

Saftty Electronic Technology Co.,Ltd.

Technical Specification Of BW-E Thermal Protector

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Technical Specification Of BW-E Thermal Protector

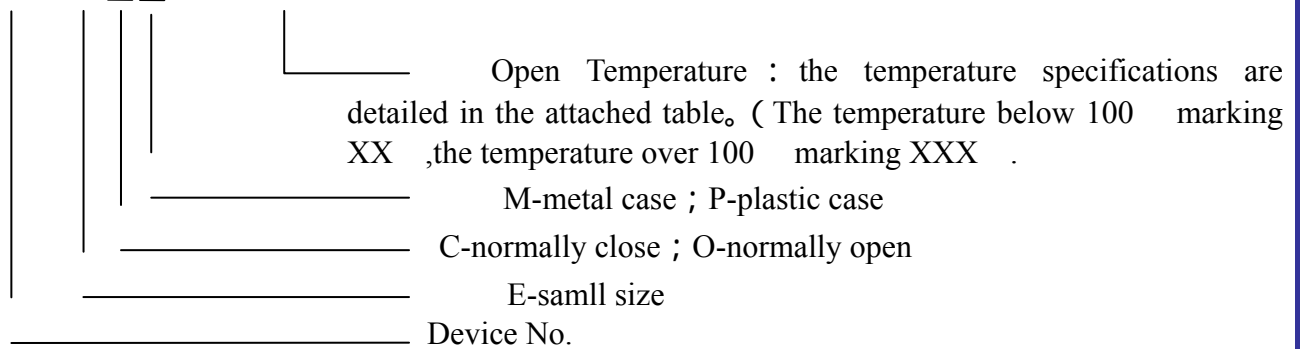
1 .Usage

BW-E series thermal protector has the following features: miniature size, temperature sensitive, quick response, secure and reliable, good AC and DC characteristics, long lifetime, etc. It is widely used in battery packs of nickel metal hydride, nickel chromium, lithium ion, lithium polymer, power tools, vacuum cleaners, heating appliance (like electric blanket, electric stove, hair straightener, electric heating rods, etc.), permanent split capacitor motors, pumps, ballasts, transformers, switching Power Supply, etc.The reference standard of BW-E:UL60730-2-2、UL60730-2-9、EN60730-1、EN60730-2-9、GB14536.1、GB14536.3、GB14536.10。

2 Appearancez and structure

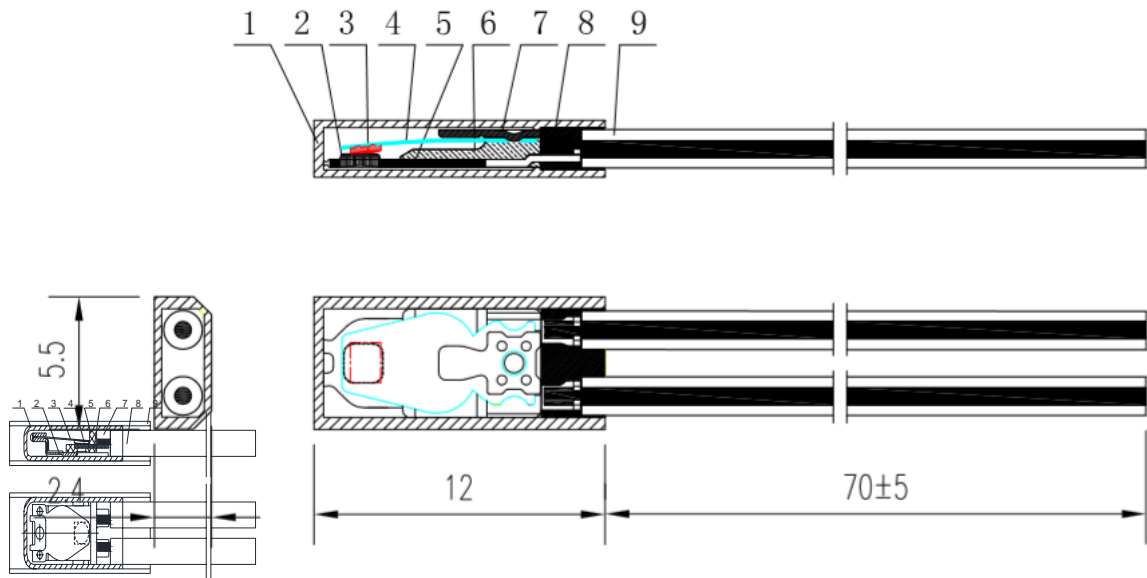
2.1 Code system;

B W-E X X - X X X



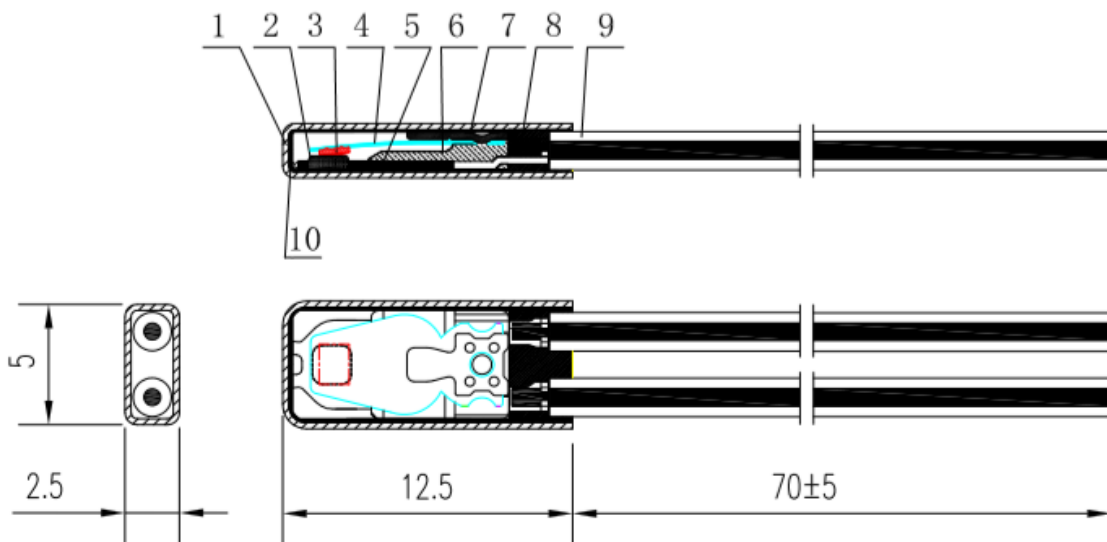
2.2 Structure and dimension:

2.2.1 Plastic case



No	Name of parts	Name of material	No	Name of parts	Name of material
1	shell	PBT	6	Fixed block pieces	PBT
2	Static contact	AgNi10/Cu	7	Calibration board	SPCC
3	Dynamic contact	AgNi10/Cu	8	Epoxy	双组份
4	Dual metal	P30R	9	Lead wire	UL3398 , 22AWG , TC wire
5	Basal plate	SPCC	-		

2.2.2 Metal case



No	Name of parts	Name of material	No	Name of parts	Name of material
1	shell	SPCC	6	Fixed block pieces	PBT
2	Static contact	AgNi10/Cu	7	Calibration board	SPCC
3	Dynamic contact	AgNi10/Cu	8	Epoxy	Two pack
4	Dual metal	P30R	9	Lead wire	UL3398 , 22AWG , TC wire
5	Baseplate	SPCC	10	Insulation spacer	PBT

3. The maximum contact rating

DC24V-3A、 AC250V-2A

4 .Technique Ability

4.1 Appearance Performance

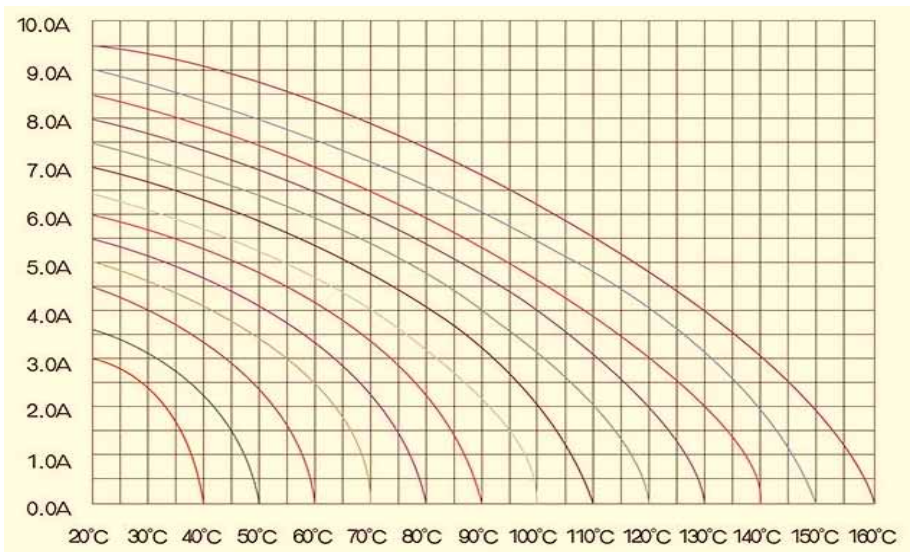
4.1.1 There is no burr, crack, distortion and rust on case.

4.1.2 Marks should be correct. clear and durability

5.1 Open temperature and reset temperature :

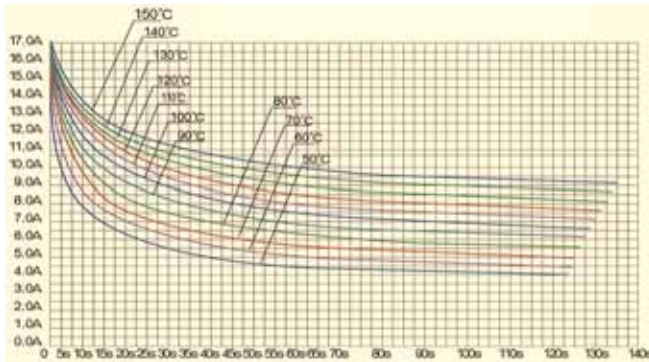
Type	Open Temp	Reset Temp	Type	Open Temp	Reset Temp
BW-EXX-45	45±5	≥33	BW-EXX-105	105±5	75±15
BW-EXX-50	50±5	≥35	BW-EXX-110	110±5	75±15
BW-EXX-55	55±5	42±6	BW-EXX-115	115±5	80±15
BW-EXX-60	60±5	45±8	BW-EXX-120	120±5	85±15
BW-EXX-65	65±5	48±10	BW-EXX-125	125±5	85±15
BW-EXX-70	70±5	50±12	BW-EXX-130	130±5	90±15
BW-EXX-75	75±5	53±14	BW-EXX-135	135±5	95±15
BW-EXX-80	80±5	55±15	BW-EXX-140	140±5	100±15
BW-EXX-85	85±5	60±15	BW-EXX-145	145±5	100±15
BW-EXX-90	90±5	65±15	BW-EXX-150	150±5	105±15
BW-EXX-95	95±5	70±15	BW-EXX-155	155±5	110±15
BW-EXX-100	100±5	70±15	BW-EXX-160	160±5	115±15

5.2 BW-E series thermal protectors –Temperature curve



图一

5.3 BW-EXX series thermal protector Current-action time curve.



图二

Ambient
temperature : 22
Current tolerance :
± 0.5A

5.4 Pull endure testing of leads with terminal :

Terminal & leads should endure more than 20N axes direction pull lasting for 5S without break or loose.

5.5 Dielectric strength :

5.5.1 When the product is in the breaking state, the contacts shall be able to withstand AC500V lasting for 1min without breakdown flashover; ;

5.5.2 It shall be able to withstand AC1500V between the lead wire (terminal) and the case, and keep 1min without breakdown flashover; ;

5.6 Insulation resistance :

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

5.7 Contact resistance : The initial contact resistance of the product should be less than 50mΩ.

5.8 Durability

5.8.1 Electric service life

The trial condition is under AC220/50Hz with rated load that its power factor is 0.7. Under the trial condition and 2000 cycles, the opening temperature should be in ± 5 ° C or ± 5% (the larger is the best choice) of its own rated temperature and there is no melt in product. Under same condition and after 5000 cycles the product should be dependable in its function.

5.8.2 Damp endurance

The thermal protector shall endure constant heat and humidity test (GB2423.3Ca) of grade 48h, after which the insulation resistance shall be no less than 2M .

5.8.3 High temperature Endurance.

keep the thermal protector in the temperature higher 50 than the open temperature for 96 hours.

5.8.4 Low temperature Endurance.

Keep the thermal protector in the temperature of -40 for 96 hours.

5.8.5 Heat&shocking Endurance

Put the thermal protector in the 150 ° C constant temperature box for 30 min, and transfer it into the -20 ° C constant temperature box for 30 min, and then put it again into 150 ° C constant temperature box for 30 min. After five consecutive cycles.

5.8.6 Anti- viBHation Endurance

After the 2h test with vibration amplitude of 1.5mm, frequency change of 10-50HZ, change period of 3-5 times/min, installation directions of X, Y and Z

5.9.2 , 5.9.3 , 5.9.4 , 5.9.5 , 5.9.6 the performance of the thermal protector shall meet the following requirements: :

- a. No distortion or damage to the tested product and no loose or desquamation to terminal.
- b. The change of rated temperature should be in $\pm 7^{\circ}\text{C}$ or $\pm 5^{\circ}\text{C}$ (the larger is the best choice)of its own rated temperature and there is no melt in product.

6 Safety Certification : (Testing)

Type	Model	Temperature range	Electrical parameter	Credential number
UL/CUL	BW-ECP	35-160	250VAC 2A;24VDC 3A	E336150
	BW-ECM	35-160	250VAC 2A;24VDC 3A	E336150
VDE	BW-ECP			
	BW-ECM			
CQC	BW-ECP	35-160	250VAC 2A;24VDC 3A	CQC19002216809
	BW-ECM	35-160	250VAC 2A;24VDC 3A	CQC19002217409
KC	BW-ECP			

7 Attention :

7.1 Temperature test

Testing be done in the oven that the precision of constant temp is $\pm 1^{\circ}\text{C}$. When testing, the thermocouple or thermometer should be place nearest to samples. During temperature rising, when the temperature reaches 10°C less than rated temperature, the temperature rising rate should be less than 0.5°C per minute and the testing current should be no more than 0.1A

7.2 Employed conditions

7.2.1 Do not place thermal protector in sensitivity point of being protected object closely. The correct side of thermal protector is marked with triangle concave.

7.3 Installation&connection

7.3.1 Do place correct side of thermal protector in sensitivity point of being protected object closely. The correct side of thermal protector is marked with triangle concave.

7.3.2 During installation,do notice the following to prevent the case from damaging:

- a. Do not press the protector with sharp tool ;
- b. Do not hammer the protector.

7.3.3 When doing some welding, do not let the strong current through the product or that will damage the thermal protector.

8. Storage Condition

During the transport and storage, the packaging cases shall not be invaded by snows or rains, extruded or damaged, and the relative humidity of air shall be no more than 90%.

9. If customers have special requests for the open and reset temperature and lead wire, we could consult accordingly.