

# 产品规格承认书

## SPECIFICATION FOR APPROVAL

### 电动自行车 LED 类显示器

### ELECTRIC BIKE LED DISPLAY

型号:T320

VERSION: T320



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版本号: V1.0

Version: V1.0

**1. 温馨提示:****1. Kindly Reminder**

感谢您使用 king-meter 公司的 T320 系列仪表, T320 系列仪表是适配电动自行车使用的 LED 类显示器, 为了您的安全, 骑车时请谨慎操作, 避免因加速过快或错误操作等原因对您造成不必要的伤害, 在骑车行驶前请先了解本说明书的基本功能和电动车的说明书的注意事项, 以保证您的安全!

安装时请注意不可用硬物敲击或暴力装配, 仪表因此导致的损坏不在保修范围内

切勿用一些尖锐的物体刮划仪表, 清洁仪表时切忌用有机溶剂擦拭, 仪表外观损害不在保修范围内

仪表表面贴标不可撕掉, 由于贴标被撕掉导致仪表进水造成的损坏不在保修范围内

仪表引线不可自行更改, 由自行更改引线导致的仪表损坏不在保修范围内  
安装时请不要带电操作, 装配完毕后请仔细检查接线是否正确, 如因接线错误导致的仪表损坏不在保修范围内

安装时请不要大力拽仪表和引线的连接处, 此处为防止进水, 用密封胶做了特殊处理, 大力拉拔引线可能会导致引线的脱落, 造成防水不良会导致仪表损坏, 因此造成的不良不在保修范围内

此仪表是通过特殊工艺处理外壳不可分离的, 如因自行拆壳导致的仪表损坏不在保修范围内

Thank you for use T320 series display of KING-METER Company, T320 series display is the LED display adapt to e-bike. To ensure your safety, take care when you ride, avoid unnecessary hurt to you caused by accelerate too fast or improper operation. In order to ensure your safety, please comprehend the

specification basic function and the attention matters of e-bike specification before you ride it.

Attention that hard object knock on or force assembly are not available, which due to failure of display was not within the scope of warranty.

Be sure not to use some sharp object scratched display, prohibiting that use organic solvent when cleaning display, the appearance failure was not within the scope of warranty.

Do not tear off the labeling at the surface of display, because of tearing off the labeling which due to flooding water of display was not within the scope of warranty.

The cable of display can not change by oneself, because of changing cable by oneself which due to failure was not within the scope of warranty.

Do not hot-line work when installation, please check carefully if connection correct or not, because of connection error which due to failure was not within the scope of warranty.

Do not pull joint vigorously that between display and cable, it was filled with sealant for special handling in order to prevent flooding water, pulling cable vigorously which due to the cable fall off possibly, it will cause badness to waterproof which due to failure ,it was not within the scope of warranty.

It is inseparable of the housing which was handled by special processing. The failure caused by tearing open the housing was not within the scope of warranty.

## 2. T320 仪表的功能汇总:

### **The functions summary of T320 display**

- 电量显示 24V, 36V 独立显示, 电压型显示或通讯方式显示容量信息, 利用 BMS 系统实现三方通讯
- Battery indication :24V、36V independently indicate, voltage indication or communication mode displayed capacity information, it implemented tripartite communication use of BMS system.
- 档位调节 0-3、1-4 或 0-4 档, 模拟电压和通讯两种控制方案。
- Level adjustment: 0-3、1-4 or 0-4 level, the two control plan is analog voltage and communication.
- 电源开关功能, 仪表控制控制器的锁线, 电源开关打开后给控制器的锁线提供电源, 保证控制器的单片机正常工作, 起到锁控的作用。
- The functions of power switch and the lock wires of display controller controlled by display, supply power for the lock wires of controller after switching on, confirm normal work for single chip of controller, play the function of lock control.
- 此仪表可以和大多数控制器搭配使用, 只要控制器有转把信号, 仪表通过简单的调整就可以实现档位调节的作用, 助力比例的调节由仪表实现。
- The display can match with majority controller. The display realized the function of level adjustment via simple adjustment as long as controller have throttle signal, realize the adjustment of PAS ratio via display.
- 用 KING-METER 液晶仪表可以任意代替此款仪表, 这样对部分消费者而言可以对整车升级, 举例说明: 安斯曼的 S2 和 KM5S 可以兼容一款控制器,

就是如此。

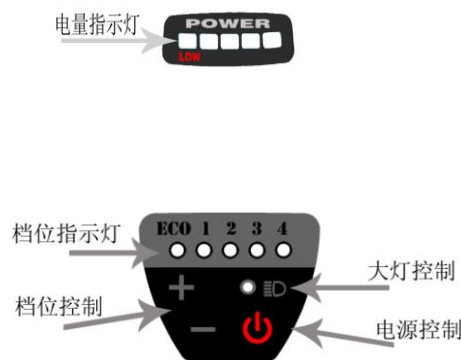
- The LCD of KING-METER can instead of this display arbitrarily, for some customer can upgrade whole e-bike. For example: The S2 and KM5S of ANSMAN can match single controller exactly.

以上功能可能不能在同一个仪表上体现，可以根据对以上功能的需求，选择合适的功能，从仪表上体现出来。

Above functions can not reflect on the same display. According to the above functions requirement, choosing appropriate function which reflect on display.

### 3. 常规产品功能介绍

#### Function introduction of general production



Battery indicator, Level indicator, Level control, Headlight control, Power control

图 1 Figure 1

T320 系列仪表是适配电动自行车使用的 LED 类显示器。

T320 series display is the LED display adapt to the e-bike for use.

1. 电源开关功能：按钮控制电动车控制器的内部工作电源。ON 状态时可以提供 0—200mA 电流，控制器正常工作电流为小于 60mA，仪表的锁线上严禁接大灯等设备，电流过大时会导致仪表的损坏，锁线短路时有短路保护功能。OFF 状态时，仪表耗电小于 1uA。
1. The functions of power switch: The inside working power of e-bike controller was controlled by button. The ON state can supply 0-200mA current, the normal working current is less than 60 mA for controller, it was strictly prohibit that the lock wires of display connect headlight and other device, excessive current can due to failure to display, when lock wires was short circuit that will have the functions of short circuit protection. OFF state, the power consumption of display was less than 1uA.
2. 档位调节功能：按钮三档循环切换控制电动车控制器输出 PWM 的最高值。开机默认是 0 档，按钮按一次跳到最高档，再按钮一次跳到最低档，再按钮一次回到中间档，0-1-2-3-4-0 如此循环。（可选择变化方式，如开机默认一档，或增加空档、助力推行模式等功能，具体依据电动车生产商的要求）
2. Functions of Level adjustment : The max value of controller output PWM for the e-bike was controlled by the switching among the three levels of button.

0 level is the default value of switch on, press button once skip to max level, press button again skip to min level, press button thirdly skip to mid-level, 0-1-2-3-4-0 circulation.( Optional changing mode: such as 1 level is the default value of switch on, or added functions of neutral position、PAS etc., according to the requirement of e-bike manufacturer.)

3. 电量指示功能：四段 LED 指示电池当前电压。实时监测电池电压的变化情况，电池电压下降延时显示时间 3s，以防使用过程中负载突变引起电池电压波动造成 LED 闪烁。欠压后最低电量指示灯以 1Hz 频率闪烁，但不切断对控制器的供电。也可以和 BMS 智能电池匹配，通过仪表和电池的通讯反应电池的容量等信息，这样可以比较准确的判断整车的续行里程及电池的错误信息等（具体可以参考电池的 BMS 系统）
3. Functions of battery indication: Four level LED indicate current voltage of battery. The changing state of battery voltage was real-time monitored; the indication delayed time of battery voltage reduction is 3s, in case of load changed suddenly due to battery voltage waving which caused LED flash at using procedure. The indicator of min battery flashed 1Hz at low voltage, but power supply to the controller was not cut off. It can match with BMS smart battery, the information of battery capacity etc. was reflected on display and battery communication, in this way the continuation line distance of whole e-bike and error information of battery etc. which can judge accurately. (The specification can refers to BMS of battery)
4. 大灯控制功能，在仪表正常使用过程中可以短按大灯控制按键切换大灯打开和关闭的状态，默认情况下大灯关闭。
4. Headlight control functions: Switching the state ON/OFF by press the headlight control button during use the display normally, headlight off is the default state.
5. 符合 ROHS 规范及 CE 认证
5. Meet the ROHS specification and CE certification.
6. 防水防尘等级：IP65（建议雨天行驶做对应的防护，避免因意外导致产品进水而影响您的正常使用）
6. Waterproof and dustproof level: IP65 (The suggestion is that make corresponding protection during riding rainy day, avoid that affect normal use for you which caused by the accident of flooding water.
7. 自动控制显示灯亮度（根据外界环境光照强度）
7. Auto control of light on indication (According to illumination intensity from external environment)
8. 型号标识：仪表外壳打字，针对不同的功能和不同的电动车生产商有不同的标志，具体参考下面的贴膜及外壳打印标志
8. Type marking: The marking of housing: There are different marking for different functions and e-bike manufacturer.
9. 可扩展功能：6KM 功能
9. Extendable function: 6KM function

3. 外观尺寸、装配图 (单位 MM)

3. Dimension 、 Assembly diagram (unit: mm)

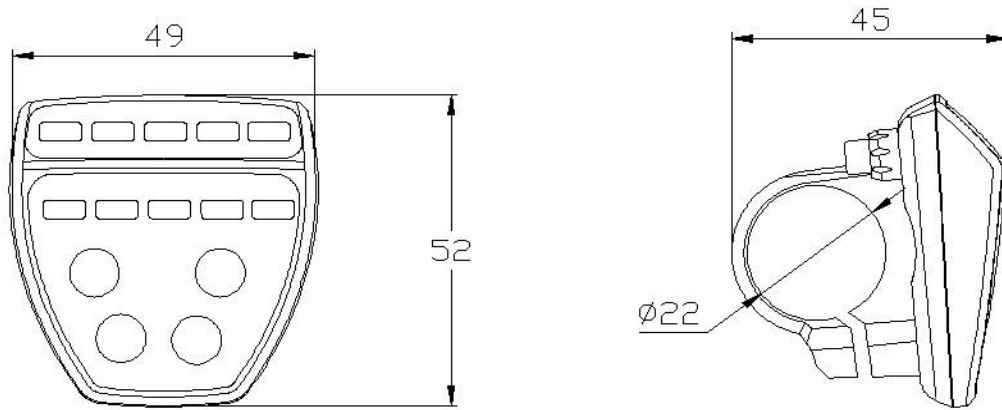


图 2

Figure 2

4. 外壳的颜色、材料及典型贴膜样式:

4. Color、 material of housing & typical film pattern

1. 黑色 德国进口 PC 材料

实样图片及 ROHS、CE 字样: (Samples Photos)

1. Black: PC material import from Germany

Samples Photos and ROHS、CE character

2. 典型贴膜图样式

2. Typical film pattern

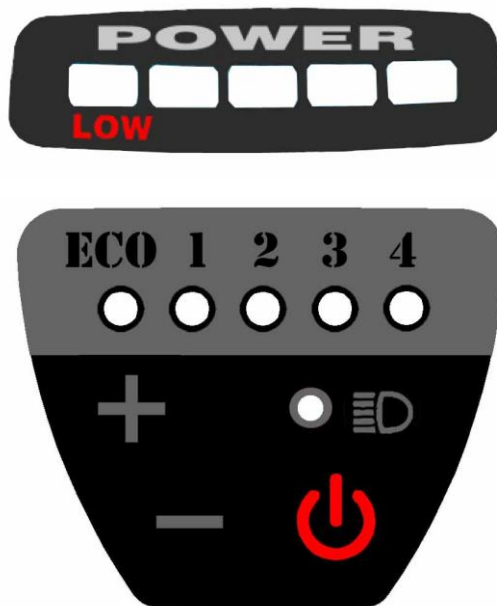




图 3 Figure 3

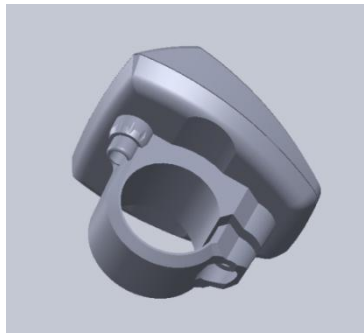


图 4

Figure 4

6. 技术参数及可靠性

6. Specification & Reliability

1. 指示灯对应电压特征

1. Indicator corresponding voltage characteristic

型号 type	电池 类型 battery type	电池 电压 battery voltage	四段电压对应值±0.3V Corresponding value of four level voltage ± 0.3V			
			L4	L5	L6	L7
24L	锂电 lithium battery	24	依据电池的放电曲线或要求仪表显示的数据 提供给我们即可 Supply us that according to discharge curve of battery or demand data of display.			

表 1 List 1

当电池电压小于 L4 持续 3 秒钟，L4 灯会闪烁以告知骑行者电池电压严重欠压。  
The battery voltage is less than L4 that persisting 3s. In order to inform the rider that  
the battery voltage is serious under voltage and L4 will be able to flash.

2. 参数可调性及标定：仪表的主控芯片是精度 8bit 的高端单片机，能适应不同  
型号规格，不同参数要求，其精确度高。

2. Parameter adjustability and standardization: The main control chip of display is the  
high-end single chip of 8bit accuracy. It can adapt to different type specification and  
parameter requirement. It has high accuracy.

仪表的参数是通过专用烧录器进行烧写，同电压型号的仪表可以通过烧写器在外部  
更改电压显示值，比如消费者的电池要更换，因为电池的材质比较多，由于材料  
不同，它们的放电曲线也不同（比如三元材料和锰酸锂材料），其显示的方式  
也就不一样，所以必须通过更换仪表或调整仪表电量参数来保证电池信息的一致  
性，所以只需要在维修店或售后处通过几分钟来调整对应的参数即可。

The parameter of display programming via special DISP-PRO. Through DISP-PRO can change the external voltage value for the same voltage type of display. For example changing battery for customer, because battery have many materials, because of different materials have different discharge curve (such as ternary and lithium manganite materials), and the different display mode. So confirm the consistency of battery information that must through changing display or adjustment battery parameter of display.

So it require that through adjust corresponding parameter in several minute at repair shop or after sales center.

3. 仪表的电路具有反接保护和短路保护功能

3. The circuit of display have the function of inversed connection and short-circuit protection.

7. 接插件与引线（本仪表只能使用直径小于 3.8MM 的线材）

7. Connector & Cable (The diameter of cable that only use for the display is less than 3.8mm)

1. 模拟型接线方式

1. Analog connection mode

接插件规格 Connector specification	引线顺序和颜色 Cable sequence and color			引线长度 (mm) Cable length(mm)
	1	2	3	
SM2A	红 red	蓝 blue		按照订单要求 According to order
SM3Y	黑 black	绿 green	空 vacancy	

表 2 List 2

引线信号说明:

红线: 接电池正极

蓝线: 接控制器锁控线

绿线: 档位信号线(千万不可和控制器的转把信号相接, 否则会引起飞车等故障)

黑线: 电池地线

Cable signal introduction:

Red line: connection battery anode

Blue line: locking control line of connection controller

Green line: signal line level (Do not connect the throttle signal of controller, otherwise it will due to the failure of run way.

2. 通讯型接线方式

2. Communication connection mode

接插件规格 Connector specification	引线顺序和颜色 Cable sequence and color			引线长度 (mm) Cable length
	1、红 red	2、蓝 blue	3、黑 black	
KM5Y	4、绿 green	5、黄 yellow		按照订单要求



				According to order
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表 3 List 3

线色定义: Cable color definition

红:VCC 蓝: K 黑: GND 绿: RXD 黄: TXD

Red :VCC Blue: K Black: GND Green: RXD Yellow: TXD

引线处理: Cable handle

为防止引线端子处盐化与腐蚀, 对引线加强保护措施。(实样图片)

In order to prevent salinization and corrosion at connector, reinforcing safeguard procedures for cable.

(引线端子处防盐化与腐蚀处理图)

(Diagram of prevent salinization and corrosion at connector)

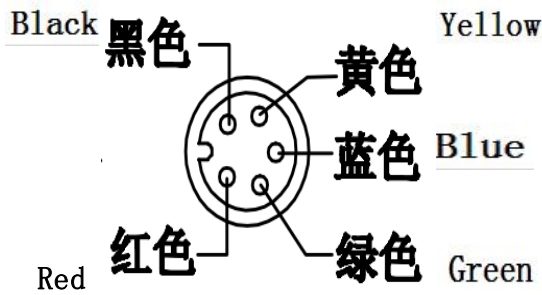


图 5

Figure 5



图 6

Figure 6

8. 可靠性测试

8. Dependability Test

项目 item		条件 condition	规格 specification
引线 Cable	引线端子拉力强度试验	拉力强度: 20N 持续时间: 60S	无异常
	Tensile strength test of the connector	tensile strength:20N duration time:60S	OK
	外壳的引出线拉力强度试验	拉力强度: 10N 持续时间: 60S	无异常
	Tensile strength test of housing cable	tensile strength:10N duration time:60S	OK

引线相对外壳绝缘电阻测试 Lead to housing insulation test	ZC25-3 型兆欧表测试 The type of ZC25-3 MΩ meter test	无异常 >100MΩ OK >100MΩ
锁线压降测试 Lock wires voltage drop test	数字式万用表 Digital multimeter	电性能正常 Normal electrical property
电量指示测试 Battery indication test	温度: 常温 (20℃) Temperature: normal (20℃)	电性能正常 (±0.3V) Normal electrical property (±0.3V)
	温度: -20℃ (低温) Temperature: -20℃ (low)	电性能正常 (±0.3V) Normal electrical property (±0.3V)
	温度: 70℃ (高温) Temperature: 70℃ (high)	电性能正常 (±0.3V) Normal electrical property (±0.3V)
模式电压测试 Voltage Pattern test	温度: 常温 (20℃) Temperature: normal (20℃)	电性能正常 (±0.1V) Normal electrical property (±0.1V)
	温度: -20℃ (低温) Temperature: -20℃ (low)	电性能正常 (±0.1V) Normal electrical property (±0.1V)
	温度: 70℃ (高温) Temperature: 70℃ (high)	电性能正常 (±0.1V) Normal electrical property (±0.1V)
欠压指示延时测试 Under voltage indication delayed test	秒表 stopwatch	无异常 OK
超压测试 24V 仪表 Super voltage test 24V meter	电压: DC42V Voltage: DC42V 持续时间: 60S duration time: 60S	无异常 仪表再供电正常工作 OK Display supply power again work normally
耐高温检测 High-temperature detection test	温度: 75℃ ± 2℃ 电压: 额定电压 持续时间: >2H Temperature: 75℃ ± 2℃	无异常 仪表正常工作 OK Normal work

	Voltage: nominal voltage duration time: >2H	
温升试验 Temperature-rise test	温度: 常温 (20℃) 仪表正常工作  Temperature: normal (20℃) Display normal work	无异常 外壳温度 < 5℃ OK Housing temperature < 5℃
恒定湿热 Constant humidity	温度: 45℃ ± 2℃ 相对湿度: 90% ± 5% 持续时间 > 24H Temperature: 45℃ ± 2℃ Relative humidity : 90% ± 5% duration time > 24H	无异常 仪表正常工作 OK Normal work
震动试验 Vibration test	电压: 额定电压 震动频率: 20HZ 振幅: > 10MM 持续时间: > 2H Voltage: nominal voltage Vibration frequency : 20HZ amplitude: > 10MM duration time: > 2H	无异常 仪表正常工作 OK Normal work
模拟淋雨测试 Analog spray test	仪表正常工作状态下 持续时间: > 2H Display normal work duration time: > 2H	无异常 仪表正常工作 OK Normal work
按钮寿命测试 Button endurance test	专用按钮寿命测试机 Special button endurance test machine	100,000 Cycles Min
ROHS 及 CE 认证 ROHS & CE certification	第三方机构认证 Third party institution certification	合格通过并有第三方文件 说明 Qualified pass and third party document introduction
IP65 外壳防护等级 IP65 housing protection class	第三方机构认证 Third party institution certification	合格通过并有第三方文件 说明 Qualified pass and third party document introduction

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表 3 List 4

## 9. 贴膜及型号标识印制

### 9. Film & Type marking printed

①贴膜选用：除本公司的常规贴膜外，还可为客户定制个性化的贴膜，贴膜建议不使用渐变色等比较复杂的颜色设计。贴膜材料环保符合 ROHS、CE 等环保认证。（具体依客户的要求）

① Film selection: besides the general film of company. We can design the personalized film for customer. The suggestion is that the gradient ramp and complicated color design of film for no use. The environmental material of film accord with ROHS、CE environmental certification.(According to the customer for specific demand)

②型号标识印制：

②Type marking printed

产品编号的规则：客户名称编号（如金米特：5001（一般 3 到 4 为数字））+产品编号（如 T320:T320）+序列号（2 位）

The regulation of production number: the number of customer name (as KING-METER:5001(general 3-4 is figure)+ production number(as T320:T320)+series number(2 位).

仪表外壳上的字符：5001T32001 表示这个客户的 T320 产品中的编号第一个产品，这个编号有唯一的技术说明及对应的检测方法等，所以当您询问规格时只要将仪表上的信息给我们，就可以得到相应的产品功能及技术状态的介绍。也有对应的线长、电压值、生产日期等信息，以方便查询和相应的售后服务工作！

The character on display housing: 5001T32001 represents the first numbered production in the T320 production for this customer. There are single specification and corresponding test method for it. As long as you supply the display information for us as you inquiry specification, you can obtain the introduction of corresponding production function and technology. The information have corresponding cable length、voltage value、production date etc. So you can inquire convenience and corresponding after sales service work.



图 7 Figure 7

打字为 60732004-36L 2014-02-S11002

Marking: 60732004-36L 2014-02-S11002

## 仪表型号标识

此产品编号表示：607 代表某客户，320 代表此仪表型号，04 代表此客户的第四款型号的 T320 仪表，36L 表示额定电压为 36V 的锂电池，2014-02 表示生产日期，S11002 表示程序代码

## The printing on the display:

The production number represents: 607 represents some customer, 320 represents type of display, 04 represents fourth type of T320 display for customer, 36L represents the nominal voltage of lithium battery is 36V, 2014-02 represents production date, S11002 represents program code.

## 10. 包装要求

### 10. Packing requirement

#### ① 包装规格

#### ① Packing specification

1、引线包扎：橡皮筋捆扎。

1、Cable banding: rubber band banding.

2、总成小包装：300cmx200cm 塑料自封袋。

2、A pouch pack for assembly: 300cmx200cm plastic closed bag.

3、纸箱包装规格：440×380×210 (cm)。

3、Packing specification of carton: 440×380×210 (cm) .

4、每箱数量：依据具体线材等长度不一样所装的数量不一样套。

4、Quantity of each carton: It requires Different loading quantity according to different specific cable length.

① 产品外包装上应标明：供方名称/标志、产品型号规格、内装数量、生产日期/批号和定单号。

① The indication of production outer packing: supplier name/mark、production type specification、loading quantity 、 production date/lot number and order number.

② 装及装箱方案依据客户要求，由双方协商具体细节，以封样为准。

③ Packing and loading plan according to customer demand. The specific details by both sides negotiation. Be as the criterion is sealed sample.

## 11. 其它

### 12. Other

1、本承认书的更改需经双方确认，任何一方单独修改无效。

2、本承认书在客户收到的七个工作日内，必须签章返回，逾期视为默认。

1、This confirmation must be approved by both sides, any one part modification is invalid.

2、After receiving the confirmation in each other, 7 workdays must be signed confirmation, overdue as default agree.

## 12. 售后服务:

### 12. After -sales service

KING-METER 秉承“客户完全满意”的宗旨，为客户提供满意的售后服务，对本公司生产的产品我们承诺提供 12 个月的质保，本公司所有产品为客户免费

提供 1%的修补件，此修补件建议提供给电动车客户或对应的售后网点。

KING-METER take the purpose of “customer completely satisfaction”. We supply satisfactory after sales service. We promise that supplying 12 month quality assurance for our production. All production of our company supply 1% repair parts which was free of charge for customer. The suggestion is that the repair parts supply e-bike customer and corresponding after sales branch.

生产企业在生产过程中损坏的产品如因产品自身品质问题的，请及时和我们联系，我们将及时给您处理有问题的产品，及时给您维修和更换生产过程中出现的不良

Because of oneself quality problem of production which was failed in production process, contact us in time, we will handle the problematic production in time for you, repair and changing rejects in production process for you immediately.

1. 在免费保修期内，若因停产或其他特殊原因无法提供同型号产品的，我司以不低于原产品的同档次新产品更换，如无同档次新产品的，我司将提供更高级新品更换，并无需补差价

注：同档次指技术规格方面，与售价无关，下同

2. Because of stop production or other special reason can not supply the same type production, we will change the same grade new production not lower than primary production. We will supply higher grade new production for changing such as not have the same grade new production, without price issue.

Note: The same grade represents specification, nothing with the price, sample as other below.

3. 在质保期内若损害严重无法维修或该型号配件已停止供货的，我司提供产品更换如无同档次新产品的，我司将提供更高级新品更换，并无需补差价

3. Because of serious failure can not repair or the type of parts have stopped supplying during quality warranty, We will supply higher grade new production for changing such as not have the same grade new production. And without price difference.

4. 超出保修期的产品，根据损害的程度或更换配件等情况收取一定的费用，如无法维修客户可根据情况另行购买同型号或同技术规格的仪表进行更换

以下情况不在保修范围内或是有偿的保修：

4. Expired warranty production, we will receive some cost according to damaging level or changing parts case. According to the case as it unable to repair that customer can purchase same type or specification display for change.

The following case was not at the scope of warranty or for value warranty.

1. 由于暴力装配导致的损坏
2. 外壳损坏划伤的
3. 贴标撕掉的
4. 外壳被打开的
5. 引线脱落、引线断裂及接插件被损坏的
6. 由于不可抗力（如地震等）或自然灾害（如雷击等）造成的故障或损坏
7. 产品超过保修期



1. The damage is caused by force installation.
2. Scratched or damaged housing.
3. Tearing off label.
4. Opened housing.
5. Fall off or fracture of cable and damaged connector.
6. The fault or damages caused by force majeure (such as earthquake etc.) or natural disasters (such as thunder etc.).
7. Expired warranty.

保修不包括以下各项服务：

1. 运输费用
2. 日常检查及调校
3. 产品的安装及拆卸服务
4. 产品外观及附赠件

The following services were not at the scope of warranty:

1. Transportation charges.
2. Daily check and adjustment.
3. Production installation and open packing service.
4. Production appearance and additional parts.