Dry Bath

Contents

Preface

Welcome to the "Dry Bath User Manual ". Users should read this Manual carefully, follow the instructions and procedures, and be aware of all the cautions when using this instrument.

Service

When help needed, you can always contact the Service Department of manufacturer for technical support in the following ways:

Please provide the customer care representative with the following information：
• Serial number（on the rear panel）
• Certification
• Description of problem (i.e., hardware or software)
• Methods and procedures adopted to resolve the problems
• Your contact information

Warranty

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This instrument is warranted to be free from defects in materials and workmanship under normal use and service, for a period of 24 months from the date of invoice. The

warranty is extended only to the original purchaser. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.

For claims under the warranty please contact your local supplier. You may also send the instrument directly to manufacturer, enclosing the invoice copy and by giving reasons for the claim

1. Safety Instructions

⚠	**Warning!** • Read the operating instructions carefully before use. • Ensure that only trained staff works with the instrument.
🔥	**Risk of burn!** • Caution when touch the housing parts and the dry bath which can reach temperature of 120°C. • Pay attention to the residual heat after switching off.
⏚	**Protective ground contact!** • Make sure that socket must be grounded (protective ground contact) before use.

• When working wear personal safety guards to avoid the risk from:
  - Splashing and evaporation of liquids
  - Release of toxic or combustible gases

• Set up the instrument in a spacious are on a stable, clean, non-slip, dry and fireproof surface. Do not operate the instrument in explosive atmospheres, with hazardous substances or under water.

• Temperature must always be set at least 50°C lower than the fire point of the media used.

• Be aware of hazards due to:
  - Flammable materials or media with a low boiling temperature
  - Overfilling of media
  - Unsafe container

• Process pathogenic materials only in closed vessels.

• Check the instrument and accessories prior to each use.

• Do not use damaged components. Safe operation is only guaranteed with the accessories provided by the manufacturer. Accessories must be securely attached to the device and can't come off by themselves. Always disconnect the plug before fitting accessories.

• The instrument can only be disconnected from the main power supply by pulling out the main or the connector plug.

• The voltage stated on the label must correspond to the main power supply.

• Ensure that the main power supply cable does not touch the dry bath. Do not cover the device.

• The instrument may only be opened by experts.

2. Proper Use

The instrument is designed for heating liquids in schools, laboratories or factories.

• Observe the minimum distances between the devices, between the device and the wall and above the assembly (min. 100 mm)

>100mm
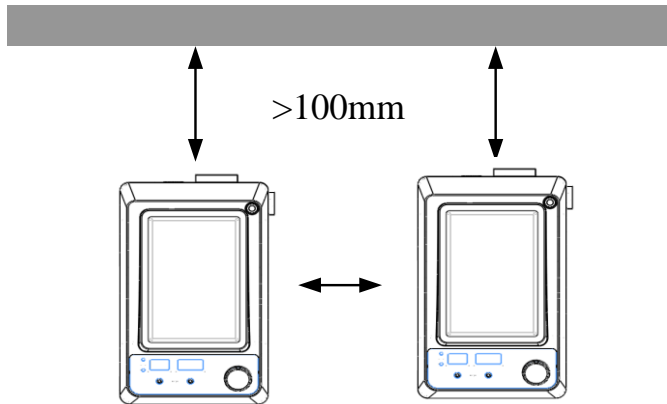
Figure 1

This device is not suitable for using in residential areas or other constraints mentioned in Chapter 1.

3. Inspection

3.1 Receiving Inspection

Unpack the equipment carefully and check for any damages which may have arisen during transport. Please contact manufacturer/supplier for technical support.

| ⚠ | **Note:** If there is any apparent damage to the system, please do not plug it into the power line. |

3.2 Listing of Items

The package includes the following items:

Items	Qty
Main unit	1
Power cable	1
User Manual	1

Table 1

4. Control

4.1 Control elements
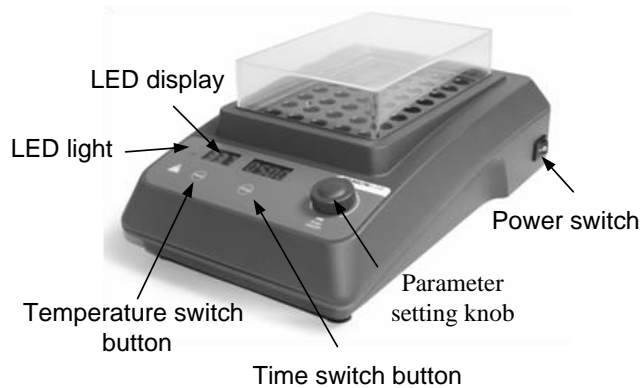
Figure 2 Dry bath

Items	Descriptions
Temperature switch button	Press the button, can set the target temperature
Time switch button	Press the button, can set the target time
LED Display	LED displays the real working state and all settings.
LED Light	The LED light shows green when the parameter is set
Parameter setting knob	Rotate the knob to set the target parameters, press the knob to turn on the settings.
Power Switch	Switch ON or OFF the instrument.

Table 2

4.2 Display

Temperature display area   Time display area

Figure 6 Digital hotplate model

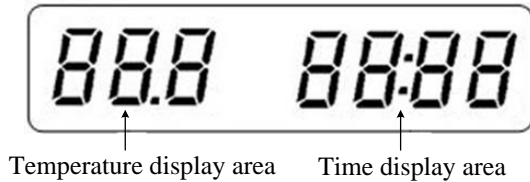| Characters	Descriptions
Temperature display area	Press the temperature switch button, the characters in temperature display area will be flashing, and then rotate the parameter setting knob to set the target temperature, press the parameter setting knob to turn on the setting. When the heating function is switched ON, the LED temperature light will turn green, and the temperature display area displays the temperature real value until real temperature reaches the set point.
Time display area	Press the time switch button, the characters in time display area will be flashing, and then rotate the parameter setting knob to set the target time, press the parameter setting knob to turn on the setting. The LED time light will turn green, then start countdown.

Table 3

5. Trial Run

• Make sure the required operating voltage and power supply voltage match.
• Ensure the socket must be properly grounded.
• Add the medium into the vessel
• Place vessel on the work plate.
• Plug in the power cable，ensure the power is on and begin initializing.
• Set the target temperature and begin.
• Set the time, if not, the machine will work continuously
• Observe the LED display
• Stop the heating and stirring functions.

If these operations above are normal, the device is ready to operate. If not, the device may be damaged during transportation, please contact manufacturer/supplier for technical support

6.   Function: Heating

The device is controlled by digital temperature control technology, and it has a over temperature protection, the safety temperature is 140℃

Press the temperature switch button, the characters in temperature display area will be flashing, and then rotate the parameter setting knob to set the target temperature, press the parameter setting knob to turn on the setting.

Note:

- Set the temperature via rotating the parameter setting knob slowly to the target value.

- When the heating function is switched on, the LED displays the temperature value on the left-hand side.

- The heating function is switched on or off by pushing heating knob.

The instrument automatically displays the last running speed and temperature parameters once turned on.

Generally, the LED screen cannot display the actual temperature of sample in the vessel or dry bath surface, temperature differences as following:

- Dry bath center and outer edge.
- The sample in the vessel and dry bath surface.

7.   Function: Timing

The device can work in accordance with the timing mode or continuous operation mode.

Timing Mode: Press the time switch button, the characters in time display area will be flashing, and then rotate the parameter setting knob to set the target time, press the parameter setting knob to turn on the setting.

During operation, motion can be stopped at any time by pressing the speed/timer control knob. If the knob is pressed again, motion will start again and the timer will restart countdown. When the timer reaches zero, the unit will be automatically halted.

Continuous Mode: Press the time switch button, the characters in time display area will be flashing, make sure the setting time is zero, press the parameter setting knob to turn on the continuous operation mode.

8. Faults

- Instruments can't be power ON
    - Check whether the power line is unplugged
    - Check whether the fuse is broken or loose
- Fault in power on self test
    - Switch OFF the unit, then switch ON and reset the instruments to factory default setting.

If these faults are not resolved, please contact manufacturer/supplier.

9. Maintenance and Cleaning

- Proper maintenance can keep instruments working properly and lengthen its lifetime.
- Do not spray cleanser into the instrument when cleaning.
- Unplug the power line when cleaning.
- Only use recommended cleansers:

Dyes	Isopropyl alcohol
Construction materials	Water containing tenside / Isopropyl alcohol
Cosmetics	Water containing tenside / Isopropyl alcohol
Foodstuffs	Water containing tenside
Fuels	Water containing tenside

- Before using other method for cleaning or decontamination, the user must ascertain with the manufacturer that this method will not harm the instrument. Wear the proper protective gloves during cleaning of the instrument.

⚠️ **Note:**
- Electronic device can not clean with cleanser.
- If you require maintenance service, must be cleaned the instrument in advance to avoid pollution of hazardous substances, and to send back into original packing.
- If the instrument will not use for a long time, please switch off and place in a dry, clean, room temperature and stable location.

10. Associated Standards and Regulations

Construction in accordance with the following safety standards:
EN 61010-1
UL 3101-1
CAN/CSA C22.2(1010-1)
EN 61010-2-10
Construction in accordance with the following EMC standards:
EN 61326-1
Associated EU guidelines:
EMC-guidelines: 2004/108/EC
Instrument guidelines: 73/023/EWG

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

11. Specifications

Items	Specifications
Voltage [VAC]	100~120/200~240
Frequency [Hz]	50/60
Power [W]	160
Dimension of blocks[mm]	150×95
Heating temperature range	Room temp. +5° - 120 °C
Temperature display	LED
Control accuracy	±0.5°C
Safety temperature	140 °C
Timer	yes
Time setting range	1 -99h59min
Operation type	Continuous/ timed operation
Dimensions[W×D×H mm]	175×290×85
Weight[kg]	1.6（without heating block）
Permissible ambient temperature	5 - 40 °C
Permissible relative humidity	80%
Protection class according to DIN EN 60529	IP 21

Table 4

12. Ordering Information

Cat No.	Descriptions
521111010000	the dry bath, LED digital dry bath, USA plug, 100-120V, 50Hz/60Hz
521111120000	the dry bath, LED digital dry bath,, Cn plug, 200-240V, 50Hz/60Hz
521111220000	the dry bath, LED digital dry bath,, Euro plug, 200-240V, 50Hz/60Hz
521111320000	the dry bath, LED digital dry bath,, UK plug, 200-240V, 50Hz/60Hz

Table 5

金属浴

120 度金属浴

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。

外形和性能指标如有变动，概不另行通知。

目录

前言

欢迎使用《 LED 数显加热款金属浴使用说明书》。用户在使用本仪器前应仔细阅读本说明书，按说明书指导进行操作，并了解各种注意事项。

如何获取帮助

如果您在安装和使用的过程中遇到任何问题或需要帮助，请及时与制造商/供货商的售后服务部门取得联系，制造商的联系方法如下：

请您准备以下资料：

- 产品序列号（仪器铭牌上）
- 质保卡
- 问题现象的描述
- 您为了解决问题所采取的方法及操作步骤
- 您的电话、传真和 Email 地址等联络方式

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条件和操作方法下使用该仪器时，该仪器的保修期为 24 个月（自购买之日起）。由于错误安装与操作、私自拆卸与维修以及其他违反说明书中规定的操作条款造成的仪器性能下降和损坏，不能按照本质量保证进行维修。如出现质保条款中的相关问题，请联系制造商/供货商。

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！ • 当触摸仪器底座和加热盘时请注意，本仪器加热盘的最高温度为 120℃。 • 仪器关闭后加热盘会有余温，请避免烫伤。
	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。

• 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：
  - 释放出的有毒、易燃气体
• 请把仪器置于宽敞通风的区域内使用，并确保工作台面平稳、干净、防滑、干燥及防火。请勿在室外、危险物质环境及水中运行本仪器。
• 设置温度必须低于样品燃点 50℃。
• 注意避免进行以下危险操作：
  - 沸点低的易燃样品
  - 搅拌样品过量灌装
  - 使用不安全的容器
• 加热致病样品时，必须使用密闭的容器。
• 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。在装卸配件之前请先断电。
• 仪器只能通过拔掉电源插头才能完全断电。
• 请确保使用电源电压跟铭牌要求的一致。
• 确保电源线远离加热盘，不要遮盖仪器。
• 只有经过专业训练的人员才能打开本仪器。

2. 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，用于对液体进行加热，供以下环境使用：

- 海拔不超过 2000 米
- 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为 100mm。

图 1

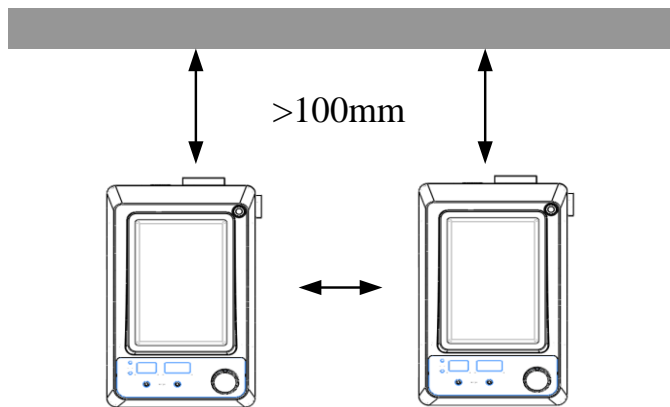本仪器不适合在住宅区以及第 1 章中规定的一些限制条件下应用。

3. 检查

3.1 开箱检查

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，请联系制造商/供货商。

⚠ **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 装箱清单

名称	数量
主机	1 台
电缆	1 根
使用说明书	1 本

表 1

4. 控制与显示

4.1 控制

图 2 数显加热型

LED显示屏
LED指示灯
温度选择按钮
时间选择按钮
电源开关
参数设定旋钮

名称	说明
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
时间选择按钮	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。
LED 显示屏	液晶显示屏显示仪器当前工作状态及各项设置
LED 指示灯	指示灯分时间指示灯和加热指示灯。当开启定时功能和加热功能，两个指示灯均点亮。当连续工作模式下，开启加热功能，加热指示灯点亮。
参数设定旋钮	通过旋转该旋钮，可进行参数设定。按下旋钮，确定输入
电源开关	打开、关闭仪器主电源

表 2

4.2 显示

温度显示区域　　　时间显示区域

图 2 数显加热型

显示	说明
温度显示区	加热功能开启后，按下温度选择按钮时，LED 显示屏显示实际温度，最终达到设定温度。
时间显示区	开启定时功能后，LED 显示屏显示时间倒计时。 如果时间设定为 00:00 的情况下，按下时间调整旋钮，默认为持续加热模式。

表 3

5. 操作

- 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。

6. 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 140℃。

- 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。

7. 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。

8. 故障诊断

- 打开电源仪器不启动
  - 请检查电源线是否连接牢靠
- 仪器开机自检不正常
  - 请关闭仪器，重新启动。

如果故障没有排除，请联系制造商/供货商。

9. 维护和清理

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。
• 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。

10. 相关标准

仪器结构符合以下安全标准

EN 61010-1

UL 3101-1

CAN/CSA C22.2(1010-1)

EN 61010-2-10

仪器结构符合以下电磁兼容标准

EN 61326-1

符合以下欧盟标准

EMC 标准： 2004/108/EC

机械设计标准：73/023/EWG

11.技术参数

项目	技术参数
电压[VAC]	200~240
频率 [Hz]	50/60
功率[W]	160
加热模块尺寸[mm]	150×95
加热温度	室温 +5° - 120 ℃
温度显示	LED
控温精度	±0.5℃
安全温度	140 ℃
定时功能	有
时间设定范围	1min -99h59min
工作方式	定时/持续运行
尺寸[WXDXH mm]	175X290X85
重量[kg]	1.6(不带加热块）
允许环境温度[℃]	5 - 40
允许相对湿度	80%
DIN EN 60529 保护等级	IP 21

表 4

12.订货信息

产品编号	描述
521111120000	金属浴, LED 数显加热款金属浴，国标，200-240V, 50Hz/60Hz