

# Introduction

Thank you for purchasing Qmini BVG-1100 Nucleic Acid Extractor. Before using the instrument, please read this user guide carefully in order to use the product correctly. Please place this manual nearby the instrument for a timely reading if necessary

Product: Qmini BVG-1100 Nucleic Acid Extractor

Model: BVG-1100

## Version Information

This manual may be updated without further notice.

Version: 1.0

Issue date: 01.2023

## Statement

Bioguard does not make any form of guarantee for this information, including (but not limited to) the implied guarantee of merchantability or fitness for a specific purpose.

Bioguard is only responsible for the safety, reliability and performance of the instrument under the following circumstances:

- ◆ The instrument is assembled, upgraded, or maintained by authorized personnel.
- ◆ Relevant electrical equipment complies with national standards.
- ◆ Product is used in accordance with this instruction manual.

Bioguard cannot and does not assume responsibility for the safety, reliability, and performance of the instrument under the following circumstances:

- ◆ Parts are disassembled and readjusted.
- ◆ The user manual was not followed for correct operation.

# Warranty and Maintenance

The warranty period of the product is 1 year and 1 year warranty for major accessories. The warranty period starts from the "installation date" filled in on the "Equipment Warranty Card" attached to the product, and the "Equipment Warranty Card" is the only certificate for calculating the warranty period. To protect your rights, please ask the installer to return the second copy of the "Equipment Warranty Card" to our company within 30 days from the date of installation. If the "Equipment Warranty Card" corresponding to the product you purchased fails to return to the company on time, the warranty period will start on the 45th day from the "delivery date" marked on the equipment box.

During the warranty period, the product can enjoy free after-sales service. However, if the product is in the following circumstances, which is not covered by the warranty, the consumer may need to pay the full amount of maintenance costs.

- ◆ Damage caused by human factors
- ◆ Improper operation
- ◆ The grid voltage exceeds the specified range of this instrument.
- ◆ Natural disasters
- ◆ Replacement or use of parts, accessories, and consumables not approved by Bioguard, or maintenance by a party not authorized by Bioguard
- ◆ Other failures not caused by the product itself
- ◆ After the warranty period expires, Bioguard can continue to provide maintenance services at a charge. If you do not pay or delay the payment of the maintenance service fee, the company will temporarily suspend the maintenance service until payment is made.

# Technical Support

If technical support is needed, please contact your local distributor, or contact the customer service department of Bioguard.





Please provide the following information for the technical support:

- ◆ Type of malfunction
- ◆ Product model and serial number








# Safety Notice

## Warning messages

The terms "danger", "warning", "caution", and "attention" used in the manual indicate hazards and remind users to pay attention to the process of operation according to the degree of hazards. A hazard is a source of potential harm or adverse effects to the environment or user.

	Attention	Provide users with useful information and tips to ensure maximum performance of this product.
	Caution	Refers to a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	Warning	Refers to a hazardous situation which, if not avoided, could result in death or serious injury.
	Danger	Refers to an immediate hazard which, if not avoided, will result in death or serious injury.

## Safety Information

	Caution	The instrument must be used with special consumables.
	Caution	Do not interfere the operation of the instrument or move the stationary parts of the instrument during operation.
	Warning	Use a reliable, grounded power outlet.
	Warning	Without the manufacturer's permission or written authorization, the user should not disassemble, modify, or use various accessories that do not comply with the manufacturer's regulations.
	Warning	Before cleaning or disinfecting the instrument, the instrument must be turned off and the power cord must be unplugged.
	Warning	Do not disassemble the instrument to prevent electric shock.
	Attention	Please read the instructions carefully before use.

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# Chapter 1 System Introduction

This manual provides general information and operating instructions for the nucleic acid extractor.

## 1.1 Introduction

Qmini BVG-1100 Nucleic Acid Extractor is an automated nucleic acid extraction equipment used for sample pretreatment for PCR detection.

## 1.2 Product features

**Fast extraction:** 2 samples can be processed at the same time, in as little as 8 minutes.

**Safe and reliable:** The instrument runs automatically without manual operations. Reagent and magnetic cover are clearly marked for easy identification to ensure proper usage and to avoid leakage, ensuring high reliability in the test.

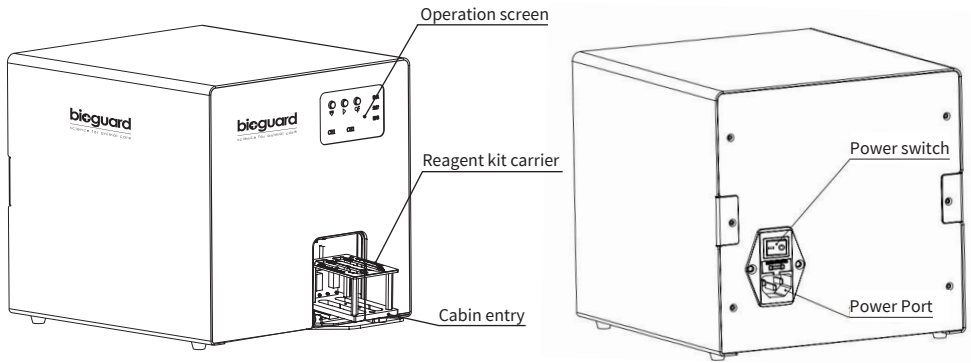
**Contamination control:** Small and closed extraction chamber design with built-in ultraviolet light can effectively remove potential nucleic acid contamination.

**User-friendly:** Built-in operation program with one-button start.

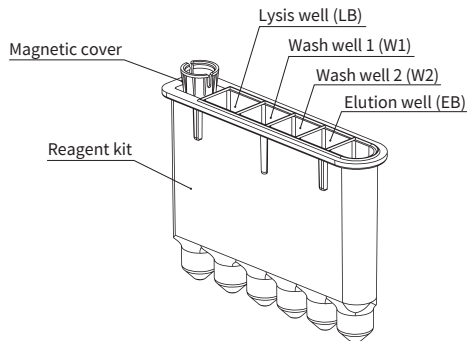
# Chapter 2 Instrument Introduction

## 2.1 Components

Qmini BVG-1100 is a 2-channel fully automatic nucleic acid extractor, which needs to be equipped with special consumables (reagent kit and magnetic cover) for operation.



▲ Fig 1 Appearance of Qmini BVG-1100 Nucleic Acid Extractor



▲ Fig. 2 Qmini BVG-1100 Diagram of dedicated consumables

The magnetic cover is placed in the position as shown on the kit. The instrument can automatically grasp it before the extraction starts and automatically return it to the original position after the extraction is completed. The reagents are preset in the kit and the sample is added to the lysis well before extraction.

## 2.2 Specifications

Methodology: Magnetic bead

### Specifications

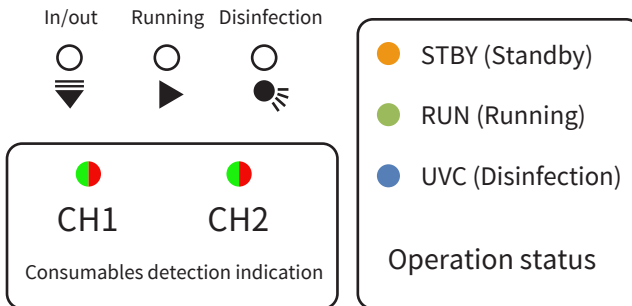
Dimensions: 226\*207\*205 mm  
 Weight: 3.7 Kg  
 Power supply: AC 110V/220V 50/60HZ  
 Storage: Keep away from moisture  
 Difference between channels :  $CV \leq 5\%$

### Operation environment

Temperature: 10°C - 40°C  
 Relative moisture: 10% - 90%RH  
 Altitude: 2000 meters  
 Noise: <70dB  
 Magnetic bead recovery : >92%  
 Extraction time : <8min  
 Oscillation : 3HZ  
 Contamination control : UV sterilization

## 2.3 Operation screen

Please refer to the figure below for the key functions and indicators on the operation screen.



▲ Fig. 3 Operation screen

### 2.3.1 Indicator lights

#### Consumables detection indication:

The indicator light has three states: off, red, and green.

Off: Unloaded

Red: Kit detected

Green : Magnetic cover detected

#### Operating status indication :

Standby: Yellow light flashes

Running: Green light on

Disinfection: Blue light on

## 2.3.2 Key function description

**In/out:** Control the reagent kit carrier between the out-of-cabin and in-cabin state. Controlled exit is only valid in the standby state of the instrument and is invalid in the running or disinfection state.

**Running:** Control the operation of the extractor. Press to start the extraction program. It is only valid when the reagent kit is in the cabin and the instrument is in the standby state. It is invalid during the running or disinfection state of the instrument. Long press to forcibly stop the operation.

**Disinfection:** Turn the UV sterilization on or off. Press to turn on the UV. It is only valid when the reagent kit is in the cabin and the instrument is in the standby state. It is invalid in the running state. Press it again to turn off the UV manually, or it will automatically turn off after 15 minutes.

# Chapter 3 Getting Started

## 3.1 Packaging contents

When you receive our Qmini BVG-1100 Nucleic acid extractor, please check that it includes the following items. If you find any missing or damaged items, please contact the distributor or sales representative.

1.	Qmini BVG-1100 Nucleic Acid Extractor	1
2.	Power cord	1
3.	Universal adapter	1
4.	User manual	1
5.	Product warranty	1
6.	Certificate	1
7.	Extraction kit holder	1
8.	PCR rack	1
9.	List of packaging contents	1

## 3.2 Operating environment

1. Temperature: 10°C - 40°C
2. Relative humidity: 10% - 90%
3. This instrument should be used and kept in an indoor environment. Keep the instrument on a flat, and stable surface.
4. Do not place the instrument in a humid or dusty area. The room should be well ventilated and free from corrosive gas or strong magnetic field interference.



## 3.3 Operation

For the first time user, please follow the instructions. Connect the power supply according to the instructions and turn on the power switch. The instrument will immediately reset to its reference point and enter the standby state.

### 1. Prepare Consumables

Take the new reagent kit, shake it well, and place it in the reagent kit carrier. Then, tear off the sealing film, add 200 $\mu$ L of sample to the **LB** well, and place the magnetic cover in its well as shown in Fig 2.

### 2. Place Consumables

Press the key and the carrier will extend out. Then, place the reagent kit into the carrier and confirm that it is properly in place (the 4 supports on the side of the kit will be aligned in the carrier), and note that the magnetic cover should be in the indicated position.

After the kit is placed, the consumable indicator light on the operation screen will change from off to red.

### 3. Extraction :

Press the enter/exit key and wait for the carrier to retreat into the cabin. Then, press the run key.

The extraction program will start to run and the panel status indicator will turn from standby to running. Within 5 seconds, the consumables indicator turns from red to green, indicating that the magnetic cover has been successfully picked up and that the extraction process has begun. After about 8 minutes, the buzzer will sound, indicating that the extraction was completed. The panel status indicator will change from running to standby.

### 4. Eject consumables

Press the enter/exit key and wait for the carrier to extend out. Then, take out the reagent kit and place it on the external carrier. Press the enter/exit key again to retract the carrier. Use a pipette to draw the liquid in the **EB** well for PCR testing.

### 5. Disinfection

Press the disinfection button while in the standby state. The UV lamp in the instrument will be turned on and it will automatically turn off after 15 minutes.

### 6. Turning off the instrument




After sterilization, directly turn off the power of the instrument with the switch.

## Chapter 4 Cleaning and Maintenance

The instrument is a closed structure. If there is no special situation, wiping with alcohol will be sufficient.

Surface cleaning: Wipe with a clean, dust-free cloth and 75% alcohol.

Internal cleaning: Turn on the ultraviolet lamp for disinfection or wipe it with 75% alcohol after extending the reagent kit carrier.

	Danger:	Switch off and unplug the instrument before cleaning.
	Caution:	Do not disassemble the instrument without permission, it may cause damage to the instrument
	Caution:	If the instrument overturns during the operation, causing the reagents to flow out or the consumables to drop, please contact technical support.

## Chapter 5 Troubleshooting

No.	Error message	Possible causes	Solution
1.	After the instrument starts running, the buzzer sounds and the instrument stops running.	The magnetic cover is not in the kit.	Place magnetic cover in the kit as required.
2.	The reagent kit shakes severely when the instrument is running	The magnetic cover is deformed and bent or the kit is not placed in the proper position.	Stop the process and check the magnetic cover and kit position.
3.	No response after pressing the Exit or Run button.	Instrument may be in the disinfection state.	Check and turn off disinfection mode manually.
4.	The instrument cannot operate, and the green light of the consumable detection indicator is on. The buzzer sounds after pressing the run button.	There is a magnetic cover left on the magnetic cover holder.	Load an empty reagent box, then press and hold the run button to perform the demagnetization action. Then, remove the leftover magnetic cover.

If there are other abnormalities, please contact technical support.



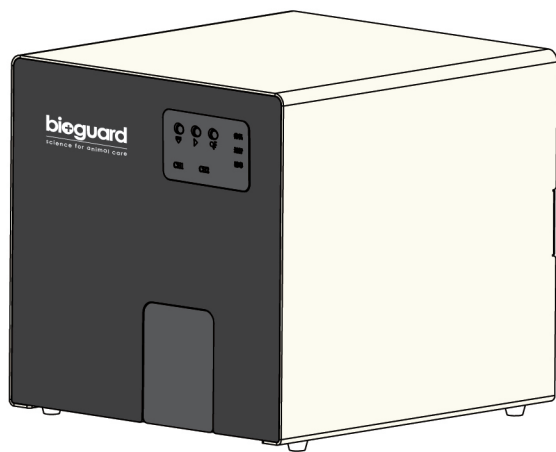


**bioguard™**

science for animal care

# Qmini BVG-1100 自動核酸萃取儀

## 使用說明書



百衛生物科技有限公司  
Bioguard Corporation



# 說明

感謝您購買 Qmini BVG-1100 自動核酸萃取儀，使用產品前，請仔細閱讀本使用說明書的內容，以便正確使用該產品。閱讀後請妥善保存本使用說明書，以便需要的時候可以隨時查閱。

產品名稱：Qmini BVG-1100 自動核酸萃取儀

規格型號：BVG-1100

## 版本資訊

本使用說明書會根據需求變更升級，恕不另行通知。

版本號：1.0

發行時間：2023 年 1 月

## 聲明

本公司對於本資料不作任何形式的擔保，包括（但不限於）為某種特定目的對其提出含有適銷性和適合性的保證責任。

本公司僅僅在下列情況下才認為應對儀器的安全性、可靠性和性能負責，即：

- ◆ 裝配操作、擴充、校正、改進和修理均由本公司認可的人員進行
- ◆ 有關的電氣設備符合國家標準
- ◆ 儀器按照操作規範進行使用

若下列情況出現，本公司不對產品的安全性、可靠性及運行狀況負責：

- ◆ 零件被拆裝、重新調整
- ◆ 產品沒有按照《操作手冊》正確使用

## 保固及維修服務

本產品的保固期為 1 年，主要附件的標準保固期為 1 年。保固期限從產品隨附的《設備保固卡》上填寫的「安裝日期」起算，《設備保固卡》是計算保固期限的唯一憑證。若您購買的產品對應的《設備保固卡》未能按時返回本公司，則保固期將從設備包裝箱標識的「出庫日期」順延 45 天起算。

保固期內，產品皆可享受免費售後服務；但請您留意，即使在保固期內，由於以下原因造成產品需要維修之情況，本公司將實行收費維修服務，您需要支付維修費及耗材費：

- ◆ 人為損壞
- ◆ 使用不當
- ◆ 電網電壓超出產品規定範圍
- ◆ 不可抗拒的自然災害
- ◆ 更換或使用未經本公司認可的零件、附件、耗材或由非本公司授權人員維修
- ◆ 其他非產品本身所引起的故障。保固期滿後，本公司可以繼續提供收費維修服務。若您不支付或遲延支付收費維修服務費用，本公司將暫時中止維修服務直至您支付為止。

## 售後服務

當您需要產品技術支援時，請與代理商和經銷商聯繫，或就近聯繫公司辦事處，您也可聯繫百衛生物科技股份有限公司客服部門。

您在獲取售後支援之前，請先查詢記錄以下資訊：

- ◆ 故障現象
- ◆ 產品型號和序號







# 安全須知








## 安全術語

使用說明書中使用的術語「危險」、「警告」、「小心」、「注意」指出危害和按重要的程度提醒用戶在使用過程中應注意的問題。

危害是指對人體造成傷害的潛在原。

	注意	給使用者提供有用的資訊和提示，確保本產品能最大限度地發揮功用
	小心	指如果不避免將會導致較小的人體傷害或產品損害的潛在危害或不安全行為。
	警告	指如果不避免將會導致死亡或嚴重傷害的潛在危害或不安全行為。
	危險	指如果不避免將會導致死亡或嚴重傷害的危害。

## 安全地使用 BVG-1100 自動核酸萃取儀

	小心	儀器必須配合專用耗材使用。
	小心	請勿阻礙儀器正常運行或強行移動儀器處於正常工作狀態下靜止的零件。
	警告	必須使用可靠接地的電源插座
	警告	未經廠家許可或書面授權條件下，使用者不得擅自對系統進行隨意拆卸、修改或使用不符合廠家規定的各種配件。
	警告	在對儀器清潔或消毒之前，必須先關閉儀器並拔掉系統總電源線。
	警告	請勿隨意拆卸儀器，以防觸電。
	注意	使用前請仔細閱讀說明書。

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# 第 1 章 系統概述

本手冊提供了操作 Qmini BVG-1100 自動核酸萃取儀的一般資訊和詳細的操作指引。

## 1.1 概述

Qmini BVG-1100 自動核酸萃取儀是一種核酸萃取設備，用於 PCR 檢測的樣本前處理。

## 1.2 產品特點

快速萃取：可同時萃取 2 個樣本，最快 8 分鐘；

安全可靠：儀器全自動運行，無需人工干預；

試劑耗材及磁棒套載入識別功能，避免漏放、錯放，保證實驗的高可靠性；

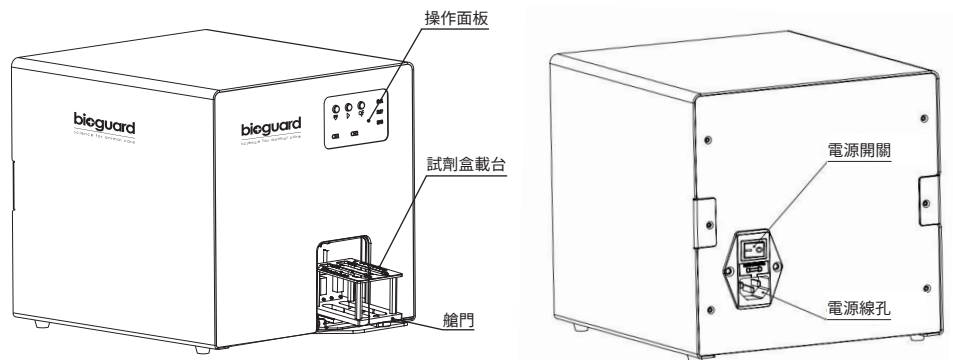
污染控制：小型封閉萃取艙設計，內置紫外燈可有效清除潛在的核酸污染；

操作簡易：內建運行程式，一鍵式啟動，簡便快速，無學習成本。

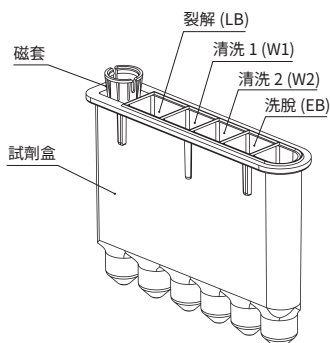
# 第 2 章 儀器說明

## 2.1 儀器概述

Qmini BVG-1100 是一款 2 通道全自動核酸萃取儀，需配備專用的耗材（試劑盒、磁套）使用。



▲ 圖 1 BVG-1100 自動核酸萃取儀外觀



▲ 圖 2 BVG-1100 專用耗材示意圖

磁套放在試劑盒圖示位置，萃取開始前儀器能夠自動抓取，萃取結束後自動退回至原位；試劑預置在試劑盒內，萃取前加入樣本至裂解槽

## 2.2 儀器參數

技術原理： 磁珠法

### 主機規格

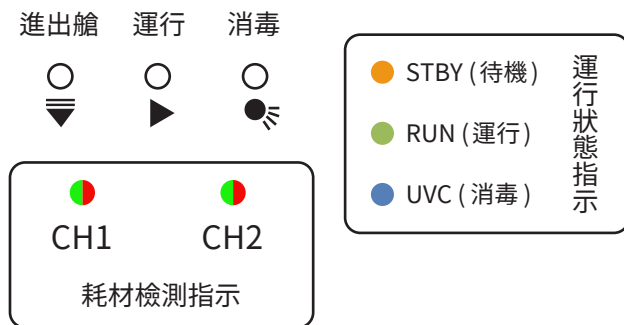
尺寸： 226\*207\*205 mm  
重量： 3.7 Kg  
電源規格： AC 110V/220V 50/60HZ  
儲運環境： 防潮、防摔  
通道間差異：  $CV \leq 5\%$

### 使用環境

溫度： 10°C -40°C  
濕度： 10%-90%RH，無冷凝  
海拔 2000 米  
運行噪音： <70dB  
磁珠回收率： >92%  
提取時長： <8min  
震盪混勻： 3HZ  
污染控制： 紫外消毒

## 2.3 操作面板

操作面板按鍵功能及指示燈請參考下圖。



▲ 圖 3 操作面板功能

### 2.3.1 指示燈說明

#### 耗材檢測指示：

指示燈有滅、紅、綠三種狀態。

滅：未載入試劑盒

紅：檢測到試劑盒

綠：檢測到磁棒套

#### 運行狀態指示：

待機狀態：黃燈閃爍

運行狀態：綠燈常亮

消毒狀態：藍燈常亮

## 2.3.2 按鍵功能說明

進出艙：控制試劑盒載台在出艙 / 進倉狀態間切換。控制出艙僅在儀器待機狀態下有效，運行或消毒狀態無效。

運行：控制萃取程式運行。按下啟動萃取程式（試劑盒載台在艙內，且儀器處於待機狀態下有效，運行或消毒狀態無效）。長按能夠強行停止正在運行的萃取程式。

消毒：啟動或關閉紫外消毒。按下打開紫外燈（試劑盒載台在艙內，且儀器處於待機狀態下有效。運行狀態下無效），再次按下可手動關閉紫外燈，或者 15min 後自動關閉。

# 第 3 章 開始使用

## 3.1 裝箱內容確認

當您收到我司的 BVG-1100 自動核酸萃取儀後，請檢查以下內容是否齊備，若發現有遺漏或運輸損壞請及時與經銷商或銷售代表聯繫。

1.	BVG-1100 自動核酸萃取儀	1 台
2.	電源線	1 條
3.	通用轉接頭	1 個
4.	使用說明書	1 份
5.	產品保固書	1 份
6.	合格證	1 份
7.	萃取試劑支架	1 個
8.	PCR 管架	1 個
9.	裝箱清單	1 張

## 3.2 使用環境

1. 環境溫度：10°C - 40°C
2. 相對濕度：10% - 90%
3. 本儀器應在室內使用，放置儀器的工作臺應水平、穩固
4. 本儀器應安裝在濕度較低、灰塵較少並遠離水源（如水池、水管等）的位置，室內應通風良好，無腐蝕性氣體或強磁場干擾。

## 3.3 儀器使用

初次使用請按照下述指引操作。按說明接入電源，並打開儀器背部電源開關後儀器立即執行回參考點，隨後進入待機狀態。

### 1. 準備耗材

取新試劑盒搖勻後放入外置載台。然後撕開封膜，在裂解槽 **LB** 加入 200 $\mu$ L 樣本，將磁套放在圖 2 所示孔內。

### 2. 放置耗材

按進出艙鍵等待載台伸出，然後將試劑盒放入載台並確認放置正確（試劑盒側面 4 條支撐頂住載台），注意磁套應當位於指示位置內。

試劑盒放置好後操作面板耗材指示燈由滅變紅。

### 3. 開始萃取：

按進出艙鍵等待載台進入機艙，然後按下運行鍵（▶）。

萃取程式開始運行，面板狀態指示燈由待機轉為運行；隨後 5 秒內耗材指示燈由紅變綠，表示磁套已成功拾取，萃取繼續運行。約 8 分鐘後，蜂鳴器響，提示萃取已完成。面板狀態指示燈由運行轉為待機。

### 4. 退出耗材

按進出艙鍵等待載台伸出，然後將試劑盒取出並放置於外置載臺上。然後再次按下進出艙鍵收回載台；最後用微量分注器吸取 **EB** 孔內液體用於擴增測試。

### 5. 消毒

待機狀態按下按消毒按鈕，儀器紫外燈開啟，並在 15 分鐘後自動關閉。

### 6. 關機




消毒結束後，直接關閉儀器背部電源開關。

## 第 4 章 儀器維護與清潔

儀器為封閉結構，如無特殊情況，只需用酒精擦拭清潔；

表面清潔：無塵布配合 75% 酒精擦拭。

內部清潔：開紫外燈消毒即可。或者退出試劑盒載台後用 75% 酒精擦拭。

	危險！	清潔儀器前必須關閉電源，並拔掉電源線。
	小心！	請勿私自拆卸儀器，可能會造成儀器損壞。
	小心！	儀器在工作過程中發生傾覆導致試劑流出或耗材掉落的請聯繫售後處理。

## 第 5 章 常見故障及排除

序號	故障現象	原因分析	處理方法
1.	儀器啟動運行後蜂鳴器響隨後停止運行	試劑盒內未按要求配置磁套	按要求放置磁套
2.	儀器運行時試劑盒嚴重抖動	磁套變形彎曲或試劑盒放置位置錯誤	停止運行並檢查耗材
3.	按下出艙或運行按鈕後無回應	儀器可能處於消毒狀態	檢查並手動關閉消毒
4.	儀器無法啟動運行，蜂鳴器響	磁套架上有遺留磁套	放入空試劑盒，然後長按運行鍵執行退磁套動作，隨後取出遺留磁套

如有其它異常，請聯繫售後處理。