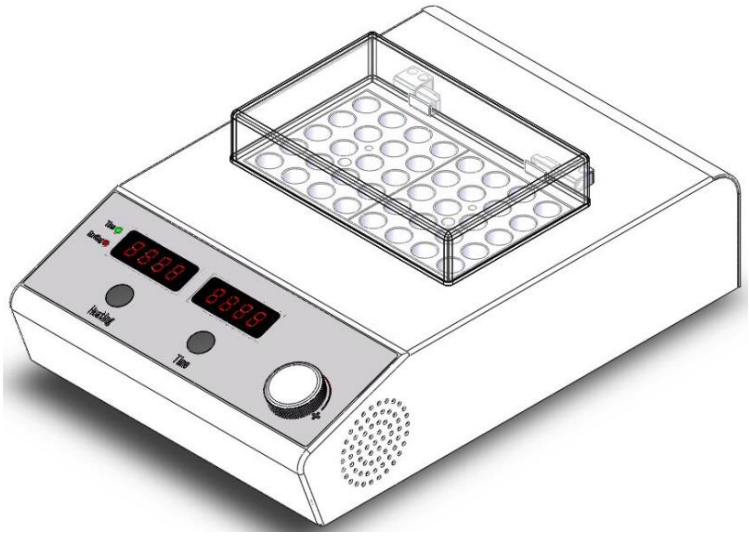
Dry Bath

105℃ Single/Dual Block Dry Bath

150℃ Single/Dual Block Dry Bath



Operating Instructions

Please carefully read the Instructions, and use the product safely under the direction of the Instructions.

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1. Safety notes

Caution!

- Please carefully read the Manual before operating the product, and observe the specifications on safe operation.
- The product can be operated only by one who has been specially trained.

Caution hot!

- Given the possibility of operation at high temperature, please touch the base and the heating module with care. The maximum temperature of the heating module is as high as 105°C. So, the product must be operated with care to avoid scalds.
- After the shutdown of the product, care should be taken not to be scalded by the afterheat on the heating module.

Ground protection for safety!

- For the purpose of safety, please confirm the power socket has been properly grounded before putting the product into service.

- Please make sure that the power voltage meets the voltage requirement specified on the nameplate.
- Please use the product in a broad, well-ventilated place. Don't use it in an outdoor or dangerous environment or in water.
- Before each startup of the product, please confirm that the product and its accessories are undamaged. For the purpose of safety, please use the standard accessories listed in the chapter "Accessories" in accordance with the Manual. Accessories must be firmly connected to the product in a way that avoids separations.
- During the work of the product, please wear proper protective equipment, otherwise danger may be caused under the following circumstances.
  - Heated liquid splashes, vaporizes or releases toxic or flammable gas.
  - The substance in a vessel reacts or the vessel breaks after the heating reaches a certain temperature.

  You need to make clear the possibility of and be held for the dangerous circumstances above by yourself.
- The set temperature should be at least 50°C lower than the fire point of the sample.
- For heating a pathogenic sample, a closed vessel must be used.
- Please prevent water from splashing on the electrical elements of the product.
- The power supply can be fully disconnected only if the power plug is pulled out. Before assembly, disassembly, cleaning or maintenance, the main power plug must be pulled out.

2. Product overview

2.1 Scope of application

The product is intended for heating samples at constant temperature in the environments like school, laboratory and factory. An environment where the product works should meet the following requirements.

- Altitude: ≤2,000m ASL;
- Ambient temperature: 5-40°C;
- Voltage fluctuation: within the range of-10%~+10% of normal value (the product is designed for indoor socket);
- Min. distance between instruments, instrument and wall: 100mm

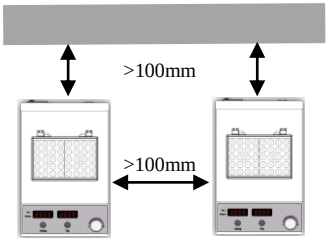


Fig. 2.1

The product is unusable in residential area or under the restrictions specified in Chapter 1.

2.2 Technical parameters

Model	**105℃ Single/Dual Block Dry Bath**	**150℃ Single/Dual Block Dry Bath**
Display	LED	LED
Temperature range [°C]	Room temperature +5~105	Room temperature +5~150
Range of temperature setting [°C]	25~105	25~150
Accuracy of temperature control [°C]	25~90：±0.3 90~105：±0.6	25~90：±0.3 90~150：±0.6
Temperature uniformity at 37°C [°C]	±0.2	±0.2
Heating power [w]	100/200	100/200
Work mode	Timed/continuous	Timed/continuous

Range of time setting	0~99h59min	0~99h59min
External sensor	Supported	Supported
USB interface	Available	Available
Power supply	110/220V, 50/60Hz	110/220V, 50/60Hz
External dimension [mm]	290x210x120	290x210x120
Overall weight [kg]	3.2 (excluding bearing module)	3.2 (excluding bearing module)
Operating temperature [°C]	+10~40	+10~40
Operating humidity [% rHF]	<80	<80

Table 1

2.3 Components

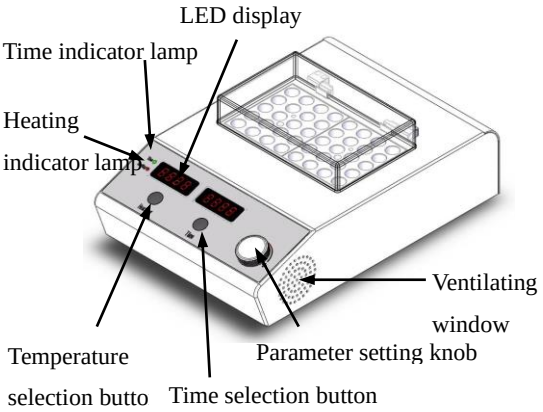


图 2.3.1

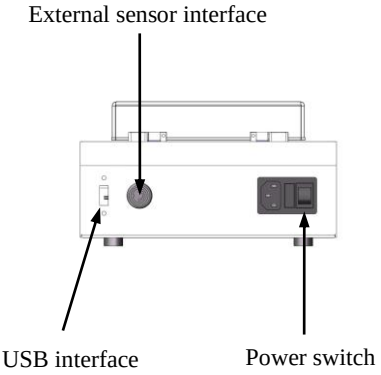


Fig. 2.3.2

Name	**Description**
Power switch	For turning on or turning off the main power supply
Temperature selection button	When this button is pressed, the characters in the temperature setting area of the LED screen will flash, and be adjustable.
Time selection button	When this button is pressed, the characters in the time setting area of the LED screen will flash, and be adjustable. If the time is set as “00:00”, the product will enter the mode of continuous work.
Parameter setting	The parameters can be set by rotating this knob. When this knob is

button	pressed, the entered value will be confirmed. When a parameter is selected, the nixie tube will flash. After 6 times of flashes, the parameter setting function is automatically disabled, and the parameter is no longer adjustable.
LED display screen	When the product is out of service: The left part displays setting temperature, and the right part displays setting time; When the product is in service: The left and right parts display the actual temperature and the actual time, respectively. When the actual temperature falls within the range of set temperature -0.3°C~set temperature + 0.3°C, countdown will start.
Time indicator lamp	When the timing function is enabled, this lamp will go on.
Heating indicator lamp	When the heating function is enabled, this lamp will go on.

Table 2

3. Operating instructions

3.1 Open-package inspection

Open-package inspection aims to confirm the completeness of associated parts. The packing list is given below.

Name	**Qty.**
Main unit	1
Power line	1
USB data cable	1
Handle	1
Operating manual	1

If you find any damage on the package, please specify the damage on the receipt. If you find any internal damage after opening the package, please contact local supplier or manufacturer.

Caution:
If you find any visible damage on the product, please don't connect the product to power supply.

3.2 Operation

- Put the product on a flat table;

Caution:
Don't shield the ventilating window on the back. Keep the product no less than 100mm away from the wall.

- Inspect whether the grid voltage falls within the working voltage range specified on the nameplate;
- Make sure the power socket is well-grounded;
- Inject the sample to be heated into the sampling tube;
- Put the sample into the module;
- Turn on the power supply to enter the step of power-on self-test;
- Set the target heating temperature and enable the heating function;
- Set the time and start the countdown (if no time is set, the product will enter the mode of continuous work);
- Observe the actual temperature displayed on the LCD screen;
- Disable the heating function.

Normal work of the product during the operations above means the product can be put into normal service. If abnormal work occurs, which means the product may be damaged during transport, please contact the after-sales service center of local supplier or manufacturer.

4. Function introduction

4.1 Heating

The system can precisely control the heating temperature, at the same time, it has the function of overheating protection with protection temperature of 185℃.

- In the power-on state, press the temperature selection button, the characters in the temperature display area on the LED screen will flash; adjust the parameter setting knob to the target temperature, and then press the parameter setting knob to confirm the input value.
- When the heating function is enabled, the actual temperature will display in the temperature display area of the LCD screen.
- Press the parameter setting knob to enable/disable the heating function.

When the product is enabled, the temperature in the setting area is the setting temperature at the time of the last shutdown.

In common service, there may be difference between the set displayed value of the heating temperature and the following actual temperature:

- Different positions of the heating modules
- Container and the samples in it

These differences are caused as heat transfer characteristic.

4.2 Timing

The product can run continuously, or run in a timing mode.

How to set:

- In the power-on state, press the time selection button, the characters in the time display area on the LED screen will flash; adjust the parameter setting knob to the target time, and then press the parameter setting knob to confirm the input value.
- When the timing function is enabled, the time is displayed on the right part of the LCD screen.
- After the timing is over, the product will stop heating.
- If the timing is not set, it runs in continuous work mode.
- If you need to reset the time during the heating process, press the parameter setting knob to disable the heating function, reset the time and then re-enable the heating.

4.3 USB interface

The product is equipped with USB data interface, and accompanied with USB data cable. The user can customize the software and connect the computer via the USB interface to control the product, record or print the heating data.

5. Cleaning and maintenance

Operate and maintain the product properly, so that it is in a good working state, which can extend the service life of the product. In routine service, keep the product dry and clean, remove the spilled liquid quickly, clean the outer surface with a non-grinding cleaner, and do not connect the power supply until all surfaces are dry. If liquid or moist solid enters the product, please disconnect the power supply quickly and leave off, and contact the manufacturer / supplier for more advice.

- Keep the product clean, and the cleaning solution is not allowed to flow into the machine.
- Power must be disconnected before maintenance and cleaning, and please use our recommended methods to clean the product. The method to clean:

Dye	Isopropanol
Building materials	Aqueous solution / isopropanol with active agent
Cosmetic	Aqueous solution / isopropanol with active agent
Food	Aqueous solution with active agent
Fuel oil	Aqueous solution with active agent

- You can consult the manufacturer about the materials that are not listed in the above table. Before using other cleaning methods, the user must confirm with the manufacturer / supplier that the method will not damage the instrument. When cleaning the product, please wear suitable protective gloves.

Cautions:

- The electronic device cannot be cleaned with detergent.
- Make sure that the power is off and the power line is unplugged before cleaning! Do not spill water on the components!
- The instrument to be repaired must be cleaned while the contamination of hazardous substances must be avoided, and the instrument must be put back to the original packaging box for

	sending. • When the product is not used for a long time, please store the product with power off and place it in a dry, clean and smooth place in normal temperature.

Please refer to *Service Manual* for details on machine maintenance.

6. Fault diagnosis

The advanced production technology and testing method are used for this product and a rigorous testing is conducted for each instrument before delivery, so that this product has good reliability. In service, the common failures are generally caused by improper operation or setting. If there are faults that cannot be handled, please record the fault phenomenon and notify the local dealer, or contact us directly.

The common phenomena of this instrument in the application are shown as follows:

Fault phenomena	**Reason analysis**	**Solutions**
No display when starting up	The power is not connected.	Check the power line connection
	The fuse is burnt up	Change the fuse.
	Display screen failure	Return to depot for repair.
The power-on self-test of the product is abnormal		Turn off the instrument and restart it
The module is not heated	The setting temperature is lower than the room temperature	Check the setting temperature
	The heating switch is not enabled.	Press the parameter knob to start heating
	Heating circuit failure	Return to depot for repair.
The module or sample temperature does not match	Not in heating mode	Set to heating mode
	The instrument is placed in	Move the product to a

the displayed value.	a poorly ventilated position.	well-ventilated position
	The thermometer for temperature measurement is not accurate	Check the thermometer accuracy
	The thermometer is in poor contact with the module.	Adjust the measurement position of the thermometer
Error **1**	Overheating caused by the heating circuit failure	Return to depot for repair.
The displayed temperature exceeds the set value.	It is a normal phenomenon. The displayed temperature may exceed the set value in the initial heating stage, but the module and the sample will not be overheated.	

Product certification

It has certified that the product meets applicable national product standards and industrial product standards of China as well as ISO9001 standards, and further certified that the product meets applicable standards published by other members of the ISO.

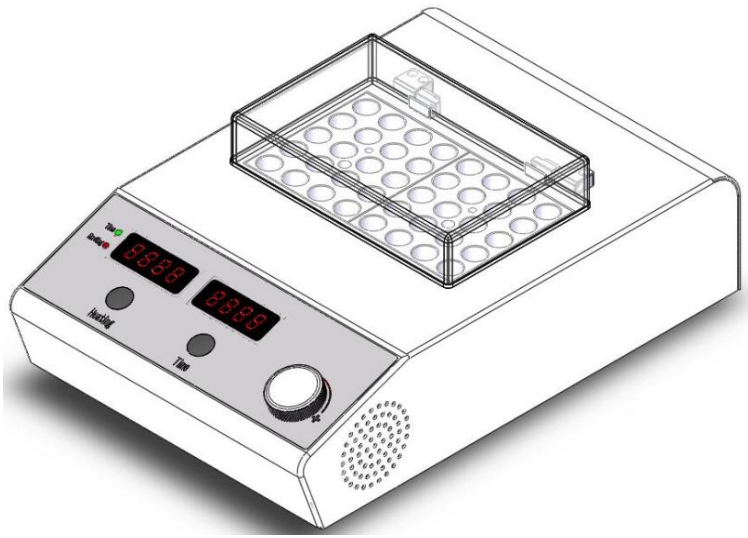
Warranty

According to the manufacturer's warranty clause, the warranty period of the product is 24 months provided that it is used by the normal operation method under the normal service conditions specified in the Manual. If a problem covered by the manufacturer's warranty clause occurs, please contact local supplier. Or, you can directly mail the product to the manufacturer with the packing list and a problem description attached. You need to bear the transportation expense incurred by such mailing.

金属浴

105 度单/双模块金属浴

150 度单/双模块金属浴



使用说明书

请仔细阅读说明书并在说明书的操作指导下安全使用本仪器。

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1. 安全事项

警告!

- 操作仪器前请认真阅读本说明书并遵守安全操作规范。
- 经过专业培训的人员才能操作本仪器。

小心烫伤!

- 由于可能在高温操作，触摸仪器底座和加热模块时请注意：本仪器加热模块的最高温度为 105°C， 因此，必须小心操作，以免烫伤。
- 仪器关闭后加热模块表面会有余温，避免烫伤。

安全接地保护!

- 为保证安全，使用本仪器前请确认电源插座已良好接地。

- 请确保使用电源电压跟铭牌要求的一致。
- 请把仪器置于宽敞通风的区域内使用，请勿在室外、危险环境及水中运行。
- 每次开启仪器之前请确认仪器及其配件未损坏。请使用“配件”章节中列出的标准配件，并依照说明书使用配件，以确保安全。配件务必牢固的连接在仪器上，避免脱离。
- 工作时，请穿戴合适的防护设备，否则可能由于以下事项引发危险：
  - 加热液体溅出和蒸汽，或释放出的有毒、易燃气体
  - 当加热到一定温度时，容器里的物质发生反应或容器破裂

  对于以上的潜在危险可能性需要用户自己判断，自行承担责任。
- 设置温度必须低于样品燃点 50°C。
- 加热致病样品时，必须使用密闭的容器。
- 请勿将水溅到电器元件上。
- 仪器只能通过拔掉电源插头才能完全断电，因此，在进行装卸配件、清洁和维护前必须先把主电源插头拔下。

2. 产品概述

2.1 使用范围

本仪器是为学校、实验室和工厂等应用环境设计的，用于对样品进行恒温加热，供以下环境使用：

- 海拔不超过 2000 米
- 环境温度在 5℃到 40℃
- 安装类型：产品是为了连接室内插座而设计的，电压波动不超过正常值的±10%.
- 仪器间、仪器与墙壁的最小距离 100mm.

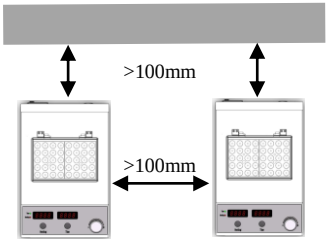

图 2.1

本仪器不适合在住宅区以及第 1 章中规定的一些限制条件下应用。

2.2 技术参数

型号	**105 度单/双模块金属浴**	**150 度单/双模块金属浴**
显示	LED	LED
温度范围[°C]	室温+5~105	室温+5~150
温度设定范围[°C]	25~105	25~150
温度控制精度[°C]	25~90：±0.3 90~105：±0.6	25~90：±0.3 90~150：±0.6
37℃时温度均一性[°C]	±0.2	±0.2
加热功率[w]	100/200	100/200
工作方式	定时/持续运行	定时/持续运行
时间设定范围	0~99h59min	0~99h59min
外置传感器	支持	支持
USB 接口	有	有
电源	110/220V, 50/60Hz	110/220V, 50/60Hz
外形尺寸[mm]	290x210x120	290x210x120
整机重量[kg]	3.2（不含承载模块）	3.2（不含承载模块）
工作温度[°C]	+10~40	+10~40
工作湿度[% rHF]	<80	<80

表 1

2.3 结构配置

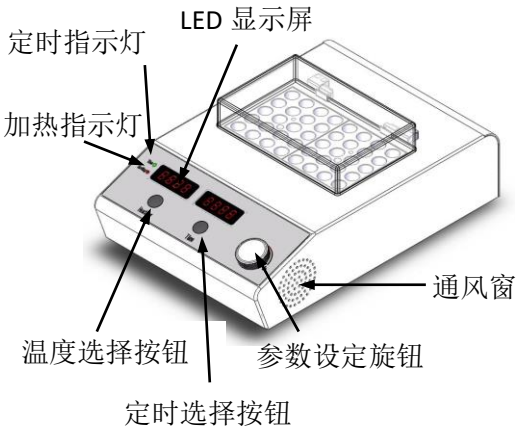

图 2.3.1

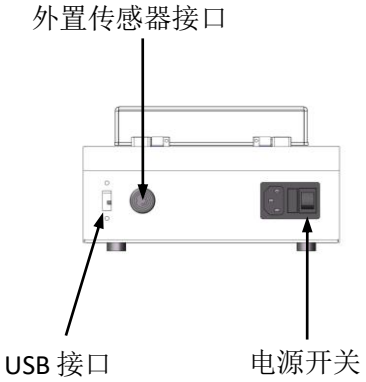

图 2.3.2

名称	说明
电源开关	打开/关闭仪器主电源
温度选择按钮	按下该按钮，LED 屏幕的温度设定区字符闪烁，可进行温度设定。
定时选择按钮	按下该按钮，LED 屏幕的时间设定区字符闪烁，可进行时间设定。如果时间设定为 00:00，则为持续工作模式。
参数设定按钮	通过旋转该旋钮，可进行参数设定；按下旋钮，确定输入；选中参数后数码管闪烁，闪烁 6 次后，自动锁定不能再进行调节。
LED 显示屏	未运行时：左侧显示设置温度，右侧显示设置时间； 运行时：左侧显示实际温度，右侧显示实际时间；当实际温度达到设置温度±0.3 度时，时间开始倒计时。
定时指示灯	开启定时功能，时间指示灯亮
加热指示灯	开启加热功能，加热指示灯亮

表 2

3. 操作说明

3.1 开箱检查

开箱检查确认随机配件都在，装箱清单如下：

名称	数量
主机	1 台
电源线	1 根
USB 数据线	1 根
提手	1 个
使用说明书	1 本

用户如发现任何包装损伤，请在收据上注明。在打开包装后如果发现任何内部损伤，请同时与当地供货商或制造商取得联系。

注意：
如发现仪器上有任何明显的损伤，请不要将其连接到电源。

3.2 操作

- 把机器放在平整台面上

注意：
不要把机器后面的散热通风窗堵住，确保机器与墙面距离不小于100mm！

- 检查铭牌上指定的工作电压与电网电压是否匹配
- 电源插座要求接地良好
- 样品管中注入待加热样品
- 把样品放到仪器模块里
- 打开电源，进行开机自检
- 设置目标加热温度并启动加热
- 设定定时时间，并启动。如不设定，则为连续工作模式。
- 观察液晶屏上显示的实际温度情况
- 关闭加热功能

如果上述操作运行正常，说明仪器可以开始正式使用。如果运行不正常，仪器可能已经在运输过程中损坏，请与制造商/供货商售后服务中心取得联系。

4. 功能介绍

4.1 加热功能

系统可精确控制加热温度，同时具有过温保护功能，保护温度 185℃。

- 开机状态下，按下温度选择按钮，LED 屏幕的温度显示区字符闪动，调节参数设定旋钮到目标温度，按下参数设定旋钮，确定输入值。
- 加热功能开启时，液晶屏的温度显示区显示温度实际值。
- 按下参数设定旋钮开启/关闭加热功能。

仪器开启时设置区的温度为上次关机时的设置温度。

在常用情况下，设置的加热温度显示值与以下实际温度可能有差异：

- 加热模块的不同位置
- 容器与容器中的样品

这些差异存在是由于热传导特性造成的。

4.2 定时功能

仪器可连续运转，也可以采用定时工作模式。

设定方式：

- 开机状态下，按下时间选择按钮，LED 屏幕的时间显示区字符闪动，调节参数设定旋钮到目标时间，按下参数设定旋钮，确定输入值。
- 定时功能开启时，液晶屏的右侧显示定时时间。
- 定时时间结束后，仪器停止加热。
- 如果不设定定时时间，则为连续工作模式。
- 若在加热过程中，需要重设定时时间，需要先按参数设置旋钮关闭加热功能，重置定时时间后再重启加热。

4.3 USB 接口

仪器配置有 USB 数据接口，同时随机附带 USB 数据线，用户可自定义软件通过 USB 接口连接电脑对仪器进行控制、对加热数据进行记录或打印。

5. 清洗维护

正确地使用和维护仪器，使其处于良好的工作状态，可以延长仪器的使用寿命。常规工作中请保持仪器干燥与洁净，迅速除去溢出液体，使用非研磨清洁器清理外表面，在所有表面干燥之前请不要连接电源。如果液体或者潮湿固体进入仪器内部，请迅速断开电源不再使用，联系制造商/供货商获得更多建议。

- 保持仪器整洁，切勿使清洗溶液流入机内。
- 维护和清理之前必须断电，请使用我们推荐的方法清理仪器。祛除方法：

染料	异丙醇
建筑材料	含活性剂的水溶液/异丙醇
化妆品	含活性剂的水溶液/异丙醇
食物	含活性剂的水溶液
燃油	含活性剂的水溶液

- 上表没有列出的材料，可以咨询制造商。在采用其他清理方法之前，用户必须与制造商/供货商确认该方法不会损坏仪器。清理仪器时，请戴上合适的防护手套。

注意：

- 电子设备不能用清洁剂清理。
- 确认关闭电源并拔掉电源线后再清洁！请勿将水溅到元器件上！
- 送修仪器必须清理，同时避免危险物质的污染，并把仪器放回原始包装箱发送。
- 当产品长期不用时，请将仪器断电存放，并置于干燥、洁净、常温、平稳处。

机器维护详情请参照《服务手册》

6. 故障诊断

该仪器采用了先进的生产工艺和测试手段，每一台在出厂前都进行了严格的测试，具有良好的可靠性。在使用过程中，常见的故障一般是操作或设置不当引起的。若发现无法处理的故障，请记录故障现象并通知当地代理经销商，也可直接与我们联系。

以下是该仪器在应用中的常见现象：

故障现象	**原因分析**	**处理措施**
开机不显示	未接通电源	检查电源线连接
	保险管烧毁	更换保险管
	显示屏故障	返厂维修
仪器开机自检不正常		关闭仪器，重新启动
模块不加热	设置温度低于室温	检查设置温度
	未开加热开关	按参数旋钮开始加热
	加热回路故障	返厂维修
模块或样品温度与显示不符	未在加热模式	设置到加热模式
	仪器放置位置通风不畅	将仪器移至通风良好的位置
	测温使用温度计不准	检查温度计准确度
	温度计与模块接触不良	调整温度计测量位置
Error **1**	加热回路故障造成过温	返厂维修
显示温度超过设定值	正常现象，初始加热阶段显示温度可能会超过设定值，但模块和样品不会过温	

产品认证

本产品符合中国国家产品标准和行业产品标准及 ISO9001 标准，并进一步认证本产品符合其他国际标准组织成员的相关标准。

质量保证

根据制造商的质量保证条款，在本说明书规定的正常使用环境和操作方法下使用该仪器时，该仪器的保修期为 24 个月，如出现质保条款中的相关问题，请联系当地供货商。您也可以直接把仪器邮递至制造商，请附寄装箱单和问题现象描述说明，发生的运输费用由您承担。