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# ACTB系列电流互感器过压保护器

ACTB Series Over-voltage Protective device for Current Transformer

安装使用说明书V1.2

Installation and operation instruction V1.2

安科瑞电气股份有限公司

ACREL CO.,LTD

# 申 明

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This company reserve power of revision of product specification described in this manual, without notice. Before ordering, please consult local agent for the latest specification of product.

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# ACTB 系列电流互感器过压保护器

## ACTB Series Over-voltage Protective device for Current Transformer

### 1. 概述 General

电流互感器（简称 CT）在运行中二次回路绝不允许开路，一旦开路，或一次绕组流过异常电流（如雷电流、谐振过电流，电容充电电流、电感启动电流等），将会产生数千至数万伏开路过电压，造成 CT 和二次设备损坏，也严重威胁人身安全，造成重大经济损失。采用电流互感器二次过电压保护器（简称 CTB）就能够有效的防止因电流互感器二次侧异常高压引起的事故。

Current transformer (CT, for short) in running, the open circuit of its secondary circuit is never allowable, if opening, or if the abnormal current(such as lightning current, resonant over current, capacitor charged current, inductive starting current etc.) flow through the primary winding, will result in open circuit over voltage of ten hundred up to ten thousands Volt to damage CT and the secondary equipment, to risk personnel safe and result in heavy economic loss. Using ACTB series secondary over-voltage protective device for current transformer (CTB, for short) can effectively prevent accident from excessive high voltage of secondary side of current transformer.

### 2. 型号规格 Type specification

型号规格 Type specification	应用 application
ACTB-3	一个三相回路或 3 个单相回路 One three-phase circuit or three single-phase circuits
ACTB-6	二个三相回路或 6 个单相回路 Two three-phase circuits or six single-phase circuits

### 3. 产品特点 Features

我公司生产的 ACTB 主要应用于各种 CT 二次侧的异常过电压保护，正常工作时，互感器二次侧处于近似短路状态，输出电压很低。一旦 CT 二次开路出现异常尖峰过电压时它能立即响应限压，延时短路，从而起到完全的保护作用，面板上显示故障的部分，并有无源信号输出。当故障排除后，电路恢复正常状态，重新正常工作。

Our CTB are mainly used in various CT secondary side for excessive high over voltage protection, in normal condition, the secondary side of current transformer is near in short-circuit condition with very low output voltage. Once the abnormal peak over voltage occurs in CT secondary open circuit, the device respond immediately to limit voltage and delay short circuit, to get fully protection. The position of fault is shown on the faceplate, outgoing passive signal. After clearing faults, the circuit restore to normal condition, to start normal operation again.

保护器应用于各种 CT 二次侧的差动绕组、过流绕组、测量绕组、母线保护绕组、备用绕组等。

This device is applied to various differential winding of CT secondary side, over current windings, measuring windings, windings for bus protection, standby windings.

#### 4. 主要技术特性 Main technical characteristic

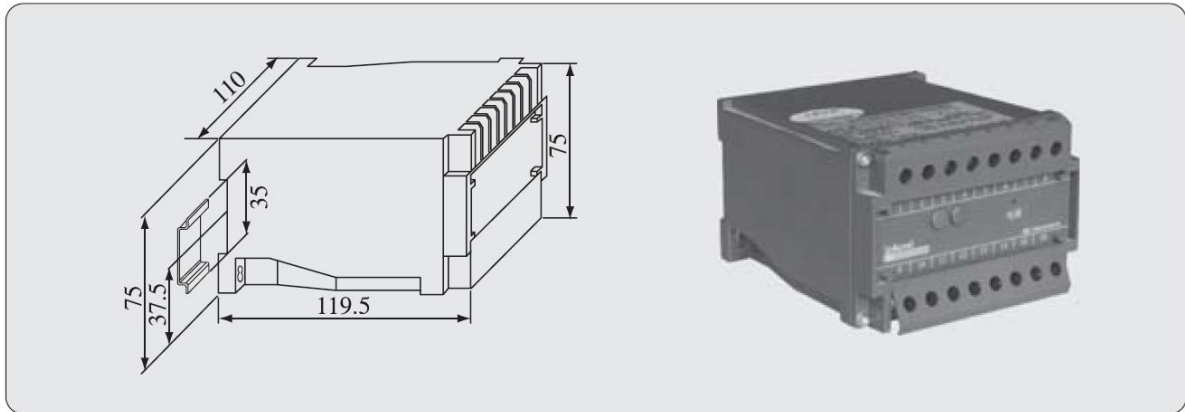
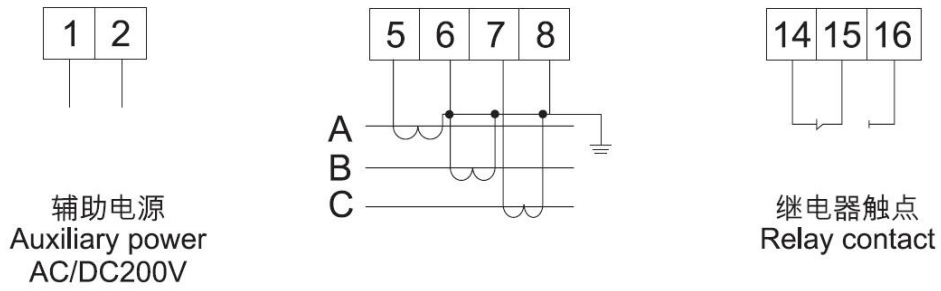
技术参数 Technical parameter	指标 Value	
正常漏电流 Normal leakage	<20uA	
输入电阻 Input resistance	大于>100MΩ	
导通电压 ON-voltage	AC 150V±(10%) (默认, 可根据用户要求设定) AC 150V±(10%) (default, set up by user's request)	
导通时间 On-time	50ms≤Ts≤250ms	
动作寿命 Service life	1×10 <sup>5</sup> 次 1×10 <sup>5</sup> times	
继电器接点容量 Capacity of relay contact	通信继电器接点容量 Communication relay	AC220/5A; DC110V/5A
	保护继电器接点容量 Protective relay	AC220V/8A
使用的 CT 规格 Used spec.	二次侧峰值大于 150V The secondary peak value is above 150V	
保护电流 Protection current	5A	
工作环境 Operating condition	温度 Temperature	-20℃~70℃
	湿度 Humidity	≤95%RH
	海拔 Altitude	≤2500 米 ≤2500m
复位方式 Reset mode	按压“复位”按钮或停电自动复位 Pressing down reset button, power cut	
抗震性能 Shock resisting	10~50~10 2g 3min	
工作电源 Working power	AC 85~265V DC 100~350V	
安装方式 Mounting mode	DIN35 导轨式 DIN35 Guide rail	
功耗 Power consumption	≤10VA	
可靠安全性 Reliability	工频耐压≥2500V Power frequency withstand voltage≥2500V	
抗干扰 Anti-jamming	静电 Static	8kV 接触放电 8kV Contact Discharge
	浪涌 Surge	4kV

#### 5. 接线方法 Connection method

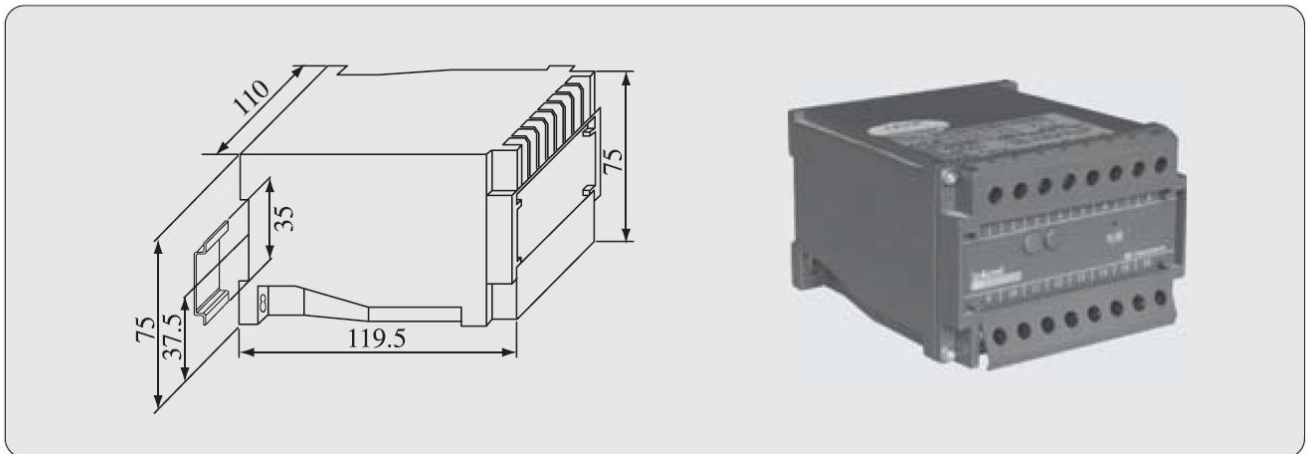
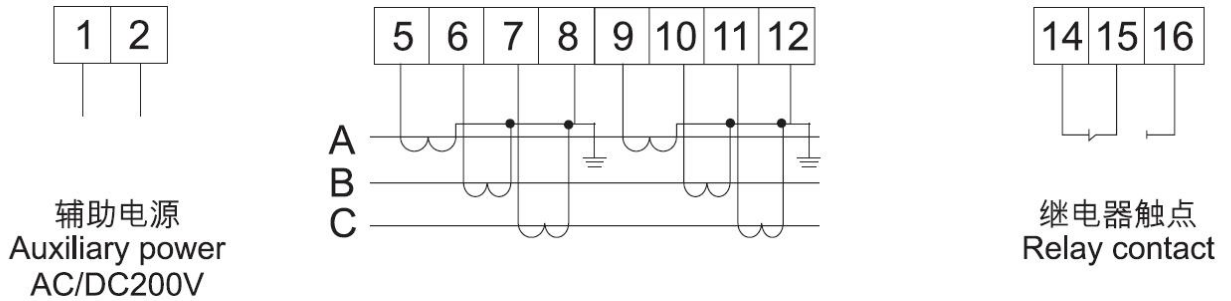
一般情况下, 互感器均连接在 A、B、C 三相上, 少数连接在两相上, 个别连接在一相上。绝大多数均为星形连接, 少数三角形连接。本产品电流互感器为二次绕组星形连接。二次绕组 A、B、C 对应连接在保护器 A、B、C 接线端子上。若只用 A、B 绕组, C 相可以不接线, 不会影响保护器的正常工作。

Generally speaking, the transformer is connected with three-phase of A, B, C, minority is connected with two-phase, very few is connected with single-phase. The most adopt the Wye connection, the minority adopt Delta connection. The current transformer in this product adopt secondary winding as Wye connection. The A, B, C, phase of secondary winding is connected with the A, B, C, connector terminal of the device. If only using A, B windings, not connecting C phase, the normal operation of the device is not affected.

ACTB-3 接线图 Wiring diagram



ACTB-6 接线图 Wiring diagram



## 6. 应用实例 Sample in application

1	KM+
2	KM-
3	
4	
5	

柜前  $\leftarrow$   $\rightarrow$  柜后

控制小母线	熔断器
保护器工作电源	CT故障指示灯
	CT正常工作指示灯

TA1	1	A401	PA1, ACTB
TA2	2	B401	PA2, ACTB
TA3	3	C401	PA3, ACTB
TA3	4	N401	PA3, ACTB
	5		
ACTB	6	3	HY
ACTB	7	5	HG
	8		

7	HG	信号灯	1	1	
6	HY	信号灯	1	1	
5	FU1-FU2	熔断器	RT14-20/6A	2	
4	ACTB	CT过电压保护器	ACTB-3 DC220V	1	
3	PA1-PA3	电流表		3	
2	TA1-TA3	电流互感器		3	
1	QF	断路器		1	
序号	标号	名称	型号规格	数量	备注

合同号		柜号	
设计		审核	
制图		批准	
校核		日期	
工艺			

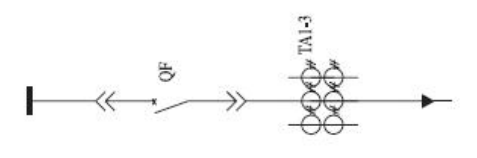
ACTB-3	
应用实例	
CT过电压保护器	

图样标记	重量	比例
共1张	第1张	

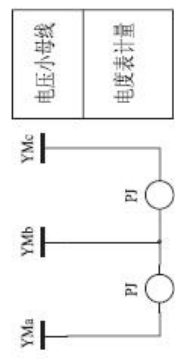
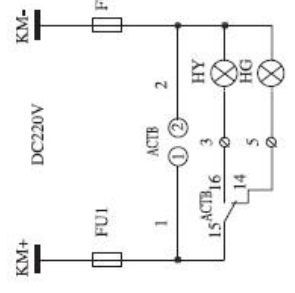
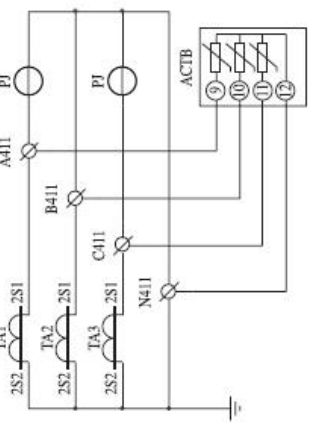
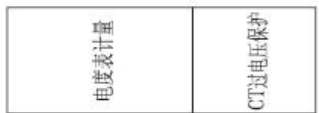
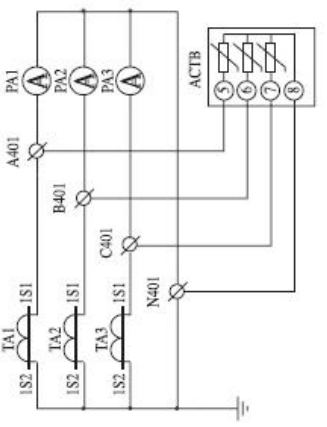
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柜内小母线	
1	KM+
2	KM-
3	YMa
4	YMb
5	YMc

柜前 ←  
柜后 →



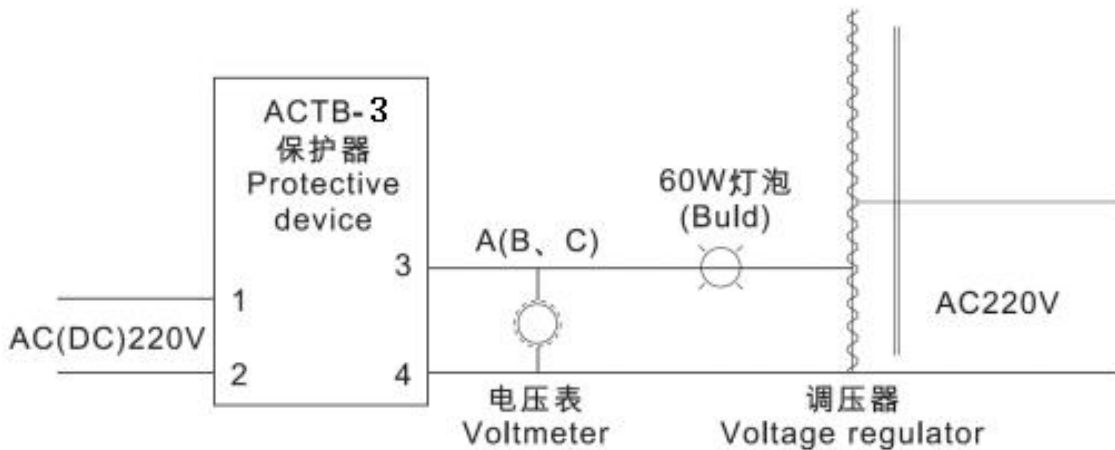
X	
TA1	1 A401 PA1,ACTB
TA2	2 B401 PA2,ACTB
TA3	3 C401 PA3,ACTB
TA3	4 N401 PA3,ACTB
	5 8
TA1	6 A411 PJ,ACTB
TA2	7 B411 ACTB
TA3	8 C411 PJ,ACTB
TA3	9 N411 PJ,ACTB
	10 8
ACTB	11 3 HY
ACTB	12 5 HG
	13
	14
	15



8	HG	信号灯			1	
7	HY	信号灯			1	
6	FU1-FU2	熔断器		RT14-20/6A	2	
5	ACTB	CT过电压保护器		ACTB-6 DC220V	1	
4	PJ	三相三线有功电表			1	
3	PA1-PA3	电流表			3	
2	TA1-TA3	电流互感器			3	
1	QF	断路器			1	
序号	标号	名称	型号规格	数量	备注	
合同号		柜号		ACTB-6		
				应用实例		
				CT过电压保护器		
图样标记		重量		比例		
共1张		第1张		第1张		
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## 7. 检测方法 Detection method



保护器在使用前应进行检测，用万用表电阻档测量输入端（3、4）时，电阻应大于  $100M\Omega$ 。

Before operating, the device shall be detected with the universal meter, the resistance between 3,4 terminal shall be greater than  $100M\Omega$ .

保护器在测量时，应按上图分别逐个接好电路，然后把调压器调到 0V 位置，在接通电源时，此时保护器内应自动“复位”，面板上的电源指示灯亮，其他灯均应熄灭，表示各电路均“复位”。假如还有灯亮，说明没有全部自动“复位”，此时按一下“复位”按钮就可全部“复位”。按动“测试”按钮输出继电器动作，故障灯均亮。说明内部电路正常。按动一下“复位”按钮使之“复位”。慢慢转动调压器手柄，使电压逐渐升高，当电压升高到额定值后，灯泡突然点亮，面板上该相指示灯也亮。然后再调低电压，灯泡仍不会全灭，这说明 CT 保护器该相开路（异常高压）后保护器短路工作正常。

When measuring, connecting circuit respectively as per above diagram, then the Voltage regulator is put on 0V position, after energizing, the protective device shall be reset automatically, the power indicator on the faceplate lights, other indicators are extinguished, i.e. every circuit is in reset. If any indicator is lighting, it indicate that the automatic reset is not fully completed, at this time, pressing down the RESET button, full reset may be obtained. Pressing down the TEST button, the output relay is acting, the fault indicators are lighting, the inner circuit is in normal condition. Pressing down the RESET button, full reset can be obtained. Turn the handle of the voltage regulator slowly, to increase voltage gradually, when voltage is up to the rated value, the bulb lights suddenly, the faceplate indicator for this phase also lights. Then voltage shall be regulated down, the bulbs are not extinguished completely, it shows that so this phase of CT protector is in open circuit (excessive high voltage), the protector short circuit is in normal condition.

ACTB-6 按照上述操作方法，检查测试。

For ACTB-6, as per the above mentioned method, the inspection and test are carried out.

## 8. 订货范例 Sample for ordering

例 Sample:

型号 Type: ACTB-3

辅助电源 Auxiliary power: 220VDC

**总部：安科瑞电气股份有限公司**

地址：上海市嘉定区育绿路 253 号

电话：0086-21-69158338 0086-21-69156052 0086-21-59156392 0086-21-69156971

传真：0086-21-69158303

网 址：www.acrel-electric.com

邮 箱：ACREL008@vip.163.com

邮编：201801

**生产基地：江苏安科瑞电器制造有限公司**

地址：江苏省江阴市南闸街道东盟工业园区东盟路 5 号

电话（传真）：0086-510-86179970

网 址：www.jsacrel.com

邮箱：JY-ACREL001@vip.163.com

邮编：214405

Headquarters: Acrel Co., LTD.

Address: No.253 Yulv Road Jiading District, Shanghai, China

TEL.: 0086-21-69158338 0086-21-69156052 0086-21-59156392 0086-21-69156971

Fax: 0086-21-69158303

Web-site: www.acrel-electric.com

E-mail: ACREL008@vip.163.com

Postcode: 201801

Manufacturer: Jiangsu Acrel Electrical Manufacturing Co., LTD.

Address: No.5 Dongmeng Road,Dongmeng industrial Park, Nanzha Street,Jiangyin City,Jiangsu Province,China

TEL./Fax: 0086-510-86179970

Web-site: www.jsacrel.com

Postcode: 214405

E-mail: JY-ACREL001@vip.163.com