

EXODUS[®] H-580/H-600

Automatic Exosome Isolation System

User Manual



※FOR RESEARCH USE ONLY

Instructions

Thank you for purchasing EXODUS® Automatic Exosome Isolation System.

Before using the product, please read this Manual carefully for how to use it properly.

Please keep the Manual properly after reading, so that you can refer to it when you need it.

Product name: Automatic Exosome Isolation System.

Model: EXODUS® H-580, EXODUS® H-600.

Scope of application*: Applicable for isolating and collecting exosomes/extracellular vesicles from a variety of biological samples (including urine, saliva, cerebrospinal fluid, plasma, serum, tear, etc.) and cell (/bacteria/virus) culture medium supernatant.

Manufacturer: EXODUS Bio.

Address (office): 160 E Tasman Dr., San Jose, CA 95134, United States.

TEL: +1 8147778586.

Date of manufacture: See the labeling.

Expiration date: See the labeling.

Release date: September, 2022.

Made in China

* *This Automatic Exosome Isolation System is designed to be used for research use only.*

Intellectual Property Rights

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Statement

EXODUS Bio reserves the right of final interpretation of this Manual.

EXODUS Bio shall be held responsible for the safety, reliability and performance of the product only when all of the conditions listed below are met.

- All assembly operations, expansions, re-adjustments, improvements and repairs are performed by professionals accredited by EXODUS Bio.
- Replaced parts, accessories and consumables involved in all repairs shall be provided or specified by EXODUS Bio.
- All relevant electrical instruments comply with national standards and the requirements in this Manual.
- All operations performed on or with the product are in accordance with this Manual.

Warranty and Services

Automatic Exosome Isolation System: Refer to EXODUS® Automatic Exosome Isolation System (the 'system').

Consumable: Refer to EXODUS Isolation Device (the 'EID'), disposables or consumable items should be replaced after each use or periodically, which are not covered by the warranty.

The warranty period of the purchased products shall be subject to the sales contract.

The warranty period commences from the 'date of sale' filled in on the Warranty Card, which serves as the only certificate to calculate the warranty period, that comes with the product. To protect your rights and interests, please fill in the warranty card after the installation is completed.

Please note that the following situations are not covered by the warranty:

- The customer fails to fill in the warranty card within 30 days after the installation acceptance.
- The serial number of the system provided by the customer is incorrect.
- The operator does not follow this manual.

- The operator uses reagents, consumables, or other parts that are not provided or specified by EXODUS Bio.
- Repair or change the system without permission of EXODUS Bio.

During the warranty period, the products can enjoy free after-sales service. The cost of transporting the system from the user to the maintenance department shall be paid by the user. The manufacturer bears the cost of sending the system back to the user. However, please note that even under warranty, if the product needs to be repaired attributable to the reasons listed below, EXODUS Bio will provide paid services, which means you need to pay for the services and accessories:

- A failure caused by failing to follow this Manual.
- A failure caused by using the product in an environment that doesn't meet the requirements of the product.
- A failure caused by the force majeure (e.g., natural disaster, war, etc.).

After the expiration of the warranty, EXODUS Bio will provide paid services.

If you do not pay or delay in paying the service fee, EXODUS Bio will suspend the services until you pay the fee.

After-Sales Service Provider

Name of the service provider: EXODUS Bio.

Website: www.exodus-bio.com




Address: 160 E Tasman Dr., San Jose, CA 95134, United States.

Postal code: 95134

Service hotline: +1 8147778586

Safety Information

The following symbols are used in this Manual to indicate danger or information requiring special attention.

| Symbol | Indication |
|---|---|
|  Warning | Follow the instructions below, otherwise there may be personal injury. |
|  Caution | Follow the instructions below, otherwise there may be product failure, damage, or impact on test results. |
| Note | Follow the instructions below which may contain important information about the operation procedures or contents requiring special attention of the operator. |
|  | Follow the instructions below, otherwise there may be a risk of biological infection. |



- The system can only be used by professionals trained by EXODUS Bio or its authorized distributors.
- If the organizations using the system fail to ensure effective servicing/maintenance, there may be abnormal failure of the system or risks to human health.
- Make sure the system is used under the conditions set forth in the Manual. Any incompliance with the operating conditions may cause abnormal failure of the system or harm to human safety.

Note

- This Manual is intended to be read by professionals who:
 1. Operate the system on a daily basis.
 2. Do servicing and troubleshooting of the system.

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Chapter 1 Overview of the Manual

1.1 Overview

This chapter introduces how to use the Operator' s Manual of EXODUS® Automatic Exosome Isolation System. This Manual comes with EXODUS® Automatic Exosome Isolation System, specifying the uses, functions and operations of the system. EXODUS® Automatic Exosome Isolation System is designed to isolate exosomes/extracellular vesicles from biological samples or cell culture medium supernatant. Before using EXODUS® Automatic Exosome Isolation System, please read and understand the contents in the manual carefully to ensure that the system could be in proper use and optimal performance, and to guarantee the safety of the operator.

This system is a precision system. All safety precautions in the Manual and safety instructions on the system must be followed at each stage of operating, maintaining and servicing the system. Failure to do so may result in personal injury or system damage. Do not operate the system until you have read the Manual. The system can only be operated by trained and qualified laboratory staff.

Do not perform any operation not specified in the Manual. If you find any problems, please contact an authorized sales or service representative. Although the safety precautions in the Manual and on the system have been fully considered, unexpected situations may still occur. Please do as instructed in the Manual and always be careful when operating this system. The manufacturer will not assume any responsibility for any consequences caused by the user' s failure to comply with the instructions specified hereafter.

1.2 Scope of Application

This Manual is applicable to:

- (1) Learning about the EXODUS®.
- (2) Setting system parameters.
- (3) Performing daily operations.
- (4) Performing system maintenance and troubleshooting.

1.3 Conventions in the Manual

All illustrations provided in this Manual serve as examples only and shall not be used for other purposes. Contents like graphics, settings and data presented in this Manual may not be exactly the same as the actual display you see on EXODUS® Automatic Exosome Isolation System.

1.4 Safety information



All biological samples and reagents in the system, including all liquid waste in the waste barrel, as well as areas in contact with these substances, are potentially biohazardous and shall be disposed of as potentially biohazard materials. When touching relevant materials or areas in the laboratory, the operator shall comply with the safe operation regulations of the laboratory, and wear personal protective equipment (e.g. laboratory protective clothing, gloves and safety goggles).

Before using toxic samples, radioactive samples, pathogenic or infectious blood samples, make sure that all necessary safety measures are taken, and the samples are handled in strict accordance with the standard laboratory procedures and methods. Make sure all necessary safety measures are taken when handling materials with biosafety Level II (as defined in the WHO Laboratory BioSafety Manual). For materials with higher levels, more protection measures shall be provided.



- Check all reagent and centrifuge tubes sample and make sure they are opened before running the system, otherwise the transfer arm may be damaged.
- Make sure the observation window is closed before running the system. Do not open the observation window unless necessary while the system is running.
- Take all safety measures provided by the system. Never disable any system or sensor used for the safety purposes.
- Make sure all alarms and error messages are responded and processed in a timely manner.
- Do not touch the transfer arm at any time, otherwise there is a potential risk of infection.
- Do not use any centrifuge tubes or reagent bottles that do not match the specifications of the system, otherwise the system may be damaged.

- Do not use any adapters or components not specified for the system.
- Do not use any disposable consumables that are not provided or specified by EXODUS Bio, otherwise the system may be damaged.
- Check the reagent volume in the buffer bottle and cleaner bottle, water barrel, and clean up the waste in the waste barrel in time.
- The disinfectant is corrosive. Wear appropriate protective gloves when using it.
- Before performing isolation to a sample, select the appropriate EID and EID adapter based on the type and volume of the sample. Make sure that the adapter does not fall off. Store the adapter properly after use to avoid losing it.
- Wipe the countertop inside and covers of the system regularly with a dry soft cloth dipped in a small amount of 75% (v/v) ethanol to avoid contamination.
- Do not use a ballpoint pen, tweezers, screwdriver, or objects with sharp tips to tap the touch screen.
- Do not pour liquid such as sample, water, buffer or cleaner directly into the sample position, buffer position, or adapter, otherwise the system may be damaged.
- Do not place or dispose of flammable or explosive reagents near the system.
- EXODUS® equipped with a UV disinfection lamp inside. Turn on the UV lamp half an hour in advance before running the system. Do not open the observation window when the UV lamp is turned on.
- Operators shall never open or service the system without authorization, as doing so will disqualify you from the warranty and may cause electric shock or mechanical injury.
- Replacement of components and adjustments inside the system must be done by or under the direction of authorized and qualified professional service personnel.
- Do not repair or replace components while the power cord is connected.
- Electronic systems have the risk of electric shock. The installation, inspection and repair must be performed by authorized and qualified professional service personnel.
- Contact EXODUS Bio or its distributor promptly if any part is found damaged.
- Take caution when opening or closing the observation window, or installing the adapter.
- Obsolete system must be disposed of in accordance with local regulations.
- If any rubber tubing or part containing liquid shows aging, wear or leakage during use, stop using the system immediately and contact EXODUS Bio or its distributor promptly.
- In the following circumstances, disconnect the power cord of the system from the

power socket immediately, and contact EXODUS Bio or its distributor in time: (1) Any liquid spills into the control part of the system. (2) The control part of the system gets drenched or watered. (3) The system cannot work properly, especially when there is abnormal sound or odor. (4) The system falls off or its cover is damaged. (5) Any significant change is found in the functions of the system.

- When the system is out of use, before performing servicing or transportation, clean and disinfect the surfaces of the system, the transfer arm, and other components with biohazard risks, and remind relevant personnel of the potential risks.



- Use the system in strict accordance with the instructions in the Manual, otherwise damage to the system or personal injury may occur.
- To avoid electric shock accidents, the input power line of the system must be reliably grounded. Since the system uses a three-core plug, only the power socket of the same type can be used for safety purpose.
- To avoid electric shock, make sure that the power cord of the system is disconnected before servicing.
- Before connecting to the AC power supply, make sure that the voltage of the power supply is as required by the system and the rated load of the power socket is not less than that required by the system.
- Normally, the power cord that comes with the system shall be used. If the power cord is damaged, it shall be replaced rather than being repaired. The substitute power cord shall be in the same type and specifications. Do not put anything on the power cord when the system is in use. Do not place the power cord at a place where people walk around. Be sure to hold the plug when plugging or unplugging the power cord. Make sure that the plug is fully inserted into the socket. Do not pull the power cord hard when unplugging it.
- The system shall be placed in a dust-free and pollution-free room, away from water and heat sources. Avoid direct sunlight, mechanical vibration, strong noise sources, strong power supply, corrosive gas, strong magnetic field and other adverse conditions.
- The openings on the system are designed for ventilation and heat dissipation. To avoid overheating, make sure the openings are not blocked or covered. When the system is operating, the distance between the nearest objects and the ventilation holes in the front, rear and both sides of the system shall not be less than 25 cm. Do not use the system on an inclined or soft surface, otherwise the system may

topple and fall.



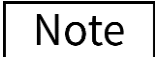

- If the system is to be left idle for a long time, unplug the power cord, and cover the system with a soft cloth or plastic paper to prevent dust from entering.

Note








- The operator shall use the reagents supplied or specified by EXODUS Bio, and store and use them in strict accordance with their instructions for use.
- Before using the system, please confirm the reagents to ensure that they are properly placed and sufficient for use.

1.5 Symbols

- Symbols used in the Manual

| Symbol | Indication |
|---|---|
|  Warning | Follow the instructions below, otherwise there may be personal injury. |
|  Caution | Follow the instructions below, otherwise there may be product failure, damage, or impact on test results. |
|  Note | Follow the instructions below which may contain important information about the operation procedures or contents requiring special attention of the operator. |
|  | Follow the instructions below, otherwise there may be a risk of biological infection. |

- You may see the following symbols on EXODUS®

| Symbol | Indication |
|---|--------------------------------|
|  | Biohazard |
|  | Personal injury |
|  | High voltage warning |
|  | UV light hazard |
|  | Network interface |
|  | USB interface |
|  | Serial communication interface |

EXODUS Bio shall bear no responsibility for consequences caused by the users' non-compliance with the instructions in this Manual or relevant laws.

Chapter 2 Overview of the System

2.1 Overview

This section describes the principle of the EXODUS® Automatic Exosome Isolation System, as well as the appearance and structure of its main components.

EXODUS® Automatic Exosome Isolation System is applicable for isolating and collecting exosomes/extracellular vesicles from a variety of biological samples (including urine, saliva, cerebrospinal fluid, plasma, serum, tear, etc.) and cell (/bacterial/virus) culture medium supernatant.

Based on the innovative negative pressure conversion technology and chordal wave oscillation technology, EXODUS® Automatic Exosome Isolation System can effectively avoid the blockage problem caused by the accumulation of proteins or vesicles on the membrane surface, increase the filtration flux and improve the isolation efficiency during the process of isolating the exosomes*. The full automation of EXODUS® Automatic Exosome Isolation System simplifies the operations and brings excellent stability and repeatability. Compared with traditional isolation methods (including Ultracentrifugation ; Polyethylene glycol (PEG)-based precipitation ; Membrane affinity ; Size-exclusion chromatography ; Phosphatidylserine affinity capture) , EXODUS® Automatic Exosome Isolation System not only significantly reduces the time needed for isolation, but also greatly enhances the yield and purity of exosomes . In addition, EXODUS® Automatic Exosome Isolation System has good compatibility and can efficiently isolate exosomes/extracellular vesicles from biological samples of different types and volumes.

2.2 Performance Specifications

Working environment

Working voltage: AC110 V-240 V, 50/60 Hz

Working temperature: 15-35°C

Working humidity: below 80%

Technical features

Processing capacity: 1 sample at a time

Isolation time: Less than 30 minutes in the fastest case

Temperature control: The sample position, range of 2-8°C

* *Exosome Detection via the Ultrafast-Isolation System*

Accessories: 1 S EID adapter, 1 M EID adapter, 1 L EID adapter, 1 15 mL centrifuge tube adapter, 1 50 mL centrifuge tube adapter, 1 set of liquid waste barrel kit, 1 set of rinse barrel kit, 1 cleaning EID, 2 buffer bottles, 2 cleaner bottles, 2 250 mL sample bottles, 1 touch screen pen, 1 power cord.

Service life: 5 years

Dimensions: 460 mm × 510 mm × 585 mm

Weight: ≤ 50 kg

Model differences

| Model | Sample Type | EID | Maximum Extraction Volume (mL) | History |
|---------------|-----------------------|------|--------------------------------|---------|
| EXODUS® H-580 | Cell/bacteria culture | L | L≤999 | 5000 |
| EXODUS® H-600 | Conventional sample | S, M | S≤15, M≤50 | 20000 |
| | Cell/bacteria culture | L | L≤999 | |

Table 1 Model Differences

2.3 Product Structure and Composition of EXODUS®

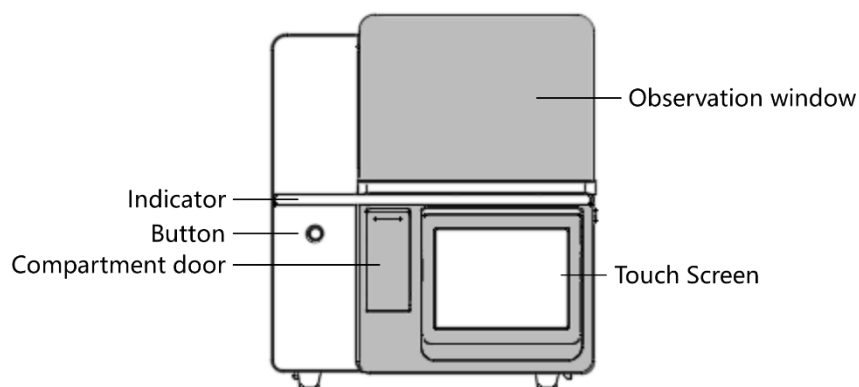


Figure 1 EXODUS® H-580/H-600 front view

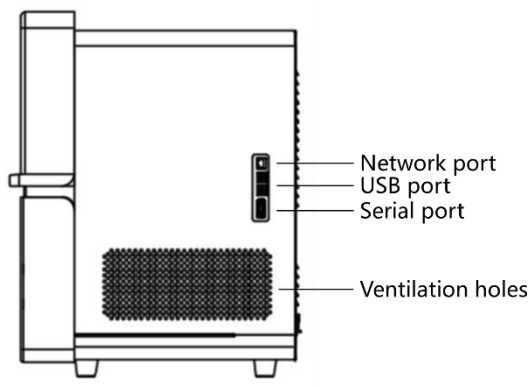


Figure 2 EXODUS® H-580/H-600 right side view

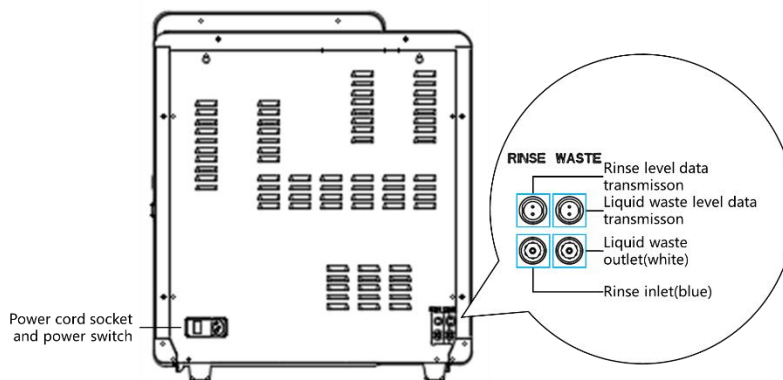


Figure 3 EXODUS® H-580/H-600 rear view

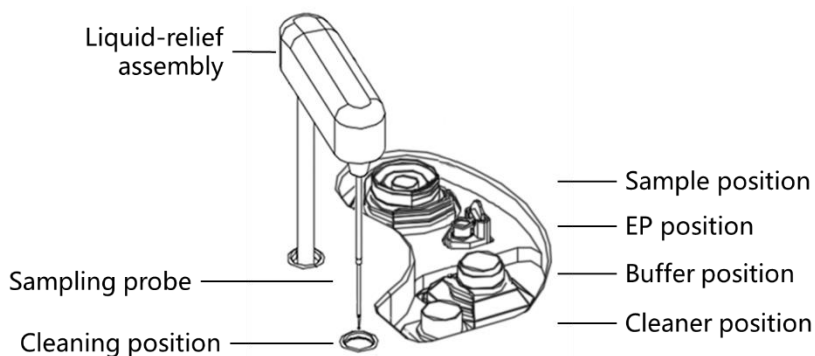


Figure 4 Internal view

Note

- Make sure the rinse barrel and liquid waste barrel are connected to the system correctly, otherwise the system will not be able to work properly.
- 15 mL or 50 mL conical centrifuge tubes, or 250 mL sample bottle can be placed at the sample position.

2.3.1 State Indicator

The state indicator, located on the front of the system, is used to indicate different states of the system, including ready, running, error, sleep, and shutdown, and changes with the state of the system as shown in the table below.

| System State | Indicator State | Remarks |
|------------------------|-----------------|---|
| Ready | Constant green | Ready to run the isolation procedure |
| Running | Flashing green | Running the isolation procedure |
| Suspend | Constant blue | Ready to resume the isolation procedure |
| Running with error | Flashing red | Running when there is an error |
| Not running with error | Constant red | No running when there is an error |

Table 2 Indications of the state indicator

2.3.2 Buzzer

When the system completes a specific procedure or an error is reported, the buzzer sounds.

| Timing | Sound | Remarks |
|---|-----------------|--|
| system startup completed | 1 long sound | EXODUS has started up and is in ready state. |
| Maintenance completed | 2 long sounds | Instrument filling, instrument evacuation, daily cleaning, instrument cleaning and instrument reset. |
| Isolation completed | 5 long sounds | EXODUS has completed the exosome isolation. |
| EID evacuation | 3 short sounds | To empty the liquid in the EID. |
| Manual stop (immediately) | 3 long sounds | EXODUS will stop the current isolation immediately and the exosomes of the sample will not be obtained. |
| Manual stop (Finish current processing) | 3 long sounds | EXODUS will complete the isolation of the sample that has been added, and the exosomes of the processed sample will be obtained. |
| Error | 10 short sounds | 1. Tap the ‘Troubleshoot’ button. 2. If the error still exists, please contact EXODUS Bio. |

Table 3 Buzzer indications

2.3.3 Touch Screen/Display Screen

The flip touch screen, located on the low right at the front of the system (Figure 5), is used to perform operations on the interface and display information.

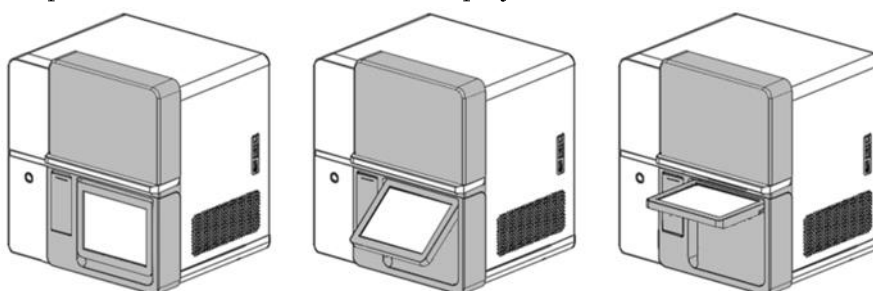


Figure 5 The flip touch screen can flip between 0-90°

2.3.4 User access control

To manage users of the system by account and password. Users of designated user types (common user and administrator) can use the system by entering correct username and password. The system cannot be used except for the above user types.

2.3.5 Power switch

The EXODUS® H-130/H-180/H-300/H-400 power switch is located on the back of the system and is used to power the system on or off.

After the system is powered off, the sample refrigeration system will stop working. Please take out the samples stored in the refrigeration chamber before powering off the system.



- Do not switch on the system immediately after it is shut down. Wait at least 10 seconds, otherwise the system may be damaged.

Chapter 3 Installation

3.1 Overview



- Unpacking or installation by people who is not authorized or trained by EXODUS Bio may cause personal injury or damage to the system. Do not unpack or install the system without the presence of personnel authorized by EXODUS Bio.
- The software of the system can only be installed, verified, upgraded and modified by personnel authorized by EXODUS Bio.
- Do not install your system in the position where it's difficult to disconnect the power.
- If the system works as a part of a system, the builder of the system shall be responsible for the security of the entire system.
- The extraction system has been tested rigorously before leaving the factory. In order to avoid collision during transportation, the system is carefully packed before transportation. After the delivery of the system, check the packaging of the system carefully to see if there is any physical damage. If any damage is found, inform the service department of EXODUS Bio. Check the system and accessories carefully for any damage caused by transportation. If necessary, inform the transportation company immediately and EXODUS Bio at the same time. If no damage is found, check against the packing list to confirm the system and all the accessories are there. Contact EXODUS Bio if any item is missing.

3.2 Installation Requirements

3.2.1 Space Requirements

To ensure that there is sufficient space for servicing and maintenance, as well as the heat dissipation of the system, and to avoid extrusion of the tubes outside the system, the installation area for the system shall meet the following requirements: at a proper height; the distance between the nearest objects and the ventilation holes in the top, front, rear and both sides of the system shall not be less than 25 cm; do not use the system on an inclined or soft surface, otherwise the system may topple and fall. The countertop on which the system is placed shall be able to bear a weight of at least 120 kg.

Specifications of the system: dimensions 460 mm × 510 mm × 585 mm, weight ≤ 50 kg.

3.2.2 Power Supply Requirements



- The systems shall be used under good grounding conditions.
- Make sure the input voltage meets the requirement of the system before starting up.
- Working voltage: AC 110-240 V, 50/60 Hz



- Using patch boards may bring extra electrical interference. Choose a location close to the power socket to avoid using a patch board.
- Use the three-core power cord that comes with the system. Using other power cords may damage the system or raise errors.

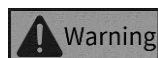
3.2.3 Environmental Requirements

| | Operating Environment Conditions | Storage Environment Conditions | Shipment Environment Conditions |
|---------------------|--|--|--|
| Ambient Temperature | 15°C-35°C | 5°C-45°C | 5°C-45°C |
| Relative Humidity | Relative humidity < 80% no condensation | Relative humidity < 90% no condensation | Relative humidity < 90% no condensation |

Table 4 Environmental Requirements

- The system shall be placed in a dust-free and pollution-free room, far away from water and heat sources. Avoid direct sunlight, mechanical vibration, strong noise sources, strong power supply, corrosive gas, strong magnetic field and other adverse conditions.
- Choose a well-ventilated location.
- Do not place the system on an inclined or soft surface.
- Good grounding shall be provided.

3.2.4 Moving and Installing the system



- Moving or installing the system by those personnel not authorized or trained by EXODUS Bio may cause personal injury or damage to the system.
- To avoid injury, do not attempt to move the system alone.
- Do not unpack or install the system without the presence of personnel authorized by EXODUS Bio.



- Do not move the system after the installation is completed. Do not touch the sampling probe to avoid possible personal injury or system damage.



- Operators shall be obliged to comply with local and national regulations regarding the discharge and disposal of expired reagents, liquid waste, abandoned samples, consumables, etc.
- The cleaner is irritative to eyes, skin, and mucous membranes. When contacting such reagents in the laboratory, the operator shall comply with the safety operation regulations of the laboratory, and wear personal protective equipment (e.g., laboratory protective clothing, gloves and goggles).
- Rinse with plenty of water as soon as any reagent comes into contact with your skin, and get medical attention if necessary. Once any reagent comes into contact with your eye, rinse it immediately with plenty of water and seek medical attention. Once any reagent eat or drink by mistake, drink plenty of water or milk, and seek medical attention.

3.3 System Connection

Perform electrical and tubing connections as shown in the figures below.

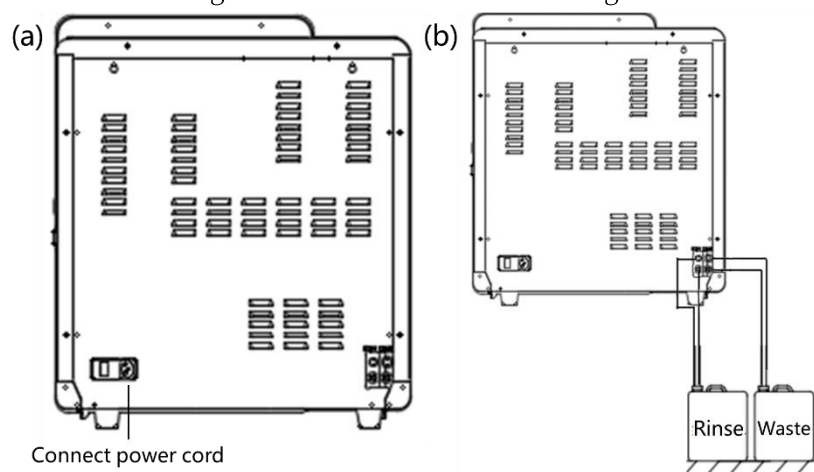


Figure 6 (a) Electrical connection (b) External tubing connections



- Make sure that all the tubes are connected properly and securely, and the power cord is intact.
- The top of the rinse barrel and liquid waste barrel shall be lower than the countertop where the system is placed.

3.4 Precautions for Use

- Placing the system in a dusty environment for a long time may cause sample contamination.
- Wipe the countertop inside and covers of the system regularly with a dry soft cloth

dipped in a small amount of 75% (v/v) ethanol to avoid contamination.

- If any rubber tubing or part containing liquid shows aging, wear or leakage during use, stop using the system immediately and contact EXODUS Bio promptly.
- While using the system, make sure the connecting tubes are not compressed by heavy objects or bent.
- Use reagents provided or specified by EXODUS Bio, otherwise the test results will be unreliable and the system may be damaged.
- Do not use expired reagents.

Chapter 4 Daily Operations

4.1 Overview

This chapter introduces the daily operations of the system.



All the materials (samples, reagents, liquid waste, etc.) and areas in contact with these materials are potentially bio-infectious. When touching such materials and areas in the laboratory, the operator shall comply with the safety operation regulations of the laboratory, and wear personal protective equipment (e.g., laboratory protective clothing, gloves, goggles etc.).



- Operators shall be obliged to comply with local and national regulations regarding the discharge and disposal of reagents, liquid waste, abandoned samples, consumables etc.
- The cleaner is irritative to eyes, skin, and mucous membranes. Operators shall comply with the safety operation regulations of the laboratory and wear personal protective equipment (e.g., the laboratory protective clothing, gloves and goggles) when touching reagents or relevant materials in the laboratory.
- Rinse with plenty of water as soon as the cleaner comes into contact with your skin, and get medical attention if necessary. Once any reagent comes into contact with your eye, rinse it immediately with plenty of water and seek medical attention. Once any reagent eat or drink by mistake, drink plenty of water or milk, and seek medical attention.
- Keep your clothes, hair, and hands at a certain distance from moving parts to avoid injury.

Note

- Make sure that there is sufficient rinse (> 30%) in the rinse barrel.
- Make sure that there are sufficient reagents (> 50%) in the buffer bottle and cleaner bottle inside the system.
- Make sure that the liquid waste barrel is not full (< 70%).
- Check whether the connecting tubes of the rinse barrel and the liquid waste barrel are bent and whether they are connected properly.
- Check whether the power cord of the system is securely plugged into a power socket.

- Make sure that the system operates properly after it is started up for the first time every day.
- Wipe the countertop inside and covers of the system with a dry soft cloth dipped in 75% (v/v) ethanol before and after use every day.
- Sterilize the system by UV light every day and shut it down properly.
- Perform daily cleaning every day.
- Perform system maintenance every week.

4.2 Preparations before Operation

Before powering on the system, the operator shall check the system against the following requirements to ensure its readiness.

- Check whether the liquid waste barrel is full and the liquid waste has been emptied promptly.
- Check whether the connecting tubes of the rinse barrel and the liquid waste barrel are bent and whether they are connected properly.
- Check whether the power cord of the system is securely plugged into a power socket.

4.3 Startup and User Login

- Starting up the system
 - 1) Switch on the power switch (to ‘|’) on the back of the system, and the touch screen is on.
 - 2) Confirm that the indicator on the system is on.
 - 3) Enter the correct account and password in the login dialog box.
 - 4) The system performs self-check and startup initialization successively.

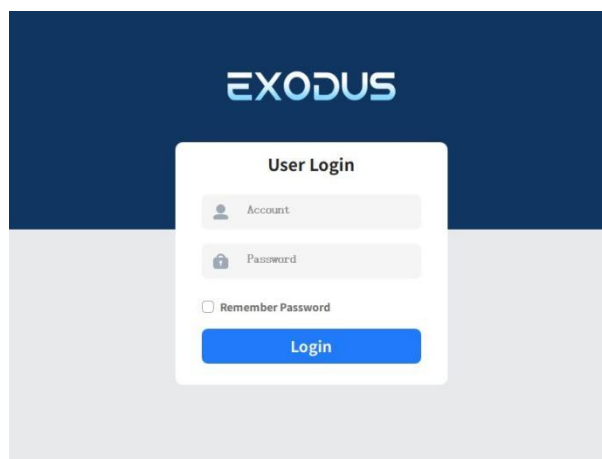


Figure 7 Login page

Note

- The time required for the fluidics initialization of the system varies depending on the previous shutdown.
- Before using the system for the first time, ensure that there is sufficient rinse in the rinse barrel, and then tap 'Instrument Filling' under 'Service' → 'Maintenance' to initialize the system.

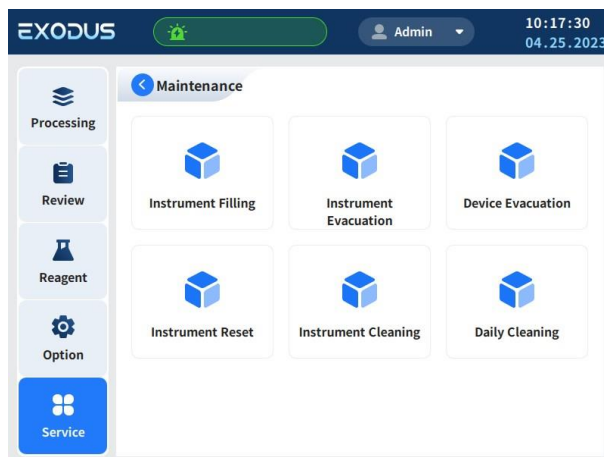


Figure 8 Maintenance page

Note

- If the software fails to run consecutively for several times, contact EXODUS Bio.
- After starting up the system, make sure that the date and time on the screen is consistent with the actual.
- The username and password can be 1-12 characters in length. Chinese is not allowed to enter and the password cannot be null.

4.4 Daily Maintenance

Perform daily maintenance after the first boot of everyday to ensure the system running in good condition.

Daily maintenance involve:

- Daily Cleaning.
- UV disinfection.
- Check and replace all reagents.

Note

- Tap the status bar on the upper left of the screen to acquire daily maintenance information.
- Please use the Cleaning EID when performing daily cleaning.

4.5 Sample Preparation

4.5.1 Consumables and Auxiliaries

15 mL or 50 mL centrifuge tube, or 250 mL sample bottle, pure water, buffer, and cleaner.

4.5.2 Sample Pre-Processing

The pre-processing method and time vary depending on the sample type, volume, storage conditions, downstream applications and other factors. Please pre-process the samples based on relevant literature, data and actual needs.

4.6 Sample Isolation

4.6.1 Placing the Adapter

Note

- Do not use any adapters or components that are not specified by the system. Before isolating a sample, select an appropriate EID and a EID adapter based on the sample type and volume. If S or M EID is to be used, please use S/M EID adapter and adapter holder (Figure 9). If L EID is to be used, please use L EID adapter (Figure 10)., as shown in Figure 4-1, and then select the EID type on the startup page.
- If a 15 mL or 50 mL centrifuge tube is to be used, the centrifuge tube adapter is required (Figure 11).
- The EID adapter shall be correctly placed at the specified location.
- Do not drop the adapter.
- Store the adapter properly every time after it is replaced to avoid losing it.
- Do not pour liquid such as sample, water, rinse or cleaner directly into the sample position, reagent position or adapter, otherwise the system may be damaged.

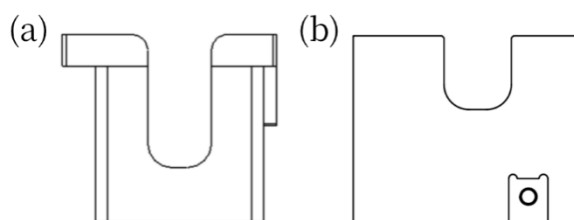


Figure 9 S/M EID (a) adapter (b) adapter holder

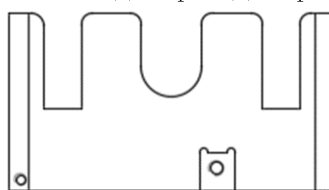


Figure 10 L EID adapter

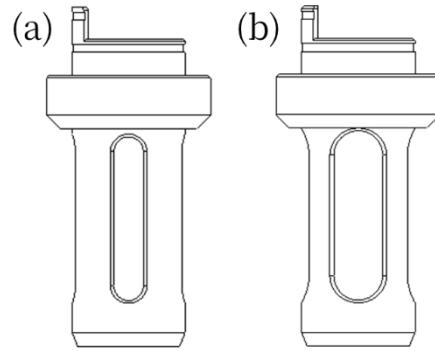


Figure 11 (a) 15 mL Centrifuge tube adapter (b) 50 mL Centrifuge tube adapter

4.6.2 Adding Reagents

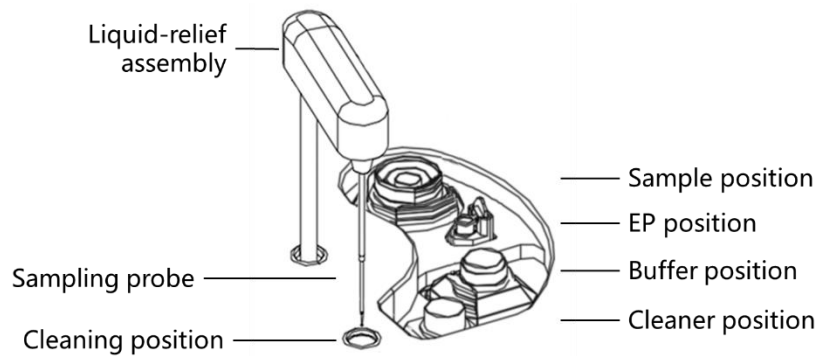



Figure 12 Reagent bottles inside the system

Note

- Sterilize the reagent bottles every day or use new sterilized ones.
- Make sure reagents are not expired.

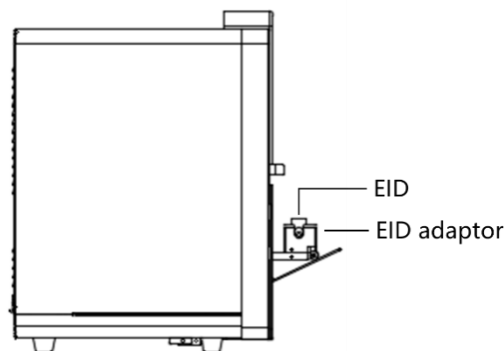
4.6.3 Program Setup and Running



Note

- Do not tilt or move the system while it is operating. Do not place any object on or against the system.
 - Do not use a ballpoint pen, tweezers, screwdriver, or objects with sharp tips to tap the touch screen.
 - If an error is reported while operating the system, stop the operation immediately and contact EXODUS Bio.
 - If there is abnormal sound or smell while operating the system, unplug the power cord immediately from the power socket, and contact EXODUS Bio in time.
- 1) Tap 'EID Out'  and wait for the EID adapter to be unloaded.

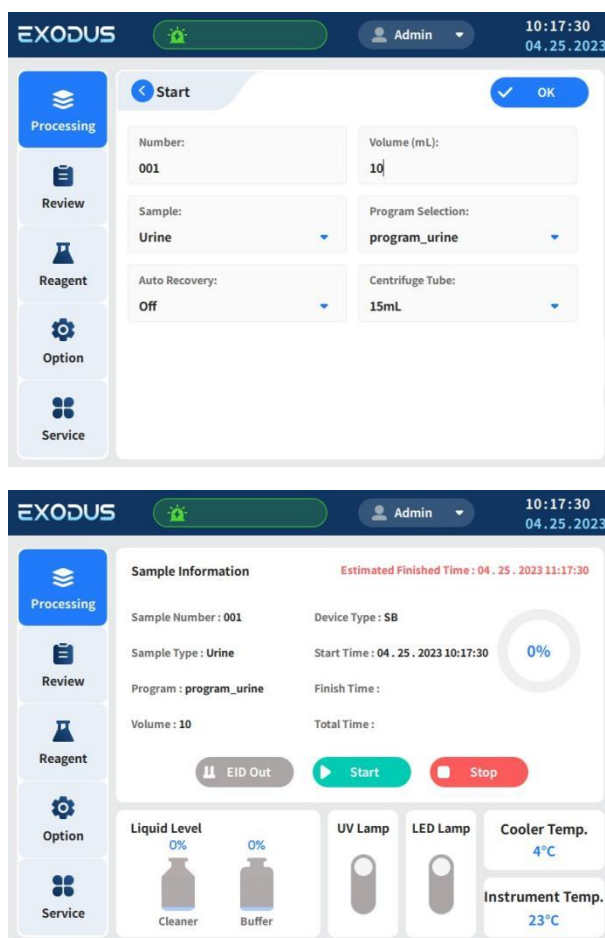


2) Place the EID in the adaptor.



- Please mount the EID correctly, and make sure the QR code to the left side.
- 3) Tap 'Start' , and the system will load the EID and identify its type automatically, then the sample setting page will show. Enter the 'Sample ID' and 'Sample Volume', select the 'Sample Type', 'Program' et al. If 'Auto Recovery: On' * is selected, please mount an Eppendorf tube (1.5 mL) in the 'EXOSOME' position (Figure 12). Tap 'OK'  and the system starts the isolation automatically.

* Please use properly EID, otherwise the system may be damaged.



- 4) Tap 'EID Out', and recover the exosome after the EID adaptor is out.
- If 'Auto Recovery: Off' was selected, resuspend the exosomes in the EID.
 - If 'Auto Recovery: On' was selected, open the observation window and recover the exosome liquid in the Eppendorf tube.

Note

- Please keep away from moving parts to avoid injury.
- Please select proper EID type.
- Select the 'Sample Type' according to the sample actually used.
- Enter the actual volume* of the sample and select the corresponding 'Program'.

4.7 Brief Operation Workflow

A brief operation workflow is given below.

* The recommended volume for S EID is 10 mL, and that for M EID is 30 mL.

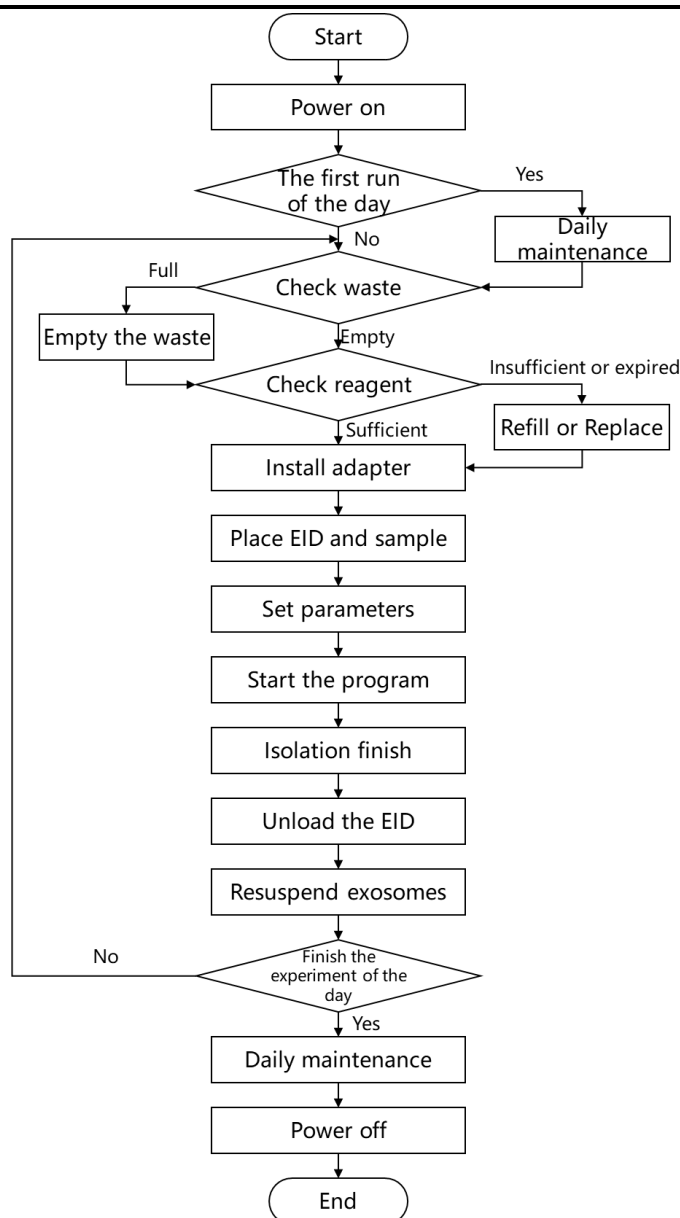


Figure 13 Brief operation workflow

4.8 Shutdown



- Do not switch on the system immediately after it is shut down. Wait at least 10 seconds, otherwise the system may be damaged.
- Take out the sample and reagents after shutting down the system.

Note

- To ensure the stability of the system, shut it down and perform maintenance as required after 24 hours of continuous operation.



- Operators shall be obliged to comply with the national and local regulations regarding the scrapping, recycling, discharge and disposal of systems, expired reagents, liquid waste, abandoned samples, consumables, etc.

Chapter 5 List Review

5.1 Overview

After each isolation, the system will automatically save the relevant experimental parameters and abnormal information for later reference.

5.2 Review Page

The review page provides the basic information of processed samples, including sample ID, type, isolation program, sample volume, start time, end time, isolation duration, isolation mode and other information, for traceability purpose.

| No. | Sample | Program | Volume (mL) | Total Time |
|-----|--------|---------------|-------------|------------|
| 001 | Urine | program_ur... | 10 | 0h3m7s |

Figure 14 List review interface

Chapter 6 Reagent Management

6.1 Overview

Tap 'Reagents' from the menu on the left to manage the replace time of each reagent and its expiration date.



All liquids (samples, reagents, liquid waste, etc.) and areas in contact with these materials are potentially biohazard. When touching such materials and areas in the laboratory, the operator shall comply with the safety operation regulations of the laboratory, and wear personal protective equipment (e.g., laboratory protective clothing, gloves and goggles).



- Operators shall be obliged to comply with local and national regulations regarding the discharge and disposal of expired reagents, liquid waste, abandoned samples, consumables, etc.
- The reagents are irritative to eyes, skin, and mucous membranes. When contacting the reagents in the laboratory, the operator shall comply with the safety operation regulations of the laboratory, and wear personal protective equipment (e.g., laboratory protective clothing, gloves and goggles).
- Rinse with plenty of water as soon as any reagent comes into contact with your skin, and get medical attention if necessary. Rinse with plenty of water immediately once any reagent comes into contact with your eye and get medical attention. Once any reagent eat or drink by mistake, drink plenty of water or milk, and seek medical attention.



- Do not use reagent that is not provided or specified by EXODUS Bio, or mix a new bottle of reagent with the expired one in order to ensure accurate results.
- Reagents should be replenished or replaced promptly when the remaining reagent is insufficient, exhausted, expired, or a relevant error is reported.

6.2 Reagents Page

The 'Reagents' page provides the basic information of reagents used in the system,

including the number, reagent name, bottle-opening date, expiration date, residual and other information.

After replacing the reagent, tap 'Replace'  to update the bottle-opening date and expiration date of the reagent.



Figure 15 Reagents screen

Chapter 7 Settings

7.1 Overview

The system has been calibrated before leaving the factory. Some parameters of the system can be modified to meet different requirements in practice.

7.2 Settings of the System

- Options

Tap 'Options' from the menu.

- 1) Date &Time

Tap 'Date &Time' from the menu. Operator can modify the following settings:

- Time.
- Date.
- Date format.

- 2) Temperature

Tap 'Temperature' from the menu. Operator can modify the following settings:

- The temperature of the cooler.
- The temperature of the environment.

- 3) Language

Tap 'Language' from the menu. Operator can modify the following settings:

- Language

- 4) Software upgrade

Tap 'Software Upgrade' from the menu. Operator can modify the following settings:

- 1) Upgrade the software.
- 2) Export the logfiles.

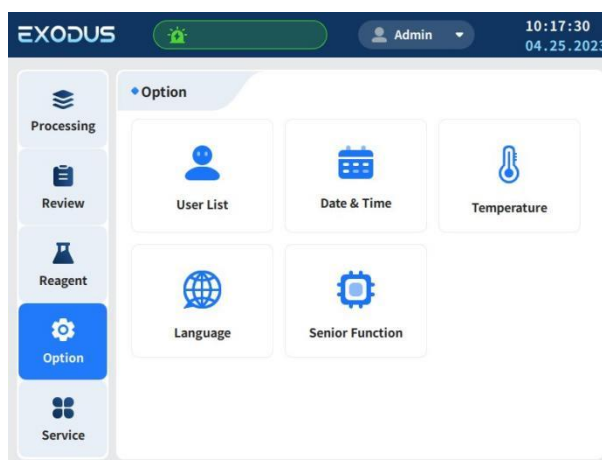


Figure 16 Options screen

Chapter 8 Service

8.1 Overview

To ensure the accurate and effective operation of the system, the operator shall carry out daily maintenance of the system as instructed in this chapter. The system provides various functions to facilitate the operator's maintenance work.

This chapter introduces the maintenance functions of the system and some troubleshooting measures to handle the reported errors.



The surfaces of all parts of the system are potentially infectious, so safety measures shall be taken in system operation and maintenance.



- Make sure that all servicing operations are carried out as instructed in this manual, otherwise personal injury or system failure may occur. If any part is found damaged, inform EXODUS Bio in time.
- Wear protective gloves and use special tools and accessories while maintaining, inspecting or servicing the system. After such work is completed, be sure to wash your hands with disinfectant.
- While servicing, transporting or processing the system, clean and disinfect the surfaces of the system, the transfer arm and other components with biohazard risks, and remind relevant personnel of the potential risks.



- Improper maintenance may damage the system. Operators must maintain it as instructed in the manual.
- If there is anything not specified in the manual, contact EXODUS Bio.
- Only parts and components provided or specified by EXODUS Bio can be used in the maintenance of the system. If you have any questions, contact the service department of EXODUS Bio.
- Do not touch the sampling probe of the transfer arm when performing maintenance.

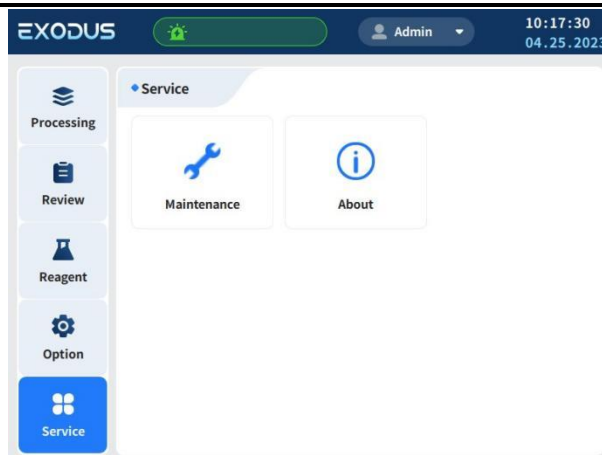


Figure 17 Service screen

8.2 Maintaining the System

External cleaning: It is not necessary to disassemble the system. Wipe the external surfaces of the system and the countertop inside with tissues, clean these areas with 75% (v/v) ethanol, and then dry them with a lint-free paper towel.

Instrument Filling: When the system is used for the first time or after long-distance transportation, connect the tubing correctly as required, and fill the rinse barrel with sufficient pure water before performing this function. The system must be primed before use.

Instrument Evacuation: When the system is to be left idle for more than a week or before long-distance transportation, this function must be performed to empty the system.

EID Evacuation: This function can be used to manually empty the liquid in the EID to meet the special needs in use.

Instrument Reset: When the system fail to initialize itself, perform this function to initialize the system manually.

Instrument Cleaning: Prepare sufficient rinse and cleaner, and follow the guide information on screen.

Daily Cleaning: Fill the cleaner bottle with sufficient cleaner (more than 2/3 of the bottle), mount the cleaning EID in EID adaptor, and then tap 'Daily Cleaning'. After the program is finished, remove the cleaning EID and keep it in a safety place, and then shut down the system or perform other functions.

It is recommended to maintain and check the system everyday including performing Daily Cleaning, UV disinfection, replacing the pure water, buffer and cleaner, replacing or sterilizing the reagent bottles, disposing of the liquid waste and cleaning the liquid waste

barrel.

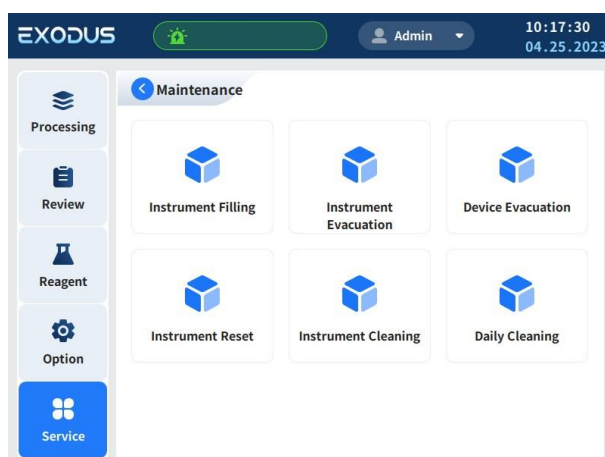


Figure 18 Maintenance screen

8.3 About

Tap 'Service' → 'About' from the menu on the left, as shown below. The operator can check the following information:

- 1) Version number of the system.
- 2) Release version number.
- 3) Copyright information of the manufacturer.

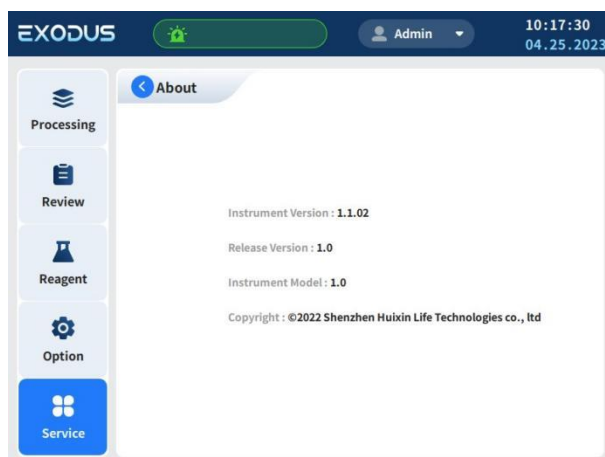


Figure 19 About screen

Chapter 9 Troubleshooting

9.1 Overview

This chapter introduces the error messages may be reported by the system and provides the corresponding troubleshooting methods.

Note

- This manual is not a service manual, so it only provides the measures to be taken by the operator when the system reports an error.

9.2 Error Messages

When the system is in use, if an error is identified, the error message area on the upper left of the screen will display a summary of the error. Meanwhile, the indicator will change color, and the system will sound an alarm.

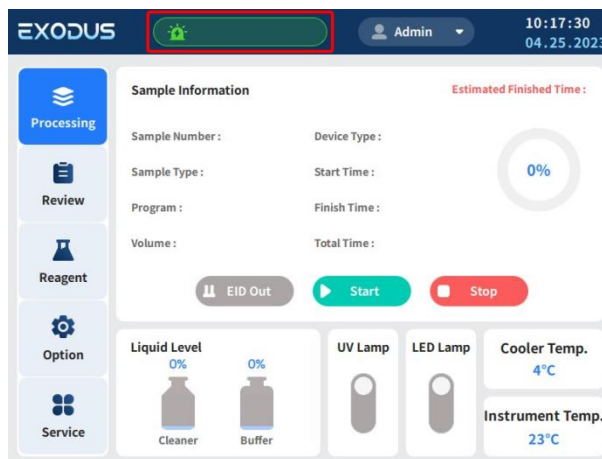


Figure 20 Error message

Tap the error message area to acquire error information in detail.

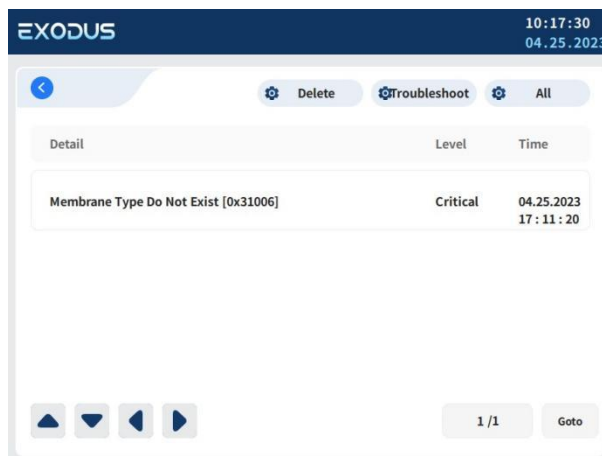


Figure 21 Error information

The error information displays the error names and the help information. The following

functions will be provided after the operator tap the error name in the dialog box:

- Deleting: Tap the ‘Delete’ button, and the error will be deleted without troubleshooting.
- Troubleshooting: Tap the ‘Troubleshoot’ button, and the software will automatically remove the errors it can remove. For errors that cannot be removed automatically, operators can handle them based on the corresponding help information, or contact EXODUS Bio.

9.3 Troubleshooting

Possible errors and the corresponding help information* of the system are shown in the table below.

| Error Name | Help Information |
|---------------------------------------|--|
| Run out of water | <ol style="list-style-type: none"> 1. Refill or replace the rinse. 2. Tap the ‘Troubleshoot’ button. |
| Full of waste | <ol style="list-style-type: none"> 1. Empty the liquid waste barrel. 2. Tap the ‘Troubleshoot’ button. |
| Buffer is not enough | <ol style="list-style-type: none"> 1. Refill or replace the buffer. 2. Tap the ‘Troubleshoot’ button. |
| Expired buffer | <ol style="list-style-type: none"> 1. Replace the buffer. 2. Tap ‘Reagent’ → ‘Replace’ . |
| Cleaner is not enough | <ol style="list-style-type: none"> 1. Refill or replace the cleaner. 2. Tap the ‘Troubleshoot’ button. |
| Expired cleaner | <ol style="list-style-type: none"> 1. Replace the cleaner. 2. Tap ‘Reagent’ → ‘Replace’ . |
| UV disinfection | <ul style="list-style-type: none"> • Tap ‘Processing’ → ‘UV Lamp’ . |
| Daily Cleaning | <ul style="list-style-type: none"> • Tap ‘Service’ → ‘Maintenance’ → ‘Daily Cleaning’ . |
| Instrument Filling | <ul style="list-style-type: none"> • Tap ‘Service’ → ‘Maintenance’ → ‘Instrument Filling’ . |
| EID type error | <ul style="list-style-type: none"> • Retry with another EID. |
| EID type not supported | <ul style="list-style-type: none"> • Retry with another EID. |
| Expired EID | <ol style="list-style-type: none"> 1. Check date setting. 2. Retry with another EID. |
| Observation window is open | <ul style="list-style-type: none"> • Close the observation window. |
| Environment temperature is too high | <ul style="list-style-type: none"> • Check if the room temperature is higher than 35°C. |
| Environment temperature is too low | <ul style="list-style-type: none"> • Check if the room temperature is lower than 15°C. |
| Temperature of the cooler is too high | <ul style="list-style-type: none"> • Check if the air inlet and outlet is unobstructed. |
| Temperature of the cooler is too low | <ul style="list-style-type: none"> • Check if the air inlet and outlet is unobstructed. |

* Contact EXODUS Bio. if the error still exists.

| | |
|-------------------------------------|---|
| Timing Sequence is Error and Exited | <ul style="list-style-type: none">• Reboot the system. |
| Fail to initialize the instrument | <ul style="list-style-type: none">• Reboot the system. |
| Update package error | <ul style="list-style-type: none">• Replace the USB disk. |

Table 5 Troubleshooting

Appendix A Specifications

A.1 Fuse



- Only fuses of specified specification can be used.
- Fuse specification: F6.3AL250V.

A.2 Electromagnetic Compatibility

It is the responsibility of the user to ensure the electromagnetic compatibility of the environment where the system is used, so that it can work properly.

It is recommended to evaluate the electromagnetic environment before using the system. This system is designed and tested as Class-A equipment in GB 4824. In a home environment, the system may cause radio interference, so protective measures are required to be taken.

Do not use the system near a strong radiation source (such as an unshielded radio frequency source), otherwise it may interfere with the normal operation of the system.

A.3 Applicable Scenario

For research use only.

A.4 UV disinfection



- Close the observation window before using the ultraviolet disinfection function, otherwise personal injury may occur.

A.5 Contraindications

None.

A.6 List of accessories

For the list of accessories and the precautions for replacing the accessories, please refer to the list of accessories that comes with the system.

EXODUS Bio

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