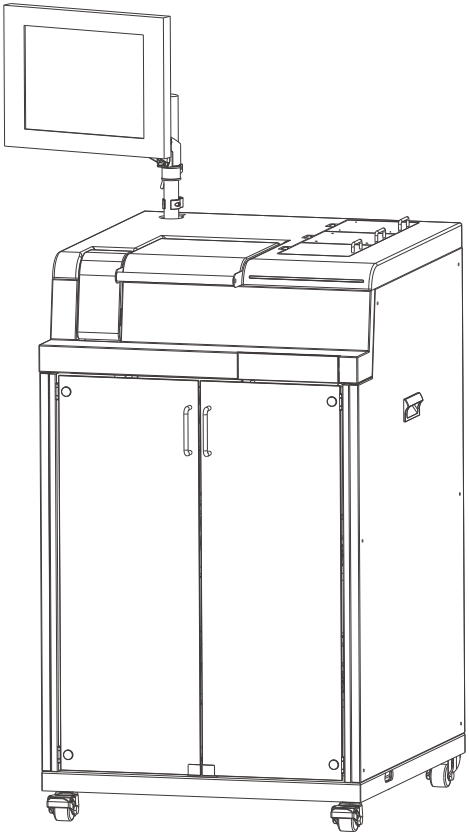
Servicebio

ДИА•М
современная лаборатория

www.dia-m.ru



# User Manual

## Auto Tissue Processor

## ATD-405

Please read the User Manual carefully before using the product and keep it properly for future reference.

Wuhan Servicebio Technology Co.,Ltd.

# CONTENTS

# 01 Product Introduction

The ATD-405 is a fast, closed-system tissue processor(hereinafter referred to as ATD-405) composed of a control system, retort, paraffin baths, etc. It provides fast, high-quality tissue dehydration for tissue laboratories. It combines customizable programs, intelligent management, and simplified operation, making the instrument more stable, efficient, and convenient to use. The single retort can process up to 405 standard cassettes.

# 02 Technical Parameters and Precautions

## Technical Parameters

| | |
|---|---|
| **Cat.No.** | ATD-405 |
| **Dimensions** | 930×1000×1620mm |
| **Embedding Cassette Capacity (Standard Program)** | 405 |
| **Retort Negative Pressure (Max)** | -55kpa |
| **Retort Positive Pressure (Max)** | +45kpa |
| **Reagent Bottles** | 13 × 5 L |
| **Paraffin Baths** | 3 × (4.2~4.6 L) |
| **Retort** | 1 |
| **Ambient Temperature** | 10°C~35°C |
| **Operating Temperature** | 15°C~30°C |
| **Humidity (Non-condensing)** | Relative Humidity 10% ~ 80% |
| **Altitude** | 0~15000 m above sea level |
| **Storage Temperature** | –25°C ~55°C |
| **Industrial Control Computer** | 15.6 inches, 1920x1080, Windows OS |
| **External Interfaces** | USB×6, COM×4 |
| **Operating Voltage** | 220V~240V |
| **Product Power** | 2300W |
| **Product Net Weight** | 350Kg |

**Precautions**

1. Keep the instrument away from strong electromagnetic radiation sources, which may interfere with normal use. Assess the electromagnetic environment before operating the instrument;

2. The instrument must be connected to AC power with proper grounding. When positioning the instrument, ensure the power cord can be unplugged from the socket to completely disconnect power;

3. Follow good laboratory practices when handling tissue specimens to prevent cross-contamination and infection. The user should conduct a risk assessment to identify any potential hazards related to tissue processing;

4. Replace reagents promptly according to instrument requirements to avoid affecting functionality;

5. No ignition sources are allowed inside or near the instrument;

6. Pay attention to electrical safety. Do not pull the power cord or move the instrument during experiments;

7. After experiments, clean and maintain the instrument promptly as required.

## Standard Configuration - Packing List

| No. | Name | Qty | Qty |
|---|---|---|---|
| 1 | Integrated Instrument | 1 | Set |
| 2 | Main Stand for Integrated Instrument | 1 | Piece |
| 3 | Rear Stand Panel for Integrated Instrument | 1 | Piece |
| 4 | Power Cord | 1 | Piece |
| 5 | USB Wireless Network Adapter | 1 | Piece |
| 6 | Paraffin Drain Tube | 1 | Piece |
| 7 | Reagent Filling Tube | 1 | Piece |
| 8 | Reagent Drain Tube | 1 | Piece |
| 9 | External Exhaust Tube | 1 | Piece |
| 10 | O-Ring Kit | 1 | Piece |
| 11 | Lubricating Grease | 1 | Stick |
| 12 | Flathead Screwdriver | 1 | Piece |

| No. | Name | Qty | Qty |
|---|---|---|---|
| 13 | Hex Key Wrench (2.5 mm) | 1 | Piece |
| 14 | Hex Key Wrench (3.0 mm) | 1 | Piece |
| 15 | Hex Key Wrench (4.0 mm) | 1 | Piece |
| 16 | Paraffin Scraper | 1 | Piece |
| 17 | Reagent Bucket Brush | 1 | Piece |
| 18 | User Manual | 1 | Piece |
| 19 | Warranty Card | 1 | Piece |
| 20 | Product Certificate | 1 | Piece |

# 03 Instrument Installation

## 3.1 Unpacking the Instrument

The instrument's wooden crate consists of 6 wooden panels, as shown in Figure 3.1.1. To unpack, turn the latches, remove the top panel first, then remove the panel among the side panels marked "Tissue Processor Loading/Unloading Side" as shown in Figure 3.1.2 (latches released). You will see many components inside the white pearl cotton on top of the dehydrator. Remove these components, then place the top panel as shown in Figure 3.1.3 to form a ramp, and slide the dehydrator down this ramp.

Figure 3.1.1


Figure 3.1.2

Figure 3.1.3

## 3.2 Screen Installation


Figure 3.2.1

After removing the top panel of the processor wooden crate, numerous accessories are stored in the white EPE foam on top of the processor. First retrieve the integrated instrument, rear stand of integrated instrument, main stand of integrated instrument, power cord, and hex key wrenches required for assembly; key components are displayed in Figure 3-2-1 on the left.

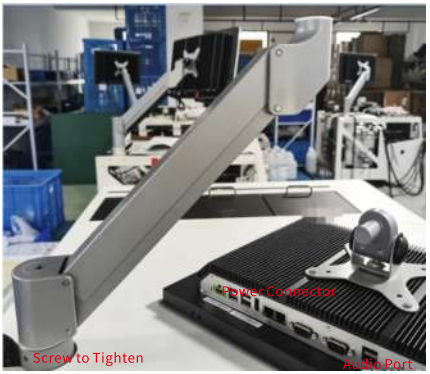



Figure 3.2.2

Four screws are mounted on the rear of the integrated instrument. Remove these four screws, then use them to fasten the rear stand to the integrated instrument. Ensure the rear stand is oriented strictly in accordance with Figure 3-2-2 during installation.


Figure 3.2.3

Next, insert the main stand of integrated instrument straight into the pre-reserved round hole on the top of the processor as shown in Figure 3-2-2. Align the shaft directly below the rear of the integrated instrument and insert it into the main stand as illustrated in Figure 3-2-3. Tighten the screws indicated in Figure 3-2-2 and Figure 3-2-3.

Once the integrated instrument is assembled, multiple cables on the processor need to be connected as shown in Figure 3-2-4. (The USB wireless network adapter is included among the accessories stored in the white EPE foam on the processor top mentioned in Section 3.1 Unpacking the Instrument.) First, connect the power connector to the matching port on the integrated instrument. The green power connector adopts an anti-misinsertion design, so ensure it is not installed reversely. Next, plug the circular audio jack of the speaker into the corresponding position as displayed in Figure 3-2-5. Then insert the COM communication cable into the designated COM port on the integrated instrument. Note that multiple COM ports are available; the communication cable must be connected to COM1 to avoid miswiring. Finally, plug the remaining USB cables into their respective USB ports on the integrated instrument. (Note: The industrial control unit may have two different appearance versions, yet the installation procedure stays the same, and COM1 is always the dedicated communication port.)

Version 1


Figure 3.2.4 (Version 1)

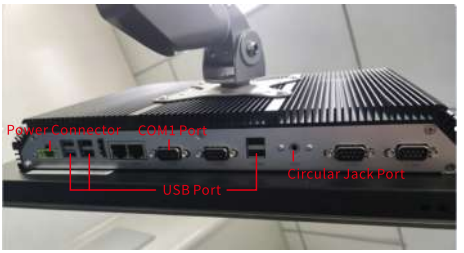



Figure 3.2.5 (Version 1)

Version 2


Figure 3.2.4 (Version 2)



Figure 3.2.5 (Version 2)

After the integrated instrument and all associated cables are installed, route all cables into the black cable duct as shown in Figure 3-2-6. The cable duct is fitted with snap fasteners at both ends. Press both ends of the duct and push along the arrow direction indicated in Figure 3-2-7 to detach the duct from the integrated instrument stand. For reinstallation, simply press the duct and snap it onto the stand. The final assembled appearance is shown in Figure 3-2-8.

Figure 3.2.6

Figure 3.2.7

Figure 3.2.8

# 04 Hardware Description

## 4.1 Product Overview

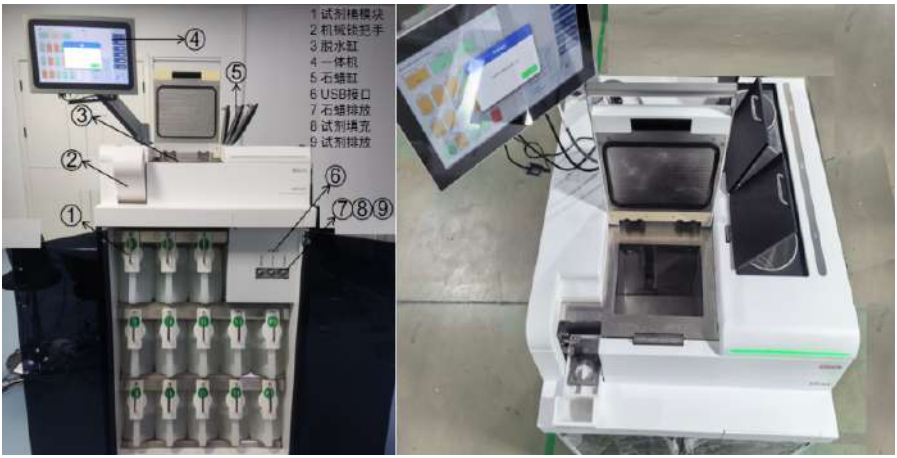



Figure 4.1.1

1.Reagent Bucket Module

2.Mechanical Handle

3.Retort

4.Integrated Cylinder

5.Paraffin Cylinder

6.USB Port

7.Paraffin Drain Port

8.Reagent Filling Port

9.Reagent Drain Port

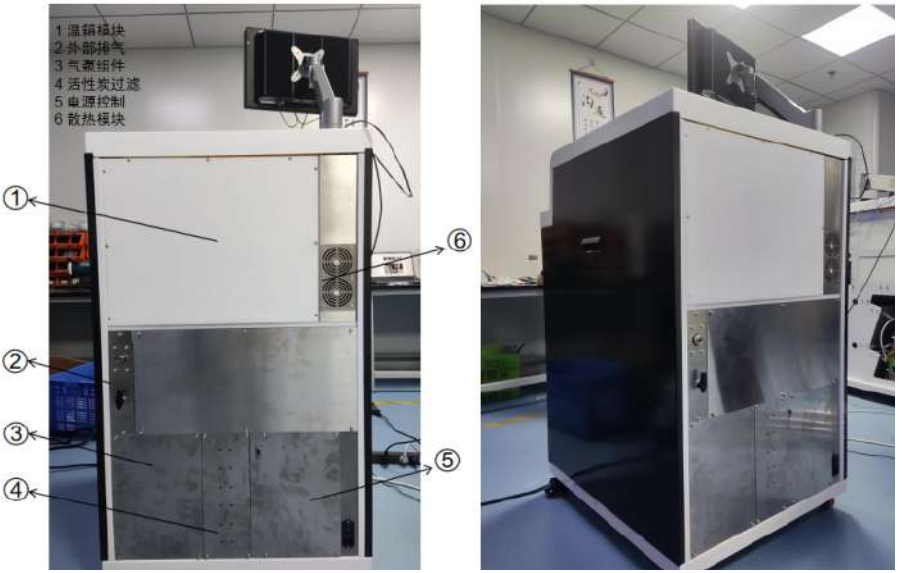



Figure 4.1.2

1.Incubator Module

2.External Exhaust Port

3.Air Pump Assembly

4.Activated Carbon Filter

5.Power Control Unit

6.Heat Dissipation Module

## 4.2 Power On and Off

Under normal circumstances, the ATD-405 remains powered on 24 hours a day, even during long idle periods. Generally, it is only turned off for maintenance or when the instrument needs to be moved.

**Power On**

1. Ensure the main power socket is grounded;

2. Insert the power cord into the main socket and connect power;

3. Press the I/O switch to the "I" position (see Figure 4.2.1).


Figure 4.2.1

**Power On After Long Shutdown**

The technology used for the instrument's heating elements can be susceptible to moisture ingress when left unpowered for long periods in unsuitable climate conditions (high humidity). If the instrument has been unpowered for more than three days, perform the following steps to ensure the instrument still complies with product standards.

**Drying Program**

1. Ensure the main power socket is grounded;

2. Insert the power cord into the grounded main socket and connect power;

3. Press the I/O switch to the "I" position (see Figure 4.2.1);

4. Wait for 1 hour before any further interaction with the instrument.

The instrument is now ready for use.

**Restart After Long-Term Shutdown**

If the instrument is to be taken out of service for maintenance or disposal, users shall close the software first, cut off the power supply, then disconnect the power cord and store it properly. In addition, users must clean the instrument exterior, retort, reagent buckets and paraffin bath.

To restart the instrument, reconnect the original power cord. Inspect the retort, reagent buckets and paraffin bath to confirm they are free of contaminants. Power on the instrument and run a validated program to verify normal operation.

**Normal Shutdown**

Normal shutdown involves shutting down the software in sequence. The instrument must be idle with no program or other operation running.

1. Select System Settings -> Other Settings -> Software Settings -> Exit PC;

2. Wait for the touchscreen to turn black;

3. Press the I/O switch to the "O" position (see Figure 4.2.3);

4. Cut power to the main socket and unplug the power cord.

Warning: Do not cut off power directly without closing the software first. This action may damage the integrated instrument and cause failure of screen display or software startup.


Figure 4.2.2


Figure 4.2.3

**Emergency Shutdown**

In an emergency, immediately press the main power I/O switch.

If conditions permit, cut power to the main socket and unplug the power cord.

## 4.3 Retort

Opening the lid: Click on the screen - Open Lid (when the instrument is idle). Click confirm on the pop-up box, then manually:

1. Pull the handle outwards.

2. Lift the retort lid upwards (as shown Figure 4-3-5).

Closing the lid: Close the retort lid and push the handle back,push the handle backward until you hear an audible "click", which indicates the lid is fully latched.

Always know the solution, temperature, and pressure inside the retort before opening its lid. In some cases, it may be necessary to manually adjust the retort pressure before it can be safely opened (recommended pressure range: -3 to 5 kPa).

In case of emergency where the retort lid is locked and cannot be lifted due to power outages or other faults:Pry off the black rubber plug beside the left housing of the retort (see Figure 4-3-1). Insert your finger into the black hole and toggle the manual release tab of the electronic lock (see Figure 4-3-2) to disengage the lock, then the retort lid can be opened. After opening the lid, remove your finger and reinstall the black rubber plug to its original position.

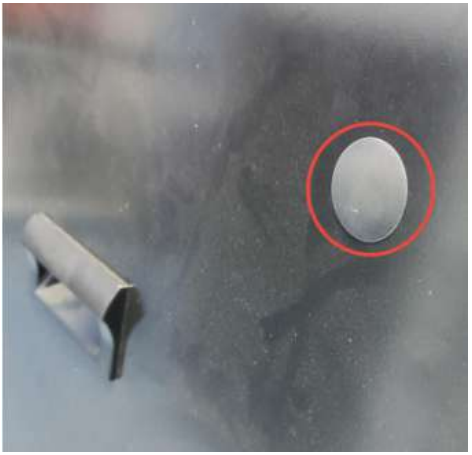


Figure 4.3.1


Figure 4.3.2

Warning: You must tap the Open Lid button (shown in Figures 4-3-3 and 4-3-4) before opening the retort lid. Forcibly pulling the handle will damage the instrument.

Warning: The running program will be interrupted once the retort lid is opened.

Warning: The retort may contain hot liquid that can cause severe burns. Wear appropriate protective clothing and goggles when opening the retort.

Warning: The retort may contain hazardous reagents and vapors. Wear appropriate protective clothing and goggles and ensure adequate ventilation when opening the retort.

Warning: Do not bump the opened retort lid, as it may crush your fingers or hands.


Figure 4.3.3


Figure 4.3.4

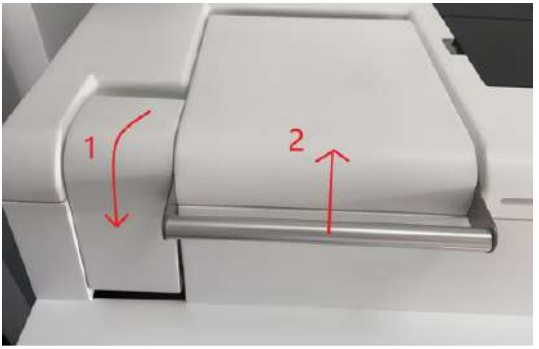



Figure 4.3.5

## 4.4 Tissue Basket

The tissue basket can hold three layers of tissue frames. Each tissue frame can hold 135 standard cassettes, accommodating up to 405 standard cassettes in total.

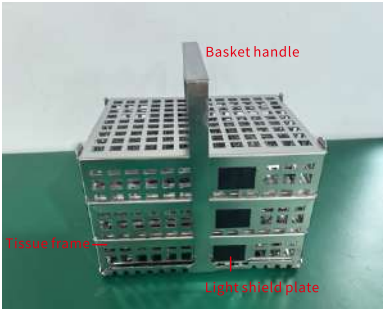
1. Basket handle

2. Tissue frame

3. Reflective marker

4. Tissue frame compartment – each compartment can hold up to 9 standard embedding cassettes

5. Divider bracket– allows orderly placement of cassettes; removable



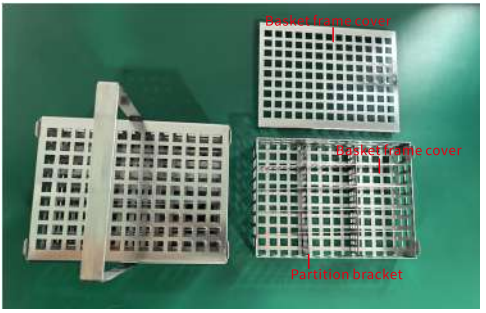




Figure 4.4.1

## 4.5 Fill Level

Reagent Container: Fill volume is 5L up to the outline near the side of the container (as shown: near the upper limit). Do not fill below the minimum or above the maximum marked lines.


Figure 4.5.1

Paraffin Bath: Fill volume is 4.2 ~ 4.6L. For the paraffin bath (see Figure 4.5.2), do not fill below the minimum or above the maximum marked line.

Add solid or granular paraffin up to 10 mm below the lowest air hole at the bottom of the bath, being careful not to block the air holes. After melting, the paraffin level must be between the maximum and minimum marks. 4.2L ~ 4.6L is the ideal liquid paraffin level. If the level is insufficient, add more. Since many different types of solid paraffin are available on the market, it cannot be guaranteed that the melted level will be the same for all types. It is recommended to test with the paraffin to determine the correct amount to use.

Note: Adhere as closely as possible to the recommended reagent fill volumes. Filling too much or too little may cause alarms when aspirating or draining reagents!

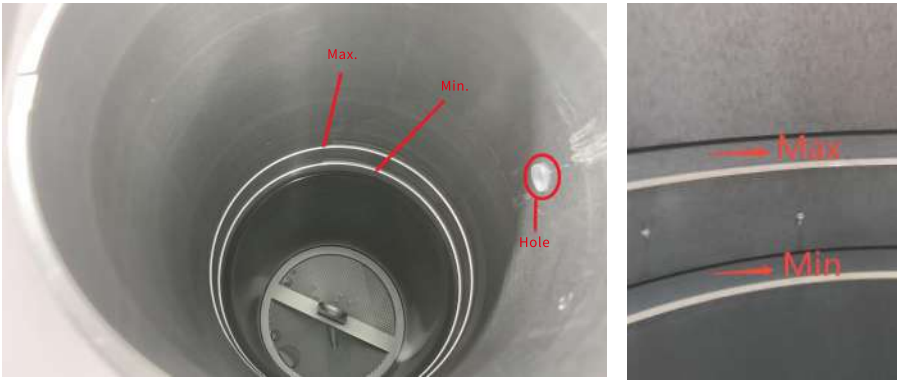



Figure 4.5.2

**Warning**

Adhere as closely as possible to the recommended reagent fill volumes. Filling too much or too little may cause alarms when aspirating or draining reagents!

## 4.6 Level Sensors

Each retort has four level sensors to monitor the liquid level (as shown in Figure 4.6.1). If liquid injected into the retort exceeds the maximum capacity, the top sensor will trigger. The top sensor serves as a safety function. Sensors may sometimes be affected by condensation buildup or deposits. If this occurs, the software will prompt you to wipe the corresponding sensor clean. As part of routine Retort cleaning, ensure the sensors are clean.


Figure 4.6.1

## 4.7 Paraffin Baths

There are three paraffin baths on the upper right part of the instrument (as shown: W1, W2, W3). They are opened or closed via lids. Each bath works independently and contains enough paraffin to fill one retort. Although paraffin does not flow between baths, their air passages are connected, so the pressure is always the same. Always close the lids after opening them.

**Warning**

Never open the paraffin bath lids when there is paraffin in the retort or when paraffin is being pumped in or out, as hot paraffin may splash out of the baths.


Figure 4.7.1

## 4.8 Reagent Area

### 4.8.1 Reagent Containers

The reagent area has thirteen reagent bottles (as shown), including 11 reagent containers and 2 cleaning solution containers. Each container holds enough reagent to fill a single retort. When inserting a reagent container into the instrument interface, ensure it is pushed all the way to the bottom.

Figure 4.8.1

### 4.8.2 External Drain Interface

There are three external drain interfaces on the upper right of the reagent area. From left to right: Reagent drain port (condensate bottle drain), Reagent fill port, Paraffin drain port. External corresponding tubing must be connected before use.

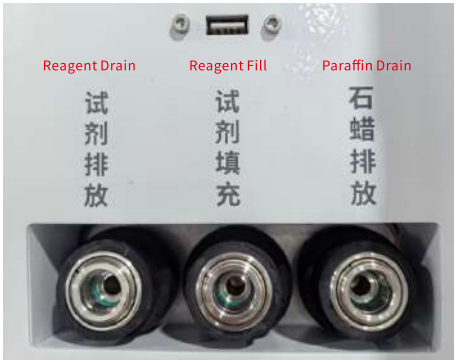



Figure 4.8.2

### 4.8.3 USB

There is a USB interface on the upper right of the reagent area, which can be used for file transfer.

## 4.9 External Vapor Evacuation System

The instrument's vapor outlet can be switched between the built-in activated carbon filter and an external vapor suction system. A switching valve on the rear panel of the instrument directs vapor either to the activated carbon filter or to the outlet for connecting an external system.

### 4.9.1 Activated Carbon Filter

1. Ensure a new activated carbon filter is correctly installed (as shown in Figure 4.9.1, remove screws to replace the filter);

2. Rotate the switching valve 180° counterclockwise to direct vapor to the activated carbon filter (as shown in Figure 4.9.2);

3. Set the activated carbon filter threshold to a value suitable for the instrument's workload, and replace the carbon promptly as required.

**Warning**

When the vapor switching valve is set to the activated carbon filter position, you must ensure the filter is correctly installed; otherwise, hazardous waste fumes may be exhausted into the laboratory environment.

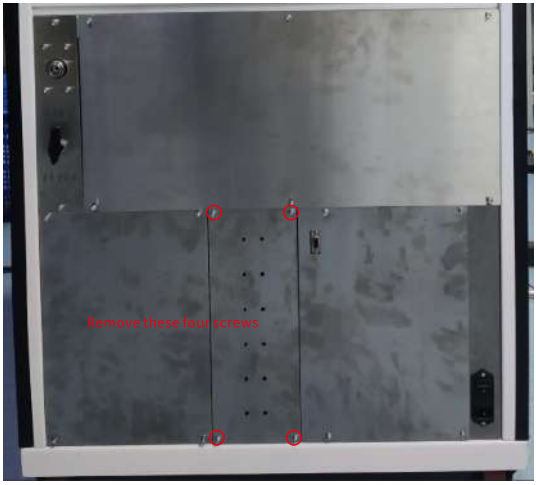



Figure 4.9.1

Figure 4.9.2

## 4.9.2 External Vapor Suction System

1. Ensure external tubing is correctly connected to the external vent port;

2. Rotate the switching valve 180° clockwise to direct vapor to the external vent port (When choosing the external vent port, you must ensure the external tubing is connected; otherwise, the exhaust path is not open, and the instrument cannot operate correctly).

**Warning**

When the vapor switching valve is set to the external position, you must ensure the external tubing is correctly installed and the outlet of the tubing is connected to fume treatment equipment; otherwise, hazardous waste fumes may be exhausted into the laboratory environment.


Figure 4.9.3

# 05 Running Programs

This chapter describes how to run programs on the system. Reagents and programs must be set up for the instrument before running a program. Furthermore, a program must be validated before an operator can run it.

## 5.1 Reagent Preparation

Prepare the required reagents before starting the dehydration process. Add reagents to the corresponding instrument reagent containers/paraffin baths according to the order of use. This product has 11 reagent containers, 3 paraffin baths, and 2 cleaning solution containers.


Figure 5.1.1

| | | | |
|---|---|---|---|
| 01 | Program running information prompts | 02 | 3 paraffin baths (W1, W2, W3) |
| 03 | 11 reagent containers | 04 | Activated carbon filter (left), condensate bottle (right) |
| 05 | 2 cleaning containers | 06 | Electronic lock status |
| 07 | Retort (dehydration chamber) | 08 | Temperature / Pressure / UPS information |
| 09 | Function buttons | | |

The 11 reagent containers can support various dehydration modes. For example, for plant tissue dehydration, the first 8 containers can be used as dehydration reagents, adding two more low-concentration alcohols compared to routine tissue dehydration. If running routine tissue dehydration requiring only 6 alcohols, the first two containers can be left empty, starting from the third container. (The tables below are examples only; users should select appropriate concentrations and types based on actual conditions.)

**Warning**

1. The concentration and type of reagent in the reagent containers must correspond one-to-one with those in the instrument's reagent management;

2. The reagent name in the reagent container must correspond one-to-one with the name actually used in the dehydration process.

**Tip**

It is recommended that the melting time for newly added solid paraffin be no less than 8 hours.

**Example 1: Plant Tissue Dehydration**

| Position | Reagent Name (Example) | Remarks |
|---|---|---|
| D1 | 30% Alcohol | Dehydration |
| D2 | 50% Alcohol | |
| D3 | 75% Alcohol | |
| D4 | 85% Alcohol | |
| D5 | 90% Alcohol | |
| D6 | 95% Alcohol | |
| D7 | 100% Alcohol | |
| D8 | 100% Alcohol | |
| D9 | Xylene | Clearing |

| Position | Reagent Name (Example) | Remarks |
|---|---|---|
| D10 | Xylene | Clearing |
| D11 | Xylene | |
| W1 | Paraffin | Infiltration |
| W2 | Paraffin | |
| W3 | Paraffin | |
| P1 | Xylene | Wash |
| P2 | 100% Alcohol | |

**Example 2: Routine Tissue Dehydration**

| Position | Reagent Name (Example) | Remarks |
|---|---|---|
| D1 | / | Idle |
| D2 | / | |
| D3 | 75% Alcohol | Dehydration |
| D4 | 85% Alcohol | |
| D5 | 90% Alcohol | |

| Position | Reagent Name (Example) | Remarks |
| --- | --- | --- |
| D6 | 95% Alcohol | Dehydration |
| D7 | 100% Alcohol | |
| D8 | 100% Alcohol | |
| D9 | Xylene | Clearing |
| D10 | Xylene | |
| D11 | Xylene | |
| W1 | Paraffin | Infiltration |
| W2 | Paraffin | |
| W3 | Paraffin | |
| P1 | Xylene | Wash |
| P2 | 100% Alcohol | |

## 5.2 Reagent Management

### 5.2.1 Reagent Parameter Settings

First, define the reagent parameters. Only after defining the reagent parameters can you match reagents to reagent containers in the reagent container settings. From the instrument main interface, go to System Settings -> Operation Settings -> Reagent Management -> Reagent Parameters. The table lists common reagents (concentrations) and their reagent types.

If the reagent you actually use is not in the list, click Add to add the required reagent, and fill in the reagent name, maximum cassettes, maximum runs, and reagent type.

Maximum Cassettes / Maximum Runs: These values remind the user to replace with fresh reagent in a timely manner. For new reagents, refer to the values corresponding to the same reagent type. The default instrument values are based on experiments; users are advised to adjust based on actual conditions.

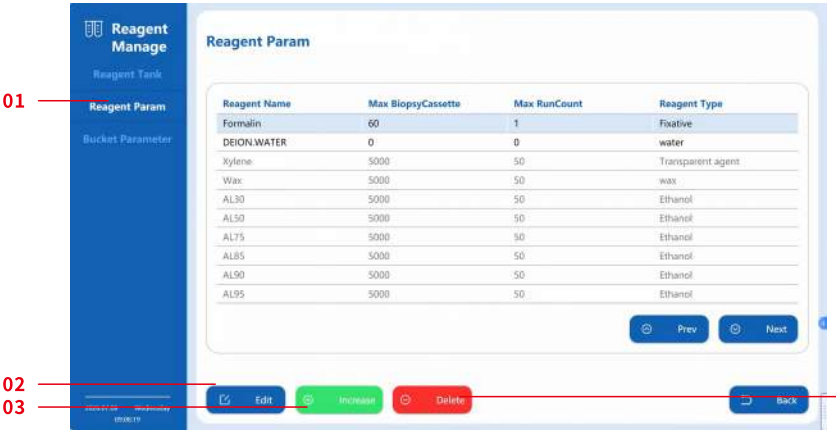



Figure 5.2.1

01 Define all reagent names (concentrations), reagent types, max cassettes, max runs

02 Edit existing content

03 Add new reagent

04 Delete existing reagent

## 5.2.2 Reagent Container Settings

When a reagent container needs to be changed or an empty container needs to be matched with a reagent, go from the instrument main interface to System Settings -> Operation Settings -> Reagent Management -> Reagent Container. Click on the icon of the corresponding reagent container (using D1 as an example): Select the reagent name (if the required reagent is not in the list, add it in Reagent Parameters), click Confirm (as shown).

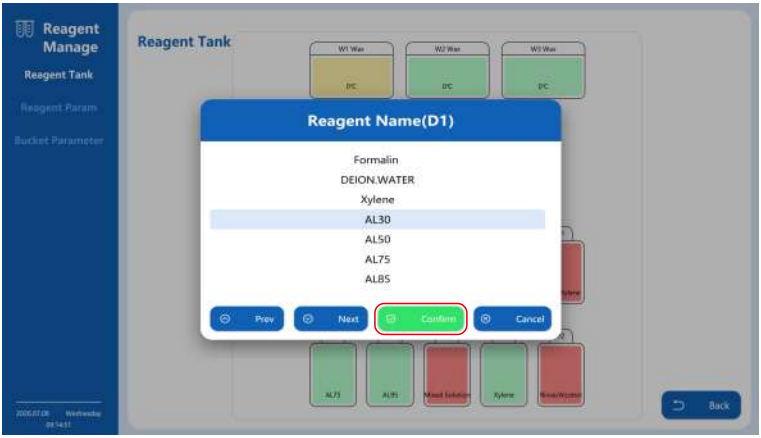



Figure 5.2.2

After successfully adding the reagent, the corresponding reagent container icon will display the reagent name, and the container icon will turn red. You need to return to the main interface and click Reagent Change:

1. Click to select the icon of the container to be changed;

2. Click Confirm. Follow the prompts and click Confirm sequentially;

3. Finally, when exiting Reagent Change, the system will perform a self-check on the containers that were changed. If the self-check fails, contact technical support.

**Note**

The system cannot recognize whether a reagent container has been refilled with fresh reagent. Please follow the specifications and replace with fresh reagent promptly; otherwise, tissue dehydration may fail.

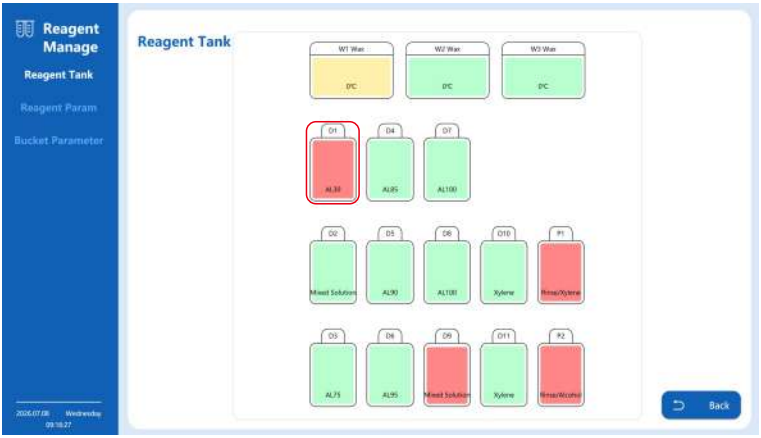



Figure 5.2.3


Figure 5.2.4

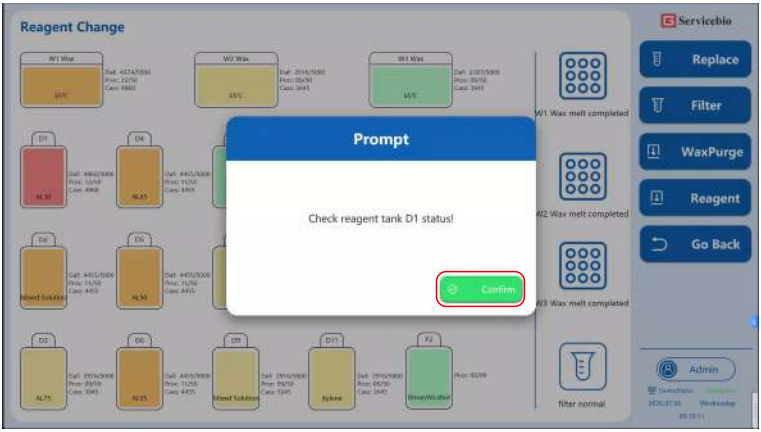



Figure 5.2.5

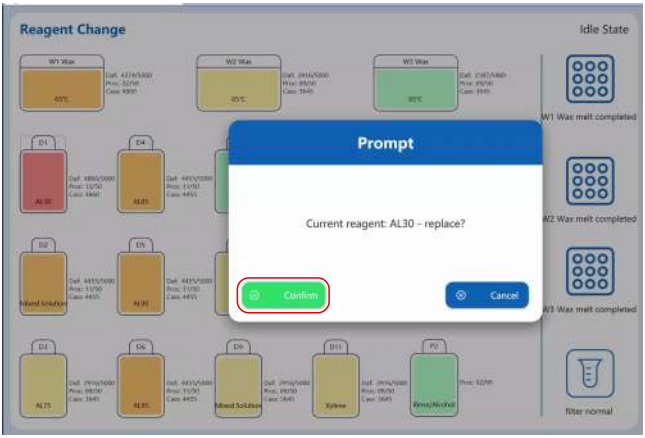



Figure 5.2.6

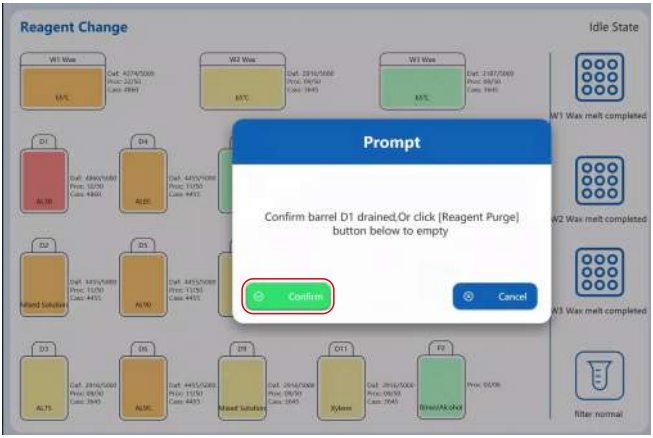



Figure 5.2.7

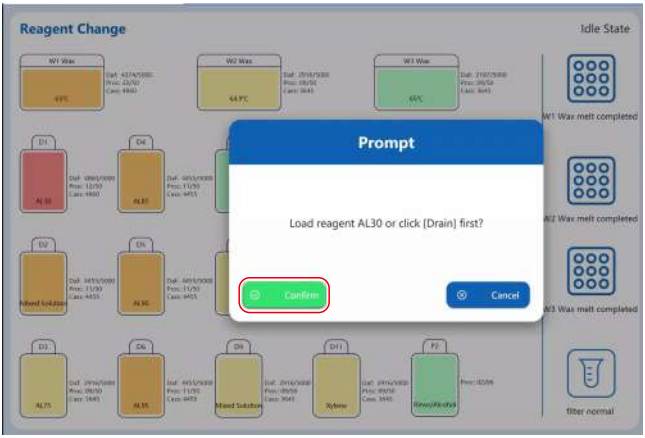



Figure 5.2.8

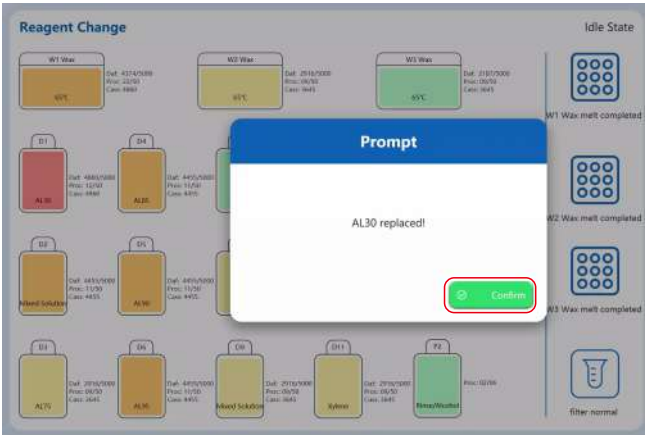



Figure 5.2.9

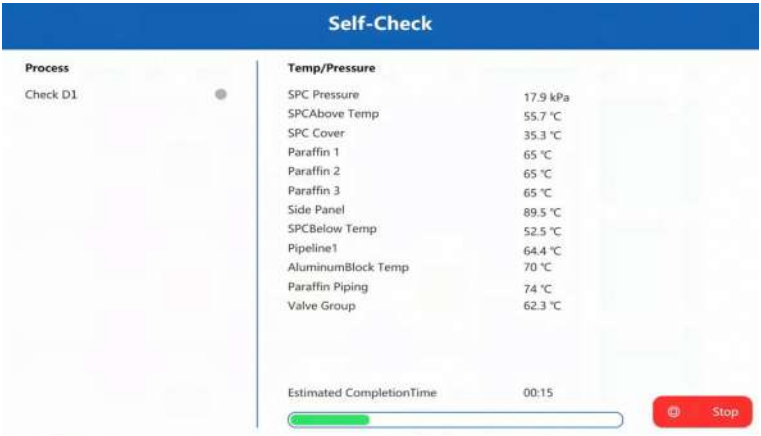



Figure 5.2.10

# 5.3 Dehydration Operation

## 5.3.1 Dehydration Program Settings

Before running a dehydration process, prepare at least one fully validated program in advance. If the existing dehydration programs do not meet current needs, there are two ways to create a new program:

1. Modify an existing program directly. From the instrument main interface, go to System Settings -> Operation Settings -> Dehydration Program. Select a program on the left (as shown), click Edit, change the program content, and finally save.

2. Click New and enter the program name. Alternatively, select an existing program on the left, click Copy, then click New. This copies the content of the existing program into the new program, which you can then modify.

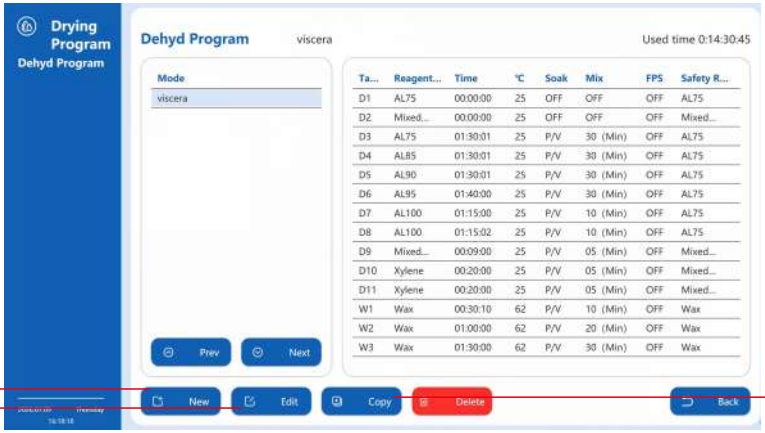



Figure 5.3.1

01 New Program

02 Modify Existing Program

03 Copy Existing Program

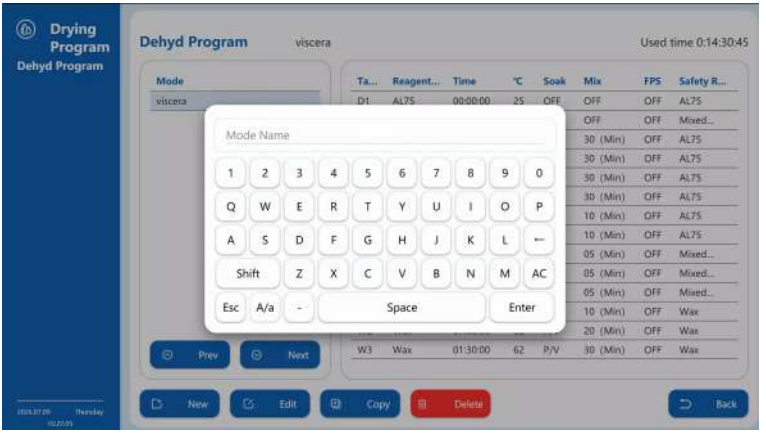



Figure 5.3.2

After creating a new blank program, the screen lists all usable reagents on the left (as shown). Select reagents in order of use, then click Add.

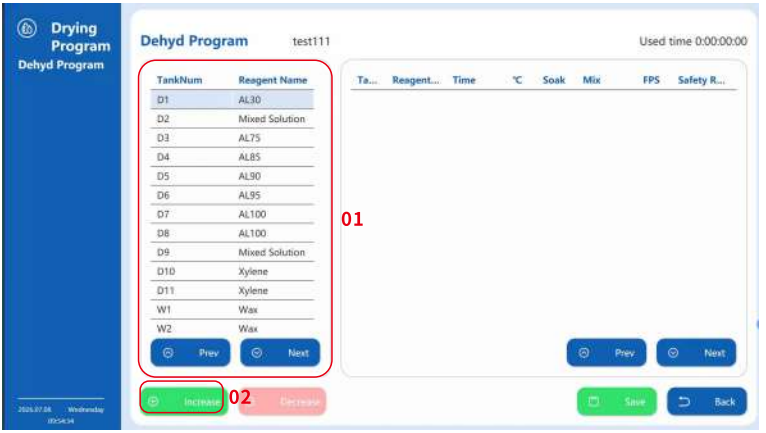



Figure 5.3.3

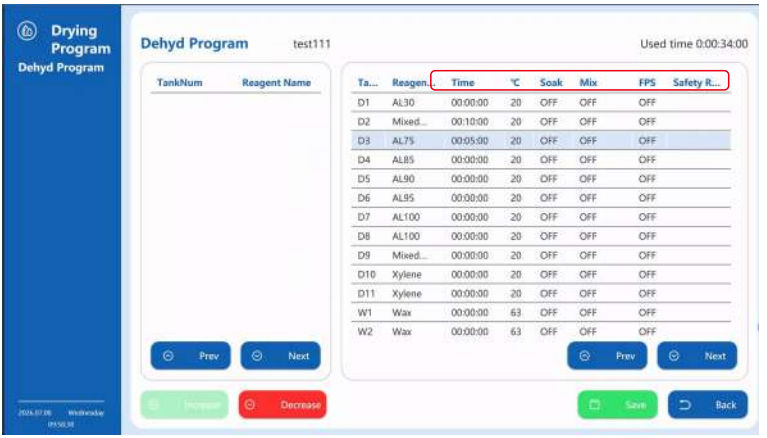



Figure 5.3.4

Set the soaking time, temperature, pressure, mix, FPS, and safety reagent selection according to usage needs.

**Time**

Can be set in hours, minutes, seconds, indicating the duration the tissue soaks in the retort.

**Note**

When all time values are set to 0, the system skips this reagent and will not fill liquid into the SPC tank.

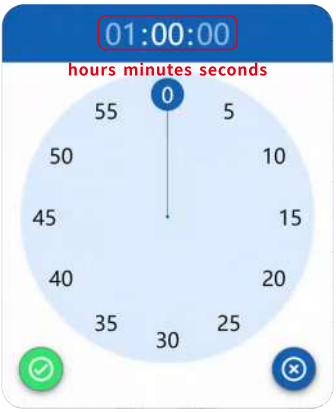



Figure 5.3.5

**℃ (Temperature)**

Allows setting the soaking temperature within the default range.


Figure 5.3.6

**Pressure**

The pressure (unit kPa) inside the retort during tissue soaking.

OFF: Pressure off;

P: Positive pressure soaking;

V: Negative pressure soaking;

P/V: Alternating positive and negative pressure soaking.

For numerical configuration, refer to Soaking Positive Pressure / Soaking Negative Pressure in Section 6.4.1 Parameter Settings.


Figure 5.3.7

**Mix**

Uses negative pressure to aspirate bubbles for mixing during soaking.

OFF: Mixing off.

05 (Min): Mix every five minutes.

10 (Min): Mix every ten minutes.

Options available: 5min / 10min / 15min / 20min / 25min / 30min.


Figure 5.3.8

## FPS

Determines whether liquid extraction and drainage use the FPS fluid circuit. Default setting: OFF (disabled); select ON to enable. This function is unavailable for paraffin.


Figure 5.3.9

**Safety Reagent**

This option is mandatory. When the instrument fails to proceed to the next step, it will prioritize soaking the tissue in the safety reagent to minimize damage.

**Note**

Please select an appropriate safety reagent. If the instrument malfunctions, this reagent will soak the tissue continuously.


Figure 5.3.10

## 5.3.2 Running Dehydration Program

After preparing the dehydration program, click Start Dehydration. Follow the instructions in the pop-up box. If the instrument has not performed a system self-check beforehand, it will prompt you to do so first. The dehydration process can only start after a successful self-check. If the self-check fails, contact after-sales personnel promptly.

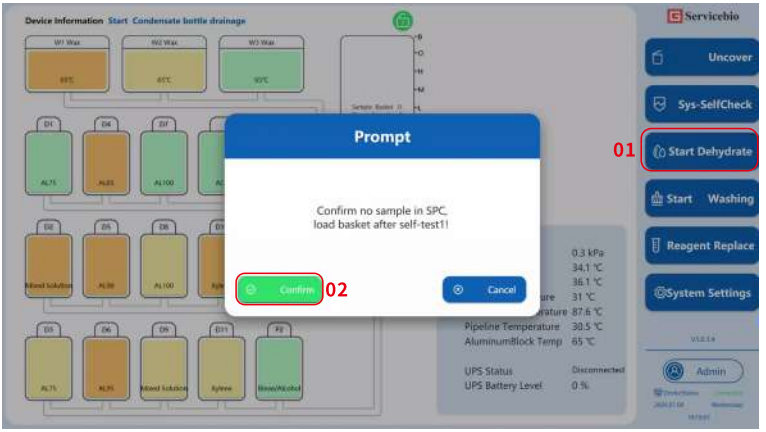



Figure 5.3.11

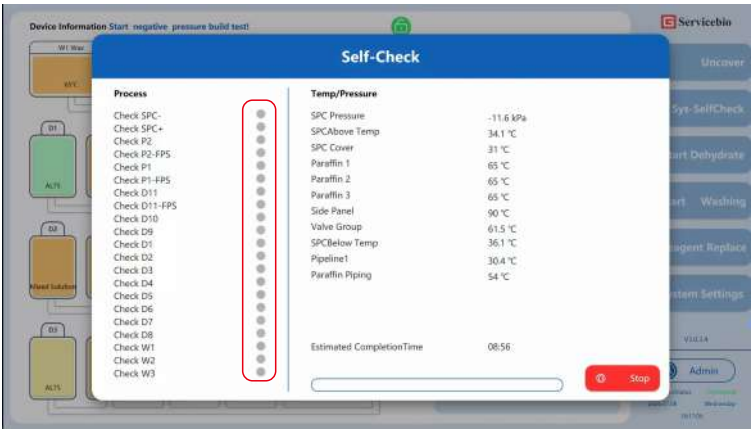



Figure 5.3.12

Operators can also perform a system self-check manually to prepare for subsequent dehydration. Click System Self-Check on the interface.


Figure 5.3.13

After a successful self-check, follow the prompts: click Unlock, then open the retort lid, place the basket inside, lock the retort lid, and click Continue.

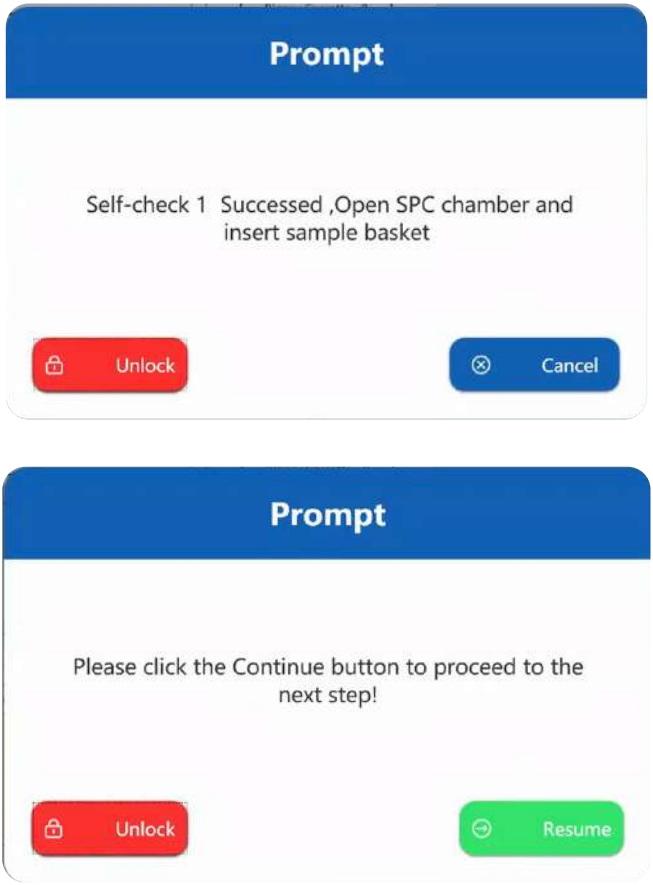



Figure 5.3.14

Select the dehydration program to be executed from the list on the left (as shown below), then click Confirm.

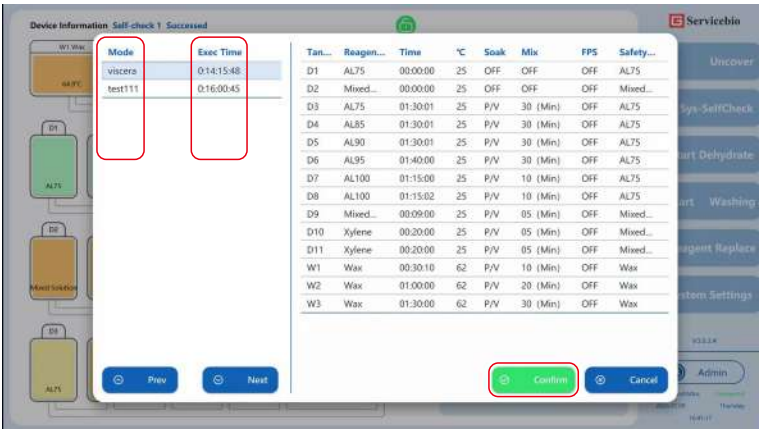



Figure 5.3.15

After selecting the dehydration program, you will enter the dehydration settings screen shown below.

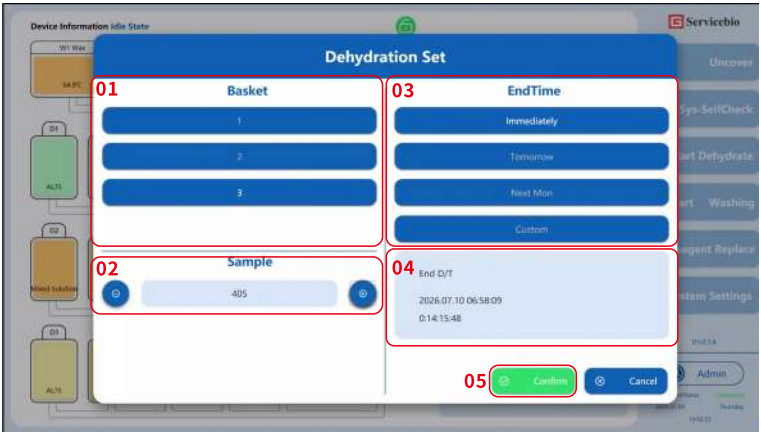



Figure 5.3.16

**Basket**

Select the number of metal baskets inside the tissue basket.

**Sample**

Fill in the sample quantity. Entering a number inconsistent with the actual number (less) may cause problems during operation. Each basket holds a maximum of 135 tissue samples. Therefore, the entered number cannot exceed the product of the selected number of baskets and 135. The maximum value is 405. Exceeding the maximum will show a warning window (when the number of baskets is 1, the maximum is 135).


Figure 5.3.17

**End Time**

1. Immediate: Execute the dehydration program immediately. The end time will be based on actual completion.

2. Tomorrow: The end time is set for tomorrow morning's working time (default 8:30 AM). If the actual execution duration exceeds the agreed time, the actual end time will prevail. Specifically: If the actual execution duration (from immediate start to dehydration end) is greater than or equal to the agreed duration (from immediate start to the agreed end time), the actual end time will be used. If the actual execution duration is less than the agreed duration, the system will increase the soak time in the second reagent bath to ensure the final end time matches the agreed end time.

3. Next Monday: The end time is set for next Monday morning's working time (default 8:30 AM, Settings can be configured via Software Settings – General Configuration – Program End Time.). If the actual execution time exceeds the agreed time, the actual end time will prevail.

4. Custom: Allows setting any end time. If the actual execution time exceeds the agreed time, the actual end time will prevail.

After setting the above options, click Confirm. The system will first perform a self-check of the retort's airtightness. After a successful self-check, the instrument officially starts the dehydration process. It is best for the operator to wait until this step finishes before leaving.


Figure 5.3.18

After setting the above options, click Confirm. The system will first perform a self-check of the retort's airtightness. After a successful self-check, the instrument officially starts the dehydration process. It is best for the operator to wait until this step finishes before leaving.


Figure 5.3.19

### 5.3.3 Pausing and Terminating a Program

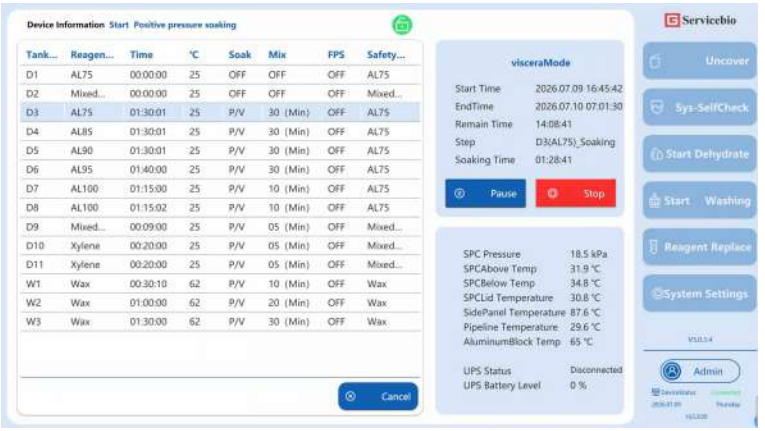



Figure 5.3.21

1. During the aspiration/draining process, you can click in area 1 of the above figure (5-3-21) to view dehydration process information (area 2). Click Cancel (area 3) to close this information.


Figure 5.3.22

2. When the button becomes clickable (dark blue), you can continue by clicking Pause to add samples midway. After clicking, a prompt will appear as shown in Figures 5-3-23 and 5-3-24.Note: After opening the lid, be sure to close it firmly and ensure it is properly locked.

a. When the initial set number of embedding cassettes is less than 405, the following prompt box will appear, allowing you to add more cassettes.

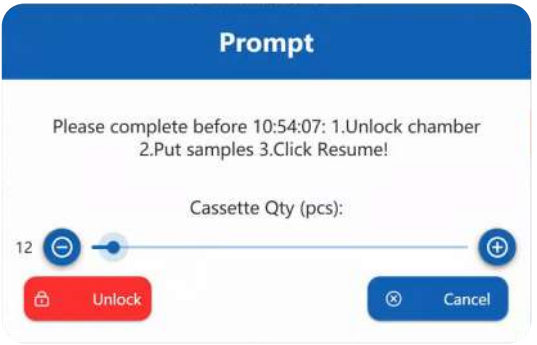



Figure 5.3.23

b. When the initial set number of embedding cassettes equals 405, the following prompt box will appear without the option to add cassettes.

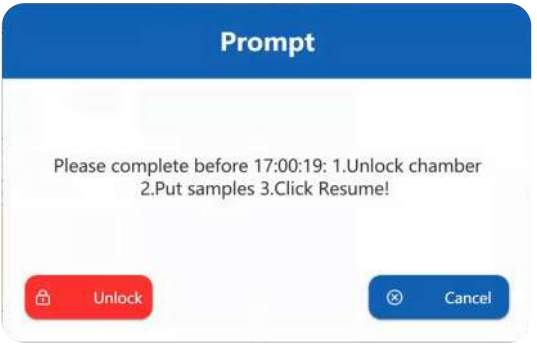



Figure 5.3.24

3. After clicking Unlock, a pop-up window will appear as shown in the figure below.

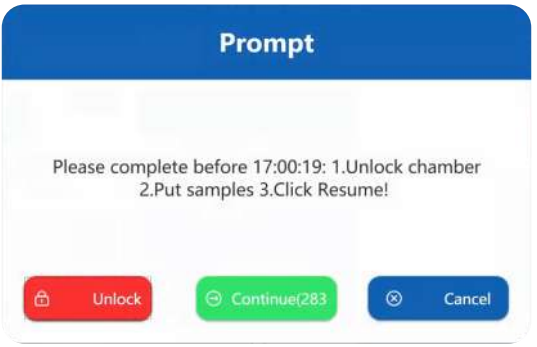



Figure 5.3.25

4. When you click the Stop button, a prompt box (Figure 5-3-25) will appear. If you click Cancel, the dehydration process will continue.If you click OK, the instrument will immediately execute the termination procedure and perform draining (as shown in Figure 5-3-26). After draining is complete, another pop-up box will appear (Figure 5-3-27).


Figure 5.3.25


Figure 5.3.26


Figure 5.3.27

## 5.4 Cleaning Process

The cleaning program cleans the retort and reagent lines. Always run the cleaning program as soon as possible after running a dehydration process. When prompted at the end of a run, you can select the option to start cleaning immediately. This will run a preset cleaning program. You can also select other cleaning programs.

Additionally, the retort should be cleaned:

1. After replacing reagents using external filling and draining functions.

2. If reagents are manually filled into the retort, or if the last reagent used is incompatible with the next program to be run.

For most laboratories, the preset quick cleaning program is the only essential cleaning program. Under normal conditions, the program first drains residual material from the retort into the paraffin bath in the first step. Then there are two reagent steps: cleaning solvent (e.g., xylene) and cleaning alcohol. These steps are followed by a drying step. This step applies high temperature, positive pressure, and an air stream to evaporate any residual reagents. Load and run the cleaning program like any other program, but do not place tissue in the retort. The drying step would damage the tissue. This means the cleaning program must not be used for re-dehydration runs. Use a re-dehydration program instead. If needed, copy and edit the quick cleaning program to create your own cleaning program. You can add, delete, and edit all reagent steps except the drying step. The cleaning program does not require a water wash step; conventional cleaning reagents can be used.

**Warning**

1. Because the drying step will damage tissue, remove all tissue from the retort before running the cleaning program.

2. Because the drying step will damage tissue, do not use the cleaning program for re-dehydration.

3. Cleaning reagents can be reused up to a maximum of six times. Please replace them with fresh reagents promptly to avoid instrument blockage or malfunction.

**Note**

Be sure to run the cleaning program after the retort has been used with paraffin.

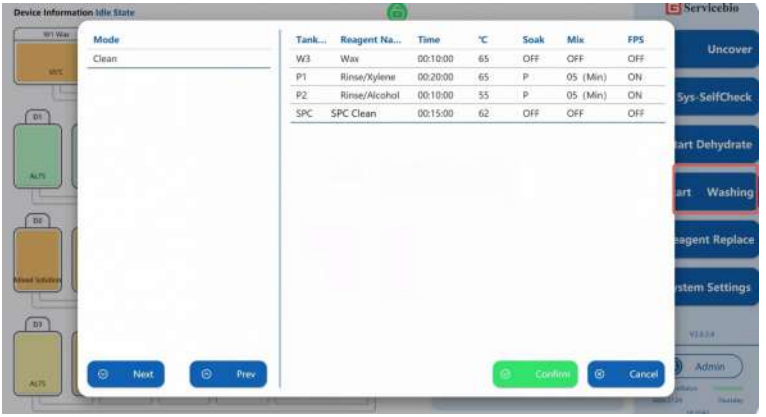



Figure 5.4.1

## 5.4.1 Cleaning Program Settings

On the main interface of the instrument, navigate to System Settings – Operation Settings – Cleaning Programs. Select a program on the left panel (see Figure 5-4-2), tap Edit to modify program parameters, then save changes. Alternatively, tap New and enter a program name. You may also select an existing program on the left, tap Copy, then tap New to duplicate the existing program into a new entry for further editing.

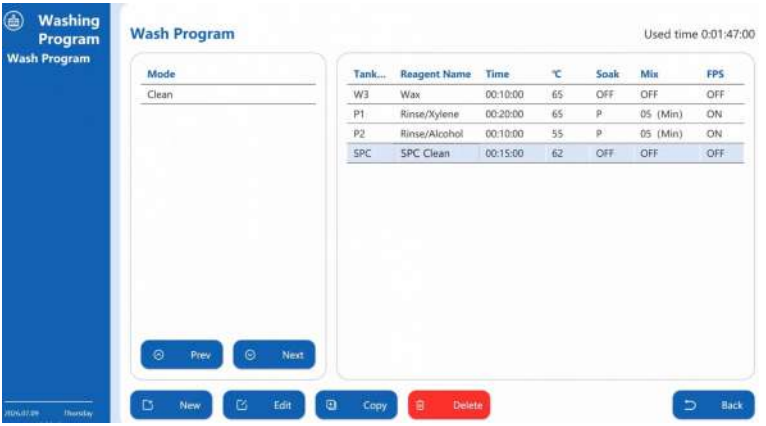



Figure 5.4.2

## 5.4.2 Cleaning Pause and Stop

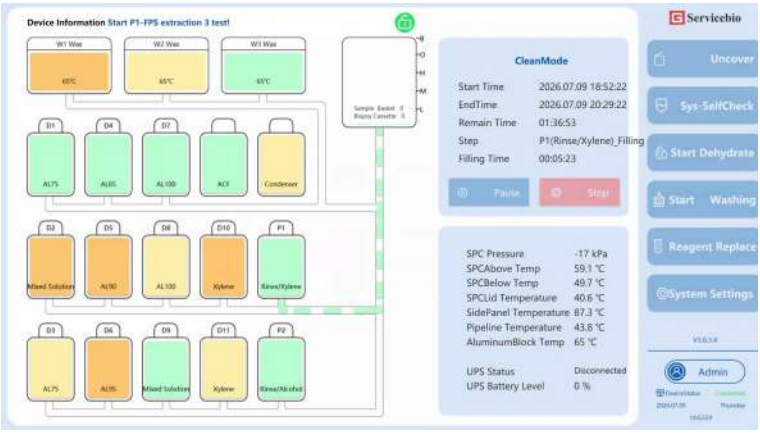



Figure 5.4.3

Tap Area 1 shown in the above figure to pop up information of the ongoing cleaning process (see figure below). You can also pause or terminate the current process in case of emergencies.

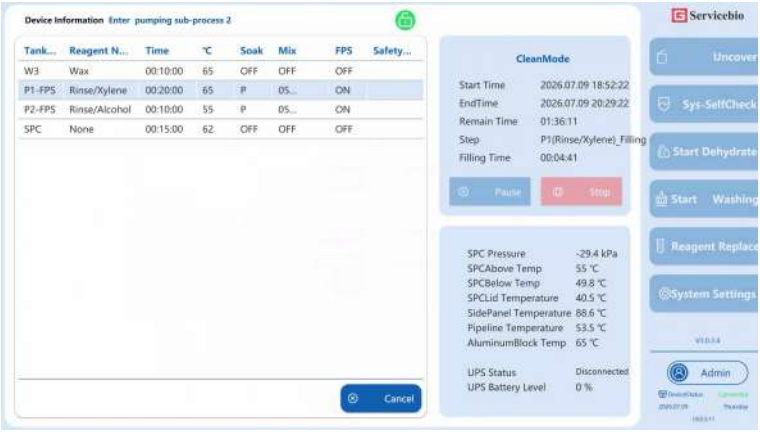



Figure 5.4.4

## 5.5 Paraffin Replacement

When paraffin reaches its usage limit and needs replacement, the system will prompt you (the corresponding reagent icon will turn red, and pop-up reminders may appear during certain operations). Prepare the external paraffin drain tube. Align it with the connector port and insert it. Connect the other end of the paraffin drain tube to a waste container.

**Note**

1. Before inserting the paraffin drain tube, the metal ring should be in the retracted (back) position. If the metal ring has already snapped forward, push it back.

2: Ensure the paraffin drain tube is free of paraffin blockages. Poor flow in the pipeline will lead to paraffin discharge failure and, in severe cases, instrument clogging.

3. After inserting the paraffin drain tube, the metal ring should snap forward to lock the tube connection.

4. Ensure sufficient empty volume in the waste container, greater than the volume to be drained.


Figure 5.5.1

Figure 5.5.2

After preparing the tubing, click Reagent Change:

1. Click to select the icon for the paraffin to be replaced.

2. Click Confirm.

3. Click Empty.

4. Click Confirm (external drain tube must be correctly installed).

5. Wait for the draining to complete.


Figure 5.5.3


Figure 5.5.4

## 5.6 Reagent Replacement

### 5.6.1 Replacement Prompts

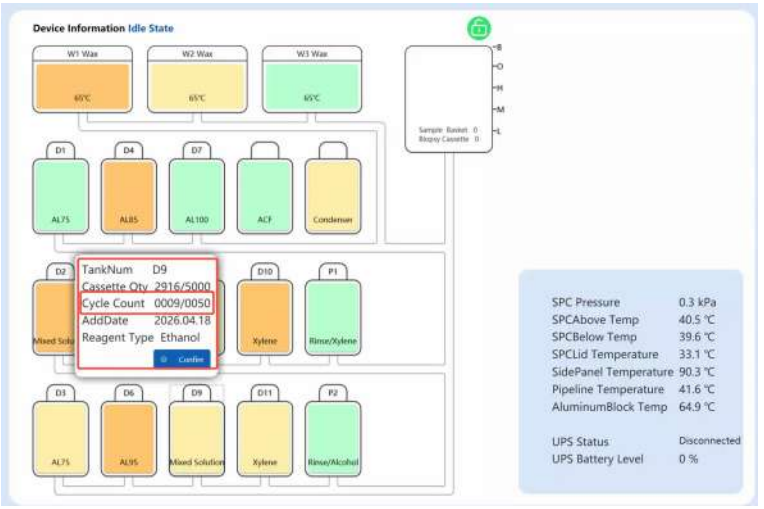



Figure 5.6.1

You may also directly judge the status by the color of each reagent bucket. Note that buckets marked red require immediate reagent replacement.Reagent Bucket Color Threshold Rules

Red: Current usage count ⩾ Maximum usage count, or Cumulative cassette quantity ⩾ Maximum allowable cassette quantity

Yellow: Current usage count (Cumulative cassette quantity) ⩾ Maximum usage count (Maximum allowable cassette quantity) × 0.7, and Current usage count (Cumulative cassette quantity) < Maximum usage count (Maximum allowable cassette quantity)

Orange: Current usage count (Cumulative cassette quantity) ⩾ Maximum usage count (Maximum allowable cassette quantity) × 0.5, and Current usage count (Cumulative cassette quantity) < Maximum usage count (Maximum allowable cassette quantity) × 0.7

Green: Current usage count (Cumulative cassette quantity) < Maximum usage count (Maximum allowable cassette quantity) × 0.5Note: The maximum usage cycles for cleaning reagents P1 and P2 are 6 times; all other reagents are limited to 40 cycles.

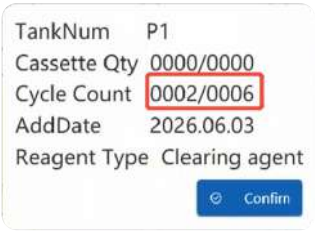



Figure 5.6.2

The following prompt will pop up when entering the reagent replacement page:

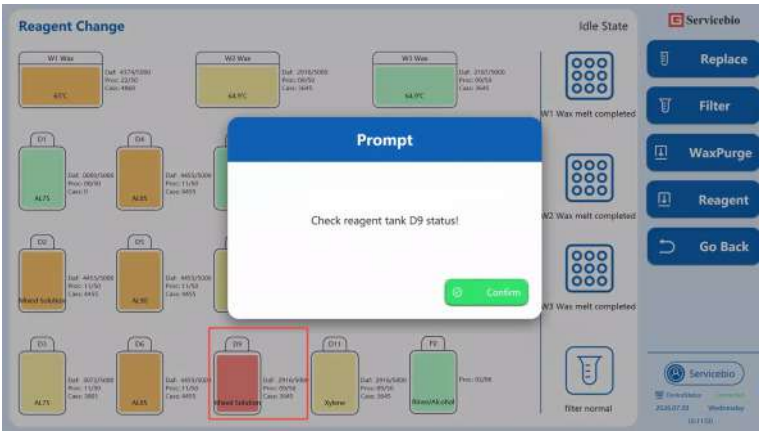



Figure 5.6.3

## 5.6.2 Reagent Replacement Operation

When the reagent reaches its maximum usage cycles, the system will prompt for reagent replacement. There are two replacement methods as follows: Method 1 (Recommended):Remove the reagent bucket directly, replace the old reagent with fresh reagent, reinstall the bucket to its original position, then tap Reagent Replacement on the main screen. Tap the icon corresponding to the reagent to be replaced; Tap Confirm step by step as prompted (Do Not Tap Drain).

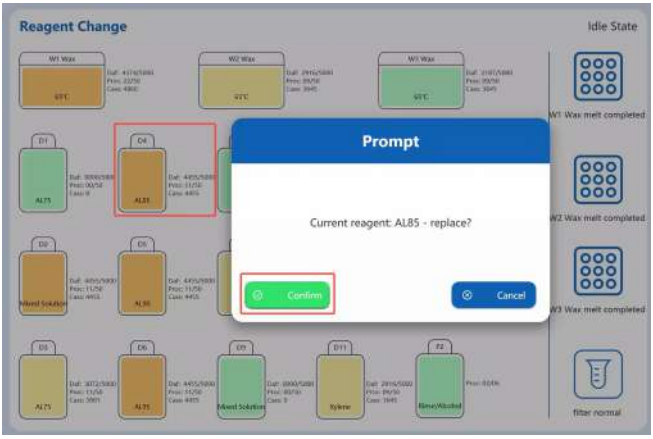



Figure 5.6.4


Figure 5.6.5

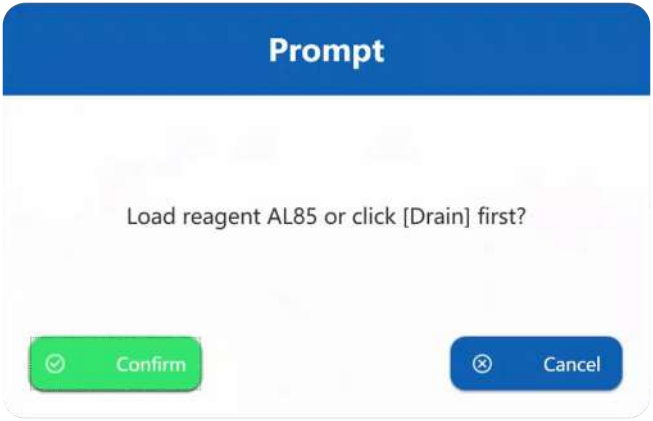



Figure 5.6.6

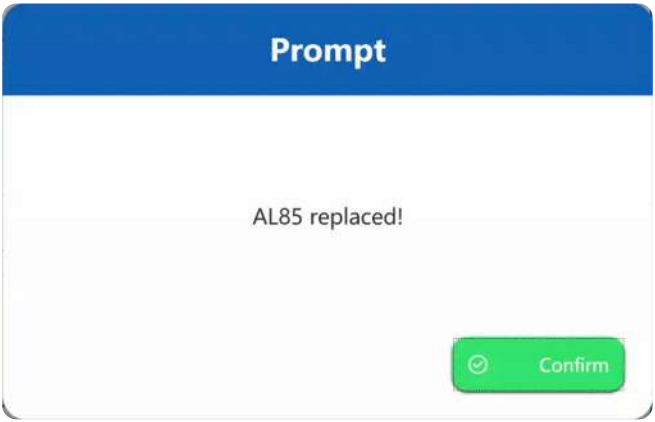



Figure 5.6.7

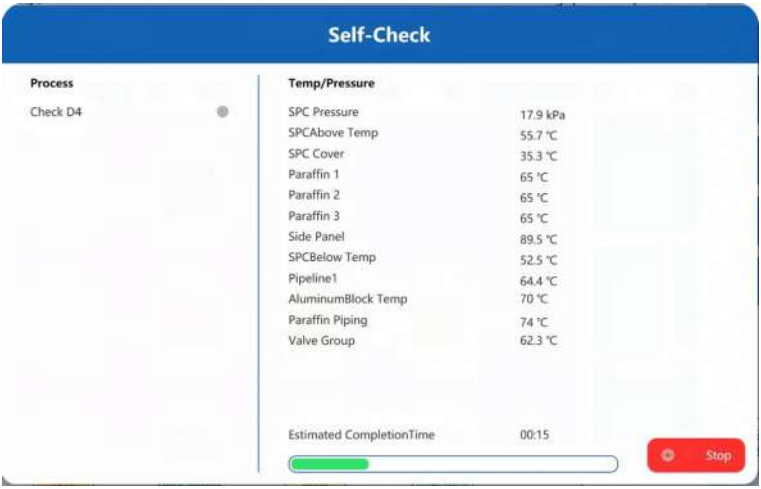



Figure 5.6.8

Method 2: First transfer the reagent inside the bucket into the retort via the instrument, then drain the reagent out of the instrument through the external reagent drain port (an external pipeline and waste liquid bucket are required; refer to Section 5.5 for operation). Afterwards, remove the empty bucket and refill it with fresh reagent. Procedures: Tap Reagent Replacement

1.Select the icon of the reagent to be replaced;

2.Tap Confirm;

3.Tap Drain;

4.Tap Confirm;

5.Wait for the instrument to finish draining;

6.Tap Confirm after draining completes;

7.Tap Return after all reagents are replaced. The instrument will run an automatic self-check for all replaced reagent buckets.

**Notes**

1.For external reagent draining, connect the external reagent drain tube to the reagent drain port, and route the other end of the tube into a waste liquid bucket. Otherwise, draining failure or laboratory reagent contamination may occur.

2.Before external reagent draining, ensure no basket or other objects are placed inside the retort; the retort must be empty.


Figure 5.6.9 (External Reagent Drain Port)

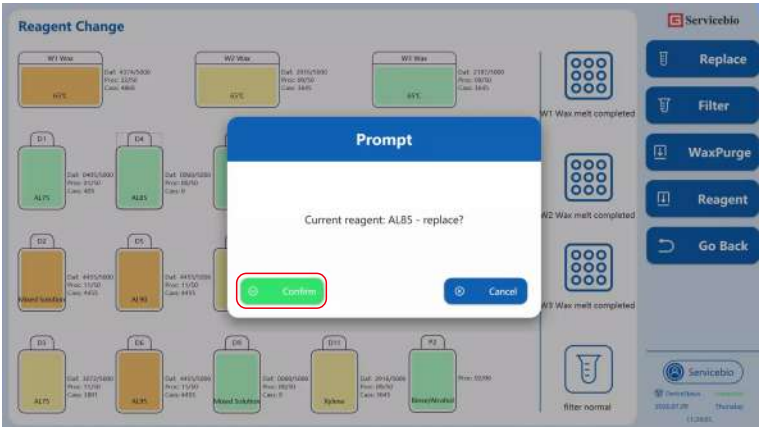



Figure 5.6.10

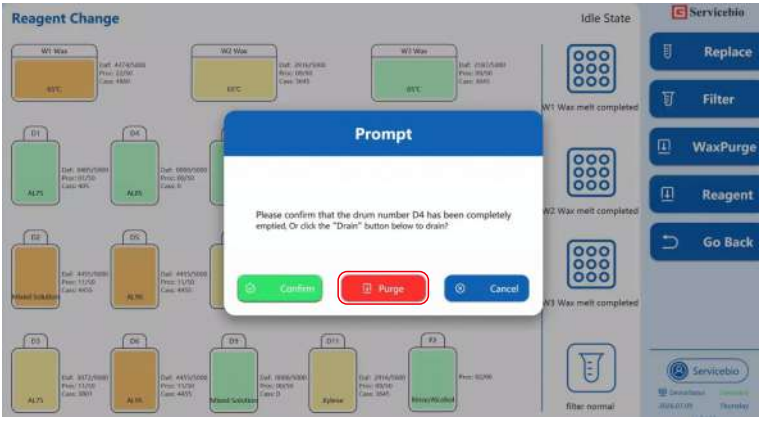



Figure 5.6.11

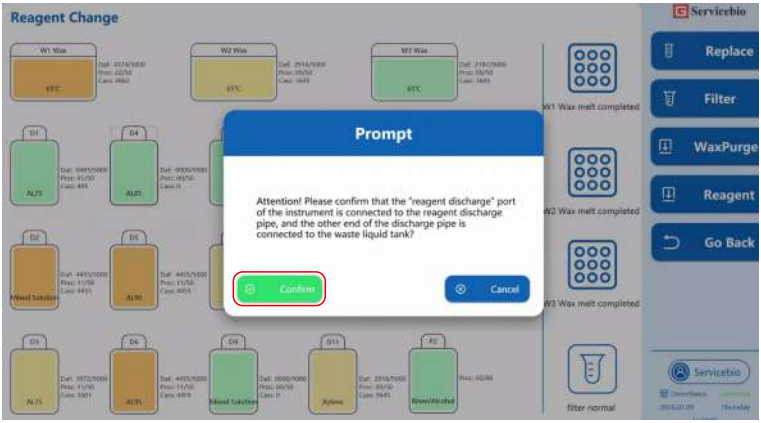



Figure 5.6.12

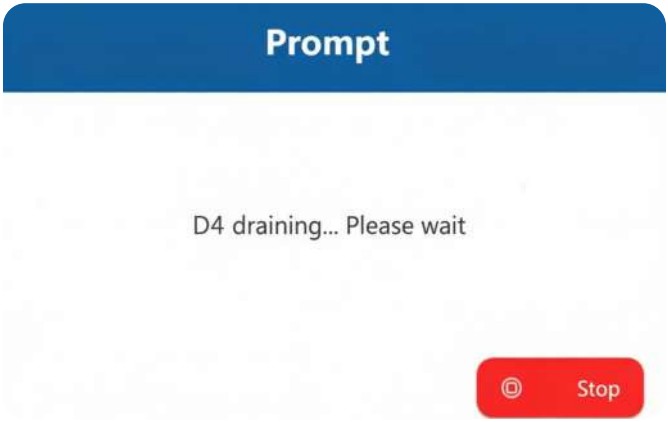



Figure 5.6.13

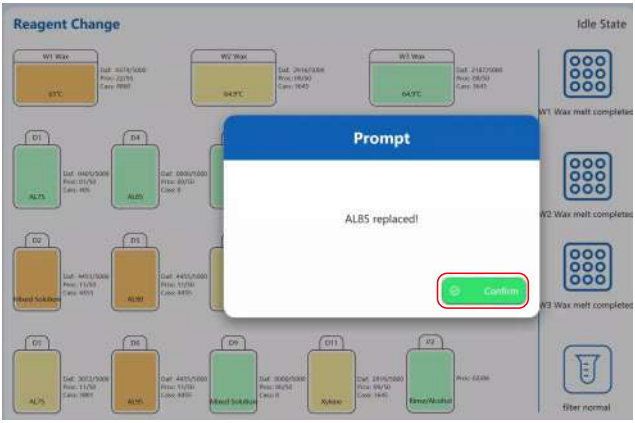



Figure 5.6.14

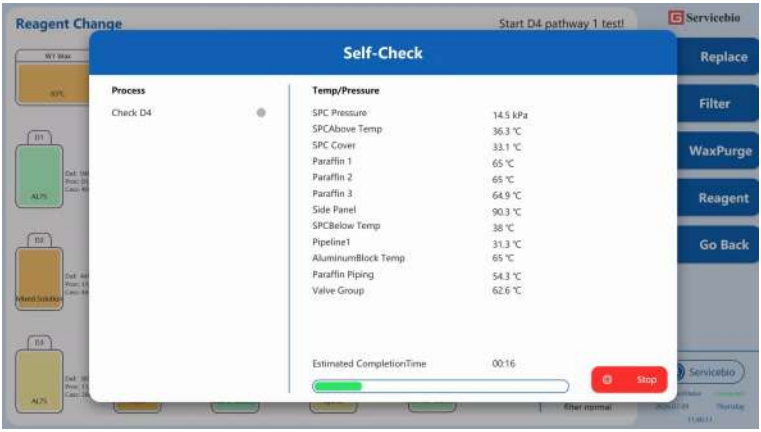



Figure 5.6.15

# 06 Other Functions

Tap the System Settings button on the main interface to enter the secondary page, as shown in the figure below:

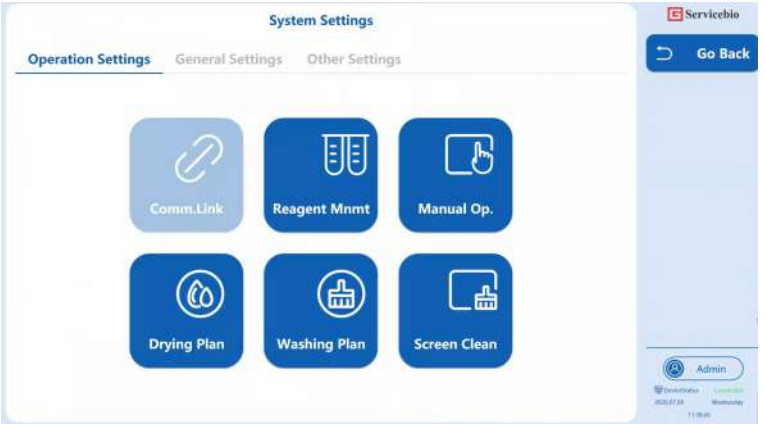



Figure 6.1

## 6.1 Communication Connection

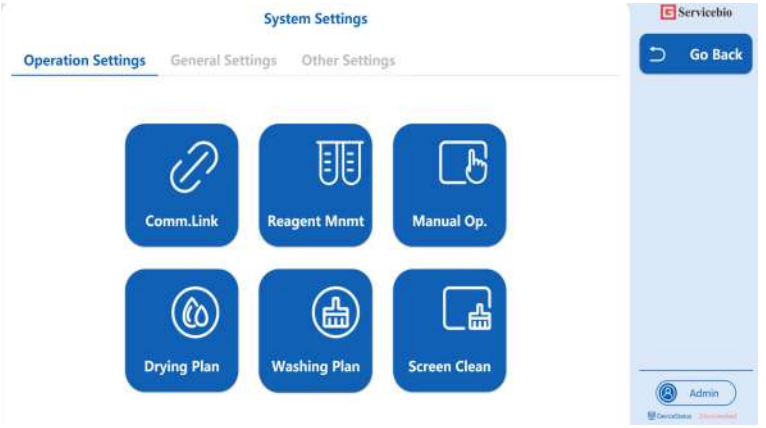



Figure 6.1.1

If the connection status is disconnected, tap the [Communication Connect] button to establish connection. You may unplug and reinsert the wiring to check tightness, and verify that the communication cable is plugged into the correct COM port (COM1).

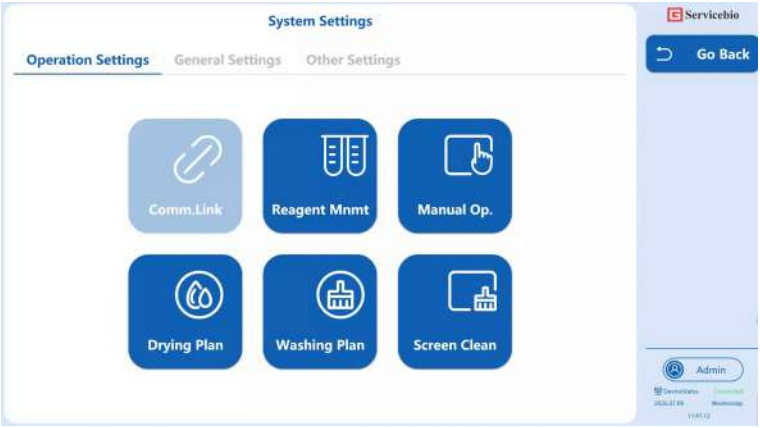



Figure 6.1.2

## 6.2 Reagent Management

Refer to Section 5.2 Reagent Management – Others in the table of contents, as shown below:

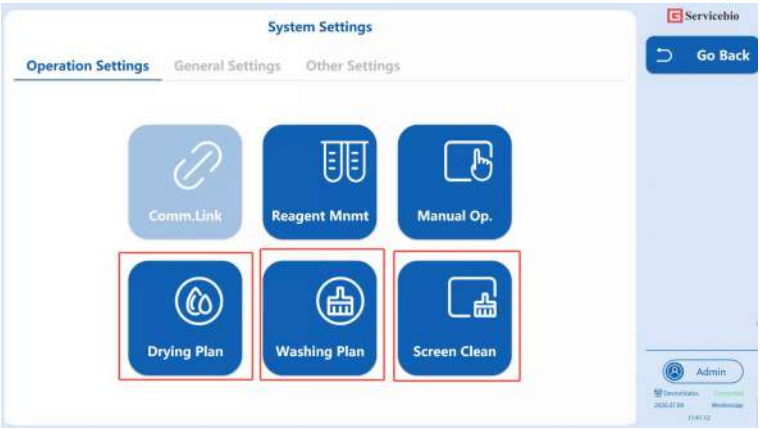



Figure 6.2.1

## 6.3 Manual Operations

It features a left-side functional tab area as shown in the figure below, together with sensor status information (pressure, temperature, liquid level) on the right.

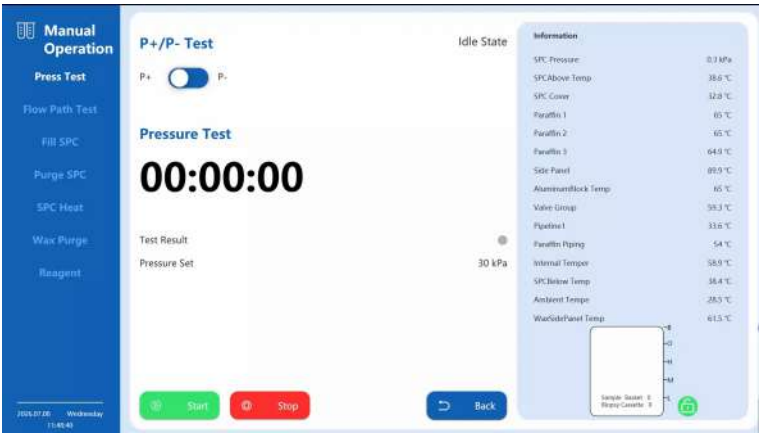



Figure 6.3.1

## 6.3.1 Pressure Test

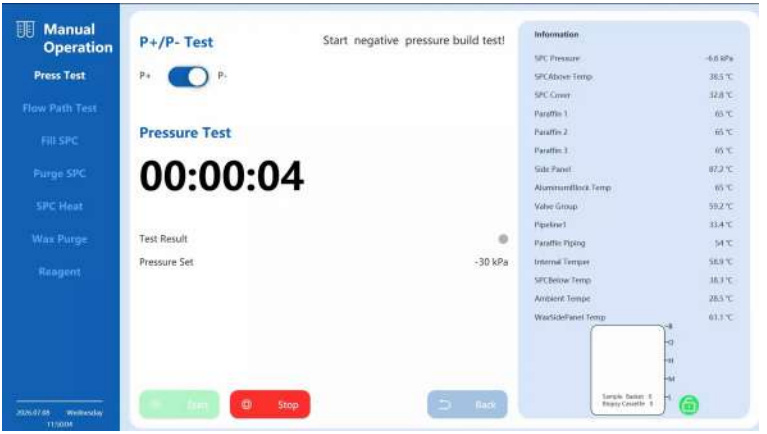



Figure 6.3.2

Click the Start button to test the positive and negative pressure. Check areas 3 and 4 on the right side to view the pressure-building prompt messages; the results are displayed accordingly.

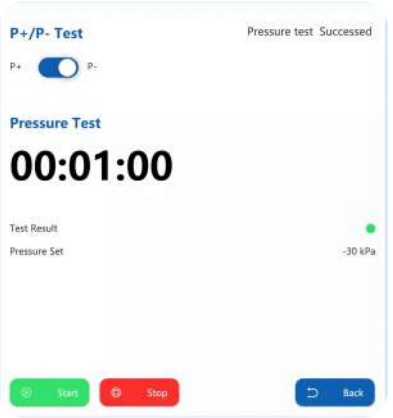



Figure 6.3.3

The positive and negative pressure setpoints can be adjusted by clicking the [General Settings] tab to switch to the [Parameter Settings] tertiary interface, as shown in the figure below.


Figure 6.3.4

## 6.3.2 Path Test

This function detects whether there are any leaks or blockages in the branch lines of each reagent container via air path detection. The system self-check on the main interface will test the paths of all reagent containers.


Figure 6.3.5

See the figure below for the self-check status.

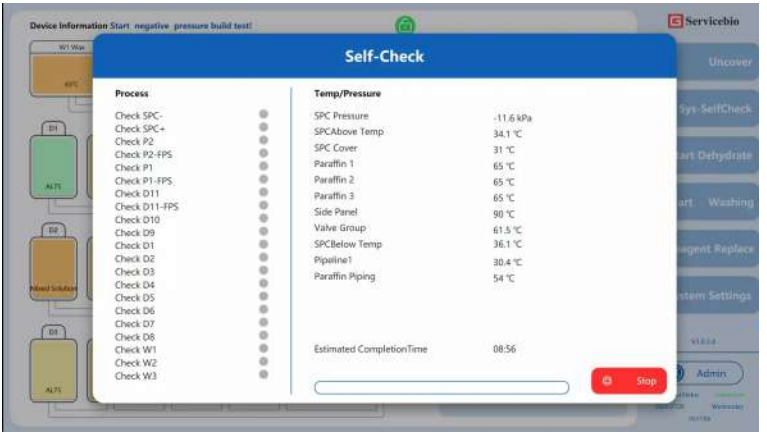



Figure 6.3.6

## 6.3.3 Fill SPC

**Note**

When using this function, pay close attention to the type of reagent being filled. Follow the sequence principle of Alcohol → Xylene → Paraffin to avoid reagent contamination. For example:After filling with xylene, do not fill with alcohol. 1.After filling with paraffin, do not fill with alcohol or xylene.2. After drawing alcohol, it is prohibited to directly fill with paraffin. 3.After drawing paraffin or xylene, a cleaning cycle must be performed.


Figure 6.3.7

## 6.3.4 Empty SPC

This function drains the reagent from the reaction chamber (SPC) either back to the corresponding reagent container or externally to a waste container via the reagent drain port. Paraffin drainage is similar and requires connecting the external drain hose. Click Start to drain the paraffin from the SPC through the external pipe to a paraffin waste container.


Figure 6.3.8

**Note**

The fill path and the empty path must correspond to the same reagent.

## 6.3.5 SPC Heating

Used to test whether the actual heating time of the SPC reaction chamber and its lid falls within the set required heating time range. The settings can also be adjusted by navigating from the main page: [System Settings] → [General Settings] → switch to the [Parameter Settings] tertiary interface (Figure 6-3-10).

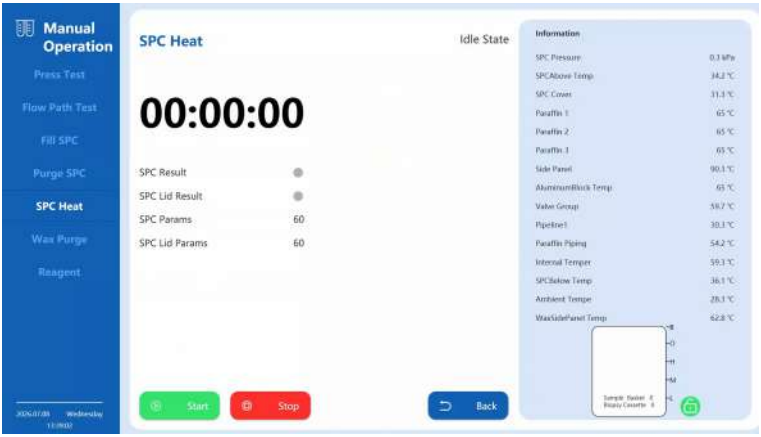



Figure 6.3.9


Figure 6.3.10

## 6.3.6 Paraffin Cleaning

Used to clean residual paraffin inside the reaction chamber. By switching channels and building positive pressure, the residual paraffin liquid in the reaction chamber is pushed back to the corresponding paraffin baths.

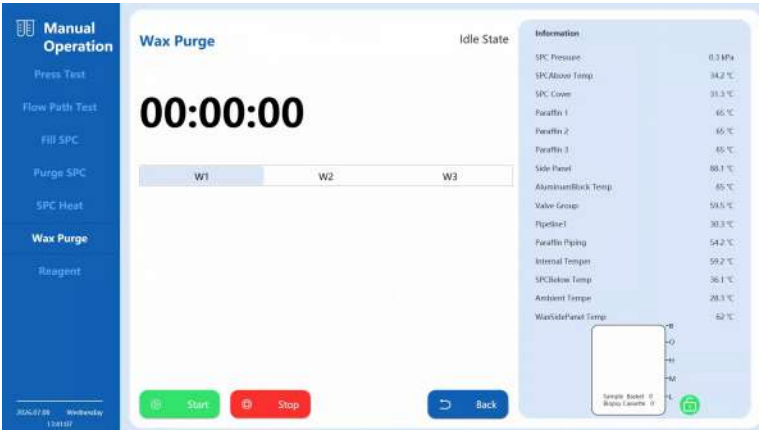



Figure 6.3.11

## 6.3.7 Reagent Drainage

Used to externally drain paraffin from a paraffin baths. The instrument first draws paraffin from the paparaffin bathso the reaction chamber, and then drains it externally through the connected pipe to a paraffin waste container.


Figure 6.3.12

The condensation drain function drains liquid from the condensation bottle, which also requires an external drain hose (insert the external pipe into the Reagent Drain port). Additionally, if not drained for more than one month, the system will automatically drain the condensation bottle before starting a dehydration cycle when you click [Start Dehydration].

Note: When draining the condensation bottle, the external reagent drain pipe and a waste container must be connected.


Figure 6.3.13

## 6.4 General Settings

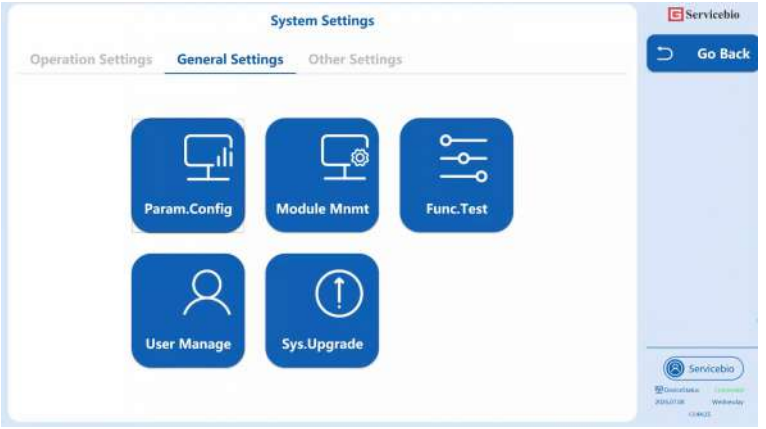



Figure 6.4.1

### 6.4.1 Parameter Settings

Pressure Settings:


Figure 6.4.2

It is recommended to adjust the Soak Positive Pressure / Soak Negative Pressure according to actual needs, and verify them experimentally first. Do not change other parameters arbitrarily, as this may affect dehydration results.

Fill/Drain Pressure: The target pressure required for drawing or draining liquid.

Soak Positive/Negative Pressure: The positive and negative pressure values inside the reaction chamber during tissue incubation.

Path Test Pressure: Used during the self-check to test the path pressure between the reagent containers and the reaction chamber.

Paraffin Dry Pressure: Used during the cleaning process.

Temperature Settings:


Figure 6.4.3

## 6.4.2 Component Management

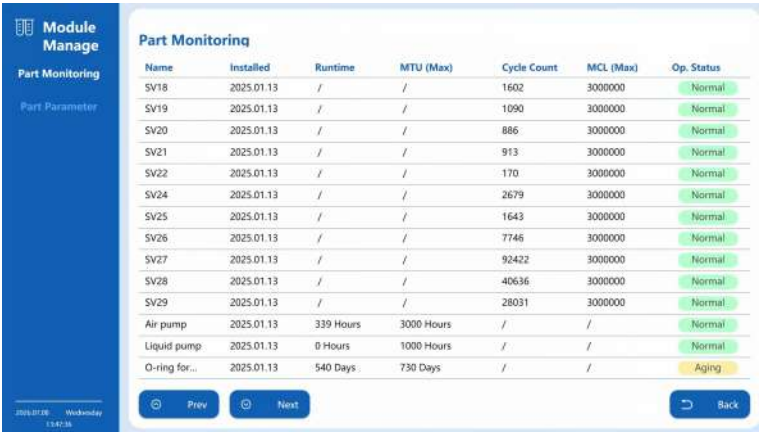



Figure 6.4.4

## 6.4.3 Functional Debugging

### 6.4.3.1 IO Control

Solenoid valve control can be used to check the status of corresponding solenoid valves and identify any abnormalities. Click the red buttons below to toggle individual valves. The SON/SOFF buttons can open/close all solenoid valves.

**Note**

1. Do not open solenoid valve SV24 simultaneously with SV25/SV26.

2. Do not operate solenoid valves arbitrarily when there is liquid in the SPC.


Figure 6.4.5

### 6.4.3.2 LED Test


Figure 6.4.6

Used to check whether the corridor lights above each reagent container are functioning normally and whether the status indicator colors can switch correctly.

#### 6.4.3.3 Other Tests

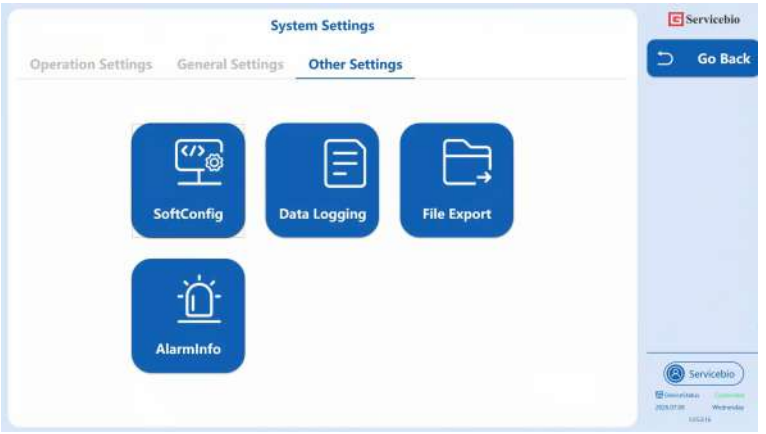
SPC Unlock / SPC Lock


Figure 6.4.7

Used to open/close the electronic lock.

## 6.5 Other Settings

Used to configure some basic instructions or view dehydration process history records. See the functional diagram below.




### 6.5.1 Software Settings

Configure some basic operational instructions. Enter the Device ID for voice alarm differentiation and for shutting down the PC computer.


Figure 6.5.2

## 6.5.2 Data Records

After each process is completed, used to view the completion status of each step in the current or previous processes. You can also check the latest process record to confirm whether cleaning was performed after tissue dehydration.

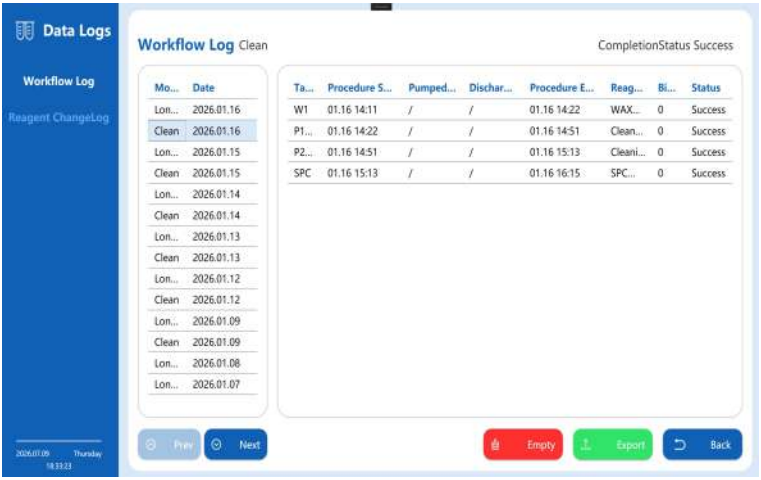



Figure 6.5.3

Reagent Replacement Record: View the record of reagent and cleaning solution replacements.

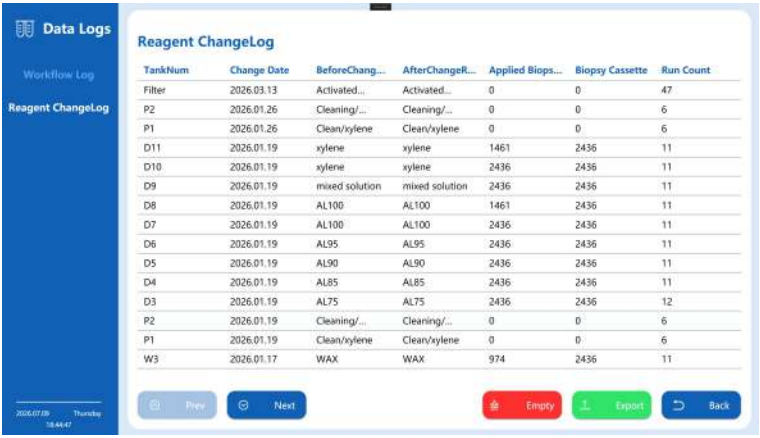



Figure 6.5.4

## 6.5.3 File Export

Used to export records as file formats for backup purposes.

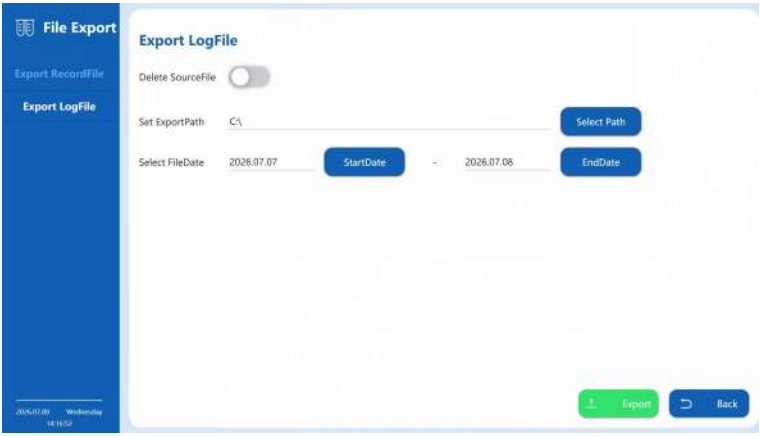



Figure 6.5.5

## 6.5.4 Alarm Information

Used in conjunction with the program history records. When a dehydration abnormality occurs, it can be traced back to which step in the process caused the issue, facilitating further localization and troubleshooting. For example, if a "Vacuum Build Failed" error appears for D10, you should check whether D10 has a leak, is low on liquid, has no liquid, or if the chamber lid was not properly closed during operation.

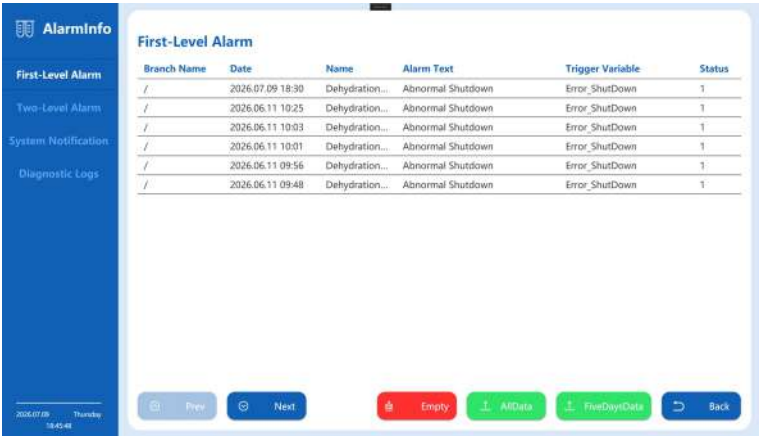



Figure 6.5.6

System Prompts:

Used to trace and view system-level operation records, such as whether the program exited abnormally or if there were any power failure events.

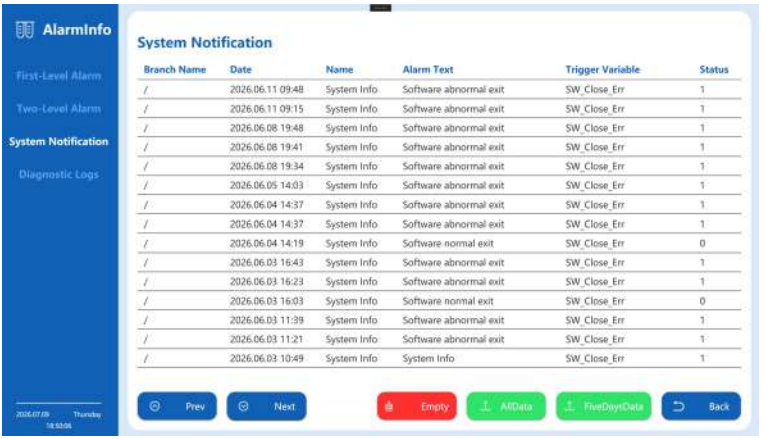



Figure 6.5.7

# 6.6 General Troubleshooting and Handlingns

## 6.6.1 Operation Prompt When Liquid is in the SPC

When liquid (e.g., from reagent container D4) has been filled into the SPC but not drained, attempting other operations will prompt: "Current SPC reagent is D4, please drain it back to that branch first." Therefore, you must drain the liquid back to the corresponding reagent container before performing other operations. Navigate to System Settings → Operation Settings → Manual Operations, then click: 1. Empty SPC; 2. Select the corresponding branch (D4); 3. Start. The instrument will automatically begin draining; wait for the draining to finish.


Figure 6.6.1


Figure 6.6.2

## 6.6.2 Operation Prompt for Not Cleaning

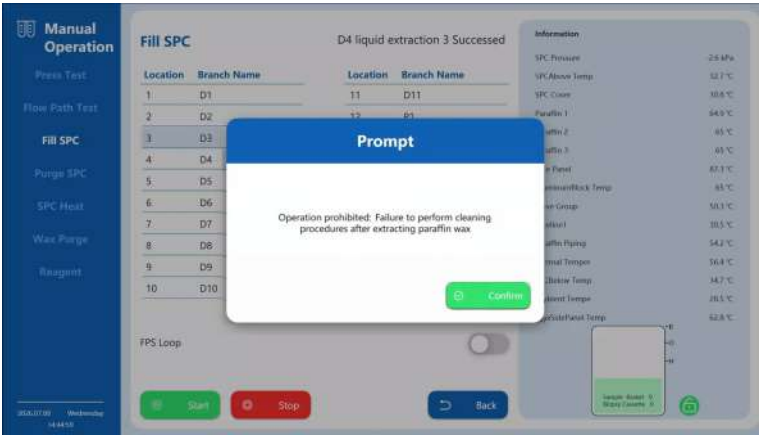



Figure 6.6.21

This prompt ensures that after handling paraffin (after dehydration is complete, or after manually drawing paraffin from a paraffin bathsnto the SPC), you must return to the main interface and click [Start Cleaning] to ensure there is no residual paraffin in the lines, preventing blockages.

## 6.7 Connecting an Uninterruptible Power Supply (UPS)

The Uninterruptible Power Supply (UPS) protects the machine and instrument from power failures. Note: The UPS is not included as standard equipment and is an optional accessory.

Connect the UPS to the mains power supply and load. Before using the UPS, flip the air circuit breaker on the back of the UPS upwards, as shown in Figure 6-7-1.

Figure 6.7.1: UPS Air Circuit Breaker on the Back

Press and hold the front power button for 3 seconds to start the UPS. The UPS defaults to Bypass Mode upon startup. In Bypass Mode, the mains power cannot charge the UPS; the UPS directly supplies power to the load. You need to manually configure it to Normal Mode. In Normal Mode, the mains power charges the UPS while simultaneously supplying power to the load.

The status indicator light for Bypass Mode when the UPS starts is shown in Figure 6-7-2:


Figure 6.7.2: UPS Bypass Mode

The indicator light for Normal Mode is shown in Figure 6-7-3:


Figure 6.7.3: UPS Normal Mode

A gray communication cable (supplied by the manufacturer) is required between the UPS and the dehydrator. The software interface when the communication cable is not connected is shown in Figure 6-7-4:


Figure 6-7-4: Software Interface When UPS is Not Connected to the Device

The software interface when the UPS is successfully connected to the device using the communication cable is shown in Figure 6-7-5:

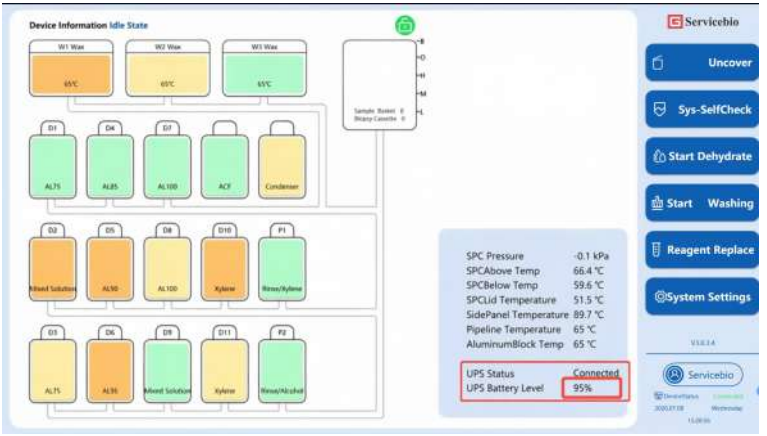



Figure 6.7.5: Software Interface When UPS is Successfully Connected to the Device

The communication port on the UPS is located on the back of the unit, as shown in Figure 6-7-6:

Figure 6.7.6: UPS Communication Port

The communication port on the dehydrator for the UPS is located on the back of the device, as shown in Figure 6-7-7:

Figure 6-7-7: Dehydrator Communication Port

When a power outage occurs, the dehydrator software detects the mains power abnormality, actively stops the current dehydration process, and enters the Safety Reagent procedure. It fills the SPC with the safety reagent to incubate the tissue, preventing tissue damage. The UPS indicator light status after a power failure is shown in Figure 6-7-8:


Figure 6.7.8: UPS Status After Power Failure

Correct Usage: One UPS per device.

Peak Capacity: The UPS can support the dehydrator running at full power for 25 minutes.

In the event of a mains power abnormality, when the UPS voltage drops below 180V (after a 40-minute power outage), to protect the UPS, and provided no dehydration test is in progress, the system sends a shutdown command to the UPS after 20 seconds, then shuts down the software and the PC.

# 07 Cleaning and Maintenance

Follow the maintenance and cleaning instructions in this chapter to keep the instrument in good working condition. This helps ensure high-quality dehydration and avoids unnecessary repairs.

Ensure the instrument is kept powered on at all times, even when not in operation. This keeps the paraffin melted and allows the software-controlled preventive maintenance routines to execute.

Use only the cleaning materials or methods described in this chapter to maintain the instrument and prevent unnecessary damage.

## 7.1 Screen Cleaning

When the screen needs wiping or cleaning, click System Settings -> Operation Settings -> Screen Cleaning. The screen will be locked. You can wipe the screen with an alcohol-moistened lint-free cloth. After cleaning, press and hold the screen icon for more than 3 seconds to automatically unlock.


Figure 7.1.1

## 7.2 Retort Cleaning

After each run, clean the inside walls of the retort and any residual paraffin on the sealing edge of the lid to prevent paraffin buildup from affecting the seal. Use absorbent paper to remove paraffin.

If there are reagent residues on the 4 level sensors inside the retort, clean them using the same method.

Figure 7.2.1

## 7.3 Cleaning and Maintenance Schedule

**Daily**

1.Clean lid and sealing ring.

2.Clean dehydration chamber and level sensors.

3.Check reagent container filling levels.

4.Check s filling levels.

5.Clean touchscreen and instrument top surface.

**Weekly**

1.Empty condensation bottle.

2.Clean reagent containers and check reagent container connectors.

3.Check paraffin baths.

4.Clean external surfaces.

**60-90 Days**

1.Inspect dehydration chamber lid seal and reagent container connector O.

2.Replace activated carbon filter box.

### 7.3.1 Daily Maintenance

**7.3.1.1. Clean Lid and Sealing Ring**

Inspect the SPC lid sealing ring. Use the provided paraffin plastic scraper to remove paraffin from the inner surface of the dehydration chamber and the paraffin bathsids. Check whether the SPC lid sealing ring is intact. If damaged, contact customer service to replace the damaged sealing ring. Clean the paraffin residue from the edges of the instrument's dehydration chamber and around the Paraffin baths , ensuring the lid can close flush and seal completely.

**7.3.1.2. Check Reagent Container Fill Levels**

Ensure that the fill levels of all reagent containers are between Min and Max. The fill level must not exceed the Max mark.

**7.3.1.3. Check Paraffin Fill Levels**

Ensure that the fill levels of the paraffin bathsare between Min and Max. If needed, add more paraffin. The fill level must not exceed the Max mark.

**7.3.1.4. Clean the Instrument's Screen and Top Surface**

Before cleaning, click "Screen Cleaning" to lock the touchscreen. Wipe the touchscreen with a lint-free cloth dampened with alcohol. Do not use abrasive cleaners or strong solvents on the touchscreen.

Use a lint-free cloth dampened with alcohol (and a paraffin scraper if necessary) to clean the lids and other surfaces on top of the instrument. Use the paraffin scraper to ensure all paraffin is removed.

## 7.3.2 Weekly Maintenance

#### 7.3.2.1 Clean Reagent Containers and Check Reagent Container Connectors

Inspect all reagent containers weekly. If a container is found to be dirty, clean it the next time reagents are replaced.

To clean a reagent container, pour in a small amount of fresh reagent (the same reagent used in that container), cover the opening, and shake. Seal the container with its cap. Empty the container and check if it is clean. If clean, refill to the required level and place it back into the instrument.

If the container remains dirty, use the reagent container brush and a laboratory cleaning agent (or xylene) to clean it. Then rinse again with the corresponding clean reagent. After that, prepare the container and refill it with the reagent.

For cleaning reagent container P2, it is recommended to rinse it with clean xylene each time the reagent is replaced (as the P2 container tends to accumulate paraffin).

The connectors on the reagent containers inserted into the instrument may become loose over time. If necessary, tighten them.

Check whether the O-rings at the reagent container connectors are smooth and free from damage.

#### 7.3.2.2 Clean paraffin baths

Inspect the paraffin bathsweekly to confirm whether they have become dirty. Clean the paparaffin bathse next time paraffin is replaced.

Clean the paraffin bathswhile the paraffin is warm. Do not clean the paparaffin bathsile paraffin is in the dehydration chamber.

Wipe the bottom and sides of the paraffin bathswith a lint-free cloth to remove all debris or residue. The filter screen at the bottom of the paparaffin bathsds to be inspected regularly; any impurities or residue on the filter screen should be cleaned.

Be careful when cleaning the walls of the paraffin baths. The walls may be very hot and could cause burns.

#### 7.3.2.3 Clean External Surfaces

Weekly, wipe the external surfaces of the instrument clean with a damp cloth (moistened with water or alcohol). Do not use strong solvents. Dry with a lint-free cloth.

## 7.3.3 Every 60-90 Days Maintenance

#### 7.3.3.1. Inspect Dehydration Chamber Lid Seal and Reagent Container Connector O-rings

Inspect the sealing ring of the dehydration chamber lid for deformation or damage. If any defects are found, replace it promptly.

Inspect the O-rings at the reagent container connectors (2 connectors with a total of 4 O-rings) to ensure they are secure, smooth, and free from damage. If any O-rings are found to be missing or damaged, replenish or replace them promptly.

Figure 7.3.1

### 7.3.3.2. Replace Activated Carbon Filter Box

When the activated carbon filter has been used 120 times, the software will prompt that the activated carbon filter needs to be replaced. Click Reagent Replacement and follow the prompts to replace the activated carbon filter box.

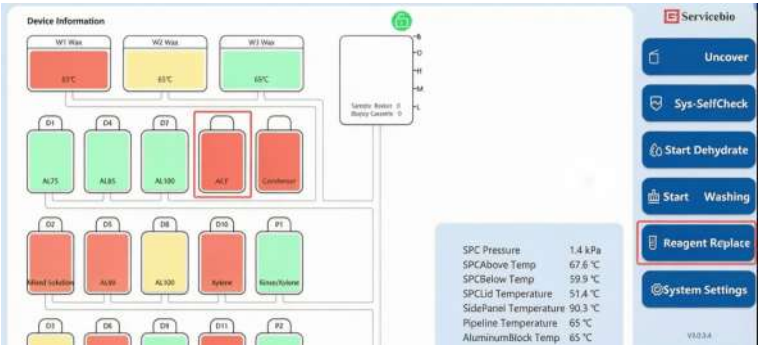



Figure 7.3.2

Operating the instrument with an expired activated carbon filter box may allow hazardous exhaust fumes to be released into the laboratory.

The procedure for replacing the activated carbon filter box is as follows:

1.As shown in Figure 7-3-3, use a 3.0 mm hex wrench to remove the 4 M4 screws shown, and open the cover plate of the filter box.

2.As shown in Figure 7-3-4, use a 3.0 mm hex wrench to remove the 2 M4 screws shown, and remove the compression bracket of the filter box.

3.As shown in Figure 7-3-5, pull out the filter box by hand.


Figure 7.3.3

Figure 7.3.4

Figure 7.3.5

# 08 Warranty & Service Information

If any damage occurs to the instrument or components during the warranty period, our company is responsible for free repair or replacement of the damaged parts.

The following damages are excluded:

Damages caused by improper use.

Repairs or modifications not performed by our company.

Replacements made using non-original or unauthorized parts.

If you need more services, please visit Servicebio official website (https://www.servicebio.com/) or Email to info@servicebio.com.

Please fill in the following warranty card information carefully and keep it properly when purchasing the product.

| | |
|---|---|
| **Product Name** | |
| **Cat.No.** | |
| **Date of Purchase** | |
| **Address** | |
| **Product Number** | |
| **Quality Feedback** | |

Servicebio

ДИА•М
современная лаборатория

Диаэм, Москва ■ ул. Магаданская, д. 7, к. 3 ■ тел./факс: 8 (800) 234-0508 ■ sales@dia-m.ru

С.-Петербург spb@dia-m.ru
Новосибирск nsk@dia-m.ru
Воронеж vrn@dia-m.ru
Йошкар-Ола nba@dia-m.ru
Красноярск krsk@dia-m.ru
Казань kazan@dia-m.ru
Ростов-на-Дону rnd@dia-m.ru
Екатеринбург ekb@dia-m.ru
Кемерово kemerovo@dia-m.ru
Нижний Новгород nnovgorod@dia-m.ru

мобильное приложение

www.dia-m.ru