型 号 Type	Thermal Cutouts：KI-31 40℃	编制 Compiled	
http://www.ksd301.com		电邮 Teb	Ki_31@126.com
电话 Tel	0769 - 22666046 22088421	传真 Fax	0769 - 23053646

编号：*KI2009021208*

技 术 规 格 书

确认书

（CONFIRMATION）

产品名称（Products） 温度开关
型号/料号（Part No） KI-31 40±5℃（常开型）
确认者（Confirmed by）
确认公司（Company） 东莞市凯恩电子科技有限公司

东莞市凯恩电子科技有限公司 工程专用章

工程部：贺松华 品质部：艾花 业务部：林嗣翰

适应本公司产品

（Is applicable to your products）

产品名称（Products） _____
型号/料号（Part No） _____
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TEL：_____ FAX_____

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1. 基本信息 Basic Information

1.1 执行标准 According to (Standard)

GB/T14536.1-1998:《家用和类似用途电自动控制器 第 1 部分：通用要求》

IEC 730-1:1994 Automatic electrols for household and similar use. Part 1:General requirements

GB/T14536.10-1996:《家用和类似用途电自动控制器 温度敏感控制器的特殊要求》

IEC 730-2-9-1992:Automatic electrical controls for household and similar use Particuar requirements for temperature sensing controls

JB/T 3751-1997:《家用和类似用途双金属温度控制器》

JB/T 3751-1997:Bi-meral temperature controls for household and similar use

1.2 构造 Structure

1.2.1. 分类 Classification

属于温度固定的双金属碟片瞬动式温度控制器。

They are temperature-fixed bi-metal Snap-Action temperature controller

1.2.2.接地方式 Method Of Earth

通过温控器金属外盖与设备接地金属部件相连。

By means of the metal cup of thermostat connected in the earthing meral part.

1.2.3.外观及尺寸 Appearance

外观应加工良好，无有损于性能及商品价值的伤、裂、变形、毛刺、污渍等缺陷。

The appearance should be processed well, without any defect effecting the performance or value of the merchandise such as strain,crach,rust,distortion,besmirch,ete.

见图纸(CS09002)。

Please see the enclosed drawing(CS09002).

1.3 动作方式 Action Forms

☐室温下触点接通（nc），温度上升触点断开，温度降低触点恢复接通。

Normal close:Cut out at temperature rise,cut in at temperature decreasing.

■室温下触点接通（nc），温度下降触点断开，温度上升触点恢复接通。

Normal close:Cut out at temperature decreasing,cut in at temperature rise.

☐室温下触点断开（no），温度上升触点接通，温度降低触点恢复断开。

Normal open:Cut in at temperature rise,cut out at temperature decreasing.

☐室温下触点断开（no），温度下降触点接通，温度上升触点恢复断开。

Normal open:Cut in at temperature decreasing,cut out at temperature rise.

☐室温下触点接通（nc），温度上升触点断开，温度降低手动复位接通。

Normal close:Cut out at temperature rise,manual reset at temperature decreasing.

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1.4.型号命名方式 Nomenclature of Type

KI	－ 31	－40	K	5	－	－	10A	－ 1	R	1	－ D
Ⅰ	Ⅱ	Ⅲ	Ⅳ	Ⅴ	Ⅵ		Ⅶ	Ⅷ	Ⅸ	Ⅹ	Ⅺ

Ⅰ.工厂品牌（KAIN 缩写）Factoy Brand(KAIN Abbreviation)

Ⅱ.工厂设计代号:(本厂为 31、32、33、34 等)Design Code:31、32、33、34

Ⅲ.动作温度:OFF 及 ON 温度中的较高值 Operating tempersture,the higher value of OFF temp.and ON temp

Ⅳ.动作温度特性:Temperature Characteristics

B-常规型:断开温度高于接通温度

B-Normal type:OFF temperature higher than ON temperature

K-常开型:断开温度低于接通温度

K-K type:ON temperature higher htan OFF temperature

M-手动复位型：温控器在常温下接通，断开后，不能自动复位，需要手动进行复位

M-Manual reset type:The thermostat switches on at room temperature and it won be able to reset after switching off

O-一次动作性：温控器在室温下接通，温控器断开后，不能复位

O-One-shot type:The thermostat switches on at room temperature and it wont be able to Reset switching off

Ⅴ.标称动作温度误差值:Open temperature difference

2 表示 Said±2℃

3 表示 Said±32℃

5 表示 Said±5℃

10 表示 Said±10℃

Ⅵ.动作温度与复位温度差值，2 位 Open temperature or Rstet temperature the difference

手动复位型无此项数字 The non-manual reset

Ⅶ.额定阻性负载电流：5A,10A,15A Current Rating:5A,10A,15A

Ⅷ.端子姿态 Terminal Angle

1:水平 Horizontal

2:垂直 Vertical

3:垂直/45° Vertical/45°

4:水平/45° Horizontal/45°

5:45° /45°

6:水平/垂直 Horizontal/Vertical

7:其它类型角度

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Ⅸ. 端子类型 Temrinal Type

N:187 系列端子（4.8×0.5）187Series

M:187 系列端子（4.8×0.8）187Series

R:250 系列端子（6.3×0.8）250Series

F:非标端子 Not Criterion

Ⅹ. 固定形式 Holder Type

1:活动固定器 Free Holder

2:无固定器 Without the Holder

3:45° 固定器 45° Holder

4:90° 固定器 90° Holder

Ⅺ. 绝缘壳体 Insul ating Material

D:电木 Free Holder

E:陶瓷 Without the Holder

P:PPS

2.主要性能 Primary Performance

2.1.动作温度 Operating Temperature

2.1.1.温度特性 Characteristic

断开温度 OFF：65℃±15℃

接通温度 ON： 90℃±5℃

（或见图纸 CS09002。Or, see the enclosed drawing CS09002）

2.1.2. 测试方法 Test method

把温控器夹在测试区内，等待测温区的温度平衡后，开始测试。测试炉内以空气作为加热介质，在测温区放置温度计或温度传感器。在温度进入动作温度公差范围前 2K 开始，以小于 1K/min 的温度变化速率进行加温或降温，其间必须进行搅拌，使温度分布充分均匀；测温区温度分布均匀性在±0.4K 以内。

测试装置可设置通断显示装置。温控器两接线端子间电压大于 5V，通过试样电流大于 10mA。

During testing,the samples are clamped in the testing zone. Testing begins when temperature in temperature-measuring zone stays in equilibrium.

The testing furnace is filled with air as heating medium,while thermometer or temperature sensor is placed in temperature-measuring zone. Temperature increases or decreases from the first 10K of named Action Temperature at a speed of 1K/min.During testing,air must be mixed up to make the temperature Sufficiently equable.Distributing equality of temperature in temperature-measuring zone must be within

±0.4K.

The testing devices may be set with an On/Off display. Tension berween the two connection terminals of the sample must be over 5V,current flowing the sample must be over 10mA.Meters' precision;class1.0.

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2.2 绝缘电阻 Insulation Resistance

用 DC500V 绝缘电阻表加额定电压 DC500V 测定大于 100MΩ。

With a DC500V megger, borne DC 500V,the tested value is over 100 MΩ.

2.3 电气强度 Dielectric Strength

带电金属部件与非带金属部件之间能承受接近正弦波的 2000V50Hz 交流电压历时一分钟的耐压试验，不击穿，无闪络。

Parts between elecriferous components and non-electriferous ones can bear 2000V 50Hz AC current, Which is nearly sine wave, for one minute as bearing test,Resulted no breakdown,no flashover.

2.4.长期工作最高环境温度 Max.Ambient temperature

□100℃ □140℃ □185℃ □205℃ □220℃ □245℃ □280℃ □320℃

3. 可靠性测试 Reliability Test

3.1.试验条件 Test Conditions

- ◆ 环境温度 20±5℃；
- ◆ 环境相对湿度 60%～70%；
- ◆ 电源应为额定电压及额定频率 50Hz、60Hz 的正弦波电源。

在试验结果不发生异议的情况下，按下述条件试验亦可：

- ◆ 环境温度 5～35℃；
- ◆ 环境相对湿度 45%～85%；
- ◆ 电源为接近正弦波的交流电；
- ◆ Ambient temperature: 20℃
- ◆ Ambient Relative Humidity: 60%～70%;
- ◆ The power supply should be of sine wave,with rated volts and rated frequency of50Hz、60Hz;

Without discrepancing the result,test may be implemented according to the following conditions;

- ◆ Ambient temperature varies berween 5～35℃;
- ◆ Ambient relative humidity varies berween45%～85%;
- ◆ The power supply should be AC nearly sine wave;

3.2 工作寿命 Working Life

将温控器试样接上额定电压，最大工作电流（偏差±5%），对温控器给以升、降温进行触头开闭试验，最大频率 6 次/min,闭合时间 1 秒以上。每天闭一次作为一个周期，记录周期数，不发生因电弧引起的极间短路及对带电件短路，然后检查性能。样品进行周期为 10 万次的耐久性试验后应符合下列性能指标：

- ◆ 动作温度对试验初始值的变化在 100℃以下为±5℃，在 100℃以上为±5%；
- ◆ 绝缘电阻 100 MΩ以上（用 DC500V 绝缘电阻表加额定电压 DC500V 测定）；
- ◆ 带电金属部件与非带电金属部件之间能承受接近正弦波的 1500V 50Hz 交流电压历时一分钟的耐压试验，不击穿，无闪络；
- ◆ 机能上无永久性损伤，手动复位温控器的复位操作无异常。

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Powered the sample thermostats with rated volts and max.current(windage: 5%),increase and decrease the temperature to test Opening/Closning of the thermostat's contacts.The max frequency should be 6 times/min,contact keep closed for one second.Ecery opening and closing is calculated as one circle,make record of circles.And no short circuit was found.Then check the performance.After tested 100,000circles, the samples accord with the following guideline of specifications:

◆ Initial value of experiment caused by action temperature:
＜ 100℃: ±5℃;≥100℃: ±5%;

◆ Insulation resistance over 100MΩ more than (tested by DC500V megger,powering with DC500V);

◆ Parts between electriferous components and non-electriferous ones can bear 1500V 50Hz AC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover;

◆ No permanent mechanics' damage.No abnormity od reset operation for manual reset Thershover;

3.3 耐低温、高温和冷热冲击

Resistance of low Temperature & High Temperature,Cold&heat Strike

将温控器试样放置在-20℃的恒温箱中,在温度稳定后保持 1h,取出放置 2h;然后将试样放置在 150℃的恒温箱中,在温度稳定后保持 1h,取出放置 2h;最后,将试样放置在-20±3℃的恒温箱中 0.5h,取出试样放置在室温环境 2～3min,再取出在 150±3℃的恒温箱中 0.5h,取出放置在室温环境 2～3min 作为一个周期,连续进行 5 个周期。在整个试验过程中,被测试样品表面不得出现疑露或水滴。完成后,样品应符合下列性能指标:

◆ 动作温度对试验初始值的变化在 100℃以下为±3℃,在 100℃以上为±3%;

◆ 绝缘电阻 100MΩ以上(用 DC500V 绝缘电阻表加额定电压 DC500V 测定);

◆ 带电金属部件与非带电金属部件之间能承受接近正弦波的 1500V 50Hz 交流电压历时一分钟 的耐压试验，不击穿，无闪络;

Sample thermostats are placed in the constant-temperature box with the temperature of -20℃.When temperature inside levels off, keep it for 1h.Than take the samples out and place for 2h,And ten place Them in the constant-temperature box with the temperatuer of 150℃, keep for 1h after temperature, lecels off, and take out and place for 2h.Finally,keep the samples in the constant-temperature box of -20 ±3℃ for 0.5h,then take out and place then in room temperature.(2～3min as oen circle,and for 5 circles In a row.)During the experiment,no coagulation or drips is ever found on the surface of the asmples. When experiment finished,samples should accod with the following guideline of specifications:

◆ Initial value of experiment caused by action temperature:
＜ 100℃: ±3℃;≥100℃: ±3%;

◆ Insulation resistance over 100MΩ more than (tested by DC500V megger,powering with DC500V);

◆ Parts between electriferous components and non-electriferous ones can bear 1500V 50Hz AC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover;

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3.4. 耐潮湿 Dampness Resistance

将温控器试样按 GB2423.3 规定放入温度 40±2℃、相对湿度的恒温箱内 48h 后，样品应符合下列性能指标：

◆ 动作温度对试验初始值的变化在 100℃以下为±3℃，在 100℃以上为±3%；

◆ 绝缘电阻 100MΩ以上(用 DC500V 绝缘电阻表加额定电压 DC500V 测定)；

◆ 带电金属部件与非带电金属部件之间能承受接近正弦波的 1500V 50Hz 交流电压历时 一分钟的耐压试验，不击穿，无闪络；

Samples thermostat are sealed in the instrument(constant temperature&constant humidity),detailed as temperature of 40±2℃ relative humidity of 90%～95%,as per regulations ofGB2423.3.A fter placed for 48h,the samples should accord with the following guideline of specifications:

◆ Initial value of experiment caused by action temperature:
＜ 100℃：±3℃；≥100℃：±3%；

◆ Insulation resistance over 100MΩ more than (tested by DC500V megger,powering with DC500V);

◆ Parts between electriferous components and non-electriferous ones can bear 1500V 50HzAC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover;

3.5. 耐振动 Vibration Resistance

把温控器试样固定在有充分强度的板上,对上下、前后、左右各方向,以频率 20～25Hz 振幅 3 mm 来回时间 5min,历时各 1h。完成后，样品应符合下列性能指标：

◆ 动作温度对试验初始值的变化在 100℃以下为±3℃，在 100℃以上为±3%；

◆ 绝缘电阻 100MΩ以上(用 DC500V 绝缘电阻表加额定电压 DC500V 测定)；

◆ 带电金属部件与非带电金属部件之间能承受接近正弦波的 1500V 50Hz 交流电压历时一分钟的耐压试验，不击穿，无闪络；

Sample thermostats are fixed on the surface of board with full intension,Then vibrate the samples with frequency 20～25Hz,swing3mm,come-and-go time 5mm,in dierctions of fluctuation,front-back, left-tight,for 1h,After tested,the samples should accord with the following guideline of specifications:

◆ Initial value of experiment caused by action temperature:
＜ 100℃：±3℃；≥100℃：±3%；

◆ Insulation resistance over 100MΩmore than (tested by DC500V megger,powering with DC500V);

◆ Parts between electriferous components and non-electriferous ones can bear 1500V 50HzAC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover;

3.6. 耐跌落 Falling Resistance

温控器试样从 200mm 高自由跌落在水泥地、石板或钢板等坚固的水平面上,分别作上、下、左、右、前、后各落下一次。完成后，样品应符合下列性能指标：

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◆ 动作温度对试验初始值的变化在 100℃以下为±3℃，在 100℃以上为±3%;

◆ 绝缘电阻 100MΩ以上(用 DC500V 绝缘电阻表加额定电压 DC500V 测定);

◆ 带电金属部件与非带电金属部件之间能承受接近正弦波的 1500V 50Hz 交流电压历时一分钟的耐压试验，不击穿，无闪络;

Sample thermostats fall down free,at the height of 200mm,to such solid horizontal like concrete ground, flagstone,armor plate.And falling begin respectively for one time,from the top,bottom,left, right,Front and back.After experimented,the samples should accord with the following guideline of specifications:

◆ Initial value of experiment caused by action temperature:
＜100℃： ±3℃;≥100℃： ±3%;

◆ Insulation resistance over 100MΩmore than (tested by DC500V megger,powering with DC500V);

◆ Parts between electriferous components and non-electriferous ones can bear 1500V 50HzAC current,which is nearly sine wave,for one minute as bearing test.Resulted no breakdown,no flashover;

3.7. 触电温升 Contacts' Temperature Raised

小于 40K less than 40K

4. 注意事项 Cautious

◆ 温控器应工作于空气相对湿度不大于 90%、无腐蚀性气、可燃性气体和导电尘埃存在的一般室内环境。

The thermostat should work in environment with humidity not higher than 90%,free of caustic, Flammable gas and conducting dust.

◆ 温控器采用接触感温时，应使其封盖紧贴被控器具的发热部位，并应在封盖感温表面涂上导热硅脂或其他性能类似的导热介质。

When the thermostat is used to sense the temperature of solid,its cup should be clung to the beating Part of such items.Meanwhile,heat-conducting silicon grease,or other heat media of similar nature,should be applied to the cup's surface.

◆ 温控器通过接触液体或蒸汽感温时，强烈建议采用不锈钢封盖的产品，并应有可靠的防漏措施，以免液体渗到温控器绝缘部件上。

If the thermostat is used to sense the temperature of liquids or stesam,it is strongly recommended to Adopt a version with stainless-steeled cup.Moreover,cautious measures should be taken to prevent liquids getting tinto/onto the thermostat's insulation parts.

◆ 不可把封盖顶部压塌或使具变形，以免动作温度改变或影响其他性能。

The top of the cup must not be pressed to sink and the terminals must not be distorted,so as to avoid Adverse effect on the thermostat's temperature sensitivity or its other functions.

◆ 不得让液体渗入温控器内部！壳体必须避免受到过大的力以防止出现裂纹;壳体应保持清洁，防止导电物质污染，以免因绝缘性能降低而发生短路击穿。

Liquids must be kept out of the thermostat's inner part! The base must avid any force that could lead

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to crack;it should be kept clear and away from the pollution of electric substance to prevent insulation weakening that leads to short-circuited damages.

◆ 使用过程不能折弯接线端子，否则将影响电气连接的可靠性。
Terminals should not be inflected,or else,it will influence the dependability of electric connection.

◆ 手动复位产品在复位时力量不可过大,以刚能按下复位柄为宜,一般应小于 30 N,以免损坏温控器内部结构.

6. 温控器铝盖表面标志: