

# Somatic Cell Count Tester

## Instruction Manual



**SCCT**

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## About this manual

Thank you for using the somatic cell count tester. In order to enable you to operate the device proficiently as soon as possible, we have provided a detailed instruction manual. When you install and use this instrument for the first time, please be sure to read all the accompanying information carefully. In order to improve the performance and reliability of the instrument, we sometimes make some changes to the instrument (including hardware and software). At that time, we will modify or add information, but there may still be inconsistencies in some descriptions. If there are any errors and omissions in this instruction manual, you are warmly welcome to correct them.

This manual describes the purpose, functions and operation methods of the product in detail. Before using this product, please read and understand the contents of this manual carefully to ensure that you can use this product correctly and ensure the safety of the operator.

All illustrations provided in this manual are for reference only. The settings or data in the illustrations may not be exactly the same as the actual display you see on the product.

## Statement

The manufacturer owns the copyright of this non-publicly published instruction manual and has the right to treat it as confidential information. This instruction manual is only used as a reference for operating, maintaining and repairing the product, and no one else has the right to disclose this instruction manual to others. This instruction manual contains proprietary information protected by copyright law, all copyrights reserved, and no part of this instruction manual may be photographed, copied or translated into other languages without the written consent of the manufacturer.

# CONTENTS

<b>1</b>	<b>Product contents.....</b>	<b>01</b>
	1.1 Product Introduction.....	01
	1.2 Somatic Cell Cout Tester.....	01
	1.3 Chip.....	02
	1.4 Reagents.....	02
<b>2</b>	<b>Key performance indicators.....</b>	<b>03</b>
	2.1 Outer packaging inspection.....	03
	2.2 Installation and Fixing.....	04
	2.3 Power connection.....	04
	2.4 Tester On/Off.....	04
<b>3</b>	<b>Operation.....</b>	<b>06</b>
	3.1 Sample preparation.....	06
	3.2 Sample testing.....	07
	3.3 Cancel detection.....	09
	3.4 Results query.....	09
<b>4</b>	<b>Set Up.....</b>	<b>10</b>
<b>5</b>	<b>Precautions.....</b>	<b>11</b>

# 1 Product contents

## 1.1 Product Introduction

SCCT is an automatic somatic cell counting instrument based on the principle of fluorescence microscopy. It is used to count somatic cells in raw milk, providing quantifiable scientific data for quality control and product development of dairy products, as well as the prevention and control of dairy cow diseases in pastures .

SCCT counting and analysis system consists of three parts: SCCT instrument, SCCT chip and SCCT reagent, which are described one by one below.

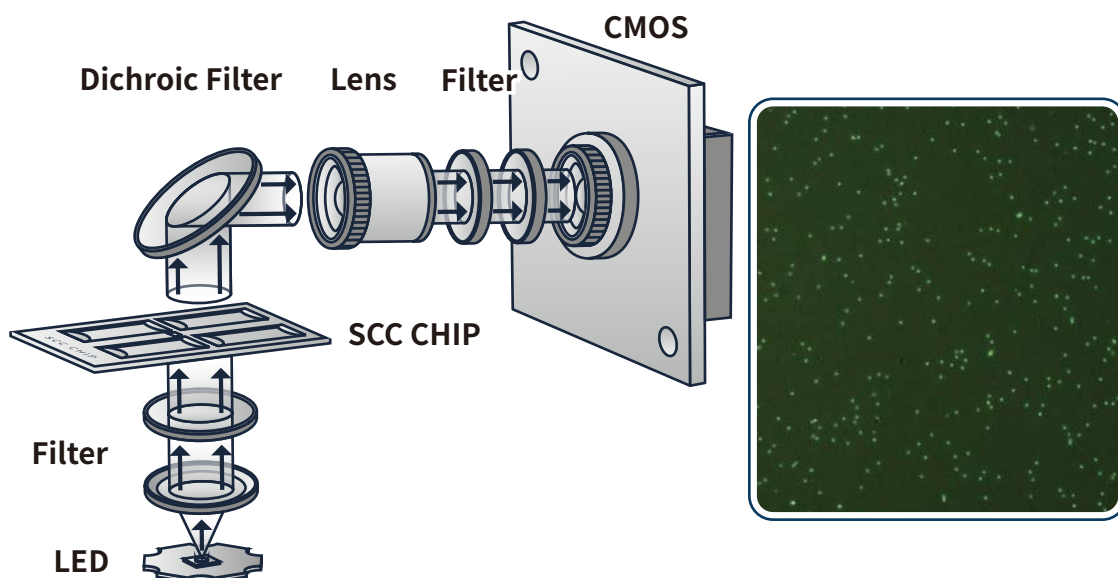


Figure 1 Schematic diagram

## 1.2 Somatic Cell Count Tester

Below are the front and rear views of the instrument.



Figure 2 Front and rear views of the instrument

Serial Number	Name	Description
1	LCD	Display processes and results.
2	Door	Chip is inserted and ejected.
3	Power	Power on/off.
4	Clasp	Easy to pick up or put down the instrument
5	USB interface	After inserting the USB flash drive, you can export data and upgrade the software.
6	Serial Port	Debugging interface.
7	Network port	Connect to the Internet.
8	Power interface	Connect the power adapter.
9	Printer	Print test results.

### 1.3 Chip

Each chip has four flow channels, and each flow channel is added with 8.5  $\mu$ l of sample, so four samples can be tested at the same time. This chip is a single-use consumable and should be placed in a biological waste bin after the test is completed. It should not be discarded at will.

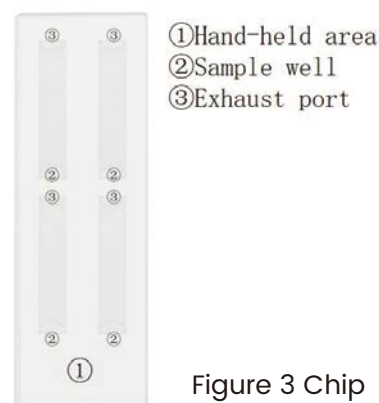


Figure 3 Chip

### 1.4 Reagents

The somatic cell reagent is dried in a centrifuge tube and stored at room temperature away from light. When used, add 100ul of sample to each reagent tube. The main component of the reagent is the highly efficient fluorescent dye, which stains quickly and produces clear images.

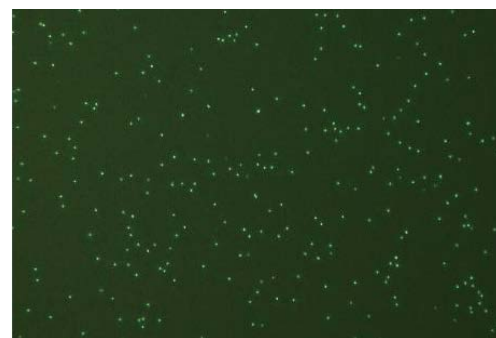


Figure 4 Somatic cell staining images

## 2 Key performance indicators

The main performance parameters are as follows:

instrument	Detection range	0-200*10e4/mL
	Detection time	<180sec/test
	Voltage	DC 12V
	Current	3.0A
	Screen	7-inch
	Overall dimensions(L*W*H)	230mm*245mm*215mm
	Weight	2.7kg
	Repeatability	50* 10e4/mL sample, CV<5%
	Accuracy	Deviation<10%
Work Environment	Temperature	10°C~40°C
	Humidity	10%~85%
	Pressure	86kPa~106kPa
Conditions of Transport	Temperature	10°C~35°C
	Humidity	≤80% (No Condensation)
Test chip	Sample size	8.5μL/Channel
	Shelflife	1 year
Reagents	Storage conditions	Room temperature, away from light
	Shelflife	1 year
	Sample size	100 μL/tube

### 2.1 Outer packaging inspection

The testers are strictly inspected by our professionals before packaging and transportation, and the products are transported to the installation site by designated transportation companies.

After receiving the tester, please carefully check the outer packaging before unpacking to see if there are any of the following conditions:

- Obvious deformation
- Traces of water immersion
- Traces of impact
- Signs of being opened

If you find any of the above situations, please do not open the box and immediately notify the local dealer or our after-sales service personnel.

## 2.2 Installation and Fixing

Somatic cell count tester has a direct impact on the normal operation of the equipment and the accuracy of the test results. Please pay attention to the following matters:

- The tester needs to be placed horizontally without blocking the plate inlet;
- Avoid direct sunlight and other potential heat sources;
- 30cm from surrounding objects to ensure a good heat dissipation environment and facilitate connection with power supply or other devices.

## 2.3 Power connection

Insert the DC plug of the power adapter into the power jack at the rear of the tester, and then insert the AC connector of the power adapter into the mains socket (**the mains socket must be grounded**). Insert the DC plug of the power adapter into the bottom of the power jack at the rear of the tester, indicating that the tester and the power plug are connected in place. If not, the power supply may be poorly connected.

## 2.4 Tester On/Off

After the power is turned on, press the power button on the front panel for about 2 seconds, the tester starts, the power button indicator lights up, the display lights up, and the power-on interface shown in Figure 5 is displayed :



Figure 5 Boot interface

During the startup process, the tester will perform a basic function self-test and reset. After the self-test is completed, it will enter the test page. The screen display is as shown in Figure 6 below :

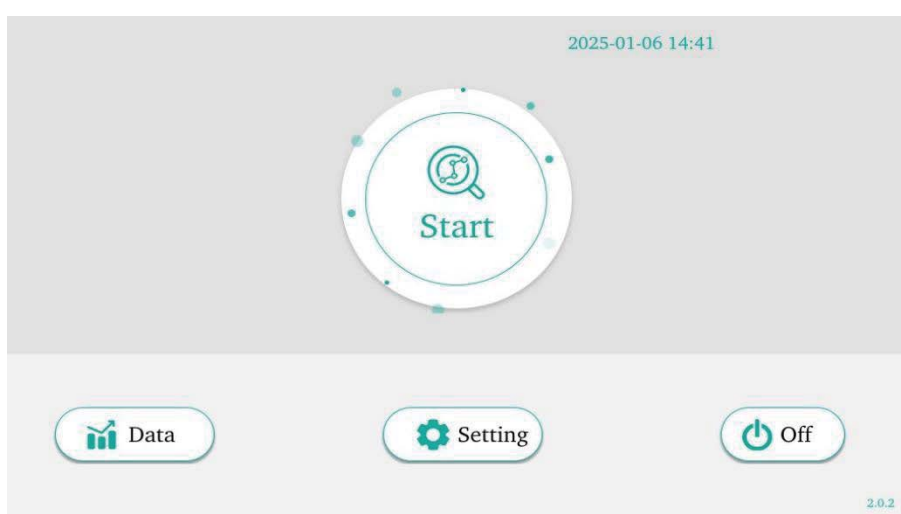



Figure 6 Main interface

If the instrument fails to self-check, the interface will prompt an error code. Please contact the manufacturer, <https://somaticcellcounttester.com>

Error code	Cause
1	GPIO initialization failed.
2	Serial port initialization failed.
3	Camera initialization failed.
4	Motor reset failed.



When shutting down the tester, click the " "  on the main interface to shut down the tester. Click the "OK" button in the pop-up dialog box to shut down the tester. The screen is displayed as follows. After shutting down, the indicator light of the power button on the front panel of the tester goes out.

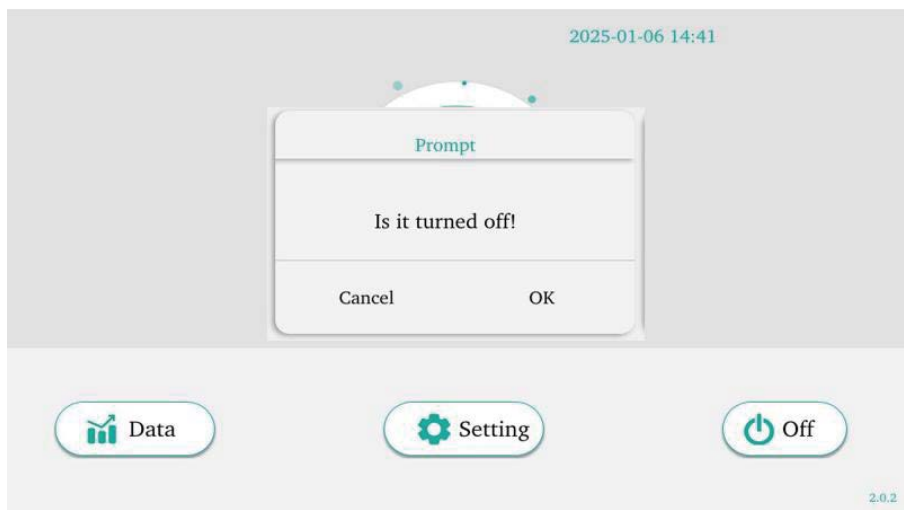


Figure 7 Shutdown prompt

### 3

## Operation

This chapter will introduce you how to use this instrument to detect somatic cells in milk.

### 3.1 Sample preparation

The testing process mainly includes five steps: milk sample warming, milk sample mixing, sample processing, sample addition, and result interpretation, as shown in Figure 8 below :

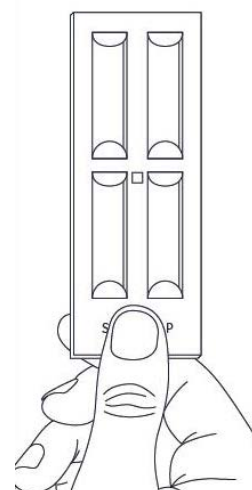
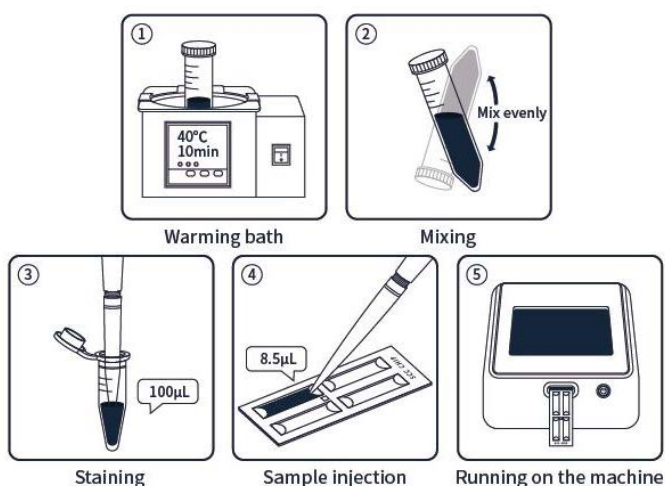


Figure 8 Testing process

1. The test sample should be raw milk. If it is a refrigerated milk sample, it needs to be warmed in a 40°C water bath for 10 minutes before testing (if the diameter of the sample tube is greater than 15mm, the warming time is increased to 20 minutes).
2. After the milk sample has rewarmed, mix it by inverting it 8-10 times to mix it thoroughly.
3. Take 100µL of milk sample and add it to the reagent tube. Shake it 8-10 times to ensure that the reagent is redissolved. Let it stand at room temperature for 3 minutes and then pipette and shake it again 8-10 times to mix it evenly.
4. After mixing, take 8.5µL of sample and add it dropwise to the sampling port of the counting plate to complete the sample injection.
5. the counting slide horizontally into the instrument for testing.

## 3.2 Sample testing

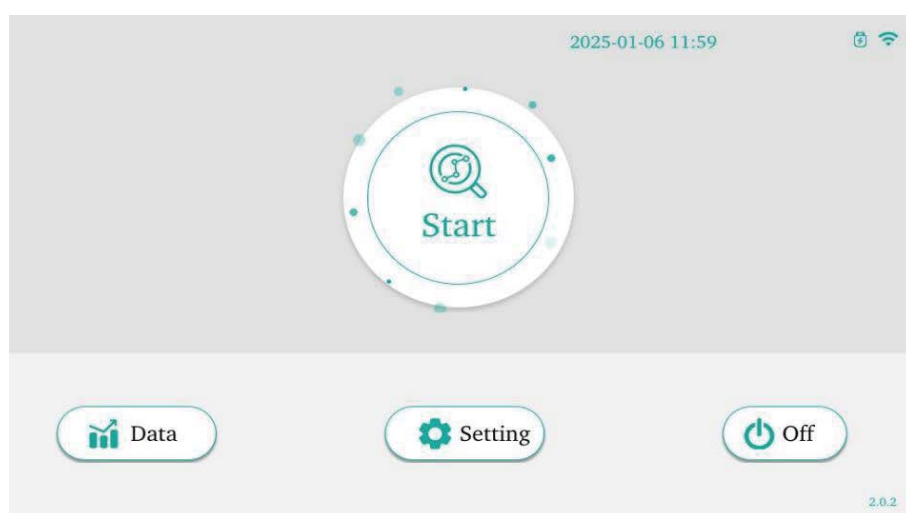


Figure 9

"Start" button on the screen to display the prompt interface, showing the user the steps to prepare the sample . The screen display is as follows:

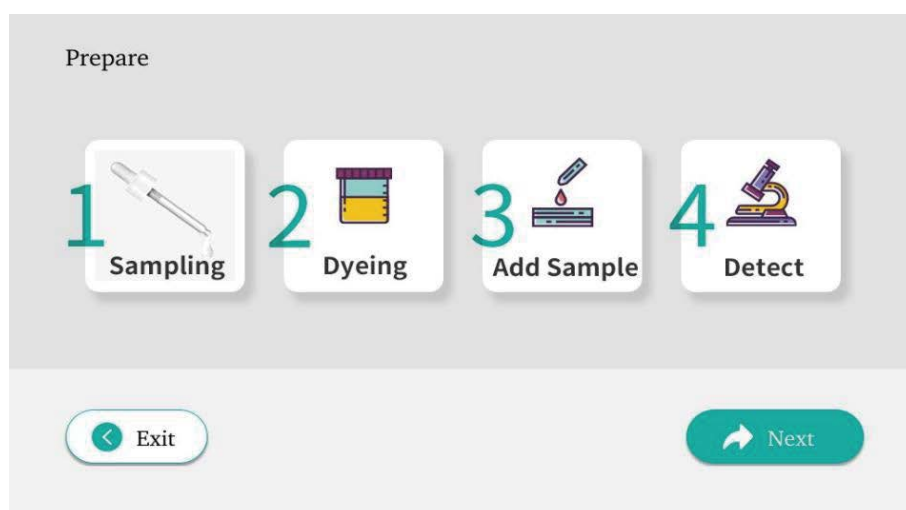


Figure 10

After the sample preparation is completed, click "Next" to enter the information entry interface. The screen displays as follows:

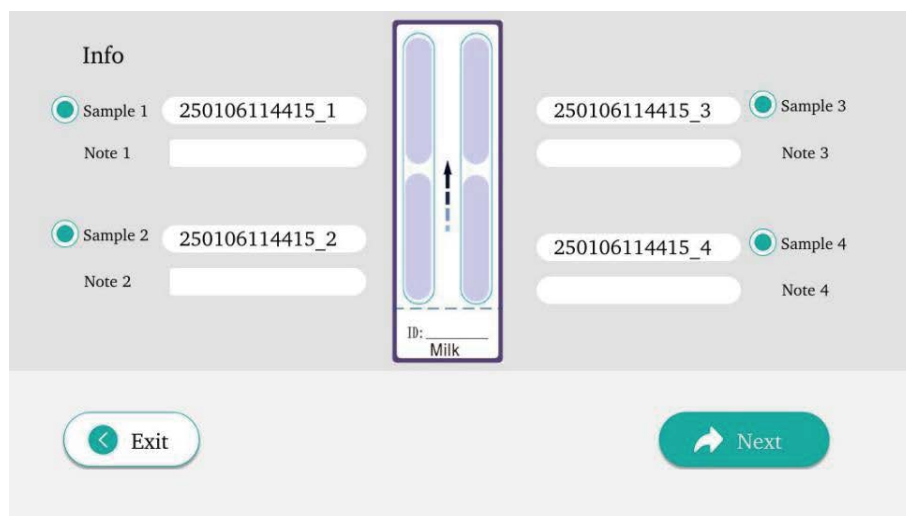


Figure 11

If you need to modify the ID or Note, click the corresponding text box. If you need to detect a single or multiple flow channels, select the corresponding flow channels in order. By default, four flow channels are detected at the same time. After the modification is completed, click "Next" to enter the detection interface. The screen displays as follows:

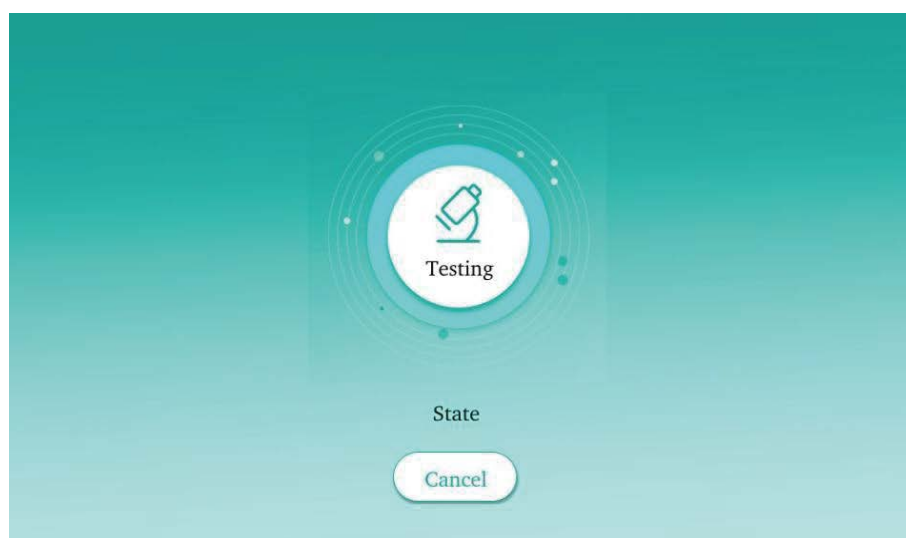


Figure 12

The detection process lasts about 1 min 30sec. After the detection is completed, the test results are output and the screen displays as follows:

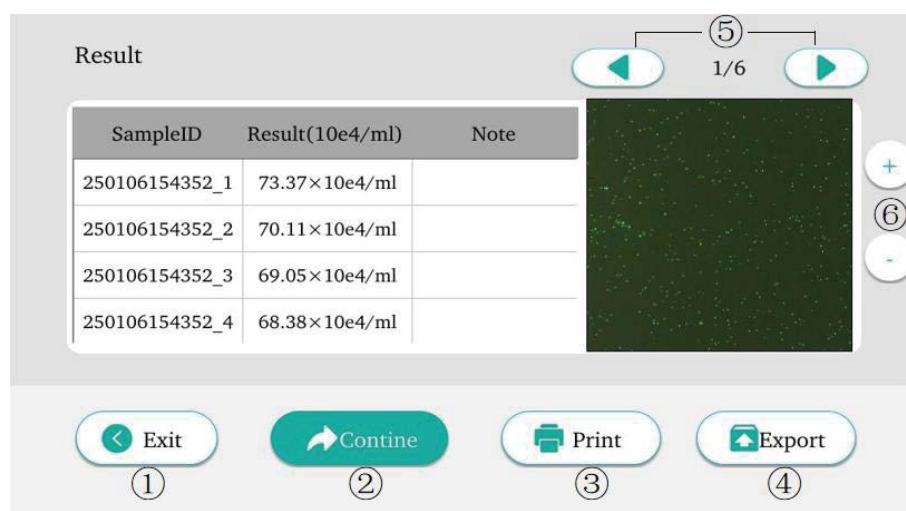


Figure 13

Button	Function
①Exit	Return to the main interface.
②Continue	Continue to next test.
③Print	Print the results.
④Export	Export the detected image to a USB flash drive.
⑤	View the previous or next image.
⑥	Zoom in or out.

### 3.3 Cancel detection

If you need to cancel the current test of the tester under special circumstances, the operation method is as follows:

- In the detection interface, click the "Cancel" button on the screen, and a confirmation prompt interface will appear;
- Click the "OK" button to confirm the "Cancel Detection" command. The tester sends the motor exit command and returns to the main interface.
- Remove the counting sheet.

### 3.4 Results query

The tester test results are stored in the tester database. Click the "Data" button on the main interface to view the results.

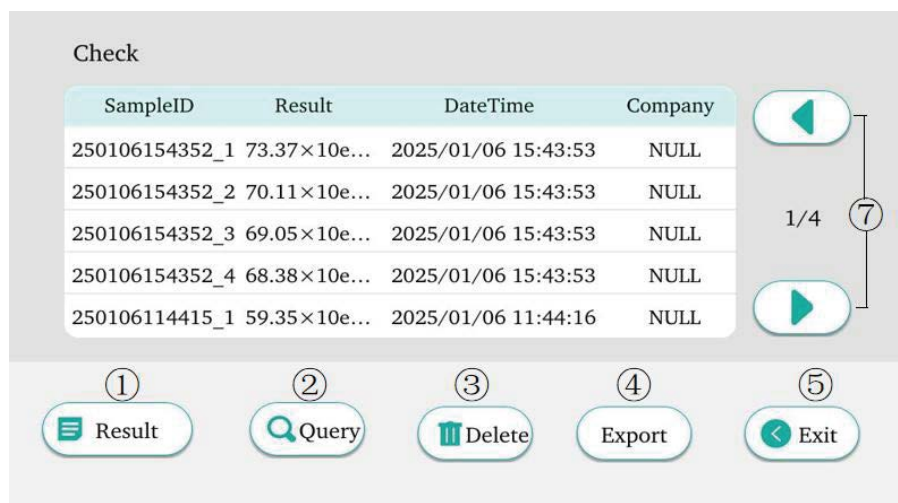


Figure 14

Button	Function
①Result	View the specific detection image of the selected sample.
②Query	View the required data according to the ID number.
③Delete	Short press this button to delete the current data; long press can delete the current page or clear all data.
④Export	Export the detected image of the selected sample to a USB flash drive.
⑤Exit	Return to the main interface.

## 4 Set Up

Click the "Setting" button on the main interface to enter the system settings interface. The screen displays as follows:

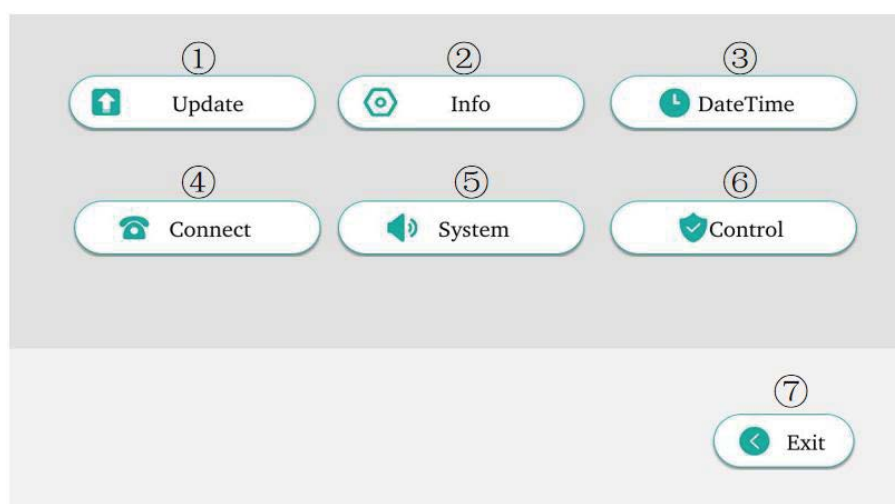


Figure 15

Button	Function
①Update	After connecting to the Internet, the latest software version can be automatically detected and software upgrades can be achieved.
②Info	Setup information, such as setting units.
③DateTime	Setting the time.
④Connect	Networking.
⑤System	Set the sound, printing method, and language.
⑥Control	Quality control.
⑦Exit	Return to the main interface.

## 5

## Precautions



### **Warning: Use the original adapter and ground it effectively;**

- If the instrument is loose or dropped, do not use it and contact after-sales support;
- Do not use the instrument in an inclined, vibrating or unstable environment;
- Do not spill liquid on or inside the instrument;
- Power plug first;
- There should be a gap of at least 5cm between the instrument and the surrounding walls to facilitate heat dissipation;
- Do not stack other items on the surface of the instrument;
- Remove the chip in time;
- When handling potential contaminants, personal protection should be taken, and samples and test reagents should be handled as required , and instruments should be cleaned and disinfected regularly.