

广州安的电子技术有限公司
SafTTY Electronic Technology Co., Limited

BW-E 系列热保护器技术规格书
Technical Specifications for BW-E Series Thermal Protector



编制 Draw up: 吴如洋

审核 Examine: 朱杰

批准 Approved: 朱俊

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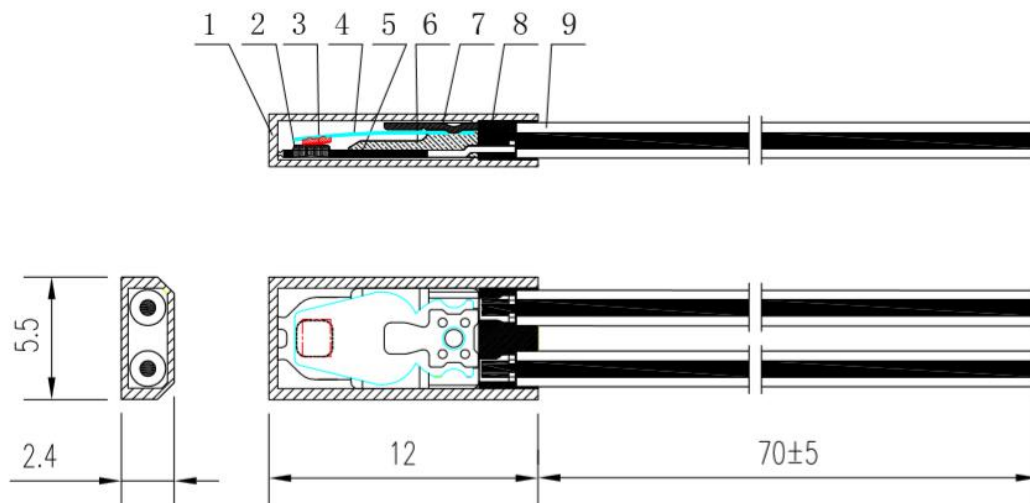
1 产品用途 Product application

BW-E 系列热保护器是一种单刀单掷开关。通常其动作温度范围为 35°C – 160°C ，BW-E 系列热保护器具有超小体积、感温速度快、动作灵敏、安全可靠、交直流特性好、寿命长等特点，产品广泛应用于镍氢、镍铬、锂离子、锂聚合物等可充电电池组、电动工具、吸尘器、电加热器具（电热毯、电磁炉、直发器、电加热棒等）、分马力电机、水泵、镇流器、变压器、开关电源等产品。

The BW-E series thermal protector is a single pole single throw thermal protector. Usually its operating temperature range is $35\text{--}160^{\circ}\text{C}$, BW-E series thermal protector has ultra-small size, fast temperature sensitivity, sensitive action, safe and reliable, good AC and DC characteristics, long life and other characteristics, products are widely used in nickel-metal hydride, nickel-chromium, lithium ion, lithium polymer and other rechargeable battery packs, power tools, vacuum cleaners, electric heating apparatus (electric blankets, induction cookers, straights, electric heating rods, etc.), split-horse motor, water pump, ballast, transformer, switching power supply and other products.

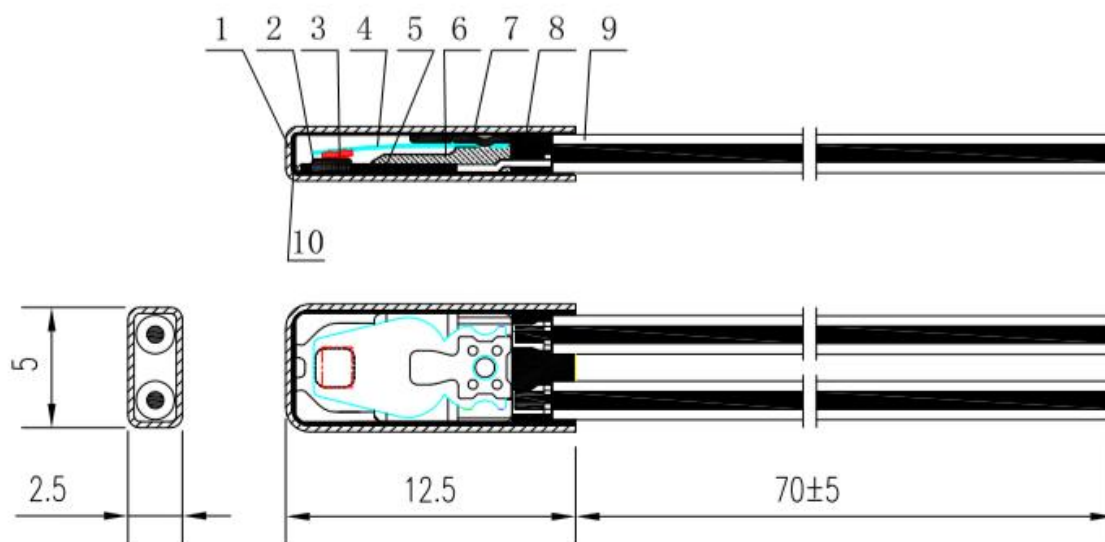
2 外形和结构: Shape and structure

a) BW-ECP 外形和结构 Shape and Structure:



序号 No.	零件名称 Part name	序号 No.	零件名称 Part name	序号 No.	零件名称 Part name
1	塑料外壳 Plastic case	4	双金属片 Bimetal-disc	7	校温板 Temperature calibration board
2	静触点 Stationary contact	5	底板 Soleplate	8	环氧树脂 Epoxy resin
3	动触点 Movable contact	6	固定座 Fixed seat	9	导线 Lead wire

b) BW-ECM 外形和结构 Shape and Structure:



序号 No.	零件名称 Part name	序号 No.	零件名称 Part name	序号 No.	零件名称 Part name
1	金属外壳 Metal case	5	底板 Soleplate	9	导线 Lead wire
2	静触点 Stationary contact	6	固定座 Fixed seat	10	绝缘衬垫 Insulation padding
3	动触点 Movable contact	7	校温板 Temperature calibration board		
4	双金属片 Bimetal-disc	8	环氧树脂 Epoxy resin		

3 性能 Capabilities

- 3.1 额定交流电压 Rated AC voltage: 250V;
额定直流电压 Rated DC voltage: 24V;
额定电流/寿命 Rated current/lifetime (COS Φ =1.0)

AC2A-6000cycles

DC3A-6000cycles

- 3.2 动作特性: Performance

- 3.2.1 额定断开温度 35°C~160°C (详见附表)。

Rated operating temperature: 35°C~160°C (details as per attached list)

- 3.2.2 复位温度 (详见附表)。

Reset temperature: (details as per attached list)

- 3.3 电气强度 Electric strength:

测试仪器为耐压测试仪 the test instrument is high voltage tester.

- a. 产品在断开时的引线之间应能承受 AC500V, 历时 1min 而无击穿闪络现象;

When the product is in the breaking state, the lead wires should be able to withstand AC500V lasting for 1min without breakdown or flash-over;

- b. 产品引线与绝缘外壳之间能承受 AC1500V, 历时 1min 而无击穿闪络现象。

The part between the lead wires and the case should be able to withstand AC500V lasting for 1min without breakdown or flash-over;

- 3.4 绝缘电阻 Insulation resistance:

在正常条件下, 引线与绝缘外壳之间的绝缘电阻在 100M Ω 以上。(所用表计为 DC500V 兆欧表)

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

- 3.5 接触电阻 Contact resistance

标准引线长度 55mm 产品的接触电阻应不大于 50m Ω 。

The contact resistance of standard lead wire length 55mm products should be lower than 50m Ω .

- 3.6 抗拉力试验 Tensile resistance test

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。

Terminal & leads should endure more than 30N axes direction pull lasting for 1 minute

without break or looseness.

3.7 耐高温试验 High temperature test

产品置于高于额定动作温度 20°C 的空气环境中保持 16h, 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。

Keep the thermal protector in an incubator which temp. is 20°C higher than its rated switching temperature for sixteen 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 耐低温试验 Low temperature resistance test

产品置于 -40°C 空气环境中保持 2h, 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。

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.

3.9 抗振试验 Anti-Vibration test:

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。

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.

3.10 极限短路试验 Short-circuit limit test

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.

3.11 跌落试验 Drop test

将产品从 700mm 的高度, 自由跌落在水泥平面或其它坚固的水平面上, 产品的温度性能不应超过初始值的 $\pm 5^{\circ}\text{C}$ 或 $\pm 5\% \text{C}$ (两者值取最大值)。

Let the thermal protector fall free in the cement or other solid surface from a height of 700mm, its temperature performance should not exceed the initial value of $\pm 5^{\circ}\text{C}$ or $\pm 5\% \text{C}$ (take the larger from the two values).

4 产品断开弹跳时间 Product disconnection bounce time

Bounce Time < 1ms.

5 其它事项:Others

5.1 断开温度检测的升温速率应控制为 1°C/1min, 用指示灯显示通断状态, 允许通过产品的电流不超过 0.01A。

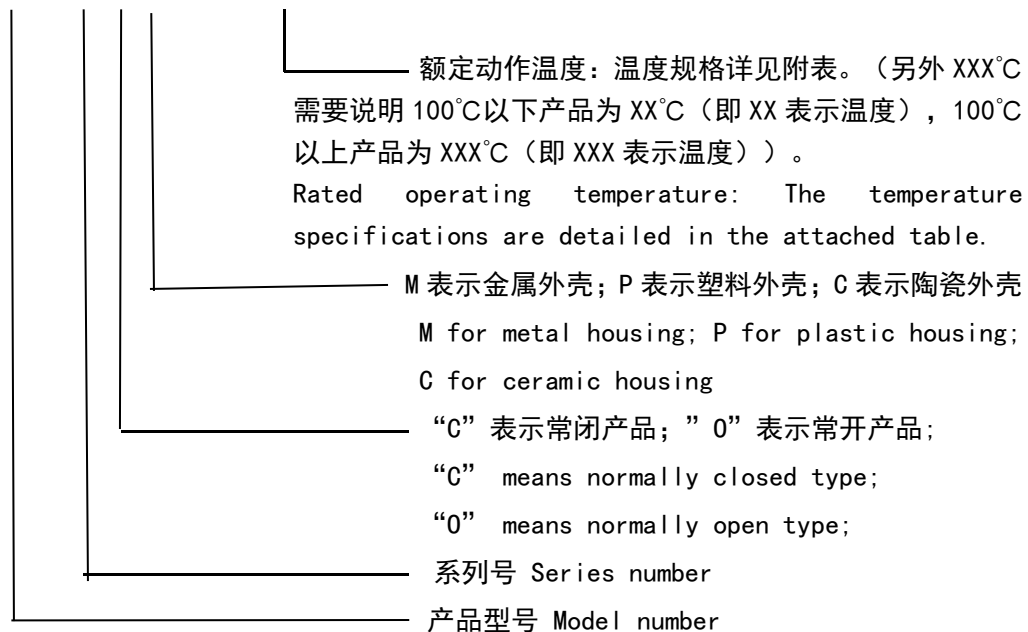
For action temperature testing, temperature rising rate should be controlled at 1°C /min and use indicator light to show the on/off state. The testing current should be no more than 0.01A.

5.2 使用过程中产品不能承受强烈冲击力及压迫力。

In your production, the thermal protectors could not withstand a big impact and stress.

5.3 型号规格说明: Model Code System explanation

BW-ECP 120°C
BW-EXX - XXX°C



注: 标准品引线为 UL3398/ UL3135, AWG22, 白色/黑色, 引线长 55/55mm, 半剥 6mm。

Standard lead wire is UL3398 or UL3135, AWG22, White or Black, 55mm and semi-stripped 6mm.

5.4 认证 Certifications

ISO9001, ROHS

CERTIFICATION	File No.
UL	E336150
VDE	40051318
CQC	CQC19002216809, CQC19002217409

5.5 包装、储存、运输 Packing, storage and transportation

① 产品包装采用透明塑料自封袋，每个小包装袋含 100pcs，每个大包装包含 10 小包，发货均采用纸箱包装，尺寸为 32*26*25CM；如果总数量偏少，我司会采用其他规格纸箱。
Product packaging using transparent plastic self-sealing bags, each small packaging bag contains 100pcs, each large package contains 10 small packets, the delivery is packed in cartons, the size is 32 * 26 * 25CM; if the total quantity is small, our company will use other specifications of cartons.

② 储存时放于湿度 40~80%、温度-5~40℃环境中 12 个月无变化；
The product should be stored at the -5~40℃ environment with the relative humidity of 40~80% for 12 months without changes.

③ 直接运输或托运，应轻拿轻放，避免碰撞或受潮。
Direct transportation or shipment, it should be handled carefully and avoid collision or damp.

附表：Attached list

序号 No.	动作温度℃ Open temp.	复位温度℃ Reset temp.	序号 No.	动作温度℃ Open temp.	复位温度℃ Reset temp.
1	35±5	≥25	14	100±5℃	70±15
2	40±5	≥30	15	105±5℃	75±15
3	45±5	≥33	16	110±5℃	75±15
4	50±5	≥35	17	115±5℃	80±15
5	55±5	42±6	18	120±5℃	85±15
6	60±5	45±8	19	125±5℃	85±15
7	65±5	48±10	20	130±5℃	90±15
8	70±5	50±12	21	135±5℃	95±15
9	75±5	53±14	22	140±5℃	100±15
10	80±5	55±15	23	145±5℃	100±15
11	85±5	60±15	24	150±5℃	105±15
12	90±5	65±15	25	155±5℃	110±15
13	95±5	70±15	26	160±5℃	115±15