TANBEAD

# Maelstrom Switch 8

## User Manual

**TAN Bead Nucleic Acid Extractor (Non-Sterile)**

039.M1701.E02

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# About Manual

The label on the instrument, User Manual, and other packaging material may contain following symbols:

| | | | |
|---|---|---|---|
| REF | Catalog number |  | Temp limit |
| SN | Serial number |  | Keep dry |
|  | Manufacturer |  | Keep away from sunlight |
|  | The date of manufacture | EC REP | EU authorized representative |
| CE | The CE mark |  | Biologic risks |
| IVD | In Vitro Diagnostic Medical Device | | |
|  | Non-sterile |  | Humidity limit |
|  | Biologic risks |  | Instructions for Use |
|  | Hot surface, risk of burns | | |
|  | Caution | | |
|  | The WEEE symbol, indicating separate collection for WEEE-Waste of electrical and electronic equipment | | |

# About Instrument



## Warning

- Use a power cord that meets your country's standard. In case of any questions, contact your local distributor for assistance.
- Maelstrom Switch 8 operates within the voltage range from 100 Volts to 240 Volts.
- Do not use the instrument with a damaged power cord or a loose socket.
- To unplug, hold the power plug itself instead of pulling the power cord.
- Prior to performing the maintenance, make sure to unplug the power plug from the outlet.
- Do not pour any liquid on the instrument.
- Do not place any containers with liquid on the instrument. Doing so may cause a fire, an electric shock or malfunctions of the instrument.
- Do not touch the power plug or cord if there is a chance of lightning. Failure to observe this may cause electric shocks.
- If you hear a thunder or suspect an approaching lightning when in use, turn off the power switch and disconnect the power plug immediately. Failure to observe this may cause a fire or malfunctions.

# About Instrument

## Caution

- Never attempt to remodel the instrument without the permission from the manufacturer. Doing so may lead to a fire or an electric shock.

- Do not subject the instrument to any impacts and do not knock it. Doing so may cause malfunctions.

- Any repairs to the instrument must be performed by agencies authorized by Taiwan Advanced Nanotech Inc.

- Only use the original spare parts supplied by Taiwan Advanced Nanotech Inc on the instrument.

- If the equipment is used in a manner not specified by the manufacturer, the protection given by the instrument may be impaired or invalid.

- User and/or patient the need to report any serious incident that occurred in relation to the device to the manufacturer and to the competent authority of the Member State where the user and/or patient is established.

# 1. Introduction

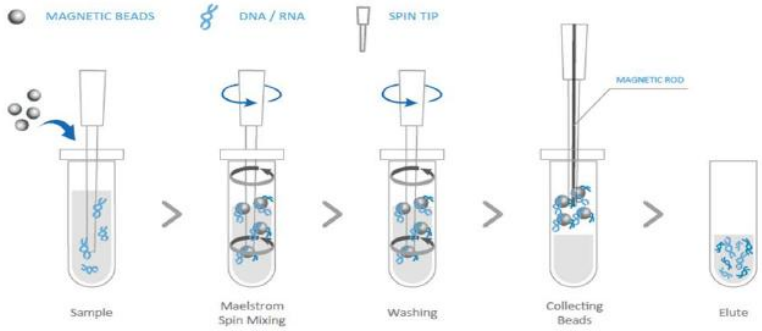


## About

Maelstrom Switch 8 is an automated nucleic acid platform designed for Flexible Applications. Specialized spin tips enable mixing efficiency of magnetic beads. With intuitive interface and compatible with most representative brands reagent kits. Maelstrom Switch 8 can boost molecular diagnostic laboratory productivity by transforming routine operations into a walk-away solution.

## Operation Principle

The Maelstrom Switch 8 uses magnetic rods to collect and transfer magnetic beads and spin tips to mix suspensions, which the spinning tips can mix the suspensions very well, and the extended magnetic rods can collect magnetic beads efficiently. Purified nucleic acids are obtained after cell lysis, nucleic acids absorption, washing and elution.



# 1. Introduction

## Intended Purpose/Intended Use

The Maelstrom Switch 8 is intended for medical laboratory use by trained personnel in an automation environment. The instrument is intended for automated transfer and processing of magnetic particles in a microplate format, to extract and purify nucleic acids from human samples. The purified nucleic acid can be used with any downstream application employing PCR-based qualitative, semi-quantitative and quantitative assays.

# 1. Introduction



## Sample Type

Maelstrom Switch 8 automated nucleic acid extractor is not applicable for specimen collection. It was applicable with various types or brands of magnetic bead-based extraction kits, but not specific for TANBead Nucleic Acid Extraction kits. Please refer to the following for sample type and compatible reagent kits for reference.

| Sample | Reagent kits | | |
|---|---|---|---|
| Blood<br>cfDNA<br>Virus<br>Bactria | 61E series | 611 series | 621 series |
| | 622 series<br>61C series<br>615 series<br>685 series<br>61G series | 635 series<br>61H series<br>61G-SE series | 665 series<br>6MB series |
| | 6BG series | | |
| Tissue | 6T2 series | 6K2 series | |
| FFPE | 61P series | 62P series | |
| Stool<br>Plant<br>Fungi/ yeast<br>Environment sample<br>Food and feed<br>Forensic | 6SC series<br>613 series<br>61F series<br>6EM series<br>6GM series<br>6TF series | 613 series | 6K3 series |
| Plasmid | 6PE series | | |

# 1. Introduction

## Environmental Requirements

To avoid shortening the lifespan of the instrument, use Maelstrom Switch 8 in a location that meets the following criteria:

- Choose a location with good air circulation.
- Place Maelstrom Switch 8 on the table that can bear at least 20 kg.
- Do not use Maelstrom Switch 8 in a location where is with huge temperature and humidity variability.
- Operate condition:
  Temperature: 10-40℃
  Relative humidity: 40-80%
- Storage and transport condition:
  Temperature: 5-50℃
  Relative humidity: 20-85%
- Maximum operate altitude:
  2000m

# 1. Introduction



## Safety Instructions and Guidelines

- This device can be used with potentially biohazardous materials. Use appropriate personal protective equipment (gloves, safety goggles, lab coat, etc.) for handling and disposing of biohazardous materials.

- Under a normal condition, sound pressure level from Maelstrom Switch 8 does not exceed 80dB and does not cause a hazard. Please contact technical support for assistance in case of a higher sound pressure level.

- This device can be hazardous due to the use of chemical and biohazardous substances.

- Users should adhere to their institutional guidelines for the handling and disposal of all infectious substances used with this device.

- It is important to clean the device after every use. If samples or reagents have been spilled, clean the instrument immediately to avoid damage or contamination.

- This device is to use with the compatible spin tips. Using incompatible spin tips may cause poor extraction performance.

- Read this user manual completely prior to operating the device. Failure to read, understand, and follow the instructions in the manual may result in damage to the device, injury to laboratory and operating personnel or poor performance.

# 1. Introduction

## Safety Requirements

- The device has passed the tests and conformed to the standards of IEC 61010-1:2010+A1:2016 (Edition 3.1) and EN 6010-1:2010+A1:2019, "Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements".

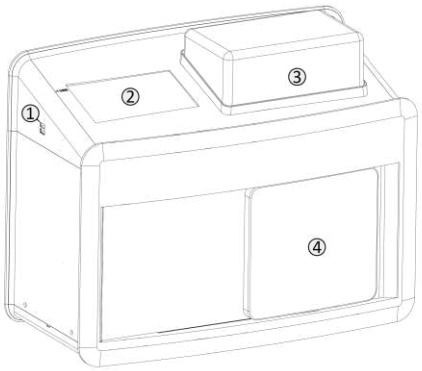
- The device has passed the tests and conformed to the standards of IEC 61010-2-101:2018 with IEC 61010-1:2010 + A1:2016 and EN 61010-2-101:2017 with EN 61010-1:2010 + A1:2019, "Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment".

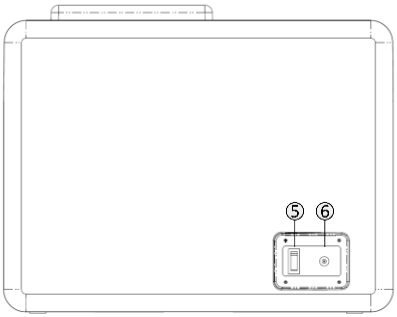
## EMC Requirements

- The device has passed the tests and conformed to the standards of IEC 61326-1:2020 / EN IEC 61326-1:2021 & IEC 61326-2-6:2020 / EN IEC 61326-2-6:2021, "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-6: Particular requirements - In vitro diagnostic (IVD) medical equipment".

# 2. Instrument Overview

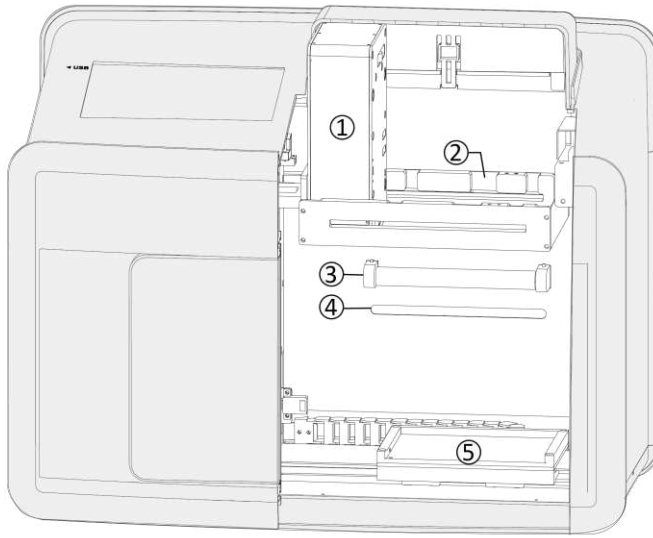





① USB port
② Touch screen
③ Top lid
④ Door lid
⑤ Power switch
⑥ DC Power inlet

# 2. Instrument Overview




① Fixed motor module

② Guide rail

③ UV light

④ LED light

⑤ Loading position

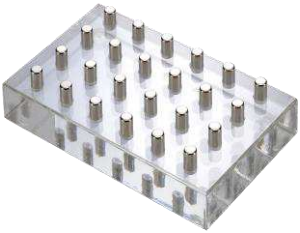
# 2. Instrument Overview



## Packing List:

Following accessories may vary region-to-region.

Power cord



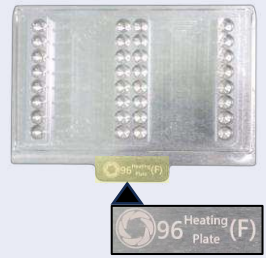
Magnetic separator

Power adapter

# 2. Instrument Overview

## Compatible Gearbox Sets

(A) Large Magnetic Rod Gearbox Set for Leading breads reagents

| Gearbox | Heating Plate | Consumable |
|---|---|---|
| CH 4 Gearbox Ø7.5(A)<br>  | 24 Heating Plate F<br>  <br>Marked with "F" on the heating plate; compatible with Ø7.5 rods (A type). | 24 Spin Tips (Ø7.5) Assembled Box<br>  |
| CH 8 Gearbox Ø3.5(A)<br>  | 96 Heating Plate F<br>  <br>Marked with "F" on the heating plate; compatible with Ø3.5 rods (A type). | 96 Spin Tips (Ø3.5) Assembled Box<br>  |
| CH16 Gearbox Ø3.5(A)<br>  | | |

# 2. Instrument Overview

(B) Small Magnetic Rod Gearbox Set for TANBead Prefilled Reagents

| Gearbox | Heating Plate |
|---|---|
| CH 4 Gearbox Ø4.2(B)  | 24 Heating Plate   |
| CH 8 Gearbox Ø2.2(B)  | 96 Heating Plate   |
| CH16 Gearbox Ø2.2(B)  | |

# 2. Instrument Overview

Maelstrom Switch 8 uses specially designed for optimal processing. According to the magnetic rod types to applied with provided or compatible spin tip assembled box and deep well plates is a must. If applied with other types of consumables may damage the instrument and compromise the warranty. Contact us (service@tanbead.com) for further assistance if consumables other than suggested were needed.

(A) Large Magnetic Rod Gearbox Set for Leading breads reagents

24 Spin Tips (Ø7.5)
Assembled Box

96 Spin Tips (Ø3.5)
Assembled Box

24 Deep Well Plate, v-bottom F
Dimensions:
Length (L): 127.40 ±0.5 mm
Width (W): 85.48 ±0.5 mm
Height (H): 44.20 ±0.5 mm

96 Deep Well Plate, v-bottom F
Dimensions:
Length (L): 127.76 ±0.5 mm
Width (W): 85.48 ±0.5 mm
Height (H): 44.60 ±0.5 mm

# 2. Instrument Overview

(B) Small Magnetic Rod Gearbox Set for TANBead Prefilled Reagents

Spin Tips LV

96 Deep Well Plate

24 Spin Tip LV Holder

16 Base B

24 Deep Well Plate

6 Tube B

24 Deep Well Plate LV Base

Spin Tips Assembled Box

# 3. Instrument Specification

| Maelstrom Switch 8 | SPECIFICATION | | | | | |
|---|---|---|---|---|---|---|
| Weight | N.W. 16.2 kg ; G.W. 23.0 kg | | | | | |
| Dimensions | Instrument: 524(W) x 265(D) x 412(H) mm<br>Package: 638(W) x 426(D) x 568(H) mm | | | | | |
| Power Rating | I/P: 100~240V AC, 2.8A Max, 50/60Hz<br>O/P: DC 24V, 8.3 A | | | | | |
| Spin Speed | 500~3,000rpm | | | | | |
| Display | 7” touch screen | | | | | |
| UV Light | UV-C | | | | | |
| **Rod Type** | **(A) Large Magnetic Rod** | | | **(B) Small Magnetic Rod** | | |
| Channels | CH 4 | CH 8 | CH16 | CH 4 | CH 8 | CH16 |
| Gearbox |  |  |  |  |  |  |
| Flux per run | 1~4 | 1~8 | 1~16 | 1~4 | 1~8 | 1~16 |
| Rod Size | Ø7.5(A) | Ø3.5(A) | | Ø4.2(B) | Ø2.2(B) | |
| Magnetic Force (Gauss) | 5,400 | 4,700 | | 4,700 | 3,900 | |
| Processing Volume (µL) | 150~5,000<br>Max. 1500 rpm | 50~1,200 | | 100~9,000 | 50~1,600 | |
| Application Reagents | Open to leading brands based on magnetic beads | | | TANBead: prefilled plate, prefilled single tube, bottle format | | |
| Program | Customized program or assisted from TANBead | | | TANBead built-in programs | | |

# 4. Installation & Get Started

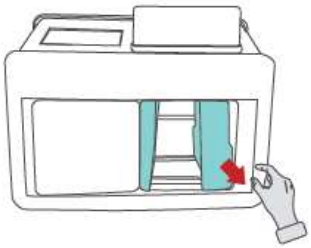
Please note that this instrument weight is around 20 kg, it is highly recommended to have 2 individuals or above to handle when taking it out from the box and be sure to work safety.

**Step 1: Install the System**

Take out the instrument from the box, 2 or more individuals is highly recommended.

**Step 2:**

Remove the cushions around and inside the instrument.



**Step 3:**

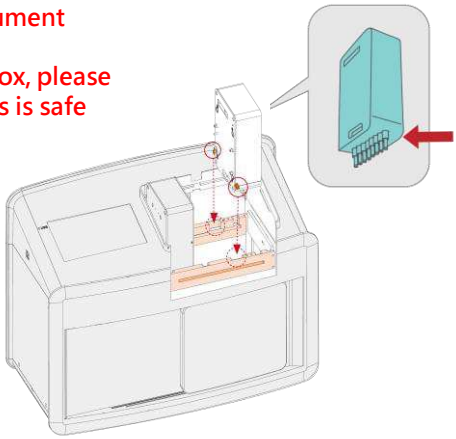
Place the instrument on a flat table that bears over 20 kg.

**Step 4: Install Gearbox**

Refer to the applying consumables to install the Gearbox module refer by following procedures.

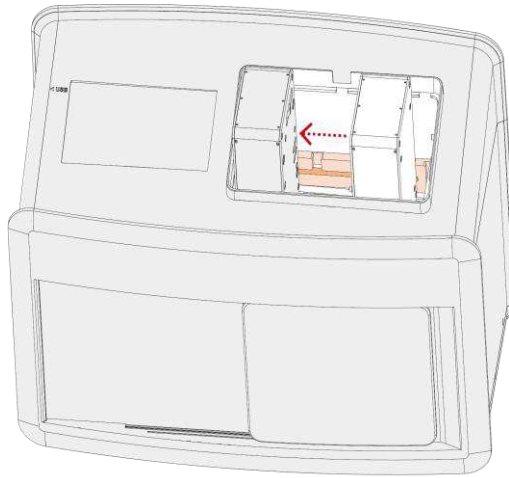
**(A):** Locate gearbox on guide rail

**Do not "Power on" the instrument before install the gearbox.**
**While manipulate the gearbox, please make sure the magnetic rods is safe from crushing to any parts.**

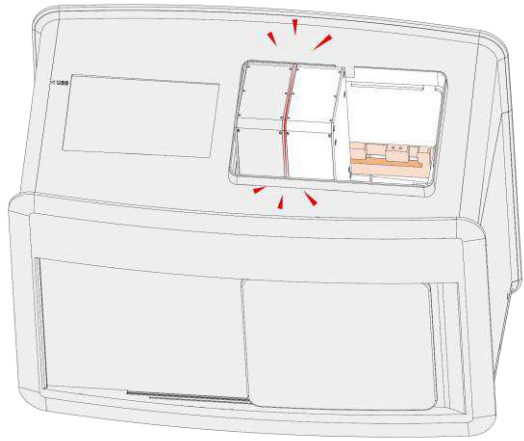


# 4. Installation & Get Started

**(B) :** Push gearbox to left side



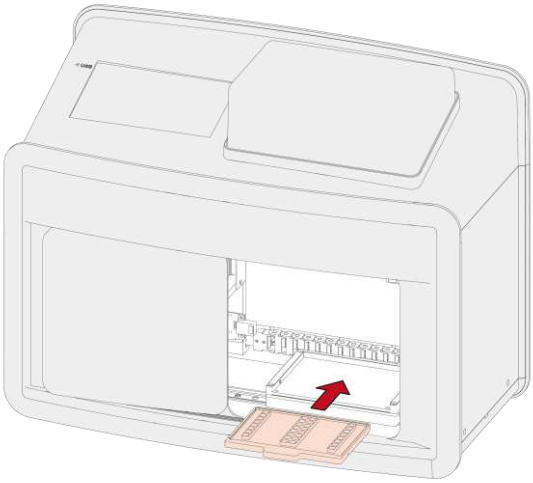
**(C) :** Make sure gearbox is attached firmly



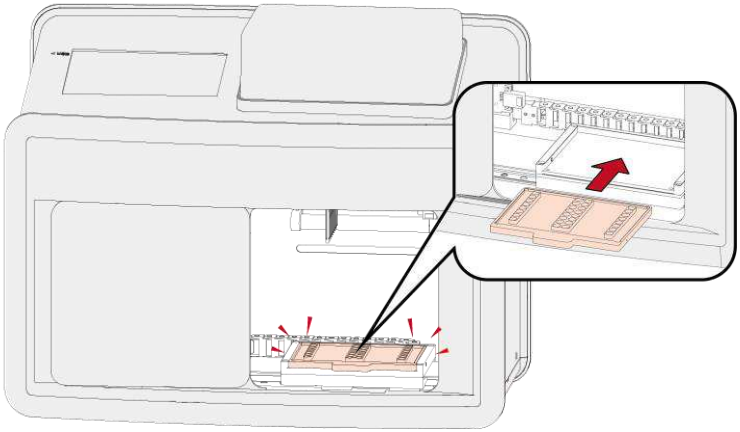
# 4. Installation & Get Started

**(D) :** Install the heating plate 96 or 24 wells accordingly

Keep heating plate horizontal during installation.



The heating plate surface may be hot during operation and change. Use cautiously to avoid risk of burns.



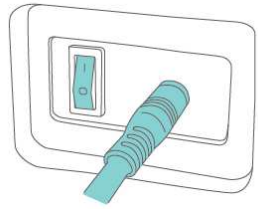
Note:

Heating plates marked with "F" support only Type A (Ø7.5/Ø3.5).

Plates without the "F" mark support only Type B (Ø4.2/Ø2.2).

# 4. Installation & Get Started

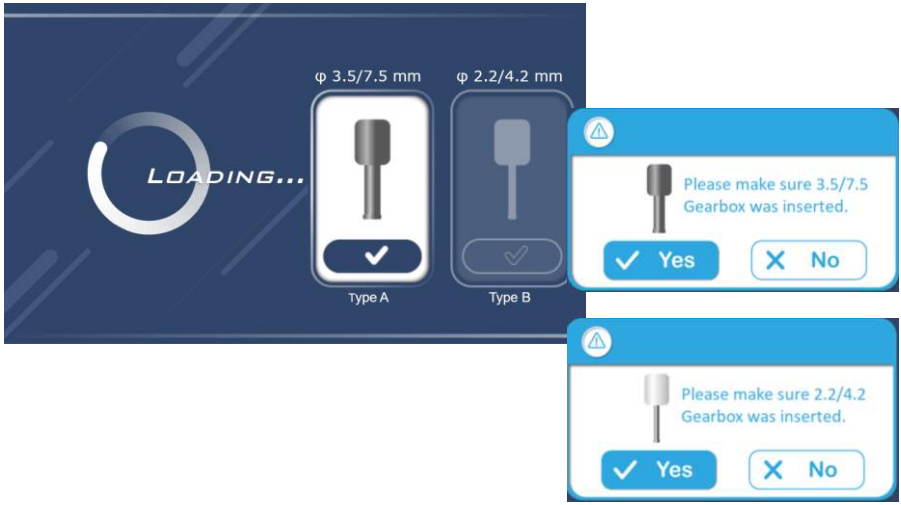
- **Step 5: Apply Power Cord**
- Apply with the power cord and adapter. Please note that this instrument is compatible with AC 100-240V power only. Using wrong power source will lead to malfunction or damage.



- **Step 6: Power On**
- Power on the instrument and it will perform initialization.

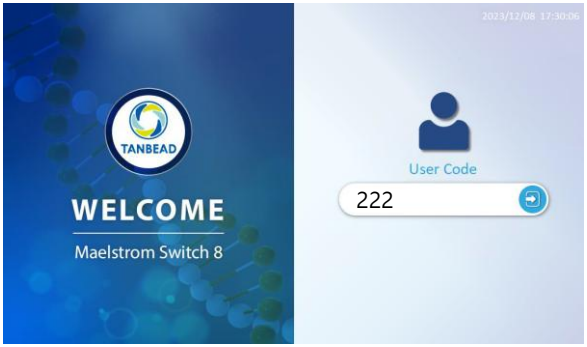
**Warning:** This product contains very strong permanent magnets. People wearing a pacemaker or metallic prostheses should not use this product. A pacemaker or prostheses may be affected or damage if it comes in close contact with a strong magnetic field.

- **Step 7: Select Rod Type**
- Refer to the label on top of the Gearbox to select the correct model. Then, tap "Yes" to confirm and proceed.



# 4. Installation & Get Started

- **Step 8: Enter user code**
- Refer to the next section for software operation instructions. After the system starts up, log in using the user code “222” for Supervisor Mode or “333” for Operator Mode.




- According to the entered user code, the display on the main menu will be different as followed.

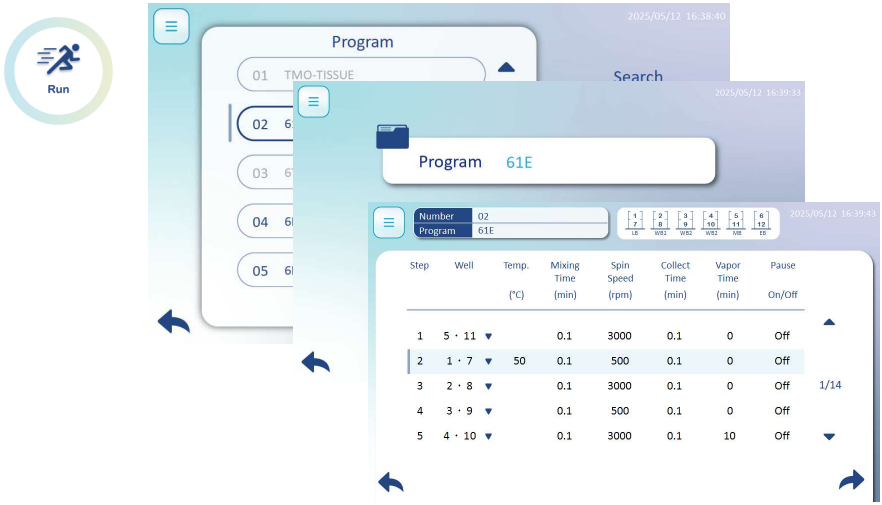

User code: 222

User code: 333

# 4. Installation & Get Started

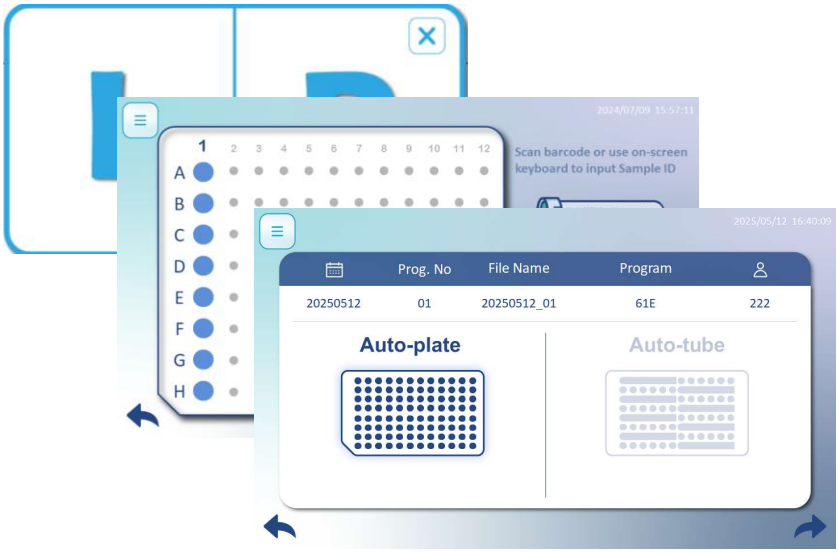
- **Step 9:** Edit Program (for leading brands reagents)
- Refer to **Section 5.** to "Edit" the protocols for your reaction kits.


- **Step 10: Run Program**
- Tap "Run" and select the appropriate program to start the extraction. Then, press " " to proceed.



# 4. Installation & Get Started

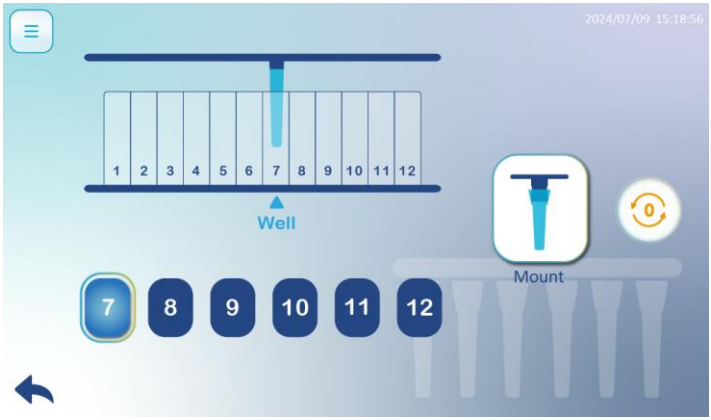
- Select with "L" for left part of plate or "R" for the right. And press on " " to proceed. Refer to the container type to choose "Auto-plate" or "Auto-Tube" and click on " " to Start the run.



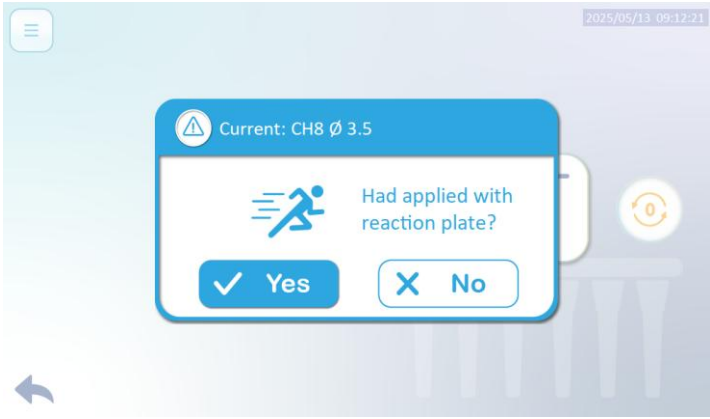
# 4. Installation & Get Started

- After placing the spin tip assembled box, tap “Mount” to pick up the tips in the selected lane.

Note: This applies only to the 8-channel gearbox. To ensure correct operation, use the matching left or right spin tip box when extracting samples from the corresponding side of the well plate.

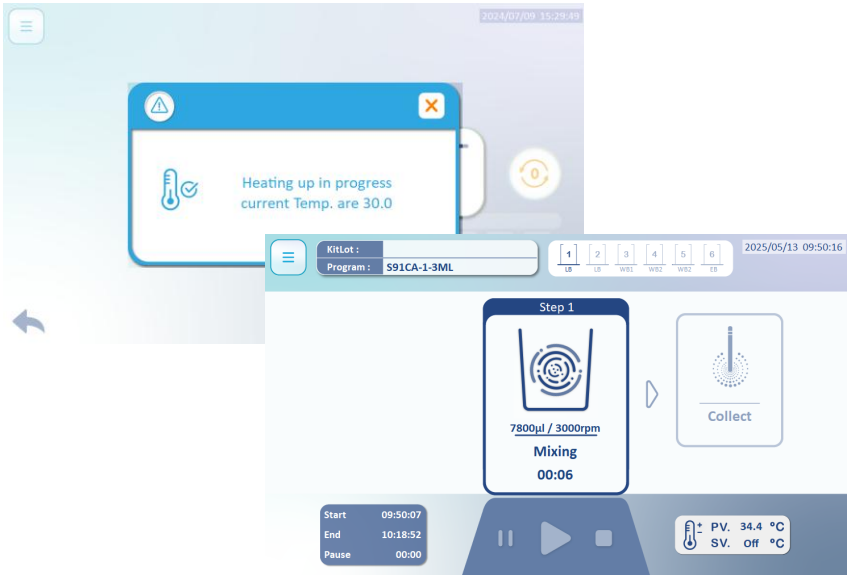



- After picking up the spin tips, a warning message will appear. Ensure that the prepared reaction plate has been placed into the chamber, then click “Yes” to proceed.

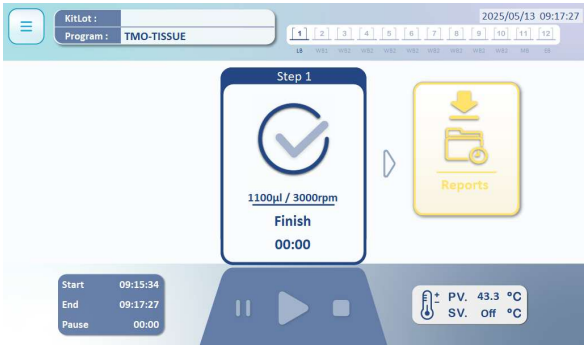


# 4. Installation & Get Started

- After heating up, the program will begin automatically.

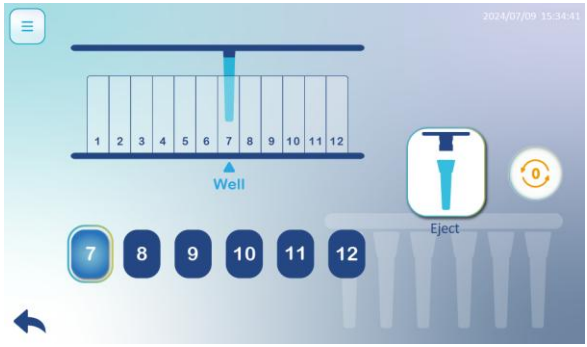



- After the program is completed, press “Report” to review the procedure details. When you close the report, a prompt window will appear.



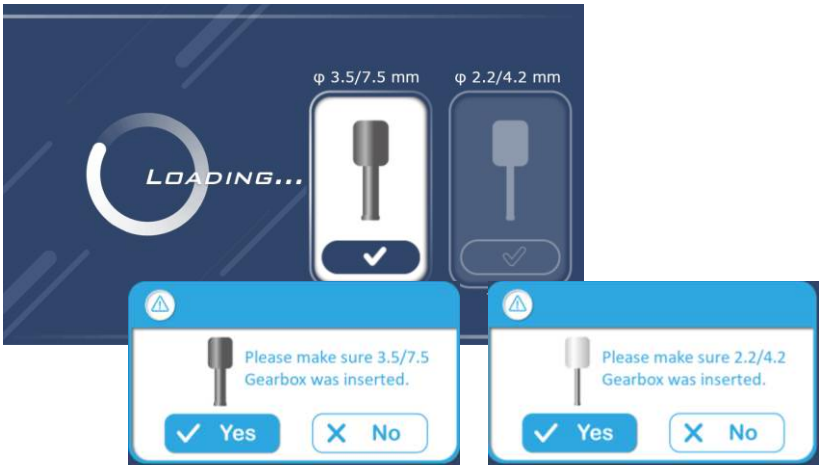
# 4. Installation & Get Started

- Select the desired lane to “Eject” the spin tip before returning to the main menu.

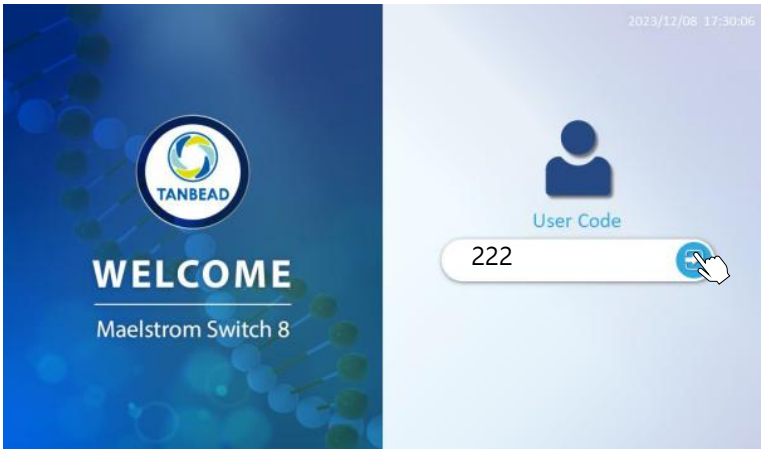


# 5. Software Applications

## Start




After powering on the instrument, please allow a few seconds for the system to initialize. Refer to the label on top of the gearbox to select the correct size. Confirm your selection by tapping "Yes" to proceed.




Enter "222" user code for Supervisor mode or "333" user code for Operator mode to access the system. In case of forgotten User Code, please contact local dealers or Taiwan Advanced Nanotech Inc. for assistance.

# 5. Software Applications

- After entering the home screen, the system will automatically detect the type of gearbox and display the corresponding user interface as shown below. The functions of each icon will also vary depending on the detected gearbox type.

## CH 4 Gearbox



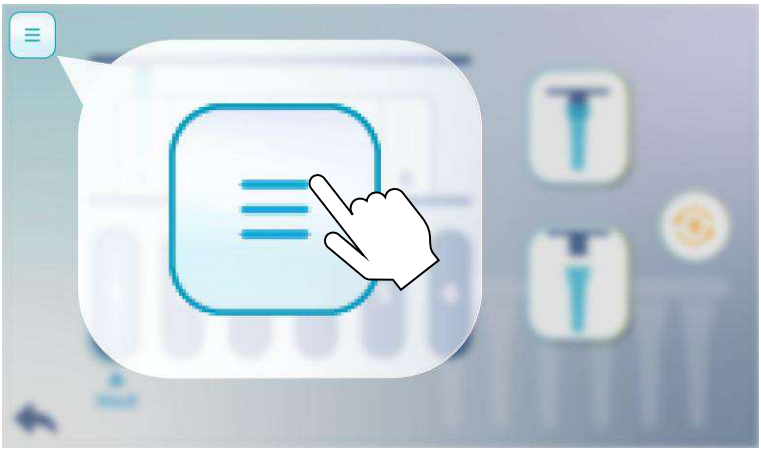
## CH 8 Gearbox



## CH16 Gearbox


# 5. Software Applications

General functions:



Press Toolbar to use following function.

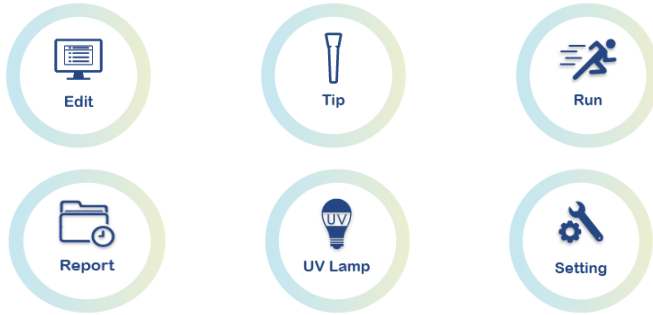

① Back to Home Screen
② Turn on/off LED
③ Get the version information
④ Update software and firmware

# 5. Software Applications

The "Home Screen" on the Maelstrom Switch 8 provides access to the following functions. The displayed interface will vary depending on the type of gearbox in use.

## Home Screen (CH 8 Gearbox as Example)


① Change User
② Current Temperature
③ Current Gearbox type




- **Edit:** Edit protocols.
- **Tip :** Eject tip(s).
- **Run :** Enter to "Run" a protocol.
- **Report :** Management of history data.
- **UV Lamp :** Switch the UV lamp on/off.
- **Setting:** Adjust the parameter of the transfer platform.

# 5. Software Applications


**Edit:** Edit protocols.


Tap to enter the "Edit" function, where you can modify existing programs or create custom protocols tailored to specific reagent kits. When using different gearboxes, separate programs should be created for each configuration.

① **Program:** List of all programs.
② **Edit:** Enter the selected program number to modify the protocols.
③ **Copy:** Copy the selected program number to the desired program number.
④ **Delete:** Tap to delete the selected program number
⑤ **Import/Export:** Use a USB drive to transfer programs into or out of the system.

# 5. Software Applications


**Edit the existing programs.**


**Edit the selected program.**

**CH 8 Gearbox as example for instruction:**


① **Number:** Program number for saving
② **Program:** Name of the protocol.
③ **Heating:** Activate the pre-heating function with setting temperature.
④ **Protocols:** Preview of the protocols.
⑤ **"Previous"** to go back or **"Next"** steps to detail protocol setting.

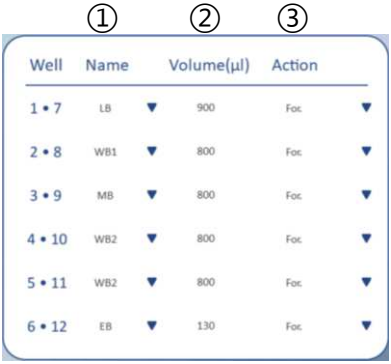
# 5. Software Applications




## Edit the existing programs.


**Edit the selected program.**

Preview of protocols

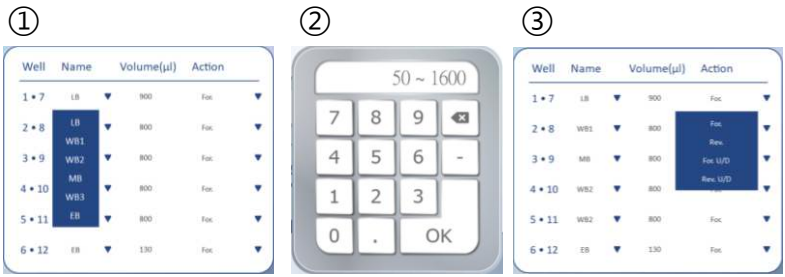



Preview of the protocols and enter with related settings.

① **Name:** Tap to select the buffer name of each step.

② **Volume:** Tap to enter the volume of each sample well.

③ **Action:** Tap to select different spinning mode with "Reverse", "Forward", "Reverse with up and down mixing", and "Forward with up and down mixing".



# 5. Software Applications


## Edit the selected program.


**Edit:** Edit protocols.

Detail protocol setting:


Preview the protocol, and tap on the displayed values to enter related settings as shown below. Use "Delete" to remove steps, "Copy" to duplicate steps, and "Save" to store the program settings.

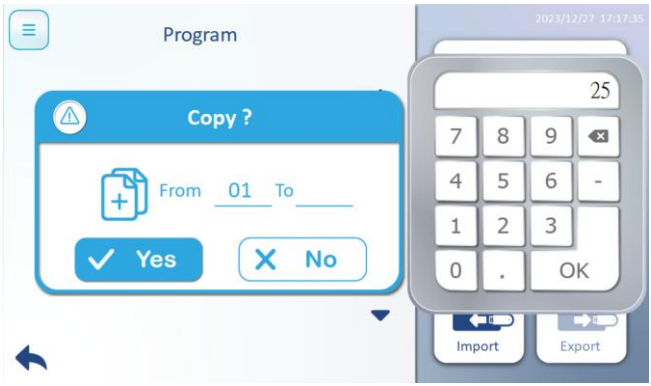
Note: When editing protocols, ensure that magnetic beads and ejected spin tips are not placed in the same well.

① **Step:** The order of the gearbox's motion.
② **Well:** Processing well of each step.(May different by gearbox types.)
③ **Temp.:** Heating On/Off and temperature setting of the step.
④ **Mixing Time:** mixing time length setting of the step
⑤ **Spin Speed:** speed setting of the stirring
⑥ **Collect Time:** time setting for magnetic rod to collect the beads
⑦ **Vapor Time:** time setting for the evaporation of collected beads
⑧ **Pause:** ON or OFF the pause function to temperately stop the procedure.

# 5. Software Applications


## Edit the existing programs.


**Copy:** Copy the selected program number to the desired position.





**Delete:** Delete the selected program number.


**Import/Export:** Programs can be imported or exported into CSV format through a USB drive. File format is shown as below.

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | Temp1 | Temp2 | | | | | | |
| 2 | 40 | 40 | | | | | | |
| 3 | | | | | | | | |
| 4 | Well | Name | Volume | Action | Mixing | Collect | | |
| 5 | 1 | LB | 900 | Rev. U/D | Low | Low | | |
| 6 | 2 | WB1 | 800 | For. | Low | Low | | |
| 7 | 3 | WB2 | 800 | For. | Low | Low | | |
| 8 | 4 | WB2 | 800 | For. | Low | Low | | |
| 9 | 5 | MB | 800 | For. | Low | Low | | |
| 10 | 6 | EB | 150 | For. | Low | Low | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | Step | Well | Temp | Mix_time | Mix_spee | Collect_ti | Vapor_tin | Pause |
| 14 | 1 | 5 | | 0 | 3000 | 0.1 | 0 | Off |
| 15 | 2 | 1 | 65 | 6 | 3000 | 0.5 | 0 | Off |
| 16 | 3 | 2 | | 0.5 | 3000 | 0.1 | 0 | Off |
| 17 | 4 | 3 | | 1 | 3000 | 0.2 | 0 | Off |
| 18 | 5 | 4 | | 0.5 | 3000 | 0.2 | 7 | Off |
| 19 | 6 | 6 | 45 | 3 | 3000 | 0.5 | 0 | Off |
| 20 | 7 | 3 | | 0.1 | 3000 | 0 | 0 | Off |

**Note: Do not alter the internal format of the CSV file. Modifying the position or arrangement of data may lead to processing errors.**

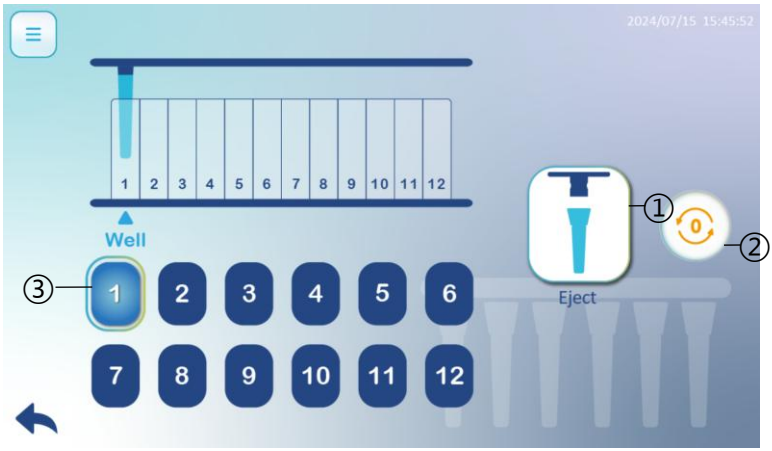
# 5. Software Applications


## Eject Tip(s)

The display layout may vary depending on the gearbox used; however, the function icons remain the same. When ejecting the spin tips, it is recommended to use an empty reaction plate.

**Please use correct consumables that is compatible with the installed gearbox.**

CH 8 Gearbox

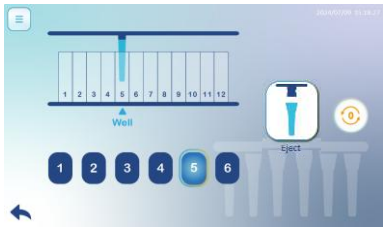


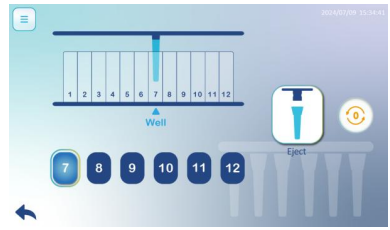

Caution: Before starting a run, ensure that no spin tips remain on the gearbox or inside the chamber.

Eject Tip : Press the icon to leave tips.

① Origin: Press the icon to initialize instrument.

② Well : Tap the icon 1~12. to leave tips in different positions.



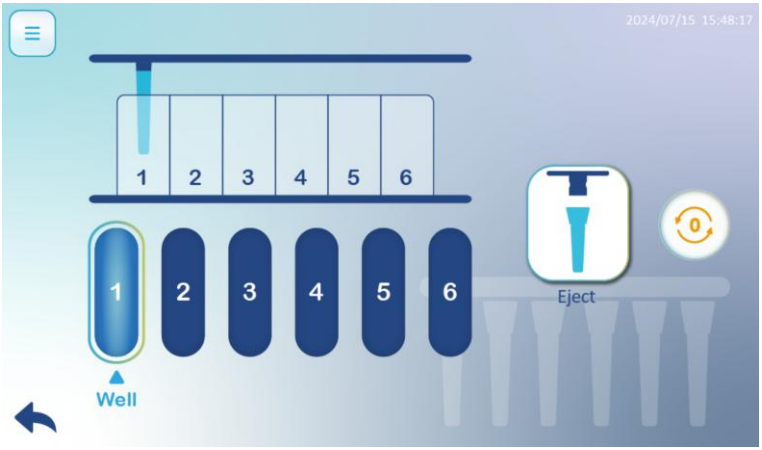



# 5. Software Applications

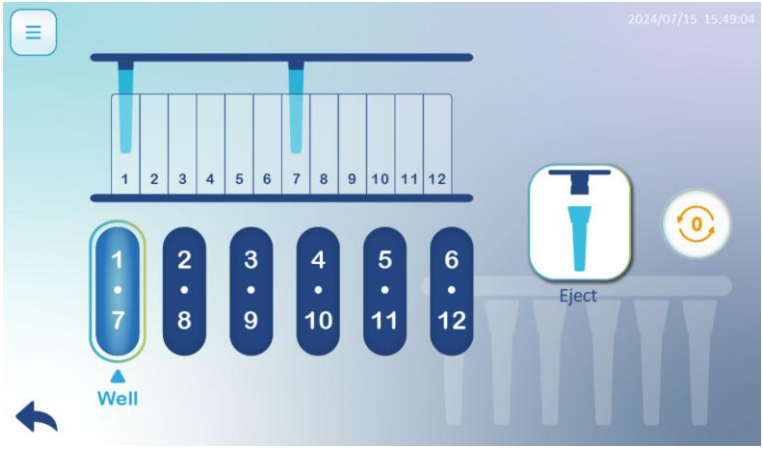
## Eject Tip(s)

Please use correct consumables that is compatible with the installed gearbox.

CH 4 Gearbox




CH16 Gearbox



# 5. Software Applications


## Run a protocol

Double-tap the selected program to start.

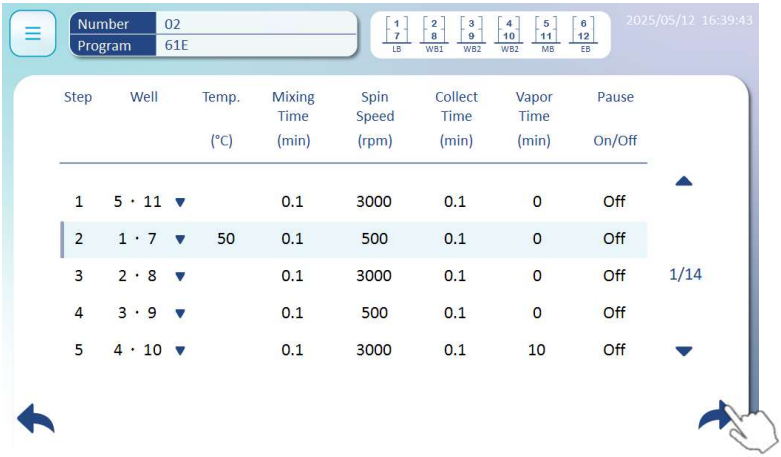

The Switch 8 can store up to 100 programs, providing ample flexibility. Select the program that corresponds to your reagent kit. If needed, use the Search box to enter keywords and locate the desired program.


Enter the kit lot number and tip lot number for tracking purposes.
Press " " to proceed to the next page.

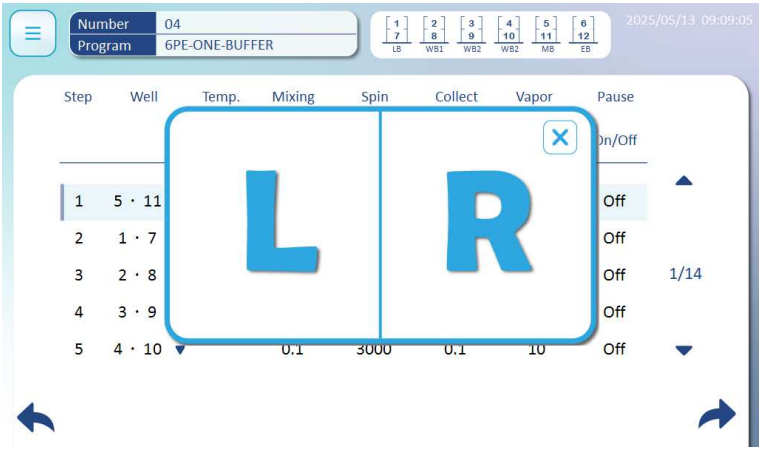
# 5. Software Applications

## Run a protocol

Review with the setting program by scrolling up or down. And press on " " to proceed.



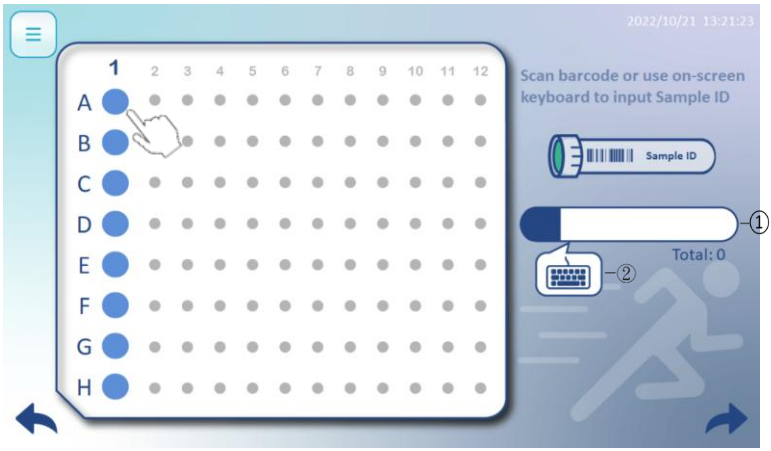

For the CH8 gearbox running a 6-step program, users can choose to operate on either the "**Left**" or "**Right**" region of the deep well plate. However, this option is not available for other types of gearboxes or for 12-step programs.



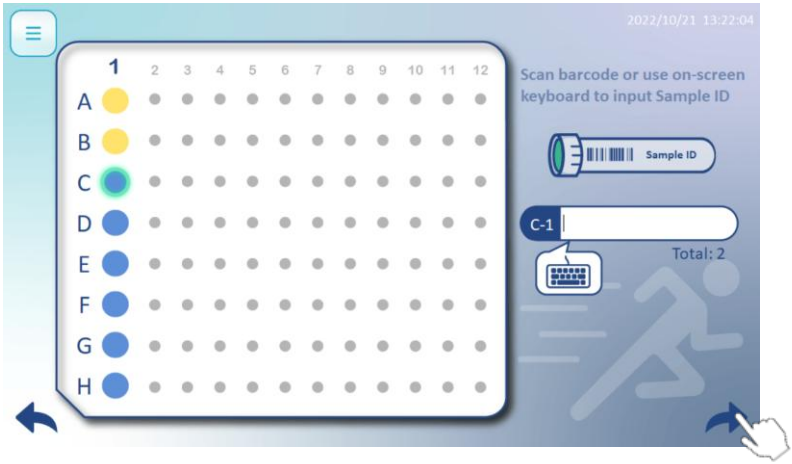

Choose a region "Left" or "Right" to run a protocol. Choose "Left" means to process from Lane 1 to Lane 6, and "Right" means from Lane 7 to Lane 12.

# 5. Software Applications

## Run a protocol




Press a circle(A1~H1) to input sample ID by using 1-D barcode ①barcode or ②manual type in.




The circle indicator turns yellow upon successful entry of a sample ID, and the system will automatically advance to the next sample position (e.g., A1 → B1, B1 → C1, etc.). Press " " to proceed to the next page.

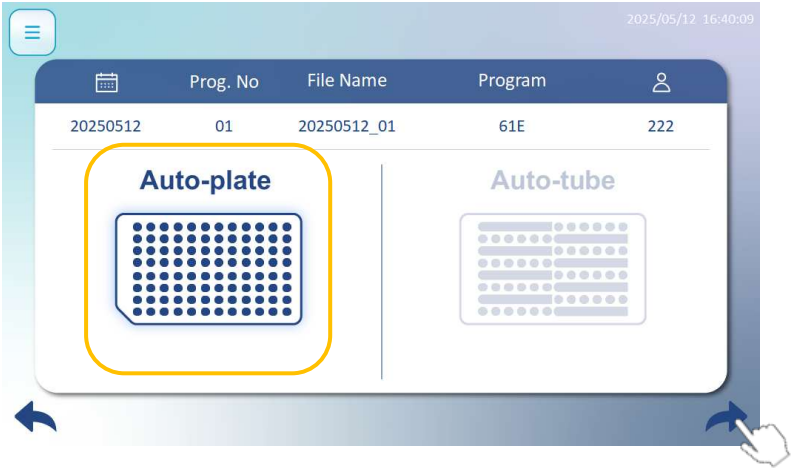
NOTICE:

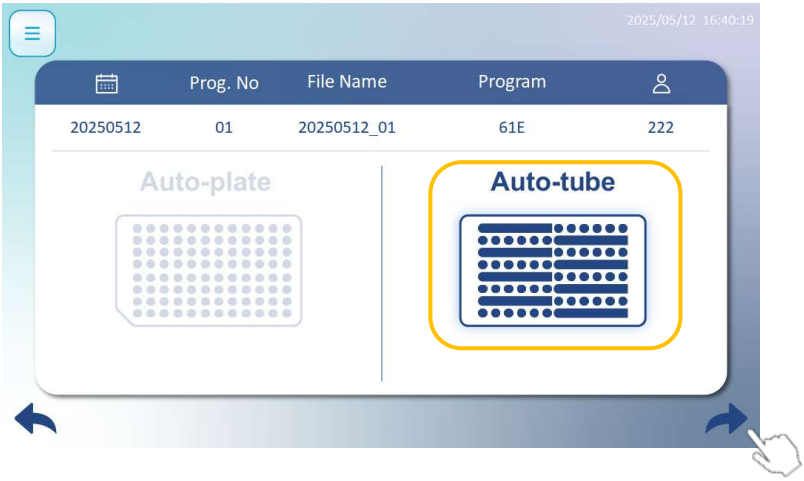
Be careful not to touch adjacent buttons or areas while entering data to avoid input errors.

# 5. Software Applications

## Run a protocol

According to the applying plate format, choose "**Auto-Plate**" or "**Auto-Tube**" to proceed.

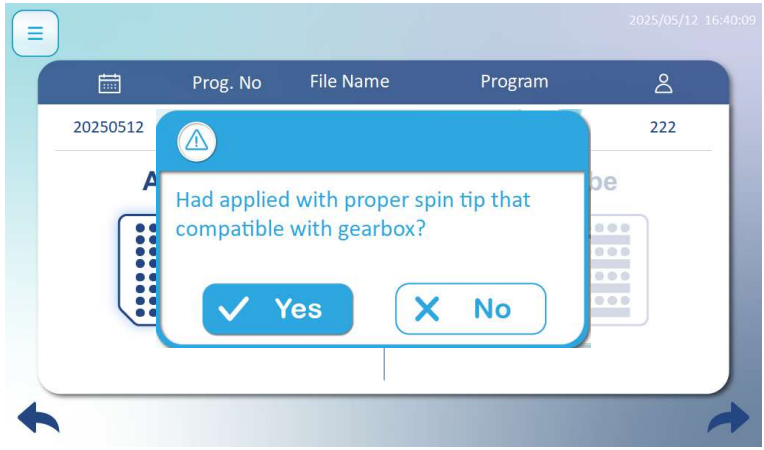



Please verify that the information above such as the date, program, and file name is correct. Press the " " icon to execute the program, or tap the " " icon to return to the previous page.

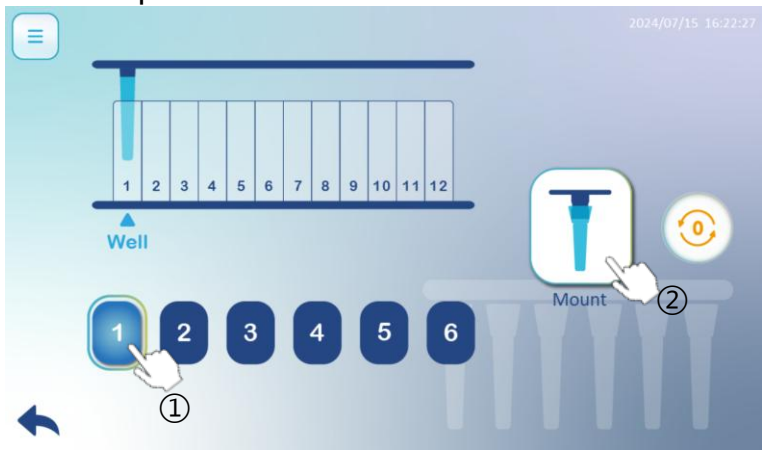
# 5. Software Applications

## Run a protocol




After pressing the " " icon, a warning window will appear. Ensure that the correct spin tip assembled box is loaded into the system, then click "Yes" to proceed or "No" to return to the previous page.

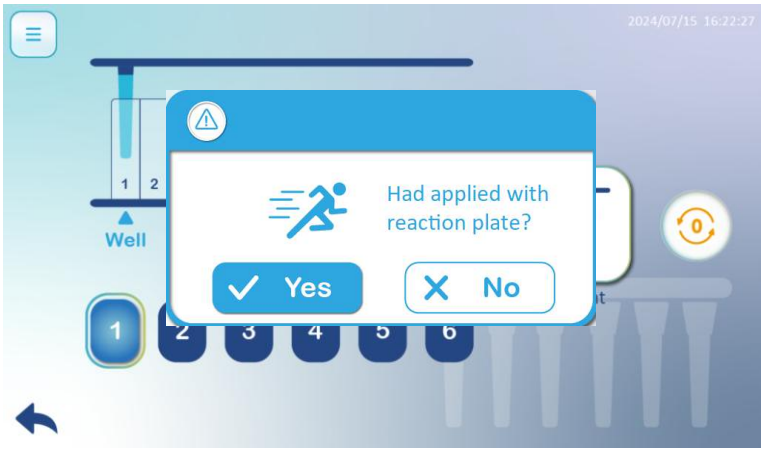
### Mount Tip



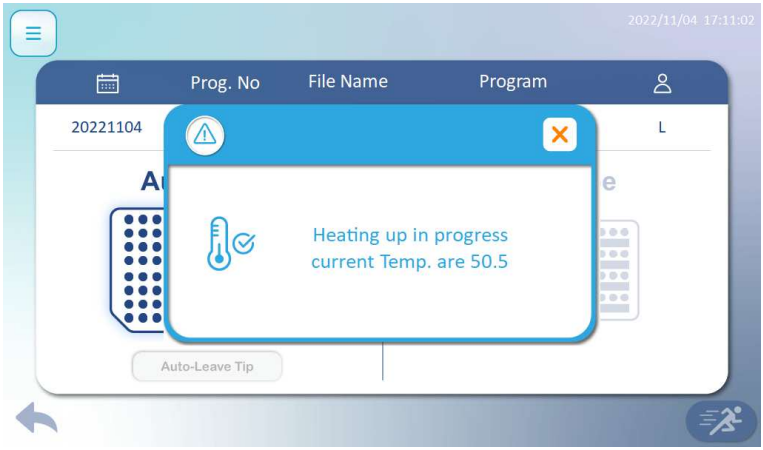

Place the spin tip assembled box onto the heating plate inside the Switch 8.
① Select the desired lane.
② Press "Mount" to pick up the spin tips

# 5. Software Applications

## Run a protocol




After picking up the spin tips, be sure to replace the spin tip assembled box with the prepared reaction plate. Click “Yes” to proceed, or “No” if the plate is not yet ready.




Program will start when the temperature reaches the set value.

# 5. Software Applications

## Run a protocol

### Running Status:


Familiarizing yourself with the following symbols is highly recommended, as they help you understand the protocol status:

① **Current Step** – Indicates the step currently being executed.

② **Start Time, Estimated End Time, Pause Time** – Displays the timing information related to the run.

③ **PV / SV** – PV refers to the actual temperature, while SV is the set temperature for the current step

**Pause** : Pause a protocol that is in progress

**Resume** : Continue a pause protocol

**Stop** : Stop a protocol that is in progress

# 5. Software Applications




## Run a protocol

**Mix** :This step is to mix beads and reagents

**Collection:** This step is used to collect magnetic beads from the wells of the plate. If "Pause" or "Stop" is pressed during this step, the Maelstrom Switch 8 will not respond immediately, it will first complete the bead collection process before pausing or stopping.

**Vapor** : This step dries the magnetic beads above a well or tube.

**Completion** : A buzzer will sound when the protocol has finished.

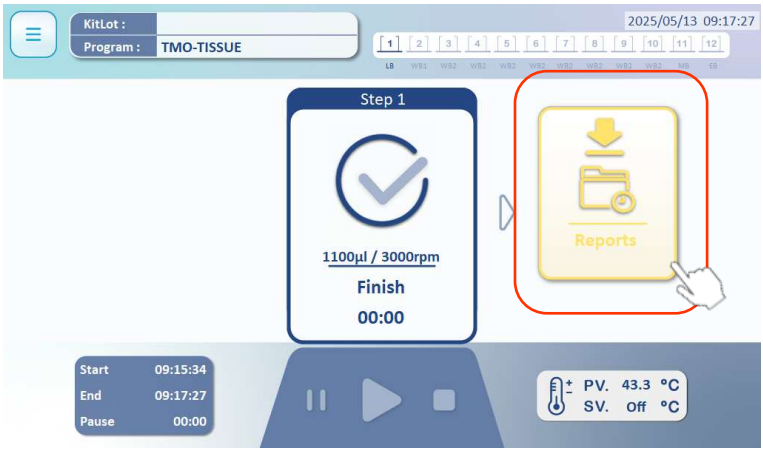
**Pause :** Pause a protocol



**Well 1 to 12, number of well and name of buffer varies from kits to kits.**

# 5. Software Applications

## Run a protocol




After the program is completed, press “Report” to review the results.

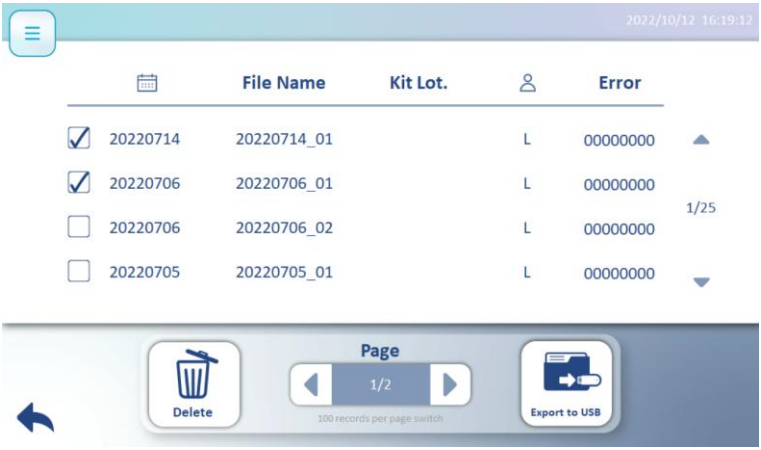
To complete the entire procedure, the spin tips must be ejected. Select a lane for ejection that is not the same as the one containing magnetic beads.

Notice:
Do not leave magnetic beads and ejected spin tips in the same lane.

# 5. Software Applications

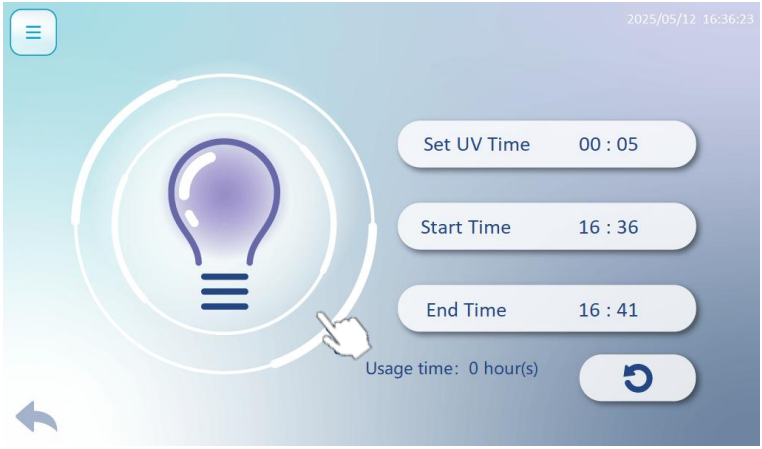

## Reports : Manage history data.

Tap the checkbox(es) to delete data or to export data to a USB drive.



# 5. Software Applications


UV Lamp : Switch the UV lamp on/off.




Set UV time, then press the light bulb to start.

**Please close the door before turning on the UV light.**
**A recommended operating time is at least 5 minutes.**

# 5. Software Applications




**Setting:** Basic Parameters can be set through setting function, including User Management, Language, and Time.


① **User Management:** Set operator access levels through this function.

② **Language:** Change the user interface language.

③ **Time:** Adjust the system time settings for the instrument.

# 5. Software Applications

## 12-Step Program

When using the CH8 gearbox, a special program called the "12-step program" is available, allowing users to freely customize processes across all 12 lanes of the reaction plate.
In the "Edit" section (see Page 34), the program list will display two types of programs that users can modify.


When editing a 12-step program, the interface will appear as shown in the figure below on the left.

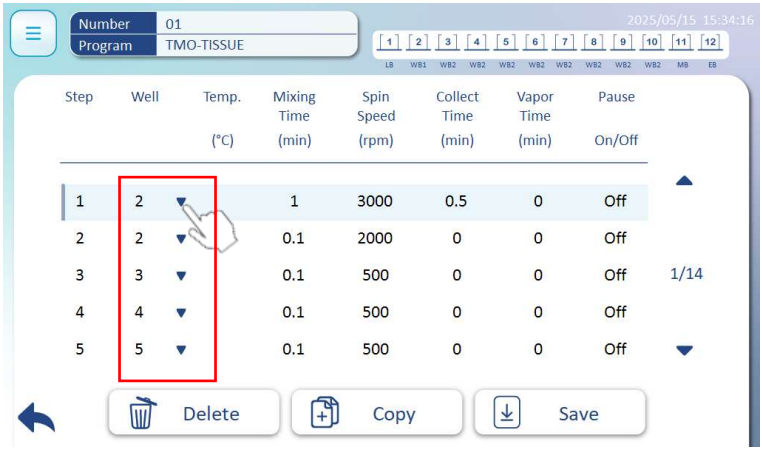
12-Steps Program


06-Steps Program

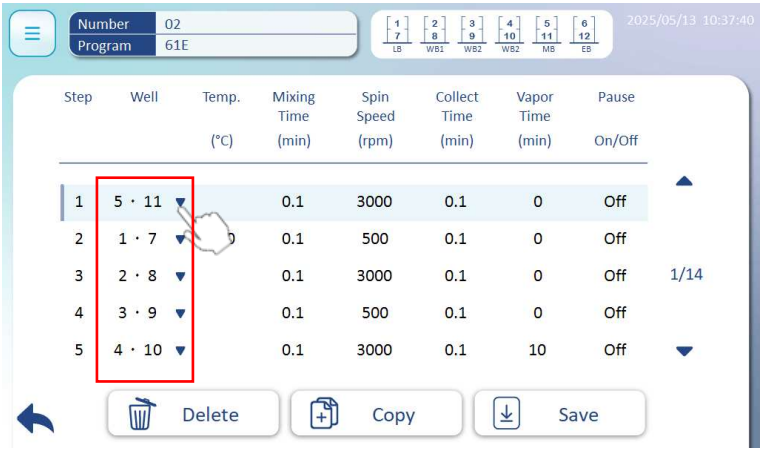
# 5. Software Applications

After entering the editing interface, in the 12-step program (A), the "Well" lane can be freely selected from lanes 1 to 12.
However, in the 6-step program (B), the lanes are paired, lane 1 is linked with lane 7, lane 2 with lane 8, lane 3 with lane 9, and so on.

(A) 12-Steps Program




(B) 06-Steps Program



# 6. Technical Support

If you have any questions, please contact the authorized distributor nearest to your location. Taiwan Advance Nanotech Inc. provides post-sale services call number at +886-3-3167568 or via email: service@tanbead.com for assistance.

Please provide this instrument serial number when you talk to our technician, that will solve the problems efficiently and answer your questions more precisely.

# 7. Cleaning and Maintenance

- Clean the device after every use. When users detect samples or reagents have been spilled, clean the device immediately to avoid damage or contamination.
- Wear gloves and appropriate personal protective equipment. If the device is used with biohazardous materials, dispose of any cleaning materials used in accordance with your institutional guidelines.
- The device may go through a run with the magnetic rods unprotected. If this happens, the magnetic rod needs to be cleaned immediately.
- To clean the magnetic rods, wipe with a soft cloth dampened with pure water. Do not use alcohol solvent.
- If the contaminated magnetic rods become rusted or cannot be cleaned, please contact the authorized distributor nearest to your location or TANBead (service@tanbead.com) for technical assistance.

# 8. Disposal

The decision whether to dispose of a potentially contaminated medical device is usually made by the owner in consultation with appropriate federal, state, and local authorities. In determining which medical devices should be discarded, the owner must assess each product's current condition and potential safety risks.

# 9. Patent

| Patent List | |
|---|---|
| USA | US09616398B2 |
| EU | EP2937136 |
| Canada | CA2862946 |
| Japan | JP6151735B2 |
| Korea | KR101696517B1 |
| China | CN104971638B |
| Taiwan | TWI526245B |
| WIPO | WO2016127292 |

# 10. About Manufacturer

- **Manufacturer**：Taiwan Advanced Nanotech Inc.
- **Legal Manufacturer**：6F., No. 188, Wenhe Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
- **Production Site**：4F., No. 188, Wenhe Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
- **Manufacturer Tel**： +886-3-3167568

# 11. TANBead Instrument Warranty Policy



This warranty sheet covers the Nucleic Acid Extractors manufactured by Taiwan Advanced Nanotech Inc. (Hereinafter referred to as TANBead).

TANBead warrants that under normal use conditions, this product will not have any material or manufacturing defects for one year from the date of purchase. If any defect is found within the warranty period, TANBead will repair or replace the product free of charge.

This warranty policy does not apply to the following situations:

•The product is damaged due to improper use, operation, storage, maintenance, abuse, or transportation of the products.
•The product is damaged due to accident, disaster, natural phenomenon, or other force majeure factors.
•The product is modified, disassembled, reassembled, or repaired by unauthorized personnel.
•The product exceeds its expiration date or is not used according to the instructions.
•Damage or loss caused by factors beyond TANBead's control, such as sample quality, experimental conditions, or user error.

To obtain the service of this warranty policy, you must register with TANBead website when purchasing the product and contact us in time when you find a defect.

To claim the warranty, please contact our customer service department with the following information:

•Proof of purchase (invoice, receipt, etc.)
•Product name (model) and serial number
•Description of the problem and evidence of defect or malfunction (photos, test results, etc.)

We will provide you with instructions on how to return the products. Please do not return the products without our authorization. TANBead will bear the shipping cost of returning the product, but not any other expenses or losses.

This warranty policy is your only remedy and replaces any other express or implied warranties or conditions. In no event shall TANBead be liable for any indirect, special, incidental, or consequential damages, including but not limited to loss of profits, business interruption, data loss or other commercial losses.

We appreciate your business and hope that you are satisfied with our products. If you have any questions or concerns, please feel free to contact us at any time. Thank you for choosing TANBead! If you have any questions about our warranty services, please email to service@tanbead.com

To register your TANBead instrument for more technical support and services, please sign up an official membership of TANBead.