

ST08 系列保护器规格书

ST08 SERIES
THERMAL PROTECTOR SPECIFICATION

1、用途

Application

本标准适用于广州安的电子技术有限公司制造的 ST08 系列保护器。

The specification refers to ST08 series creep action thermostat, which is produced by Saftty Electronic Technology Co., Limited.

2、结构

Construction

2.1、外观：外形尺寸符合广州安的电子技术有限公司的产品规格图纸要求；

Appearance: The overall size conforms to the specifications and drawings of Saftty Electronic Technology Co., Limited;

2.2、连接方式：插片式或铆线式，铆线式采用有 UL 认证的电引线线（具体依据客户要求）；

Connection Type:Snap connector or riveting wire,

2.3、外壳：表面镀 Ni、Zn 的软钢材料；

Case: Plated Ni and Zn on the mid steel material surface;

2.4、套管材料：聚酯绝缘材料。

Sleeving material:Polyester insulation material.

3、性能

Performance

3.1、跳闸电气参数

Tripping electrical parameters

AC250V、27.5A / 125V、30A, DC15V、40A / 30V、20A；

3.2、动作温度常规允差+/-7℃，复位温度依实际设定要求；

The tolerance of action temperature:±7℃, the reset temperature according to actual setting requirements.

3.3、绝缘电压

导线与绝缘套管之间能承受 AC1500V、1 分钟或 AC1800V、1 秒钟而不发生击穿现象，泄 漏电流应在 1mA 以下；

Insulation voltage: The thermal protector can should be able to withstand AC1500V, 1min or AC1800V,1s between lead wire and insulation sleeving, no breakdown flash-over phenomenon, the leakage current should be below 1mA.

3.4、绝缘电阻

在正常条件下，导线与绝缘套管之间的绝缘电阻在 100MΩ 以上（所用表记为 DC500V 兆 欧表）；

Insulation resistance: Under normal conditions, the insulation resistance between lead wire and insulation sleeving is more than 100MΩ(The meter used is DC500V insulation resistance gauge);

3.5、接触电阻

接触电阻在 50mΩ以下（特殊产品的阻值依实际设定为准）；

Contact resistance: The contact resistance of thermal protector should be less than 50MΩ;

3.6、耐热实验

产品在 150℃的环境中放置 96 小时；

Heat resistance test: The product is placed within 150℃ environment for 96 hours;

3.7、耐湿实验

产品在温度 40℃、相对湿度 95%的环境中放置 48 小时；

Humidity test: The product is placed at the 40℃ environment with the relative humidity of 95% for 48 hours.

3.8、跌落实验

产品自 70cm 高度自由下落至地面（塑料或木板地板）1 次；

3.8 Drop test: the product drops freely once from a height of 70cm to the ground(plastic or wood floor).

3.9、以上 3.6、3.7、3.8 项实验后应满足以下条件：

3.9 After the item 3.6, 3.7 and 3.8 tests, the products should be meet the following conditions:

A、动作温度变化在初始值的+/-10℃以内；

A: The action temp should change within ±7℃ of the initial value;

B、接触电阻应在 50mΩ 以下；

B: The contact resistance should be less than 50mΩ;

C、外型应无明显变形；

C:The shape should not be deformed significantly;

D、导线无开裂损伤。

D: The lead wire without cracked damaged.

4、寿命

产品在额定电压、电流、功率因数为 1 的条件下，外加热源使其动作 2000 次，应满足下面条件：

4. Life cycles: Under the conditions of the rated voltage, current and power factor of 1, a heat source is added to the product to make it move for 2000 times, which should meet the following conditions:

A、动作温度变化应在初始值的+/-5℃以内；

A: The action temperature should change within ±5℃ of the initial value;

B、接触电阻应在 50mΩ 以下；

B: The contact resistance should be less than 50mΩ;

C、电气触点不熔接或脱落；

C: No welding or shedding of electrical contacts;

D、继续实验至 10000 次后能动作。

D: After the product continues to be tested for 10,000 times, its action to be normal and correct.

5、技术参数

5. Technical parameters

5.1、使用温度范围：50～180℃；

5.1 Operating temperature range:50~180℃;

5.2、温度公差：可选择 ±5℃、±7℃、±10℃；

5.2 The tolerance: ±5℃;±7℃ and ±10℃ optional;

5.3、选择控制过载电流跳脱范围：1～40A；

5.3 Trip Off current: 1~40A;

5.4、跳脱时间：4～10S（特殊要求依实际设定为准）；

5.4 Trip off time: 4~10s(or customized)

5.5、产品组合承受 3.0Kg 拉力不位移；端子铆线承受 8.0Kg 拉力不位移。

5.5 The product portfolio should be able to withstand the 3.0Kg pulling force without

6、特性说明：
6. Special features:
6.1、产品具有过流、感温双重保护功能；
6.1 Both temperature and current sensitive;
6.2、体积小型化、长寿命和可靠性；
6.2 Small size, long life and high reliability;
6.3、使用导电性能良好的双金属材料，确保可承受正常回路电流的要求；
6.3 High level bimetal ensures that it can withstand the current of normal circuit;
6.4、双金属片与电热丝组合具有快速跳脱性；
6.4 The combination of bimetal and heater can action snappily;
6.5、增加 PTC 发热元件具有单射跳脱特性，可起到断电保护、延时保护功能；
6.5 Increase the PTC heating element of thermal protector, so it has the characteristics of single shot trip, with self holding and time -delay protection;
6.6、端子具有同向、异向种类，可依要求制定特定规格或铆线服务；
6.6 Terminals are in same direction or opposite direction optional, or customized;
6.7、产品严格执行欧盟 ROHS 指令、REACH 指令的环保标准。
6.7 Each parts are strict implementation of the European ROHS and REACH environmental standards.

7、产品型号规格说明：
7. Model definition specification:

7.1、产品生产日期：12 数字代表生产年份（如：2012 年）；
A～L 字母代表 1～12 月份。
7.1 Product production date: Two digits means the particular year(as: 2012);
Letter A~L means from January to December.

8、产品标示
采用激光打字、标签方式将公司商标、产品型号/种类/温度/电流及生产日期印于产品表面。
8. Product labeling: Using laser typing and label to print company logo, product type / type / temperature / current and date of production on the surface of the product.

9、包装、储存、运输
9. Packing, storage and transportation
9.1、产品包装采用可封口塑料袋，出货用纸箱包装；
9.1 Product packing adopt sealed plastic bags, shipped carton packaging;
9.2、储存时放于 湿度 40～80%、温度-5～40℃环境中 12 个月无变化；
9.2 The product should be stored at the -5~40℃ environment with the relative humidity of 40~80% for 12 months, without changes.
9.3、直接运输或托运，应轻拿轻放，避免碰撞或受潮。
9.3 Direct transportation or shipment, it should be handled carefully and avoid collision or damp.

10、其它事项
10 Other:
10.1、动作温度检测的升温速率应控制为 1℃/2 分钟（国际标准）；
10.1 The temperature rise rate of action temperature detection should be controlled to 1℃/2mins(International standard);

10.2、本产品不建议使用浸漆处理，此项不在保证范围内；

10.2 This product is not recommended for dipping process, this is not within the scope of guarantee.

10.3、对接触电阻较高的产品通常按下列方法清除电气触点表面氧化膜后再测定:

将产品接入 AC60V～100V、2～5A 回路中，外施热源使其动作 2～3 次后再测定接触电阻。

10.3 For products with higher contact resistance, the surface of the electrical contact surface shall be removed before the determination of the oxide film, usually in the following method: the protector is connected AC60~100V, 2~5A in circuit, a heat source is added to the product to make it move for two or three times.

11、产品设计与工作原理 见注 1。

11 The design and working principle, please see note 1.

12、本规格书未涉及事项或客户有其它要求另行订立。

12 The specification is not covered in this standard or other customer requirements need be set separately.

注 1：

Note 1:

产品工作原理与设计：

The design and working principle of thermal protector:

1、产品具有感温、过流双重保护功能；

1. Both temperature and current sensitive function:

1.1、电流过载保护原理：

1.1 Current overload protection principle:

电流通过外壳端子、双金属片或辅助发热丝（与底板静触点连接在一起），然后由底板端子连接电器（如电机、变压器等）形成回路，当电器发生电流过大或堵转电流超过保护器设定的跳脱值时，保护器会在设定的时间内切断电源，使电器得到保护；

The current flows the case terminal, bimetal strip or auxiliary heating wire(which is connected with stationary contact of the bottom board), then the bottom board terminals is connecting to application(such as motor and transformer etc.) in circuit, when the application causes the over-current or locked-rotor current to exceed the prescribed value, the thermal protector cut the power off within the set time, so that the application are protected.

1.2、温度保护原理：

1.2 Temperature protection principle

电流通过外壳端子、双金属片，然后由底板端子连接电器（如电机、变压器等） 形成回路，当电器发生不正常工作使周围温度过高时，热量传至双金属片达到校 正过的跳脱温度使电气触点迅速断开切断电路，当温度下降到复位温度时，双金属片复位又迅速闭合电气触点连通电路，继续循环动作。

1.2 The current flows the case terminal and bimetal strip, then the bottom board terminals is connecting to application(such as motor and transformer etc.) in circuit, when the application works abnormally, which causes the ambient temperature to exceed the setting value, the thermal protector cut the power off ,when the ambient temperature will decrease and then the protector will close again.

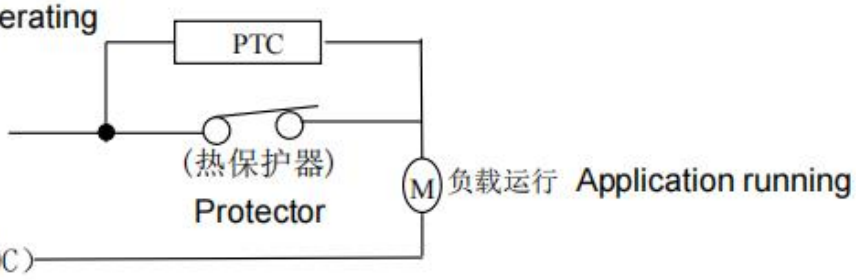
2、断电、延时保护功能设计：

2 Power cutting and time delay protection

在保护器上增加 PTC 发热元件

Added the PTC heating element

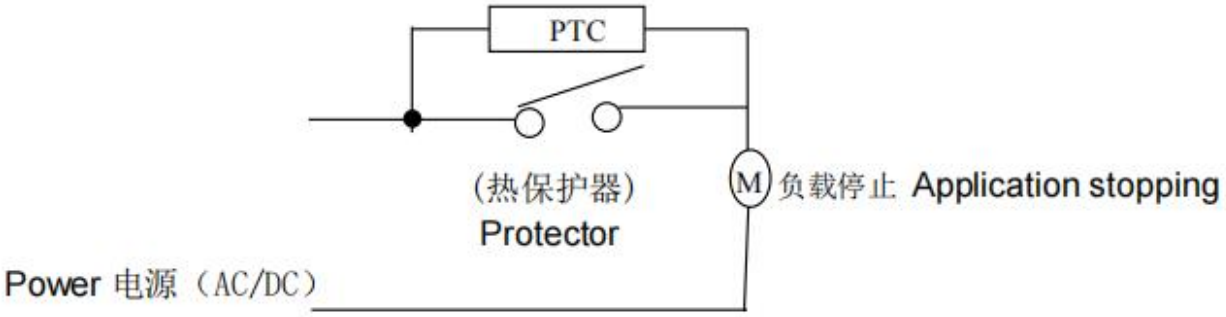
2.1、工作运行 work-operating



* 热保护器与 PTC 元件形成并联电路，然后与负载（电器）串联，负载正常运行时 PTC 不会产生高温；

The protector is connected to PTC in parallel, then connected to application in series.When the application is working normally, the current will flow through protector.PTC will not work.

2.2、保护延时 Time delay protection



* 当负载异常时产生的高温或大电流会使热保护器断路，此时 PTC 元件会产生高温及高阻值（PTC 的高温会使热保护器一直保持于断路状态），负载停止运行；

When the application works abnormally, which causes the ambient temperature to exceed the prescribed value, the protector will open. Then, the current flows through PTC. Since PTC has a very high resistance, the current assigned to the application will be too flow to start it.Meanwhile, the heat generated by PTC will remain the protector open until the power is unplugged.

* 当电源被手动断开后，PTC 开始降温，经过一定时间降温后热保护器自动复位，再次接通电源，负载运转。

After the power is unplugged, the ambient temperature will decrease and then, the protector will close again.