

# AMR-MiniT

Microplate Reader

Operation Manual



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## Welcome to Use Allsheng Instruments

Thank you for using our microplate reader.

In order to use the instrument properly, please read this manual carefully before using.

Keep it for later use when you meet with difficulties. This manual provides you with convenient instructions for the use and maintenance of the microplate reader, including safety, installation, use, maintenance, repair and other aspects of the content.

Reading this book alone does not authorize individuals to have the ability to use this product.

### Opening Check

Please check the Instrument and Accessories according to the packing list when you first open the packing case. If anything wrong or missing, please contact the distributor or the manufacturer.

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## Version Modification Record

Version No.	Date	Modification Description
V 1.0	2025/05/20	Initial Release
V 1.1	2025/12/10	Add back function to the layout

## Safety Warnings

Users should have a clear understanding of how to use this instrument before operation, please read this manual carefully prior to operation.



Any operation without reading manual is forbidden.



**This instrument intended to use in Scientific Research only!**

### 1 Security

The operation, maintenance and repair of the instrument should comply with the basic guidelines and warnings below. Incorrect operation or maintenance will affect the protection provided by the instrument and the intended use of the instrument.



The instrument is normal indoor instrument which conforms to GB 4793.1 standard.



The user is strictly prohibited to disassemble the instrument. Except for the parts that can be opened by the user according to the manual. It may cause you to lose your warranty, or you may receive an electric shock if doing so. If necessary, our company will be responsible for repair.

- Before power on, guarantee the voltage used should be accordant to the voltage needed, and the rated load of electrical outlet should not lower than the demand.
- If the electric line of adaptor is damaged, you should replace it with the same type. You should assure there's nothing on the electric line and you should not put the electric line in the ambulatory place.
- 12V 3A power adaptor is used in this instrument. Output non-12V adapter is prohibited.
- The instrument should be placed in a place where it is easy to plug in and out of the power cord in case of power failure in an emergency.
- Insert and pull the power line with hand gently and make sure the plug completely insert to the jack. Do not pull the power cord hard when you pull the plug.



Note: When placed on the table, keep 20CM space for back, easy to open the door, pick and place the microplates and replace the filter group.



Before using the device, read the Manual carefully. These units are designed for use in laboratory environments. The device must be used by skilled personnel with the appropriate training.



Note: Biological contamination. All test samples, quality control products, standard products, etc., shall be considered infectious, gloves should be worn when contacting; All parts that have contacted with the test sample should be considered infectious, gloves should be worn when contacting.



Abandoned or used labwares should be handled in accordance with local laws and regulations and relevant laboratory regulations.

### Other Notes



The instrument should be kept in an area with low humidity, minimal dust, away from wet areas and direct sunlight. The room should be well ventilated, no corrosive gas or strong magnetic field interference, away from heating, furnaces and other heat sources.



Power off when not in use. If the instrument will not be used for a long period of time, cover it with a cloth or plastic to protect it from dust.

Disconnect the power cord from the jack at once in the following cases, and contact your local distributor or professional maintenance personnel:



- Liquid enters into the Instrument.
- Instrument was rained or watered.
- Abnormal operation: such as abnormal sound or smell.
- Instrument dropping or outer shell damaged.
- The function has obviously changed.

## 2 Transportation and Storage Requirements

### Transportation Condition



- Please clean the instrument before transport.
- Before transportation, please pack the instrument in a protective package.
- Transport of the instrument is prohibited upside down or violent impact, and waterproof.

### Transportation and Storage Requirements



- Ambient temperature:  $-20^{\circ}\text{C} \sim 55^{\circ}\text{C}$
- Relative humidity:  $\leq 90\%$
- Atmosphere pressure range:  $500 \sim 1060\text{hpa}$
- Locate it in a well-ventilated room, away from corrosive gas.

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# 1 Introduction

This microplate reader is an instrument for ELISA test, measuring concentration, absorbance, measuring positive or negative reaction between antibody and antigen in samples by reading enzymatic color change – Enzyme Linked Immunosorbent Assay (ELISA).

## 1.1 Application

Intended applications: This instrument is suitable for the sample enzyme ELISA.

Application occasion: Laboratories of scientific research institutes and medical colleges, etc.

## 1.2 Special Function

None.

## 1.3 Contraindication

No contraindication.

## 1.4 Service Life

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

**Note: According to the conventional five-year experimental model, the instrument meets the requirements of five-year service life.**

During use, the user shall maintain and repair the product in accordance with the requirements of the product manual. After maintenance or repair, products that are confirmed to remain basically safe and effective, can be used normally.

## 1.5 Features

- Compact structure and small appearance, occupying the size of about 2 microplates, can meet the needs of a variety of experimental environments.
- Energy-saving and maintenance-free, using low-power and long-life LED light source, saving maintenance costs.

- Independent removable light source and filter module, more convenient for wavelength switching, standard with 2 sets of filter modules, optional other wavelengths.
- Adopt APP control, support Bluetooth wireless connection, convenient data transmission and processing, simple and easy to use.
- Single wavelength, dual wavelength detection, fast detection, reliable results.
- Endpoint method and kinetic detection can be used for qualitative and quantitative analysis.
- Supports a variety of curve fitting modes (such as point - to - point, linear and non - linear regression, polynomial curves, logarithmic curves, four - parameter and five - parameter curves).
- Equipped with incubation capabilities, it can incubate microplates , which is suitable for growth curve experiments.

## 2 Specifications

### 2.1 Basic Parameters

#### Basic Parameters:

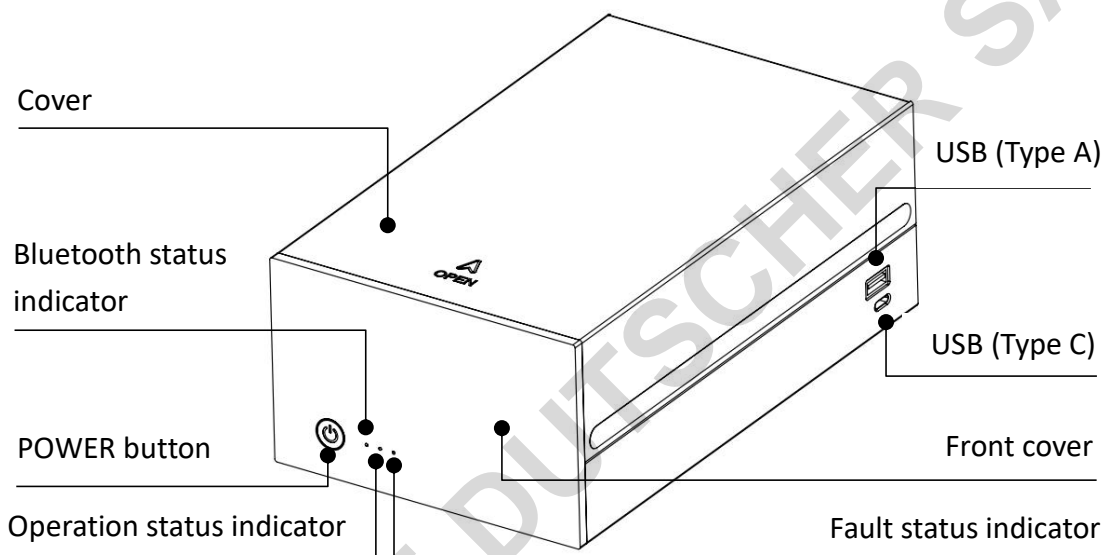
Model	AMR-MiniT
Function	Absorbance detection (Abs)
Consumable type	96-well
Light source	2-LED×2
Wavelength accuracy	≤±2nm
Wavelength range	400~750nm
Filter	Standard 450/630nm, 405/492nm
Measure range	0-4 Abs
Resolution	0.001 Abs
Linear	$R^2 \geq 0.995$ @ [0.0 - 3.0 Abs]
Accuracy	≤±(0.5%+0.01 Abs) @ [0.0-2.0 Abs] ≤±(1.0%+0.01 Abs) @ [2.0-3.0 Abs]
Repeatability	CV≤0.5% [0,3Abs]
Stability	≤0.005Abs [0.0,2.0Abs] ≤0.3% [2.0,3.0Abs]
Sensitivity	≥0.01Abs
Channel differences	<0.01Abs
Measure speed	Single wavelength <15s/96-well, dual wavelength <28s/96-well
Incubation temperature	RT+4°C- 50°C
Temperature accuracy	±0.5°C @ 37°C
Temperature fluctuation	±0.5°C @ 37°C
Software	APP
Power input	USB(Type C) DC 12V 3A
Instrument port	USB (Type A)×1, USB (Type B)×1, USB (Type C)×1
Dimension (W×D×H) mm	135 × 245 × 92
Net weight (kg)	2.4kg

### 3 Composition of Instrument

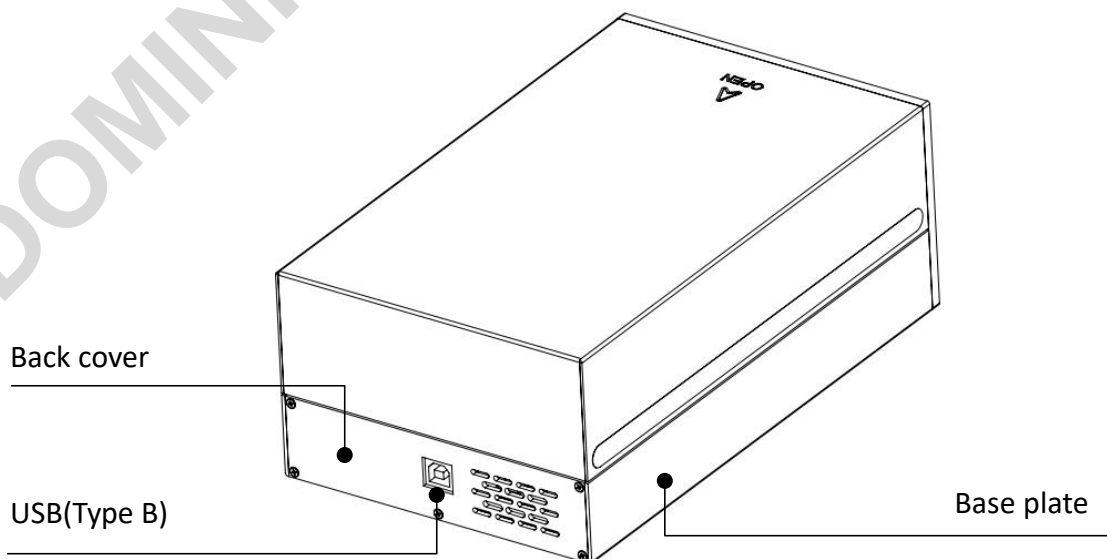
#### 3.1 Composition of Instrument

This chapter mainly introduces structures. Please read this chapter carefully before first using.

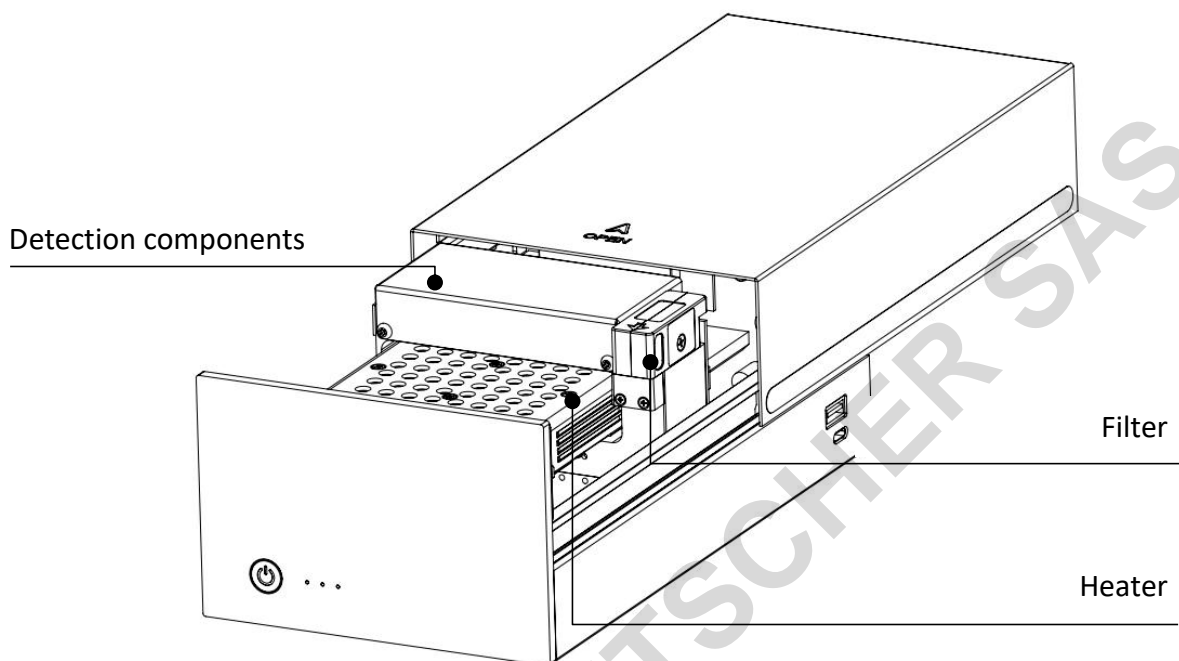
Structure Figure 1:



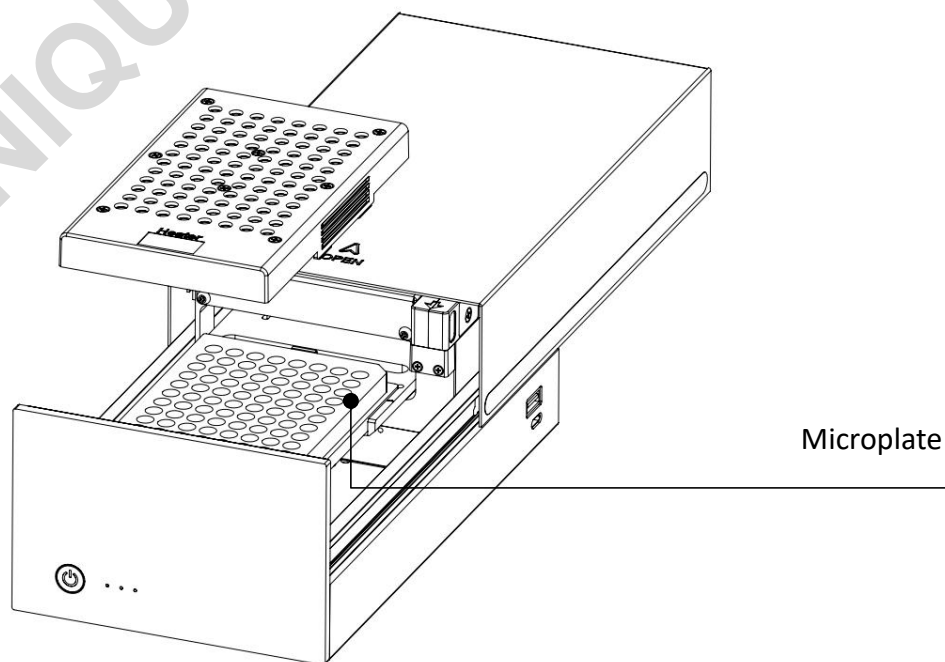
Structure Figure 2:



Structure Figure 3:



Structure Figure 4:



## 4 Use of Instrument

### 4.1 Installation

#### 4.1.1 Pre-Installation Inspection

All AMR-MiniT microplate readers have been strictly inspected by the company before shipping. When you receive the instrument, please check it carefully before unpacking for the following damages.

- ① The package inverted or deformed;
- ② The package has an obvious stains of water;
- ③ The package has marks of impact;
- ④ The package has been opened.

If it have any damage, please contact us immediately or notify local agent.

If the outer packing is in good condition, please open the packing case in the presence of agents and staff and check after unpacking:

- ⑤ Check all accessories according to the packing list;
- ⑥ Check instrument appearance if there is cracks, damage or deformation.

#### 4.1.2 Installation Conditions

Installation environment:

- ① Indoor.
- ② Running temperature: 4~45°C.
- ③ Relative humidity: 10%~80%.
- ④ Power adaptor: AC100-240V, 50/60Hz.

#### 4.1.3 Installation Steps


- ① Open the packaging.
- ② Take out the instrument on the worktable slowly and gently. Open the instrument cover to remove the instrument's internal positioning liner, and then close the cover.
- ③ Take out the power adapter(12V 3A), plug its USB (Type C) plug into the USB (Type C) port on the right side of the instrument, and then connect the other end to the voltage AC100~240V power supply.

- ④ Press the POWER button, the Bluetooth status indicator and operation status indicator flash alternately, and the instrument runs a self-check. After the self-check is completed, the status indicator stops flashing.
- ⑤ Open the app to connect the instrument via a wired connection, or click to connect via Bluetooth. Once connected successfully, the blue status light will remain on constantly, allowing you to perform tests.

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## 5 Operation Introduction

### 5.1 Instrument connection

After turning on the instrument, find the software icon  on the tablet and click to run the software. The software has two connection modes: you can connect the instrument via a USB cable or Bluetooth.

#### 5.1.1 Wired connection

The software defaults to using a wired connection. When connecting the instrument, plug the USB (Type B) end of the cable into the instrument's 'USB (Type B)' port, ensuring that the shape matches for proper insertion. Then, connect the USB (Type C) end to the tablet's USB (Type C) port. Once connected successfully, an icon in the top right corner of the software will display 'Connected'. You can check within the software to confirm if the connection was successful.

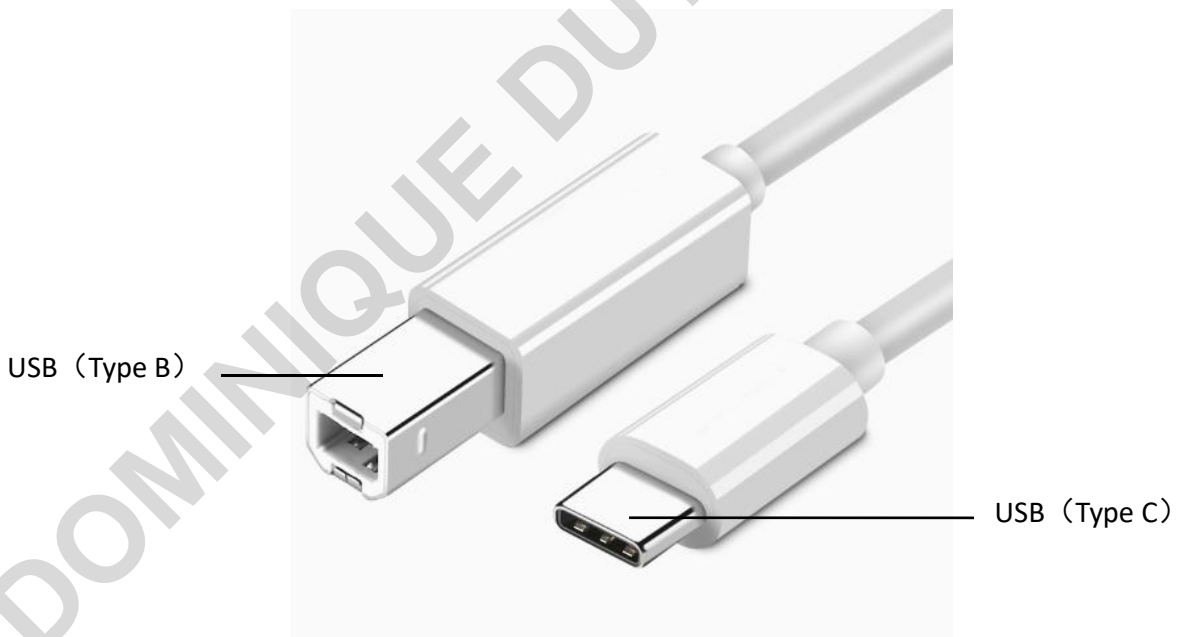


Fig5.1 Connecting cable

#### 5.1.2 Bluetooth connection

To use Bluetooth connection, go to the software settings and turn on the Bluetooth switch. Then, in the software settings under connection, switch the connection

method to Bluetooth. Select the instrument's Bluetooth and pair it. During the process of turning on Bluetooth, the software will request permission from your device to enable Bluetooth.

For more operations related to Bluetooth connection, see section 5.6.

## 5.2 Log in

Open the software and start the instrument. Upon entering the self-test interface as shown below, the instrument will automatically perform a self-test. If an error alarm occurs, please refer to Chapter 7 .



Fig 5.2 Instrument startup interface

After completing the self-check, proceed to the login page as shown below. 'Admin' is the administrator account with a default password of '0000'. Please note that the input is case-sensitive. After correctly entering the username and password, click 'Login' to access the software.

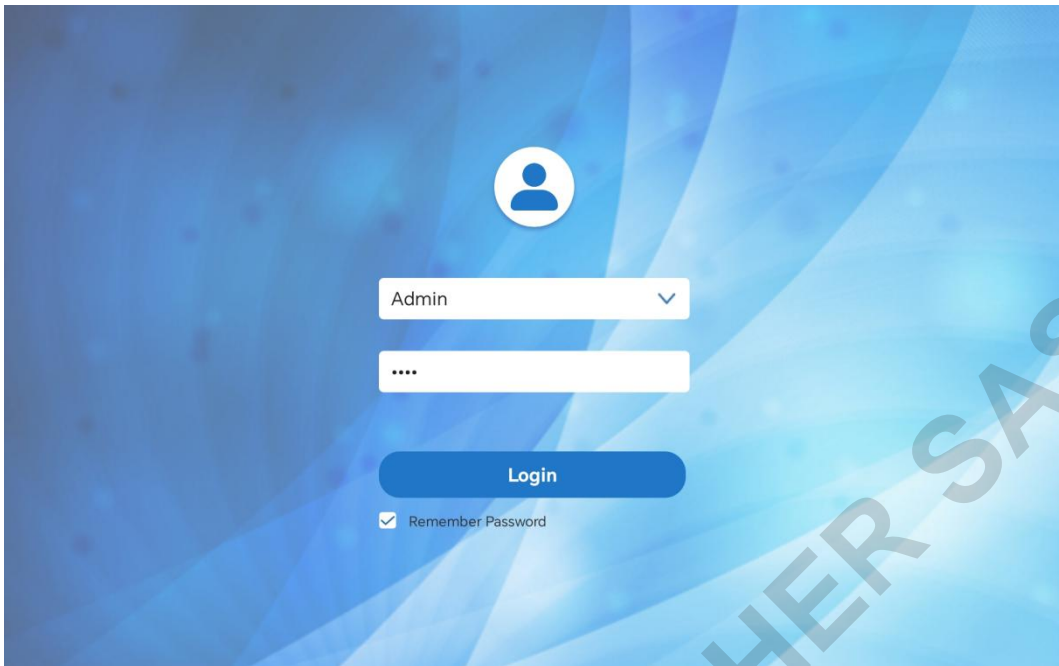


Fig 5.3 User login interface

**Note: If the user forgets the Admin password, they should contact the manufacturer for assistance. Please keep the 'Administrator Password' safe to avoid unnecessary losses.**

Name	Permissions content	Remark
Admin	User administrator permissions, all permissions related to user operations. Users cannot log in after forgetting the password;	Unique account, fixed name, initial password 0000
Advanced user	Administrator defined by Admin, the function operation is the same as that of Admin, or the permissions and functions of the administrator are less than or equal to that of Admin. The permissions and functions operation range are defined by Admin. The permissions are fixed before delivery, and the password is reset by Admin when forgotten;	Manage account group
User	Can only operate, can not do anything else, the lowest level of permission, current permission is fixed before delivery;	User Account group

When performing instrument testing, slide the chamber cover backward to open it, lift the heating lid upward, and place the ELISA plate inside. Ensure that the A1 marking on the plate holder aligns with the A1 hole on the ELISA plate (so that each well on the plate corresponds correctly to the displayed results). After placing the ELISA plate, put the heating lid back, then slide the chamber cover forward to close it, and you can run the program to start the test.

### 5.3 Main Interface

The software's main interface is shown below. Click on each module to access the corresponding screen.

The connection icon in the top-right corner changes based on the current selected connection method. When connected, clicking it displays a pop-up with the current connection information; when not connected, clicking it leads to the connection module.

In the help module, assistance can be obtained.

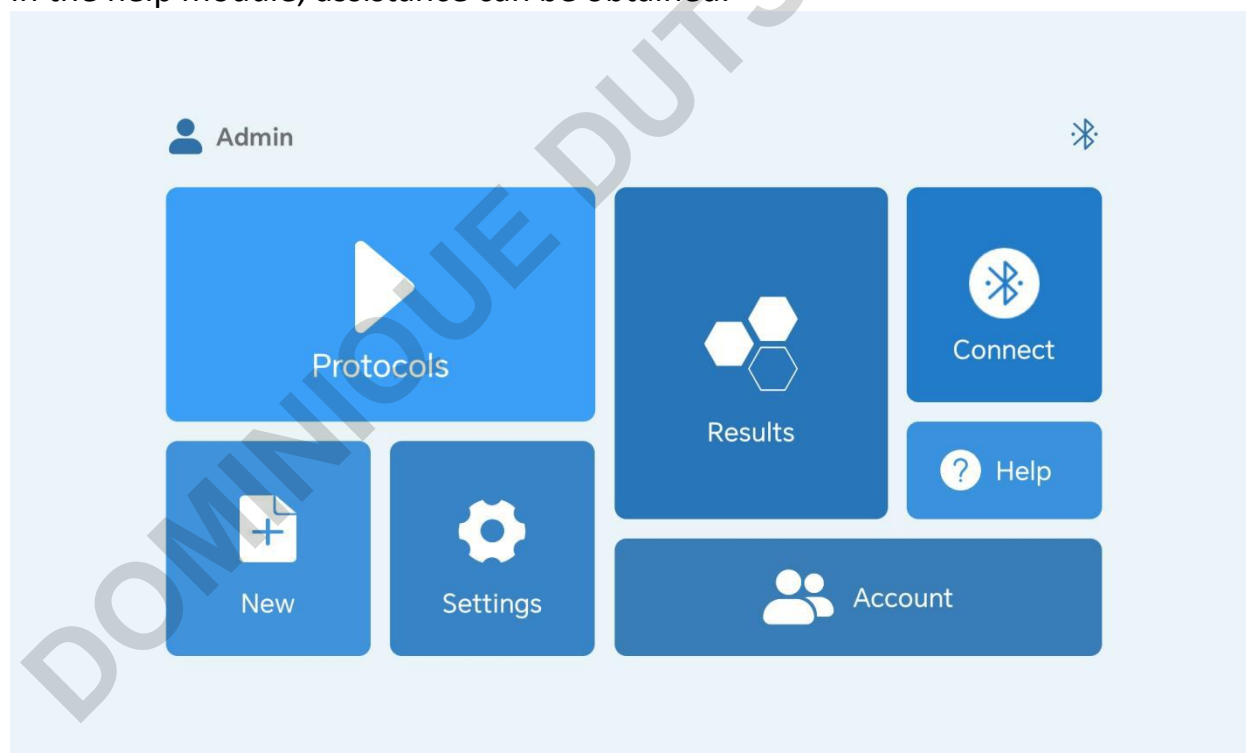














Fig 5.4 Main Interface

Tab 5-1 Homepage

Button	Function
	List of programs, all of which are templates that have not been run yet. You can choose a template to run.
	Create a new program, click to open the pop-up window, enter the program name, and then go to the program page.
	Results list, containing files of executed results, which can be used to view result data.
	Click to enter the settings interface, where you can configure various parameters of the software.
	Click to enter user management
	Click for help
	Connect—Bluetooth mode, click to enter the connection module, where you can view, change the connection mode, and manage the instrument.
	Bluetooth connected
	Bluetooth unconnected
	Connect—USB mode, click to enter the connection module to view and change the connection mode and instrument.
	Wired connected
	Wired unconnected

## 5.4 Programs

In the main interface, click on the protocol module to enter the program list, where you can view, create, and modify protocol files. Opening a program file allows you to set layout, run parameters, and more.





### 5.4.1 Protocol list




The protocol list displays templates of protocols that have not been run yet. You can enter keywords to quickly search for programs.



Fig 5.5 Protocol list

Tab 5-2 Protocol List Function Table

Button	Function
	Click to set a new protocol
	Save as selected protocol
	Click on management; replace the multi-select management button with options for import, export, delete, and return.
	To import the experimental data file, you need to use a USB drive.

	To export the experimental data file, you need to use a USB drive.
	Delete template file
	Clicking will replace the button with 'New' and 'Save As'. Turn off the checkbox to use




Opening or creating a protocol allows access to the protocol files, which are divided into four modules: layout, operation, results, and report.



When opening a protocol file, it defaults to the run module; when creating a new file, it defaults to the layout module.



Fig 5.6 Open the protocol file

Tab 5-3 Title bar function menu

Button	Function
	Click to return to the main interface
	Display the current program name. Click to modify the program name in real-time.
	Click to open the new pop-up window, where you can create a new protocol. The protocol name is to fetch and display the latest time

	format.
	<ul style="list-style-type: none"> <li>■ Not running—save as template protocol</li> <li>■ Open the template—update the template protocol</li> <li>■ Open results—Update results file</li> </ul>
	Quickly export the protocol in CSV file format

### 5.4.2 Layout





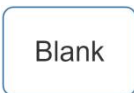
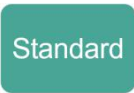

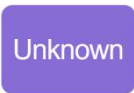
Enter the layout interface as shown below, which is used for arranging samples. Title bar displays the shared functions:





Fig5.7 Layout Interface

Sample types are divided into six categories: blank, standard, quality control, unknown, positive, and negative. Parameters can be set for each type of sample. The main display area allows for customizable layouts, with options including single well, full row (A-H), full column (1-12), all wells (All), and region selection. A two-finger drag gesture can be used to zoom in and out of the layout.

Tab5-4 Layout function menu

Button	Function
	Click to switch from panel mode to list mode to display the layout sample data in a list format.
	When the main display area is zoomed in, click to reset it back to its normal state.
	During the layout process, if you accidentally cover the original layout, you can click "Undo" to restore it.
	You can set corresponding parameters for standards, quality control, and unknown samples.
	Blank well, used as a control during testing. Multiple positions can be set as blank wells, with all defaulting to replicates.
	Standard wells, used for establishing the standard curve Set parameters: Replicates: Replicates settings can be configured using parameters for 'columns' and 'rows'. Concentration: Click the 'Set Concentration' button to configure the concentration of the standard sample. Up to 30 concentrations can be set. You can also customize the selection of samples for layout. Sample groups: Multiple sample groups can have multiple standard curves set.
	The sample wells used for quality control during testing, and the data evaluation for quality control. Set parameters: Replicates—operation is the same as for standard wells.
	Unkown Multiple wells can be set as unknown sample wells. Set parameters: Replicates—operation is the same as for standard wells.

	<p>Sample Name: Can input numbers</p> <p>Dilution: 1:X indicates that the solution has been diluted X times, and the sample concentration will be automatically recalculated after testing.</p>
	<p>Positive well, For qualitative analysis calculations</p> <p>Multiple positive control wells can be set up, with all defaulting to replicates.</p>
	<p>Negative well, For qualitative analysis calculations</p> <p>Multiple negative control wells can be set up, with all defaulting to replicates.</p>

**Note: The layout can be set up before or after the experiment. For example, users can set all the wells in the layout to 'unknown' and read the absorbance values. After the detection is complete, the actual plate layout can be defined. The detection data and layout are kept separate, allowing users to modify and analyze the layout of historical data in real-time.**

**However, this operation only changes the type of hole sample and does not alter the absorbance test result values.**

### 5.4.3 Run

Click on the run icon to enter the interface shown below, set the run parameters, and start running.

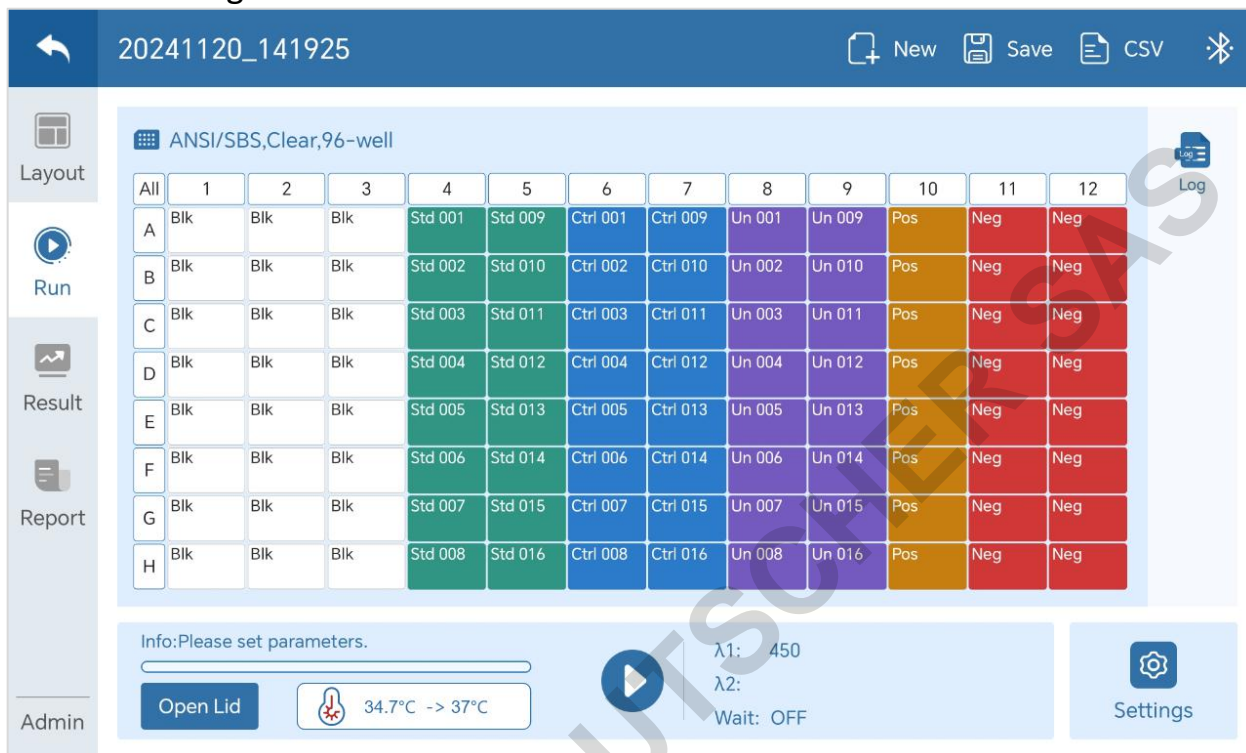

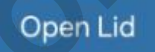






Fig5.8 Run Interface

Tab5-5Run function menu

Button	function
	Display the current program's runtime log.
Progress bar	Display the current progress of the program in real-time.
	Lid open button.
	Display the current temperature and incubation temperature. Click the button to set the incubation switch and temperature in a pop-up window.
	Click to run the protocol.

	Click to stop the protocol.
	Click to enter the runtime parameter settings interface.

#### 5.4.3.1 Running setting


Click  to enter Run settings, including detection type and corresponding parameters, wavelength selection, and wait time. Switch between setting options on the left, set parameters in the middle, and view the steps and parameters of the program on the right.



Fig5.9 Parameter Settings - Endpoint Method

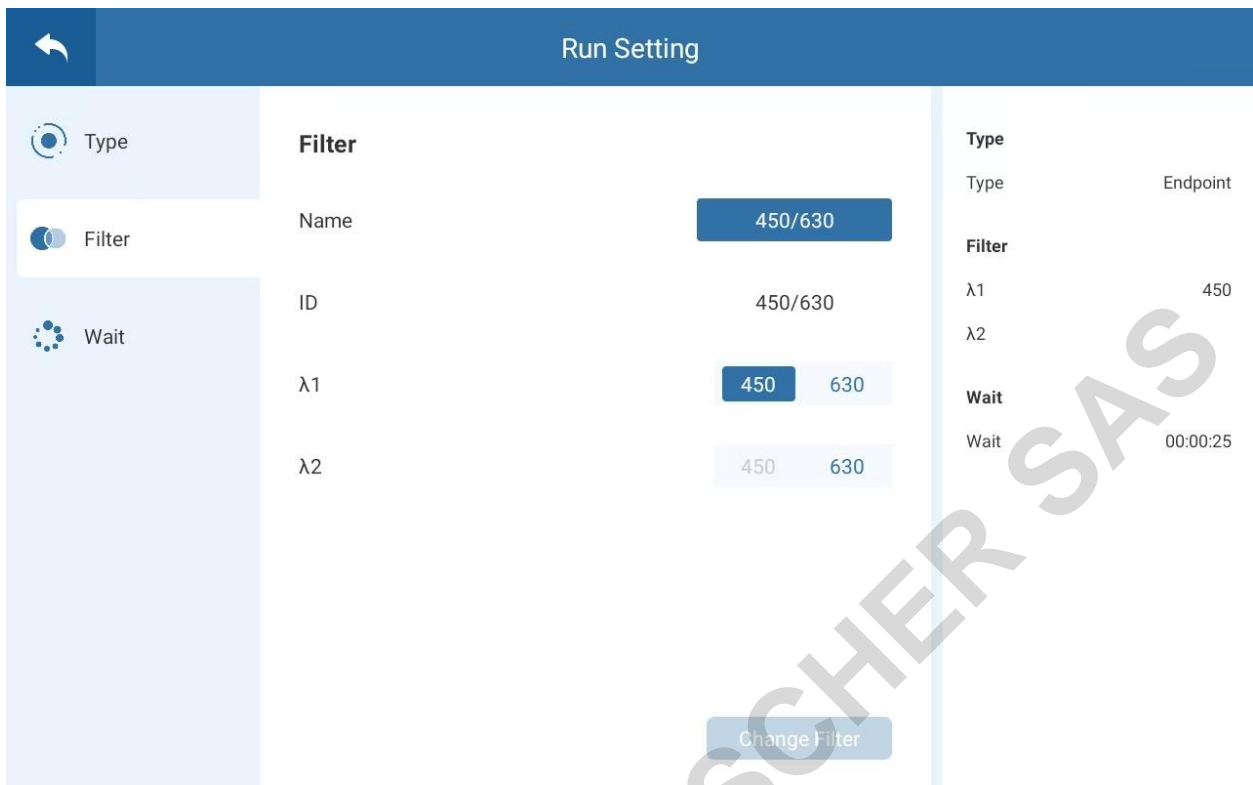


Fig5.10 Parameter Settings -Endpoint Method - Wavelength

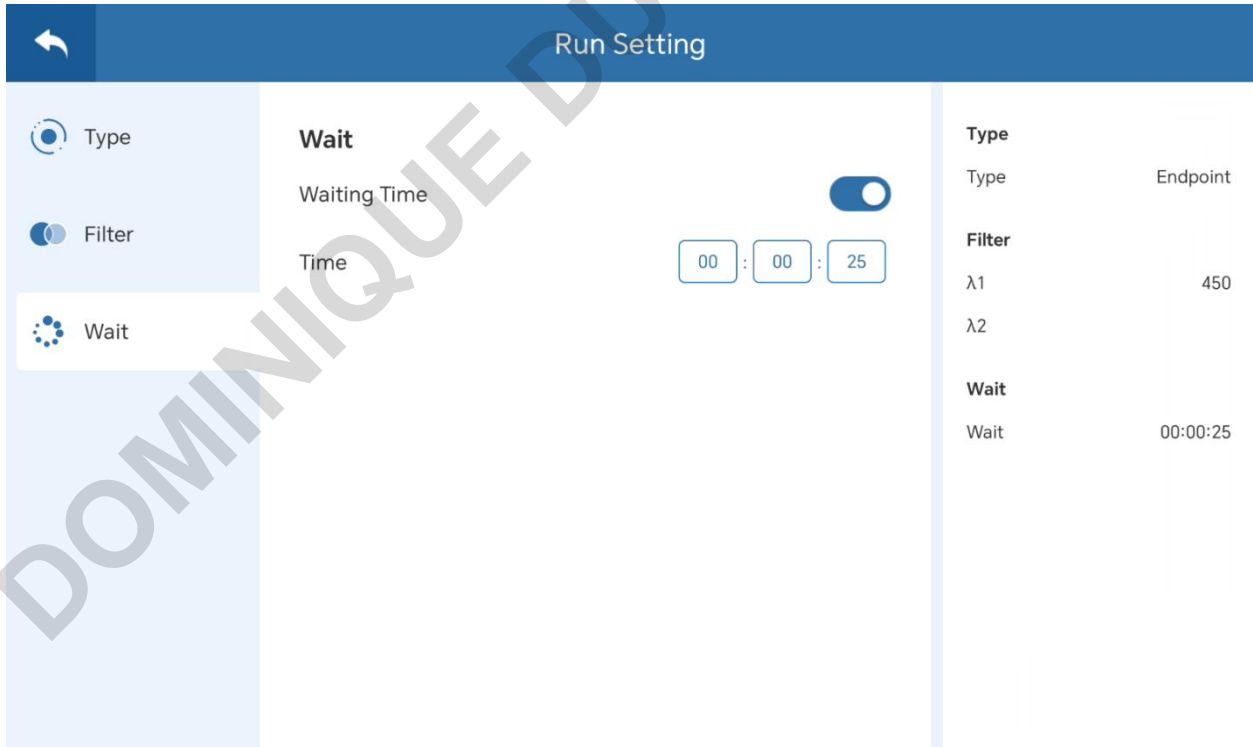


Fig5.11 Parameter Settings -Waiting Time

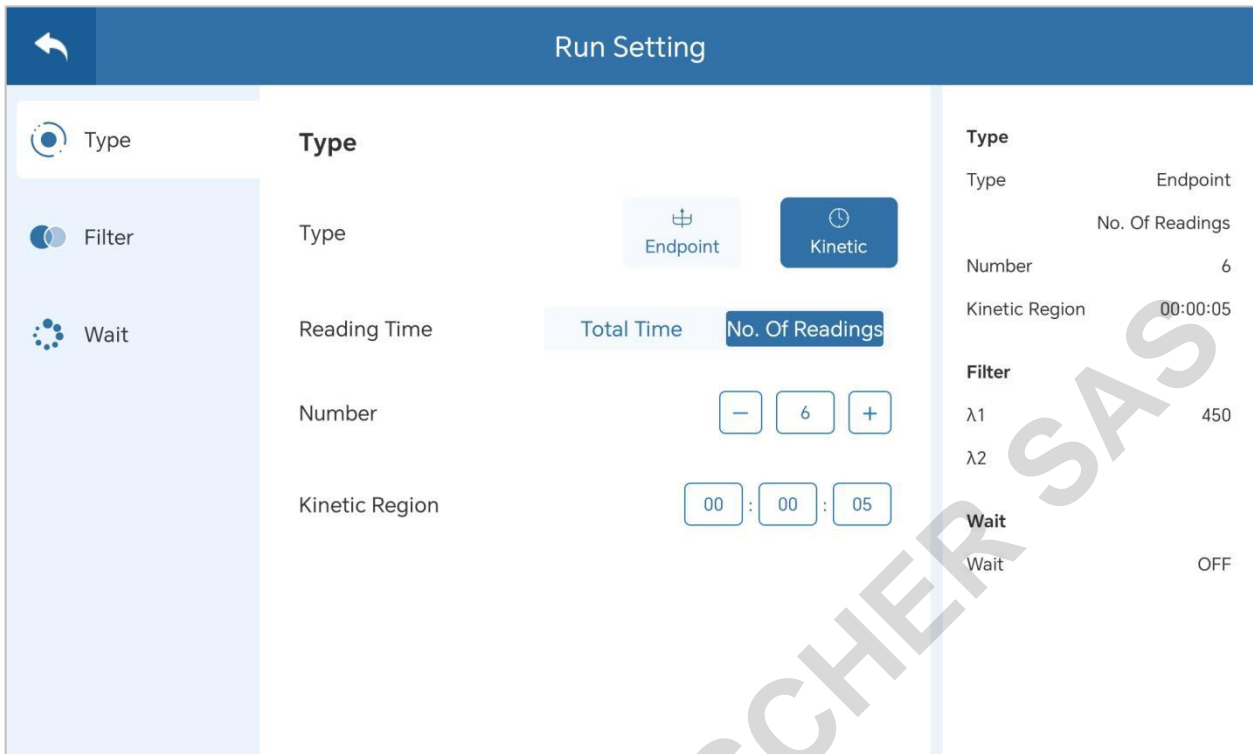


Fig5.12 Parameter Settings - Kinetics

Procedure Type Selection – Kinetic Mode: Readings Available by Time or by Cycle.

Click the icon in the upper-right corner  to view the corresponding instructions.

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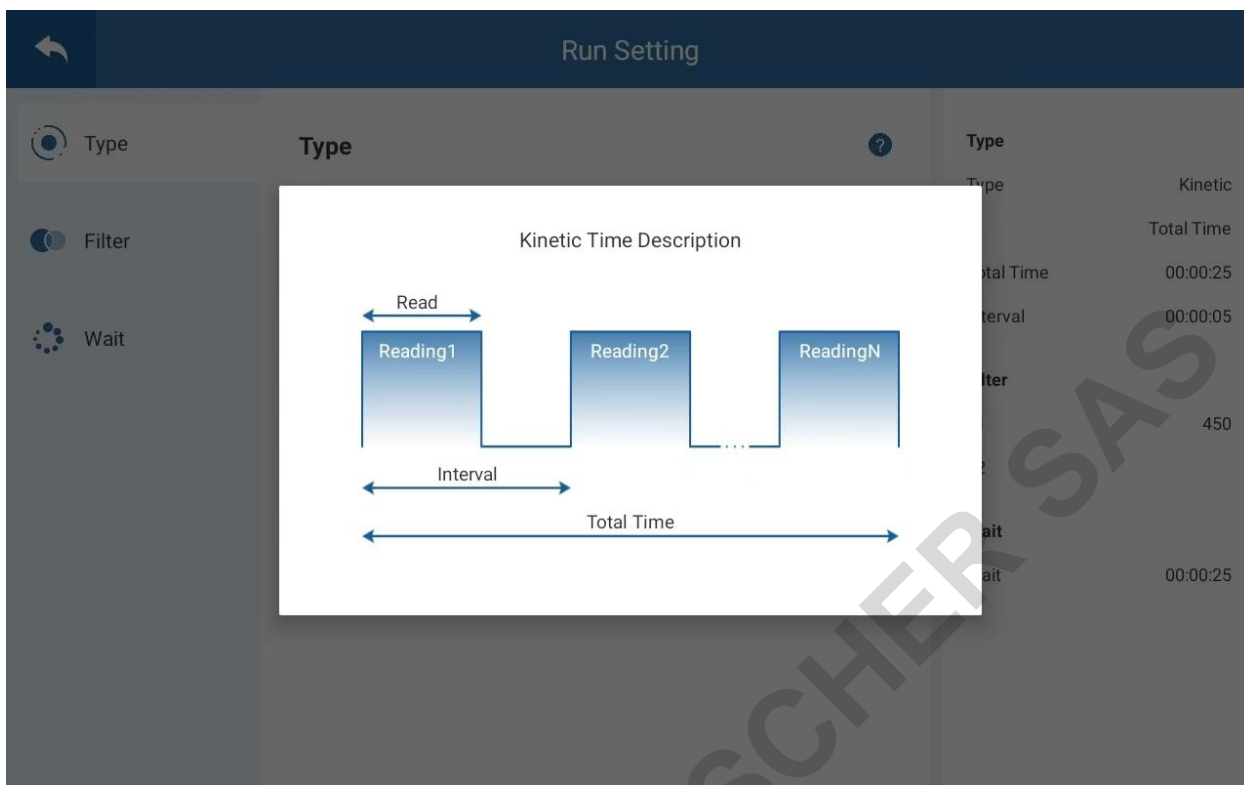


Fig5.13 Parameter Settings-Dynamics - By Time

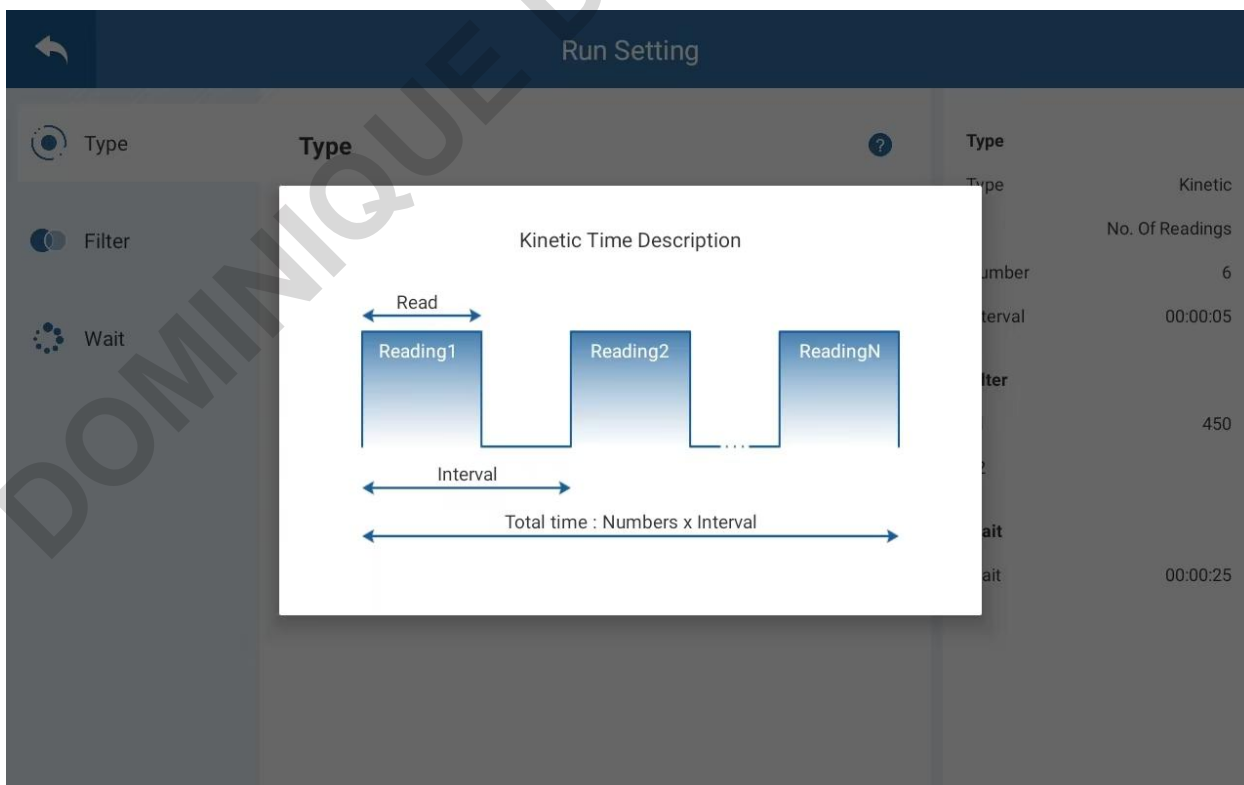


Fig5.14 Parameter Settings-Dynamics - By Count

## 5.5 Result

In the main interface, click on the results module to enter the results list, where you can view and modify result files. Load the output file and navigate to the completed program's results. It is possible to set various algorithm parameters, export reports, and then run again, etc.

### 5.5.1 Result list






In the main interface, click on the results module to enter the following interface, where a list displays the results of previously run programs. The list shows the program name, program type (endpoint method/kinetics), creator, run time, and whether the program has completed running.

No.	Name	Instrument	Type	Creator	Time	Status
7	20241121_140746	AMR-Mini	Endpoint	Admin	11/21/2024 14:08:46	Finish
8	20241120_154201	AMR-Mini	Endpoint	Admin	11/20/2024 15:46:08	Error
9	20241120	AMR-Mini	Kinetic	Admin	11/20/2024 15:40:09	Finish
10	20241120_152656	AMR-MiniT	Endpoint	Admin	11/20/2024 15:28:08	Error
11	20241120_152318	AMR-Mini	Endpoint	Admin	11/20/2024 15:24:30	Error
12	20241120_151717	AMR-Mini	Endpoint	Admin	11/20/2024 15:17:57	Finish
13	20241120_151413	AMR-Mini	Endpoint	Admin	11/20/2024 15:15:23	Finish

Fig5.15 Result list

Tab5-6 Result list function menu

Button	Function
	Rename result files
	Save as selection results, you can choose whether to include the result data. If not included, it will be saved as a template protocol.

	Click to manage; replace the multi-select management button, including import, export, delete, and return.
	To import the experimental data file, you need to use a USB drive.
	To export the experimental data file, you need to use a USB drive.
	Delete result file.
	Clicking will replace the button with rename and save as options; use the close checkbox.

### 5.5.2 Algorithm—End Point Method

The results interface mainly displays the analysis and processing of data after the program runs. Programs that have been executed are marked as 'Executed' in the top right corner of the interface. You can switch wavelengths at the top of the interface to view the corresponding Raw Data.

The endpoint method calculation analysis involves blank subtraction, basic calculations, standard curve, classification, and quality control. Click the parameter button in the bottom right corner to access the parameter interface for setting the algorithm.

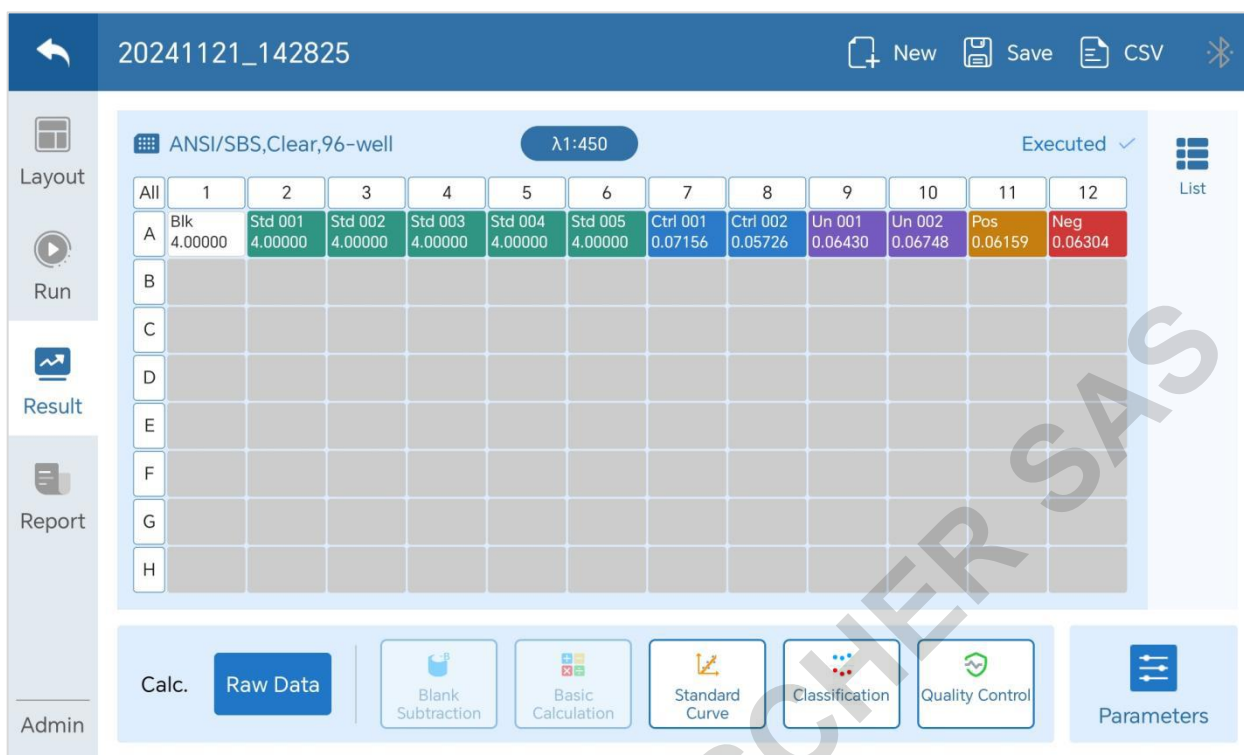


Fig5.16 Result interface

Tab5-7 Endpoint method algorithm menu

Name	Algorithm	Requirements
Raw data	Display the absorbance values obtained directly from each well	
Remove whitespace	Determine the blank absorbance using the blank sample, and subtract the blank absorbance from the absorbance of each well.	A blank sample needs to be set up. Calculation participation must be enabled in the parameters.
basic calculation	The absorbance data from two wavelengths can undergo four basic arithmetic operations: addition, subtraction, multiplication, and division.	Enable participation in calculations in the parameters.
Standard curve	Based on the previously set standard concentrations and the measured absorbance values, calculate the	Standard samples need to be set up.





	<p>sample concentration using the generated standard curve.</p> <p>The main display area will show the fitted curve and its parameters, as well as the data of the unknown sample.</p>	
Classification	<p>Conduct qualitative analysis on the sample. Enter the corresponding values in the parameter settings and input them into the calculation formula. The system will automatically indicate the positivity of the sample wells, with '++' for positive, '+' for weakly positive, and '-' for negative.</p>	<p>Positive and negative control samples need to be set up.</p>
Quality control	<p>Based on the conditions set in the 'parameters' setting, automatically determine if quality control has passed.</p>	<p>Quality control samples need to be set up.</p>

The standard curve is shown as follows after fitting.



Fig5.17 Standard curve

Tab5-8 Standard curve function menu

Button	Function
	Click to display the unknown item on the curve.
	Save selection results, with an option to include or exclude result data. If excluded, save as a template program.
	Click to display the standard sample list pop-up
	Click to save the current standard tune information to the standard tune library

If the fitting results are unsatisfactory, you can modify the fitting type by setting the 'parameters', or preprocess the measured absorbance values and the input standard sample concentrations before curve fitting to achieve the best results. The instrument currently offers 9 types of fitting.

- Linear fitting
- 4 parameters
- 5 parameters
- quadratic polynomial
- cubic polynomial
- quartic polynomial
- peer-to-peer
- cubic spline
- Logit/Log

By using two options of concentration conversion and absorbance conversion, it is possible to preprocess the absorbance values with the standard sample concentration values. Currently, there are four types:

- Linear/Linear (directly fitting the absorbance values with their corresponding concentration values).
- Linear/Logarithmic (linear fitting of absorbance values with the logarithm of corresponding concentration values).
- Logarithmic/Linear (fitting the logarithm of absorbance values linearly with corresponding concentration values).
- Logarithmic/log (Linear regression of the logarithm of absorbance values against

the logarithm of corresponding concentration values).

**Note: The program layout interface must include the setup for standard sample positions and sample concentrations. The number of standards required may vary depending on the fitting algorithm. If the fitting is unsuccessful, the layout settings need to be checked.**

### 5.5.3 Algorithm—Kinetics

The dynamic calculation analysis method involves subtracting blanks, performing basic calculations, creating standard curves, and conducting kinetics analysis.

The original data, removal of blanks, basic calculation functionality, and consistency between the algorithm results and endpoint method outcomes are all included.

The standard curve function can optionally select the reading from the *n*th measurement for fitting as the original data.

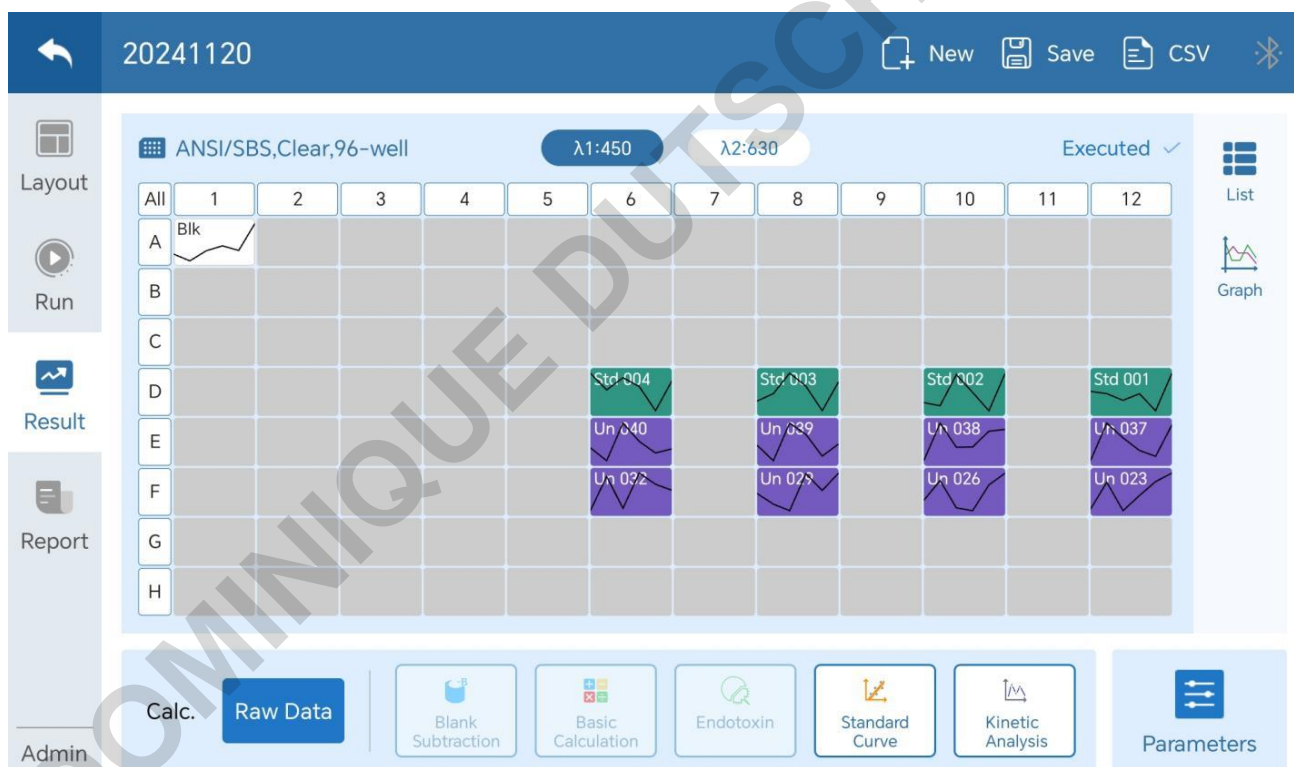


Fig 5.18 Kinetics results interface

- Endotoxin: Set the absorbance value to calculate the corresponding time for each well.
- Kinematic analysis: Displays corresponding data based on the selected calculation type.

- Mean/SD/CV%: Calculate the mean, standard deviation, and CV% of the measured values within the set reading range.
- Integral: Calculate the area under the kinetic curve within the set reading range.
- Baseline deduction: Select a baseline and subtract the corresponding value from all measurements.
- Select a single reading: Read the measurement value of a single reading point.
- Select the reading range: Set the reading range and obtain kinetic test data for each wavelength.
- Maximum rate: The highest rate observed within the set reading range on the kinetic curve.
- Maximum value (peak): Read the highest value within the set reading range of the kinetic curve.
- Average rate: the maximum rate within the set reading range of the kinetic curve.

**Note: Depending on the type of kinetics calculation selected, the parameters and main display area content will change accordingly.**

### 5.5.4 Report

After processing the results, you can export the processed data along with the original data through the 'Report' interface. Click on the sidebar to switch to the report module, as shown in the figure below.

Using the 'File Type' field below, you can choose the desired export format. There are four text formats available: XLS, CSV, PDF, and TXT.



Fig5.19 Report Interface

Click the 'Output' button to select the content you need to export, and export the report in the desired format to a USB drive.

Click the 'Share' button, a pop-up will appear where you can select the content to generate and share the report with any shareable apps installed on the tablet.

## 5.6 Connection

The connection module is used for communication between the tablet and the instrument, allowing either Bluetooth or USB connections, with USB being the default. Bluetooth connection is only available when Bluetooth is enabled in the settings, as shown in the interface.

Click on the connection icon to enter the connection settings page. In Bluetooth settings, you can modify the Bluetooth configuration of paired devices: You can change the instrument's Bluetooth name, and once changed, other devices connecting to this instrument will see the updated name.

After the Bluetooth connection is established, the device's buzzer will sound once to indicate successful connection.



Fig5.20 Connection

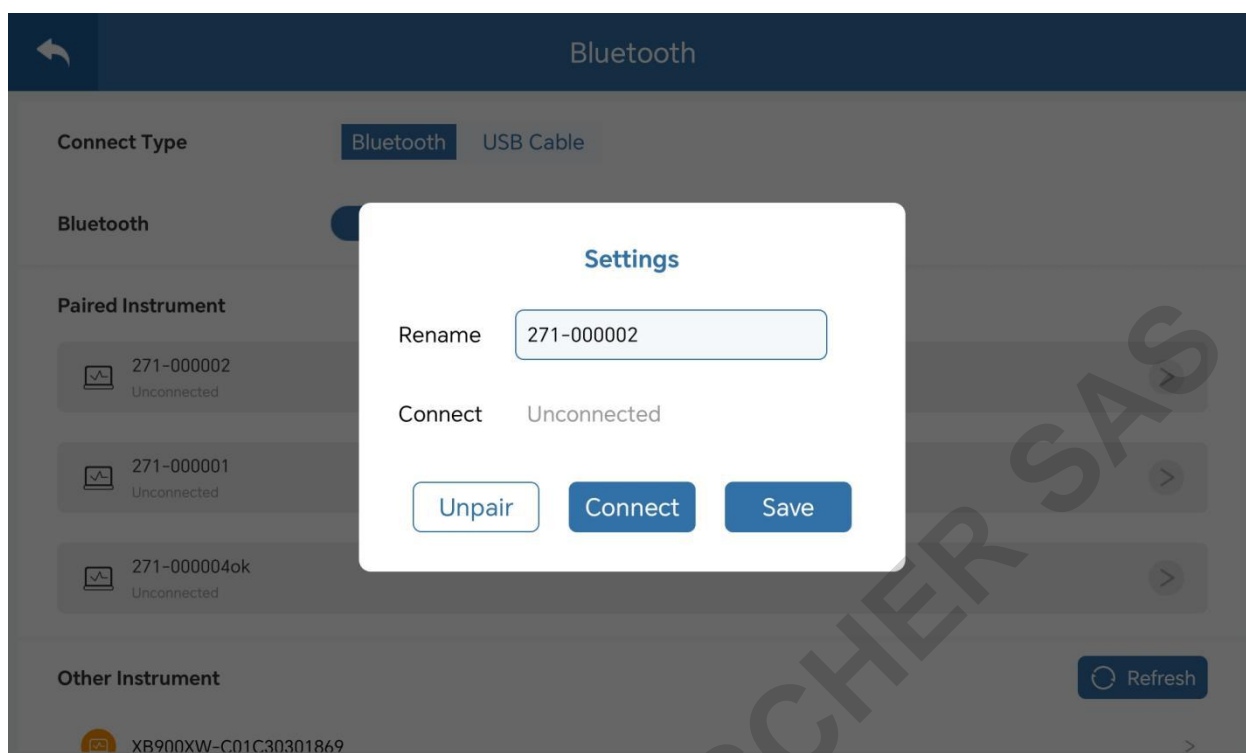


Fig5.21 Bluetooth setting

## 5.7 Settings

Click on 'Settings' in the main interface to enter the settings screen, where you can modify various parameters of the software.

### 5.7.1 System

In the system settings, you can switch the software language and adjust the tablet's screen brightness.

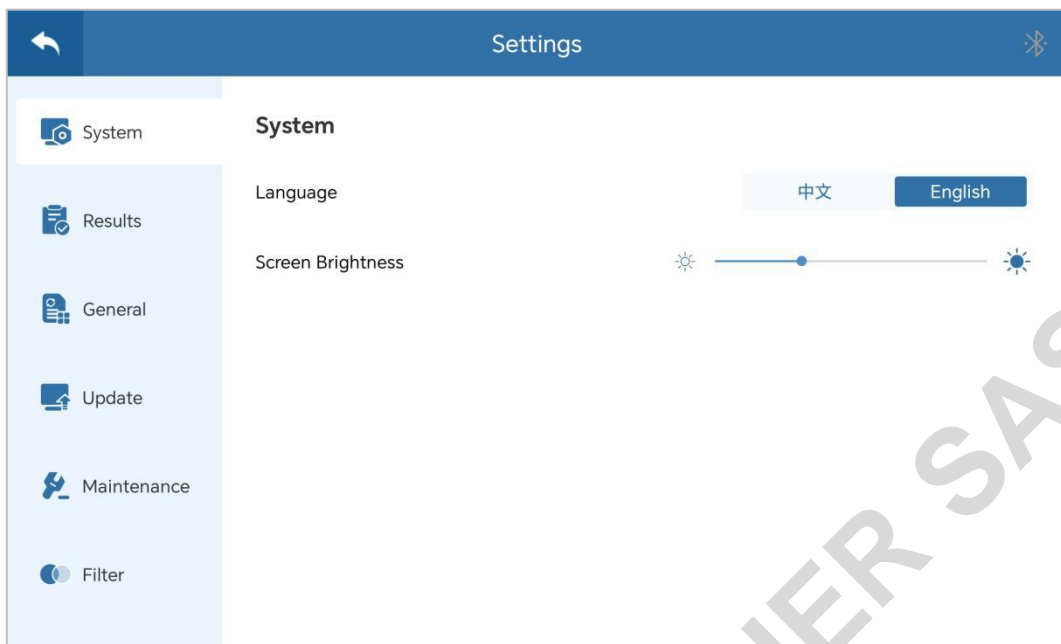


Fig5.22 System

### 5.7.2 Results

The result settings allow you to specify the number of decimal places to retain for absorbance data and calculated data, with a default of 3. You can set it to 2 to 5 decimal places.

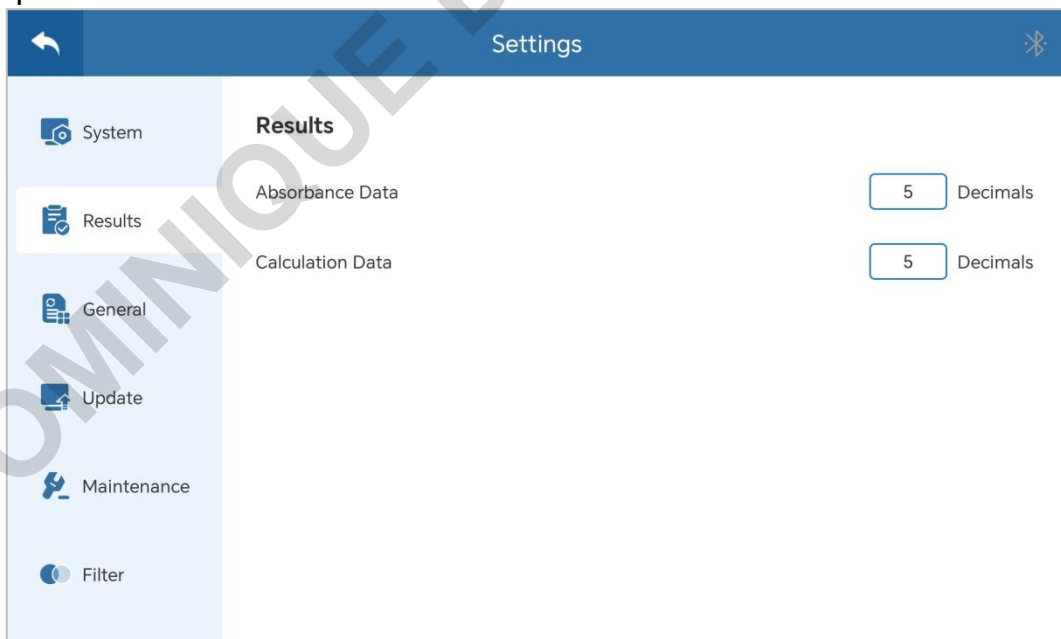


Fig5.23 Results

### 5.7.3 General

Instrument communication log switch: controls whether the generation of

operational settings is enabled or disabled.

Bluetooth: Once enabled, you can use Bluetooth to connect to the device.

Close the door before operation: After activation, the instrument automatically closes the chamber door before running.

Open the door after operation: Once the experiment is complete, the instrument will automatically open the chamber door.

Kinetic reading range: After activation, the kinetic reading range is 256 to 30,000

Position calibration: Requires connection to the instrument to use; click to open the calibration pop-up



Fig5.24 General

#### 5.7.4 Update

During the upgrade process, the software and hardware version numbers will be displayed. Place the file program in the Update folder on a USB drive, insert the USB drive into the tablet, and click on software upgrade to update the software. Insert the instrument into the USB drive and click on firmware upgrade to update the firmware.

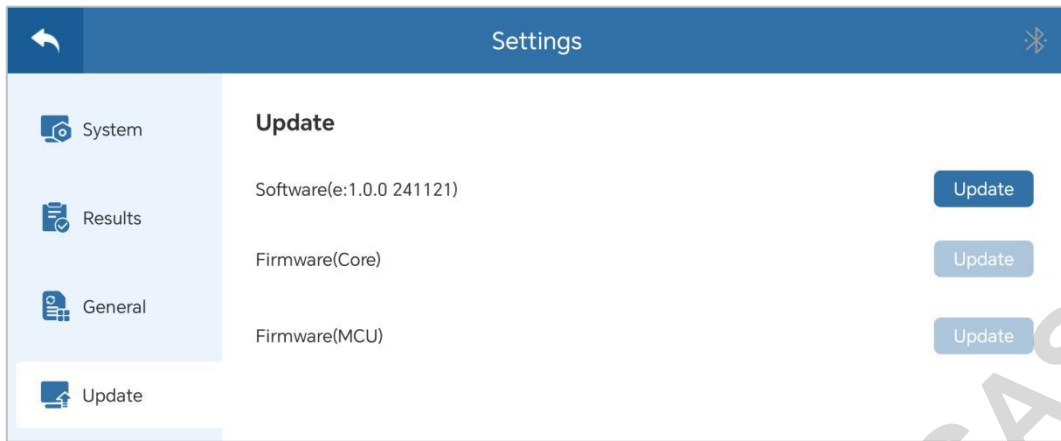


Fig5.25 Update

### 5.7.5 Filter

The filter list displays the data of the set filters, allowing you to create, edit, or delete filters.

**Enable:** Select a filter data entry and click to activate it. Once activated, it will be associated with the wavelength selection of the operating parameters.

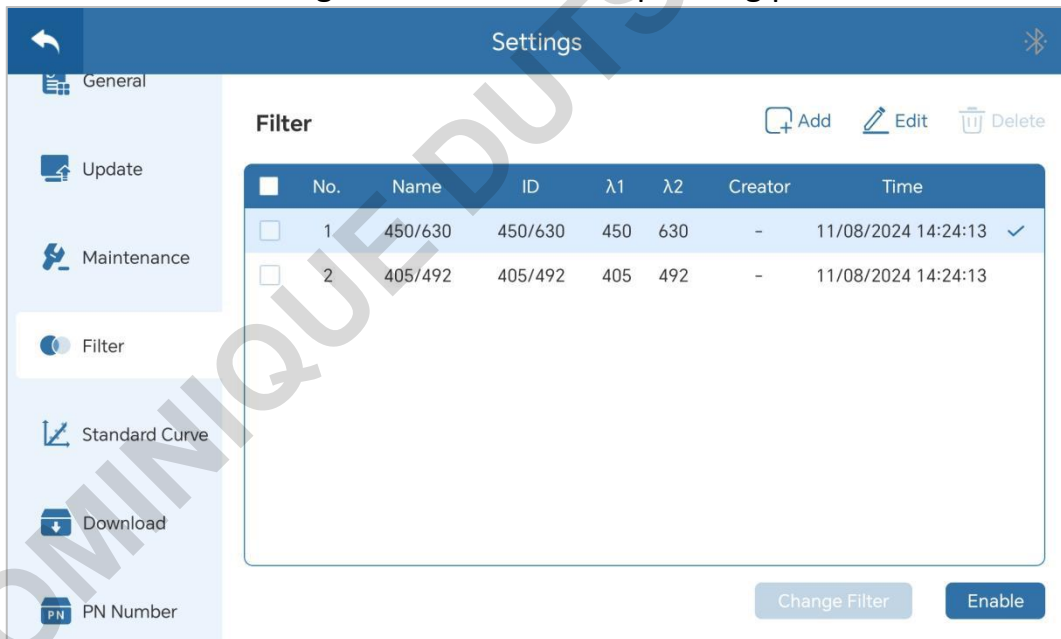


Fig5.26 Filter

### 5.7.6 Standard curve

The standard curve list displays saved calibration data, allowing you to view detailed parameters of the calibration curves. You can also import and export the data via a USB drive.

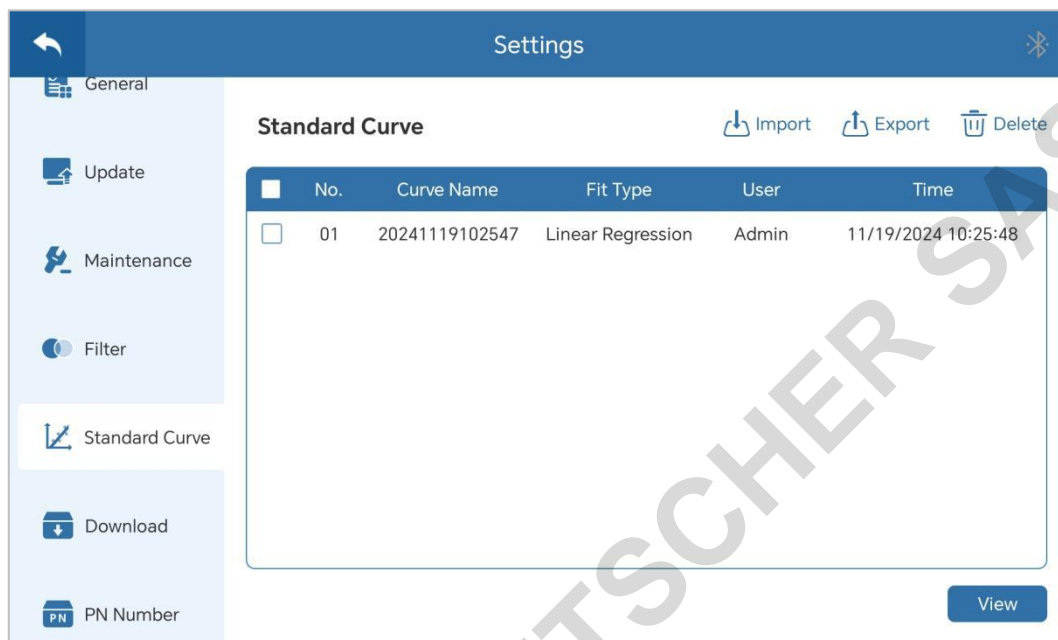


Fig5.27 Standard curve

### 5.7.7 Download

You can retrieve the instrument's data files to this list and save them locally on the tablet or to a USB drive.

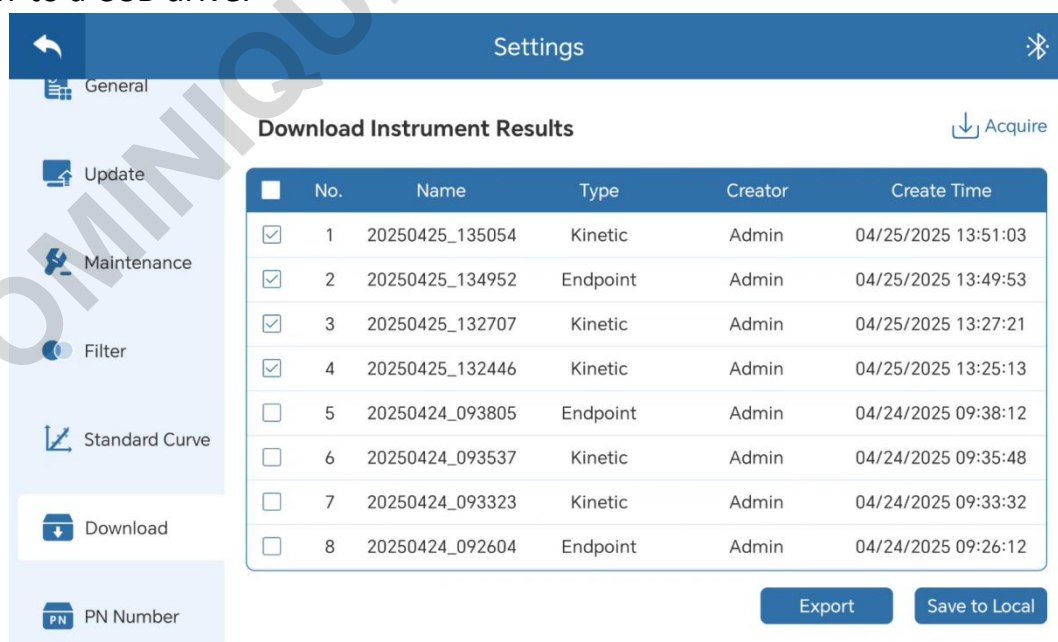
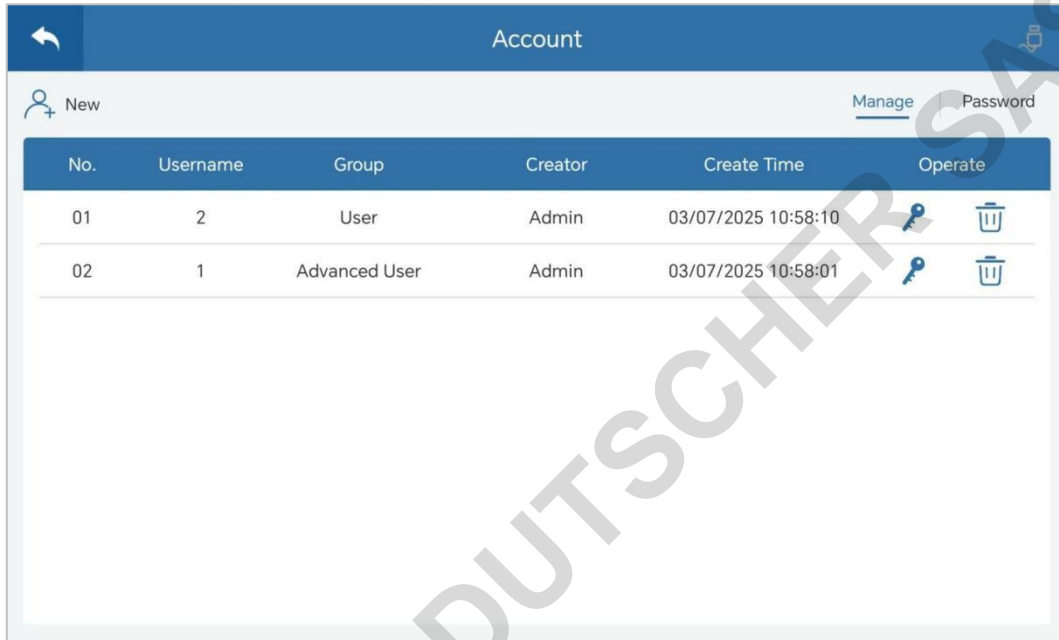


Fig5.28 Download interface

## 5.8 User management

In the main interface, click to enter the user interface to modify the password of the currently logged-in account. Switch to the management page to manage user accounts and passwords.

Regular users only see the password page when they enter the user interface, allowing them to change their own passwords.



The screenshot shows a web interface titled 'Account'. At the top, there is a navigation bar with a back arrow, the title 'Account', and a user profile icon. Below the navigation bar, there are two tabs: 'New' (with a person icon) and 'Manage' (which is selected). To the right of the 'Manage' tab is a 'Password' tab. Below the tabs is a table with the following columns: 'No.', 'Username', 'Group', 'Creator', 'Create Time', and 'Operate'. The table contains two rows of user data. Each row has a key icon and a trash can icon in the 'Operate' column.





No.	Username	Group	Creator	Create Time	Operate
01	2	User	Admin	03/07/2025 10:58:10	 
02	1	Advanced User	Admin	03/07/2025 10:58:01	 

Fig5.29 User management

## 6 Maintenance

- Keep storage environment dry and clean to prevent from moisture, corrosion, strong electromagnetic interference sources.
- Instrument already calibrated before delivery. User is not allowed to disassemble the instrument. Any deficiency occurs, please contact manufacturer.
- Continuous emergency turning on/off is not allowed.
- The power adaptor voltage must meet the specified range.
- The microplate holder should be cleaned regularly to remove debris and dirt that would interfere with its proper operation. Debris and spills should be removed as soon as they are discovered using a moistened, lint-free soft cloth. By cleaning the equipment, user can ensure a precise level of device function.
- Warning! Do not use cleaning solutions that are corrosive. Scratching of the surface of the instrument should be avoided.
- Warning! Do not pour water or other solutions into the inside of the instrument, this can cause a short circuit in the internal circuitry.

## 7 Fault Analysis and Solutions

No.	Fault Phenomenon	Possible Causes	Solutions
1	The Microplate Reader can not be started	Power supply failure	a. Check the if the instrument energized b. If the power plug loose c. Check the voltage
2	"E912-E992" during self-checking	Light intensity is too strong	Please contact your distributor or manufacturer.
2	"E913-E993" during self-checking	Insufficient of light intensity	Please contact your distributor or manufacturer.
4	"E901" during self-checking	Dark current failure	Please contact your distributor or manufacturer.
5	"E407, E408" during self-checking	Motor driver or photoelectric switch failure	Please contact your distributor or manufacturer.
6	"E602" during self-checking	Detection module failure	Please contact your distributor or manufacturer.
7	"E703" during self-checking	Storage chip failure	Please contact your distributor or manufacturer.
8	Heating anomaly E001	The lid is not properly placed. The heating film or sensor is malfunctioning.	Check the placement of the heat lid. If the self-test is normal but the issue persists, please contact the supplier for repair.
9	Crash noise occurred during running	The Elisa plate is not in place or plate cover fell off	a. Check Elisa plate b. If noise still there when running without plate, restart the instrument c. If noise still there, please contact your distributor or manufacturer
10	Test results unstable	Light path failure	Check if the plate is placed well, if liquid spilled out and whether the front door works well, then re-start the instrument. If problem still there, contact your distributor or manufacturer.

## 8 Abbreviations and Marks

### 8.1 Abbreviations

The following Abbreviations are for reference and will appear in this operation manual.

A	Ampere
DC	Alternating current
V	Volt
Hz	Hertz
W	Watt
USB	Universal Serial BUS
Kg	Kilogram
mm	Millimeter
µL	Microliter
hpa	Hectopascal
°C	Degree centigrade

## 8.2 Marks

The following marks appear on the device.

	Warning
	European standard
	Biological pollution
	Should not be discarded at will

**Memo**

DOMINIQUE DUTSCHER SAS

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