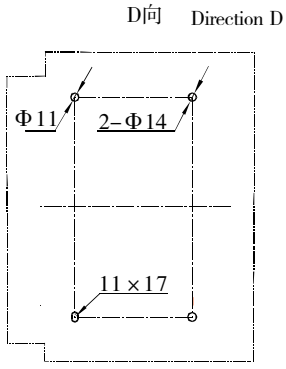
CW3–4000四极智能型万能式断路器（抽屉式），1000~2000A

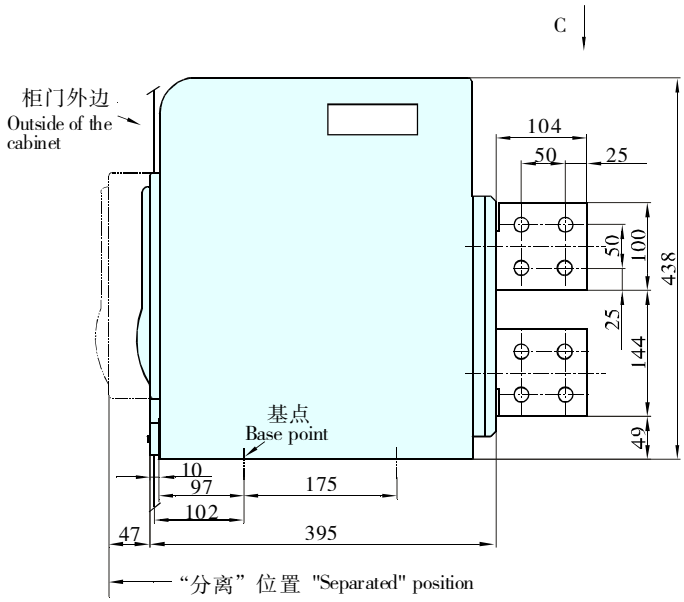
CW3–4000 Intelligent Air Circuit Breaker with three poles (draw–out type), 1000 ~ 2000A

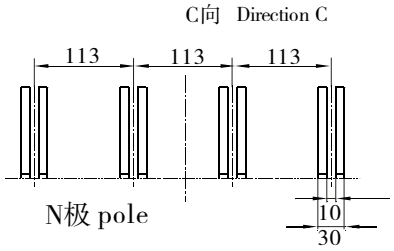


CW3–4000四极智能型万能式断路器（抽屉式），2500~4000A
CW3–4000 Intelligent Air Circuit Breaker with four poles (draw–out type), 2500 ~ 4000A

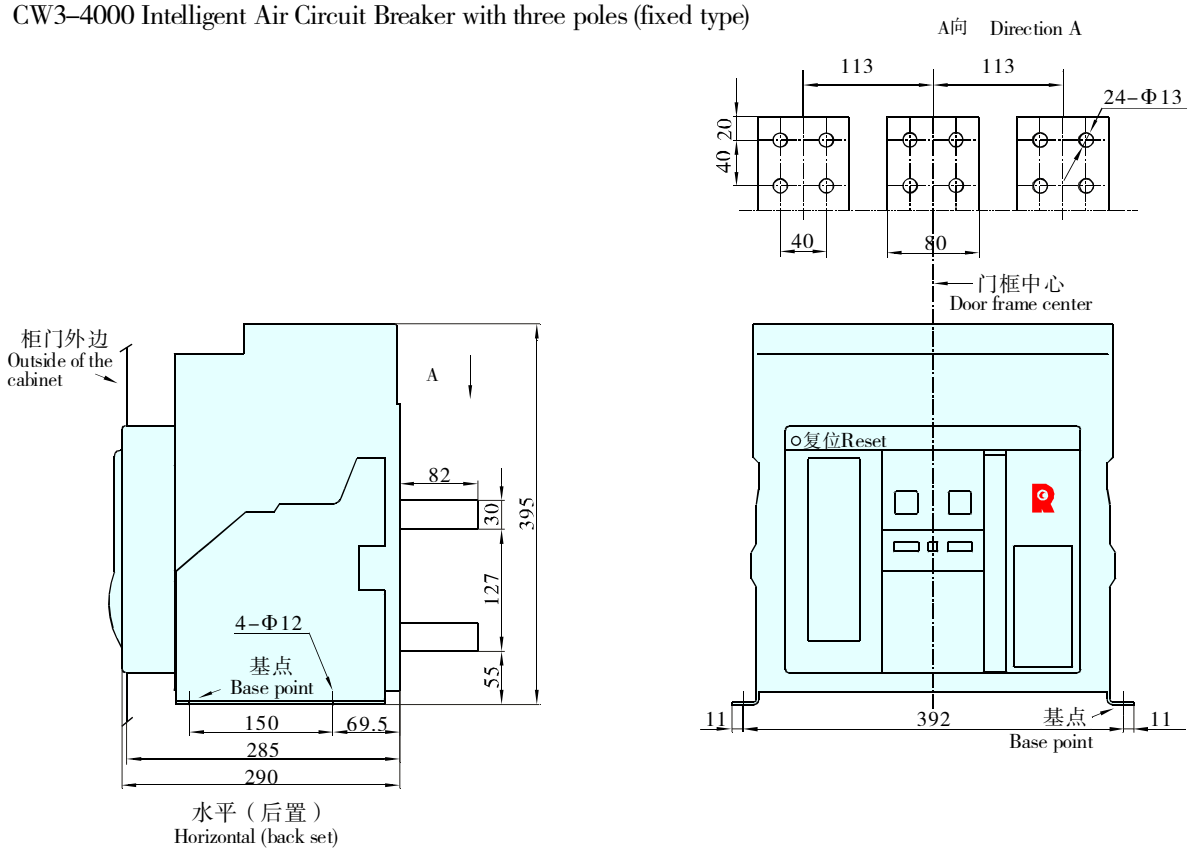




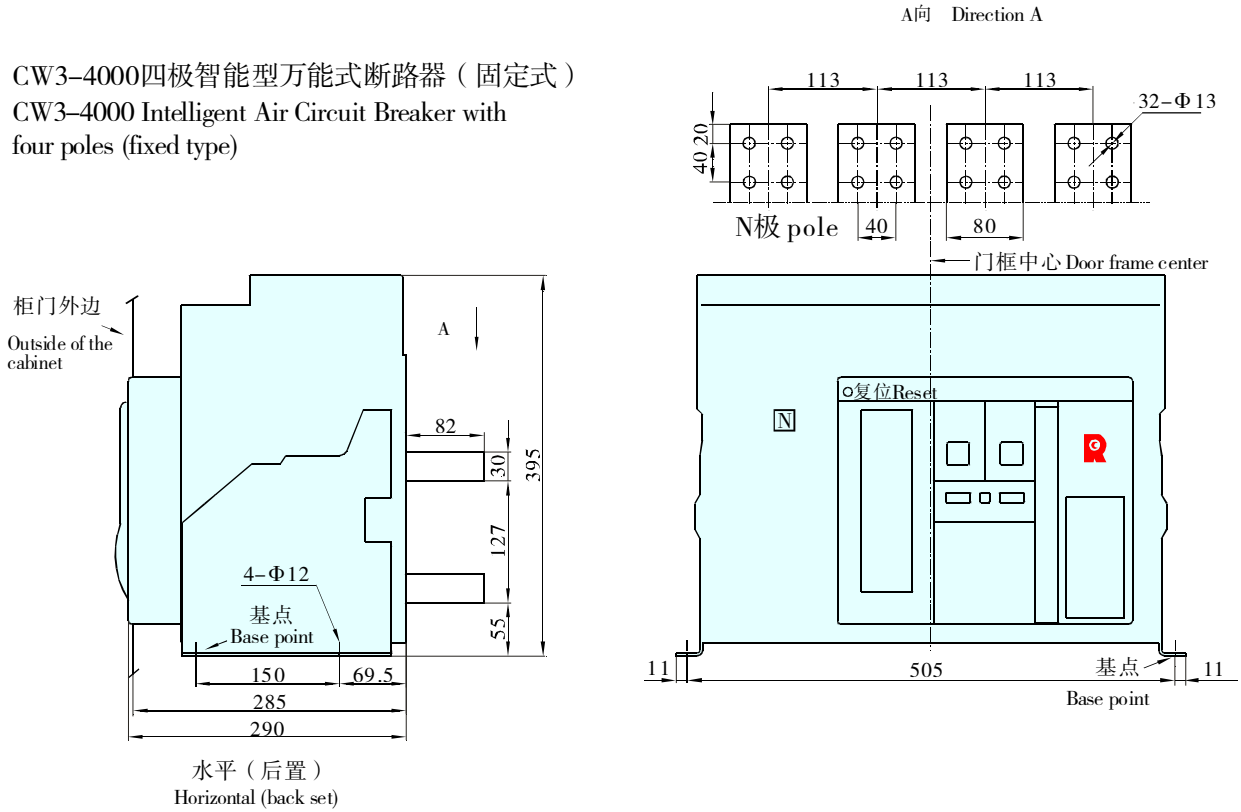




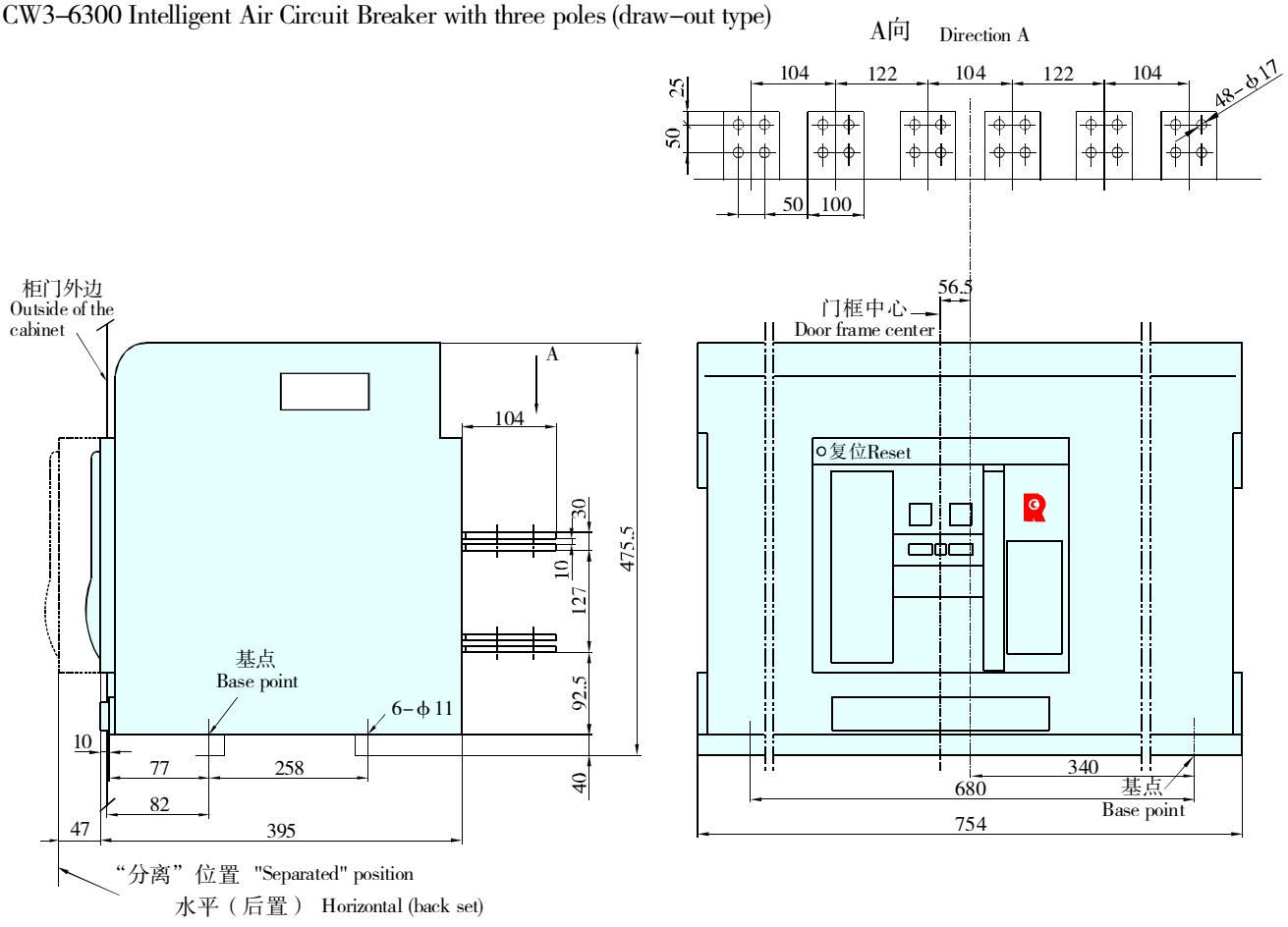
CW3–4000三极智能型万能式断路器（固定式）
CW3–4000 Intelligent Air Circuit Breaker with three poles (fixed type)



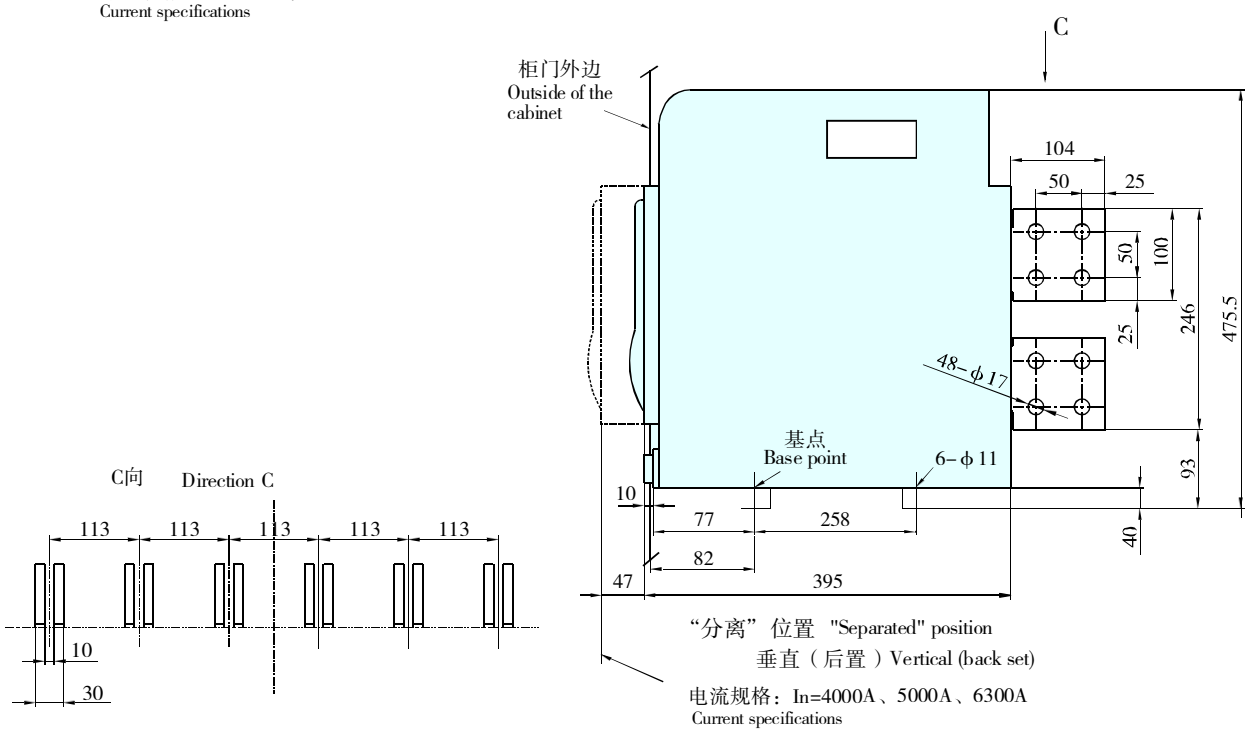
CW3–4000四极智能型万能式断路器（固定式）
CW3–4000 Intelligent Air Circuit Breaker with four poles (fixed type)



CW3-6300三极智能型万能式断路器（抽屉式）
CW3-6300 Intelligent Air Circuit Breaker with three poles (draw-out type)

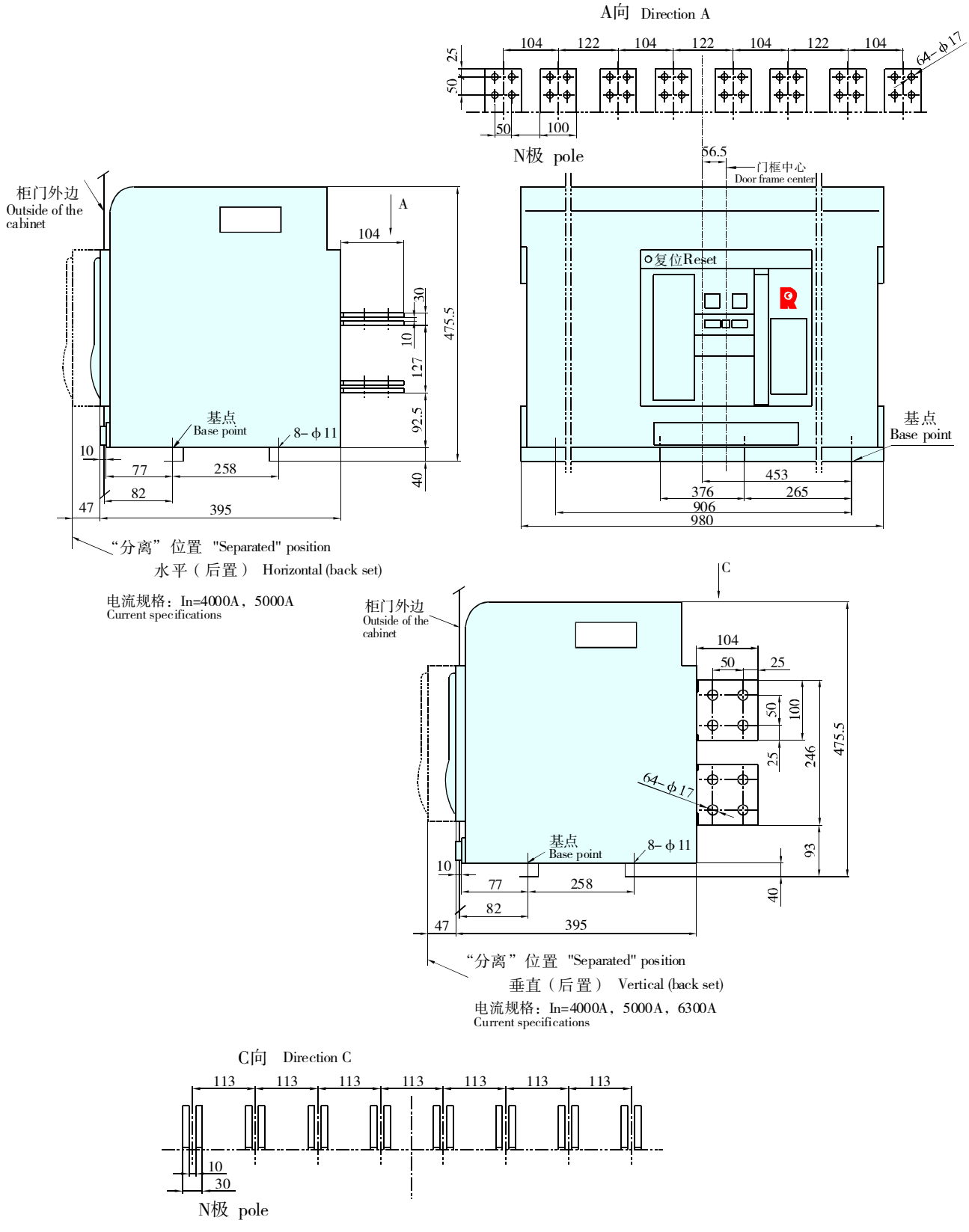


电流规格：In=4000A，5000A
Current specifications

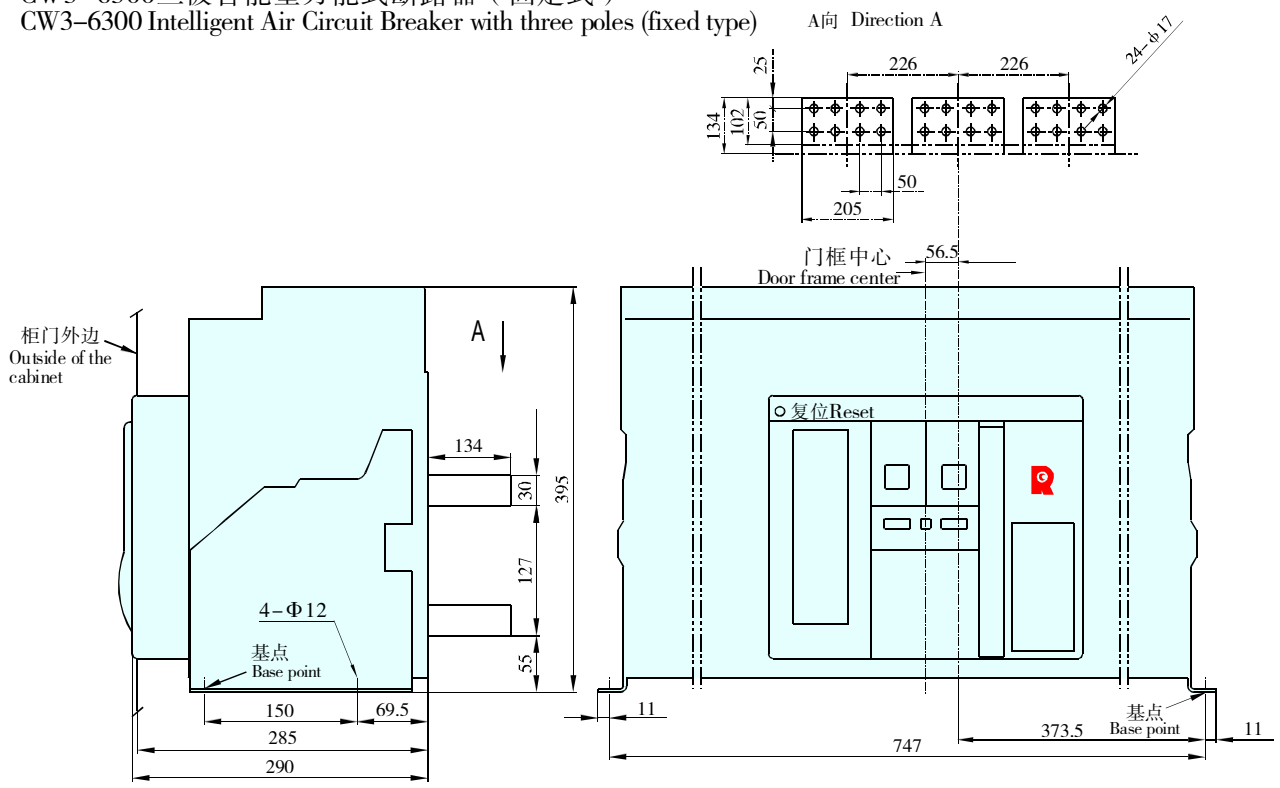


电流规格：In=4000A、5000A、6300A
Current specifications

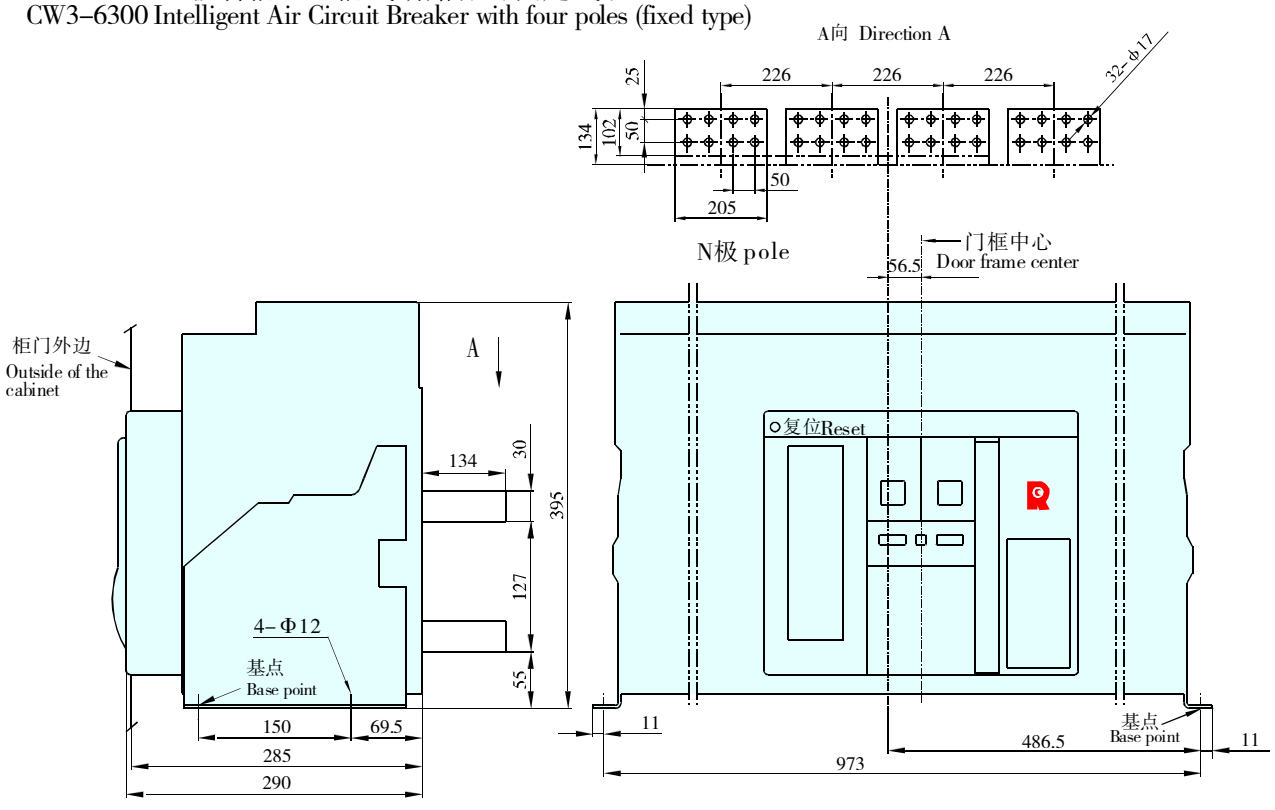
CW3-6300四极智能型万能式断路器（抽屉式）
CW3-6300 Intelligent Air Circuit Breaker with four poles (draw-out type)



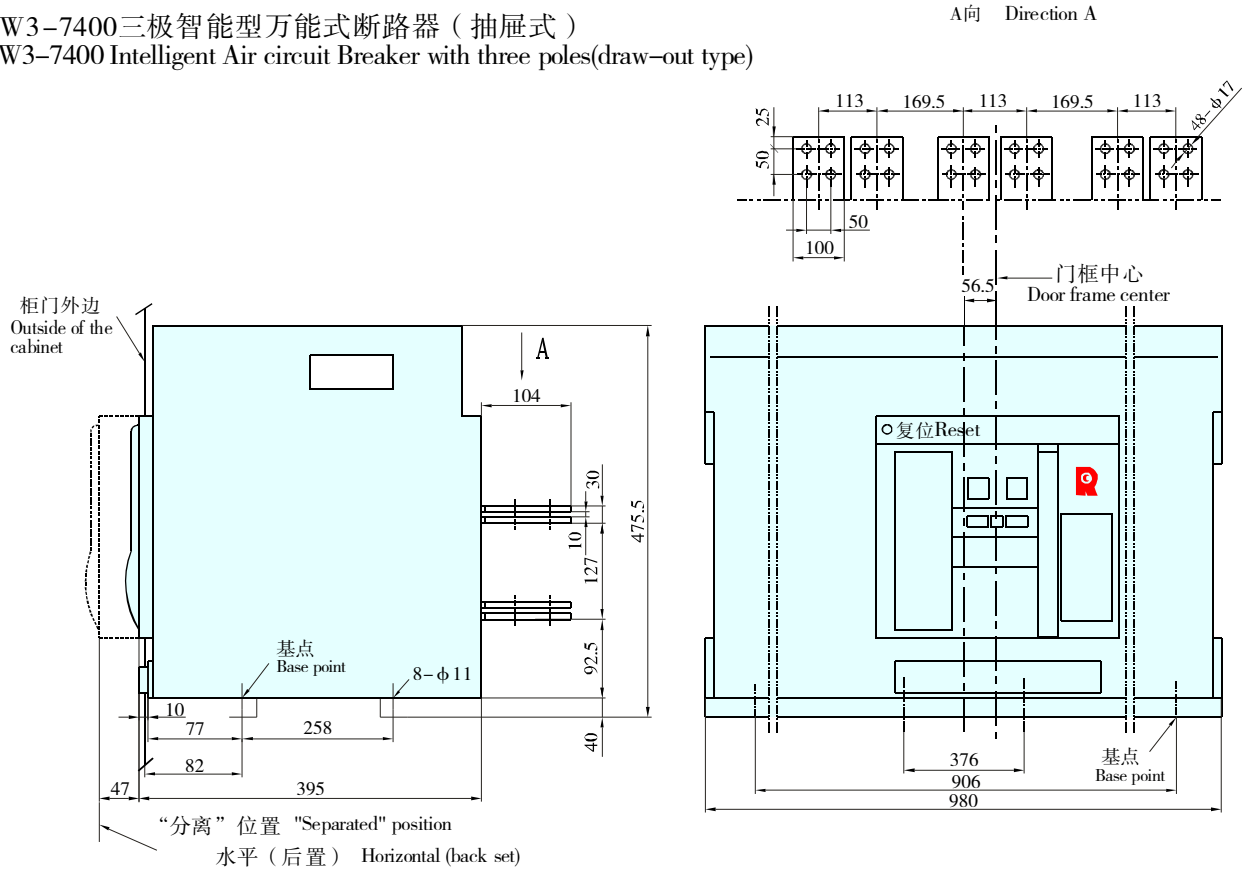
CW3-6300三极智能型万能式断路器（固定式）
CW3-6300 Intelligent Air Circuit Breaker with three poles (fixed type)



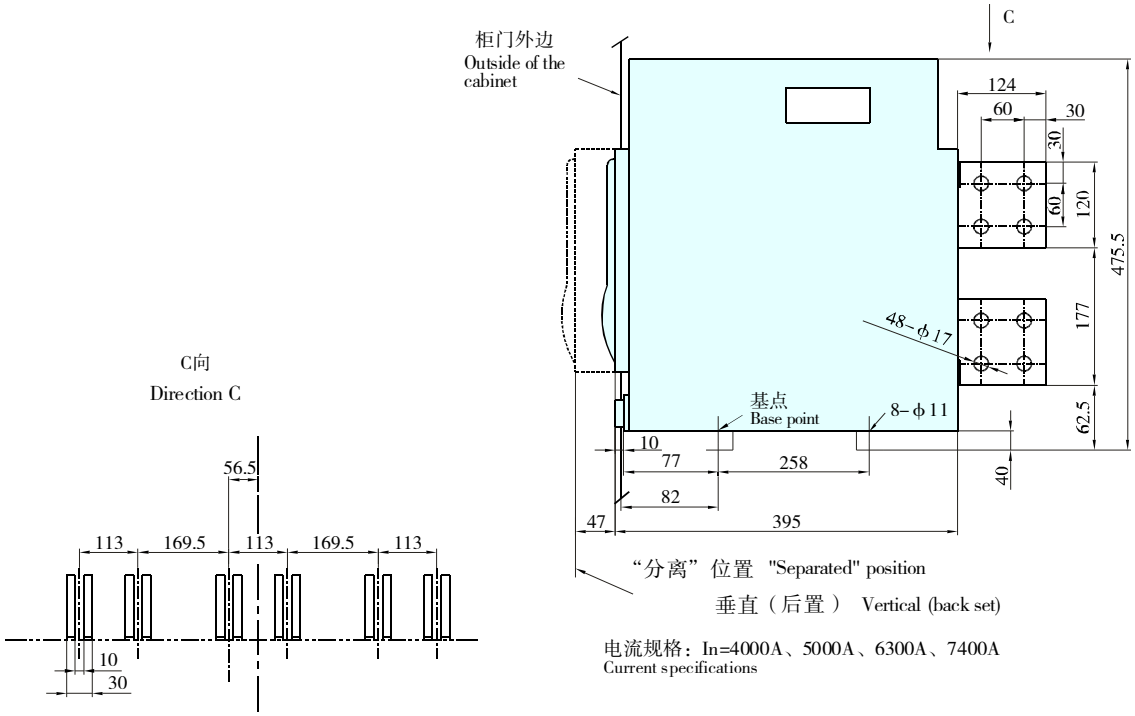
CW3-6300四极智能型万能式断路器（固定式）
CW3-6300 Intelligent Air Circuit Breaker with four poles (fixed type)



CW3-7400三极智能型万能式断路器（抽屉式）
CW3-7400 Intelligent Air circuit Breaker with three poles(draw-out type)

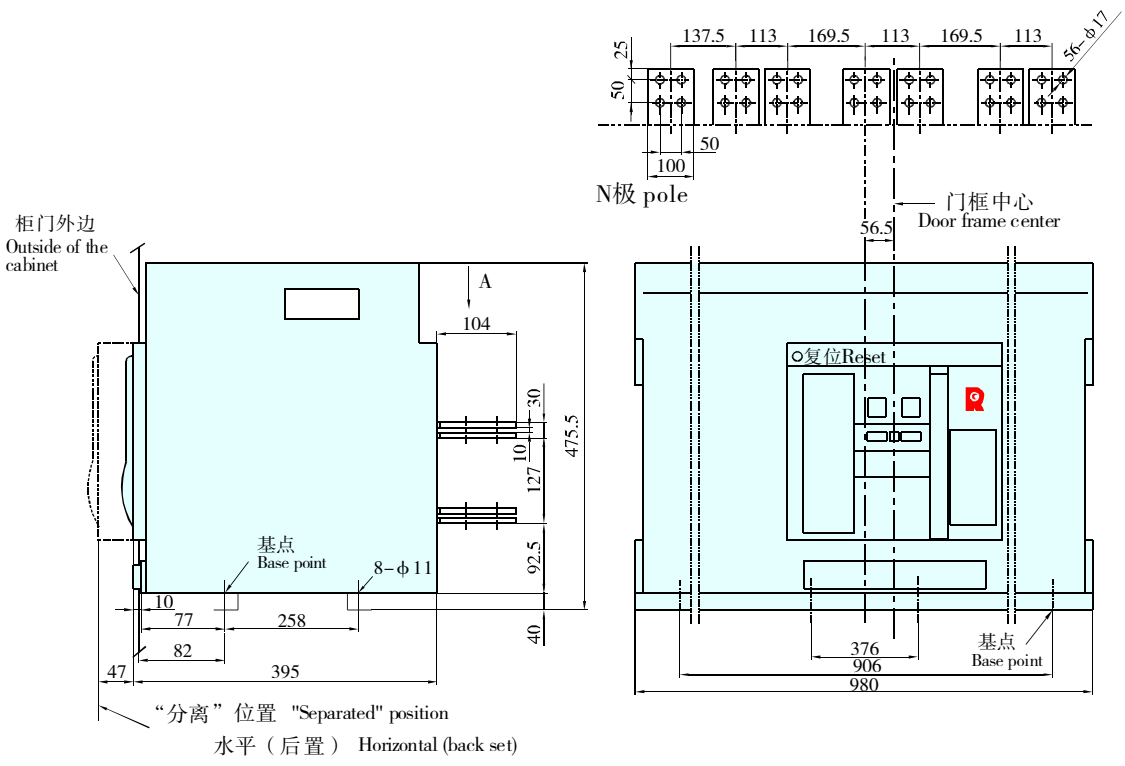


电流规格：In=4000A、5000A、6300A
Current specifications

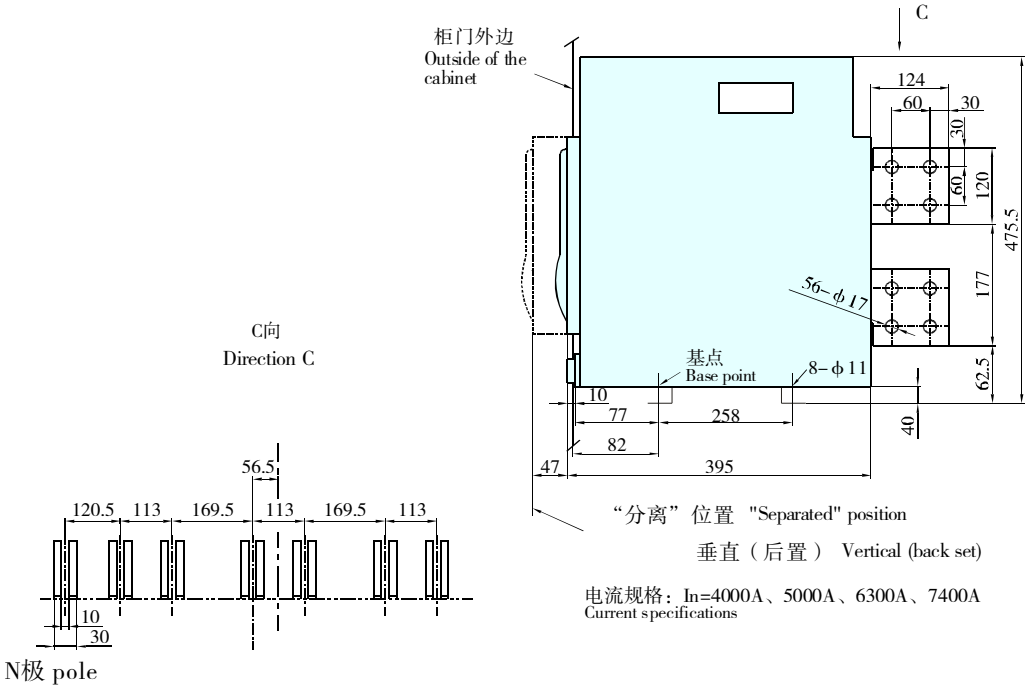


电流规格：In=4000A、5000A、6300A、7400A
Current specifications

CW3-7400四极智能型万能式断路器（抽屉式）
CW3-7400 Intelligent Air circuit Breaker with four poles(draw-out type)

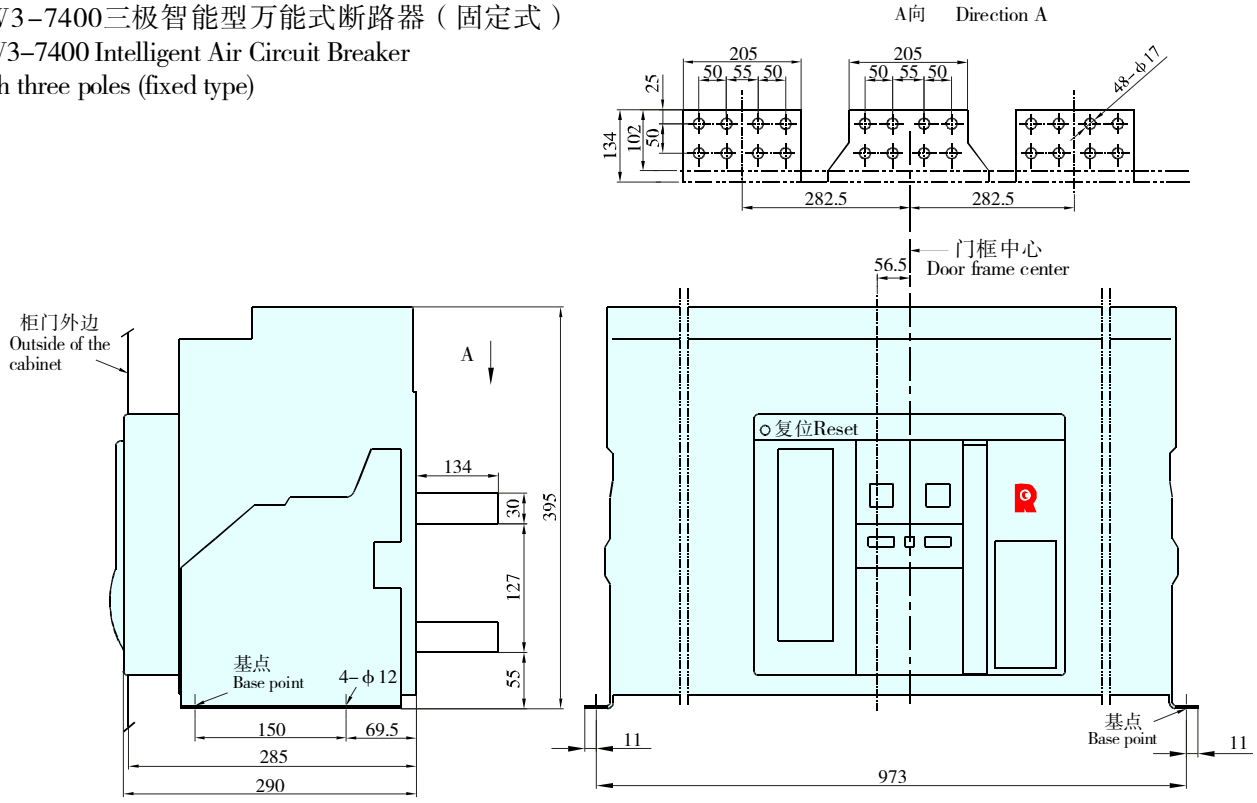


电流规格：In=4000A、5000A、6300A
Current specifications

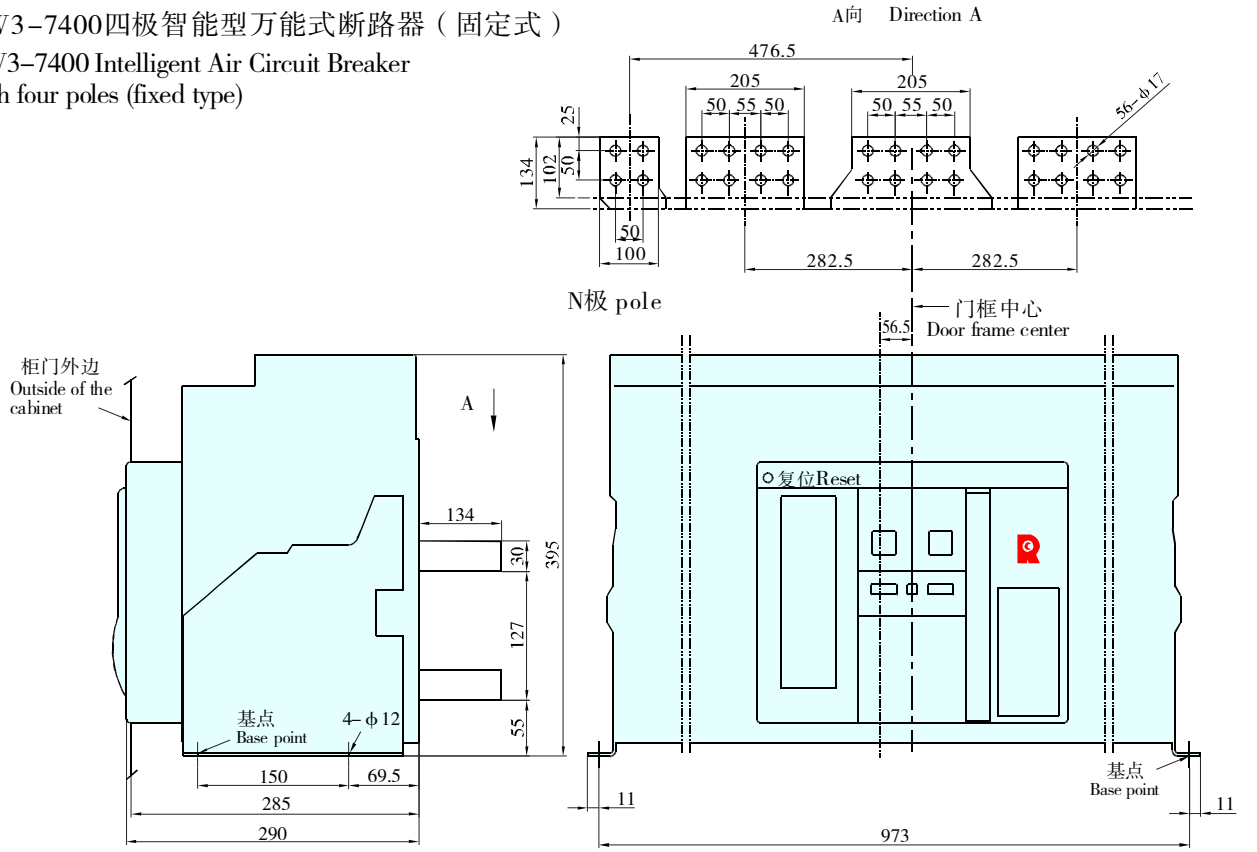


电流规格：In=4000A、5000A、6300A、7400A
Current specifications

CW3-7400三极智能型万能式断路器（固定式）
CW3-7400 Intelligent Air Circuit Breaker
with three poles (fixed type)



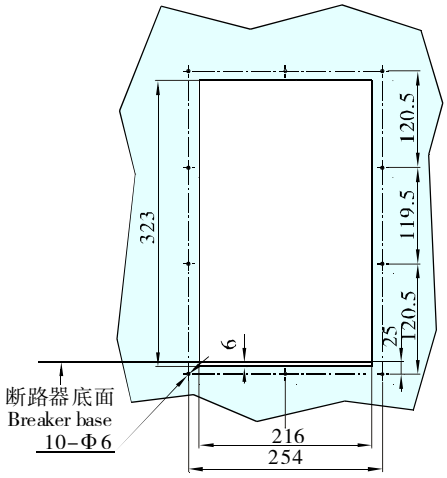
CW3-7400四极智能型万能式断路器（固定式）
CW3-7400 Intelligent Air Circuit Breaker
with four poles (fixed type)



CW3-1600门框开孔尺寸 Cutout Dimensions of CW3-1600 doorframe

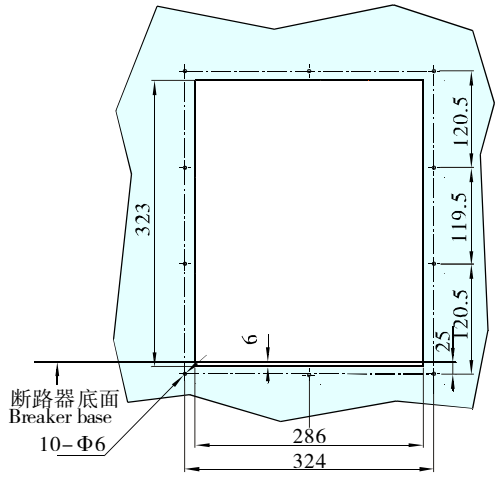
CW3-1600三极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为227mm

CW3-1600 Intelligent Air Circuit Breaker with three poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 227mm



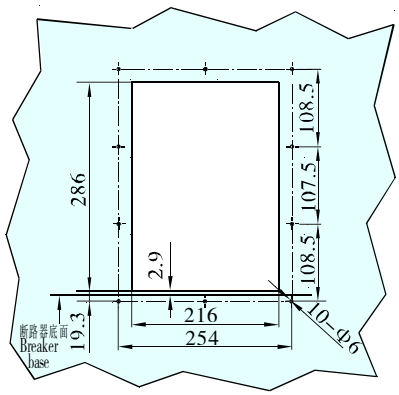
CW3-1600四极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为262mm

CW3-1600 Intelligent Air Circuit Breaker with four poles (draw-out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 262mm



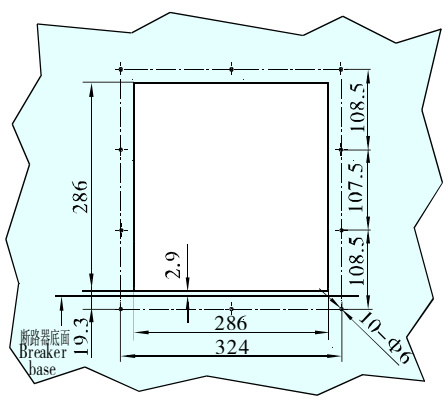
CW3-1600三极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为227mm

CW3-1600 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the right hinge of cabinet door should beat least 227mm



CW3-1600四极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为262mm

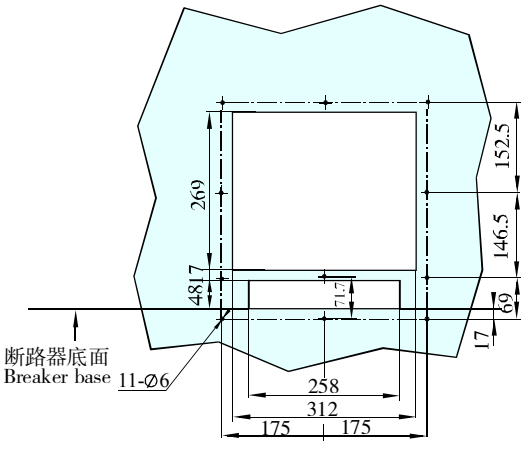
CW3-1600 Intelligent Air Circuit Breaker with four poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righthinge of cabinet door should beat least 262mm



- CW3–2500门框开孔尺寸 Cutout Dimensions of CW3–2500 doorframe

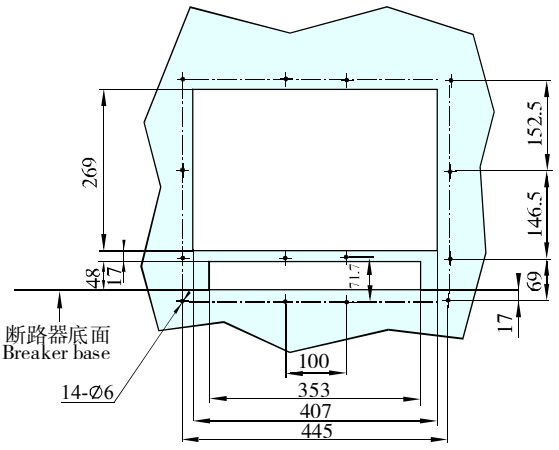
CW3–2500三极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为256mm

CW3–2500 Intelligent Air Circuit Breaker with three poles (draw–outtype)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel centerof the circuit breakerto the righthing of cabinet door should be at least 256mm



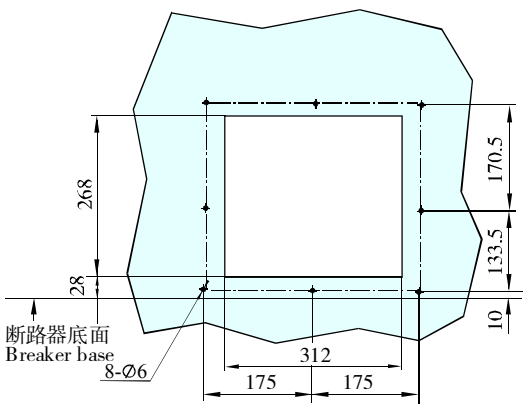
CW3–2500四极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为303.5mm

CW3–2500 Intelligent Air Circuit Breaker with four poles (draw–out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the right hinge of cabinet door should be at least 303.5mm



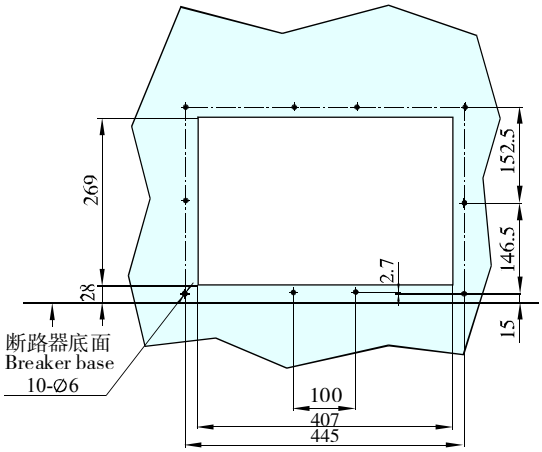
CW3–2500三极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为256mm

CW3–2500 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 256mm



CW3–2500四极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为303.5mm

CW3–2500 Intelligent Air Circuit Breaker with four poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 303.5mm



CW3–4000门框开孔尺寸 Cutout Dimensions of CW3–4000 doorframe

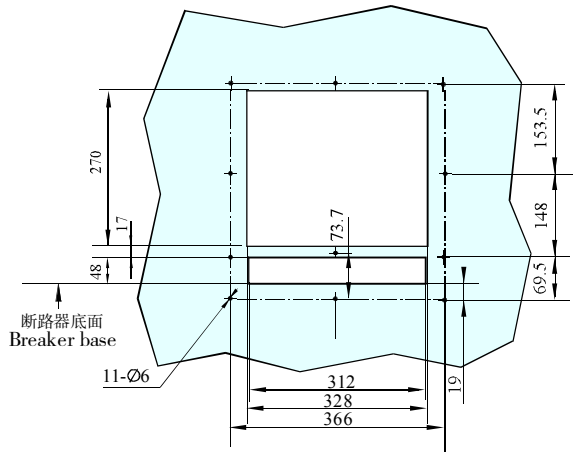
CW3–4000三极智能型万能式断路器（抽屉式）安装门框前盖开孔图

控制面板中心离柜门右铰链最小距离为264mm

CW3–4000 Intelligent Air Circuit Breaker with three poles (draw–out type)

The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 264mm



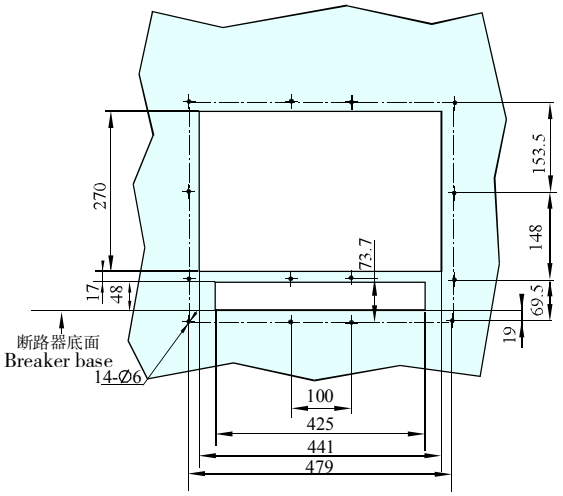
CW3–4000四极智能型万能式断路器（抽屉式）安装门框前盖开孔图

控制面板中心离柜门右铰链最小距离为320.5mm

CW3–4000 Intelligent Air Circuit Breaker with four poles (draw–out type)

The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 320.5mm



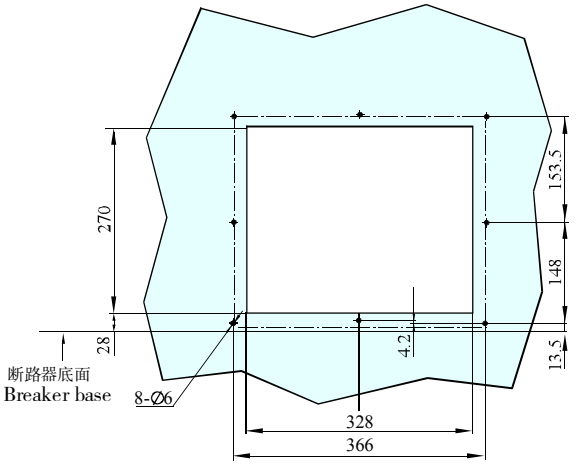
CW3–4000三极智能型万能式断路器（固定式）安装门框前盖开孔图

控制面板中心离柜门右铰链最小距离为264mm

CW3–4000 Intelligent Air Circuit Breaker with three poles (fixed type)

The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 264mm



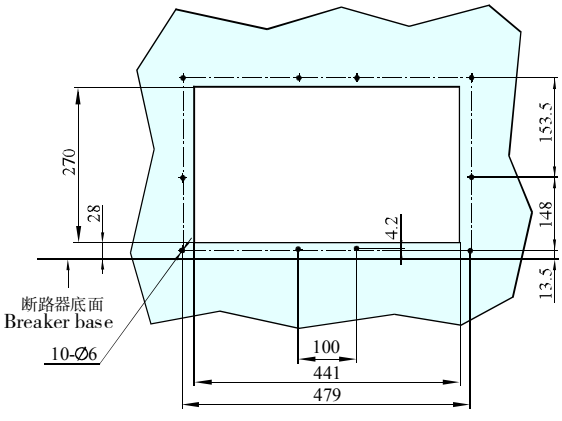
CW3–4000四极智能型万能式断路器（固定式）安装门框前盖开孔图

控制面板中心离柜门右铰链最小距离为320.5mm

CW3–4000 Intelligent Air Circuit Breaker with four poles (fixed type)

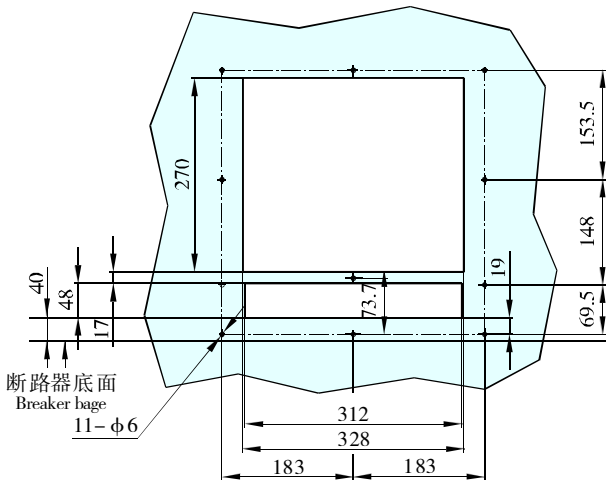
The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 320.5mm

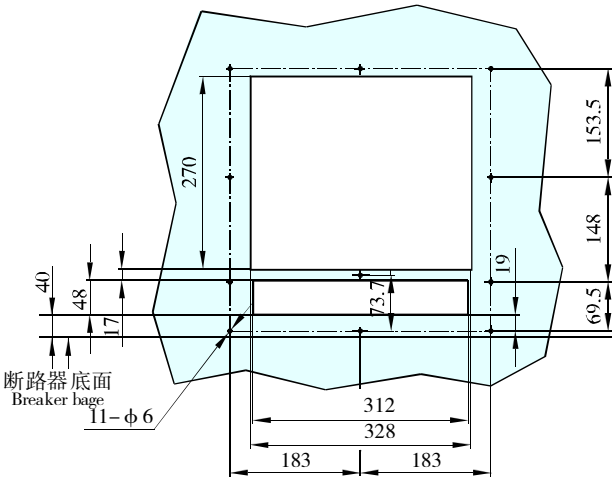


CW3–6300门框开孔尺寸 Cutout Dimensions of CW3–6300 doorframe

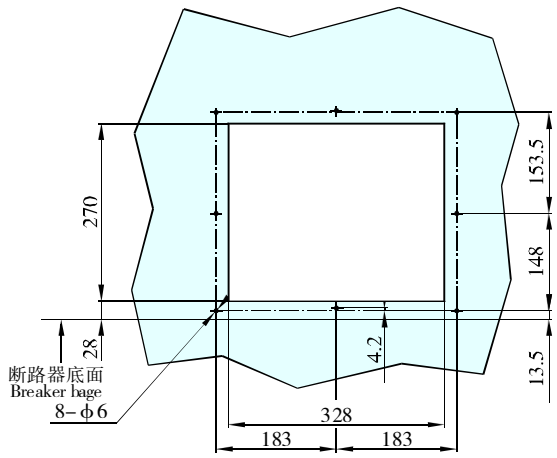
CW3–6300三极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm
CW3–6300 Intelligent Air Circuit Breaker with three poles (draw–out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least553.5mm



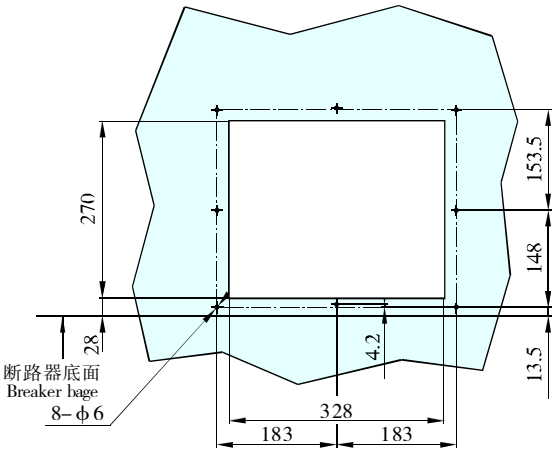
CW3–6300四极智能型万能式断路器（抽屉式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm
CW3–6300 Intelligent Air Circuit Breaker with four poles (draw–out type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 553.5mm



CW3–6300三极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm
CW3–6300 Intelligent Air Circuit Breaker with three poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least553.5mm



CW3–6300四极智能型万能式断路器（固定式）
安装门框前盖开孔图
控制面板中心离柜门右铰链最小距离为553.5mm
CW3–6300 Intelligent Air Circuit Breaker with four poles (fixed type)
The drawing of cutout dimensions for mounting cover of doorframe
Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 553.5mm



● CW3-7400门框开孔尺寸 Cutout Dimensions of CW3-7400 doorframe

CW3-7400三极智能型万能式断路器（抽屉式）

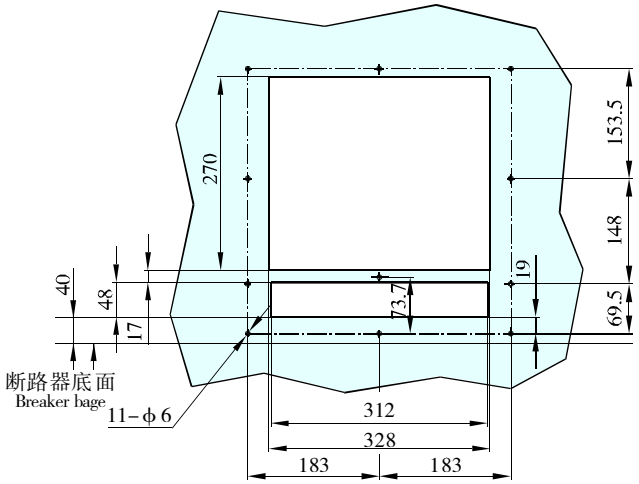
安装门框前盖配孔图

控制面板中心离柜门右铰链最小距离为553.5mm

CW3-7400 Intelligent Air Circuit Breaker with three poles (draw-out type)

The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least553.5mm



CW3-7400四极智能型万能式断路器（抽屉式）

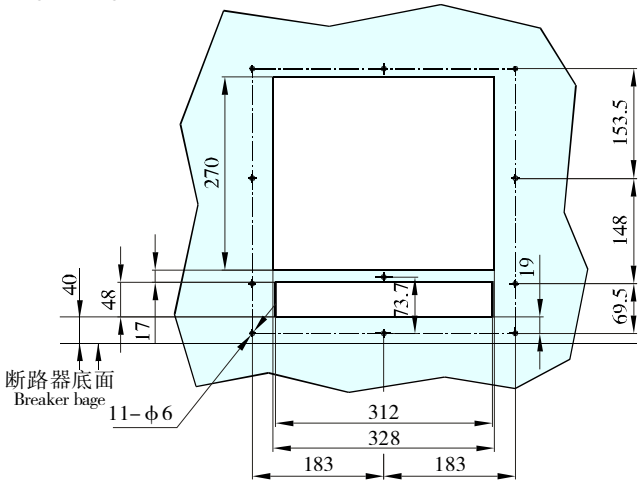
安装门框前盖配孔图

控制面板中心离柜门右铰链最小距离为553.5mm

CW3-7400 Intelligent Air Circuit Breaker with four poles (draw-out type)

The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least553.5mm



CW3-7400三极智能型万能式断路器（固定式）

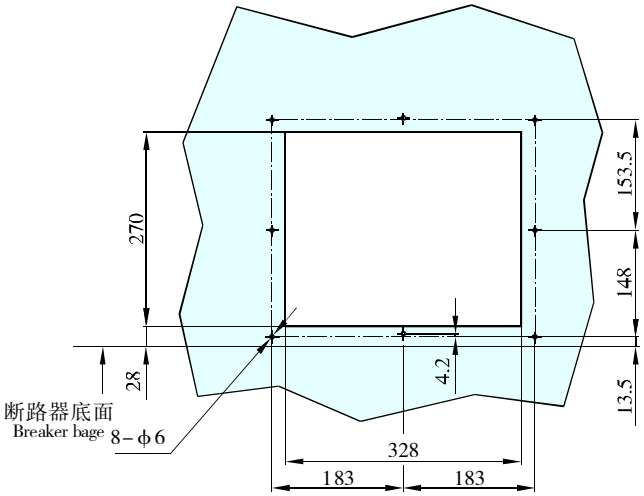
安装门框前盖配孔图

控制面板中心离柜门右铰链最小距离为553.5mm

CW3-7400 Intelligent Air Circuit Breaker with three poles (Fixed type)

The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 553.5mm



CW3-7400四极智能型万能式断路器（固定式）

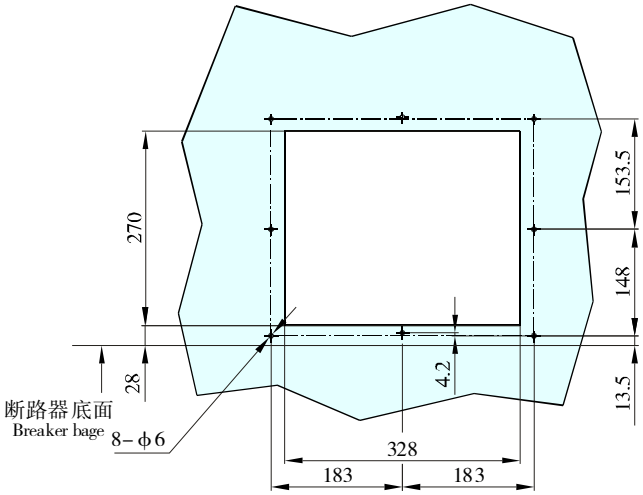
安装门框前盖配孔图

控制面板中心离柜门右铰链最小距离为553.5mm

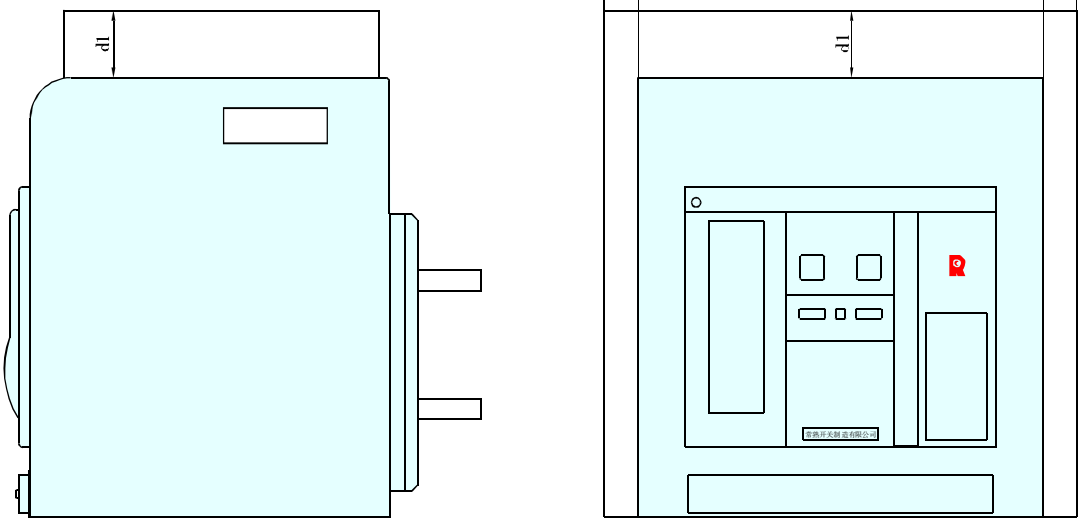
CW3-7400 Intelligent Air Circuit Breaker with four poles (fixed type)

The drawing of cutout dimensions for mounting cover of doorframe

Distance from the panel center of the circuit breaker to the righ thinge of cabinet door should beat least 553.5mm



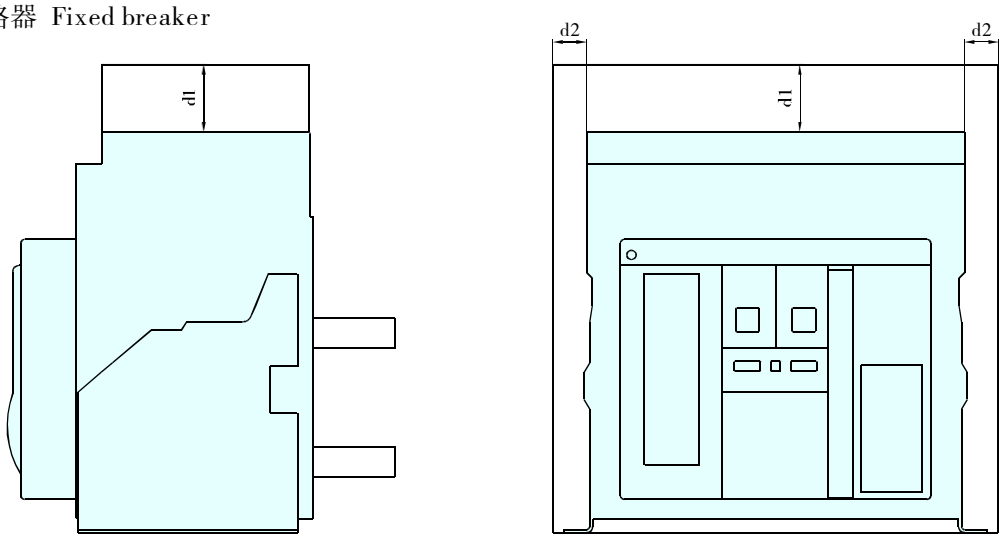
● 抽屉式断路器 Draw-out breaker



断路器与柜壁或带电部件最小距离
Minimn distance between breaker with switchboard wall or live part.

	柜壁 Switchboard wall	带电部分 Live part
d1(注note)(mm)	0	60
d2(mm)	0	60

● 固定式断路器 Fixed breaker

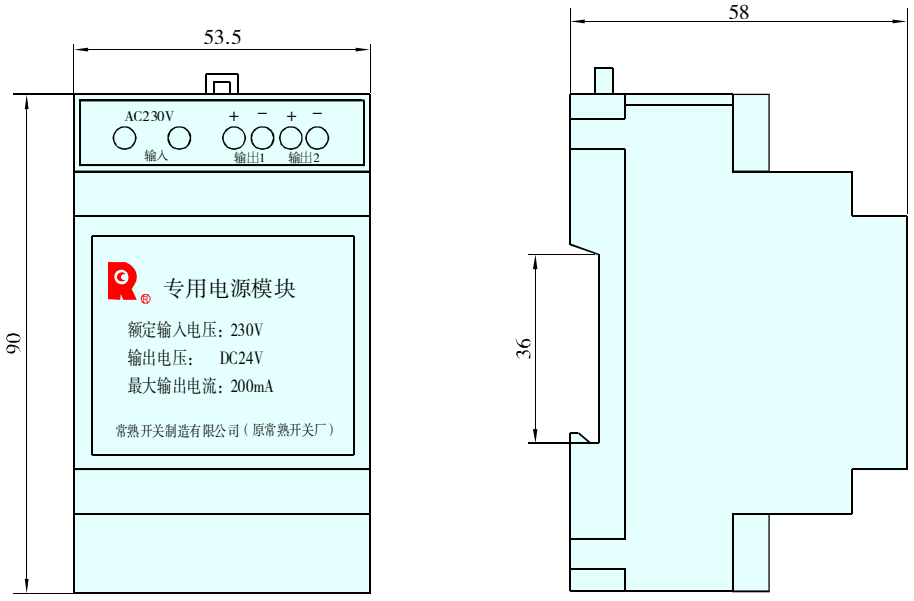


断路器与柜壁或带电部件最小距离
Minimn distance between breaker with switchboard wall or live part.

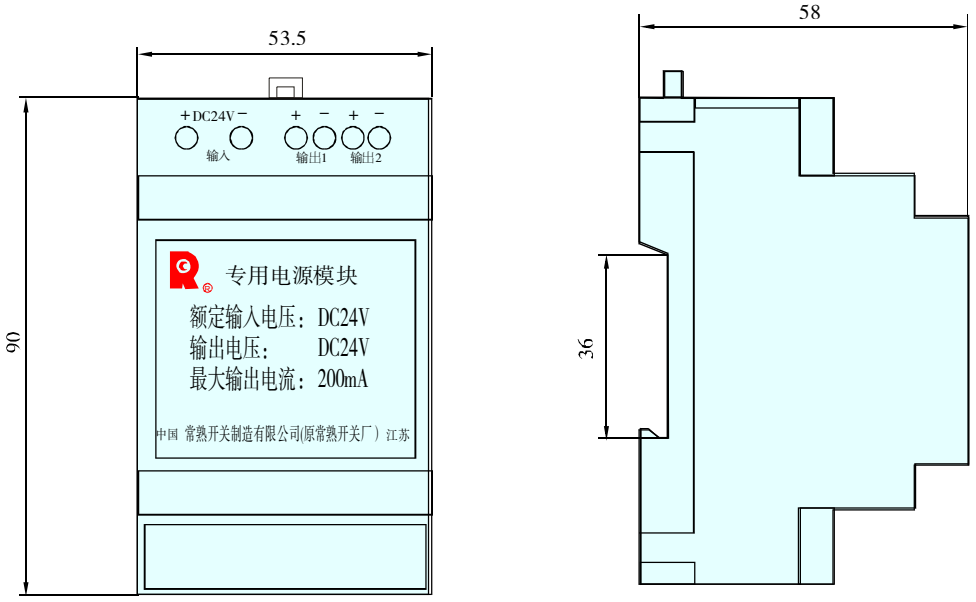
	柜壁 Switchboard wall	带电部分 Live part
d1(注note)(mm)	0	60
d2(mm)	0	60

注：安全间隙要考虑两次回路的走线。
Note:secondary circuit wiring must be considered for safety clearance.

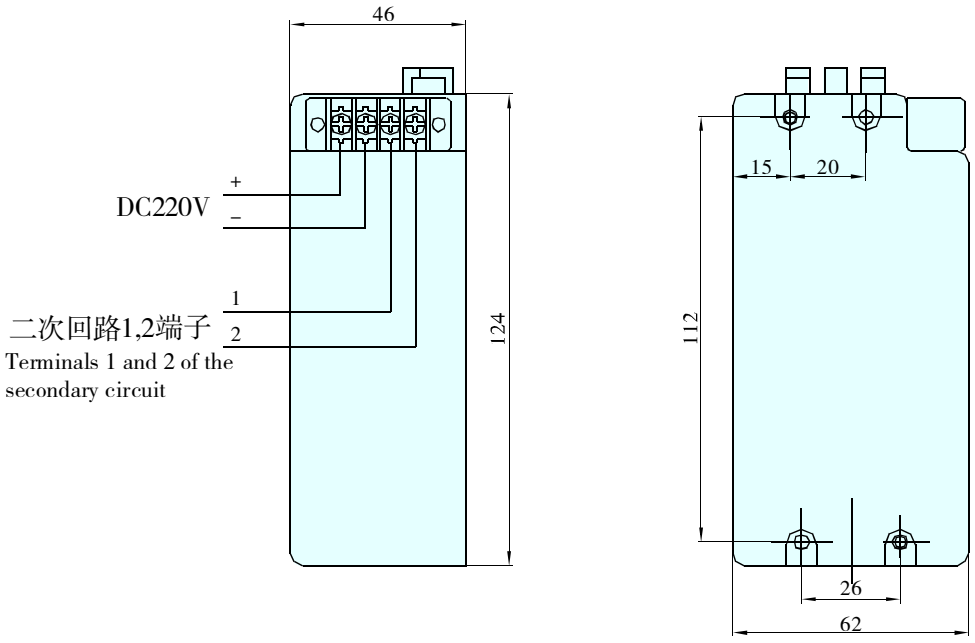
- 专用电源模块 Special power module



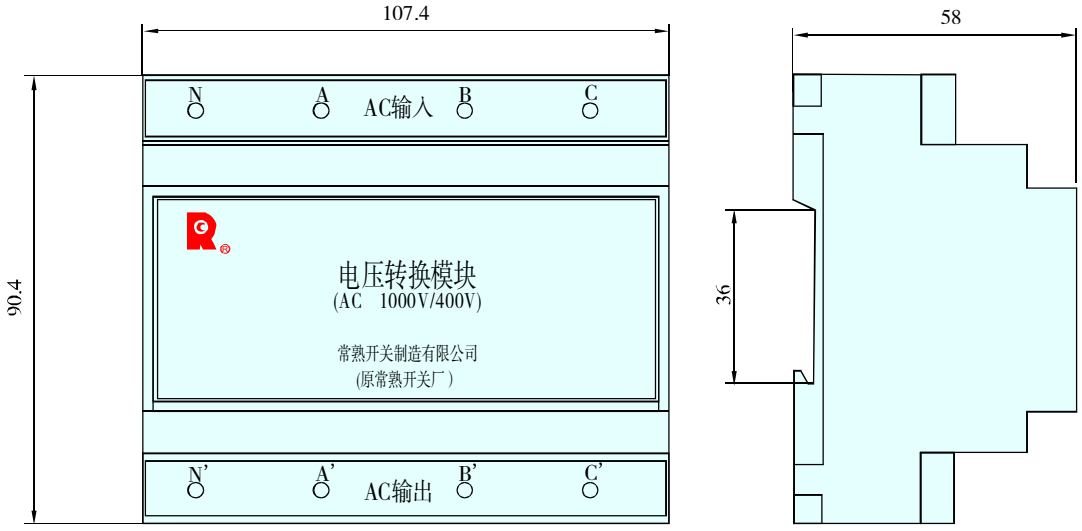
- DC24V电源模块DC24V power module



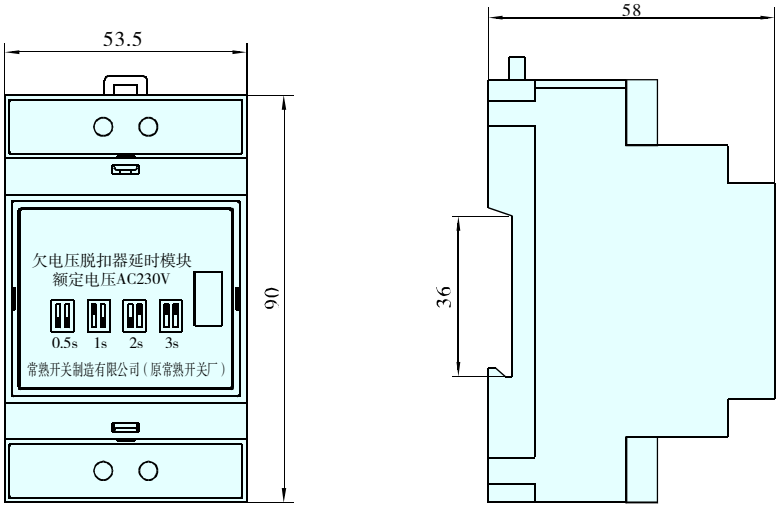
- 直流电源模块：DC power module



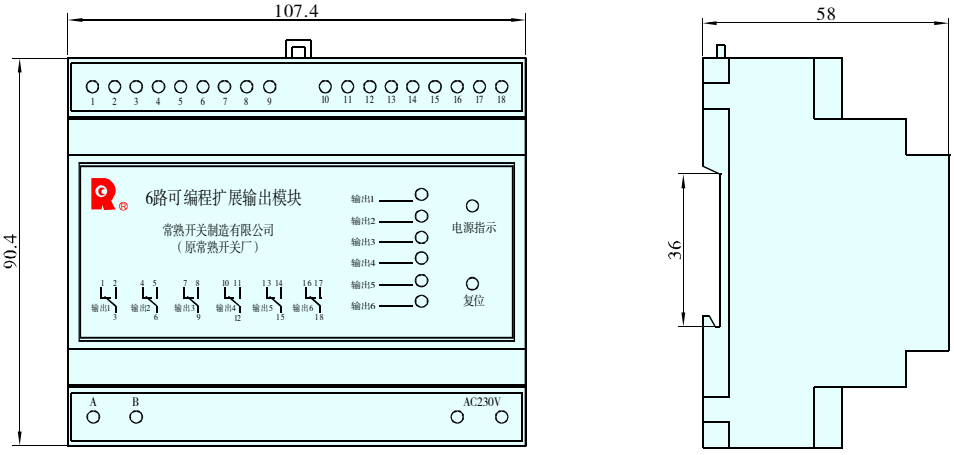
- 电压转换模块Voltage changover module



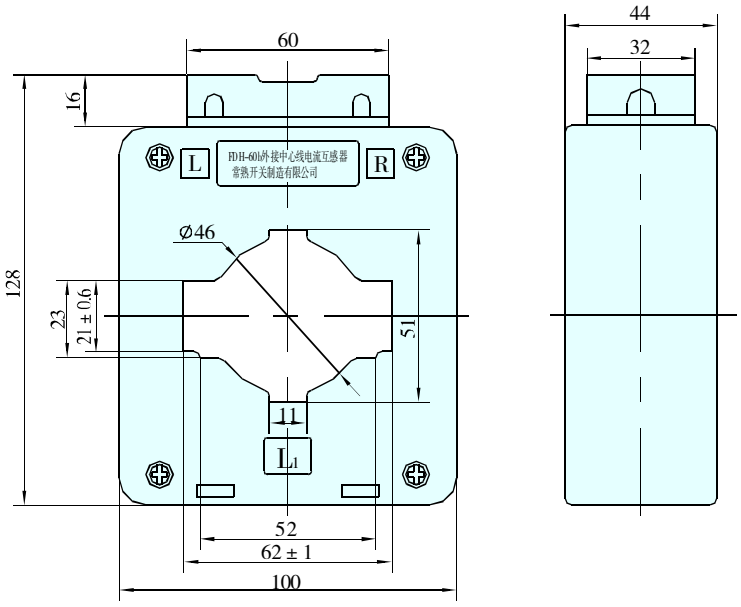
- CW3－1600断路器欠电压脱扣器延时模块　Delay module of under-voltage release of CW3-1600



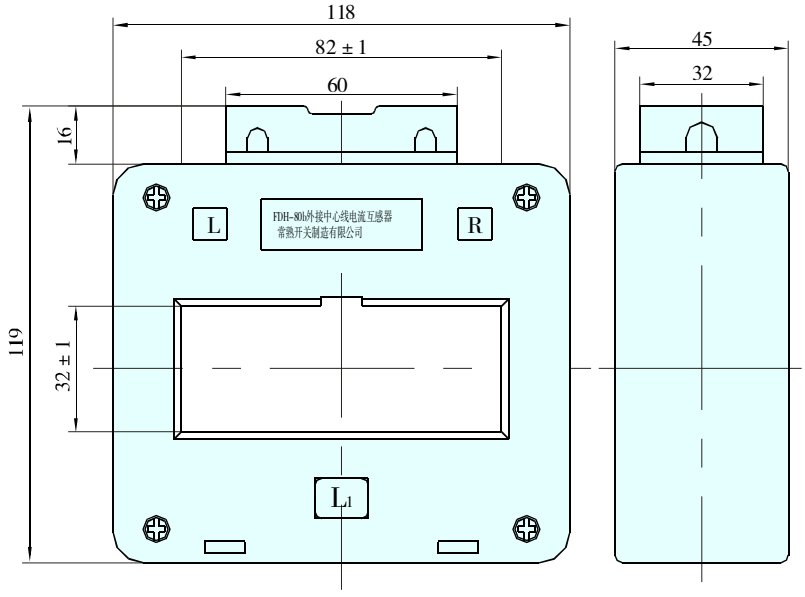
- 可编程扩展输出模块 Programmable output expansion module



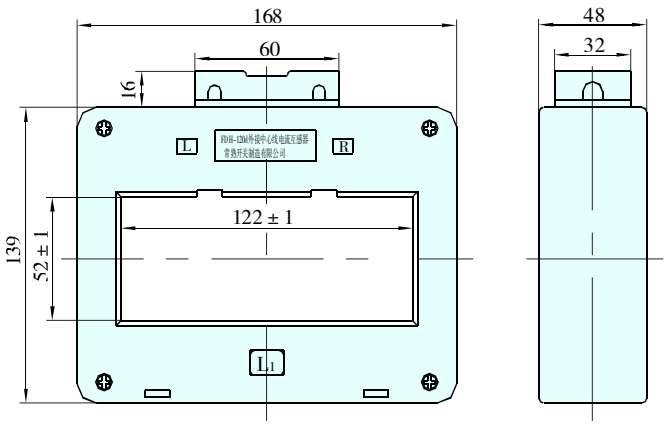
- 外接中性线互感器 Neutral transformer external connected



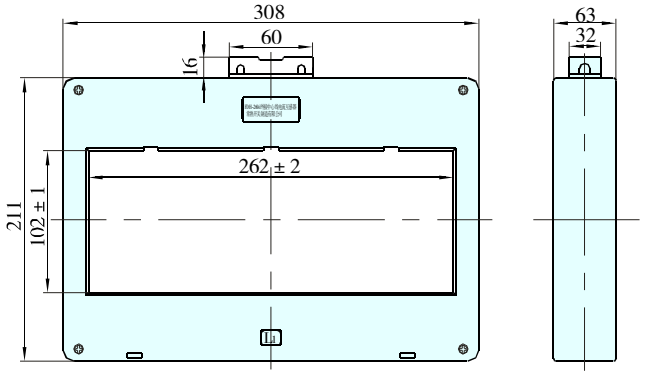
FDH–60
配CW3–1600三极for three poles



FDH–80
配CW3–2500三极for three poles



FDH–120

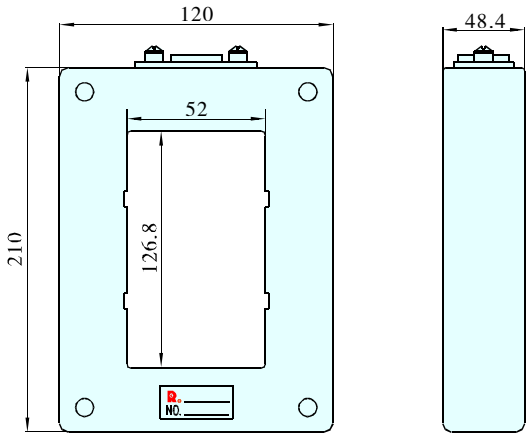


FDH–260

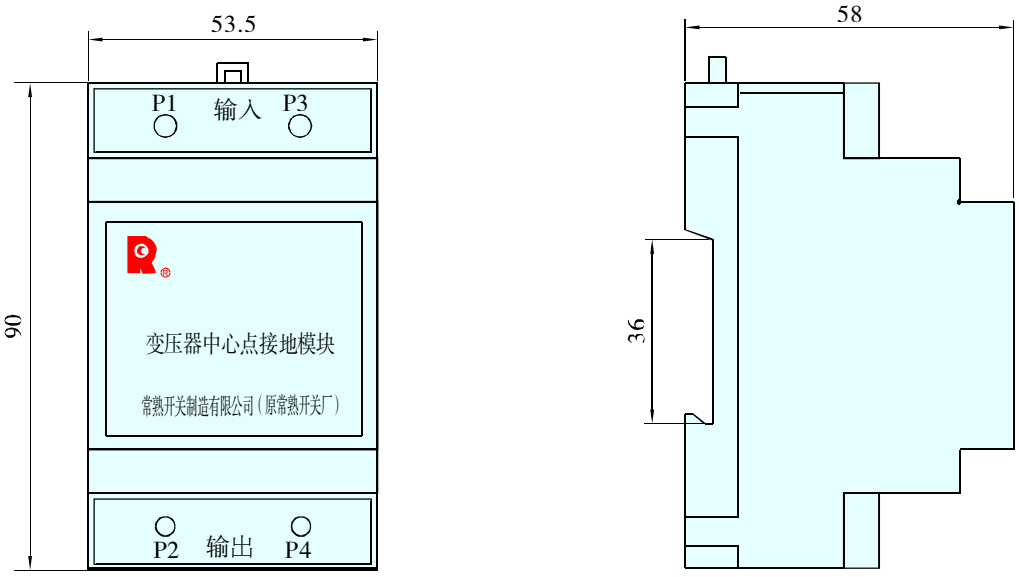
配CW3–4000/6300/7400三极for three poles

CW3–4000/6300/7400三极断路器用户可根据N极母线大小选择中性极互感器FDH–120或FDH–260。

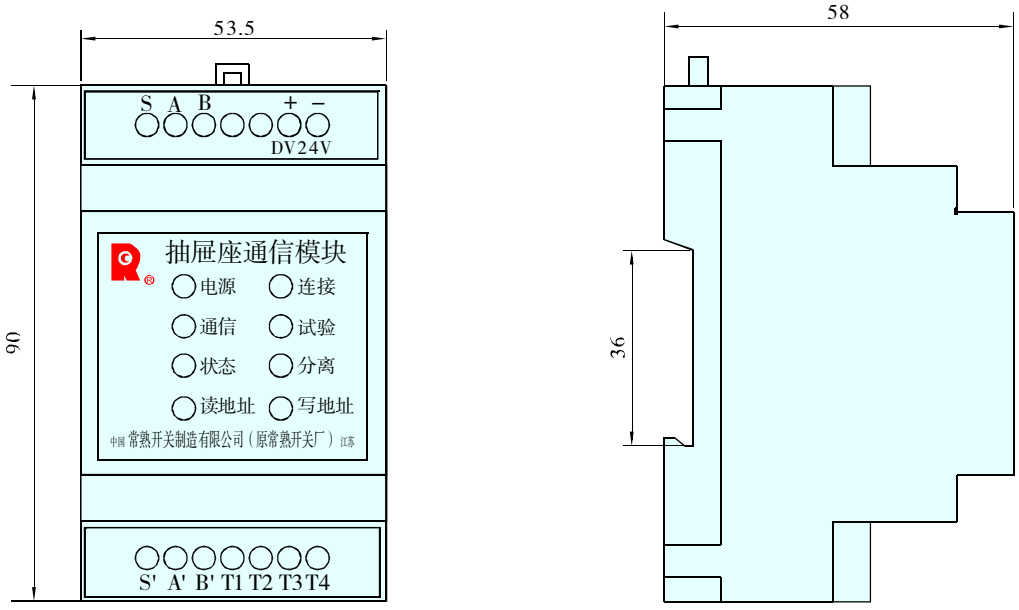
- 变压器中心点接地电流互感器 Earth transformer with transformer's center



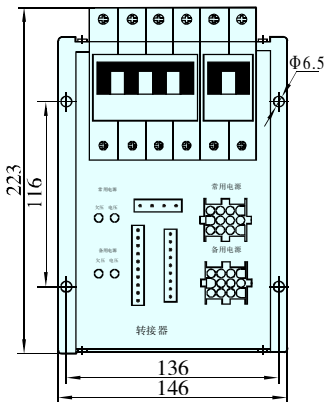
- 变压器中心点接地模块 Earth module of transformer's center

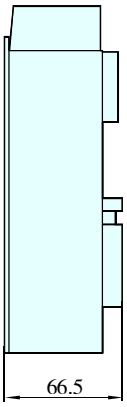


- 抽屉座通信模块 Draw-out socket communication module

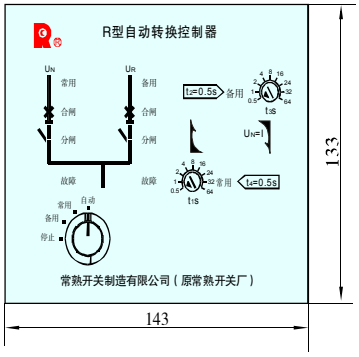


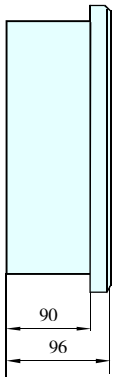
- 转接器 The switching unit

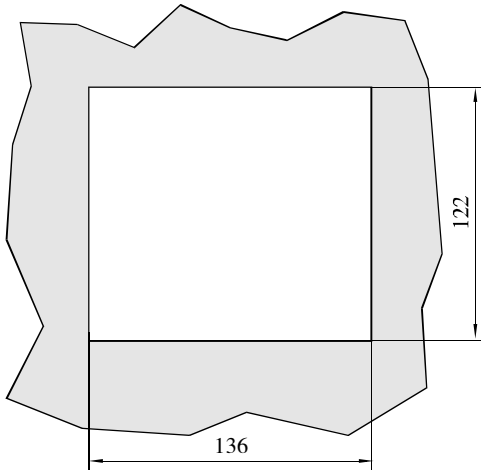




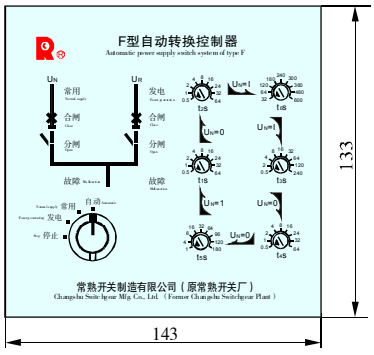
- R、S型自动转换控制器 Automatic power supply switch system of type R and S

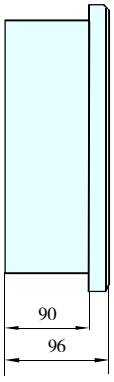


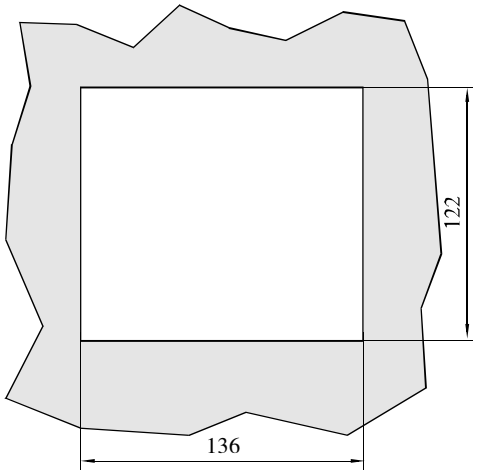




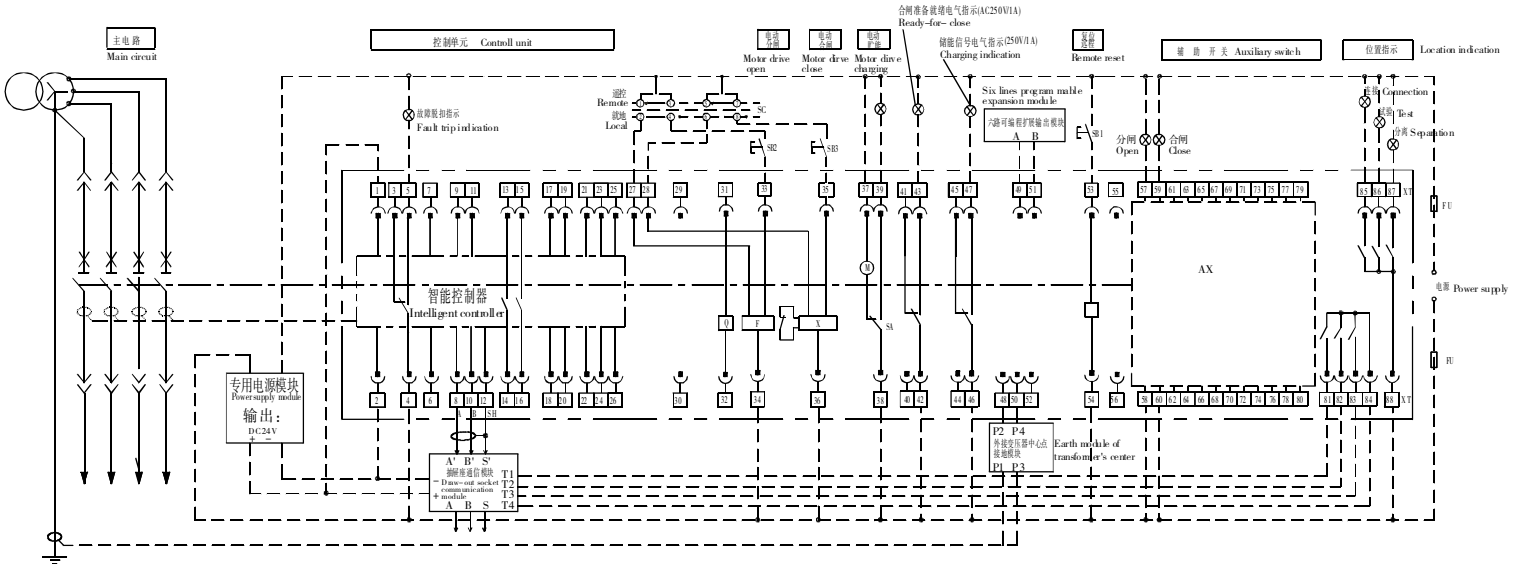
- F型自动转换控制器 Automatic power supply switch system of type F







CW3-1600二次回路接线图
(智能控制器为EN35/36、EA35/36、EP35/36、EQ35/36、EG35/36)

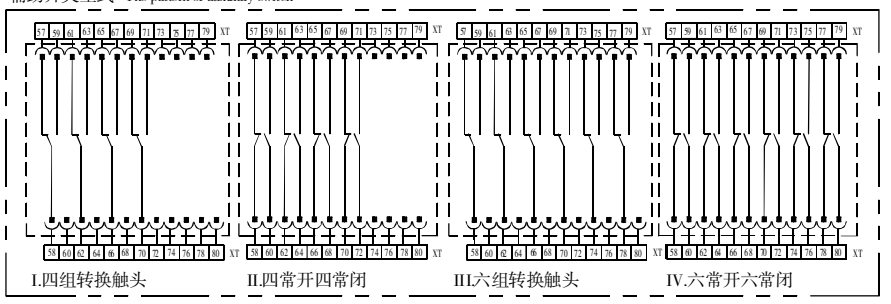


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration, ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch

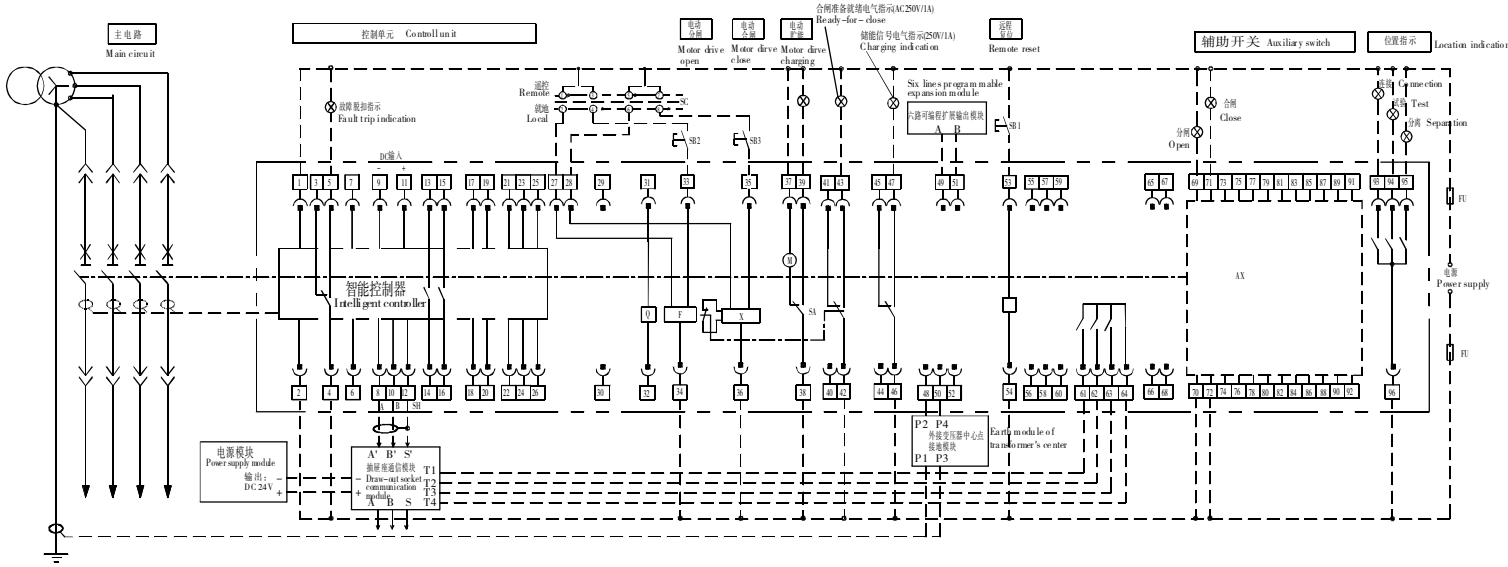


端子号 Terminal	功能Function		适用控制器类型 Controller type				
			EN35/36	EA35/36	EP35/36	EQ35/36	EG35/36
1,2	辅助电源（DC24V）	Auxiliary power supply	√	√	√	√	√
3,4,5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)	√	√	√	√	√
6,7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L.	○	○	○	○	○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A'，10接B'，12接S'	A/B is RS485 interface, 8 to A, 10 to B, 12 to SH. If with components of draw-out socket communication module , 8 to A' , 10 to B' , 12 to S'	○	○	○	○	○
13, 14	可编程输出1	Programmable out 1	○	○	○	○	○
15, 16	可编程输出2	Programmable out 2	○	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V, Voltage changover Module must be selected.	○	—	√	√	√
21,22	ZSI信号输出，21接“+”，22接“COM”	ZSI signal output, 21 connecting “+” , 22 connecting “COM”	○	○	○	○	○
23,24	ZSI信号输入，23接“+”，24接“COM”	ZSI signal input, 23 connecting “+” ,24 connecting “COM”	○	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○	○
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release	√	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√	√
37,38,39	电动(电机贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism, Power supply directly (auto energy prestore) pr power supply with a NO (normal open) button simultaneously (manual energy prestore) with 37,38.	√	√	√	√	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○	○
48,50,52	接地电流模块，48接P2，50接P4	earth current module, 48 connecting P2, 50 connecting P4	○	○	○	○	○
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○	○
57-80	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√	√
85,88	抽屉座“连接”位置指示（AC250V1A）	“Connected” position indication (AC250V1A)	○	○	○	○	○
86,88	抽屉座“试验”位置指示（AC250V1A）	“Test” position indication (AC250V1A)	○	○	○	○	○
87,88	抽屉座“分离”位置指示（AC250V1A）	“Separated” position indication (AC250V1A)	○	○	○	○	○
81,82,83,84	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module	○	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4	Input of draw-out socket communication module location Signal 81 connecting T1,82 connecting T2,83 connecting T3,84 connecting T4	○	○	○	○	○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module	○	○	○	○	○
A' , B' , S'	抽屉座通信模块通信输入，连接本体通信输出，A' 接8，B' 接10，S' 接12	Communication input of draw-out socket communication module , connect with communication output of the main body, A' connect with 8, B' with10, S' with 12Connecting earth transformer of transformer center	○	○	○	○	○
P1,P3	接外接变压器中心点接地互感器	Connecting earth transformer of transformer center	○	○	○	○	○

特别注意：辅助电源电压为AC230V、400V时，需通过CW3-1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。

Special Note: When the voltage of auxiliary power supply is AC230V or AC400V , power supply module of CW3- 1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V ,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V ,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

CW3-2500/CW3-4000/CW3-6300/CW3-7400二次回路接线图 (智能控制器为EN35/36、EA35/36、EP35/36、EQ35/36、EG35/36)

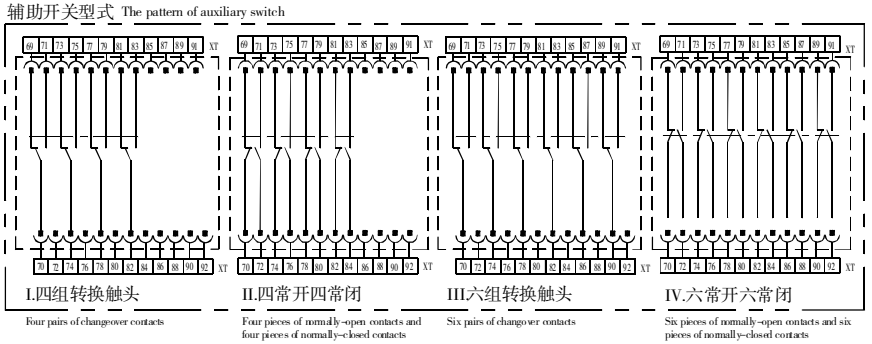


SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch

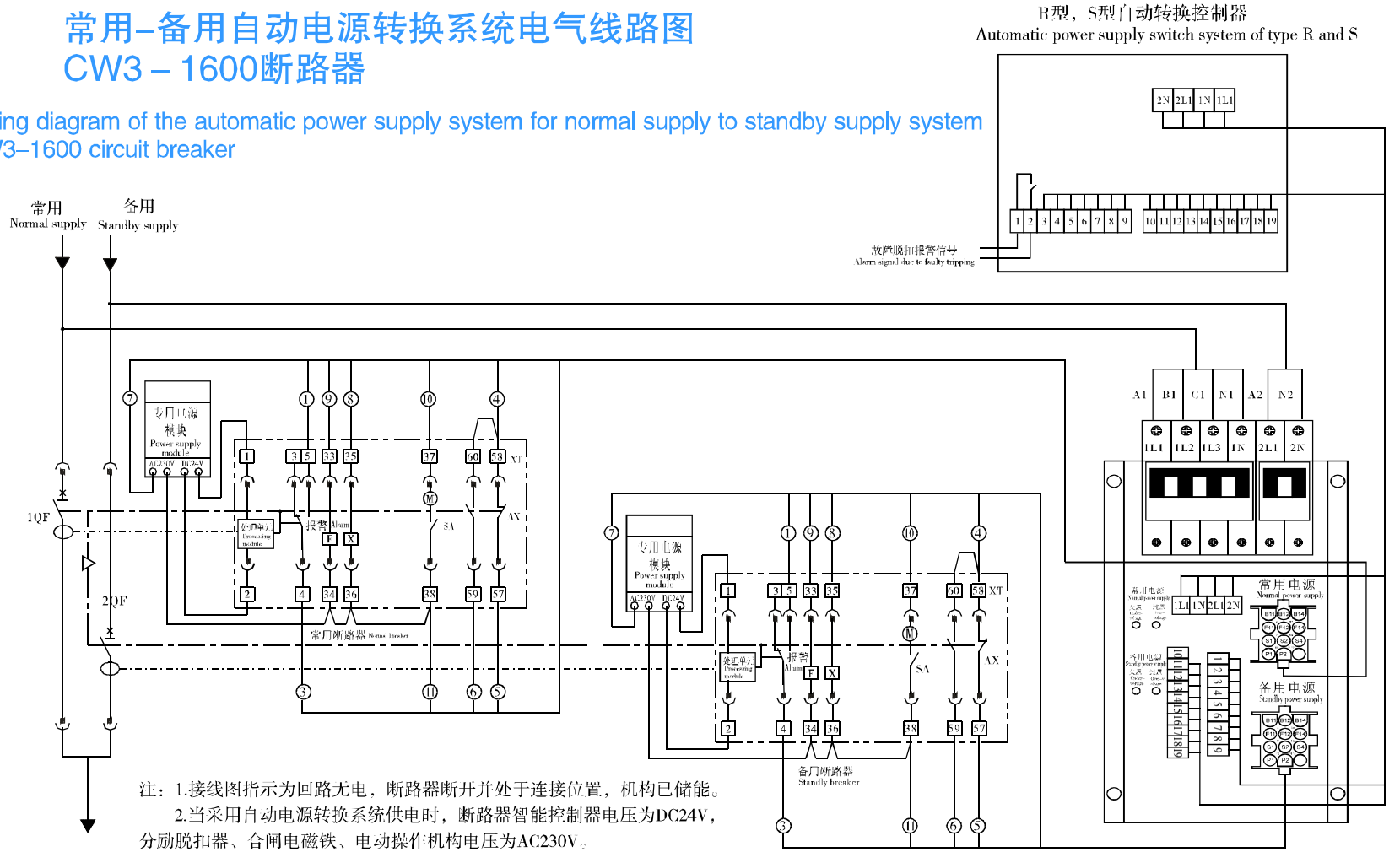


端子号 Terminal	功能Function		适用控制器类型Controller type				
			EN35/36	EA35/36	EP35/36	EQ35/36	EG35/36
1,2	辅助电源	Auxiliary power supply	√	√	√	√	√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction(AC250V 1A)	√	√	√	√	√
6, 7	当二极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L	○	○	○	○	○
8,10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入：8接A'，10接B'，12接S'	A/B is RS485 interface, 8 to A, 10 to B, 12 to SH If with components of draw-out socket communication module, 8 to A' , 10 to B' , 12 to S'	○	○	○	○	○
9,11	通信型断路器需要时接入DC24V电源 9接"-"，11接"+"	connecting DC24V power supply if necessary for communicative circuit breaker	○	○	○	○	○
13, 14	可编程输出1	Programmable out 1	○	○	○	○	○
15, 16	可编程输出2	Programmable out 2	○	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端，当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V, Voltage changover Module must be selected.	○	—	√	√	√
21,22	ZSI信号输出，21接"+"，22接"COM"	ZSI signal output, 21 connecting "+" ,22 connecting "COM"	○	○	○	○	○
23,24	ZSI信号输入，23接"+"，24接"COM"	ZSI signal input, 23 connecting "+" ,24 connecting "COM"	○	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○	○
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release	√	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√	√
37,38,39	电动(电机)贮能，37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor drive energy operating mechanism, Power supply directly (auto energy pre-store) or connect power supply with a NO(normal open) button Ready-for-close indication.	√	√	√	√	√
41,42,43	合闸准备就绪电气指示	simultaneously (manual energy pre-store) with 37,38.	○	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○	○
48,50,52	接地电流模块，48接P2，50接P4	earth current module, 48 connecting P2, 50 connecting P4	○	○	○	○	○
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○	○
69~92	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√	√
93,96	抽屉座"连接"位置指示（AC250V 1A）	"Connected" position indication (AC250V 1A)	○	○	○	○	○
94,96	抽屉座"试验"位置指示（AC250V 1A）	"Test" position indication (AC250V 1A)	○	○	○	○	○
95,96	抽屉座"分离"位置指示（AC250V 1A）	"Separated" position indication (AC250V 1A)	○	○	○	○	○
61,62,63,64	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module	○	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入,61至T1, 62至T2, 63至T3, 64至T4	Input of draw-out socket communication module location Signal, 61 connecting T1, 62 connecting T2, 63 connecting T3, 64 connecting T4	○	○	○	○	○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module	○	○	○	○	○
A' , B' , S'	抽屉座通信模块通信输入，连接本体通信输出，A'接8，B'接10，S'接12	Communication input of draw-out) socket communication module , connect with communication output of the main body, A connect with 8, B with 10, S with 12	○	○	○	○	○
P1,P3	接外接变压器中心点接地互感器	Connecting earth transformer of transformer center	○	○	○	○	○

常用–备用自动电源转换系统电气线路图
CW3 – 1600断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system CW3–1600 circuit breaker

R型，S型自动转换控制器
Automatic power supply switch system of type R and S



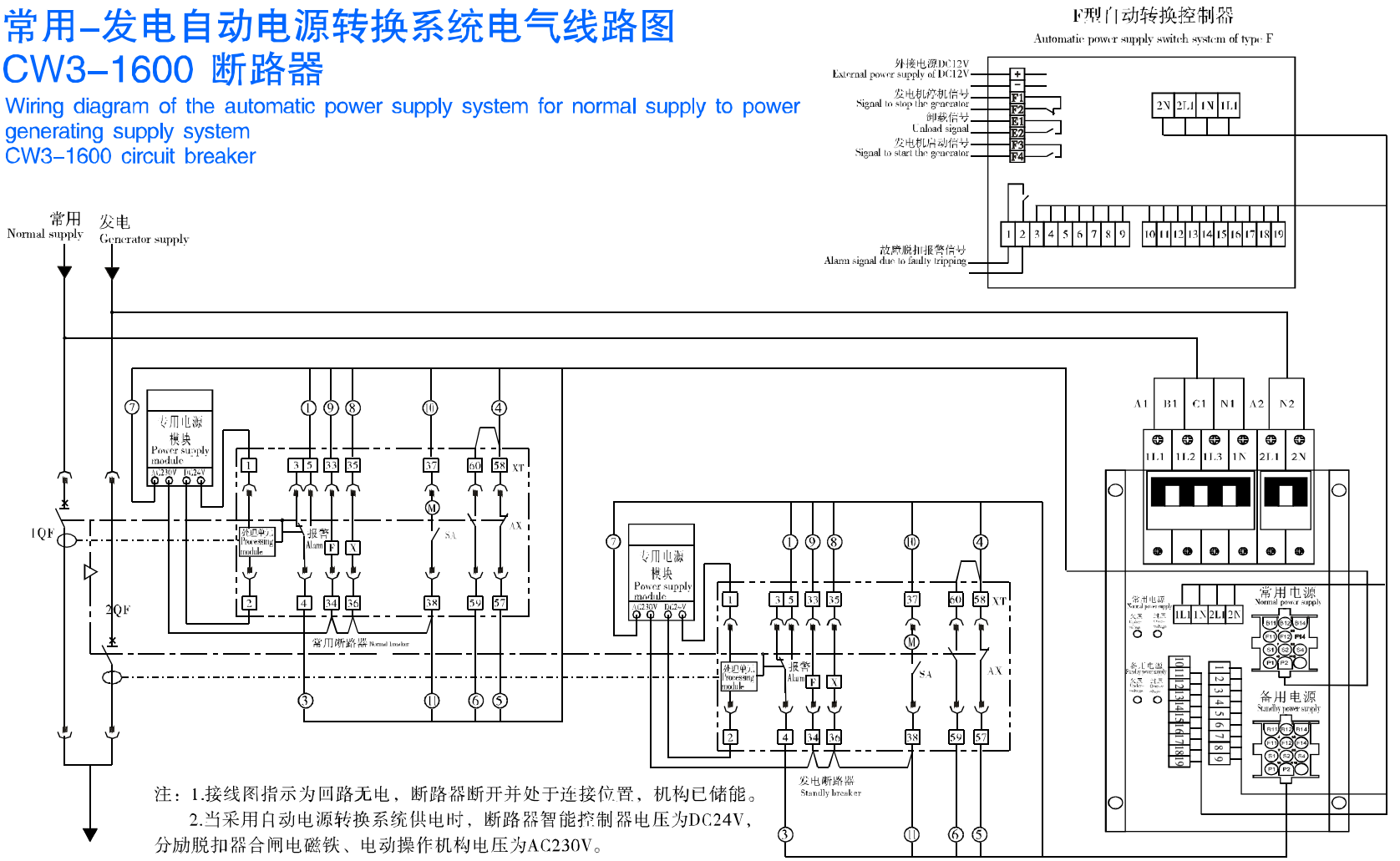
注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。
2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关	AX – Auxiliary switch
F–断路器分励脱扣器	F – Shunt release
X–断路器合闸电磁铁	X – The electro–magnet to close the breaker
M–断路器贮能电机	M – Charging motor
SA–断路器贮能电动机行程开关	SA – Travel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT – Terminals for the secondary circuit of the breaker

常用–发电自动电源转换系统电气线路图
CW3–1600 断路器

Wiring diagram of the automatic power supply system for normal supply to power generating supply system
CW3–1600 circuit breaker



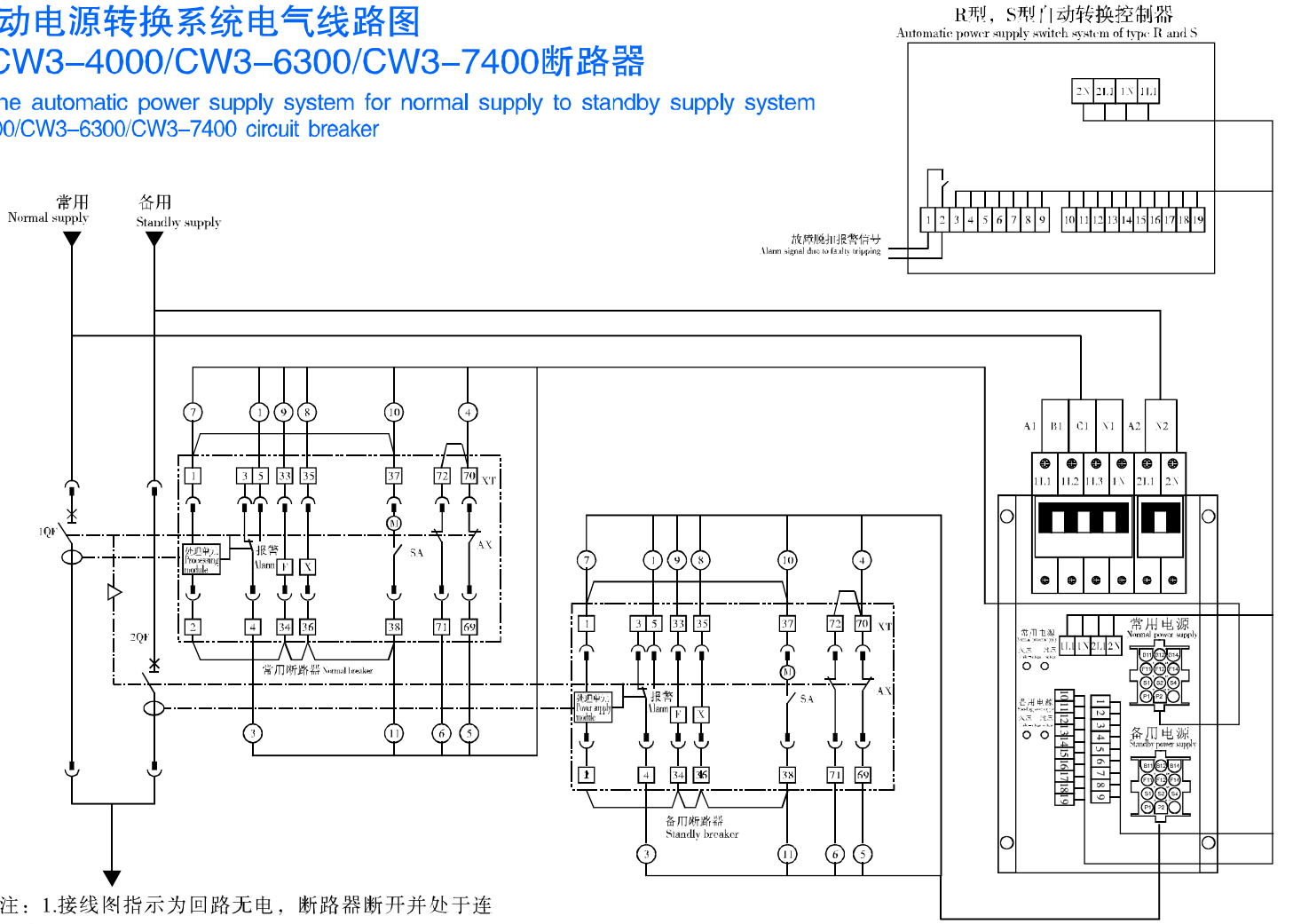
注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。
2.当采用自动电源转换系统供电时，断路器智能控制器电压为DC24V，分励脱扣器合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller is DC24V and the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关	AX – Auxiliary switch
F–断路器分励脱扣器	F – Shunt release
X–断路器合闸电磁铁	X – The electro–magnet to close the breaker
M–断路器贮能电机	M – Charging motor
SA–断路器贮能电动机行程开关	SA – Travel–limit switch for the charging motor of the breaker
XT–断路器二次回路接线端子	XT – Terminals for the secondary circuit of the breaker

常用–备用自动电源转换系统电气线路图
CW3–2500/CW3–4000/CW3–6300/CW3–7400断路器

Wiring diagram of the automatic power supply system for normal supply to standby supply system
CW3–2500/CW3–4000/CW3–6300/CW3–7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.
2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关
F–断路器分励脱扣器
X–断路器合闸电磁铁
M–断路器贮能电机
SA–断路器贮能电动机行程开关
XT–断路器二次回路接线端子

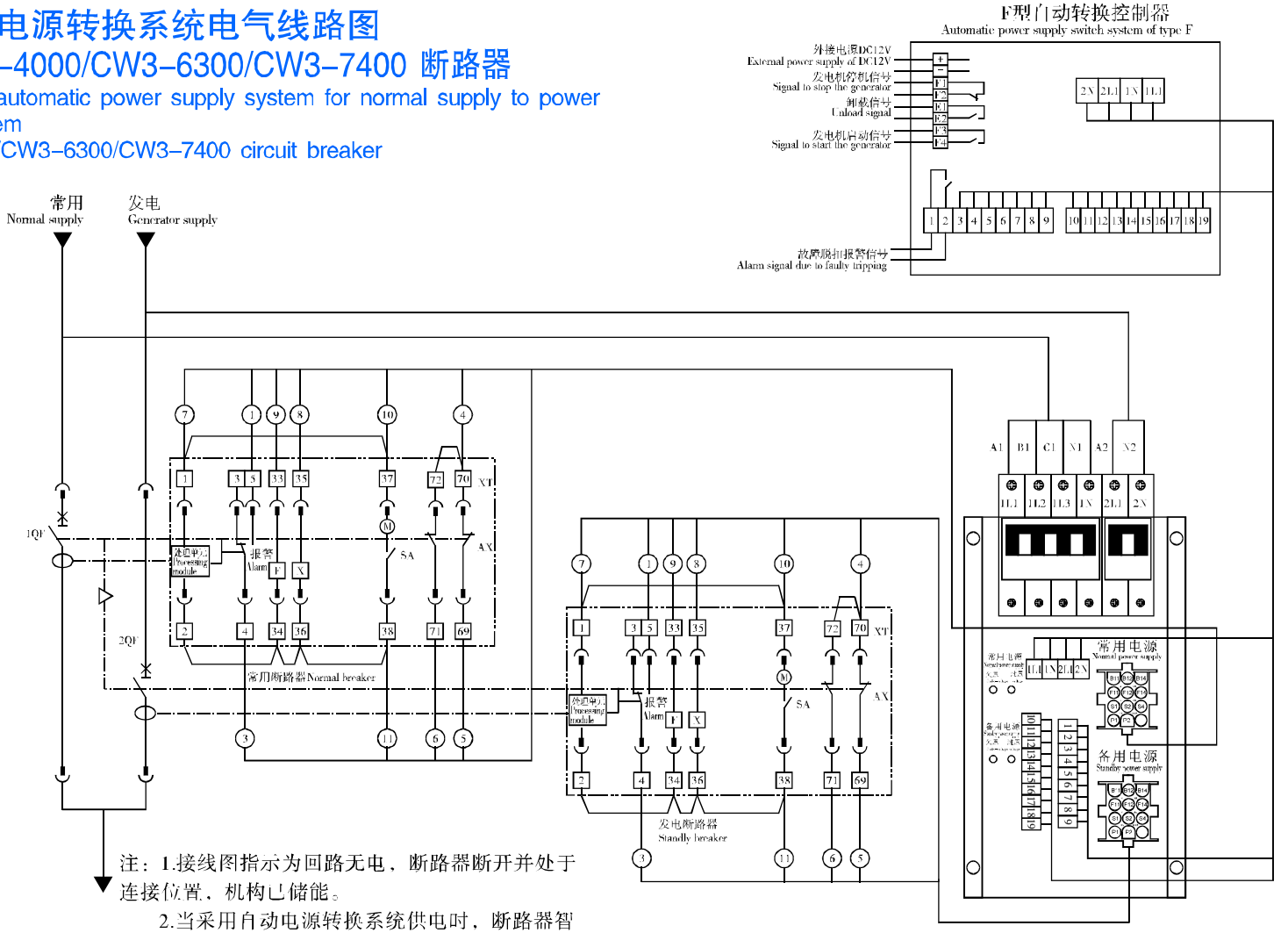
AX – Auxiliary switch
F – Shunt release
X – The electro–magnet to close the breaker
M – Charging motor
SA – Travel–limit switch for the charging motor of the breaker
XT – Terminals for the secondary circuit of the breaker

常用–发电自动电源转换系统电气线路图

CW3–2500/CW3–4000/CW3–6300/CW3–7400 断路器

Wiring diagram of the automatic power supply system for normal supply to power generating supply system

CW3–2500/CW3–4000/CW3–6300/CW3–7400 circuit breaker



注：1.接线图指示为回路无电，断路器断开并处于连接位置，机构已储能。

2.当采用自动电源转换系统供电时，断路器智能控制器、分励脱扣器、合闸电磁铁、电动操作机构电压为AC230V。

Note: 1. As shown in the above diagram the breaker is open and connecting it has been charged and there is no current in the circuit.

2. When Automatic power supply switch system is at work, the voltage of intelligent controller, the voltage of shunt release, closing magnet and automatic operation mechanism is AC230V.

AX–断路器辅助开关
F–断路器分励脱扣器
X–断路器合闸电磁铁
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AX – Auxiliary switch
F – Shunt release
X – The electro–magnet to close the breaker
M – Charging motor
SA – Travel–limit switch for the charging motor of the breaker
XT – Terminals for the secondary circuit of the breaker

本公司结合开发智能电器、成套设备和控制系统的经验，推出了三位一体的Riyear-PowerNet配电监控系统，满足了智能电网对用户端系统智能控制的要求。这套系统以高性能的可通信智能配电元件为基础，将现场的低压配电系统和计算机网络紧密结合，集遥测、遥信、遥控、遥调等功能于一体，是传统配电系统的理想升级。

监控系统除支持本公司所有的可通信元件外，也支持各种不同厂商的具有标准协议的可通信元件，支持包括ModBus、ModBus TCP、Profibus-DP、DeviceNet等各种标准通信总线，还提供简单配电、网络型配电、无线型配电、混合型配电系统等各种连接方式，是功能强大、开放灵活的监控系统。用户可根据实际需要建立适合自己的完善的监控系统，实现远程掌控整个配电系统的运行情况。

监控系统主要包括可靠的系统控制软件、丰富的通信网络和高性能的各类可通信配电元件：系统控制软件实现系统管理功能；通信网络提供现场智能元件和上位监控主机间的连接，进行数据传输，协议的转换；可通信配电元件负责采集现场信息和现场控制，通过通信接口提供给监控系统进行远程管理。

On the experience of developing intelligent equipment,complete equipment and control system,we release the Trinity Riyear-PowerNet power distribution monitoring system to fulfill the requirements of intelligent eletrified wire netting on the intelligent control of user's terminal system.This system,on the basis of high-performance communicative intelligent power distribution component,deeply combine the power distribution system on-the-spot with the computer network and has the function of tele-detection,tele-communication,tele-control and tele-adjustment.It is a fantastic upgrade of conventional power distribution system.

The monitoring system not only supports all kinds of communicative components of our company,but also supports every kind of communicative components made by different manufacturers according to the standard protocol.It supports ModBus,ModBus TCP,Profibus-DP,DeviceNet and every kind of standard communicaion buses.Thus,is provides simple power distribution,mixed type power distribution and every kind of connection ways.It is a funcionally strong,open and flexible monitoring system.Users can build their own complete monitoring system fits to themselves according to the need in practice to achieve mastering the whole power distribution's operation condition remotely.

The monitoring system mainly includes reliable systematic control software,complete communication network and all kinds of communicative power distribution component of high performance:the system control software to achieve system management function;the communication network to provide the connection between the intelligent component on-the-spot and the up-position monitoring host,to perform data transmission and the transformation of the protocol;the communicative power distribution component to handle the gathering of the information on-the-spot,the control on-the-spot and the remote management proided to the monitoring system through the communication interface.

● 断路器通信功能：

可通信CW3智能型万能式断路器通过RS-485接口与上位机连接可实现对断路器远距离遥控、遥信、遥调、遥测功能，用户可在Modbus、Profibus、Devicenet、CAN中任选一种协议进行通信。

可通信数据:

遥测：实时电流、电压、基波电流、基波电压、功率、功率因数、电能、频率、谐波电流电压含有率、谐波电流电压总畸变率数据。

遥信：报警、故障脱扣、储能信号、欠电压、断路器本体位置、合闸准备就绪、分合闸位置等断路器状态数据。

遥控：远程分合断路器。

遥调：远程保护参数读取和修改。

通信参数：Modbus：波特率 19200bps（支持1200、2400、4800、9600、38400bps）；

Profibus：波特率 9.6K、19.2K、93.75K、187.5K、500K、1.5M、3M、6M、12M；

Devicenet：波特率 125K、250K、500K；

CAN：波特率 5K、10K、20K、40K、50K、80K、100K、125K、200K、250K、400K、500K、666K、800K、1000K。

通信地址：1-119。

帧格式：1位起始位，8位数据，2位停止位，偶校验（支持无校验、奇校验）。

网络特性：

通信线路为双绞屏蔽线。

一条线路可同时连接32台可通信断路器。

最大接线距离1200米，可通过加装中继器延长通信距离。

● Communication function of breaker

Communicative CW3 breaker can achieve these function of tele-control,tele-communication,tele-adjustment and tele-detection by RS485 interface to upper computer.user may select one protocol of Modbus,protibus,Devicenet and CAN.

Communication data:

Remote detection: real-time current、voltage、fundamental current、fundamental voltage、power、power factor、electric energy、harmonic current or voltage ratio and total distortion of current or voltage.

Remote communication: state data of circuit breakers such as alarm、fault 、energy-storage、under-voltage、main body position of breaker、ready-for-closing、the position of closing and opening etc.

Remote control: long-distance operation if closing and opening.

Remote adjustment: long-distance fetching and modifition of the setting values of breaker.

Communication parameter:

Modbus: Band rate 19200bps（in favor of 1200、2400、4800、9600、38400bps）.

Profibus: band rate 9.6K、19.2K、93.75K、187.5K、500K、1.5M、3M、6M、12M;

Devicenet: band rate 125K、250K、500K;

CAN: band rate 5K、10K、20K、40K、50K、80K、100K、125K、200K、250K、400K、500K、666K、800K、1000K。

Communication address: 1 ~ 119.

Byte format: first bit as start bit、eighth bit as data bit、second bit as stop bit、even check（in favour of non-check、odd check）.

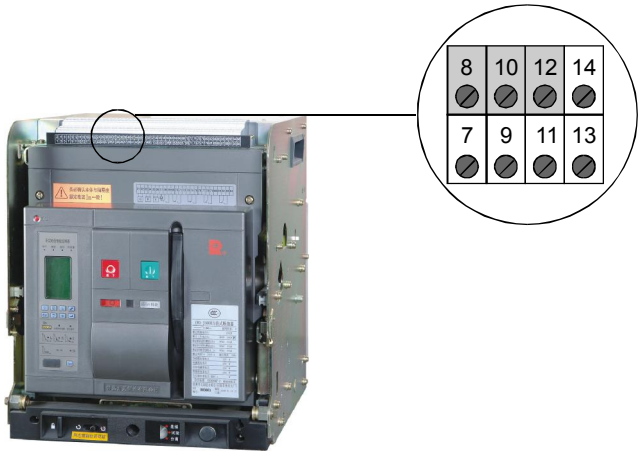
Network characteristic:

Twisted-pair shielded cables serve as communication lines.

One line can link up 32 pieces of communicative breakers at the same time.

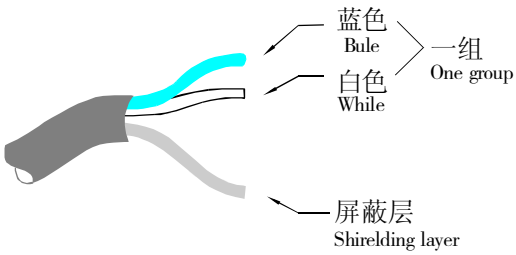
Wiring distance is 1200m at maximum but the distance of communication can be extended by equipping with repeaters additionally.

● 通信接线端子　Wiring terminals for communication



端子 Terminals	信号 Signal	功能 Function
8	DATA+(A+)/CAN_H	接收/发送数据+ Receive/transmit date+
10	DATA−(B−)/CAN_L	接收/发送数据− Receive/transmit date−
12	SH/drain	接通信线屏蔽层 Connecting shielded lager of communication line

● 通信电缆连接　Communication cable connected



标准双绞线带屏蔽
Standard twisted−pair shielded cable

颜色/color		信号signal	功能 Function
蓝色blue		DATA+	接收/发送数据+ Receive/transmit data
白色white		DATA−	接收/发送数据− Receive/transmit data
通信线屏蔽层 Shielding layer		GND	接地 Grounding

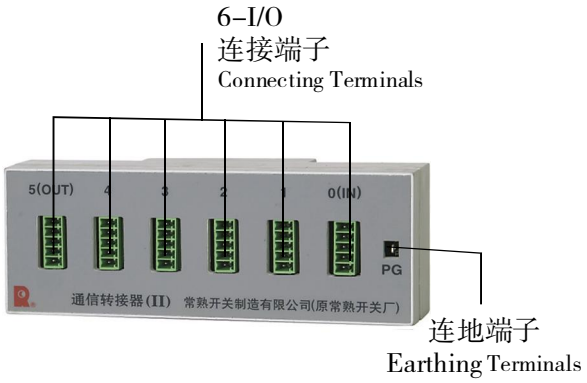
如上图中使用通信电缆中的一组双绞线作为485通信线，屏蔽层用于接地。用户实际所使用的可能会有所差异，如双绞线颜色。用户可根据实际情况自行定义，但应事先明确每一通信电缆线的信号定义情况。

注意：通信电缆请使用带屏蔽的型号，在柜内走线时尽量远离强电线路。

As the above diagram shows,a group of twisted−pair lines in the standard communication cable is employed as the communication line of 485 and the sheilding lager is grounded.The actual pratice should be possibly different such as the application of the colour of the twisted−pair line.Users could define the ways of cable's usage by themselves but the definition of the signal of each line in the cable shoule be made clear in adcance.

Note:please use the type of communication cable with the shielding lager and approach to circuits with strongelectricity should be advoided as far as possible when wiring in the cabinet.

通信连接扩展 Communication connection eottend



注：可多次扩展，但一条线路不应连接超过32台设备。
Note: can be expanded by several times, but one piece of circuit can not connect with 32 sets of devices at most.

通信转接器可以提高用户现场接线的效率和可靠性，它具有以下特点：

6个RS485通信接口，最多可扩展5个可通信设备

多个通信转换器可互联进行扩展（参见注）

配有通信线接地端子

可直接安装在标准35mm导轨上

The Communication Adapter can largely improve the efficiency and reliability of wiring on site by customers, which embraces the characteristics of :

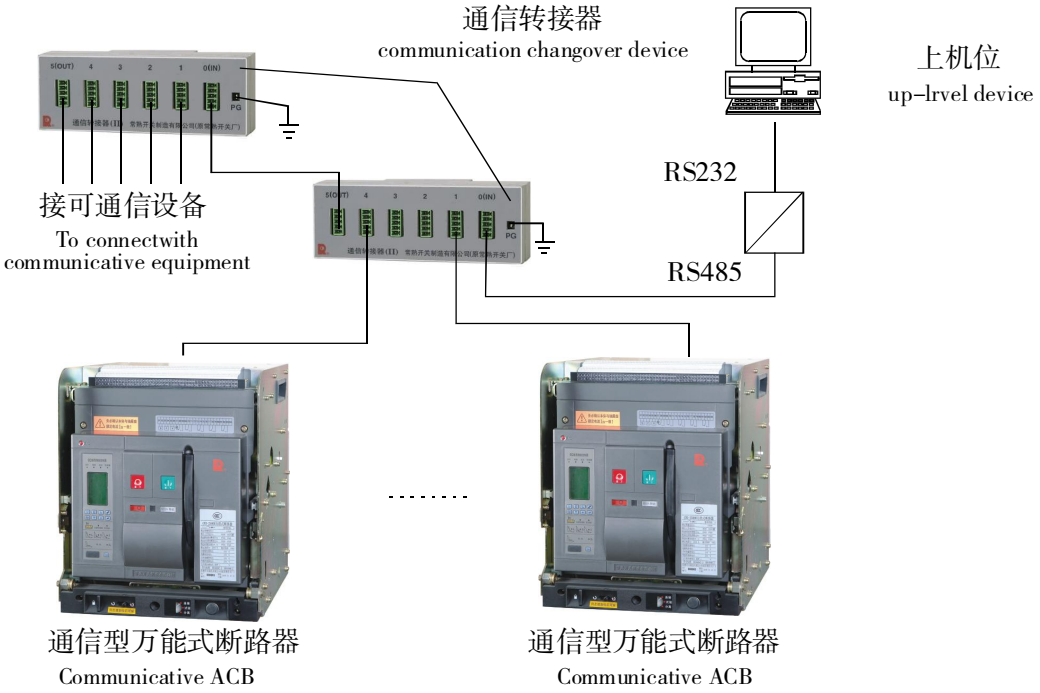
Six pieces of RS485 Communication Interfaces, can join together with 5 sets of Communicative Devices at most

Several Communication Adapters can realize the expansions by their networking (Refer to Note)

Equipped with earthing terminals of communication line

Can be installed directly on the standard slideway in 35mm width

连接示意图 Connection figured diagram



网络通信

我公司还提供多种通信适配器实现对Profibus-DP、DeviceNet、CAN及以太网ModBus /TCP协议的支持，为用户提供了丰富的解决方案。

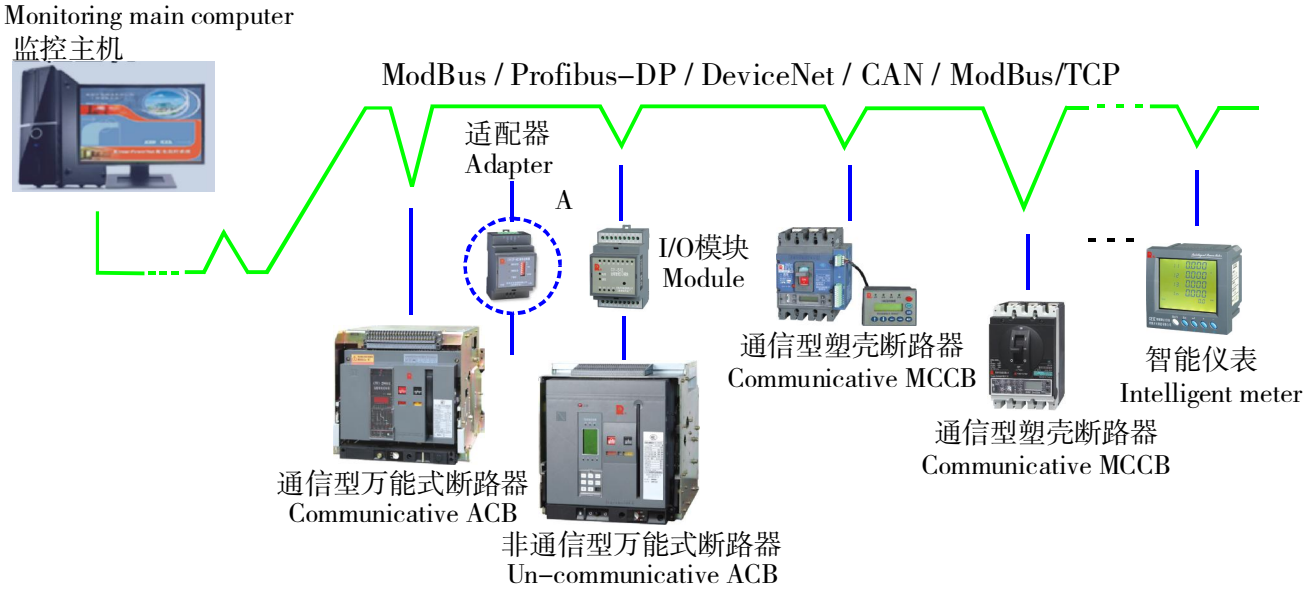
用户也可使用FCX3智能配电监控器，同我公司的可通信断路器进行连接，实现远程对断路器各项参数显示、监控、配置、历史数据保存等。同时我们还率先推出通信断路器的无线监视功能，通过配置FDM3短消息通知模块可实现断路器故障脱扣或报警的远程信息监视。

用户还可通过CI1系列远程智能I/O模块连接非通信型断路器，实现远程监测断路器合分闸状态、故障状态等重要信息。

Our company also offers several kinds of communication adapters to achieve the support of Profibus-DP,DeviceNet,CAN and Ethernet ModBus/TCP protocol and to supply the customers with lots of solutions.

The users can also connect FCX3 intelligent power distribution monitor with our company's communicative circuit breaker to achieve the display,monitor,configurationand the previous data's maintenance of the circuit breaker's parameter remotely.At the same time,we also promote the radio monitoring function of the communicaiton circuit breaker.By the configuration of the short message informing module,we can achieve the information's remote monitoring of the ctircuit breaker's failure release or alarm.

The users can connnect the uncommunicative circuit breaker through CI1 series remote intelligent I/O module to achieve remotely monitoring the circuit breaker's,switching-on or -off state,failure state and other important information.



注A：本公司通信元件采用标准的ModBus-RTU协议，可直接接入ModBus总线，当使用其它协议时采用相应的通信适配器转接。

NoteA:The communicative compents of my company adopts standard ModBus-RTU protocol,may be connected ModBus field bus.if adopting other protocol,using communicative adapters changover.

● 通信适配器　　Communication adaptor

CN1DP–MD

CN1DP–MP

CN1DP–MC

CN1EG/10

CN1DP–MD、CN1DP–MP、CN1DP–MC 和CN1EG/10为四款具有通信转换功能的适配器，与本公司具有标准ModBus–RTU协议接口的通信型智能产品连接，实现不同协议的转换，使通信型智能产品能在DeviceNet、Profibus–DP、CAN现场总线上或以太网TCP/IP网络上实现遥信、遥调、遥控及遥测功能。

CN1DP–MD通信适配器实现从ModBus–RTU协议向DeviceNet协议的转换；

CN1DP–MP通信适配器实现从ModBus–RTU协议向Profibus–DP协议的转换；

CN1DP–MC通信适配器实现从ModBus–RTU协议向CAN总线协议的转换；

CN1EG/10以太网适配器实现ModBus协议在串行链路和以太网TCP/IP网络间进行数据传输；

CN1DP–MD、CN1DP–MP只支持单台设备通信，CN1EG/10、CN1DP–MC最多可支持32台设备通信。

CN1DP–MD,CN1DP–MP,CN1DP–MC and CN1EG/10 are four types of adapters which have the function of communicative transformation.They can be connected to our company's communicative intelligent products which have the standard ModBus–RTU protocol interface to achieve the transformation of different protocls,and further to make the communicative intelligent product achieve tele–communication,tele–adjustment tele–control and tele–detection unction on DeviceNet,PROFIBUS–DP,CAN field bus or Ethernet TCP/IP network.

CN1DP–MD Communicative adaptor achieves the transformation from ModBus–RTU protocol to DeviceNet protocol;

CN1DP–MP communicative adaptor achieves the transformation from ModBus–RTU protocol to Profibus–DP protocol.

CN1DP–MC communicative adaptor achieves the transformation from ModBus–RTU protocol to CAN bus protocol

CN1EG/10 Ethernet adaptor make ModBus protocol transmit data between the serial chain circuit and the Ethernet TCP/IP network.

CN1DP–MD、CN1DP–MP can only support single equipment communication, CN1EG/10、CN1DP–MC can support 32 equipment's communication at most.

● 短消息通知模块　　short message alarm module

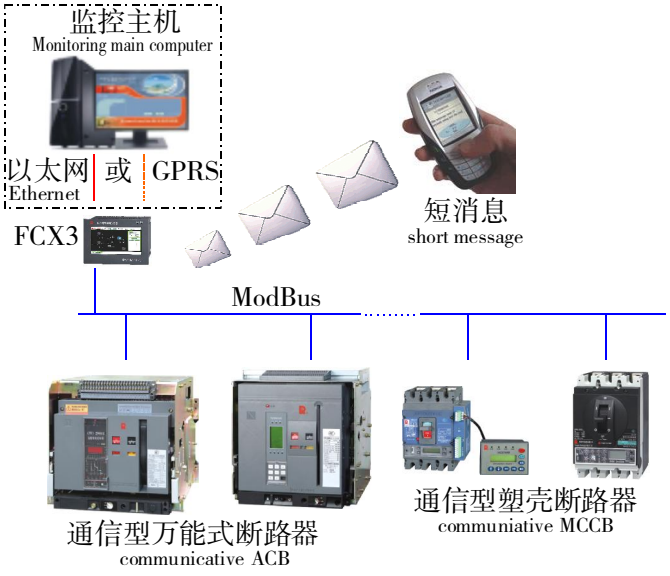
FDM3短消息通知模块采用标准RS485通信方式直接连接一台或多至16台可通信断路器，当断路器发生预先设置的事件时，通过GSM网络发送短消息到一部或多至10部手机提示用户及时处置，预设的事件可以是各种故障脱扣和电力参数异常报警。用户可通过我公司提供的计算机配置软件对短消息通知模块进行配置，包括通信参数、手机号码、设备名称、报警类型等，运行时无需计算机。

FDM3 short message informing module adopts the standard RS485 communication method to connect one or at most 16 communicative circuit breaker directly.When the circuit breaker encounter an incident previously set,the module sends short message to one or at most ten mobile phones through GSM network to cue the users to handle in time.The previously set incident can be all kinds of failure release and electric parameter abnormal alarm.The users can configure the short message informing module with the computer configuration software offered by our company, including communication parameter, mobile phone number,equipment name,alarm type and so on.When working,no need of computer.

● 智能配电监控器　　intelligent power distribution monitor

FCX3智能配电监控器是我公司为用户提供的采用彩色图形化显示、触摸式操作的简洁实用的配电监控产品，它采用标准ModBus-RTU协议，通过RS485接口与我公司可通信断路器连接，方便实现“四遥”功能。

Every FCX3 intelligent power distribution monitor can connect to at mosr 16 communicative circuit breaker at the same time.We can build power distribution monitoring system without computer configuration.At the same time, we can achieve short message informing or GPRS wireless function through expanding the module.



每台FCX3智能配电监控器可同时连接最多16台可通信断路器，无需配置计算机即可组建配电监控系统，同时还可通过扩展模块实现短信通知或GPRS无线功能。

FCX3智能配电监控器还内置WEB服务器，方便用户通过局域网或以太网实现远程访问。用户在远程计算机可以监测通信型断路器的各项数据，如：设备状态、测量数据、整定数据、事件记录、历史数据等。

Every FCX3 intelligent power distribution monitor can connect to at mosr 16 communicative circuit breaker at the same time.We can build power distribution monitoring system without computer configuration.At the same time, we can achieve short message informing or GPRS wireless function through expanding the module.

FCX3 intelligent power distribution monitor also integrate WEB SERVER,MODBUS/TCP function.The monitoring main machine also can be connected to monitor through Ethernet interface to achieve remote monitoring such as:state of equipment,measurement datas,setting datas,story records,history datas etc.

● 远程智能I/O模块

CI1系列远程智能I/O模块是一种简洁实用可靠的可通信监控模块，通过标准RS485接口、ModBus-RTU协议可实现系统的遥信、遥控及遥测功能。用户使用非通信型断路器时，可以通过该模块实现对相应配电回路的监测。用户能远程监测该回路电流、断路器合分闸状态、故障状态等重要的信息。

CI1-SCM423具有4路共端开关量输入、2路继电器输出、3路5A电流输入。用户通过它并且配合断路器的输入输出及线路中的标准电流互感器，能知道馈电线路的3相电流和4路开关量（如：开关合分闸状态，故障状态等）。

CI1-S12具有12路共端开关量输入。用户通过它可以了解到最多12台断路器的合分闸状态，或者6台断路器的合分闸状态、故障状态。

CI1-C8具有4组8路继电输出，可以控制4台断路器的合分闸。

CI1-SC64具有6路开关量输入和4路继电输出，可以在控制断路器的同时，对其重要状态进行监测。

CI1 series remote intelligent I/O module is a convenient,practical and reliable communication monitoring module.It can achieve the system's tele-communication,tele-control and tele-detection function through standard RS485 interface,ModBus-RTU protocol.When the users use the uncommunication circuit breaker,the moitoring of respective distributing circuit can be achieved by the module.The users can monitor the current of the circuit,the switching -on or -off state,failure state and other important information remotely.

CI1-SCM423 has four-circuit co-terminal switching times output,two-circuit 5A current input.The users can be informed of the feeder's three-phase current and four-circuit switching times(for example:switching -on and -off sttate,failure state and so on)through CI1-SM423 and with the help of circuit breaker's input,output and standard current mutual inductor in the circuit.

CI-S12 has twelve-circuit co-terminal switching times input.The users can know the switching -on or -off state of at most twelve circuit breakers or six cicuit breakers' switching -on or -off state,failure state by it

CI1-C8 has four groups of eight-circuit relay output and it can control the switching -on or -off of four circuit breakers.

CI1-SC64 has six-circuit switching times input and four relay output.It not only controls the circuit breaker,but also monitors circuit breaker's state at the same time.

FWB1温度报警模块 TEMPERATURE ALARM MODULE

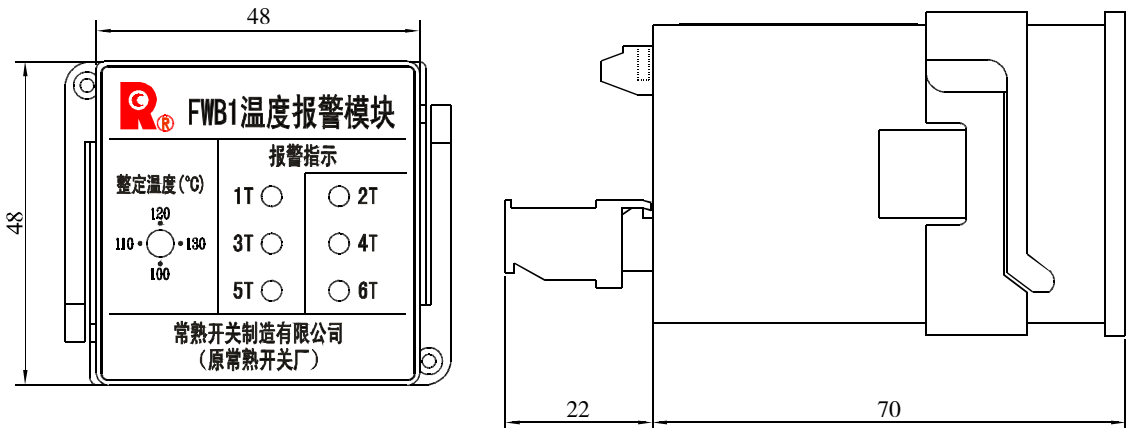
●FWB1温度报警模块 Temperature alarm module

FWB1温度报警模块采用FRG热传感器直接安装在连接点位置在线检测温度，最多监测6路连接位置温度(热传感器连接至温度报警模块背面的输入端子分别为1T、2T、3T、4T、5T、6T)。当监测到连接点温度超过动作温度时，温度报警模块指示灯点亮发出相应报警指示，并且内置的继电器二路输出触头闭合（二路输出端子分别为13、14，23、24），可发出远方报警信号或使断路器跳闸；当监测到连接点温度降至复位温度时，温度报警模块指示灯熄灭并且二路输出触头断开。温度报警模块连接至热传感器的线长为1.5米。

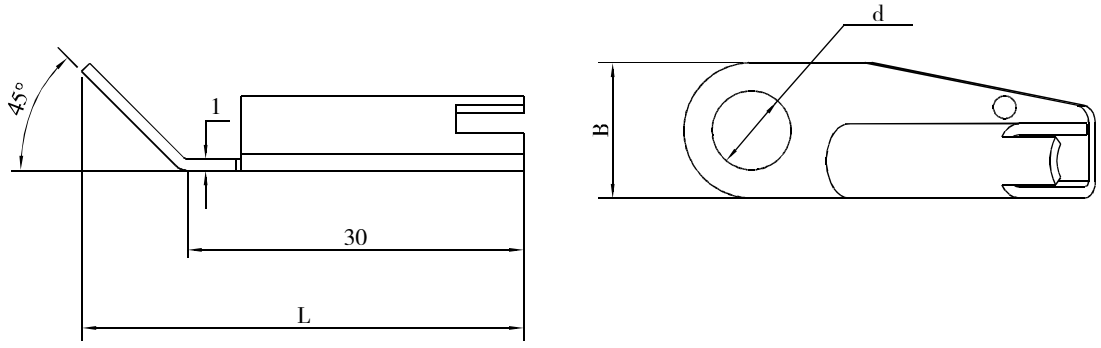
FWB1 temperature alarm module adopts online temperature detection that the FRG heat sensor directly mounted on the connection position.It can detect at most six points connection position(the input terminals on the back of the temperature alarm module, which the heat sensot is connected to,are 1T、2T、3T、4T、5T、6T respectively).When detecting the temperature of the connection points is higher than action temperature, the temperature alarm module's directive lights are on and alarming,at that time,the inbuilt relay's 2nd output contact will make(the 2nd output terminals are 13、14，23、24 respectively);when detecting the connection temperature dropping to resetting temperature, the temperature alarm module's directive lights are off and the 2nd output contact will break.The connection wire between the temperature alarm module and the heat sensor is of 1.5m length.

测温范围 temperature detection range	0~150℃
动作温度To action temperature	100/110/120/130℃
复位温度Tr resetting temperature	To-5℃
精度 precision	± 5℃
传感器绝缘耐压 sensor insulation withstand voltage	AC3500V/1min
测温点数 temperature detection points	最多6路 6 points at most
工作电源 operatiing current	AC230V，范围range195~253V
输出触头容量 output contace capacity	3A/AC250V，3A/DC24V
工作温度 operating temperature	– 20℃~+70℃

- FWB1温度报警模块+FRG热传感器 FWB1 temperature alarm module+FRG heat sensor



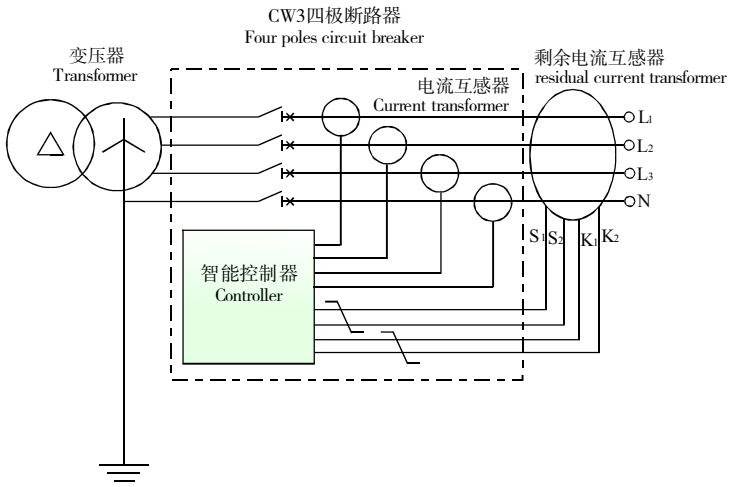
FWB1温度报警模块
Temperature alarm module



FRG热传感器
Hest sensor

热传感器型号 heat sensor type	B（mm）	L（mm）	d（mm）
FRG-7	12	40	ϕ7
FRG-9	14	41	ϕ9
FRG-11	16	42	ϕ11
FRG-13	18	44	ϕ13
FRG-17	22	47	ϕ17

剩余电流保护功能说明
Instruction of residual current protection function



● CW3-1600/CW3-2500断路器配置了带剩余电流保护功能的智能控制器可实现附加的剩余电流保护功能。

剩余电流保护可实现以下三种形式：

①跳闸；

②报警不跳闸：发生剩余电流故障时断路器不跳闸，但通过安装的“二路可编程输出模块”输出剩余电流故障报警信号。如果用户要实现输出报警触点复位，必须按智能控制器上“Clear”键才能完成；

③跳闸并报警：发生剩余电流故障时断路器跳闸，且通过安装的“二路可编程输出模块”输出剩余电流故障报警信号。如果用户要实现输出报警触点复位，必须按智能控制器上的“Clear”键才能完成。

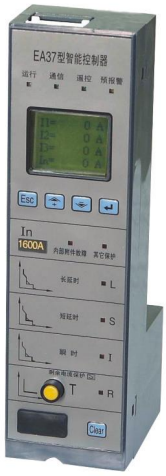
● 实现原理：断路器剩余电流保护功能的实现由套装于A、B、C、N相上的剩余电流互感器采样、剩余电流信号经EN37或EA37或EP37或EQ37智能控制器处理后，判别故障电流并发出相应动作信号，如图所示。采样信号经最大长度为4m的20#~14#屏蔽双绞线接至断路器二次回路接线端子，互感器输出端子S1、S2接至断路器二次端子48、50，K1、K2接至52、56。

注：对剩余电流保护，断路器二次回路接线端子1、2必须接辅助电源（见P106、P107）

● CW3-1600/CW3-2500 circuit breaker with intelligent controller having residual current protection function,can achieve additional residual current protection function.
Residual current protection can achieve the following three forms:
① trip;
② alarm and non-trip:When residual current fault occurs,the circuit breaker doesn't trip otherwise outputs residual current fault alarm signal by the installed"two-circuit programmable output module".If the customer wants to achieve output alarm contact reset,he needs to push the "Clear"button on the intellgent controller.
③ alarm and trip:When residual current occurs, the circuit breaker trips,and outputs residual current fault alarm signal by the installed"two-circuit programmable output module".If the customer wants to achieve output alarm contact reset,he needs to push the "Clear"button on the intelligent controller.

● Principle:residual current protection function is achieved by the sampling of residual current transformer suited on A.B.C.N phase.EN37 or EA37 or EP37 or EQ37 intelligent controller deals with residual current signal, identify fault current and send relative action signal,as figure illustrated.sampling signal goes by20#~14# shielded cable with 2 twisted pairs,whose maximum length is 4m, to circuit breaker secondary circuit wiring terminals.The residual current transformer output terminals S1,S2 and connected to the circuit residual current tramsformer breaker secondary terminals 48,50,and K1,K2 are connected to 52,56.
Note:About the residual current protection funcion, circuit breaker secondary return circuit wiring terminals 1,2 must be connected to the auxiliary supply.(see page106、107).

带剩余电流保护功能智能控制器
Intelligent controller incorporating residual current protection function.



① EN37型、EA37型、EP37型、EQ37型智能控制器的保护功能为：过载长延时+短路短延时+短路瞬时+剩余电流保护；
② EN37型、EA37型、EP37型、EQ37型其他功能见P12；
③ EN37型、EA37型、EP37型、EQ37型智能控制

① Protection function for EN37、EA37、EP37、EQ37: overload long-time delay & short-circuit short-time delay & instantaneous short-circuit & residual current protection;
② other functions for their is seen P12;
③ Rated residual operating current and delay time are adjustable

剩余电流动作特性 Operating characteristic of residual current

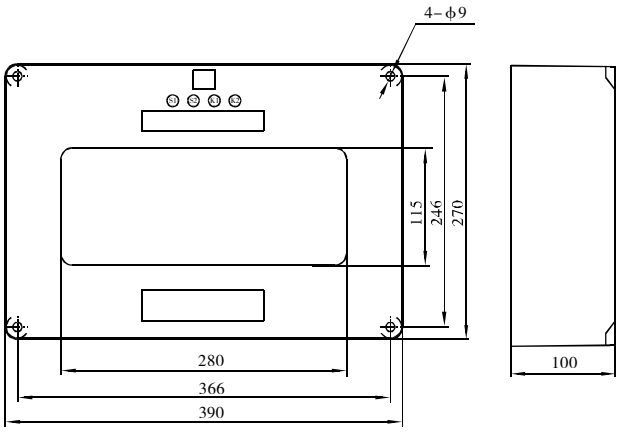
保护功能 Protection function	动作电流 Operating Current	动作时间 Operating time									适用场合 Suit for place
剩余电流保护 Residual current	I△n=(0.5-1-2-3-5-7-10-20-30)A	可调延时△t(s)* Delay time	0.10	0.20	0.30	0.40	0.50	0.80	1.00	3.00	5.00	交流AC、交流/脉动直流 A
		最大断开时间(s) Max.break time	0.25	0.35	0.45	0.60	0.70	1.00	1.20	3.20	5.20	

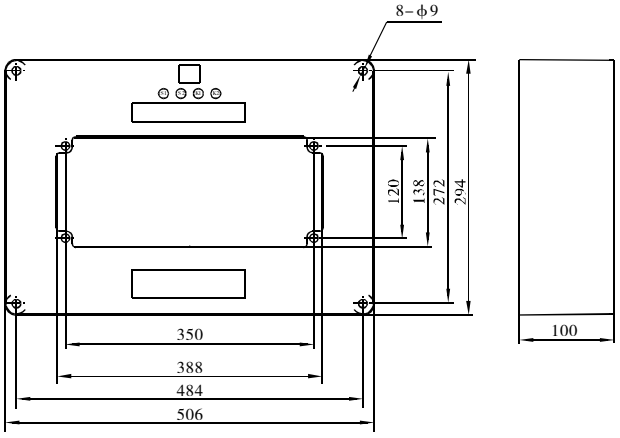
*注：按GB14048.2，可调延时△t为2I△n时的设定值。
*Note:△t of delay time is setting valuse of 2I△n by GB14048.2.

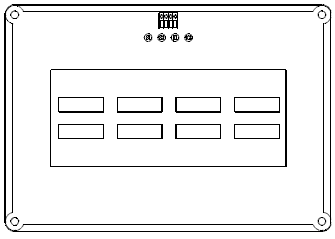
● 剩余电流互感器 Residual current transformer

配用于CW3–1600/CW3–2500断路器并且智能控制器为EN37、EA37、EP37、EQ37，剩余电流互感器与三极断路器或四极断路器一起使用，套装于开关柜三相相线和中性线母线上。

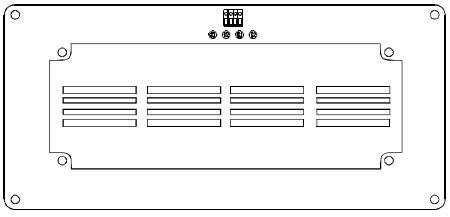
Be suitable for CW3–1600/CW3–2500 breaker and intelligent controllers of EN37、EA37、EP37 and EQ37.it is installed at three phases and neutral bars of switchgear assenble with three poles or four poles breaker.



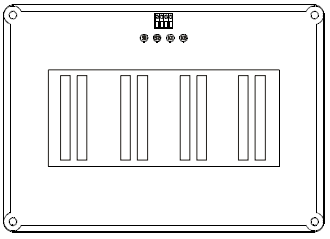




2根50 × 10(mm × mm)母排安装示意
Mounting type for two bars

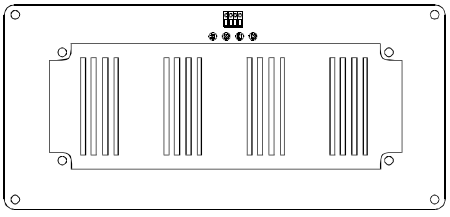


4根60 × 10(mm × mm)母排安装示意
Mounting type for two bars



2根100 × 5(mm × mm)母排安装示意
Mounting type for two bars

配CW3–1600

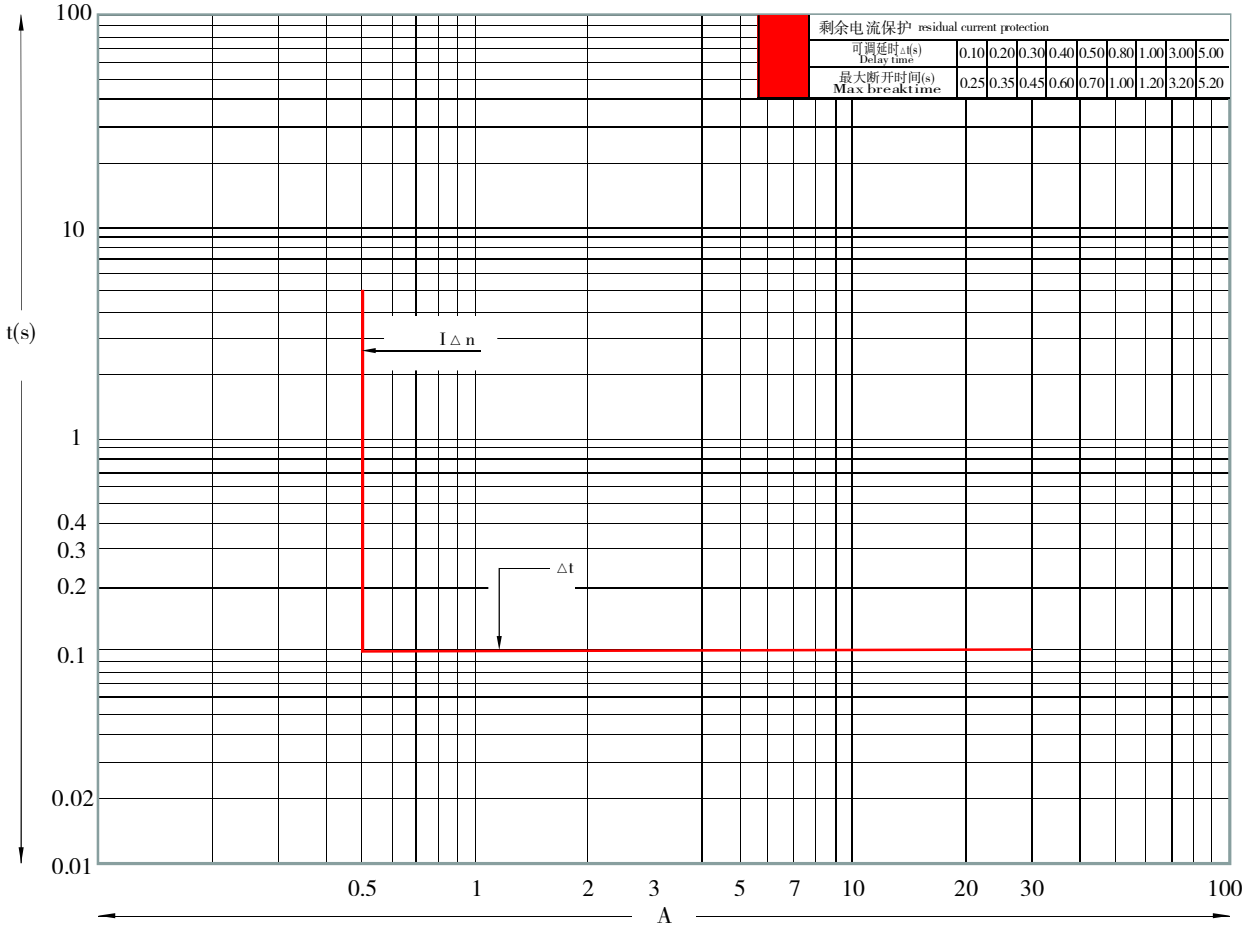


4根120 × 5(mm × mm)母排安装示意
Mounting type for two bars

配CW3–2500

● 剩余电流保护时间/电流特性曲线

T/I (time/current) curve of residual current protection



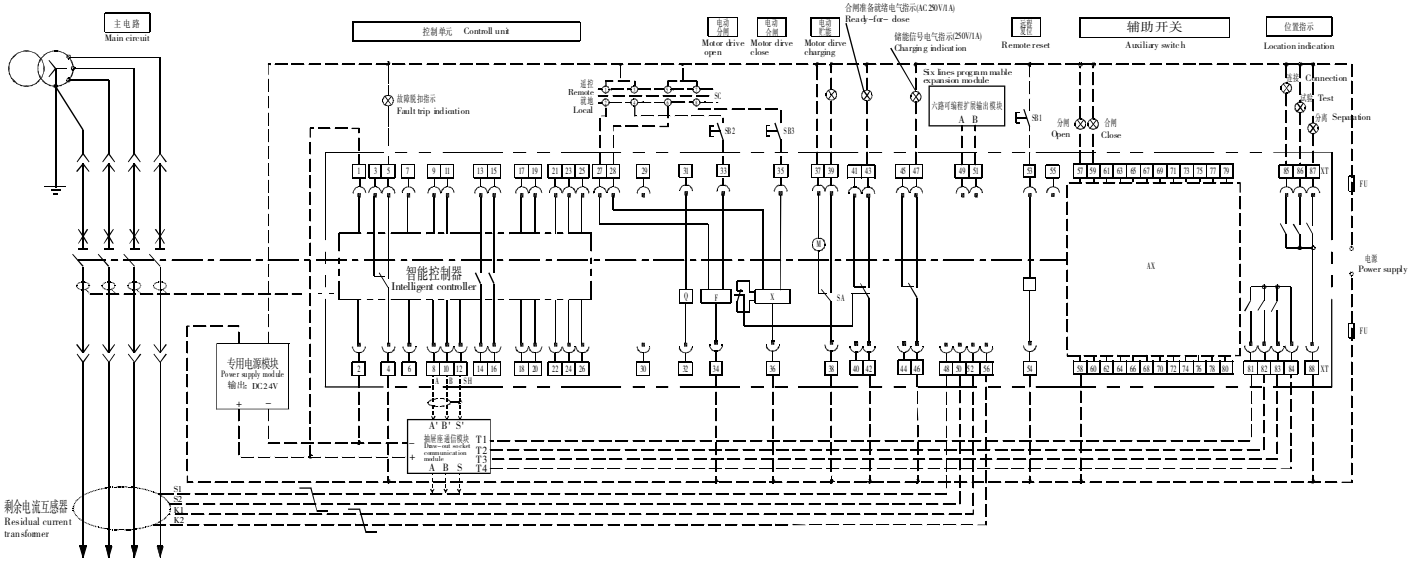
● 智能控制器的剩余电流显示及测量准确度

Residual current indication and accuracy of intellingent controller

项目 Item		测量范围 Measmenent range	准确度 Accuracy			
			EN37	EA37	EP37	EQ37
剩余电流I△测量 Residual current measurement	正弦交流AC型 SinusoidalA.C	（0.3~36）A	± 10%	± 10%	± 10%	± 10%
	交流/脉动直流A型 A.C/Pulasting D.C		±（0.2I△n+0.1×读数）			

● 断路器二次回路接线图
Wiring diagram of the breaker secondary circuit

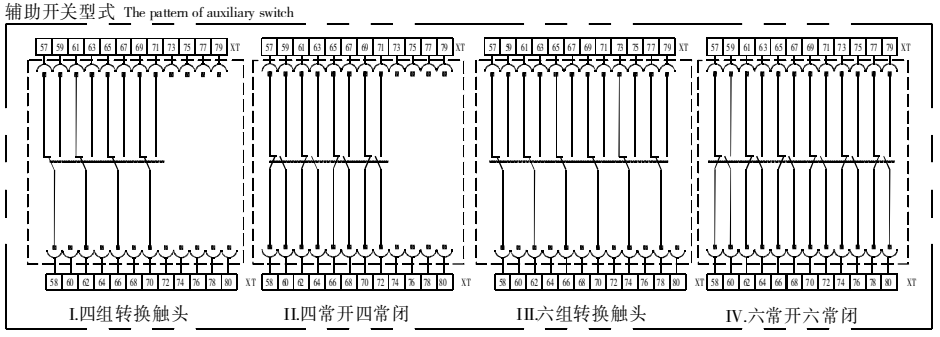
CW3–1600断路器带剩余电流保护二次回路接线图 (智能控制器为EN37、EA37、EP37、EQ37)



SB1	远程复位按钮	Remote reset button
SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
SC	转换开关	chang-over switch
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F,X etc
下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch

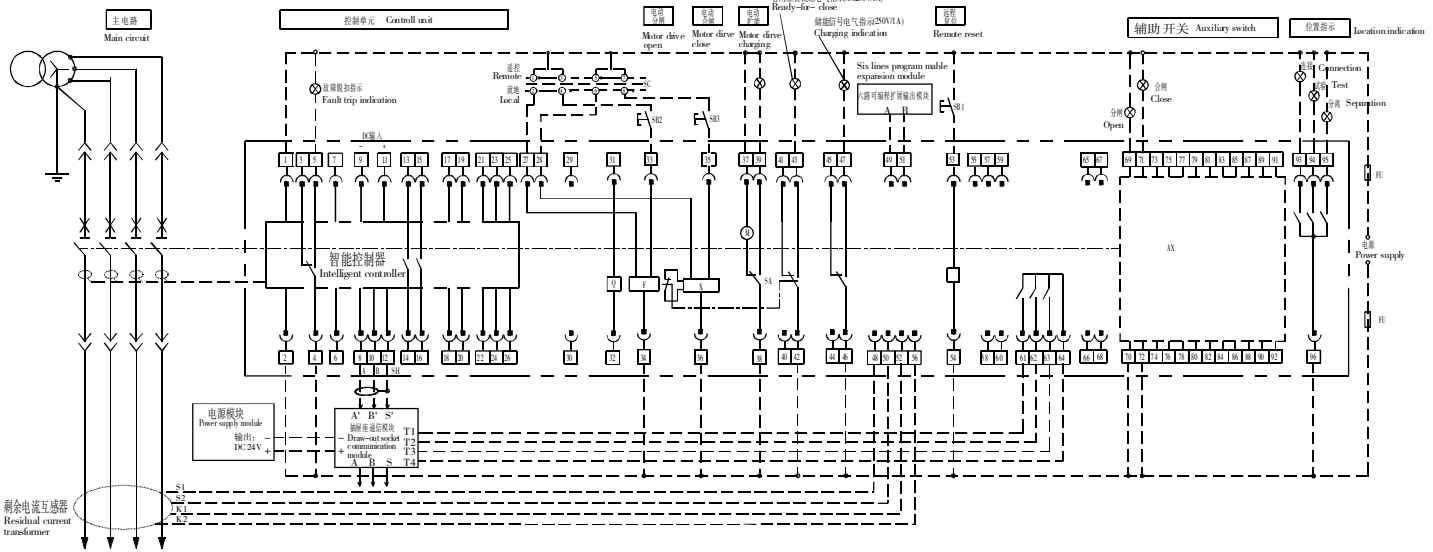


端子号Terminal	功能Function		适用控制器类型 Controller type			
			EN37	EA37	EP37	EQ37
1, 2	辅助电源（DC24V）	Auxiliary power supply	√	√	√	√
3, 4, 5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)	√	√	√	√
6, 7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three-pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L.	○	○	○	○
8, 10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	A/B is RS485 interface, 8 toA,10 toB, 12 to SH If with components of draw-out socket communication module , 8 to A’ ,10 to B’ , 12 to S’	○	○	○	○
13, 14	可编程输出1	Programmable out 1	○	○	○	○
15, 16	可编程输出2	Programmable out 2	○	○	○	○
17,18,19,20	电压显示用A、B、C、N、三相电压输入端。 当主回路电压大于AC400V需通过电压转换模块接入	Voltage display by voltage input of the phases: A, B, C and N, When main voltage is large than AC400V,Voltage changover Module must be selected.	○	—	√	√
21,22	ZSI信号输出，21接“+”，22接“COM”	ZSI signal output, 21 connecting “+” , 22 connecting “COM”	○	○	○	○
23,24	ZSI信号输入，23接“+”，24接“COM”	ZSI signal input, 23 connecting “+” ,24 connecting “COM”	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√
37,38,39	电动(电机贮)能。37,38可直接接电源（自动预贮能）， 也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a N.O(normal open) button simultaneously (manual energy prestore) with 37, 38.	√	√	√	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○
48,50,52,56	接剩余电流互感器	connecting residual current transformer	√	√	√	√
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○
57-80	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication（AC250V 1A）	○	○	○	○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○	○	○	○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○	○	○	○
81,82,83,84	位置信号输出至抽屉座通信模块	Location signal output to draw-out socket communication Module	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入,81至T1,82至T2,83至T3,84至T4	Input of draw-out socket communication module location Signal, 81 connecting T1, 82 connecting T2,83 connecting T3,84 connecting T4	○	○	○	○
A, B, S	抽屉座通信模块通信输出	Communication output of draw-out socket communication module	○	○	○	○
A’, B’, S’	抽屉座通信模块通信输入连接本体通信输出,A’接8,B’接10,S’接12	Communication input of draw-out socket communication module, connect with communication output of the main body A, connect with 8, with B, with 10, with 12	○	○	○	○
S1,S2	剩余电流互感器测量输出，S1至48，S2至50	measurement output of residual current transformer,S1 connecting48 , S2 connecting 50	√	√	√	√
K1,K2	剩余电流互感器试验输出，K1至52，K2至56	test output of residual current transformer, K1 connecting 52, K2 connecting 56	√	√	√	√

特别注意：辅助电源电压为AC230V、400V时，需通过CW3–1600智能控制器专用电源模块转换成DC24V接入1、2端子；DC110V、220V时需通过直流电源模块转换成DC24V接入1、2端子。辅助电源电压为DC24V时，需通过DC24V电源模块由DC24V转DC24V接入1、2端子。
Special Note: When the voltage of auxiliary power supply is AC230V or AC400V , power supply module of CW3–1600 intelligent should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of power supply is DC110V or DC220V,DC power supply module should be transformed into DC24V in connection with terminals of 1 and 2.
When the voltage of auxiliary power supply is DC24V,DC24V power supply module should be transformed into DC24V in connection with terminals of 1 and 2.

● 断路器二次回路接线图
Wiring diagram of the breaker secondary circuit

CW3–2500断路器带剩余电流保护二次回路接线图 (智能控制器为EN37、EA37、EP37、EQ37)



SB1	远程复位按钮	Remote reset button
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SB3	合闸按钮	Closing button
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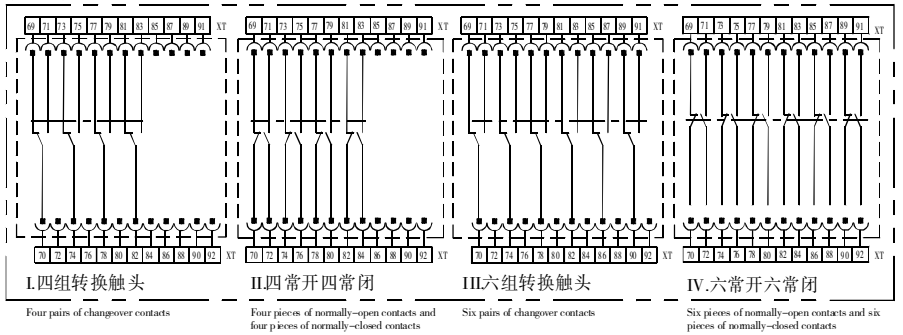
Q	欠电压脱扣器或欠电压延时脱扣器	Under–voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Chargi ng motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若智能控制器、欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of controller, Q, F, X etc
下表中，√为必备附件的功能接线；○为选择附件的功能接线；—为无该项功能。In the following table, √: standard configuration , ○: optional configuration, —: none.

辅助开关型式 The pattern of auxiliary switch



I.四组转换触头
Four pairs of changeover contacts

II.四常开四常闭
Four pieces of normally–open contacts and four pieces of normally–closed contacts

III.六组转换触头
Six pairs of changover contacts

IV.六常开六常闭
Six pieces of normally–open contacts and six pieces of normally–closed contacts

端子号Terminal	功能Function		适用控制器类型Controller type			
			EN37	EA37	EP37	EQ37
1,2	辅助电源	Auxiliary power supply	√	√	√	√
3、4,5	故障指示触点(AC250V 1A)	Fault Instruction (AC250V 1A)	√	√	√	√
6,7	当三极断路器选择外接中性线电流互感器时，接至外接中性线电流互感器。其中6接互感器端子R，7接互感器端子L。	Three–pole circuit breaker with current transformer with neutral line N, 6 to R, 7 to L. A/B is RS485 interface, 8 toA ,10 toB,12 to SH	○	○	○	○
8、10, 12	A、B为RS485通信接口，SH接屏蔽层，其中8接A，10接B，12接SH。若有抽屉座通信模块，则接至抽屉座通信模块输入，8接A’，10接B’，12接S’	If with components of draw–out socket communication module ,8 to A’ , 10 to B’ , 12 to S’	○	○	○	○
9,11	通信型断路器需要时接入DC24V电源9接“–”，11接“+”	connecting DC24V power supply if necessary for communicative circuit breaker	○	○	○	○
13、14	可编程输出1	Programmable out 1	○	○	○	○
15、16	可编程输出2	Programmable out 2	○	○	○	○
17,18,19,20	电压显示用A、B、C、N，三相电压输入端；当主回路电压大于AC400V需通过电压转换模块接入。	Voltage display by voltage input of the phases: A, B, C and N, when main voltage is large than AC400V, Voltage changeover Module must be selected.	○	—	√	√
21,22	ZSI信号输出，21接“+”，22接“COM”	ZSI signal output, 21 connecting “+” ,22 connecting “COM”	○	○	○	○
23,24	ZSI信号输入，23接“+”，24接“COM”	ZSI signal input, 23 connecting “+” ,24 connecting “COM”	○	○	○	○
27	遥控分闸时接与33端子同相位电源	When remote open, connecting terminal 33	○	○	○	○
28	遥控合闸时接与35端子同相位电源	When remote close, connecting terminal 35	○	○	○	○
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under–voltage release	○	○	○	○
33, 34	分励脱扣器	Connect with shunt release	√	√	√	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√	√	√	√
37,38,39	电动(电机贮能。37,38可直接接电源（自动预贮能），也可由接常开按钮后接电源（手动预贮能）	Connect with Motor drive operating mechanism. Power supply directly (automatic energy preserved), or power supply with a NO(normal open) button simultaneously (manual energy preservation) with 37,38	√	√	√	√
41,42,43	合闸准备就绪电气指示	Ready–for–close indication	○	○	○	○
45,46,47	储能信号电气指示	charging indication	○	○	○	○
48,50,52,56	接剩余电流互感器	connecting residual current transformer	√	√	√	√
49,51	可编程扩展输出，49接A，51接B	Programmable expansion output, 49 connecting A, 51 connecting B	○	○	○	○
53,54	远程复位	Remote reset	○	○	○	○
69–92	辅助开关连接端子	Connecting terminals of auxiliary switch	√	√	√	√
93,96	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication（AC250V 1A）	○	○	○	○
94,96	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○	○	○	○
95,96	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○	○	○	○
61,62,63,64	位置信号输出至抽屉座通信模块	Location signal output to draw–out socket communication Module	○	○	○	○
T1,T2,T3,T4	抽屉座通信模块位置信号输入，81至T1，82至T2，83至T3，84至T4	Input of draw–out socket communication module location Signal: 81 connecting T1,82 connecting T2,83 connecting T3,84 connecting T4	○	○	○	○
A、B、S	抽屉座通信模块通信输出	Communication output of draw–out socket communication module	○	○	○	○
A’、B’、S’	抽屉座通信模块通信输入,连接本体通信输出,A’接8,B’接10,S’接12	Communication input of draw–out socket communication module, connect with communication output of the main body, A’ connect with A, B’ with B, S’ with 12	○	○	○	○
S1,S2	剩余电流互感器测量输出，S1至48，S2至50	measurement output of residual current transformer.S1 connecting48 , S2 conecting 50	√	√	√	√
K1,K2	剩余电流互感器试验输出，K1至52，K2至56	test output of residual current transformer, K1 connecting 52 , K2 conecting 56	√	√	√	√

断路器订货规范

断路器订货规范（带EA35或EA36型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	
型号	CW3- _____ _____ / _____		□陆用	□湿热带型（TH型）	
额定电流	In =_____ A	额定电压	□AC400V	□AC690V*	
安装方式	□固定式	□抽屉式			
联接方式	□水平	□垂直	□上垂直下水平	□上水平下垂直	
智能控制器	类型选择	□EA35	□EA36		
基本功能	长延时 Ir1_____ A t1_____s	短延时 Ir2_____ A t2 _____s	瞬时 Ir3_____A		
	接地保护 注 Ir4_____A	t4_____s (仅36型需填)			
	长延时曲线 □通用长延时反时限(I^2t)	□非常反时限(It)	□高压熔丝型(I^4t)		
	N极保护 □OFF □50%In □100% In（CW3-7400四极无100%In保护）	□200%In（三极断路器用于2倍相线截面中性线保护，但CW3-6300、7400除外）			
选择功能	□过载预报警 Ir0=_____Ir1				
	□电流不平衡 动作阈值___%	动作延时 ___s	返回阈值___%	返回延时___s	□OFF □报警 □跳闸
	□断相保护 动作阈值___%	动作延时 ___s	返回阈值___%	返回延时___s	□OFF □报警 □跳闸
	□通信功能	通信协议选择	标准型式 □Modbus		
			特殊型式 □ Profibus	□Devicenet	□CAN
	□ ZSI功能				
	选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。				
	智能控制器电压 □DC24V □AC230V □AC400V (CW3-1600必选专用电源模块)		□DC220V □DC110V （需配装直流电源模块）		
附件配置	FFT 分励脱扣器	□AC230V	□AC400V	□DC220V	□DC110V
	FHD 合闸电磁铁	□AC230V	□AC400V	□DC220V	□DC110V
	FDC 电动操作机构	□AC230V	□AC400V	□DC220V	□DC110V
	FFC 辅助开关	□4组转换触头	□4常开4常闭	特殊形式 □6组转换触头	□6常开6常闭
选择附件	□FQT欠电压脱扣器	□AC230V	□AC400V		
		□瞬时型	延时型 □0.5s □1s □2s □3s		
	□FFS分闸锁定装置	□一锁一钥匙	□二锁一钥匙	□三锁二钥匙	
	□FLS机械联锁	二台断路器	□钢缆联锁	□联杆联锁（上下联锁）	
		三台断路器	□钢缆联锁方式三	□联杆联锁方式一	□联杆联锁方式二 □联杆联锁方式三
	□FAN按钮锁定装置	□FXG相间隔板（CW3-1600垂直联接方式必配相间隔板）	□FJS计数器		
	□FHM合闸准备就绪电气指示模块	□FYF远程复位	□FWZ抽屉座位置电气指示装置	□FCZ储能信号电气指示装置	
	□FFJ附件监测单元	□FBM外接变压器中心点接地单元			
	□外接中性线电流互感器	□FDH-60	□FDH-80	□FDH-120	□FDH-260
	□FCM/W32 2路可编程输出模块	输出1编号_____类型_____时间_____ s	输出2 _____ _____ _____s		
	□FCM/W36 6路可编程扩展输出模块	输出1编号 ____ 类型 ____时间 ____ s 输出4编号 ____ 类型 ____时间 ____ s	输出2 ____ ____ ____ s 输出5 ____ ____ ____ s	输出3 ____ ____ ____ s 输出6 ____ ____ ____ s	
	通信功能选件	□FGT故障脱扣信号	□FNX储能信号	□FHX合闸准备就绪信号	□FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）
	□FDY专用电源模块	□AC230V	□AC400V	□DC24V	
	□FDY/WT直流电源模块	□DC110V	□DC220V		
	□FZZ自动电源转换系统	自动转换控制器 □R型	□S型	□F型	

注1：接地保护用户可选择矢量和型或变压器中心点接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。注2：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。注3、可提供CW3-1600、2500、4000低温至-40℃断路器；*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EP35、EP36或EQ35、EQ36型智能控制器）（请在___上填上数字，□ 内打上 √）

用户单位		订货台数		订货日期	
型号	CW3- _____ _____ / _____		□陆用	□湿热带型（TH型）	
额定电流	In = _____A	额定电压	□AC400V	□AC690V*	
安装方式	□固定式	□抽屉式			
联接方式	□水平	□垂直	□上垂直下水平	□上水平下垂直	

智能控制器

类型选择 □EP35 □EP36 □EQ35 □EQ36

基本功能

长延时 I_{r1}_____A	t_1_____ s	短延时 I_{r2}_____ A	t_2_____ s 瞬时 I_{r3}_____A
接地保护 注	I_{r4} ____ A	t_4_____ s (仅36型需填)	
长延时曲线	□通用长延时反时限(I^2t)	□非常反时限(It)	□高压熔丝型(I^4t)
N极保护整定值 □OFF□50%In□100%In（CW3-7400四极无100%In保护）		□200%In（三极断路器用于2倍相线截面中性线保护，但CW3-6300、7400除外）	

选择功能

□过载预报警	I_{r0}= _____ I_{r1}						
□电流不平衡	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF	□报警	□跳闸
□断相保护	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF	□报警	□跳闸
□需用电流保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF	□报警	□跳闸
□低电压保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF	□报警	□跳闸
□过电压保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF	□报警	□跳闸
□电压不平衡	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF	□报警	□跳闸
□相序保护	动作阈值___	动作延时0.3s			□OFF	□报警	□跳闸
□通信功能	通信协议选择	标准型式 □Modbus					
		特殊型式 □Profibus	□ Devicenet	□CAN			
□ ZSI功能							

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压 □DC24V □AC230V □AC400V (CW3-1600必选专用电源模块) □DC220V □DC110V (需配装直流电源模块)

附件配置

FFT分励脱扣器	□AC230V	□AC400V	□DC220V	□DC110V
FHD合闸电磁铁	□AC230V	□AC400V	□DC220V	□DC110V
FDC电动操作机构	□AC230V	□AC400V	□DC220V	□DC110V
FFC辅助开关	□4组转换触头	□4常开4常闭	特殊形式	□6组转换触头 □6常开6常闭

选择附件

□FQT欠电压脱扣器	□AC230V	□AC400V				
	□瞬时型	延时型	□0.5s	□1s	□2s	□3s
□FFS分闸锁定装置	□一锁一钥匙	□二锁一钥匙	□三锁二钥匙			
□FLS机械联锁	二台断路器	□钢缆联锁	□联杆联锁（上下联锁）			
	三台断路器	□钢缆联锁方式三	□联杆联锁方式一	□联杆联锁方式二	□联杆联锁方式三	
□FAN按钮锁定装置	□FXG相间隔板（CW3-1600垂直联接方式必配相间隔板）	□FJS计数器				
□FHM合闸准备就绪电气指示模块	□FYF远程复位	□FWZ抽屉座位置电气指示装置	□FCZ储能信号电气指示装置			
□FFJ附件监测单元	□FBM外接变压器中心点接地单元					
□外接中性线电流互感器	□FDH-60	□FDH-80	□FDH-120	□FDH-260		
□FCM/W32 2路可编程输出模块	输出1编号_____类型_____时间_____s	输出2____ ____ ____ s				
□FCM/W36 6路可编程扩展输出模块	输出1编号_____ 类型 ____ 时间 ____ s	输出2 ____ ____ ____ s	输出3 ____ ____ ____ s			
	输出4编号_____ 类型 ____ 时间 ____ s	输出5 ____ ____ ____ s	输出6 ____ ____ ____ s			
通信功能选件	□FGT故障脱扣信号	□FNX储能信号	□FHX合闸准备就绪信号	□FQX欠电压输出信号	□FCT抽屉座通信模块组件（仅适用Modbus协议）	
□FDY专用电源模块	□AC230V	□AC400V	□DC24V			
□FDY/WT直流电源模块	□DC110V	□DC220V				
□FZZ自动电源转换系统	自动转换控制器	□R型	□S型	□F型		

注1：接地保护用户可选择矢量和型或变压器中心点接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。注2：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。注3、可提供CW3-1600、2500、4000低温至-40℃断路器；*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EG35或EG36型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	
型号	CW3- _____ _____ / _____		□陆用	□湿热带型（TH型）	
额定电流	In = _____A	额定电压	□AC400V	□AC690V*	
安装方式	□固定式	□抽屉式			
联接方式	□水平	□垂直	□上垂直下水平	□上水平下垂直	

智能控制器

类型选择	□发电机保护型EG35	□发电机保护型EG36					
基本功能	长延时 Ir_1_____A	t_1_____s	短延时 Ir_2_____A	t_2_____s	瞬时 Ir_3_____A		
	接地保护	Ir_4 ____ A	t_4 _____ s (仅36型需填)				
	欠频保护	动作阈值 ___	动作延时___ s	返回阈值___	返回延时___s	□OFF	□报警 □跳闸
	过频保护	动作阈值 ___	动作延时___ s	返回阈值___	返回延时___s	□OFF	□报警 □跳闸
	逆功率保护	动作阈值 ___	动作延时___ s	返回阈值___	返回延时___s	□OFF	□报警 □跳闸
	N极保护	□OFF	□50%In	□100%In（CW3-7400四极无100%In保护）			
选择功能	□过载预报警	Ir0= _____ Ir_1					
	□电流不平衡	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF	□报警 □跳闸
	□断相保护	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF	□报警 □跳闸
	□需用电流保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF	□报警 □跳闸
	□低电压保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF	□报警 □跳闸
	□过电压保护	动作阈值___	动作延时___s	返回阈值___	返回延时___s	□OFF	□报警 □跳闸
	□电压不平衡	动作阈值___%	动作延时___s	返回阈值___%	返回延时___s	□OFF	□报警 □跳闸
	□相序保护	动作阈值___	动作延时0.3s			□OFF	□报警 □跳闸
	□通信功能	通信协议选择	标准型式	□Modbus			
			特殊型式	□Profibus	□Devicenet	□CAN	
	□ZSI功能						
选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表”选择信号输出。							
智能控制器电压	□DC24V □AC230V □AC400V (CW3-1600必选专用电源模块)				□DC220V □DC110V (需配装直流电源模块)		

附件配置

FFT分励脱扣器	□AC230V	□AC400V	□DC220V	□DC110V
FHD合闸电磁铁	□AC230V	□AC400V	□DC220V	□DC110V
FDC电动操作机构	□AC230V	□AC400V	□DC220V	□DC110V
FFC辅助开关	□4组转换触头	□4常开4常闭	特殊形式	□6组转换触头 □6常开6常闭

选择附件

□FQT欠电压脱扣器	□AC230V	□AC400V					
	□瞬时型	延时型	□0.5s	□1s	□2s	□3s	
□FFS分闸锁定装置	□一锁一钥匙	□二锁一钥匙	□三锁二钥匙				
□FLS机械联锁	二台断路器	□钢缆联锁	□联杆联锁（上下联锁）				
	三台断路器	□钢缆联锁方式三	□联杆联锁方式一	□联杆联锁方式二	□联杆联锁方式三		
□FAN按钮锁定装置	□FXG相间隔板（CW3-1600垂直联接方式必配相间隔板）	□FJS计数器					
□FHM合闸准备就绪电气指示模块	□FYF远程复位	□FWZ抽屉座位置电气指示装置	□FCZ储能信号电气指示装置				
□FFJ附件监测单元	□外接中性线电流互感器	□FDH-60	□FDH-80	□FDH-120	□FDH-260		
□FCM/W32 2路可编程输出模块	输出1编号_____类型_____时间_____s	输出2 ___ ___ ___s					
□FCM/W36 6路可编程扩展输出模块	输出1编号_____类型 ____时间 ____s	输出2 ____ ____ ____ s	输出3 ____ ____ ____s				
	输出4编号_____类型 ____时间 ____s	输出5 ____ ____ ____ s	输出6 ____ ____ ____s				
通信功能选件	□FGT故障脱扣信号	□FNX储能信号	□FHX合闸准备就绪信号	□FQX欠电压输出信号	□FCT抽屉座通信模块组件（仅适用Modbus协议）		
□FDY专用电源模块	□AC230V	□AC400V	□DC24V				
□FDY/WT直流电源模块	□DC110V	□DC220V					
□FZZ自动电源转换系统	自动转换控制器	□R型	□S型	□F型			

注1：所有电源模块电压均为电源模块的输入电压，输出电压均为DC24V，用户应根据所提供电源电压选择相应的电源模块。
注2：可提供CW3-1600、2500、4000低温至-40℃断路器；*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EN35、EN36型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	

型号　CW3-　_____　_____　/　_____　□陆用　□湿热带型（TH型）

额定电流　In =_____ A　　额定电压　□AC400V　□AC690V*

安装方式　□固定式　□抽屉式

联接方式　□水平　□垂直　□上垂直下水平　□上水平下垂直

智能控制器

类型选择　□EN35　□EN36

基本功能

长延时 Ir1_____A　t1_____s　短延时 Ir2_____A　t2 _____s　瞬时　Ir3_____A

接地保护[注]　Ir4 _____A　t4 _____s　（仅36型需填）

长延时曲线　□通用长延时反时限(I^2t)

N极保护整定值 □OFF□50%In□100%In（CW3-7400无100%In保护）　□200% In（三极断路器用于2倍相线截面中性线保护，但CW3-6300、7400除外）

选择功能

□过载预报警　Ir0=_____Ir1

□电流不平衡　动作阈值___%　动作延时 ___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□断相保护　动作阈值___%　动作延时 ___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□功率电能测量

□通信功能　通信协议选择　标准型式　□Modbus

特殊型式　□Profibus　□Devicenet　□CAN

□ ZSI功能

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压　□DC24V　□AC230V　□AC400V(CW3-1600必选专用电源模块)　□DC220V　□DC110V(需配装直流电源模块)

附件配置

FFT分励脱扣器　□AC230V　□AC400V　□DC220V　□DC110V

FHD合闸电磁铁　□AC230V　□AC400V　□DC220V　□DC110V

FDC电动操作机构　□AC230V　□AC400V　□DC220V　□DC110V

FFC辅助开关　□4组转换触头　□4常开4常闭　特殊形式　□6组转换触头　□6常开6常闭

选择附件

□FQT欠电压脱扣器　□AC230V　□AC400V

□瞬时型　延时型　□0.5s　□1s　□2s　□3s

□FFS分闸锁定装置　□一锁一钥匙　□二锁一钥匙　□三锁二钥匙

□FLS机械联锁　二台断路器　□钢缆联锁　□联杆联锁（上下联锁）

三台断路器　□钢缆联锁方式三　□联杆联锁方式一　□联杆联锁方式二　□联杆联锁方式三

□FAN按钮锁定装置　□FXG相间隔板（CW3-1600垂直联接方式必配相间隔板）　□FJS计数器

□FHM合闸准备就绪电气指示模块□FYF远程复位 □FWZ抽屉座位置电气指示装置□FCZ储能信号电气指示装置

□FFJ附件监测单元　□FBM外接变压器中心点接地单元

□外接中性线电流互感器　□FDH-60　□FDH-80　□FDH-120　□FDH-260

□FCM/W32　2路可编程输出模块　输出1编号___类型 ___时间 ___s　输出2 ___ ___ ___ s

□FCM/W36 6路可编程扩展输出模块　输出1编号 ___类型 ___时间 ___s　输出2 ___ ___ ___ s　输出3 ___ ___ ___s　输出4编号 ___类型 ___时间 ___s　输出5 ___ ___ ___ s　输出6 ___ ___ ___s

通信功能选件　□FGT故障脱扣信号　□FNX储能信号　□FHX合闸准备就绪信号　□FQX欠电压输出信号　□FCT抽屉座通信模块组件（仅适用Modbus协议）

□FDY专用电源模块　□AC230V　□AC400V　□DC24V

□FDY/WT直流电源模块　□DC110V　□DC220V

□FZZ自动电源转换系统　自动转换控制器　□R型　□S型　□F型

注1：接地保护用户可选择矢量和型或变压器中心点接地故障保护。当用户不作选择时，出厂默认矢量和型；当选择变压器中心点接地故障保护时，相应需订购“外接变压器中心点接地单元”（包括接地互感器和接地模块）。

注2：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。

注3、可提供CW3-1600、2500、4000低温至-40℃断路器。

*注：CW3-6300、7400用于AC690V IT配电系统时，请与本公司联系。

断路器订货规范

断路器订货规范（带EA37型智能控制器） （请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	

型号 □CW3-_1600_/_____ □CW3-_2500_____/_____ □陆用 □湿热带型（TH型）

额定电流 In =_____A 额定电压 □AC400V □AC690V*

安装方式 □固定式 □抽屉式

联接方式 □水平 □垂直 □上垂直下水平 □上水平下垂直

智能控制器

类型选择 □EA37

基本功能

长延时 Ir1_____A t1_____s 短延时 Ir2_____A t2 _____s 瞬时 Ir3_____A

剩余电流保护I△n_____A △t _____s □报警不跳闸 □跳闸 □跳闸并报警

长延时曲线 □通用长延时反时限(I^2t) □非常反时限(It) □高压熔丝型(I^4t)

N极保护 □OFF □50%In □100%In □200%In（三极断路器用于2倍相线截面中性线保护）

选择功能

□过载预报警 Ir0=_____Ir1

□电流不平衡 动作阈值___% 动作延时___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸

□断相保护 动作阈值___% 动作延时___s 返回阈值___% 返回延时___s □OFF □报警 □跳闸

□通信功能 通信协议选择 标准型式 □Modbus

特殊型式 □Profibus □Devicenet □CAN

□ZSI功能

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压 □DC24V □AC230V □AC400V (CW3-1600必选专用电源模块) □DC220V □DC110V (需配装直流电源模块)

附件配置

FFT分励脱扣器 □AC230V □AC400V □DC220V □DC110V

FHD合闸电磁铁 □AC230V □AC400V □DC220V □DC110V

FDC电动操作机构 □AC230V □AC400V □DC220V □DC110V

FFC辅助开关 □4组转换触头 □4常开4常闭 特殊形式 □6组转换触头 □6常开6常闭

选择附件

□FQT欠电压脱扣器 □AC230V □AC400V

□瞬时型 延时型 □0.5s □1s □2s □3s

□FFS分闸锁定装置 □一锁一钥匙 □二锁一钥匙 □三锁二钥匙

□FLS机械联锁 二台断路器 □钢缆联锁 □联杆联锁（上下联锁）

三台断路器 □钢缆联锁方式三 □联杆联锁方式一 □联杆联锁方式二 □联杆联锁方式三

□FAN按钮锁定装置 □FXG相间隔板（CW3-1600垂直联接方式必配相间隔板） □FJS计数器

□FHM合闸准备就绪电气指示模块 □FYF远程复位 □FWZ抽屉座位置电气指示装置 □FCZ储能信号电气指示装置

□FFJ附件监测单元 □剩余电流互感器

□外接中性线电流互感器 □FDH-60 □FDH-80

□FCM/W32 2路可编程输出模块 输出1编号___类型___时间___s 输出2 ___ ___ ___ s

□FCM/W36 6路可编程扩展输出模块 输出1编号 ___ 类型 ___ 时间 ___ s 输出2 ___ ___ ___ s 输出3 ___ ___ ___ s 输出4编号 ___ 类型 ___ 时间 ___ s 输出5 ___ ___ ___ s 输出6 ___ ___ ___ s

通信功能选件 □FGT故障脱扣信号 □FNX储能信号 □FHX合闸准备就绪信号 □FQX欠电压输出信号 □FCT抽屉座通信模块组件（仅适用Modbus协议）

□FDY专用电源模块 □AC230V □AC400V □DC24V

□FDY/WT直流电源模块 □DC110V □DC220V

□FZZ自动电源转换系统 自动转换控制器 □R型 □S型 □F型

注1：所有电源模块电压均为电源模块的输入电压，输出电压均为DC24V，用户应根据所提供电源电压选择相应的电源模块。
注2：剩余电流保护功能选择“报警不跳闸”或“跳闸并报警”时剩余电流故障报警信号通过“2路可编程输出模块”输出，其他选择功能报警信号需通过“6路可编程扩展模块”输出。注3、可提供CW3-1600、2500低温至-40℃断路器。

断路器订货规范

断路器订货规范（带EP37或EQ37型智能控制器）（请在___上填上数字，□内打上√）

用户单位		订货台数		订货日期	

型号　□CW3-_1600_/_____　□CW3-_2500_____/_____　□陆用　□湿热带型（TH型）

额定电流　In=_____A　　额定电压　□AC400V　□AC690V*

安装方式　□固定式　□抽屉式

联接方式　□水平　□垂直　□上垂直下水平　□上水平下垂直

智能控制器

类型选择　□EP37　□EQ37

基本功能

长延时 I_{r1}_____A　t_1_____s　短延时 I_{r2}_____A　t_2_____s　瞬时　I_{r3}_____A

剩余电流保护$I_{\triangle n}$____A　$\triangle t$____s　□报警不跳闸　□跳闸　□跳闸并报警

长延时曲线　□通用长延时反时限(I^2t)　□非常反时限(It)　□高压熔丝型(I^4t)

N极保护整定值　□OFF　□50%In　□100%In　□200%In（三极断路器用于2倍相线截面中性线保护）

选择功能

□过载预报警　I_{r0}=_____I_{r1}

□电流不平衡　动作阈值___%　动作延时___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□断相保护　动作阈值___%　动作延时___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□需用电流保护　动作阈值___　动作延时___s　返回阈值___　返回延时___s　□OFF　□报警　□跳闸

□低电压保护　动作阈值___　动作延时___s　返回阈值___　返回延时___s　□OFF　□报警　□跳闸

□过电压保护　动作阈值___　动作延时___s　返回阈值___　返回延时___s　□OFF　□报警　□跳闸

□电压不平衡　动作阈值___%　动作延时___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□相序保护　动作阈值___　动作延时0.3s　□OFF　□报警　□跳闸

□通信功能　通信协议选择　标准型式　□Modbus

特殊型式　□Profibus　□Devicenet　□CAN

□ZSI功能

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压　□DC24V　□AC230V　□AC400V (CW3-1600必选专用电源模块)　□DC220V　□DC110V(需配装直流电源模块)

附件配置

FFT分励脱扣器　□AC230V　□AC400V　□DC220V　□DC110V

FHD合闸电磁铁　□AC230V　□AC400V　□DC220V　□DC110V

FDC电动操作机构　□AC230V　□AC400V　□DC220V　□DC110V

FFC辅助开关　□4组转换触头　□4常开4常闭　特殊形式　□6组转换触头　□6常开6常闭

选择附件

□FQT欠电压脱扣器　□AC230V　□AC400V

□瞬时型　延时型　□0.5s　□1s　□2s　□3s

□FFS分闸锁定装置　□一锁一钥匙　□二锁一钥匙　□三锁二钥匙

□FLS机械联锁　二台断路器　□钢缆联锁　□联杆联锁（上下联锁）

三台断路器　□钢缆联锁方式三　□联杆联锁方式一　□联杆联锁方式二　□联杆联锁方式三

□FAN按钮锁定装置　□FXG相间隔板（CW3-1600垂直联接方式必配相间隔板）　□FJS计数器

□FHM合闸准备就绪电气指示模块　□FYF远程复位　□FWZ抽屉座位置电气指示装置　□FCZ储能信号电气指示装置

□FFJ附件监测单元　□剩余电流互感器

□外接中性线电流互感器　□FDH-60　□FDH-80

□FCM/W32　2路可编程输出模块　输出1编号____类型____时间____s　输出2____ ____ ____ s

□FCM/W36 6路可编程扩展输出模块　输出1编号_____类型____时间____s　输出2 ____ ____ ____ s　输出3 ____ ____ ____ s

输出4编号_____类型____时间____s　输出5 ____ ____ ____ s　输出6 ____ ____ ____ s

通信功能选件　□FGT故障脱扣信号　□FNX储能信号　□FHX合闸准备就绪信号　□FQX欠电压输出信号　□FCT抽屉座通信模块组件（仅适用Modbus协议）

□FDY专用电源模块　□AC230V　□AC400V　□DC24V

□FDY/WT直流电源模块　□DC110V　□DC220V

□FZZ自动电源转换系统　自动转换控制器　□R型　□S型　□F型

注1：所有电源模块电压均为电源模块的输入电压，输出电压均为DC24V，用户应根据所提供电源电压选择相应的电源模块。
注2：剩余电流保护功能选择“报警不跳闸”或“跳闸并报警”时剩余电流故障报警信号通过“2路可编程输出模块”输出，其他选择功能报警信号需通过“6路可编程扩展模块”输出。注3、可提供CW3-1600、2500低温至-40℃断路器。

断路器订货规范

断路器订货规范（带EN37智能控制器）（请在___上填上数字，□ 内打上 √）

用户单位		订货台数		订货日期	

型号　□ CW3-_1600_ /_____　□ CW3-_2500_ _____ /_____　□陆用　□湿热带型（TH型）

额定电流　In =_____ A　　额定电压　□AC400V　□AC690V*

安装方式　□固定式　□抽屉式

联接方式　□水平　□垂直　□上垂直下水平　□上水平下垂直

智能控制器

类型选择　□EN37

基本功能

长延时 Ir1_____A　t1_____s　短延时 Ir2_____A　t2 _____s　瞬时　Ir3_____A

剩余电流保护I△n ___ A　△t _____ s　□报警不跳闸　□跳闸　□跳闸并报警

长延时曲线　□通用长延时反时限(I^2t)

N极保护整定值　□OFF　□50%In　□100%In　□200%In（三极断路器用于2倍相线截面中性线保护）

选择功能

□过载预报警　Ir0=_____Ir1

□电流不平衡　动作阈值___%　动作延时 ___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□断相保护　动作阈值___%　动作延时 ___s　返回阈值___%　返回延时___s　□OFF　□报警　□跳闸

□功率电能测量

□通信功能　通信协议选择　标准型式　□Modbus

特殊型式　□Profibus　□Devicenet　□CAN

□ZSI功能

选报警功能时，必须选择2路可编程输出模块（内置）或6路可编程扩展输出模块（外置，见选择附件），并按“可编程输出模块输出编号定义表“选择信号输出。

智能控制器电压　□DC24V　□AC230V　□AC400V (CW3-1600必选专用电源模块)　□DC220V　□DC110V (需配装直流电源模块)

附件配置

FFT分励脱扣器　□AC230V　□AC400V　□DC220V　□DC110V

FHD合闸电磁铁　□AC230V　□AC400V　□DC220V　□DC110V

FDC电动操作机构　□AC230V　□AC400V　□DC220V　□DC110V

FFC辅助开关　□4组转换触头　□4常开4常闭　特殊形式　□6组转换触头　□6常开6常闭

选择附件

□FQT欠电压脱扣器　□AC230V　□AC400V　□瞬时型　延时型　□0.5s　□1s　□2s　□3s

□FFS分闸锁定装置　□一锁一钥匙　□二锁一钥匙　□三锁二钥匙

□FLS机械联锁　二台断路器　□钢缆联锁　□联杆联锁（上下联锁）

三台断路器　□钢缆联锁方式三　□联杆联锁方式一　□联杆联锁方式二　□联杆联锁方式三

□FAN按钮锁定装置　□FXG相间隔板（CW3-1600垂直联接方式必配相间隔板）　□FJS计数器

□FHM合闸准备就绪电气指示模块 □FYF远程复位 □FWZ抽屉座位置电气指示装置 □FCZ储能信号电气指示装置

□FFJ附件监测单元　□剩余电流互感器

□外接中性线电流互感器　□FDH-60　□FDH-80

□FCM/W32　2路可编程输出模块　输出1编号___类型___时间 ___s　输出2 ___ ___ ___ s

□FCM/W36 6路可编程扩展输出模块　输出1编号 ___ 类型 ___时间 ___s　输出2 ___ ___ ___ s　输出3 ___ ___ ___s

输出4编号 ___ 类型 ___时间 ___s　输出5 ___ ___ ___ s　输出6 ___ ___ ___s

通信功能选件　□FGT故障脱扣信号　□FNX储能信号　□FHX合闸准备就绪信号　□FQX欠电压输出信号　□FCT抽屉座通信模块组件（仅适用Modbus协议）

□FDY专用电源模块　□AC230V　□AC400V　□DC24V

□FDY/WT直流电源模块　□DC110V　□DC220V

□FZZ自动电源转换系统　自动转换控制器 □R型　□S型　□F型

注1：所有电源模块电压均为输入电压，输出均为DC24V，用户应根据自己提供的电源电压选择相应的电源模块。
注2：剩余电流保护功能选择“报警不跳闸”或“跳闸并报警”时剩余电流故障报警信号通过“2路可编程输出模块”输出，其他选择功能报警信号需通过“6路可编程扩展输出模块”输出。注3、可提供CW3-1600、2500低温至-40℃断路器。

2路可编程输出模块输出定义（置于断路器内部）

可编程输出1和输出2可通过智能控制器按“可编程输出模块输出编号定义表”对以下各项内容编程设置输出，如用户对编程内容不作选择，本公司出厂缺省编号为：可编程输出1选择Bc1，即电流卸载1,时间延时触点，延时时间为1秒；可编程输出2选择Cc1，即电流卸载2,时间延时触点，延时时间为1秒。

对EN37、EA37、EP37、EQ37智能控制器，可编程输出1和输出2编程设置输出都为Gb，即剩余电流脱扣报警，闭锁触头。

6路可编程扩展输出模块（外部附件）

6路可编程扩展输出模块通过智能控制器按“可编程输出模块输出编号定义表”编程设置输出。编程输出只有在断路器具有相应功能的前提下才有效，用户应在订货规范中注明编号、类型、延时时间（仅对时间延时触点有效），出厂时按该编号供货，如未作选择本公司出厂缺省编号为：可编程输出1选择Aa，可编程输出2选择Bc1，可编程输出3选择Cc1，可编程输出4选择Da，可编程输出5选择Ea，可编程输出6选择Fa。

可编程输出模块输出编号定义表

编号	功　能		备　注	控制器类型
A	I_{r0}	过载预报警	过载预报警及电流卸载	适用于EN、EA、EP、EQ、EG型
B	I_{LC1}	电流卸载1		
C	I_{LC2}	电流卸载2		
D	I_{r1}	长延时脱扣报警	电流保护报警	
E	I_{r2}	短延时脱扣报警		
F	I_{r3}	瞬时脱扣报警		
G	I_{r4}/I△n	接地/剩余电流脱扣报警		
H	Iunbal	电流不平衡动作报警		
I	断相	断相动作报警		
J	超温	控制器超温报警	内部故障报警	适用于EN、EA、EP、EQ、EG型
K	存储器故障	存储器故障报警		
L	内部附件故障	内部附件故障报警		
M	$\overline{I_1}$max	最大需用电流动作报警	电流保护报警	适用于EP、EQ、EG型
N	$\overline{I_2}$max	最大需用电流动作报警		
O	$\overline{I_3}$max	最大需用电流动作报警		
P	$\overline{I_n}$max	最大需用电流动作报警		
Q	Umin	低电压动作报警	电压保护报警	
R	Umax	过电压动作报警		
S	Uunbal	电压不平衡动作报警		
T	相序	相序保护动作报警	其它保护报警	
U	F_{MIN}	欠频保护报警		适用于EG型
V	F_{MAX}	过频保护报警		
W	rPmax	逆功率动作报警		

可编程输出模块输出类型定义表

输出编号	输出类型	时间延时触头延时时间	备注
见编号定义表 A ~ W	a,非闭锁触头 b,闭锁触头 c,时间延时触头	1 ~ 360s	2路可编程输出模块（内置）或 6路可编程扩展输出模块（外置）

保护参数出厂缺省整定值

如用户订货时已选择相应功能而未作具体要求，智能控制器出厂整定值按如下配置：

项　　目		可调范围			出厂设定	备注
长延时保护	保护曲线类型	I^2t	It	I^4t	I^2t	EN、EG型仅有I^2t
	整定电流Ir1	0.4～1In			In	EA、EP、EQ型
		0.4～1.15In				EG型
	整定时间t1	15～480s	10～120s	60～1440s	480s	EN、EA、EP、EQ型
		15～60s			60s	EG型
短延时保护	整定电流Ir2	(0.4～15)In+OFF			6Ir1	EN、EA、EP、EQ型
		(0.4～5)In+OFF			3Ir1	EG型
	整定时间t2	0.1～0.4s（定时限或反时限+定时限)			0.2s/反时限+定时限	EG型为定时限
瞬时保护	整定电流Ir3	1600	(1.6～35) kA+OFF		In≤1000A：15In In=1250A、1600：12In In≥2000A：10In	
		2500	(2.5～50) kA+OFF			
		4000	(4～80)kA+OFF			
		6300	(6.3～100)kA+OFF			
		7400	(7.4～115)kA+OFF			
接地保护	整定电流Ir4	<1250A	(0.4～0.8)In		最大	
		≥1250A	500～1200A			
	整定时间t4	0.1～0.4s+OFF			0.4s/定时限	
剩余电流保护	额定剩余动作电流$I_{\triangle n}$	（0.5~30）A			30A	EN37、EA37、EP37、EQ37型
	可调延时△t	（0.10~5.00）s			1.0s	
中性极保护	电流整定值	OFF－N/2－N－N×2 (CW3-6300、7400和EG控制器型无N×2			OFF	三极断路器
		OFF-N/2-N （CW3-7400无N）			CW3-1600~CW3-6300：N CW3-7400：N/2	四极断路器

续 表

项 目		可调范围	出厂设定	备注
过载预报警	整定电流Ir0	(0.75 ~ 1.05)Ir1	1.05Ir1	
电流不平衡保护	动作阈值	20 ~ 80%	60%	
	动作延时	1 ~ 40s	40s	
	返回阈值	20% ~ 动作阈值	20%	
	返回延时	10 ~ 360s	10s	
断相保护	动作阈值	90 ~ 99%	95%	
	动作延时	0.1 ~ 3s	3s	
	返回阈值	20% ~ 动作阈值	20%	
	返回延时	10 ~ 360s	10s	
需用电流保护	动作阈值	0.4 ~ 1In	1In	
	动作延时	15 ~ 1500s	1500s	
	返回阈值	0.4In ~ 动作阈值	0.4In	
	返回延时	15 ~ 3000s	15s	
低电压保护	动作阈值	50 ~ 690V	265V	
	动作延时	1 ~ 30s	5s	
	返回阈值	动作阈值 ~ 690V	325V	
	返回延时	1 ~ 100s	10s	
过电压保护	动作阈值	200 ~ 1000V	725V	
	动作延时	1 ~ 5s	5s	
	返回阈值	200V ~ 动作阈值	400V	
	返回延时	1 ~ 36s	2s	
电压不平衡保护	动作阈值	2 ~ 50%	30%	
	动作延时	1 ~ 40s	40s	
	返回阈值	2% ~ 动作阈值	10%	
	返回延时	10 ~ 360s	10s	

续 表

项 目		可调范围	出厂设定	备 注
逆功率保护	动作阈值	20～500kW	500kW	
	动作延时	0.2～20s	20s	
	返回阈值	20kW～动作阈值	100kW	
	返回延时	1～360s	1s	
过频保护	动作阈值	50～65Hz	65Hz	
	动作延时	0.2～5s	5s	
	返回阈值	45Hz～动作阈值	50Hz	
	返回延时	1～360s	1s	
欠频保护	动作阈值	45～60Hz	45Hz	
	动作延时	0.2～5s	5s	
	返回阈值	动作阈值～60Hz	50Hz	
	返回延时	1～360s	1s	
相序保护	动作阈值	1，2，3或1，3，2	1，2，3	
	动作延时	0.3s	0.3s	
电流卸载	动作阈值	0.2～1In	1In	
	动作延时	20%～80%t1	80%t1	
	返回阈值	0.2In～动作阈值	0.5In	
	返回延时	10～600s	10s	

如用户订货时已选择6路可编程扩展输出模块而未作具体要求，则2路可编程输出模块和6路可编程扩展输出模块编程输出出厂整定值按如下配置：

输出编号	A ~ W	出厂设定	备　注
		Bc1,Cc1	2路可编程输出模块（内置）
		Aa ,Bc1,Cc1 ,Da, Ea, Fa	6路可编程扩展输出模块（外置）
输出类型	a. 非闭锁触头 b. 闭锁触头 c. 时间延时触头	a	
时间延时触头延时时间	1 ~ 360s	1s	

通信可选元件订货规范

用户单位		订货日期	
产品型号		订货数	
通信转接器（Ⅱ）			
CN1通信适配器	CN1DP-MD		
	CN1DP-MP		
	CN1DP-MC		
	CN1EG/10		
FDM3短消息通知模块			
FCX3智能配电监控器	本体		
	可选模块: 短消息扩展模块		
CI1远程智能I/O模块	CI1-SCM423		
	CI1-S12		
	CI1-C8		
	CI1-SC64		

温度报警模块订货规范

用户单位		订货日期	
型号		订货数	
FWB1温度报警模块			
热传感器	FRG-7		
	FRG-9		
	FRG-11		
	FRG-13		
	FRG-17		

ORDERING FORM OF BREAKER

Order form of breaker (with type EA35 or EA36 intelligent controller) (Please fill numbers in ____ or mark √ in □)

Name		Order amount		Order date	

Type CW3- _____ _____ / _____ □On land □humid(TH type)

Rated voltage In =_____ A | Rated current □AC400V □AC690V*

Mounting □Fixed □Draw-out

Connection □Horizontal □Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal

Intelligent controller

Type selection □EA35 □EA36

Basic function

Long-time delay Ir1_____ A t1_____ s Short-time delay Ir2_____ A t2_____ s Instantaneous Ir3_____ A

Earth-fault protection Ir4_____ A t4_____ s (Only for type 36)

Curve of long-time delay □General inverse long-time delay (I^2t) □Special inverse time delay (It) □High-voltage fuse type (I^4t)

Neutral protection □OFF □50%In □100%In (without 100%In for CW3-7400 four poles) □200%In (Protection of N pole of double leg of a circuit cross-section for three-pole circuit breaker, but except for CW3-6300、7400)

Selective function

Overload pre-alarm Ir0=_____ Ir1

□Current unbalance operating threshold ___% operating delay __s Return threshold ___% Return delay ___s □OFF □Alarm □Trip

□Open-phase function operating threshold __% operating delay __s Return threshold ___% Return delay ___s □OFF □Alarm □Trip

□Communication | □Communtcative protocol | Standardard □Modbus

Specical □Profibus □Devicenet □CAN

□ZSI function

Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.

Voltage of intelligent controller □DC24V □AC230V □AC400 (Selective Power supply module for CW3-1600) □DC220V □DC110V(Equipped with DC power supply module)

Accessories

Shunt release □AC230V □AC400V □DC220V □DC110V

Closing electromagnet □AC230V □AC400V □DC220V □DC110V

Power-driven operation mechanism □AC230V □AC400V □DC220V □DC110V

Auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts (NC) and four pieces of normally-closed contacts | Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts (NC) and six pieces of normally-closed contacts

Choice of accessories

□Under-voltage release □AC230V □AC400V

□Instantaneous | Time delay □0.5s □1s □2s □3s

□ "Opening" lock mechanism □One lock and one key □Two locks and one key □Three locks and two keys

□Mechanical interlock Two sets of circuit breakers □Steel lock interlock □Link rod interlock (horizontally interlock)

Three sets of circuit breakers □Pattern three of steel lock interlock □Pattern one of link rod interlock □Pattern two of link rod interlock □Pattern three of link rod interlock

□Pushbutton lock mechanism □Interphase barriers(must be selected for CW3-1600 vertical connection) □Counter

□Electrical module for indication of ready-for-close □Remote reset □Electrical indication mechanism of socket's position □Electrical indication mechanism of storage signal Accessories monitoring units

□Accessories monitoring units □Unit with transformer's center earth externally connected

□Current transformer with the neutral line N connected externally □FDH-60 □FDH-80 □FDH-120 □FDH-260

□2 lines programmable output module Output1number ____ type_____ time _____ s Output2 ____ ____ ____ s

□6 lines programmable output expansion module Output1 number ____ type____ time ____ s Output2____ ____ ____ s Output3____ ____ ____ s Output4 number ____ type____ time ____ s Output5____ ____ ____ s Output6____ ____ ____ s

Communication choices of accessories□Signal of fault release □Signal of charging □Signal of ready-for-close □Signal of under-voltage □Components of draw-out socket communication module □Normal power supply module

□DC power supply module □AC230V □AC400V □DC24V

□Automatic power supply switch system □DC110V □DC220V

□Automatic switch controller | Automatic switch controller □R type □S type □F type

Note:

Note1: Users can choose transformer's center earth type or vectorial summation type for earth-fault protection. If they make no choices the default type is the vectorial summation type. Users should order units with transformer's center earth externally connected (earth transformer and earth module included) if they choose the transformer's center earth type.

Note2:The voltages of all power supply modules are input voltage, output voltage is DC24V,users may choose suitable modules by providing supply.

*Note:When order the IT power distribution system breakers of CW3-1600、6300、7400 used in AC690V,please call us.

ORDERING FORM OF BREAKER

Order form of breaker(with type EP35、EP36 or EQ35、EQ36 intelligent controller) (Please fill numbers in ____ or mark √ in □)

Name		Order amount		Order date	
Type	CW3– _____ _____ / _____		□On land	□humid(TH type)	
Rated voltage	In = _____A	Rated current	□AC400V	□AC690V*	
Mounting	□Fixed	□Draw-out			
Connection	□Horizontal	□Vertical	□he upper vertical and the below horizontal	□The below vertical and the upper horizontal	

Type selection

Type selection	□EP35	□EP36 □EQ35 □EQ36
Intelligent	Long-time delay Ir1_____ A t1_____ s	Short-time delay Ir2_____A t2_____ s Instantaneous Ir3_____A
	Earth-fault protection	Ir4_____A t4 _____ s (Only for type 36)
	Curve of long-time delay	□General inverse long-time delay(I^2t) □ Special inverse time delay(It) □High-voltage fuse type(I^4t)
	Neutral protection	□OFF □50% In □100% In (without 100%In for CW3-7400 four poles) □200% In (Protection of N pole of double leg of a circuit cross-section for three-pole circuit breaker, but except for CW3-6300、7400)
Controller	□Overload pre-alarm	Iro= _____Ir1
	□Current unbalance	Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip
	□Open-phase function	Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip
	□demand current protection	Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip
	□Under-voltage protection	Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip
	□Over-voltage protection	Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip
	□Current unbalance	Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip
	□Phase sequence protection	Operating threshold__% Operating delay 0.3s
	□Communication	□Communtcative protocol: Standardard □Modbus; Specical □Profibus □Devicenet □CAN
	□ ZSI function	

Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.

Voltage of intelligent controller □DC24V □AC230V □AC400V (Selective Power supply module for CW3-1600) □DC220V □DC110V(Equipped with DC power supply module)

Accessories

Shunt release	□AC230V	□AC400V	□DC220V	□DC110V
Closing electromagnet	□AC230V	□AC400V	□DC220V	□DC110V
Power-driven operation mechanism	□AC230V	□AC400V	□DC220V	□DC110V

Auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts (NC) and four pieces of normally-closed contacts

Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts (NC) and six pieces of normally-closed contacts

Choice of accessories

	□AC230V	□AC400V			
□Under-voltage release	□ Instantaneous	Time delay	□0.5s	□1s	□2s □3s
□ "opening" lock mechanism	□ One lock and one key	□Two locks and one key	□Three locks and two keys		
□Mechanical interlock	Two sets of circuit breakers □Steel lock interlock □Link rod interlock (horizontally interlock)				
	Three sets of circuit breakers □Pattern three of steel lock interlock □Pattern one of link rod interlock □Pattern two of link rod interlock □Pattern three of link rod interlock				
□Pushbutton lock mechanism	□Interphase barriers(must be selected for CW3-1600 vertical connected)			□Counter	
□Electrical module for indication of ready-for-close □Electrical indication mechanism of storage signal		□Remote reset	□Electrical indication mechanism of socket's position		
□Accessories monitoring units	□Unit with transformer's center erath externally connected				
□ Current transformer with the neutral line N connected extern	□FDH-60	□FDH-80	□FDH-120	□FDH-260	
□2 lines programmable output module	Output1 ____ type_____ time_____s		Output2 ____ ____ ____ s		
□6 lines programmable output expansion module	Output1 number ____ type____ time ____ s		Output2____ ____ ____ s	Output3____ ____ ____ s	
	Output4 number ____ type____ time ____ s		Output5____ ____ ____ s	Output6____ ____ ____ s	
Communication choices of accessories □Signal of fault release □ Signal of charging □ Signal of ready-for-close □Signal of under-voltage □Components of draw-out socket communication module					
□Normal power supply module	□AC230V	□AC400V	□DC24V		
□DC power supply module	□DC110V	□DC220V			
□Automatic power supply switch system	Automatic switch controller	□R type	□S type	□F type	

Note:

Note1: Users can choose transformer's center erath type or vectorial summation type for erath-fault protection. If they make no choices the default type is the vectorial summation type. Users should order units with transformer's center erath externally connected (earth transformer and earth module included) If they choose the transformer's center earth type.

Note2:The voltages of all power supply modules are input voltage, output voltage is DC24V,users may choose suitable modules by providing supply.

*Note:When order the IT power distribution system breakers of CW3-1600、6300、7400 used in AC690V,please call us.

ORDERING FORM OF BREAKER

Order form of breaker (with type EG35 or EG36 intelligent controller) (Please fill numbers in ____ or mark √ in □)

Name		Order amount		Order date	

Type CW3– _____ _____ / _____ □On land □humid(TH type)

Rated voltage In = _____A Rated current □AC400V □AC690V*

Mounting □Fixed □Draw-out

Connection □Horizontal □Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal

Intelligent controller

Type selection □Generator protection type EG35 □Generator protection type EG36

Basic function

Long-time delay Ir1_____A t1_____s Short-time delay Ir2_____A t2_____s Instantaneous Ir3_____A

Earth-fault protection Ir4 _____ A t4 _____ s(Only for type 36)

Under-frequency protection Operating threshold___ Operating delay___ s Return threshold___ Return delay___s □OFF □Alarm □Trip

Over-frequency protection Operating threshold___ Operating delay___ s Return threshold___ Return delay___s □OFF □Alarm □Trip

Inverse power protection Operating threshold___ Operating delay___ s Return threshold___ Return delay___s □OFF □Alarm □Trip

Neutral protection □OFF □50%In □100%In (without 100%In for CW3-7400 four poles)

Selective function

□Overload pre-alarm Ir0= Ir1

□Current unbalance Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Open-phase function Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□demand current protection Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Under-voltage protection Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Over-voltage protection Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Current unbalance Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Phase sequence protection Operating threshold__% Operating delay 0.3s

□Communication □Communtcative protocol Standardard □Modbus

Specical □Profibus □Devicenet □CAN

□ ZSI function

Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.

Voltage of intelligent controller □DC24V □AC230V □AC400V(Selective Power supply module for CW3-1600) □DC220V □DC110V(Equipped with DC power supply module)

Accessories

Shunt release □AC230V □AC400V □DC220V □DC110V

Closing electromagnet □AC230V □AC400V □DC220V □DC110V

Power-driven operation mechanism □AC230V □AC400V □DC220V □DC110V

Auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts (NC) and four pieces of normally-closed contacts

Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts (NC) and six pieces of normally-closed contacts

Choice of accessories

□Under-voltage release □AC230V □AC400V

□ Instantaneous Time delay □0.5s □1s □2s □3s

□ "opening" lock mechanism □ One lock and one key □Two locks and one key □Three locks and two keys

□Mechanical interlock Two sets of circuit breakers □Steel lock interlock □Link rod interlock (horizontally interlock)

Three sets of circuit breakers □Pattern three of steel lock interlock □Pattern one of link rod interlock □Pattern two of link rod interlock □Pattern three of link rod interlock

□pushbutton lock mechanism □interphase barriers(must be selected for CW3-1600 vertical connection) □Counter

□Electrical module for indication of ready-for-close □Remote reset □Electrical indication mechanism of socket's position

□Electrical indication mechanism of storage signal

□Accessories monitoring units □Unit with transformer's center earth externally connected

□ Current transformer with the neutral line N connected extern □FDH-60 □FDH-80 □FDH-120 □FDH-260

□2 lines programmable output module Output1 ____ type____ time____s Output2____ ____ ____ s

□6 lines programmable output expansion module Output1 number ____ type____ time ____ s Output2____ ____ ____ s Output3____ ____ ____ s

Output4 number ____ type____ time ____ s Output5____ ____ ____ s Output6____ ____ ____ s

Communication choices of accessories□Signal of fault release □Signal of charging □Signal of ready-for-close □Signal of under-voltage

□Components of draw-out socket communication module □Normal power supply module

□Normal power supply module □AC230V □AC230V □AC400V □AC400V □DC24V □DC24V

□DC power supply module □DC110V □DC220V

□Automatic power supply switch system Automatic switch controller □R type □S type □F type

Note:

Note:The voltages of all power supply modules are input voltage, output voltage is DC24V,users may choose suitable modules by providing supply.

*Note:When order the IT power distribution system breakers of CW3-1600、6300、7400 used in AC690V,please call us.

ORDERING FORM OF BREAKER

Order form of breaker (with type EN35 or EN36 intelligent controller) (Please fill numbers in ____ or mark √ in □)

Name		Order amount		Order date	
Type	CW3- _____ _____ / _____		□On land	□humid(TH type)	
Rated voltage	In =_____ A	Rated current	□AC400V	□AC690V*	
Mounting	□Fixed	□Draw-out			
Connection	□Horizontal	□ Vertical	□The upper vertical and the below horizontal	□The below vertical and the upper horizontal	

Intelligent controller

Type selection □EN35 □EN36

Basic function

- Long-time delay Ir1_____ A t1_____ s Short-time delay Ir2_____A t2_____ s Instantaneous Ir3_____A
- Earth-fault protection Ir4_____A t4_____s (Only for type 36)
- Curve of long-time delay □General inverse long-time delay (I^2t)
- Neutral protection □OFF □50%In □100%In (without 100%In for CW3-7400 four poles) □200%In (Protection of N pole of double leg of a circuit cross-section for three-pole circuit breaker, but except for CW3-6300、7400)

Selective function

- Overload pre-alarm Ir0=_____Ir1
- □Current unbalance operating threshold___% operating delay__s Return threshold___% Return delay ___s □OFF □Alarm □Trip
- □Open-phase function operating threshold__% operating delay__s Return threshold___% Return delay ___s □OFF □Alarm □Trip
- □Communication | □Communtcative protocol | Standardard □Modbus; Specical □Profibus □Devicenet □CAN
- □ZSI function

Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.

Voltage of intelligent controller □DC24V □AC230V □AC400 (Selective Power supply module for CW3-1600) □DC220V □DC110V(Equipped with DC power supply module)

Accessories

Shunt release	□AC230V	□AC400V	□DC220V	□DC110V
Closing electromagnet	□AC230V	□AC400V	□DC220V	□DC110V
Power-driven operation mechanism	□AC230V	□AC400V	□DC220V	□DC110V

Auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts (NC) and four pieces of normally-closed contacts | Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts (NC) and six pieces of normally-closed contacts

Choice of accessories

- □Under-voltage release □AC230V □AC400V; □Instantaneous | Time delay □0.5s □1s □2s □3s
- □ "Opening" lock mechanism □One lock and one key □Two locks and one key □Three locks and two keys
- □Mechanical interlock: Two sets of circuit breakers □Steel lock interlock □Link rod interlock (horizontally interlock); Three sets of circuit breakers □Pattern three of steel lock interlock □Pattern one of link rod interlock □Pattern two of link rod interlock □Pattern three of link rod interlock
- □Pushbutton lock mechanism □Interphase barriers(must be selected for CW3-1600 vertical connection) □Counter
- □Electrical module for indication of ready-for-close □Remote reset □Electrical indication mechanism of socket's position □Electrical indication mechanism of storage signal Accessories monitoring units
- □Accessories monitoring units □Unit with transformer's center earth externally connected
- □Current transformer with the neutral line N connected externally □FDH-60 □FDH-80 □FDH-120 □FDH-260
- □2 lines programmable output module Output1number____ type_____ time _____ s Output2 ____ ____ ____s
- □6 lines programmable output expansion module Output1 number ____ type____ time ____ s Output2____ ____ ____ s Output3____ ____ ____s; Output4 number ____ type____ time ____ s Output5____ ____ ____ s Output6____ ____ ____s
- Communication choices of accessories□Signal of fault release □Signal of charging □Signal of ready-for-close □Signal of under-voltage □Components of draw-out socket communication module □Normal power supply module
- □DC power supply module □AC230V □AC400V □DC24V
- □Automatic power supply switch system □DC110V □DC220V
- □Automatic switch controller | Automatic switch controller □R type □S type □F type

Note:

Note1: Users can choose transformer's center earth type or vectorial summation type for earth-fault protection. If they make no choices the default type is the vectorial summation type. Users should order units with transformer's center earth externally connected (earth transformer and earth module included) if they choose the transformer's center earth type.

Note2:The voltages of all power supply modules are input voltage, output voltage is DC24V,users may choose suitable modules by providing supply.

*Note:When order the IT power distribution system breakers of CW3-1600、6300、7400 used in AC690V,please call us.

ORDERING FORM OF BREAKER

Order form of breaker (with type EA37 intelligent controller) (Please fill numbers in ____ or mark √ in □)

Name		Order amount		Order date	

Type □ CW3- 1600 / _____ □ CW3- 2500 _____ / _____ □On land □humid(TH type)

Rated voltage In = _____ A | Rated current □AC400V □AC690V*

Mounting □Fixed □Draw-out

Connection □Horizontal □ Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal

Intelligent controller

Type selection □EA37

Basic function

Long-time delay Ir1_____ A t1_____ s Short-time delay Ir2_____A t2_____ s Instantaneous Ir3_____A

Residual current protection I△n_____A △t _____ s □alarm and non-trip □trip □alarm and trip

Curve of long-time delay □General inverse long-time delay (I^2t) □Special inverse time delay (It) □High-voltage fuse type (I^4t)

Neutral protection □OFF □50%In □100%In □200%In (Protection of N pole of double leg of a circuit cross-section for three-pole circuit breaker)

Selective function

Overload pre-alarm Ir0=_____Ir1

□Current unbalance operating threshold ___% operating delay__s Return threshold___% Return delay ___s □OFF □Alarm □Trip

□Open-phase function operating threshold__% operating delay__s Return threshold___% Return delay ___s □OFF □Alarm □Trip

□Communication | □Communtcative protocol | Standardard □Modbus

Specical □Profibus □Devicenet □CAN

□ZSI function

Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.

Voltage of intelligent controller □DC24V □AC230V □AC400V (Selective Power supply module for CW3-1600) □DC220V □DC110V(Equipped with DC power supply module)

Accessories

Shunt release □AC230V □AC400V □DC220V □DC110V

Closing electromagnet □AC230V □AC400V □DC220V □DC110V

Power-driven operation mechanism □AC230V □AC400V □DC220V □DC110V

Auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts (NC) and four pieces of normally-closed contacts | Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts (NC) and six pieces of normally-closed contacts

Choice of accessories

□Under-voltage release □AC230V □AC400V

□Instantaneous | Time delay □0.5s □1s □2s □3s

□ "Opening" lock mechanism □One lock and one key □Two locks and one key □Three locks and two keys

□Mechanical interlock Two sets of circuit breakers □Steel lock interlock □Link rod interlock (horizontally interlock)

Three sets of circuit breakers □Pattern three of steel lock interlock □Pattern one of link rod interlock □Pattern two of link rod interlock □Pattern three of link rod interlock

□Pushbutton lock mechanism □Interphase barriers(must be selected for CW3-1600 vertical connection) □Counter

□Electrical module for indication of ready-for-close □Remote reset □Electrical indication mechanism of socket's position □Electrical indication mechanism of storage signal Accessories monitoring units

□Accessories monitoring units □residual current transformer (must be selected)

□Current tramsformer with the neutral line N connected externally □FDH-60 □FDH-80

□2 lines programmable output module Output1number G type b Output2 G b

□6 lines programmable output expansion module Output1 number ____ type____ time ____ s Output2____ ____ ____ s Output3____ ____ ____ s

Output4 number ____ type____ time ____ s Output5____ ____ ____ s Output6____ ____ ____ s

Communication choices of accessories □Signal of fault release □Signal of charging □Signal of ready-for-close □Signal of under-voltage □Components of draw-out socket communication module □Normal power supply module

□DC power supply module □AC230V □AC400V □DC24V

□Automatic power supply switch system □DC110V □DC220V

□Automatic switch controller | Automatic switch controller □R type □S type □F type

Note:

Note1:The voltages of all power supply modules are input voltage, output voltage is DC24V,users may choose suitable modules by providing supply.

Note2:selecting"alarm and non-trip"or"alarm and trip"for residual current protection if "alarm" is selected for other selecting function,users only select "6lines programmable output expansion module",beause residual current fault alarm signal output is by "2lines programmable output expansion module".

*Note:When order the IT power distribution system breakers of CW3-1600 used in AC690V,please call us.

ORDERING FORM OF BREAKER

Order form of breaker (with type EP37 or EQ37 intelligent controller) (Please fill numbers in ____ or mark √ in □)

Name		Order amount		Order date	

Type □ CW3- 1600 / ____ □ CW3- 2500 ____ / ____ □On land □humid(TH type)

Rated voltage In = ____A | Rated current □AC400V □AC690V*

Mounting □Fixed □Draw-out

Connection □Horizontal □Vertical □he upper vertical and the below horizontal □The below vertical and the upper horizontal

Type selection

Type selection □EP37 □EQ37

Intelligent

Long-time delay Ir1____ A t1____ s Short-time delay Ir2____A t2____ s Instantaneous Ir3____A

Residual current protection I△n____A △t ____s □alarm and non-trip □trip □alarm and trip

Curve of long-time delay □General inverse long-time delay(I^2t) □ Special inverse time delay(It) □High-voltage fuse type(I^4t)

Neutral protection □OFF □50%In □100%In □200%In (Protection of N pole of double leg of a circuit cross-section for three-pole circuit breaker)

Controller

□Overload pre-alarm Ir0= ____Ir1

□Current unbalance Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Open-phase function Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□demand current protection Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Under-voltage protection Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Over-voltage protection Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Current unbalance Operating threshold__% Operating delay__s Return threshold__% Return delay__s □OFF □Alarm □Trip

□Phase sequence protection Operating threshold__% Operating delay 0.3s

□Communication | □Communtcative protocol | Standardard □Modbus

Specical □Profibus □Devicenet □CAN

□ ZSI function

Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.

Voltage of intelligent controller □DC24V □AC230V □AC400V(Selective Power supply module for CW3-1600) | □DC220V □DC110V(Equipped with DC power supply module)

Accessories

Shunt release □AC230V □AC400V □DC220V □DC110V

Closing electromagnet □AC230V □AC400V □DC220V □DC110V

Power-driven operation mechanism □AC230V □AC400V □DC220V □DC110V

Auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts (NC) and four pieces of normally-closed contacts | Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts (NC) and six pieces of normally-closed contacts

Choice of accessories

□AC230V □AC400V

□Under-voltage release □ Instantaneous | Time delay □0.5s □1s □2s □3s

□ "opening" lock mechanism □ One lock and one key □Two locks and one key □Three locks and two keys

□Mechanical interlock Two sets of circuit breakers □Steel lock interlock □Link rod interlock (horizontally interlock)

Three sets of circuit breakers □Pattern three of steel lock interlock □Pattern one of link rod interlock □Pattern two of link rod interlock □Pattern three of link rod interlock

□Pushbutton lock mechanism □Interphase barriers(must be selected for CW3-1600 vertical connection) □Counter

□Electrical module for indication of ready-for-close □Remote reset □Electrical indication mechanism of socket's position
□Electrical indication mechanism of storage signal

□Accessories monitoring units □residual current transformer (must be selected)

□ Current transformer with the neutral line N connected extern □FDH-60 □FDH-80

□2 lines programmable output module Output1 G type b Output2 G b

□6 lines programmable output expansion module Output1 number —— type—— time —— s Output2—— —— —— s Output3—— —— —— s
Output4 number —— type—— time —— s Output5—— —— —— s Output6—— —— —— s

Communication choices of accessories □Signal of fault release □ Signal of charging □ Signal of ready-for-close □Signal of under-voltage □Components of draw-out socket communication module

□Normal power supply module □AC230V □AC400V □DC24V

□DC power supply module □DC110V □DC220V

□Automatic power supply switch system | Automatic switch controller □R type □S type □F type

Note:

Note1:The voltages of all power supply modules are input voltage, output voltage is DC24V,users may choose suitable modules by providing supply.
Note2:selecting"alarm and non-trip"or"alarm and trip"for residual current protection if "alarm" is selected for other selecting function,users only select "6lines programmable output expansion module",beause residual current fault alarm signal output is by "2lines programmable output expansion module"
*Note:When order the IT power distribution system breakers of CW3-1600 used in AC690V,please call us.

ORDERING FORM OF BREAKER

Order form of breaker (with type EN37 intelligent controller) (Please fill numbers in ____ or mark √ in □)

Name		Order amount		Order date	

Type □ CW3- 1600 / _____ □ CW3- 2500 _____ / _____ □On land □humid(TH type)

Rated voltage In = _____ A | Rated current □AC400V □AC690V*

Mounting □Fixed □Draw-out

Connection □Horizontal □ Vertical □The upper vertical and the below horizontal □The below vertical and the upper horizontal

Intelligent controller

Type selection □EN37

Basic function

Long-time delay Ir1_____ A t1_____ s Short-time delay Ir2_____A t2_____ s Instantaneous Ir3_____A

Residual current protection I△n_____A △t _____ s □alarm and non-trip □trip □alarm and trip

Curve of long-time delay □General inverse long-time delay (I^2t) □Special inverse time delay (It) □High-voltage fuse type (I^4t)

Neutral protection □OFF □50%In □100%In □200%In (Protection of N pole of double leg of a circuit cross-section for three-pole circuit breaker)

Selective function

Overload pre-alarm Ir0=_____Ir1

□Current unbalance operating threshold ___% operating delay__s Return threshold___% Return delay ___s □OFF □Alarm □Trip

□Open-phase function operating threshold__% operating delay__s Return threshold___% Return delay ___s □OFF □Alarm □Trip

□Communication | □Communtcative protocol | Standardard □Modbus

Specical □Profibus □Devicenet □CAN

□ZSI function

Users must choose 2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected) and choose signal outputs by "Output number definition of programmable output module" table when they choose alarm function.

Voltage of intelligent controller □DC24V □AC230V □AC400V (Selective Power supply module for CW3-1600) □DC220V □DC110V(Equipped with DC power supply module)

Accessories

Shunt release □AC230V □AC400V □DC220V □DC110V

Closing electromagnet □AC230V □AC400V □DC220V □DC110V

Power-driven operation mechanism □AC230V □AC400V □DC220V □DC110V

Auxiliary switch □Four pairs of changeover contacts □Four pieces of normally-open contacts (NC) and four pieces of normally-closed contacts | Exceptional pattern □Six pairs of changeover contacts □Six pieces of normally-open contacts (NC) and six pieces of normally-closed contacts

Choice of accessories

□Under-voltage release □AC230V □AC400V

□Instantaneous | Time delay □0.5s □1s □2s □3s

□ "Opening" lock mechanism □One lock and one key □Two locks and one key □Three locks and two keys

□Mechanical interlock Two sets of circuit breakers □Steel lock interlock □Link rod interlock (horizontally interlock)

Three sets of circuit breakers □Pattern three of steel lock interlock □Pattern one of link rod interlock □Pattern two of link rod interlock □Pattern three of link rod interlock

□Pushbutton lock mechanism □Interphase barriers(must be selected for CW3-1600 vertical connection) □Counter

□Electrical module for indication of ready-for-close □Remote reset □Electrical indication mechanism of socket's position □Electrical indication mechanism of storage signal Accessories monitoring units

□Accessories monitoring units □residual current transformer (must be selected)

□Current tramsformer with the neutral line N connected externally □FDH-60 □FDH-80

□2 lines programmable output module Output1number G type b Output2 G b

□6 lines programmable output expansion module Output1 number ____ type____ time ____ s Output2____ ____ ____ s Output3____ ____ ____ s

Output4 number ____ type____ time ____ s Output5____ ____ ____ s Output6____ ____ ____ s

Communication choices of accessories □Signal of fault release □Signal of charging □Signal of ready-for-close □Signal of under-voltage □Components of draw-out socket communication module □Normal power supply module

□DC power supply module □AC230V □AC400V □DC24V

□Automatic power supply switch system □DC110V □DC220V

□Automatic switch controller | Automatic switch controller □R type □S type □F type

Note:

Note1:The voltages of all power supply modules are input voltage, output voltage is DC24V,users may choose suitable modules by providing supply.

Note2:selecting"alarm and non-trip"or"alarm and trip"for residual current protection if "alarm" is selected for other selecting function,users only select "6lines programmable output expansion module",beause residual current fault alarm signal output is by "2lines programmable output expansion module".

*Note:When order the IT power distribution system breakers of CW3-1600 used in AC690V,please call us.

Output definition of 2 lines programmable output module (placed in the circuit breaker)

Programmable output 1 and 2 set outputs for the following items by "Output number definition of programmable output module" table by intelligent controller. If users make no choices about programming content the default number is as follows: choose Bc1 for programmable output 1 which represents current unloading 1, time delay contact and delay time is 1s and choose Cc1 for programmable output 2 which represents current unloading 2, time delay contact and delay time is 1s.

For EN37、EA37、EP37、EQ37 controllers,programmable output 1 and 2 set outputs Gb,which represent residual current trip alarm and interlocking contact.

6 lines programmable output expansion module (external connected)

6 lines programmable output expansion module can program and set outputs by "Output number definition of programmable output module" table by intelligent controller. Programming output is effective only when circuit breaker has corresponding functions. Users must indicate number, type and delay time (just effective for time delay contact) and the manufacture provides goods in accordance with the number. If users make no choices the default number is as follows: choose Aa for programmable output 1, choose Bc1 for programmable output 2, choose Cc1 for programmable output 3, choose Da for programmable output 4, choose Ea for programmable output 5 and choose Fa for programmable output 6.

Output number definition of programmable output module

No.	Function		Remarks	Controller type
A	Ir_0	Overload pre-alarm	Overload pre-alarm and current shedding	Type EN、EA, EP, EQ, EG
B	I_{LC1}	Current shedding		
C	I_{LC2}	Current shedding		
D	Ir_1	Long-time delay trip alarm	Current protection alarm	
E	Ir_2	Short-time delay trip alarm		
F	Ir_3	Instantaneous trip alarm		
G	$Ir_4/I\triangle n$	Earth/residual current trip alarm		
H	Iunbal	Current unbalance Operating alarm		
I	Open-phase	Open-phase alarm		
J	Over-temperature	Over-temperature alarm	Internal fault alarm	Type EN、EA, EP, EQ, EG
K	Memory fault	Memory fault alarm		
L	Internal accessories fault	Internal accessories fault alarm		
M	$\overline{I}_1max$	Maximum demand current operating alarm	Current protection alarm	Type EP, EQ, EG
N	$\overline{I}_2max$	Maximum demand current operating alarm		
O	$\overline{I}_3max$	Maximum demand current operating alarm		
P	$\overline{I}_nmax$	Maximum demand current operating alarm		
Q	Umin	Under-voltage operating alarm	Voltage protection alarm	
R	Umax	Over-voltage operating alarm		
S	Uunbal	Voltage unbalance operating alarm		
T	Phase sequence	Phase sequence operating alarm	Other protections alarm	Type EG
U	F_{MIN}	Under-frequency operating alarm		
V	F_{MAX}	Over- frequency operating alarm		
W	rPmax	Inverse frequency operating alarm		

Output number definition of programmable output module

Output number	Output type	delay time of time delay contact	Remarks
See the number definition table	non-interlocking contact Interlocking contact Time delay contact	1 ~ 360s	2 lines programmable output module (internal connected) or 6 lines programmable output expansion module (external connected)

Factory's default setting values of protection parameters

The manufacture would configure by "Factory's default setting values of protection parameters" table if users no specific requirements for functions when making order.

Item		Adjusted range			Setting value	Remarks
Long-time delay protection	Curve types	I^2t	It	I^4t	I^2t	Only I^2t for type EN、EG
	Setting value of current	0.4 ~ 1In			In	For type EA, EP, EQ
		0.4 ~ 1.15In				For type EG
	Setting value of time	15 ~ 480s	10 ~ 120s	60 ~ 1440s	480s	For type EN、EA, EP, EQ
		15 ~ 60s			60s	for type EG
Short-time delay protection	Setting value of current	(0.4 ~ 15)In+OFF			6Ir1	For type EN、EA, EP, EQ
		(0.4 ~ 5)In+OFF			3Ir1	For type EG
	Setting value of time	definite time or definite and inverse time			definite and inverse time	inverse time
Instantaneous protection	Setting value of current	1600	(1.6 ~ 35) kA+OFF		In≤1000A：15In In = 1250A、1600：12In In≥2000A：10In	
		2500	(2.5 ~ 50) kA+OFF			
		4000	(4 ~ 80)kA+OFF			
		6300	(6.3 ~ 100)kA+OFF			
		7400	(7.4 ~ 115)kA+OFF			
Earth-fault protection	Setting value of current	<1250A	(0.4 ~ 0.8)In		Maximum	
		≥1250A	500 ~ 1200A			
	Setting value of time	0.1 ~ 0.4s+OFF			inverse time	
residual current protection	rated residual operating current	(0.5~30) A			30A	For type EN37、EA37、EP37、Eq37
	delay time	(0.10~5.00) s			1.0s	
Neutral protection	Current setting value	OFF – N/2 – N–N × 2 (CW3-6300、7400 and type EG controller without N × 2			OFF	Three-pole circuit breaker
		OFF–N/2–N (CW3-7400 without N)			CW3-1600~CW3-6300：N CW3-7400：N/2	Four-pole circuit breaker

Continued table

Item		Adjusted range	Setting value	Remarks
Overload pre-alarm	Setting value of current	(0.75 ~ 1.05)Ir1	1.05Ir1	
Current unbalance protection	Operating threshold	20 ~ 80%	60%	
	Operating delay	1 ~ 40s	40s	
	Return threshold	20% ~ Operating threshold	20%	
	Return delay	10 ~ 360s	10s	
Open-phase protection	Operating threshold	90 ~ 99%	95%	
	Operating delay	0.1 ~ 3s	3s	
	Return threshold	20% ~ Operating threshold	20%	
	Return delay	10 ~ 360s	10s	
Demand current protection	Operating threshold	0.4 ~ 1In	1In	
	Operating delay	15 ~ 1500s	1500s	
	Return threshold	0.4In ~ Operating threshold	0.4In	
	Return delay	15 ~ 3000s	15s	
Under-voltage protection	Operating threshold	50 ~ 690V	265V	
	Operating delay	1 ~ 30s	5s	
	Return threshold	Operating threshold ~ 690V	325V	
	Return delay	1 ~ 100s	10s	
Over-voltage protection	Operating threshold	200 ~ 1000V	725V	
	Operating delay	1 ~ 5s	5s	
	Return threshold	200V ~ Operating threshold	400V	
	Return delay	1 ~ 36s	2s	
Voltage unbalance protection	Operating threshold	2 ~ 50%	30%	
	Operating delay	1 ~ 40s	40s	
	Return threshold	2% ~ Operating threshold	10%	
	Return delay	10 ~ 360s	10s	

Continued table

Item		Adjusted range	Setting value	Remarks
Inverse power protection	Operating threshold	20 ~ 500kW	500kW	
	Operating delay	0.2 ~ 20s	20s	
	Return threshold	20kW ~ Operating threshold	100kW	
	Return delay	1 ~ 360s	1s	
Over-frequency protection	Operating threshold	50 ~ 65Hz	65Hz	
	Operating delay	0.2 ~ 5s	5s	
	Return threshold	45Hz ~ Operating threshold	50Hz	
	Return delay	1 ~ 360s	1s	
Under-frequency protection	Operating threshold	45 ~ 60Hz	45Hz	
	Operating delay	0.2 ~ 5s	5s	
	Return threshold	Action threshold ~ 60Hz	50Hz	
	Return delay	1 ~ 360s	1s	
Phase sequence protection	Operating threshold	1，2，3或1，3，2	1，2，3	
	Operating delay	0.3s	0.3s	
Current shedding	Operating threshold	0.2 ~ 1In	1In	
	Operating delay	20% ~ 80%t1	80%t1	
	Return threshold	0.2In ~ Operating threshold	0.5In	
	Return delay	10 ~ 600s	10s	

If users have chosen 6 lines programmable output expansion module but have no specific requirements when making order, programmable outputs of 2 lines programmable output module and 6 lines programmable output expansion module are set as follows.

		Setting value	Remarks
Output number	A ~ W	Bc1,Cc1	2 lines programmable output module (internal connected)
		Aa ,Bc1,Cc1 ,Da, Ea, Fa	6 lines programmable output expansion module (external connected)
Output type	Non-interlocking contact Interlocking contact Time delay contact	a	
delay time of time delay contact	1 ~ 360s	1s	

Order form of Selecting Communication Component

User		Order date	
Product type		order amount	
Communication changover device			
CN1 communicative adapter	CN1DP-MD		
	CN1DP-MP		
	CN1DP-MC		
	CN1EG/10		
FDM3 Message Notify Module			
FCX3 Intelligent Distribution Monitor	Main body		
	Selecting module : short message extend module		
CI1 Remote Intelligence I/O Module	CI1-SCM423		
	CI1-S12		
	CI1-C8		
	CI1-SC64		

Order Form of Temperature Alarm module

User		Order date	
Product type		order amount	
FWB1 temperature alarm module			
Hest sensor	FRG-7		
	FRG-9		
	FRG-11		
	FRG-13		
	FRG-17		

本公司可提供不带智能控制器的断路器，符合GB14048.2附录L的CBI–Y要求，断路器无过电流保护功能，其主要技术指标、二次回路接线图、订货规范分别如下。

Can provide breakers without intelligent controllers ,compliance with GB14048.2 annex L CBI–Y demands.The breakers are not fulfilling the requirements for overcurrent protection.Main technical index,wiring diagram of secondary circuit and order form,please seeing follow.

●主要技术指标
Main technical index

型号 Type		CW3–1600	CW3–2500		CW3–4000		CW3–6300		CW3–7400
壳架等级额定电流Inm(A) Frame size rated current		1600	2500		4000		6300		7400
额定电流In(A) Rated current		200,400,630,800, 1000,1250,1600	630,800,1000,1250, 1600,2000,2500		1000,1250,1600, 2000,2500,2900, 3200,3600,4000		4000,5000,6300		4000,5000,6300,7400
额定电压Ue(V) Rated voltage		AC50Hz/60Hz，400、690							
额定绝缘电压Ui(V) Rated insulation voltage		1000							
额定冲击耐受电压Uimp(kV) Rated impulse withstand voltage		12							
工频耐受电压U(V) Power frequency withstand voltage		3500							
极数 Pole number		3,4							
中性极额定电流IN(A) Rated current of N pole		100%In							50%In
原体断路器短路分断能力级别 Short circuit breaking capacity class of equivalent circuit breaker			M	H*	M	H*	M	H*	
额定限制短路电流Icc(kA)(有效值) Rated conditional short circuit current（effective value）	AC400V	50	65	85	85	100	100	135	100
	AC690V	42	55	65	75	85	85	100	85

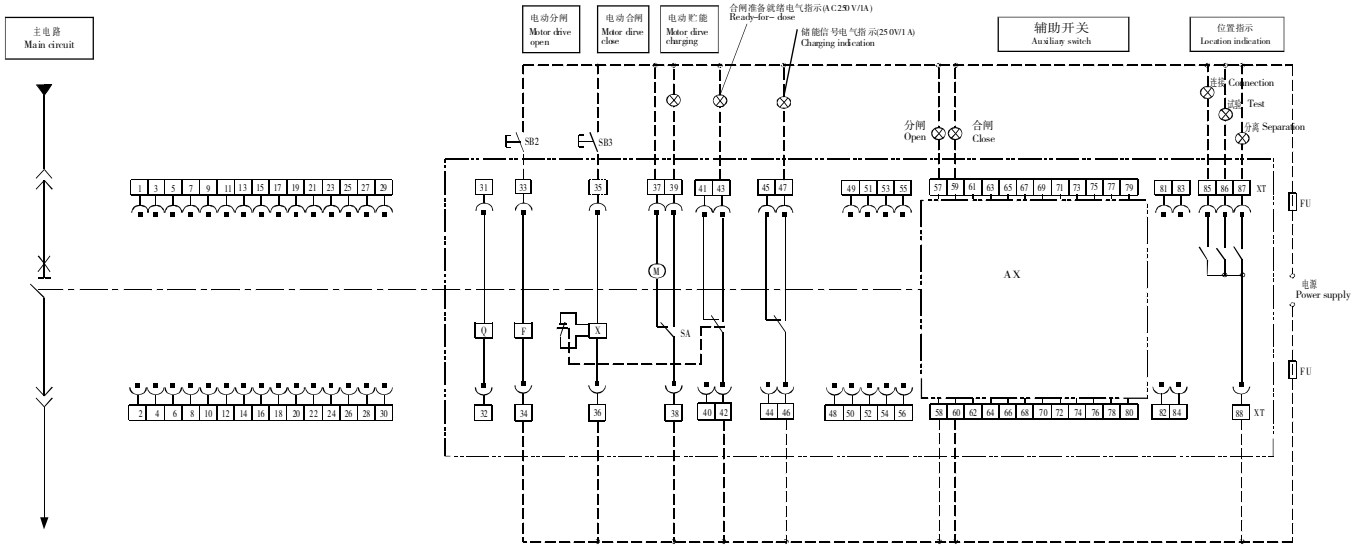
*注：具有接通短路脱扣器，其闭合峰值：CW3–2500为66kA，CW3–4000为105kA，CW3–6300为166kA，允差±20%。

*Note: having making short circuit release,it's closing peak value:66kA for CW3–2500, 105kA for CW3–4000, 166kA for CW3–6300, toleramce ± 20%.

●二次回路接线图
Wiring diagram of secondary circuit

CW3-1600无过电流保护断路器二次回路接线图

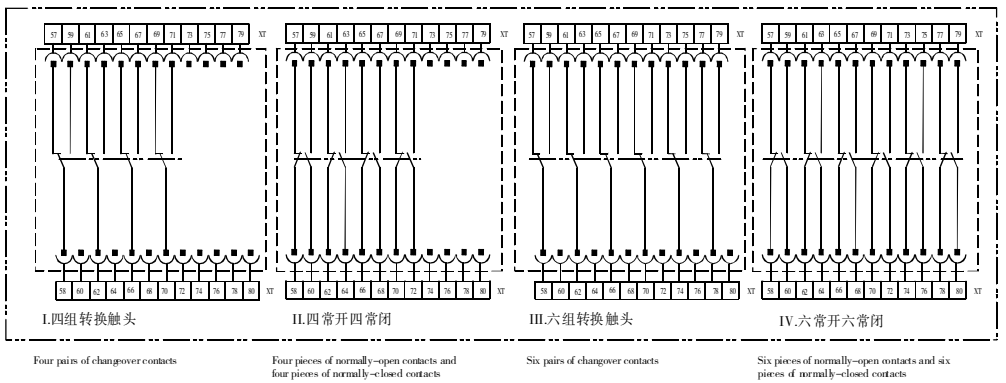
Wiring diagram of secondary circuit of CW3-1600 not fulfilling the requirements for overcurrent protection



SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltagerelease
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of Q, F, X etc
下表中，√为必备附件的功能接线；○为选择附件的功能接线. In the following table, √: standard configuration , ○: optional configuration.

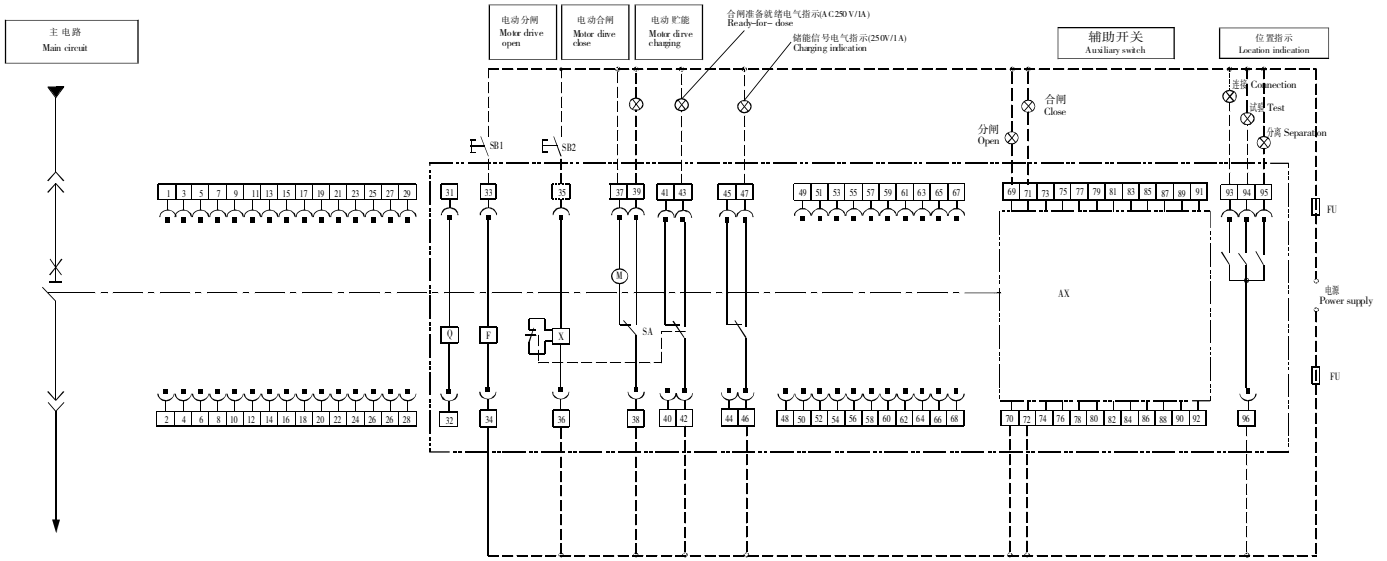
辅助开关型式 The pattern of auxiliary switch



端子号Terminal	功能Function		功能接线 Function wiring
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○
33, 34	分励脱扣器	Connect with shunt release	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√
37,38,39	电动(电机)贮能，37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or power supply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○
45,46,47	储能信号电气指示	charging indication	○
57-80	辅助开关连接端子	Connecting terminals of auxiliary switch	√
85,88	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication （AC250V 1A）	○
86,88	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○
87,88	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○

CW3-2500~7400无过电流保护断路器二次回路接线图

Wiring diagram of secondary circuit of CW3-2500~7400 not fulfilling the requirements for overcurrent protection

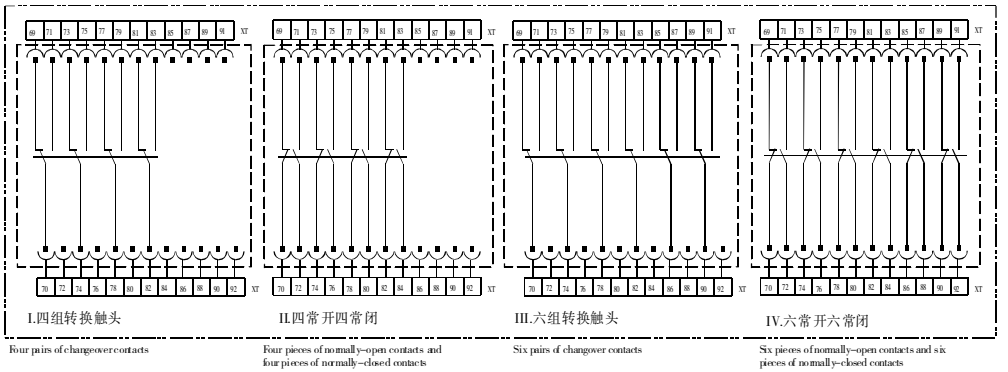


SB2	分励按钮	Shunt button
SB3	合闸按钮	Closing button
Q	欠电压脱扣器或欠电压延时脱扣器	Under-voltagerelease
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
FU	熔断器	Fuse
AX	断路器辅助开关	Auxiliary switch

注：虚线部分由用户自接。若欠电压脱扣器、分励脱扣器、合闸电磁铁等额定电压不同应分别接不同电源。Wiring in the dashed line is done by users themselves. Power supply is different for different rated voltage of Q, F,X etc

下表中，√为必备附件的功能接线；○为选择附件的功能接线. In the following table, √: standard configuration, ○: optional configuration.

辅助开关型式 The pattern of auxiliary switch



端子号Terminal	功能Function		功能接线 Function wiring
31, 32	欠电压脱扣器（应接在主回路中）	Connect with under-voltage release	○
33, 34	分励脱扣器	Connect with shunt release	√
35, 36	合闸电磁铁	Connect with closing electromagnet	√
37,38,39	电动(电机)贮能。37,38可直接接电源（自动预贮能），也可串接常开按钮后接电源（手动预贮能）	Connect with Motor driven operating mechanism. Power supply directly (auto energy prestore) or powersupply with a NO(normal open) button simultaneously (manual energy prestore) with 37,38.	√
41,42,43	合闸准备就绪电气指示	Ready-for-close indication	○
45,46,47	储能信号电气指示	charging indication	○
69-92	辅助开关连接端子	Connecting terminals of auxiliary switch	√
93,96	抽屉座“连接”位置指示（AC250V 1A）	“Connected” position indication（AC250V 1A）	○
94,96	抽屉座“试验”位置指示（AC250V 1A）	“Test” position indication（AC250V 1A）	○
95,96	抽屉座“分离”位置指示（AC250V 1A）	“Separated” position indication（AC250V 1A）	○

●订货规范

无过电流保护断路器订货规范

(请在__上填上数字，□内打上 √)

用户单位		订货台数		订货日期	
型号 CW3 - _____ _____ / _____/CBI □陆用 □湿热带型（TH型）					
额定电流 In = _____ A		额定电压 □ AC400V □ AC690V			
安装方式 □ 固定式 □ 抽屉式					
联接方式 □ 水平 □ 垂直 □ 上垂直下水平 □ 上水平下垂直					
附件配置	FFT分励脱扣器 □ AC230V □ AC400V □ DC220V □ DC110V				
	FHD合闸电磁铁 □ AC230V □ AC400V □ DC220V □ DC110V				
	FDC电动操作机构 □ AC230V □ AC400V □ DC220V □ DC110V				
	FFC辅助开关 □ 4组转换触头 □ 4常开 4 常闭		特殊形式 □ 6 组转换触头 □ 6常开 6 常闭		
选择附件	□FQT欠电压脱扣器	□AC230V □AC400V			
		□ 瞬时型	延时型 □0.5s □1s □2s □3s		
	□FFS 分闸锁定装置 □ 一锁一钥匙 □ 二锁一钥匙 □ 三锁二钥匙				
	□FLS 机械联锁	二台断路器 □ 钢缆联锁 □ 联杆联锁（上下联锁）			
		三台断路器 □ 钢缆联锁方式三 □ 联杆联锁方式一 □ 联杆联锁方式二 □ 联杆联锁方式三			
	□FAN 按钮锁定装置 □ FXG 相间隔板 （CW3-1600垂直联接方式必配相间隔板） □ FJS 计数器				
	□FXM 合闸准备就绪电气指示模块 □ FWZ 抽屉座位置电气指示装置 □FCZ储能信号电气指示装置				

Order form of breakers not fulfulling the requirement for overcurrent protection

(Please fill numbers in ___ or mark√ in ☐)

Name		Order amount		Order data	
Type CW3 – _____ _____ / _____ /CBI ☐ On Land ☐ Humid tropical(TH)					
Rated current In = _____ A		Rated voltage ☐ AC400V ☐ AC690V			
Connection ☐ Fixed ☐ Draw-out					
Connection ☐ Horizontal ☐ Vertical ☐ The upper vertical and the below horizontal ☐ The below vertical and the upper horizontal					
Normally-deployed accessories	FFT Shunt release	☐ AC230V	☐ AC400V	☐ DC220V	☐ DC110V
	FHD Switching-on eletromagnet	☐ AC230V	☐ AC400V	☐ DC220V	☐ DC110V
	FDC Power-driven operation mechanism	☐ AC230V	☐ AC400V	☐ DC220V	☐ DC110V
	FFC Auxiliary switch ☐ Four groups of changeover contacts ☐ Four pieces of normally-opened contacts		Exceptional pattern ☐ Six pieces of normally-opened contacts ☐ Six pieces of normally-opened contacts		
Choice of accessories	☐ FQT Under-voltage release	☐ AC230V	☐ AC400V		
		☐ Under-voltage instantaneous release	Under-voltage time delay release ☐ 0.5s ☐ 1s ☐ 2s ☐ 3s		
	☐ FFS "Switching-off" lock mechanism	☐ One lock and one key	☐ Two lock and one key	☐ Three lock and two key	
	☐ FLS Mechanical interlock	Two sets of circuit breakers ☐ Steel lock interlock	☐ Link rod interlock		
		Three sets of circuit breakers ☐ Steel lock interlock	☐ Pattern one of rod interlock	☐ Pattern two of rod interlock	☐ Pattern three of rod interlock
	☐ FAN "Button" locking device ☐ FXG Isolation plate between phases (must be selected for CW3-1600 vertical connection) ☐ FJS Counter				
	☐ FXM electrical module for indication of ready-for-close ☐ FWZ electrical indication mechanism of socket's position ☐ FCZ electrical indication mechanism of storage signal Accessories monitoring units				

常熟开关制造有限公司(原常熟开关厂)

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　　52840995　52841441　52841442　52841616
成套销售：0512-52846862　52846863　52840073　52845582
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售后服务热线：0512-52846867　52846869　52844091　52845956
传　　真：0512-52841606　52841465　52841042

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　　52841441　52841442　52845227　52841616
SALES DEP. FOR COMPLETE SWITCHGEAR EQUIPMENT :
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