



DONGGUAN AMPFORT ELECTRONICS CO., LTD.

Doc No.:HC06-01

Edition: A

Issue date:2022.03.10

Revised:0

Effective:2022.03.10

HC06 Series Thermal Protector Specifications

PAGE 1 / 8

承认书

SPECIFICATION



东莞市安伏特电子有限公司

DONGGUAN AMPFORT ELECTRONICS CO., LTD.

HC06 系列保护器规格书

HC06 Series Thermal Protector Specifications



1、用途 Use

本标准适用于东莞市安伏特电子有限公司制造的 HC06 系列保护器。

This standard is applicable to the HC06 series protectors manufactured by Dongguan Ampfort Electronics Co., Ltd.

2、结构 Structure

2.1、外观：外形尺寸符合东莞市安伏特电子有限公司的产品规格图纸要求；
(见注 2)

Appearance: The appearance size meets the product specifications and drawings of Dongguan Ampfort Electronics Co., LTD.; (See Note 2)

2.2、连接方式：标准品为导线，导线有 UL 认证（特殊依据客户要求）；

Connection method: the standard product is wire, and the wire has UL certification (special according to customer requirements);

2.3、外壳：Cu 环保材料；

Shell: Cu environmental protection material;

2.4、套管材料：有 UL 认证的环保材料。

Sleeve material: environmental protection materials with UL certification.

3、性能 Performance

3.1、额定电气参数 Rated electrical parameters

AC250V、10A

3.2、动作温度 见注 1； operation temperature: See Note 1 ;

3.3、绝缘电压 Insulation voltage

导线与绝缘壳之间能承受 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；

Between the wire and the insulation shell can withstand AC1500V, 1 minute or AC1800V, 1 second without breakdown phenomenon, electricity leakage The flow shall be below 1mA;

3.4、绝缘电阻 Insulation resistance

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）；

Under normal conditions, the insulation resistance between leads (terminal) and case should be more than 100MΩ measured by ohmmeter of DC500V.

3.5、接触电阻 Contact resistance

接触电阻在 50mΩ 以下（特殊产品的阻值依实际设定为准）；

The contact resistance of standard lead length products should be lower than 50mΩ .

3.6、耐高温试验:产品置于高于额定动作温度 30℃ 的空气环境中保持 96h, 取出放置 2 小时后，

检测其温度变化不超过初始值的±5℃或±5%，取最大值。

High temperature test: Keep the thermal protector in an incubator environment of 30 degree higher than its rated switching temperature for ninety six hours, and test



it two hours later after taking out from the incubator, while the temperature change does not exceed the initial value of $\pm 5^{\circ}\text{C}$ or $\pm 5\%$, returns the maximum value.

3.7、耐低温试验:产品置于 -40°C 空气环境中保持 96h, 取出放置 2 小时后, 检测其温度变化不超过初始值的 $\pm 5^{\circ}\text{C}$ 或 $\pm 5\%$, 取最大值。

low temperature resistance test: Keep the thermal protector in a -40°C incubator for ninety six hours, and test it two hours later after taking out from the incubator, while the temperature change does not exceed the initial value of $\pm 5^{\circ}\text{C}$ or $\pm 5\%$, returns the maximum value.

3.8、抗振试验: 热保护器应能承受振幅 1.5mm,频率变化 10~55Hz, 扫描变化周期 3~5 次/min, 振动方向 X、Y、Z, 每个方向各连续振动 2h, 检测其温度变化不超过初始值的 $\pm 5^{\circ}\text{C}$ 或 $\pm 5\%$, 取最大值。

Anti-Vibration test: thermal protector should be able to withstand the amplitude 1.5mm, frequency 10 ~ 55Hz, scanning change cycles of 3 ~ 5 times /min. The vibration direction X, Y, Z and each direction vibrates on a continuous basis for 2 hours while the temperature change does not exceed the initial value of $\pm 5^{\circ}\text{C}$ or $\pm 5\%$, returns the maximum value.

3.9、极限短路试验: 产品在串接 RL1-15A 熔断器的电路中承受 200A 的极限短路电流时, 应不引起包裹在保护器上的棉花燃烧。

When the thermal protector is in series connection with RL1-15A fuse to withstand short circuit current limit of 200A, it should not cause the cotton burned which is wrapped on the thermal protector.

3.10、耐湿实验 Wet resistance experiment

产品在温度 40°C 、相对湿度 95%的环境中放置 48 小时;

The product is placed in 40°C temperature and 95% relative humidity for 48 hours;

3.11、抗拉力试验:产品的引线端应能承受大于或等于 30N 静拉力并保持 1 分钟,导线不断裂或松动。

Tensile resistance test: Terminal & leads should endure more than 30N axes direction pull lasting for 1 minute without break or looseness

3.12、跌落实验 Drop experiment

产品自 70cm 高度自由下落至地面(塑料或木板地板) 1 次;

Product from 70cm height free fall to the floor (plastic or wooden floor)

3.13、以上实验后应满足以下条件:

The following conditions should be met after the above experiments:

A、动作温度变化在初始值的 $\pm 7^{\circ}\text{C}$ 以内;

Action temperature change within $\pm 7^{\circ}\text{C}$ of the initial value;


B、接触电阻应在 $50\text{m}\Omega$ 以下;

The contact resistance shall be less than $50\text{m}\Omega$

C、外型应无明显变形;

The appearance shall have no obvious deformation;

D、导线无开裂损伤。

	DONGGUAN AMPFORT ELECTRONICS CO., LTD.	Doc No.:HC06-01	
		Edition: A	Issue date:2022.03.10
	HC06 Series Thermal Protector Specifications	Revised:0	Effective:2022.03.10
		PAGE 4 / 8	

No cracking damage of the conductor.

4、认证与寿命 Certification and Life span

4.1、ROHS

4.2、产品在额定电压、电流、功率因数 $\cos\Phi=1$ 的条件下,外加热源使其动作 2000 次,能正常通断 In the conditions of rated voltage, current and power factor 0.7, the product can be normal on-off 2000 times operated due to external heat source.

A、动作温度变化应在初始值的 $\pm 5^{\circ}\text{C}$ 以内; The action temperature change shall be within $\pm 5^{\circ}\text{C}$ of the initial value;

B、接触电阻应在 $50\text{m}\Omega$ 以下(特殊导线或镍片除外); Contact resistance shall be below $50\text{m}\Omega$ (except for special wire or nickel sheet)

C、电气触点不熔接或脱落; The electrical contact does not fuse or fall off; 继续实验至 10000 次后能正常通断。Continue the experiment to 10000 times.

5、技术参数 Technical parameters

5.1、使用温度范围: $60^{\circ}\text{C} \sim 180^{\circ}\text{C}$; Temperature range: $60^{\circ}\text{C} \sim 180^{\circ}\text{C}$;

5.2、温度公差: $\pm 5^{\circ}\text{C}$; Temperature tolerance: $\pm 5^{\circ}\text{C}$;

5.3、所有粘合部位承受 3.0Kg 拉力不位移。All adhesive parts shall not displaced by 3.0kg

6、特性说明: Characteristic description:

6.1、产品具有超薄体积,动作灵敏、寿命长; The product has ultra-thin volume, sensitive action and long life;

6.2、具有过流、感温双重保护功能; With the dual protection function of overcurrent and temperature sensing;

6.3、使用较低阻值的铍铜材料,确保可承受正常回路电流的要求; Use beryllium copper material with low resistance value to withstand the requirements of normal circuit current;

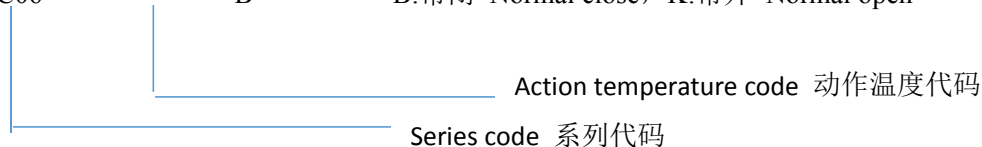
6.4、外壳可绝缘、便于安装; The shell can be insulated and easy to install;

6.5、可依客户需要选择电引线; Electric leads can be selected according to customer needs;

6.6、产品严格执行欧盟 ROHS 指令、REACH 指令的环保标准.The products strictly comply with the environmental protection standards of the EU ROHS Directive and the REACH Directive.


7、产品型号规格说明: Product model and specification:

HC06 - *** B ——— B:常闭 Normal close, K:常开 Normal open



8、产品标示 Product labeling

采用激光打字方式将企业代码、生产批号、产品型号/种类/温度印于产品外壳表面。Print the enterprise code, production batch number, product model / type / temperature on the product shell surface by laser typing.

	DONGGUAN AMPFORT ELECTRONICS CO., LTD.	Doc No.:HC06-01	
		Edition: A	Issue date:2022.03.10
	HC06 Series Thermal Protector Specifications	Revised:0	Effective:2022.03.10
		PAGE 5 / 8	

9、包装、储存、运输 Packaging, storage and transportation

9.1、产品包装采用可封口塑料袋，出货用纸箱包装； Packaging: sealing plastic bags and cartons for shipment;

9.2、储存时放于 湿度 40~80%、温度-5~40℃环境中 12 个月无变化； No change in the humidity of 40-80% and the temperature of-5-40℃ for 12 months;

9.3、直接运输或托运，应轻拿轻放、避免受潮，严禁挤压碰撞。 Direct transportation or consignment, take it lightly , to avoid damp, extrusion and collision is strictly prohibited.

10、安装与连接 Installation and connection

10.1、保护器应安装于温升敏感点，其感温面（印字面）与保护区域紧密接触或面向保护区域； The protector shall be installed at the temperature rise sensitive point with Its temperature sensing surface (printed type) closely touching or facing the protection area;

10.2、安装过程中，应避免以下错误方式造成保护器变形、破损而引起性能改变： During installation, deformation and damage caused by the following wrong methods: * 不得使用尖锐工具对保护器进行抵压； Do not use sharp tools to counterpress the protector; * 不得用重力锤压保护器。 Do not use the gravity hammer pressure protector.

10.3、连接采用电弧法焊接工艺时，焊接电流不能通过保护器，否则过强电流会对保护器电气触点产生破坏作用。 When using the arc welding process, the welding current cannot pass through the protector, otherwise the too strong current will damage the electrical contact of the protector.

11、其它事项 Other matters

11.1、动作温度检测的升温速率应控制为 1℃/2 分钟； The heating rate of action temperature detection shall be controlled at 1℃ / 2 minutes;


11.2、接触电阻的大小与电引线的长度成正比，建议检测时尽可能靠近保护器，避免因电引线的因素造成阻值测试不正确。 The size of the contact resistance is proportional to the length of the electric lead. It is recommended to be as close to the protector as far as possible to avoid incorrect resistance test due to the electric lead.

12、产品设计与工作原理 Product design and working principle

产品具有过大电流、感温双重保护功能； The product has too high current, temperature sensing double protection function;

* 电流过载保护原理： Current overload protection principle: 电流通过静触点端子 1 ,然后经由电流板和静触点 2 形成回路，当电器发生电流过大 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 passes through the static contact terminal 1, and then forms a circuit through the current plate and the static contact 2, When the electrical current exceeds the jump value set by the protector, the protector will cut off the power supply within the set time, so that the electrical appliance is protected;

* 温度保护原理： Temperature protection principle: 电流通过静触点端子 1, 然后经由电流板和静触点 2 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。 The current passes through the static

	DONGGUAN AMPFORT ELECTRONICS CO., LTD.	Doc No.:HC06-01	
		Edition: A	Issue date:2022.03.10
	HC06 Series Thermal Protector Specifications	Revised:0	Effective:2022.03.10
		PAGE 6 / 8	

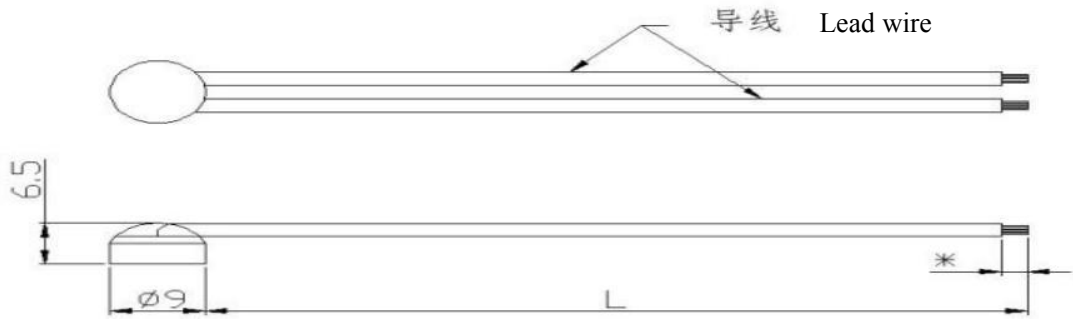
contact terminal 1, and then forms a circuit through the current plate and the static contact 2, When the the surrounding temperature is too high, the heat to the bimetal plate to the corrected jump temperature makes the electrical contact quickly disconnected circuit, when the temperature drops to the reset temperature, the bimetal plate reset and quickly close the electrical contact connected circuit, and continue to cycle.

13、本规格书未涉及事项或客户有其它要求另行订立。 Matters this standard does not involve or customers having other requirements shall be separately set

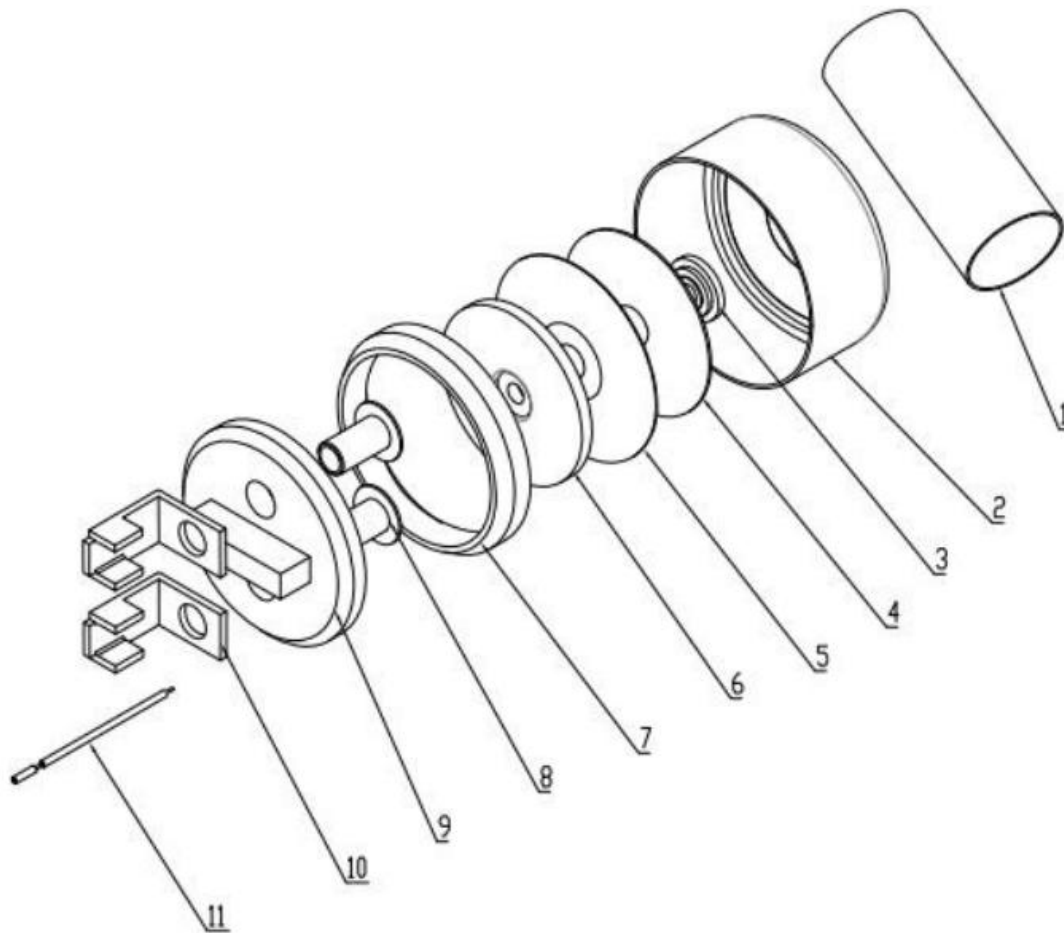
Note 1: Specification and temperature of HC06 series products

Action temperature code 温度代码	Action temperature 动作温度 (°C) ±15°C	Close Temperature 闭合温度 (°C) ±15°C
HC06 050	50	≥35
HC06 055	55	≥35
HC06 060	60	≥35
HC06 065	65	≥35
HC06 070	70	≥35
HC06 075	75	≥35
HC06 080	80	≥35
HC06 085	85	≥35
HC06 090	90	≥35
HC06 095	95	≥35
HC06 100	100	67
HC06 105	105	70
HC06 110	110	72
HC06 115	115	75
HC06 120	120	78
HC06 125	125	82
HC06 130	130	85
HC06 135	135	90
HC06 140	140	93
HC06 145	145	95
HC06 150	150	100
HC06 155	155	102
HC06 160	160	105
HC06 165	165	110
HC06 170	170	115
HC06 175	175	118
HC06 180	180	120

* 复位温度仅作参考，其它温度规格可订制。Reset temperature is for reference only, and other temperature specifications can be customized.



Note 2



No.	名称 Name	材质 Material
1	套管 Tube	绝缘纸 PEI Insulating paper
2	外壳 Housing	铜 Copper
3	定位柱 Positioning post	铜 Copper
4	双金属片 Bimetal	铁/镍/铜 iron/nickel/copper
5	弹片 Shrapnel	不锈钢 Stainless steel
6	电流板 Current plate	银铜复合板 Silver copper



DONGGUAN AMPFORT ELECTRONICS CO., LTD.

Doc No.:HC06-01

Edition: A

Issue date:2022.03.10

HC06 Series Thermal Protector Specifications

Revised:0

Effective:2022.03.10

PAGE 8 / 8

		composite board
7	铜环 Copper ring	铜 Copper
8	银触点 Silver contacts	铜银复合 Copper silver composite
9	底座 Base	陶瓷 Ceramic
10	端子 Terminal	铜 Copper
11	电子线 Electronic wire	*2