FD400H HANDHELD FLUORESCENCE STRIP READER OPERATION MANUAL



Shenzhen Finder Biotech Co., Ltd.

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Restrictions and warnings

Please use the accessories supplied or recommended by manufacturer (Shenzhen Finder Biotech Co., Ltd, hereinafter referred to as FinderBio).

Customers should take full responsibility for any risk or exception caused by operation not following instructions supplied by manufacturer.

The operation of equipment depends on corresponding programming software. Any behavior which is to destroy or crack software will be deemed to be in breach of warranty. FinderBio has the right to terminate corresponding customer service, and reserves legal right to sue according to the law.

If technology support is needed, please contact local FinderBio customer service center or FinderBio customer service headquarter.



Notice

Please do not use this manual if pages are missing.

If new manual is needed, please contact our Customer Service Department.

Telephone: +86-0755-23499025

E-mail address: techsupport@szfinder.com

Please confirm that the manual version of software is the same as that of equipment before use. The manufacturer is NOT responsible for any error, negligence or accident and corresponding harm directly or indirectly caused by different versions of software manuals.

The equipment meets the requirements of emission and noise immunity specified in GB/T18628.

The equipment is designed and detected according to class A equipment in GB4824. Under family environment, the equipment may cause radio interference, which needs protective measures.

The equipment is banned to be used beside strong radiation source (e.g.: unshielded radiation source), or it may not be able to work normally because of interference.

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1. Introduction

1.1 Overview

FD400H Handheld Fluorescence Strip Reader (hereafter refer to as equipment) is an intelligent instrument developed by modern photoelectric technology for the quantitative analysis of Fluorescence Rapid Test Kit, representing the advanced level of similar products. Combined with various kinds of Fluorescence rapid test kits, it can easily, accurately and quickly detect the relevant parameters of food or animals. The equipment is widely used in food safety and animal disease detection.

1.2 Equipment Structure

1.2.1 Device main unit: human-machine interface touchscreen, motion system, optical detection system, recording module, etc.;

1.2.2 Power supply section: USB charging cable and plug, see Figures 1-2;



Figure 1-1 Front View

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Figure 1-2 USB charging cable and power adapter

1.3 Accessory List

No.	Goods Name	Qty	Remarks
1	Main unit of Handheld Fluorescence Strip Reader	1	Model: FD400H
2	USB charging cable and power adapter	1	5V 3A/ 9V 2A/12V 1.5A (See Figure 1-2)
3	Factory certificate of conformity	1	
4	Bluetooth printer	1	Optional accessory (Figure 1-3)
5	Packing list	1	
6	Operation manual	1	

If any part is lost or broken, please contact FinderBio Customer Service Department or local agency.

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Figure 1-3 Bluetooth printer and accessories

1.4 Technical Indicator

Detection time	10 seconds
Touchscreen	5-inch IPS touchscreen
Data storage	Capable of storing 1 million test results
Standby time	48 hours
Operating time	8 hours
Repeatability	CV≤1%
Between-instrument difference	CV≤3%
Battery	6000 mA lithium battery
Charging speed	Supports fast charging; over 80% charge within 2 hours
Device dimensions	180 × 101 × 58 mm
Device weight	0.72 KG
Test strip types	Supports single T-line and multiple T-line formats

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1.5 Installation Requirements

1.5.1 Environmental Requirements

Operating Temperature	5℃～40℃
Operating Humidity	40%RH~ 80%RH
Atmospheric Pressure	86.0kPa~106.0 kPa
Power Supply Requirements	QC3.0, 5V 3A/ 9V 2A/ 12V 1.5A
Operating Noise	≤65dB
Operating Environment	The device should be installed indoors on a solid platform with proper grounding. It must be kept away from strong electromagnetic interference, dust, direct sunlight, and water. The environment must be free of flammable or explosive gases and combustible dust.

2. Safety Instructions

2.1 Operator

This device is intended for analytical testing only. Please refer to this user manual and the relevant reagent instructions before use.

Only personnel who have received technical training from our company or authorized distributors are permitted to operate this device.

2.2 Applicability

The equipment is dedicated for the Fluorescence rapid test kits manufactured or authorized by Shenzhen Finder Biotech Co., Ltd.

2.3 Samples and Waste

Because test samples may contain hazardous materials which are harmful to human health and environment, samples should be handled according to lab standard operating procedures (e.g.: wear protective gloves and protective suit if necessary). Samples, liquor wastes and residues should be disposed of according to local laws and regulations.

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2.4 Name Plate of Hosts

Name plate includes:

- Equipment name.
- Equipment model.
- Power supply and input power.
- Factory number.
- Production date.
- Manufacturing factory.

2.5 Power Shutdown Emergency

In case of an emergency, power can be cut off by switching off the device's power switch. This action will disconnect the power supply and stop the operation of all components and mechanisms of the device.

3. Equipment Installation

3.1 Installation Preparation

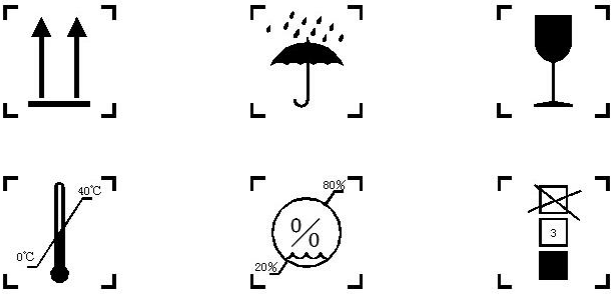
3.1.1 Installers

The equipment installation is simple and can be executed by laboratory personnel who have read this manual in detail.

3.1.2 Transportation, storage and unpacking

During storage and transportation, please follow the orientation and handling instructions indicated on the outer packaging. Do not invert, expose to rain, or subject the device to impact.

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During the transportation and storage, please meet the following requirements:

- Please do not store under high humidity; do not expose to light; get away from heating equipment such as heater.
- Storage environment: 0℃~40℃, 20%~80%RH, no corrosive gas and well-ventilated environment.
- Please do not place the equipment in dusty or rainy area.
- Please keep the equipment away from audio devices such as magnetic objects or loudspeaker.
- Please place the equipment on flat place.
- Damage or faults may occur when the equipment falls from high place or receives from outer physical impact.

Please follow the steps below during unpacking:

- The equipment should be packed into standard cardboard boxes. Please check if the outer package is intact before unpacking.
- Please check the equipment and its accessories according to packing list after unpacking.
- Please place the equipment on stable work bench.
- Please check if equipment serial number is in name plate and qualification certificate matches the delivery sheet.

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- Please visually check if there is any loose, deformation or damage.
- Please do not dispose the outer package in order to pack the equipment for storage when it is not used for long time, or during transport and transfer.

3.2 Installation

- Open the package, check whether the accessories are complete and damaged according to 1.3 Accessories list, and take out the equipment and the accessories.
- Connect the power adapter to the USB charging cable, and insert the plug of the power adapter into the power socket (pay attention to the shape of each parts).
- Open the glue plug at the bottom of the equipment, and connect the USB charging cable to the instrument USB jack.
- Use lab common disinfectants for clean and disinfection.
- Do not open the equipment enclosure.

4. Operating Instructions

4.1 Equipment Startup

Press and hold the power button to turn on the device. The startup screen will appear as shown in Figure 4-1, followed by the main menu shown in Figure 4-2.

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Figure 4-1 Startup Interface

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4.2 Main Operation Interface

The main interface displays: "Samples Test," "Set," "Report," and "Device Info," as shown in Figure 4-2.



Figure 4-2 Main Interface

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4.2.1 Samples test： Click "Samples Test" on the main interface to enter the screen shown in Figure 4-3.

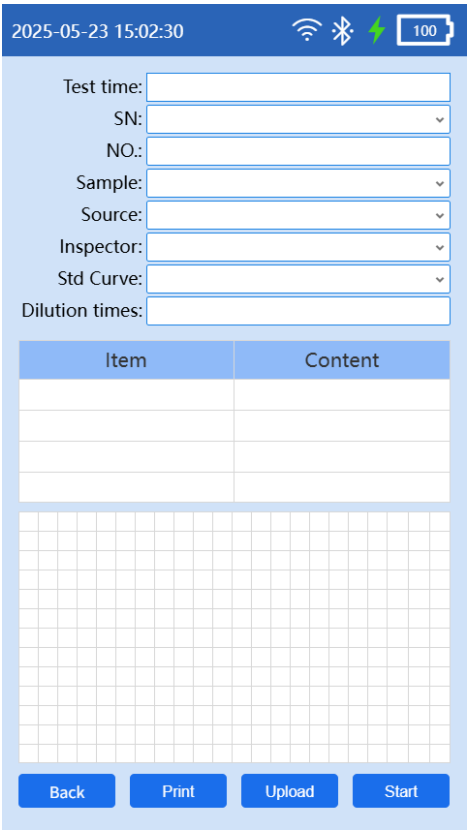


Figure 4-3 Samples Test Interface

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4.2.1.1 Test time：No setup is required; the system will automatically display the recorded time.

4.2.1.2 Serial Number/Batch Number (SN): Click to select the corresponding reagent batch number(‘SN’ on screen), or scan the QR code on the test kit to auto-fill the batch number, as shown in Figure 4-4

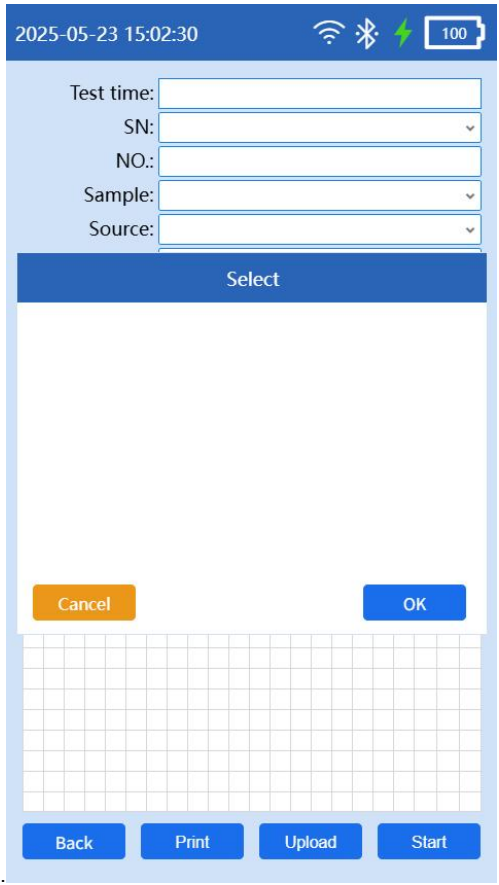


Figure 4-4 Serial Number(SN) Selection Interface

4.2.1.3 Sample ID：Click on "NO." to enter the identification number of the test sample.

4.2.1.4 Sample type：Click on the “Sample” and select the correct sample type from the

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list, as shown in Figure 4-4. Sample type options can be added in “Set” menu.

4.2.1.5 Source : Click on “Source” and select the correct unit from the list, as shown in Figure 4-4. “Source” options can be added in “Set” menu.

4.2.1.6 Inspector：Click on “Inspector” and select the correct inspector from the list, as shown in Figure 4-4. Inspector options can be added in “Set” menu.

4.2.1.7 Standard Curve：Click to select the “Std curve”, as shown in Figure 4-4. Please refer to the reagent manual for selection.

4.2.1.8 Dilution times：Enter the corresponding dilution factor according to the reagent manual.

4.2.1.9 Start：After completing the above information as required, insert the test card into the reader, then click “Start.” The instrument will begin reading, which takes about 10 seconds to complete and return the results. Click “Print” to print the report; click “Upload” to upload the results to the server; click “Back” to return to the main interface, as shown in Figure 4-5.

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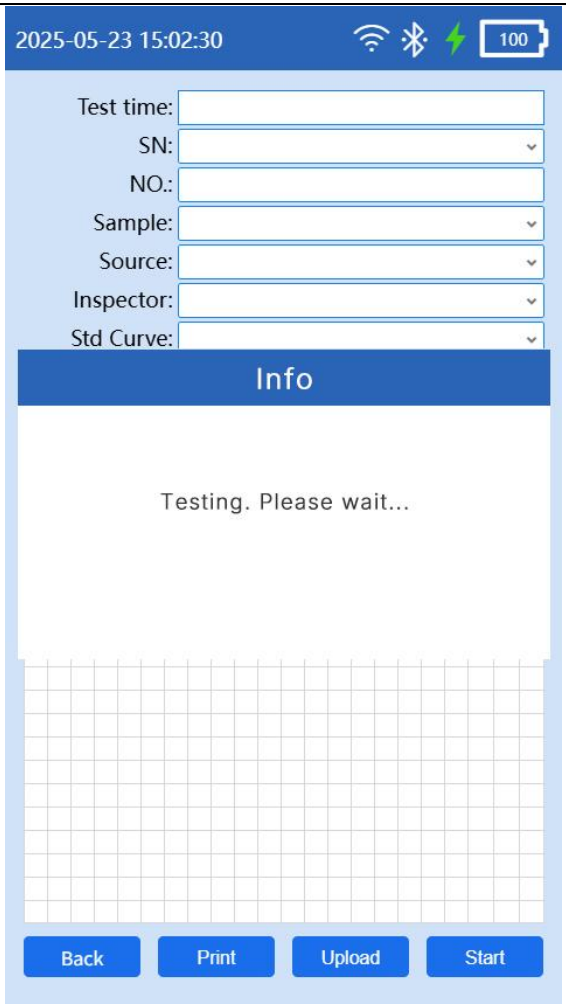


Figure 4-5 Start Interface

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4.2.2 Set： Click the “Set” button to enter the screen shown in Figure 4-6.

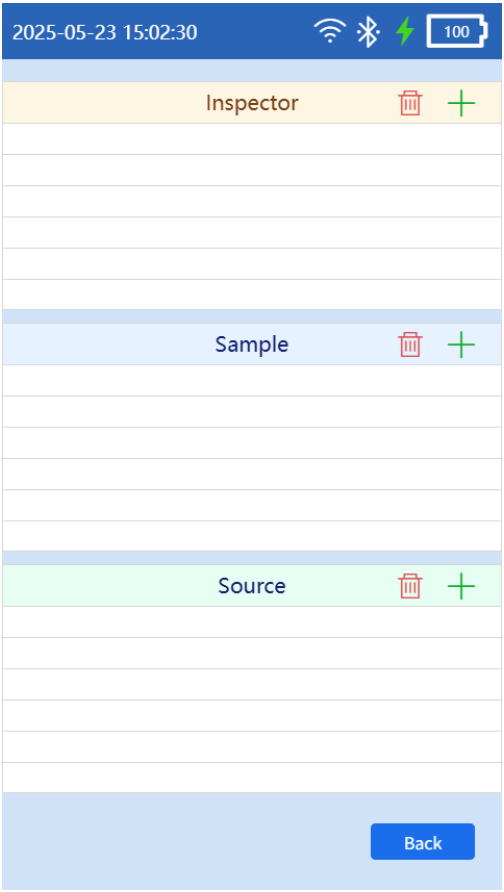


Figure 4-6 Set Interface

4.2.2.1 Inspector： Click the "+" button to add an inspector; click the delete button to remove the selected inspector.

4.2.2.2 Sample Type： Click the "+" button to add a sample type; click the delete button to remove the selected sample type.

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4.2.2.3 Source：Click the "+" button to add a source; click the delete button to remove the selected source.

4.2.3 Report： Click the “Report” button to enter the history records interface, as shown in Figure 4-7.



Figure 4-7 Report Interface

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4.2.3.1 Delete：Click "Delete," then click "OK" to delete the record.

4.2.3.2 View: Click “View” to see the record details, as shown in Figure 4-8. Click “Print” to print the report; click “Upload” to upload the result to the server.

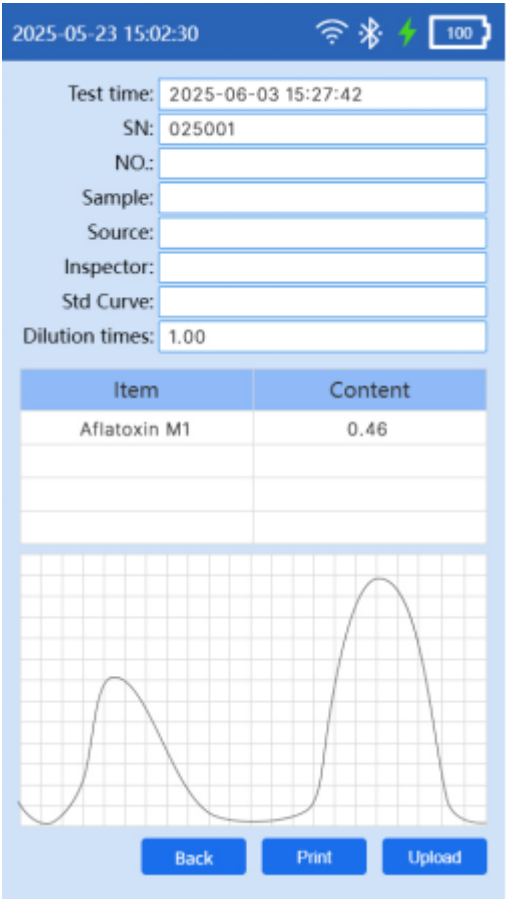


Figure 4-8 View Interface

4.2.3.3 Print：Click “Print” to print the report. Before printing, make sure the printer is connected via Bluetooth. For Bluetooth connection, refer to section “4.2.4.4”.

4.2.3.4 Upload：Click “Upload” to upload the result to the server. Before uploading, please configure the server connection settings. For server connection, refer to section

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“4.2.4.3”.

4.2.3.5 Back：Click “Back” to return to the main interface.

4.2.4 Device Information：Click “Device Info” to enter the Device Information interface, as shown in Figure 4-9.



Figure 4-9 Device Info Interface

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4.2.4.1 Click “Upgrade Version” and the system will check for available updates. If an update is available, click “Upgrade” to start the background download. Once the download reaches 100%, restart the device manually to complete the upgrade.

4.2.4.2 Standard Curve Management：Click “Manage Std Curves” to display all standard curves, as shown in Figure 4-10. Click “Delete” to remove the selected standard curve; click “Add” and scan the reagent QR code to add a new curve; click “Back” to return to the Device Info interface.

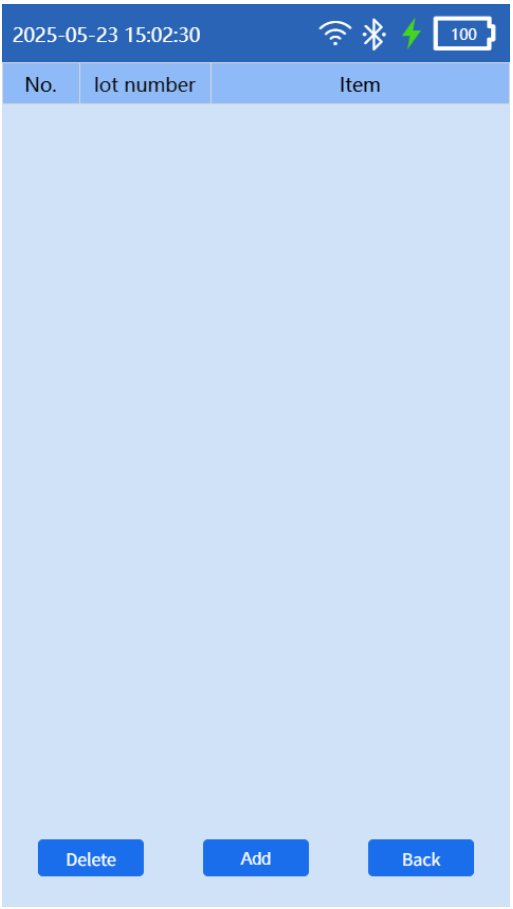


Figure 4-10 Manage Std Curves Interface

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4.2.4.3 LIS： Click “LIS” to enter the LIS settings interface, as shown in Figure 4-11. Please consult your server provider for the IP address and port number. When “Auto” is enabled, the results will be automatically uploaded to the server after each test, without the need to click the “Upload” button.



Figure 4-11 LIS settings Interface

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4.2.4.4 Bluetooth： Click “Bluetooth” to have the system automatically scan for available Bluetooth printers. Once scanning is complete, the available devices will be listed. Click the desired device to connect. If the target printer is not found, click “Refresh” to search again, as shown in Figure 4-12.

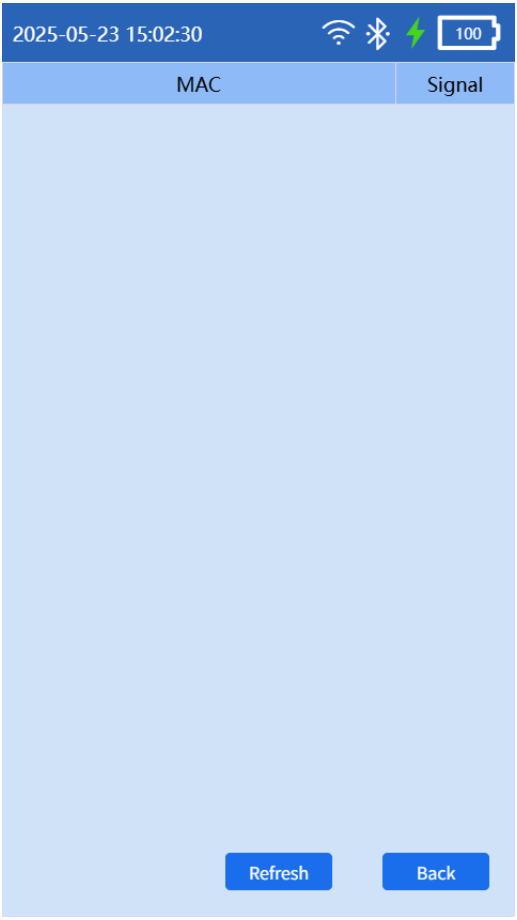


Figure 4-12 Bluetooth Connection Interface

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4.2.4.5 WIFI： Click “WIFI” and the system will automatically scan for nearby WiFi networks. Once the scan is complete, the available WiFi networks will be listed. Click the desired WiFi network and enter the correct password to connect, as shown in Figure 4-13. Click “Refresh” to rescan for WiFi networks. Click “Back” to return to the main interface.



Figure 4-13 WIFI Connection Interface

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4.2.4.6 Other Settings： Click “Other” to enter the Other Settings interface, as shown in Figure 4-14. Click “Time” to adjust the current date and time. Click “Language” to toggle between Chinese and English. Click “Print Header” to set the report header for the Bluetooth printer. Enable “Auto Print” to have the Bluetooth printer automatically print results after each test. When “Auto Print” is disabled, printing must be done manually by clicking the print button.

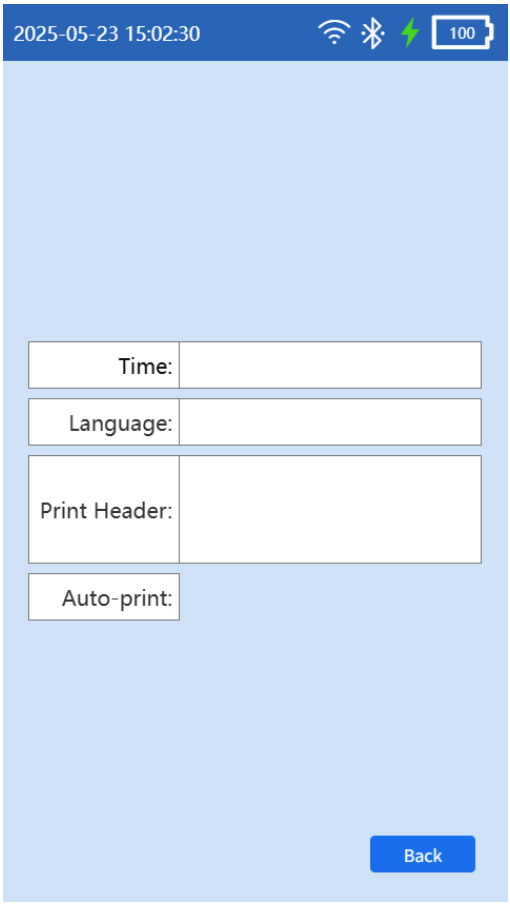


Figure 4-14 Other Settings Interface

4.2.4.7 Back： Click “Back” to return to the main interface.

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4 Device Testing Operation Procedure

4.1 After adding the sample to the test card, place it on the workbench and allow the reaction to proceed according to the requirements specified in the corresponding instruction manual. After the reaction time has elapsed, insert the reacted test card into the device's test card slot (sample well facing outward).

4.2 Scan the QR code on the reagent kit to read the reagent batch number. Then sequentially enter the "NO.", "Std Curve", "Sample", "Source", "Inspector", and "Dilution Time".

4.3 Click "Start". The device will automatically complete the test and display the measurement value. You can then choose to "Print", "Upload", or "Back" as needed.

4.4 Device Testing Workflow Diagram：

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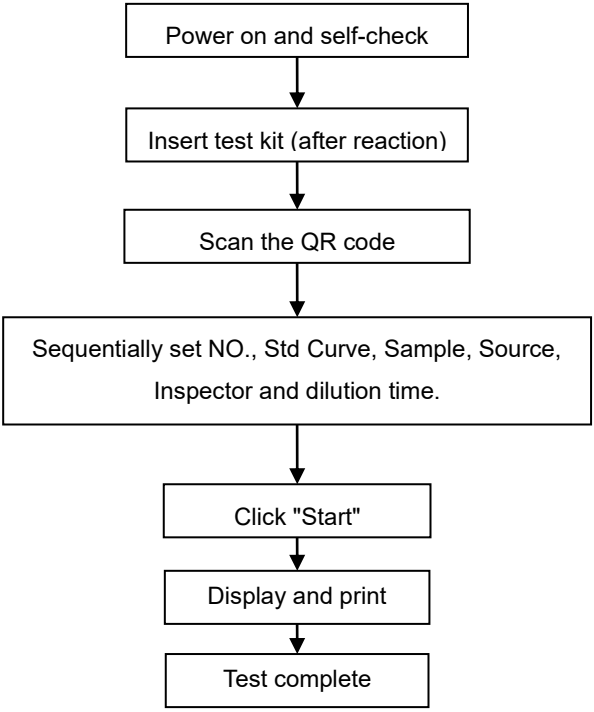


Figure5-1 Flow chart of detection

5 Device Maintenance

5.1 Daily Cleaning：Clean the device surface after each use in accordance with the quality system documents implemented by the user；

5.2 Regular Maintenance：Periodically calibrate the touchscreen and system time of the device as required by the user's quality system documentation；

5.3 Device Disinfection： Disinfect the device surface regularly following the procedures outlined in the user's quality system. The specific disinfection process should comply with the requirements of that system.

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Notices

Consider every part in contact with serum or biohazard as potential infection

Conduct thorough disinfection to equipment before moving out of lab or maintaining

Disinfection should be conducted in well-ventilated room, by personnel who was authorized and trained. The personnel who conduct disinfection must make safety protection, such as wearing disposable powder-free gloves, protective glasses and protective suit.

Do not use disinfector to clean inside of the equipment, or it may affect the performance and service life of the equipment.

Do not use acetone to clean the surface of equipment.

Make sure to shut down the system and cut off power before cleaning or outer disinfection. According to the instructions of disinfector, spray disinfector carefully onto the whole surface (screen not included), or disinfect the equipment by disposable soft cloth soaked into disinfector. After disinfection, please wipe off the disinfector by soft cloth dipped into clean water, and connect power supply until it is completely dry.

7. Fault handing

If there is simple fault, please confirm and exclude according to this chapter.

If the fault can't be solved, please contact local FinderBio Customer Service Center, local agencies or FinderBio Customer Service headquarter. The included qualification certificate is the only certification for technical maintenance service, please make it safekeeping.

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7.1 Common Device Malfunctions and Troubleshooting Methods

Name	Phenomenon	Treatment
Low Battery	Shut down: no display, no movement, no response	Connect the USB charger and charge the device promptly. If it still fails to power on, please contact the service provider.
Touch screen can't be used	The screen displays normally, but there is no response or buzz when clicking the button.	Restart the equipment. Please contact service provider if it still can't be used.
Self-test is not successful	The operation software is shown in the screen and can be operated.	Restart the equipment. Please contact service provider if it still can't be used.
Reagent card can't be identified	After inserting a valid test card, the screen displays: "No sample inserted."	Please contact service provider
QR code on the reagent kit cannot be recognized.	No response during scanning, even after adjusting the scanning distance.	Please contact service provider
The printer can't work	After test completion, clicking "Print" in either the "Samples Test" or "report" interface results in no response from the printer.	Check whether the device is connected to Bluetooth and if the printer has paper. If the issue persists, please contact the service provider.

7.2 Return for maintenance

Before the equipment is returned for maintenance, the operator should:

- Power off before returning to the factory；
- When returning equipment for repair, disinfection must be performed according to the procedures described in Clause 6.3 of this document. After disinfection is completed, the equipment can be packaged and shipped out；
- When returning equipment for repair, please use the designated logistics provider and the specified address to return the equipment to the FinderBio authorized service provider or the FinderBio after-sales service headquarters for processing.

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Appendix I FD400H Handheld Fluorescence Strip Reader Operating Guide

- **Start up**
  - Press and hold the power button to turn on the device.
  - Enter main interface after self-test
- **Preparation before sample detection**
  - Prepare reagent card, QR code of kit
  - Prepare "required equipment and reagents" in the kit instructions
  - Prepare sample
- **Sample detection**
  - Pre-processing samples according to the instructions of the test card.
  - Add sample at specified amount into sample hole of test card and wait for the specified reaction time.
  - Click “Samples Test”, set “NO.”, “SN”, “Sample”, “Source” “Inspector”,” Std Curve” and “Dilution Time” in sequence.
  - Insert the sample-loaded test card into the test card slot with the S hole facing outward, and push it into place.
  - Click "Start", the device automatically completes the detection and displays the measured value.
  - Select "Print"," Upload” or "Delete" report as required.
  - Take out test card whose test is completed, dispose of the generated waste properly in accordance with local laws and regulations.
- **Shut down**
  - Press and hold the power button to shut down after the test is completed.

Notice:

- Please wear gloves during operation to avoid injure and infection
- Please place the equipment away from direct sunlight and dusty and moist environment.
- Please dispose used sample according to requirement of hazardous substance disposal from health system, because the samples may contain substance which is harmful to human health and the environment.

If you have any question, please contact us at any time

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Appendix II Customer Service Sites

Shenzhen Finder Biotech Co., Ltd. Customer service department

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