Operation Manual

V1.0

Auto-Pure Mini Nucleic Acid Purification System

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Contents

Chapter 1 Introduction

Auto-Pure Mini nucleic acid purification instrument is a newly launched automatic extraction and purification system for DNA/RNA, proteins and cells. It can absorb, transfer and release magnetic beads by magnetic rod and magnetic rod's tip to separate magnetic beads and samples. The operation is automatic, fast and simple. Users can extract 1~16 samples simultaneously with 96-Deepwell plate. It can extract samples of animal/plant tissue, blood and body fluids, etc with different kinds of magnetic bead nucleic acid extraction reagents. It is mainly used for the extraction and purification of nucleic acid from human body samples.

1. Application

This instrument is suitable for the extraction and purification of nucleic acids in clinical samples.

2. Contraindication

No contraindication.

3. Service Life

Service life of the instrument is five years.
For production date, please see the label on back of the instrument.

Features

- Humanized operation---English and Chinese interface operation, touch screen and 3 shortcut keys for operation, and can be connected to an external mouse, easy to use.
- Open software system---protocols are with editable function.
- Heating function---Realize pyrolysis heating and elution heating.
- Self sterilization - with UV sterilizing function which can reduce the possibility of contamination in experimental area.
- Stability - very low noise during working and with no vibration.
- Safe and reliable - full automatic reagent with disposable consumables which protect users from hazardous reagents.
- Fast extraction - generally 10 ~ 60min/time for different reagents.
- High quality consumables-qualified materials and processes which guarantee high yield and low loss of magnetic beads.
- APP software - for pad or mobile phone with Android system.
- Extended features ---- Internet of Things.

Chapter 2 Specifications

1. Working Conditions

Environmental Temperature: 10°C～40°C

Relative Humidity: ≤80%

Input Voltage: AC 100～240V, 50Hz/60Hz

2. Basic Parameters

Table 1 Parameters

Model / Parameters	Auto-Pure Mini
Principle	Magnetic Particle Method, Magnet type
Sample Volume	50μL—1000μL
Throughput	1—16
Stability	CV≤3%
Extraction time	With different nucleic acid extraction reagents, 10 ~ 60min/time
Temperature control module	Ambient temperature ~ 120℃ for lysis and elution
Heating time	Ambient temperature ~120℃≤5 minutes
Temp. Accuracy	±1℃
Operation	4.3 inch touch screen
APP Software	Equipped with Android APP software to realize protocol editing and data transmission with the instrument
Internal protocols	Store up to 100 groups of protocols
Extension interface	With USB port, ethernet port and RS232 port
Data transfer	Support Bluetooth, USB, RS232 data transmission, can expand the transmission of PC port
Bar code scan	External code scanning gun, software can expand the sample information input

consumables	Special magnetic rod tip, 96-Deepwell plate, special single sample kit
Purification disinfection	Fan exhaust, UV disinfection
Power Supply	100-240V±10％、50-60Hz±5％; support battery power
Power	Standby 10W, MAX 150W
Operating temperature	10℃~ 40℃
Operating humidity	Less than 80%

3. Outline Dimension

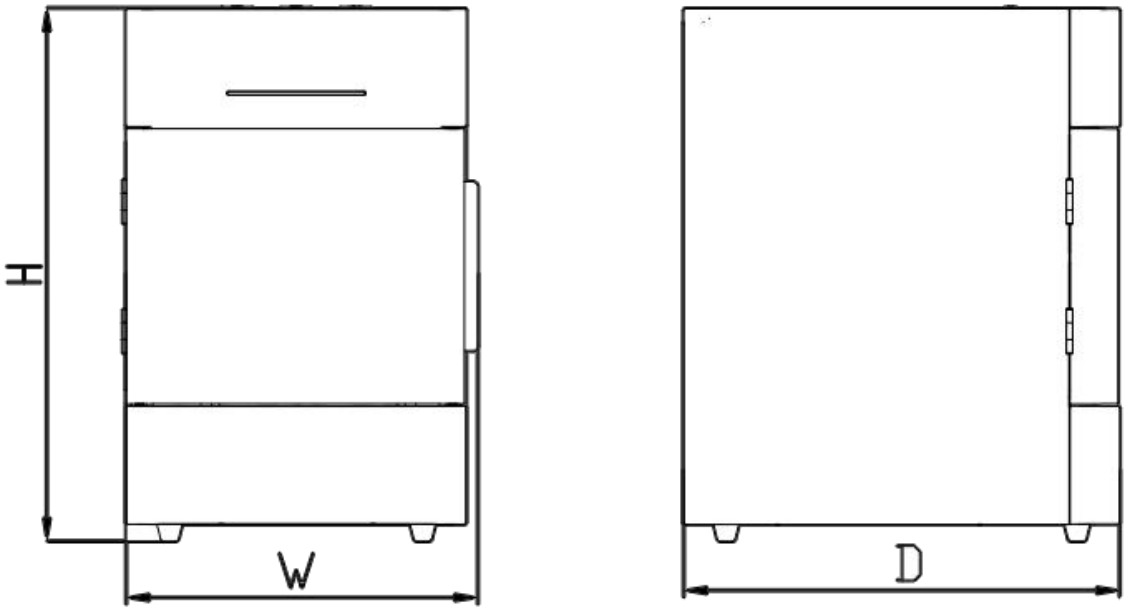


Fig 1 Outline Dimension

Dimensions (W×D×H): 208mm×258mm×315mm

Chapter 3 Basic Operating Instructions

This chapter mainly introduces structures, basic operation keys, displays, as well as preparations before starting up. Please read this chapter carefully before using

1. Structure

1.1. Front

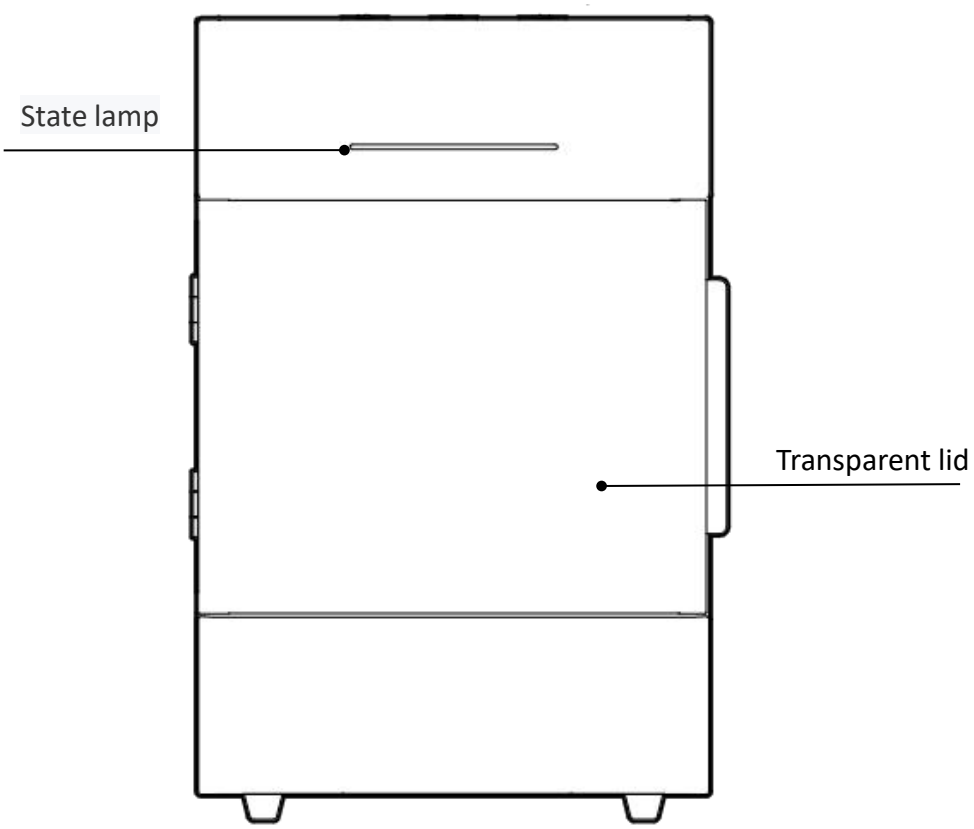


Fig 2 Front

1.2. Back

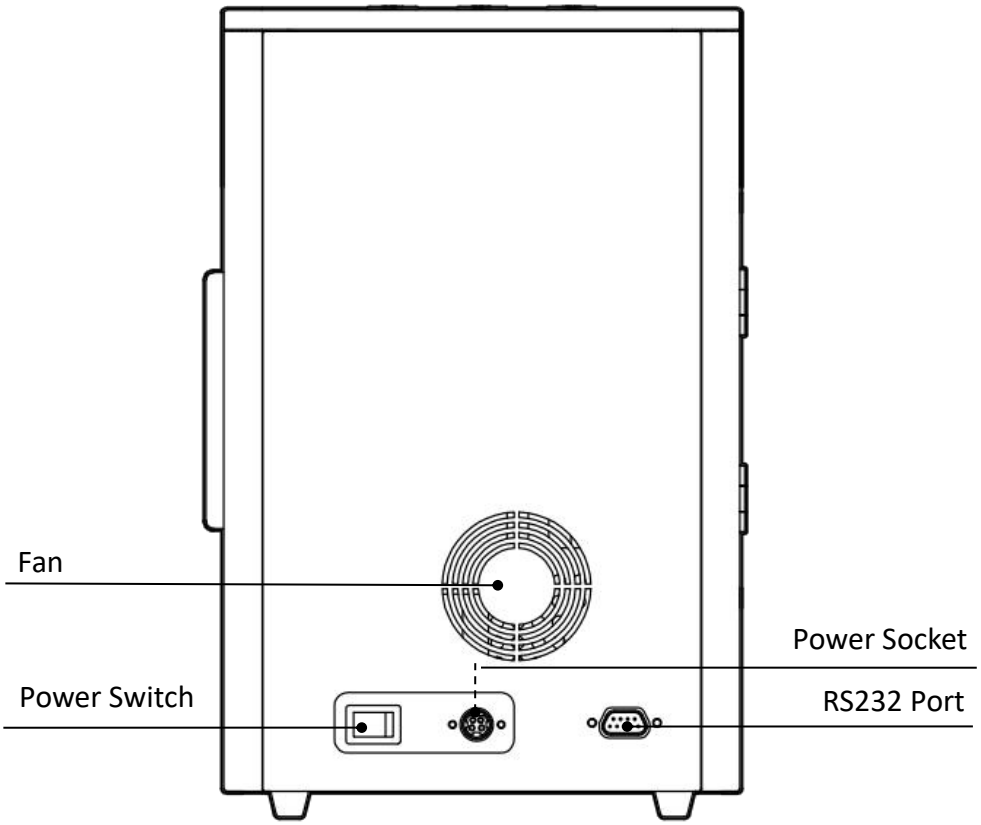


Fig 3 Back

1.3. Side

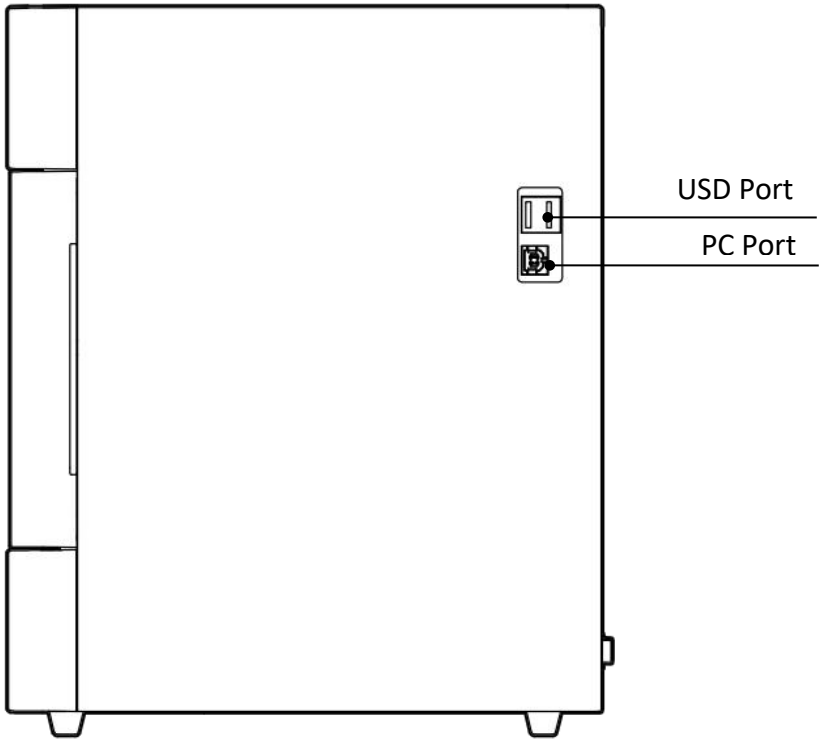


Fig 4 Side

1.4. Test area

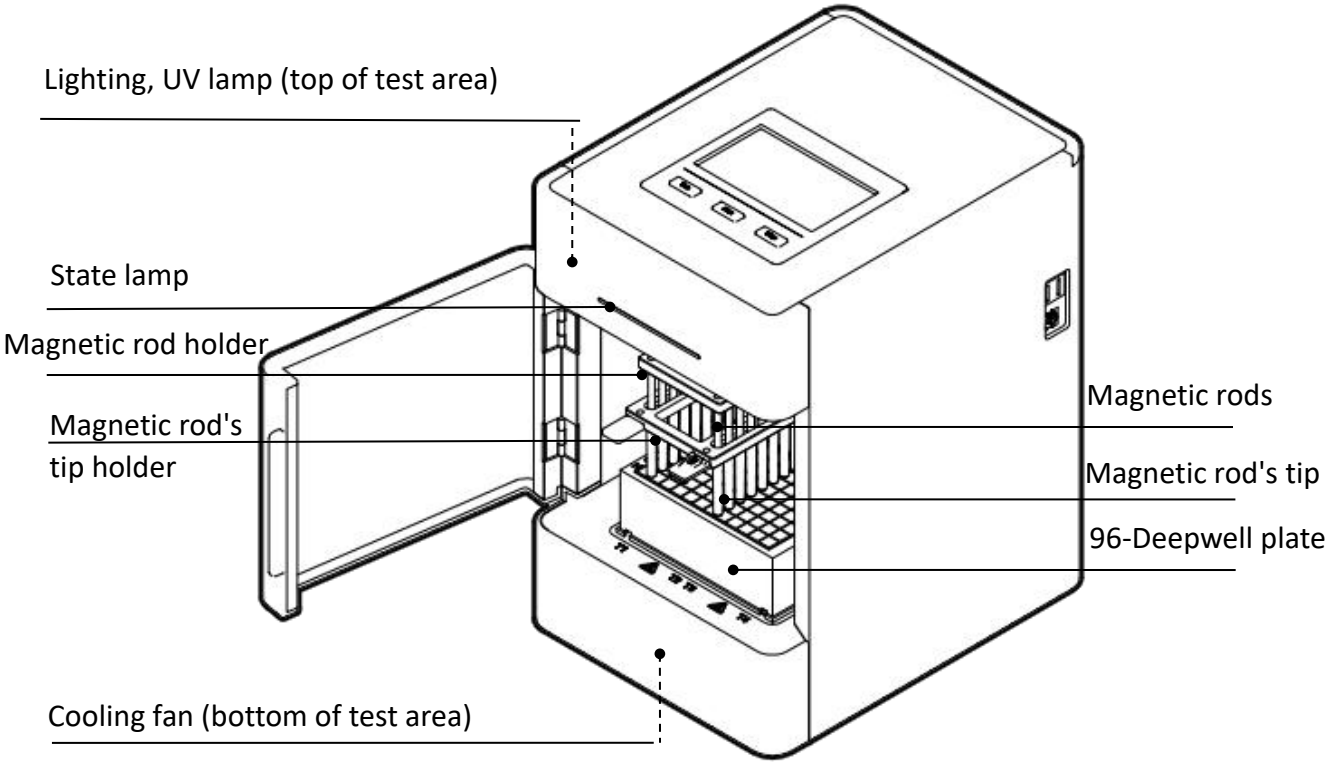


Fig 5 Test area

2. Operation Panel

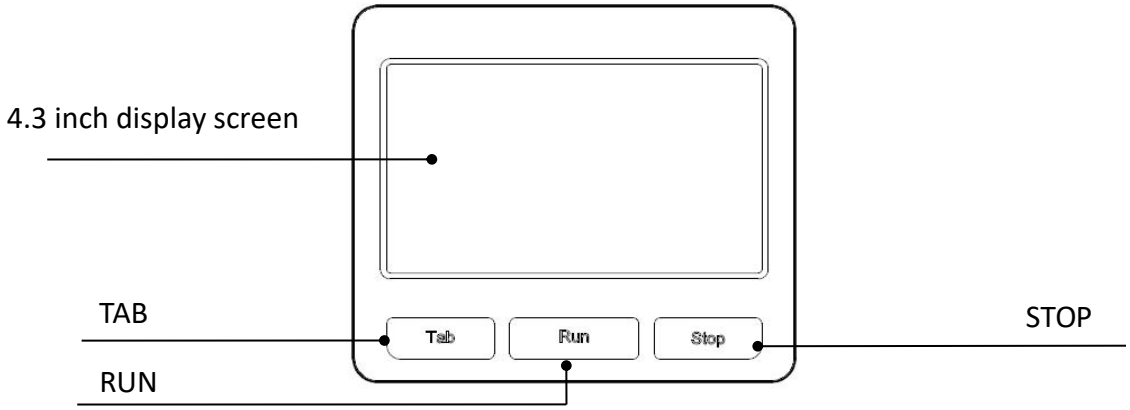


Fig 6 Touch screen

Display screen: Touch screen, mouse also can be connected for operation.

TAB: Switching between protocols.

RUN: Start the protocol and run the instrument.

STOP: Stop the operation.

Chapter 4 Operations

1. Preparation before use

Remove the instrument from the packing case, Remove the tape holding the cabin door, open the door, remove the fastening belt between the magnetic rod holder and the Magnetic rod's tip holder. Then unscrew the hexagonal screw fixing the lifting part at the bottom of the instrument to release the lifting part.

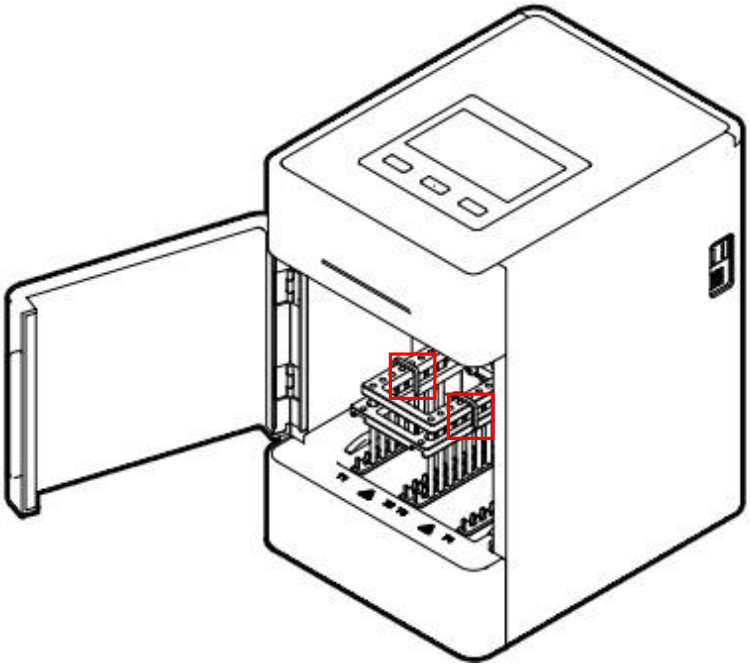


Fig 7 Remove the belt

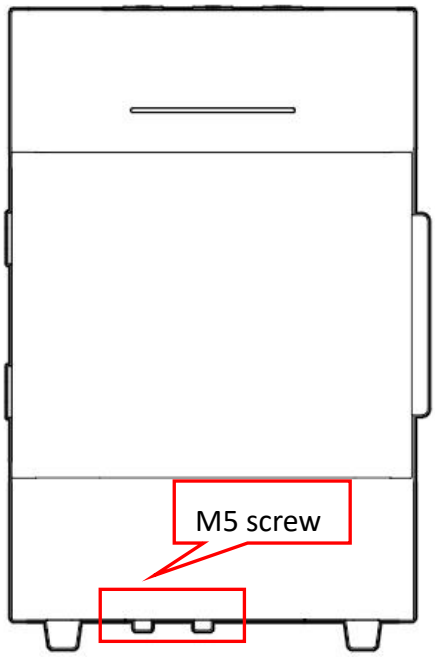


Fig 8 Remove fixing screw

Note: Please pay more attention to magnetic rods during the operation in case any damage!

2. Power Connection

AC 100 ~ 240V

3. Kits Installation

3.1. 96-Deepwell plate installation

Open the cabin door. First, place the plate with the sample in the position slot according to the arrow ①. Then press the plate into the heating strip according to the arrow ②, and place it smoothly. Note the orientation of the plate (kit corner A1 corresponds to the marker A1 on the instrument) to avoid the wrong sequence of reagents. After the plate is in place, close the door.

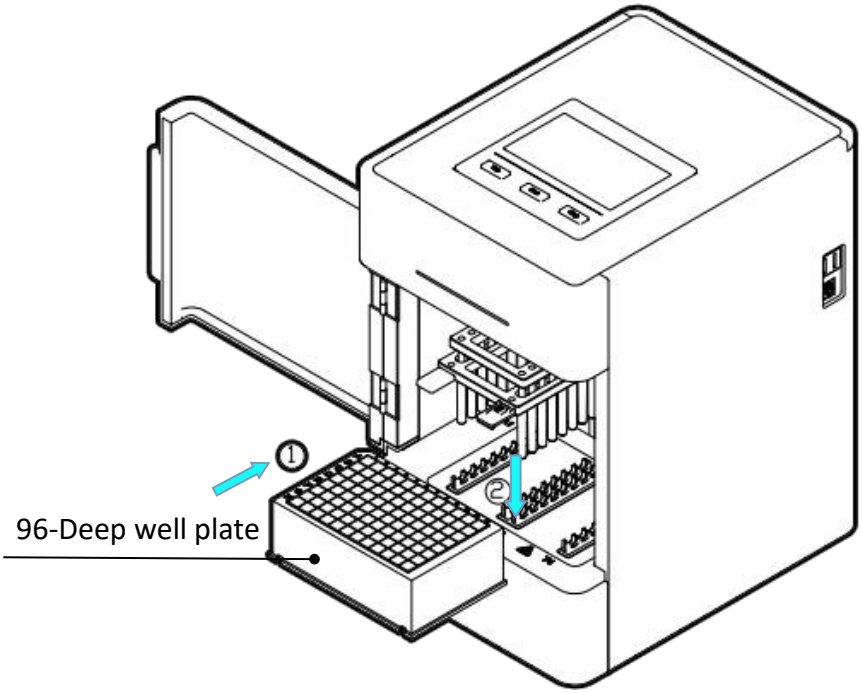


Fig 9 96-Deepwell plate installation

3.2. Single sample kit installation

Single sample kit trays are placed in the same way as 96-Deepwell plates. The difference is that the single-sample kit tray can hold 1~8 single-sample kits, and the number of single-sample kits can be determined according to the number of samples.

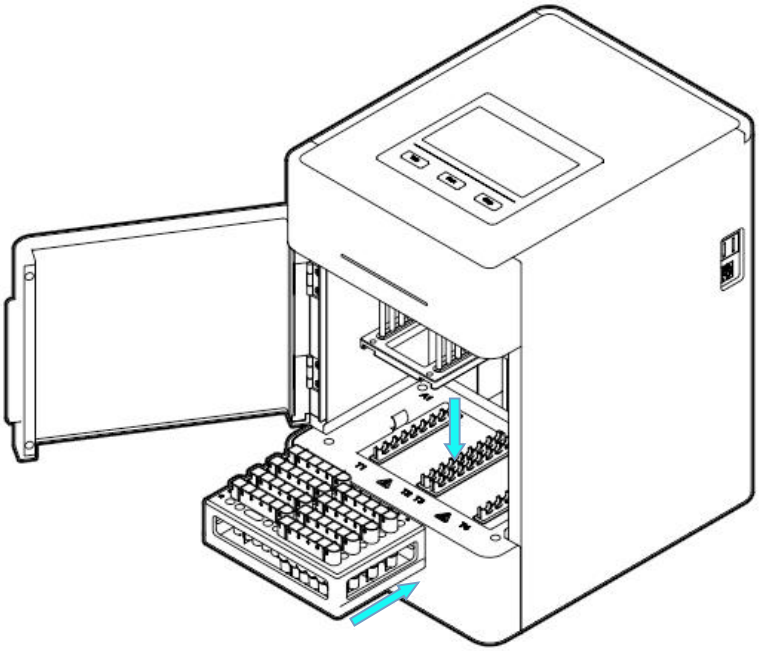


Fig 10 Single sample kit installation

4. Magnetic rod's tip installation

4.1. Magnetic rod's tip installation

Insert the magnetic rod's tip into the fixed groove of the magnetic rod's tip holder in the direction of the arrow to the end. The number of magnetic rod's tip can be determined according to the number of samples.

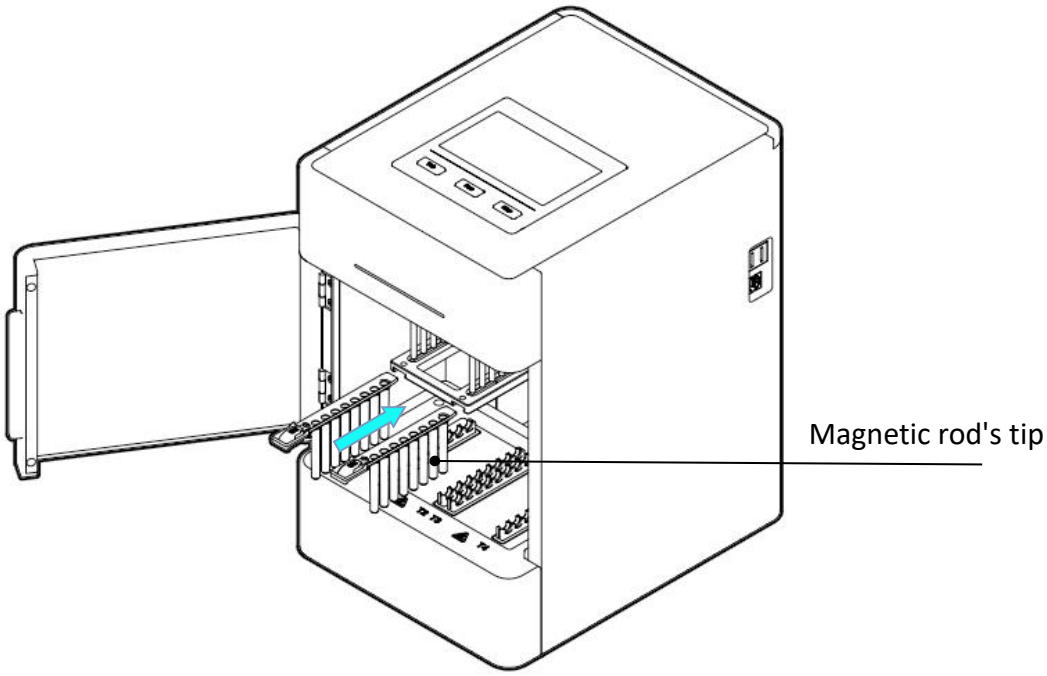


Fig 11 Magnetic rod's tip installation

Note: Up to 2 pcs magnetic rod's tip for Auto-Pure Mini.

5. Remove magnetic rod's tip

Press the button on the magnetic rod's tip by the arrow ①, and pull out the it along the direction of the arrow ②.

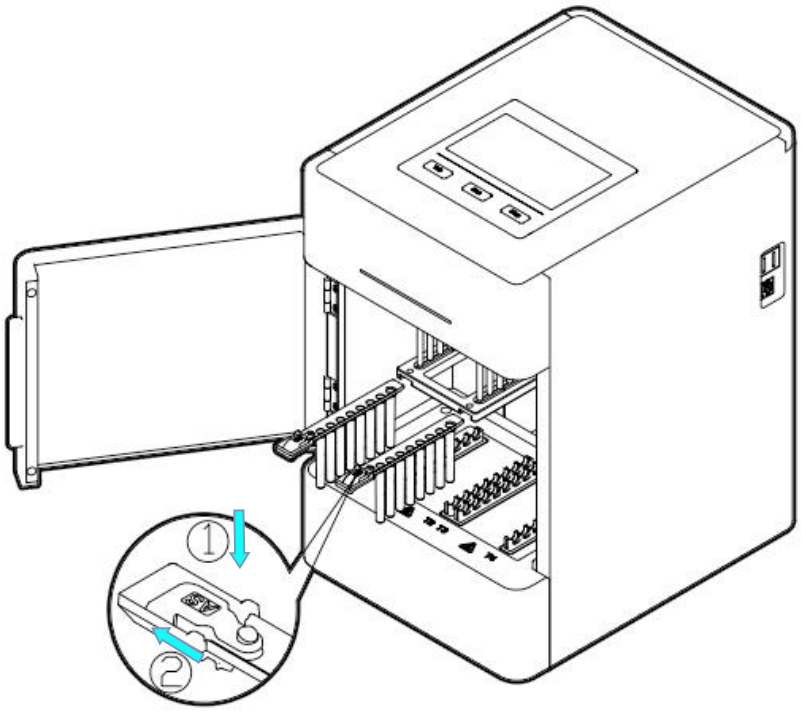


Fig 12 Remove magnetic rod's tip

6. Detailed Operations

The instrument software is divided into APP software and embedded software in the instrument:

APP software is only supported by Android devices, used to complete the edit of experimental protocols, generation of QR code and other operations;

The instrument software is oriented to the experimenter and is used for the operation of the protocol and the setting of relevant parameters.

6.1 App software

6.1.1 APP installation

Copy the APK file on the USB flash drive to the root directory of the memory of the mobile phone, then find the APK file in the file management - internal storage of the mobile phone, and click the APK file to install, as shown in the following figure.

Chapter 5 Trouble Shooting

Trouble shootings

No.	Symptom	Causes Analysis	Method
1	No display after switch on	Power not connected	Check power
		Switch failure	Replace switch
		Fuse failure	Replace fuse (250V F6.3A 5X20)
		Others	Contact with Distributor
2	No UV light	UV light failure	Replace light tube Contact with distributor
3	No light	Light failure	Replace light tube Contact with distributor
4	Can not stop automatically after opening the door.	Sensor failure	Contact with distributor
5	Big variance between actual and display temperature	Sensor failure	Contact with distributor
6	No heating for heating strip	Sensor failure	Contact with distributor
		Heater failure	
7	Instrument can’t run	Controller failure	Contact with distributor
		Motor failure	
8	Abnormal sound during working	Guide rail installed incorrect	Contact with distributor
		Motor failure	
		Synchronous belt abrasion	
9	Press button not working	Press button failure	Contact with distributor

Software Error Alarm List

No.	Trouble	Error
1	T1, T2, T3, T4 temperature overheat	E011, E021, E031, E041
2	T1, T2, T3, T4 open circuit	E015, E025, E035, E045
3	T1, T2, T3, T4 short circuit	E015, E025, E036, E046
4	Horizontal zero sensor damaged	E403
5	Magnetic rod's tip motor zero sensor damaged	E425
6	Magnetic rod motor zero sensor damaged	E415
7	Clock crystal vibration damaged	E702
8	Memory chip E2P damaged, setting parameters lost	E703
9	Zero calibration parameter error	E711
10	NAND FLASH damaged	E704
11	Online failure	E801

Chapter 6 Acronyms and Marks

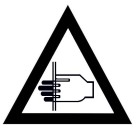
1. Acronyms

For reference only, may appear in the above user manual.

A	Ampere
AC	Alternating Current
V	Volt
Hz	Hertz
W	Watt
USB	Universal Serial Bus
SD	Safety Digital Code
WiFi	Wireless LAN
kg	Kilogram
mm	Micrometer
μL	Microliter
hPa	hectopascal
℃	degree centigrade
CV	Concentration difference between wells
TAB	tabulator key
RUN	Run
STOP	Stop

2. Marks

The following marks appear on the device.

	Warning
	Heating
	European standard
	Beware of clamping hand

Appendix: Wiring Diagram

(For reference only, without notification if updated.)