

Data Sheet

SPECIFICATION FOR APPROVAL

CUSTOMER:.....

PRODUCT NAME: Thermostat

MODEL DETAIL : KSD301-100°C 6.3 250V10A

MATERIAL CODE: 501.100101010

SWITCHING TEMPERATURE: 100+/-5°C RESET TEMPERATURE: 85+/-5°C

附注:

REMARK: UL VDE B100 PM

| PREPARED BY | CHECKED BY | APPROVED BY | SIGNATURE | CHECKED BY | APPROVED BY |
|-------------|------------|-------------|-----------|------------|-------------|
| 22. 4. 7 | 22. 4. 7 | 22. 4. 7 | | | |

SUPPLIER

CUSTOMER:

DATE:

DATE:

Note: After confirming and stamping, please return it to our company and filing.

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3. Change Record

| NO. | Date | Change Description | Version |
|-----|------------|--------------------|---------|
| 1 | 2022.04.07 | First Release | A1 |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
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4. Technical specification

4.1 Scope of application

The KSD301 series of snap-action thermostats have the advantages of small size, high precision, stable performance, and sensitive action. They are widely used for overheat protection or temperature control of various household electric appliances, electronic equipment, electronic instruments, and mobile facilities: Such as air conditioner, water heater, microwave oven, electric oven, electric hot pot, projector, glue machine, base station cabinet temperature control, engine overheat protection, etc.

4.2 applicable standards. :

873, CSA C22.2 NO 24-93

EN60730-1 2012-10

EN60730-2-9:2011-07

GB14536.1-2008 idt IEC60730-1-2008

GB14536.10-2008 idt IEC60730-2-9-2010

GB/T22687-2008

4.3 Electrical performance:

Rated Voltage: AC250V/AC125V 50~60Hz

Rated Current: 10A/15A/16A (of Resistive Load)

Switch Type and Number of poles: 1 pole opener

IP (Protection Degree) : IP00

Action Type: Type 2

Approved Symbol: CQC、VDE、UL

Working life:

Refer to the certifications

PTI (Insulation material PTI value):175V

Resistance of Contact: $\leq 50\text{m}\Omega$ (Original State)

Resistance of Insulated: $\geq 100\text{M}\Omega$ (DC500V Normality)

Withstand Voltage :1500V/1min(Normality)

Leakage current: $\leq 0.25\text{mA}$

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4.4 KSD301

Test report of thermostat KSD301 series

| | | | |
|---------------------------|---------------|---------------------|---|
| Customer | | Date: | / |
| Product model | KSD301 | Sample quantity: | /pcs |
| Temperature specification | 501.100101010 | Material of shell: | <input checked="" type="checkbox"/> PF <input type="checkbox"/> Ceramic <input type="checkbox"/> PPS |
| Switching temperature | 100+/-5°C | Tab | <input type="checkbox"/> 4.8mm <input checked="" type="checkbox"/> 6.3mm <input type="checkbox"/> 180° <input checked="" type="checkbox"/> 90° <input type="checkbox"/> 45° <input type="checkbox"/> 30° |
| Reset temperature | 85+/-5°C | Shape Requirements: | <input type="checkbox"/> Big Aluminum cap with fixed <input checked="" type="checkbox"/> Small aluminum cap with moveable bracket <input type="checkbox"/> Small aluminum cap without bracket |

Test data

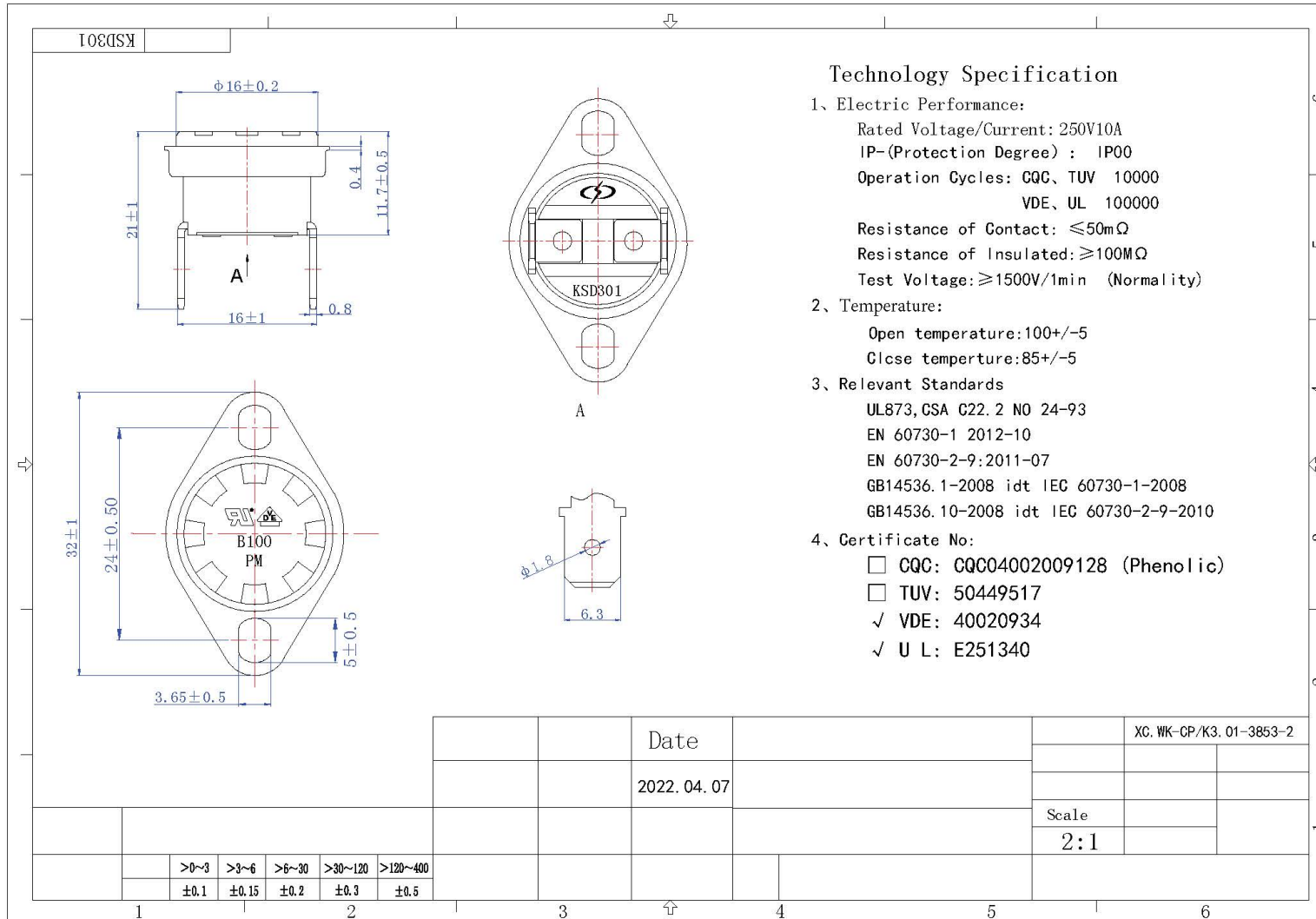
| NO | Switching temperature (°C) | Reset Temperature (°C) | Resistance of contact (mΩ) | Test voltage | conclusion |
|----|----------------------------|------------------------|----------------------------|--------------|----------------------|
| 1 | 95~105 | 80~90 | ≤50 | Pass (OK) | Pass (OK) |
| 2 | 95~105 | 80~90 | ≤50 | Pass (OK) | |
| 3 | 95~105 | 80~90 | ≤50 | Pass (OK) | |
| 4 | 95~105 | 80~90 | ≤50 | Pass (OK) | |
| 5 | 95~105 | 80~90 | ≤50 | Pass (OK) | |

Testing Device:

Thermostatic temperature measurement barrel;

It is subject to our test temperature when the temperature anomalies.

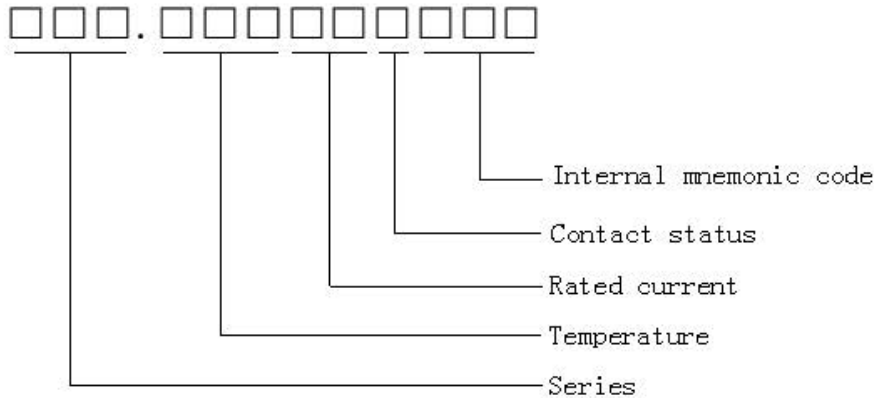
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There is no damage to the performance of the product under the above-mentioned stress conditions and the deformation of the terminal and the damage to the insulator that affect the use of the product.

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4.6 Part Numbering System



4.7 Action Forms

- Normal close: Cut out at temperature rise ,cut in at temperature decreasing.
- Normal close: Cut out at temperature decreasing, cut in at temperature rise.
- Normal opon: Cut in at temperature rise, cut out at temperature decreasing.
- Normal opon: Cut in at temperature decreasing, cut out at temperature rise.
- Normal close: Cut out at temperature rise,manual reset at temperature decreasing.
- Normal close: Cut out at temperature rise, The contact can not be connected after the temperature is reduced.

4.8 Requirements for use of thermostats

4.8.1 The thermostat Works in an environment where the relative humidity is not greater than 90%, no corrosion, flammable explosive gas, conductive dust and strong vibrations .


4.8.2 When the thermostat adopts contact temperature sensing, the aluminum cover should be close to the heating part of the controlled appliance, and the temperature sensing surface of the aluminum cover should be coated with thermal grease or other similar thermally conductive media.

4.8.3 The thermostat should have reliable anti-seepage and anti-leakage measures when it is in contact with liquid or steam to avoid the accident of liquid seeping into the thermostat..

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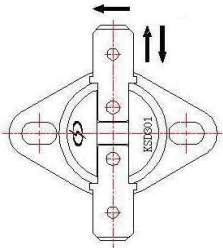
- 4.8.4 Keep the cover flat and do not collapse or deform the cover, so as not to affect the action temperature or change the temperature control performance.
- 4.8.5 Do not install violently, avoid rupturing the insulating shell, and prevent accidents or personal injury due to reduced insulation performance.
- 4.8.6 Do not bend, straighten, or shake the terminals freely during installation, otherwise the reliability of the electrical connection will be affected.
- 4.8.7 The strength should not be too large when press the reset button of the manual reset thermostat. It is better to just press the reset handle, which should generally be less than 20N to avoid damage to the internal structure of the thermostat
- 4.8.8 The choice of temperature for the thermostat depends on the lowest temperature-resistant device in the relevant facility.

4.9 Marking:

The bottom of the thermostat housing is marked with the trademark  and model KSD301. The operating temperature should be clearly marked and printed on the aluminum cover, which should be durable and durable. If necessary, the certification mark, rated voltage 250V / 125V, current nature AC ~ can also be marked on the aluminum cover.

4.10 Maximum force the terminal can bear:

Terminal force standard

| | | | | |
|---|---------------------|---------|---------|---------|
|  | Terminal dimensions | 4.8*0.5 | 4.8*0.8 | 6.3*0.8 |
| | Axial thrust | ≥60N | ≥60N | ≥80N |
| | Axial tension | ≥50N | ≥50N | ≥70N |
| | Transverse thrust | ≥10N 5S | | |
| Axis force that terminal can endure for 1min, and no deformation and damage. | | | | |

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4.11 Packaging and storage:

4.11.1 Packaging:

The packaging box contain a clear company name and trademark, company address and contact information, product name and model, quantity, date of manufacture, and a clear "careful handling, upward, moisture, sunscreen" icon. If the customer needs, the customer's material code or other requirements can be marked.

4.11.2 Storage

The product should be stored in a well-ventilated, dry, non-corrosive gas warehouse with a storage period of 6 months

5、 Reliability test.

5.1 Test Conditions

Ambient temperature 20 ± 5 °C, relative humidity 60% ~ 70%, use sine wave power supply with rated voltage 250V and frequency 50Hz.

5.2 Temperature characteristics

Place the thermostat in the temperature measuring box. When the temperature rises to 5 °C from balance, and then start the test after the temperature is balanced. Air is used as the heating medium in the test furnace, and the heating or cooling is performed at a temperature change rate of less than 1K / min, and the current through the thermostat is not more than 10mA. The temperature sensor in the temperature measuring box cooperates with the computer program to control or display and record the on-off temperature

5.3 Working Life

Connect the temperature controller sample to the rated voltage, the maximum working current (1.06 times), and conduct the contact opening and closing test on the temperature controller to raise and lower the temperature at a frequency of 6 times / min closing time ≥ 1 second. Each opening and closing is used as a cycle, and the number of cycles is recorded. When the test cycle is $\geq 100,000$ tests, the performance of the thermostat should meet the following standards:

- a. The change of the operating temperature to the initial value of the test is ± 5 °C below 100 °C, $\pm 5\%$ above 100 °C
- b. Insulation resistance ≥ 100 M Ω , contact resistance ≤ 50 m Ω , withstand voltage 1500V 50Hz/min, no breakdown, no flashover, leakage current ≤ 0.25 mA. Insulatct resistance ≥ 100 M Ω .

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5.4 Resistant to low temperature, high temperature and thermal shock.

5.4.1 Low temperature resistance:

Put the thermostat in a $-20\text{ }^{\circ}\text{C}$ thermostat, keep it for 1h after the temperature is constant, take it out and place it for 2h, and then perform 5.4.2 test.

5.4.2 High temperature resistance:

Put the thermostat in the thermostat set according to the thermostat's working temperature of 1.05. After the temperature is constant, place it for 1h, and remove it and place it for 2h. Then perform the 5.4.3 test.

5.4.3 Cold and Heat Impact resistance test:

Place the thermostat in a thermostat at $-20 \pm 3\text{ }^{\circ}\text{C}$ for 0.5h, take it out at room temperature for 2-3 minutes, and then put it in a thermostat set at 5.4.2 with an operating temperature of 1.05 for 0.5h. One cycle is 2-3 minutes at room temperature, and 5 cycles are performed continuously. Testing the samples shall meet the performance indicators specified in 5.4.7:

5.4.4 Moisture resistance

Put the test piece of the thermostat into a constant temperature and constant humidity box with a temperature of $40 \pm 2\text{ }^{\circ}\text{C}$ and a relative humidity of 90-96% for 48h according to the provisions of GB2423.3. The insulation resistance and electrical strength in the box should meet the standard requirements. After taking out and placing for 2h, the performance test of the test piece according to the provisions of 5.4.7 and meet the requirements.

5.4.5 Salt spray resistance test:

Put the thermostat into the salt spray test machine for 48h according to the provisions of GB / T2423-17, and then check whether there is rust that cannot be wiped off with cloth.

5.4.6 Vibration and Drop test:

According to the provisions of GB / T2423-10, fix the thermostat on a board with sufficient strength, and apply a frequency of 20-30Hz, an amplitude of 3mm to and fro for 5 minutes, and a drop test after 1 hour of vibration test. Drop the thermostat sample freely from 20cm high on a solid horizontal surface such as concrete floor, stone slab or steel plate, and drop it up, down, left, right, front and back respectively. After completion, the test sample shall meet the performance indicators specified in 5.4.7:

5.4.7 The following requirements shall be met after

Testing:

- a. The change of the operating temperature to the initial value of the test is $\pm 3\text{ }^{\circ}\text{C}$ below 100 $^{\circ}\text{C}$ and $\pm 3\%$ above 100 $^{\circ}\text{C}$;
- b. Insulation resistance $\geq 100\text{M}\Omega$;
- c. Between the charged metal parts and the non-charged metal parts can withstand 1500V 50Hz / 1min withstand voltage test, no breakdown, no flashover, leakage current $\leq 0.25\text{mA}$
- d. No loosening of terminals and aluminum cover, no damage, cracks and deformation of the insulating shell, no obvious corrosion: