



Taiwan
Advanced
Nanotech



TAN Bead Nucleic Acid Extractor
(Non-Sterile)

039.M0701.X01 Rev V1.4

Maelstrom Switch 8 User Manual

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About Manual

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



Catalog number



Temp limit



Serial number



Keep dry



Specification of fuse



Keep away from sunlight



Manufacturer



EU authorized representative



The date of manufacture



Biologic risks



The CE mark



In vitro diagnostic



eIFU Indicator

Instructions for Use



Humidity limit



Non-sterile



Biologic risks



Hot surface, risk of burns



Caution



The WEEE symbol, indicating separate collection for 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 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 from the AC outlet 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 instruments 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 TANBead reagent kits. Maelstrom Switch 8 can boost molecular diagnostic laboratory productivity by transforming routine operations into a walk-away solution.

Operation Principle

Maelstrom Switch 8 uses patented magnetic beads, spin tips and reagent kits technologies , consisting of three major processes: isolation, purification and concentration.

Intended Purpose/Intended Use

- Maelstrom Switch 8 shall be used in combination with TANBead Nucleic Acid Extraction Kit to extract DNA/RNA from various sample types.
- Maelstrom Switch 8 can handle magnetic beads for extraction and purification of nucleic acid.
- Please note that this medical device is used by physicians or medical technologists.
- 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 equipped with different types of TANBead Nucleic Acid Extraction kits, which can extract and purify nucleic acids from biological samples. Please refer to the following for sample type and compatible reagent kits required.

Sample	Reagent kits		
Blood	61E series	611 series	621 series
	622 series	91E series	
cfDNA	61C series	91C series	
Virus	615 series	635 series	665 series
	685 series	61H series	
Bacteria	61G series	61G-SE series	6MB series
	6BG series		
Tissue	6T2 series	6K2 series	
FFPE	61P series	62P series	
Stool	6SC series		
Plant	613 series	613-SE series	6K3 series
Fungi/Yeast	61F series		
Environment sample	6EM series		
Food and feed	6GM series		
Forensic	6TF series		
Plasmid	6PE series	9PE 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°C
Relative humidity: 40-80%
- Storage and transport condition:
Temperature: 5-50°C
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

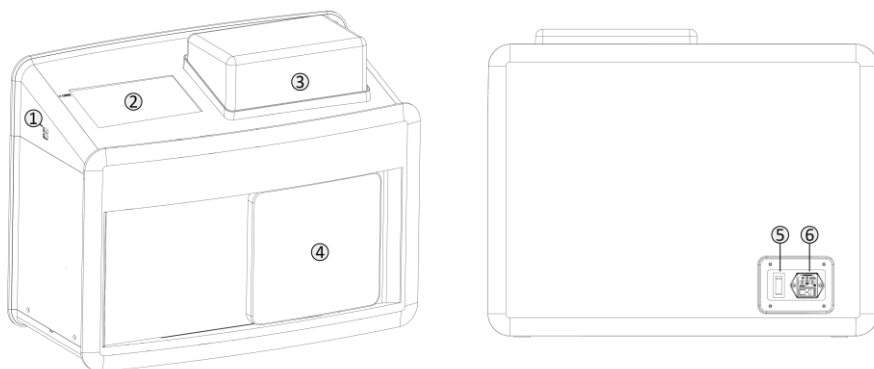
Safety Requirements

- The device has passed the tests and conformed to the standards of IEC 61010-1:2010+A1:2016 (Edition 3.1) and EN 60101:2010+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

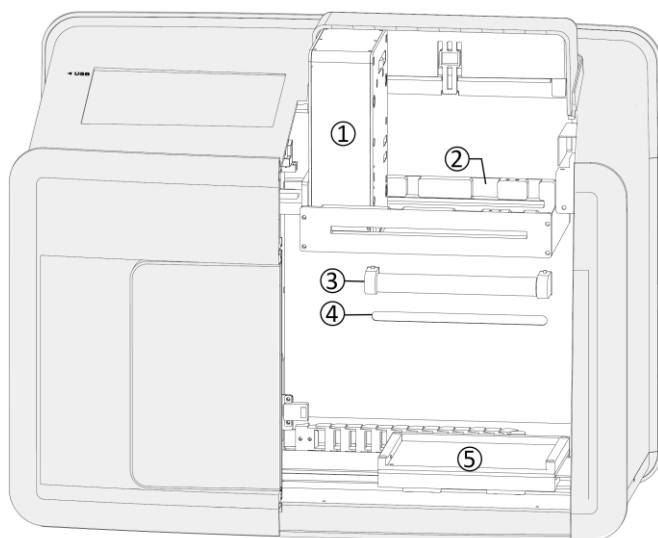
- The device has passed the tests and conformed to the standards of IEC 61326-1:2020 / EN IEC 61326-1:2021 & IEC 61326-2-6:2020 / EN IEC 61326-2-6:2021, "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-6: Particular requirements - In vitro diagnostic (IVD)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

2. Instrument Overview



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

2. Instrument Overview



- ① Fixed gearbox
- ② Guide rail
- ③ UV light
- ④ LED light
- ⑤ Loading position

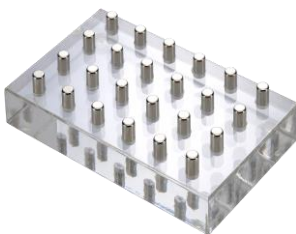
2. Instrument Overview

Accessory

Following accessories may vary region-to-region.



Power cord



Magnetic separator

2. Instrument Overview

Accessory

Following accessories may vary region-to-region.



4 gearbox



24 heating block



8 gearbox



96 heating block



8+ gearbox

2. Instrument Overview

Consumables

Maelstrom Switch 8 uses specially designed for optimal processing. Use of other types of plates may damage the instrument and compromise the warranty



24 deep well
holder



24 deep well



24 spin tip
holder



24 spin tip

2. Instrument Overview

Consumables

Maelstrom Switch 8 uses specially designed for optimal processing. Use of other types of plates may damage the instrument and compromise the warranty



96 deep well



96 spin tip
holder



96 spin tip



16 base B

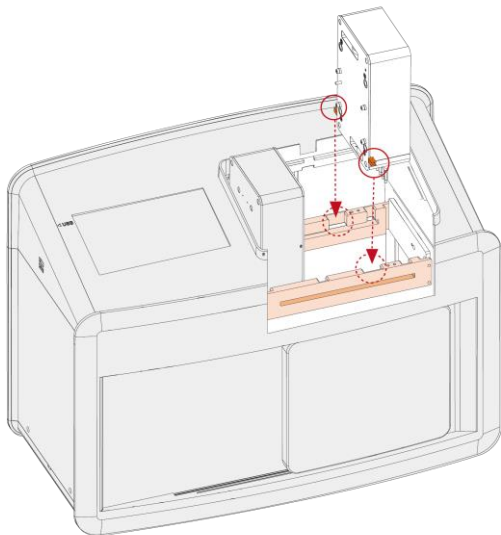


16 auto tube

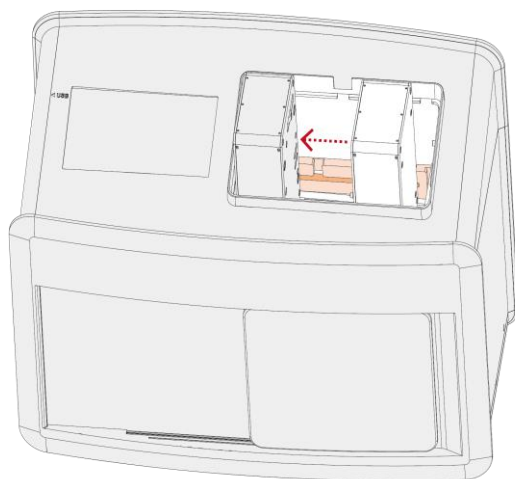
2. Instrument Overview

Please follow instruction below while change different gearboxes.

ENGLISH



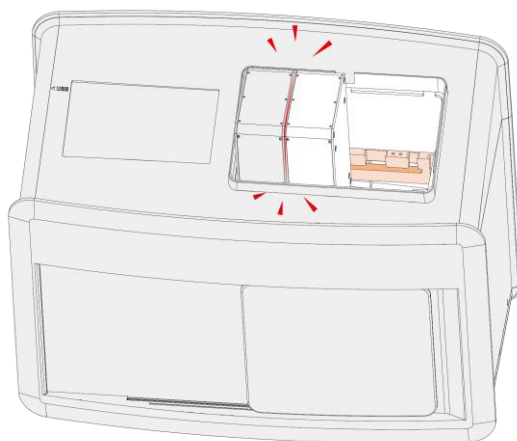
Step 1: Locate gearbox on guide rail



Step 2: Push gearbox to left side

2. Instrument Overview

Please follow instruction below while change different gearboxes.



Step 3: Make sure gearbox is attached firmly

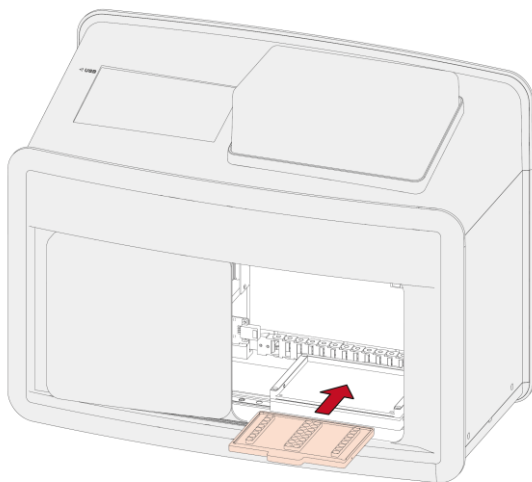


Please turn off the instrument before change gearbox.

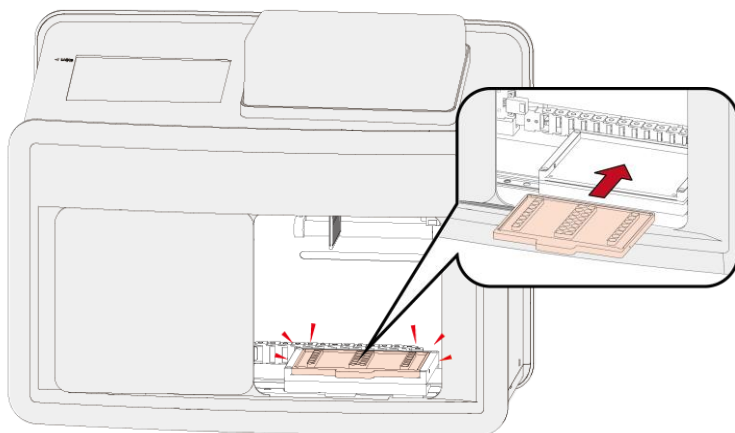
2. Instrument Overview

Please follow instruction below while change different heating blocks.

ENGLISH



Keep heating block horizontal during installation.



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

3. Instrument Specification



ITEM	SPECIFICATION
Model	Maelstrom Switch 8
Weight	N.W. 16.5kg G.W. 23.0kg
Dimensions	Instrument 524(W)x265(D)x412(H)mm Package 638(W)x426(D)x568(H)mm
Power rating	100~240Vac, 2.3~1.1A, 50/60Hz
Fuse	T5A L 250V
Max. Throughput	Low Volume: Max 16 samples/run High Volume: Max 4 samples/run
Process volume	Low Volume: 50~1,200 μ L High Volume: 100~9,000 μ L
Spin speed	500~3,000rpm
Heater	1 independent heater
Magnetic rod	Low Volume: >3,900 gauss High Volume: >4,700 gauss
Display	7" touch screen
UV light	UV-C

4. Installation & Get Started

Please note that this instrument weight is around 20kg, 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:

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

Step 2:

Remove the cushions around the instrument.

Step 3:

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

Step 4:

Connect the power. Please note that this instrument is compatible with 100-240Vac power only. Using wrong power source will lead to malfunction or damage.

Step 5:

Power on the instrument and it will perform initialization.

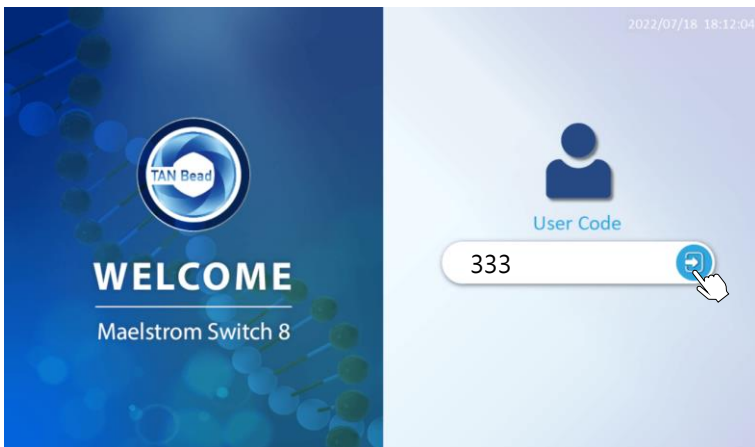
Warning: This product contains very strong permanent magnets. People wearing a pacemaker or metallic prostheses should not use this product. A pacemaker or prostheses may be affected or damage if it comes in close contact with a strong magnetic field.

5. Software Applications

Start

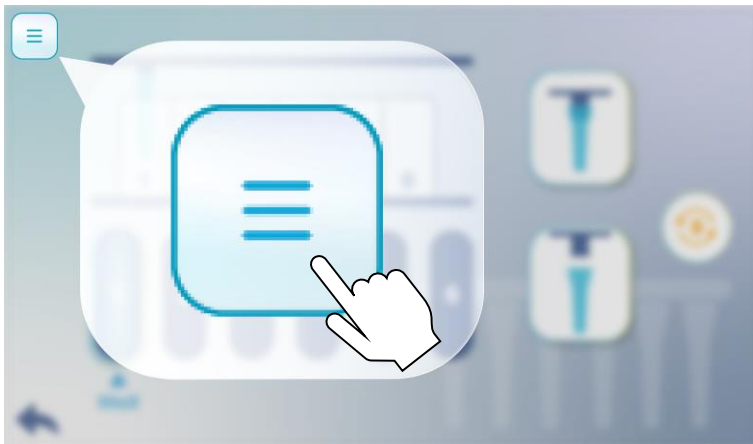


It takes seconds for system ready.

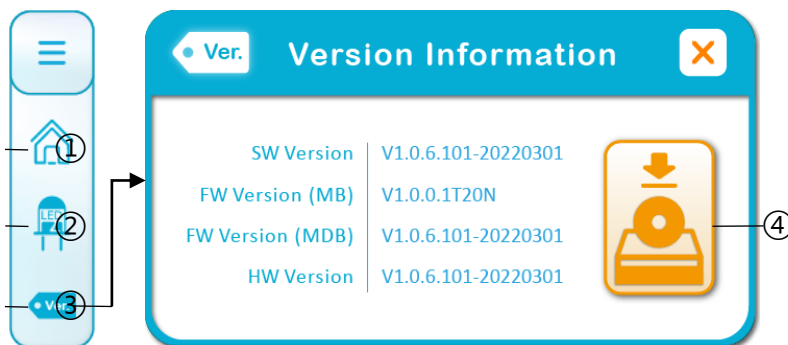


Please input a User Code 333 to access the system. In case of forgotten password, contact distributor or Taiwan Advanced Nanotech Inc. for assistance.

5. Software Applications(4 tips)



Press Toolbar to use following function.



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

5. Software Applications(4 tips)

homescreen



homescreen on the Maelstrom Switch 8 is used for following functions.

- ① Change User
- ② Current Temperature



Tip : Pick-up and leave tip(s).



Run : Run a protocol.



Reports : Manage history data.

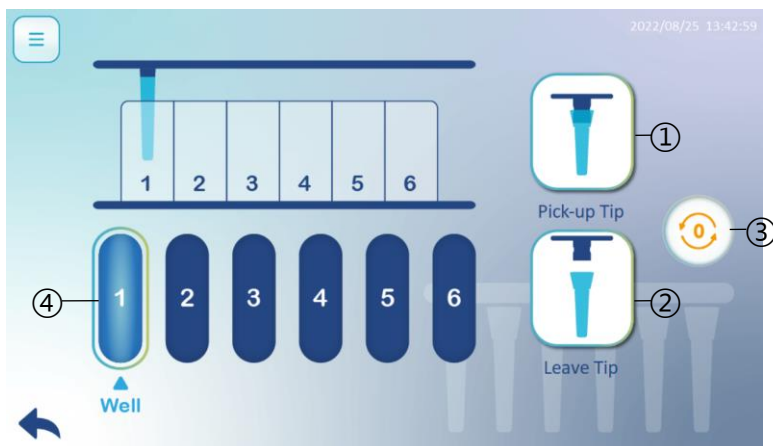


UV lamp : Switch the UV lamp on/off.

5. Software Applications(4 tips)



Pick-up and leave tip(s)



Caution: Before a run,

- ① Pick-up Tip : Press the icon to pick up tips.
- ② Leave Tip : Press the icon to leave tips.
- ③ Origin: Press the icon to initialize instrument.
- ④ Well : Press the icon 1~6, Pick-up or Leave tips in different positions.

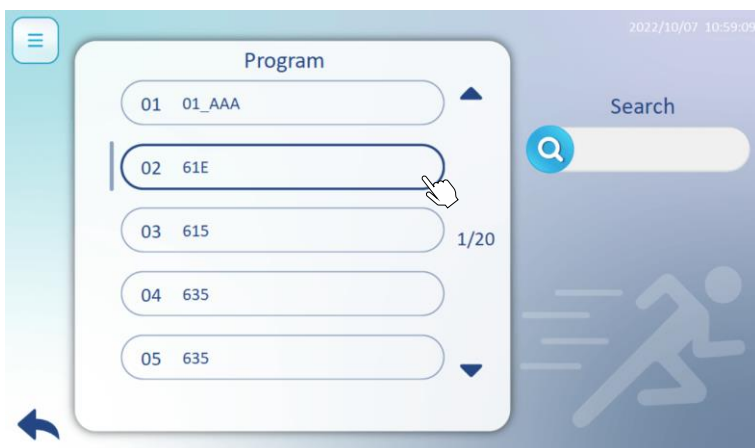


Please use a consumable part that is compatible with gearbox.

5. Software Applications(4 tips)



Run a protocol



Switch 8 has an impressively large store of 100 programs. Choose a program which is preinstalled and in line with reagent kit. Type in key words in search box to look for a program sooner.

5. Software Applications(4 tips)

2022/10/07 11:28:49

Program 61E

Kit Lot.

Tip Lot.

Navigation arrows: back (left) and forward (right, with a hand icon pointing to it).

Type in Kit lot and Tip lot numbers for further tracking. Press arrow to proceed next page.

2022/08/25 10:55:29

Scan barcode or use on-screen keyboard to input Sample ID

	1	2	3	4	5	6
A	☒	☐	☐	☐	☐	☐
B	☒	☐	☐	☐	☐	☐
C	☒	☐	☐	☐	☐	☐
D	☒	☐	☐	☐	☐	☐

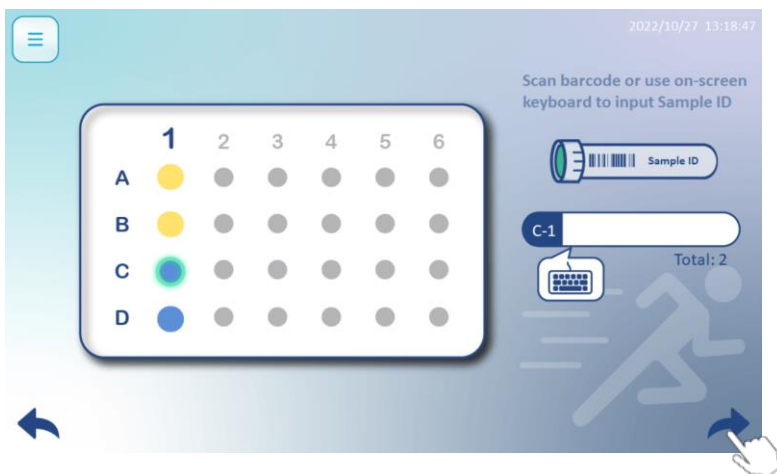
Sample ID

Total: 0

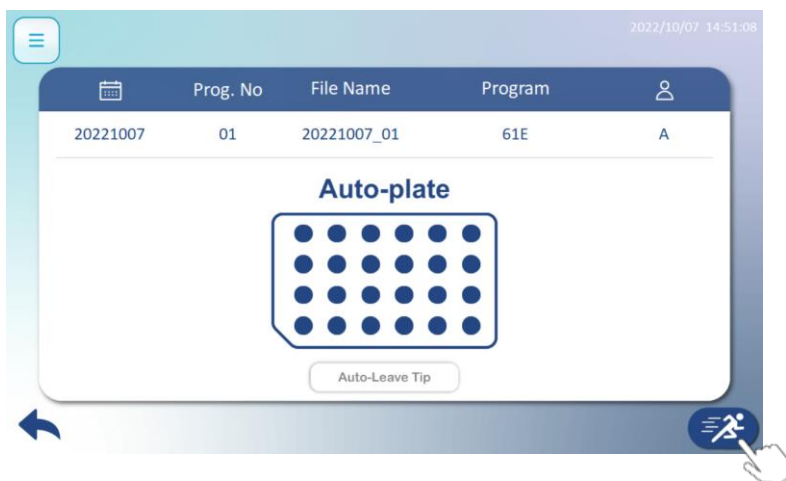
Navigation arrows: back (left) and forward (right).

Press a circle(A1~D1) to input sample ID by using 1-D barcode
①barcode or ②manual type in.

5. Software Applications(4 tips)

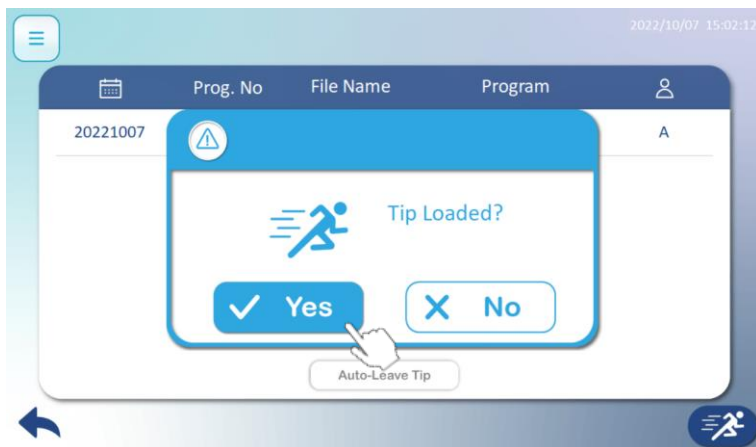


A circle turns yellow when inputs sample ID successfully. Then it moves to next sample ID automatically. E.g. A1→B1, B1→C1 etc. Press arrow to proceed next page.

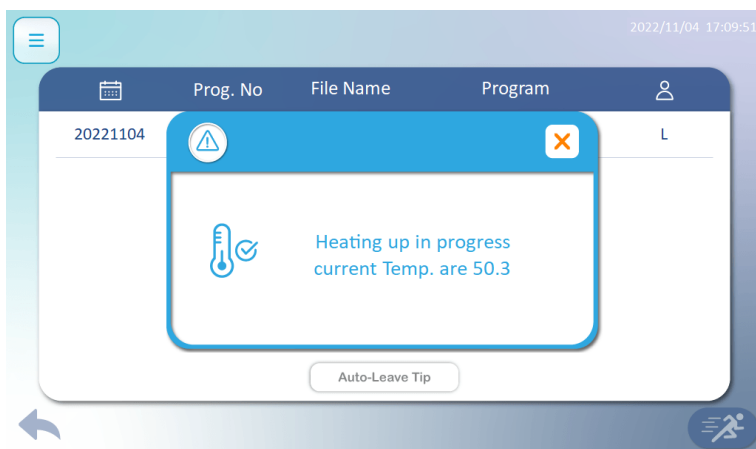


Please check above information is correct such as Date, Program No., File Name etc. Press run icon to execute the program.

5. Software Applications(4 tips)



Please check Tip(s) is/are loaded. Press Yes to begin the program.



Program will be executed until temperature reaches setting value.

5. Software Applications(4 tips)



Realize following symbols is highly recommended. It helps you acknowledge protocol status.

- ① Current Step
- ② Start Time, Estimated Time, Pause Time
- ③ PV refers to the actual temperature. SV is really the set value.



Pause : Pause a protocol that is in progress



Resume : Continue a pause protocol



Stop : Stop a protocol that is in progress

5. Software Applications(4 tips)



Mix :This step is to mix beads and reagents



Collection : This step is used for collecting the magnetic beads from the wells of the plate, press Pause or Stop. Maelstrom Switch8 is not action immediately until finish collection.



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



Completion : Buzzer rings up after a protocol finished.



Pause : Pause a protocol



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

5. Software Applications(4 tips)



Reports : Manage history data.

2022/10/12 16:19:12

☐		File Name	Kit Lot.		Error	
☒	20220714	20220714_01		L	00000000	1/25
☒	20220706	20220706_01		L	00000000	
☐	20220706	20220706_02		L	00000000	
☐	20220705	20220705_01		L	00000000	

Delete

Page
1/2
100 records per page switch

Export to USB

Please press the square(s) to delete data or export data to USB.

5. Software Applications(4 tips)



UV lamp : Switch the UV lamp on/off.



Set UV light, then press bulb to start.



Please close the door before turn on the UV light, running time is recommended over 30 minutes.

5. Software Applications(8 tips)

homescreen



homescreen on the Maelstrom Switch 8 is used for following functions.

- ① Change User
- ② Current Temperature



Tip : Pick-up and leave tip(s).



Run : Run a protocol.



Reports : Manage history data.

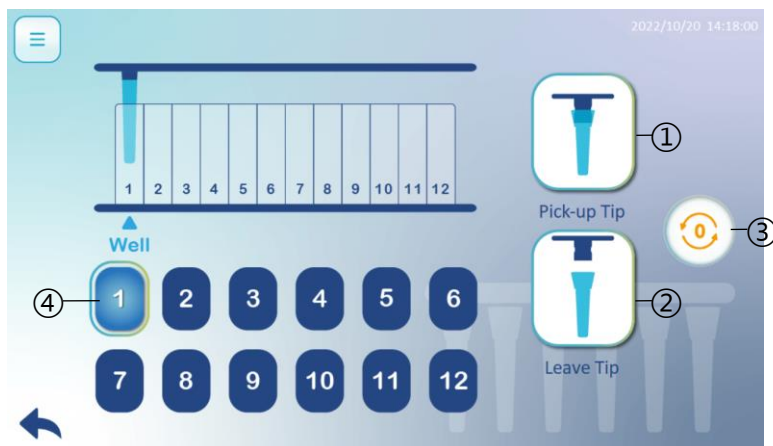


UV lamp : Switch the UV lamp on/off.

5. Software Applications(8 tips)



Pick-up and leave tip(s)



Caution: Before a run,

- ① Pick-up Tip : Press the icon to pick up tips.
- ② Leave Tip : Press the icon to leave tips.
- ③ Origin: Press the icon to initialize instrument.
- ④ Well : Press the icon 1~6, Pick-up or Leave tips in different positions.

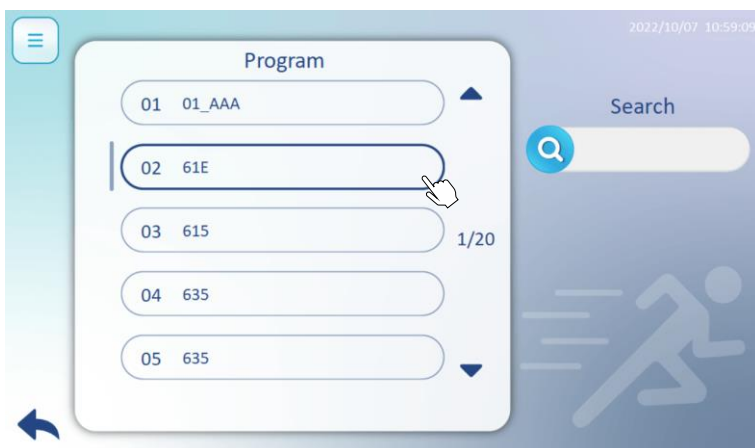


Please use a consumable part that is compatible with gearbox.

5. Software Applications(8 tips)

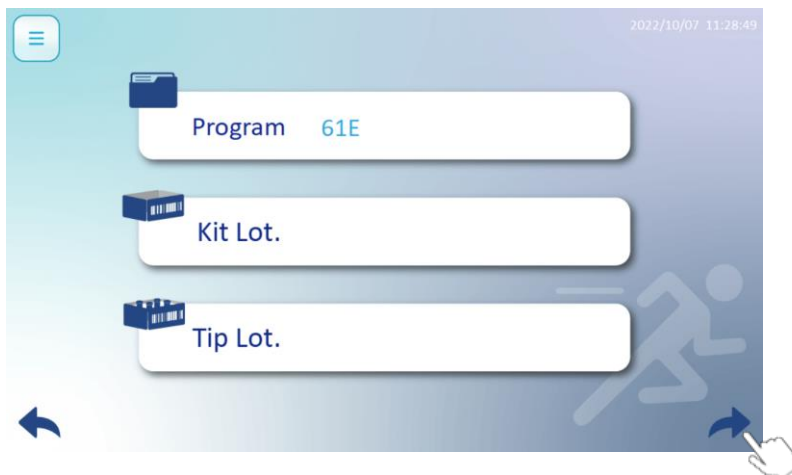


Run a protocol



Switch 8 has an impressively large store of 100 programs. Choose a program which is preinstalled and in line with reagent kit. Type in key words in search box to look for a program sooner.

5. Software Applications(8 tips)

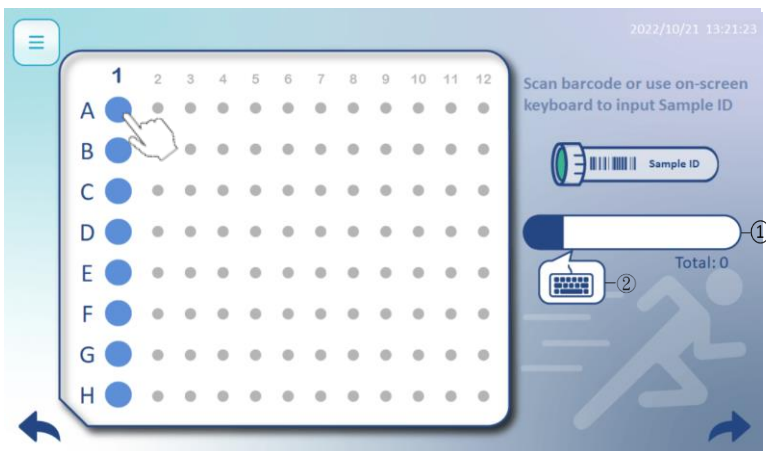


Type in Kit lot and Tip lot numbers for further tracking. Press arrow to proceed next page.

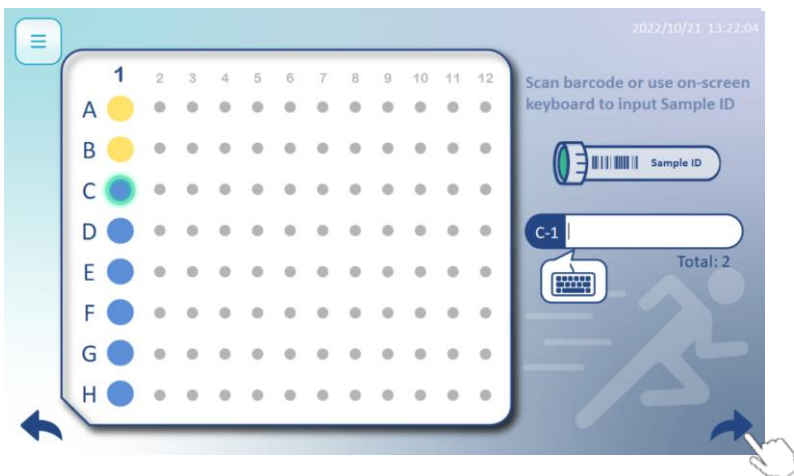


Choose a position Left or Right to run a protocol. Press arrow to proceed next plate.

5. Software Applications(8 tips Left)

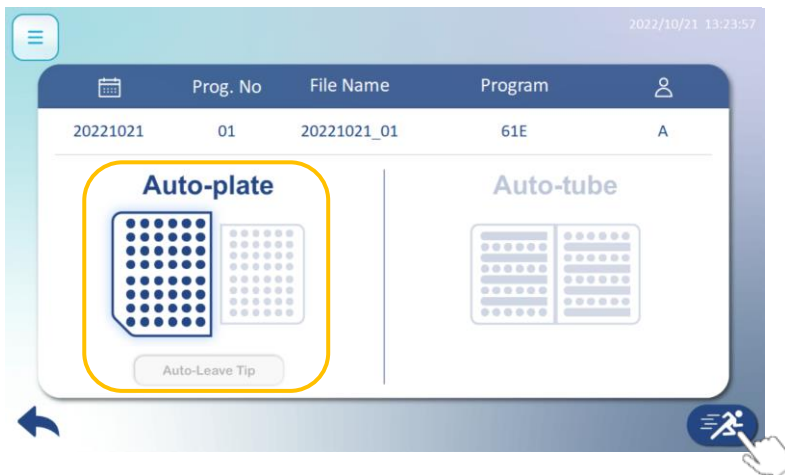


Press a circle(A1~H1) to input sample ID by using 1-D barcode
①barcode or ②manual type in.



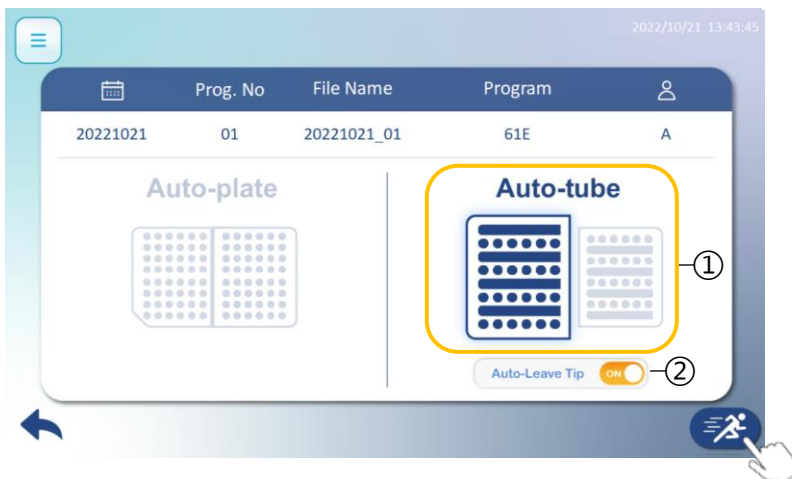
A circle turns yellow when inputs sample ID successfully. Then it moves to next sample ID automatically. E.g. A1→B1, B1→C1 etc. Press arrow to proceed next page.

5. Software Applications(8 tips Left)



Choose Auto-Plate, Tip(s) is auto-leave after finishing a run.

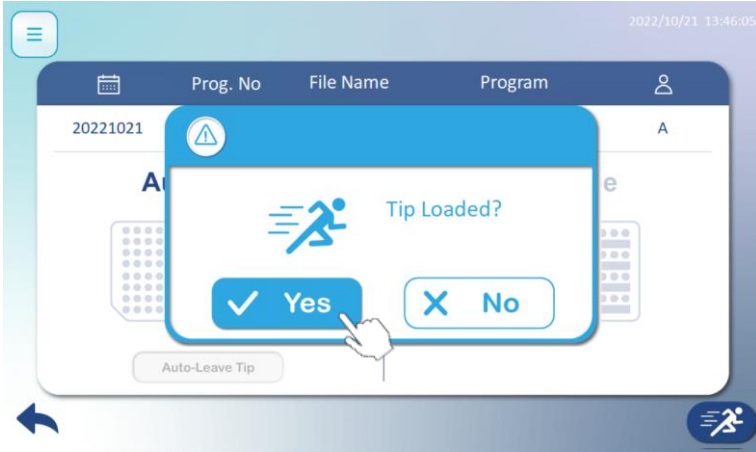
Please check above information is correct such as Date, Program No., File Name etc. Press run icon to execute the program.



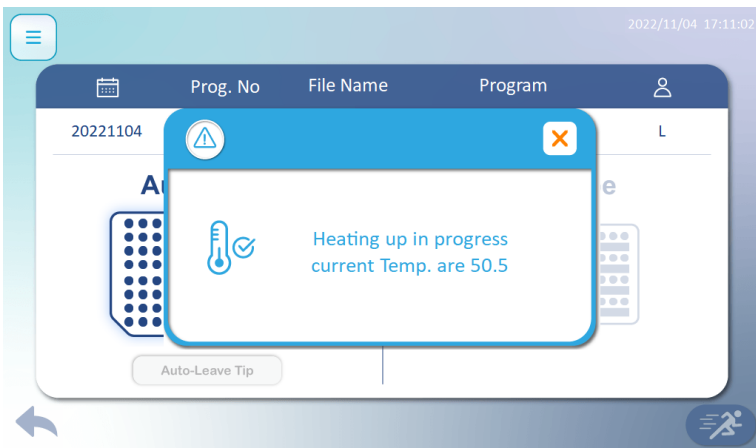
- ① Choose Auto-Tube
- ② Tip(s) auto-leave can be turned on/off.

Please check above information is correct such as Date, Program No., File Name etc. Press run icon to execute the program.

5. Software Applications(8 tips Left)



Please check Tip(s) is/are loaded. Press Yes to begin the program.



Program will be executed until temperature reaches setting value.

5. Software Applications(8 tips Left)

Run



Realize following symbols is highly recommended. It helps you acknowledge protocol status.

- ① Current Step
- ② Start Time, Estimated Time, Pause Time
- ③ PV refers to the actual temperature. SV is really the set value.



Pause : Pause a protocol that is in progress



Resume : Continue a pause protocol



Stop : Stop a protocol that is in progress

5. Software Applications(8 tips Left)



Mix : This step is to mix beads and reagents



Collection : This step is used for collecting the magnetic beads from the wells of the plate, press Pause or Stop. Maelstrom Switch8 is not action immediately until finish collection.



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



Completion : Buzzer rings up after a protocol finished.

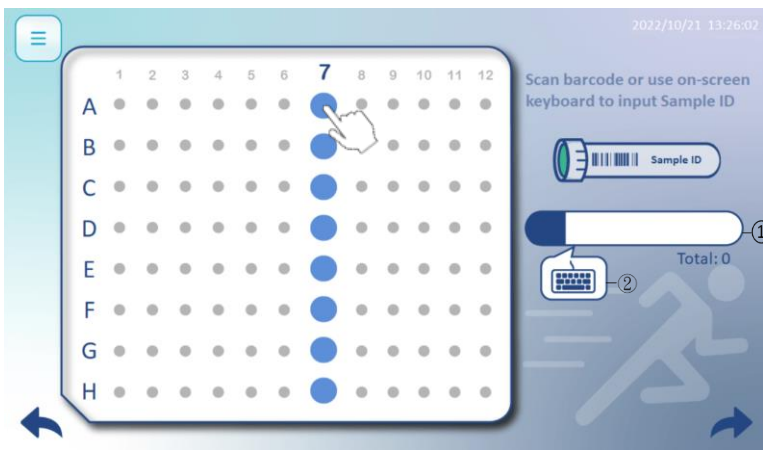


Pause : Pause a protocol

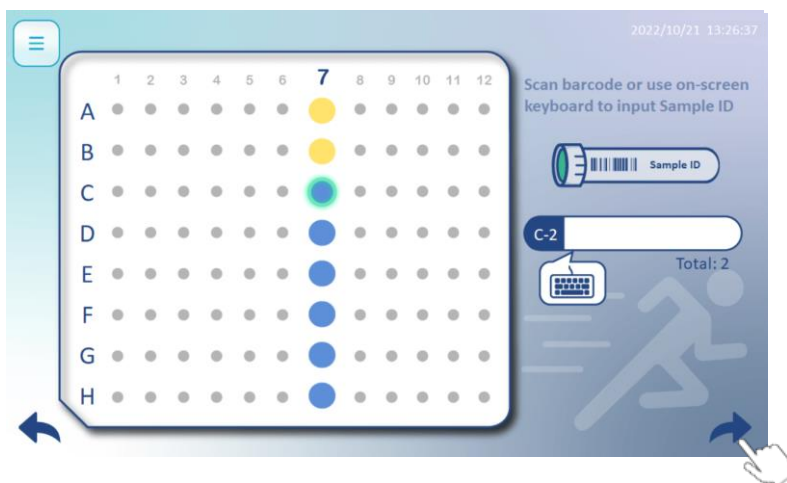


Well 1 to 12, number of well and name of buffer varies from kits to kits.

5. Software Applications(8 tips Right)

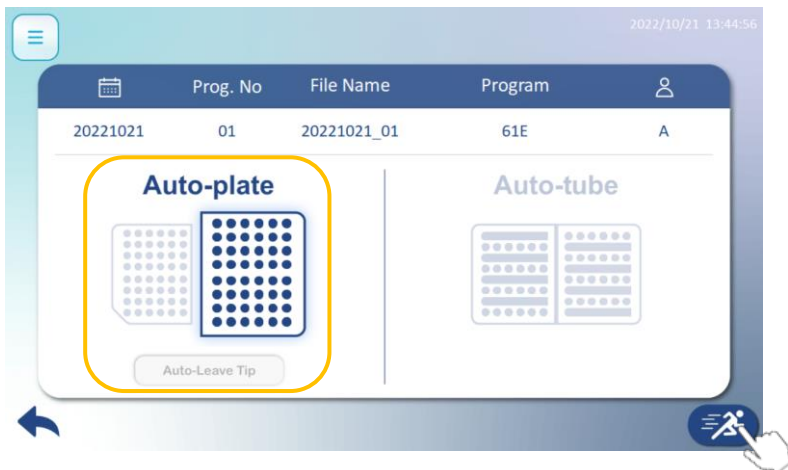


Press a circle(A7~H7) to input sample ID by using 1-D barcode
 ①barcode or ②manual type in.



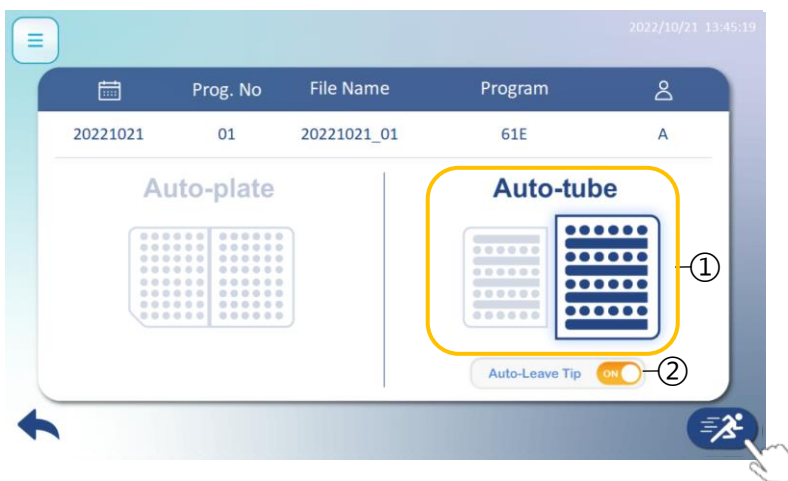
A circle turns yellow when inputs sample ID successfully. Then it moves to next sample ID automatically. E.g. A7→B7, B7→C7 etc. Press arrow to proceed next page.

5. Software Applications(8 tips Right)



Choose Auto-Plate, Tip(s) is auto-leave after finishing a run.

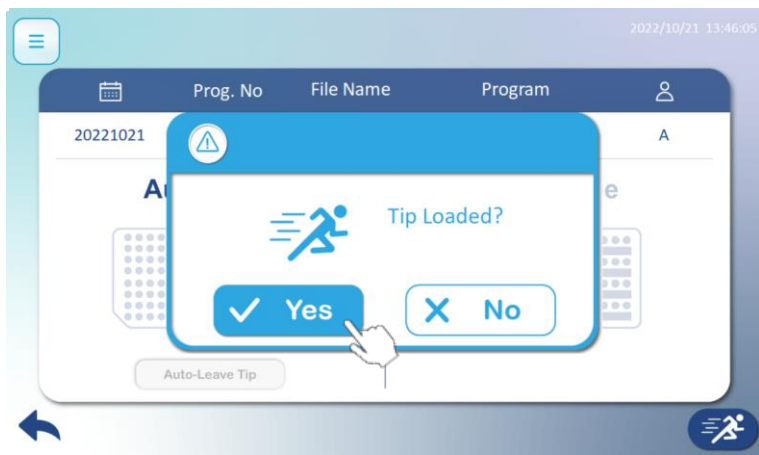
Please check above information is correct such as Date, Program No., File Name etc. Press run icon to execute the program.



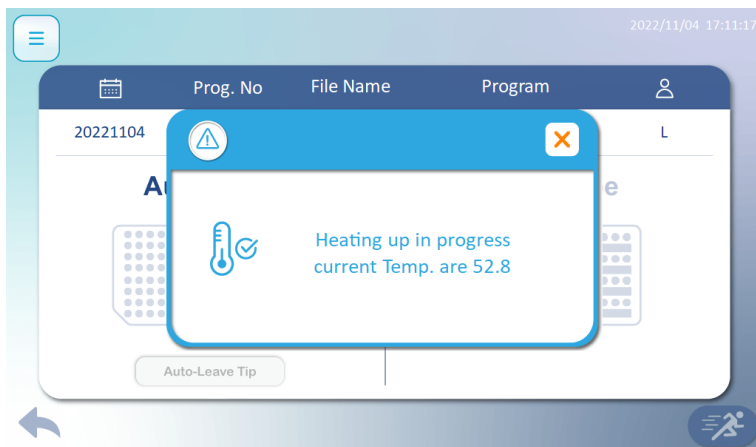
- ① Choose Auto-Tube
- ② Tip(s) auto-leave can be turned on/off.

Please check above information is correct such as Date, Program No., File Name etc. Press run icon to execute the program.

5. Software Applications(8 tips Right)



Please check Tip(s) is/are loaded. Press Yes to begin the program.



Program will be executed until temperature reaches setting value.

5. Software Applications(8 tips Right)



Realize following symbols is highly recommended. It helps you acknowledge protocol status.



Pause : Pause a protocol that is in progress



Resume : Continue a pause protocol



Stop : Stop a protocol that is in progress

5. Software Applications(8 tips Right)



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



Completion : Buzzer rings up after a protocol finished.



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

5. Software Applications(8 tips Right)



Reports : Manage history data.

2022/10/12 16:19:12

☐		File Name	Kit Lot.		Error	
☒	20220714	20220714_01		L	00000000	1/25
☒	20220706	20220706_01		L	00000000	
☐	20220706	20220706_02		L	00000000	
☐	20220705	20220705_01		L	00000000	

Delete

Page
1/2
100 records per page switch

Export to USB

Please press the square(s) to delete data or export data to USB.

5. Software Applications(8 tips Right)



UV lamp : Switch the UV lamp on/off.



Set UV light, then press bulb to start.



Please close the door before turn on the UV light, running time is recommended over 30 minutes.

5. Software Applications(8+ tips)

homescreen



homescreen on the Maelstrom Switch 8 is used for following functions.

- ① Change User
- ② Current Temperature



Tip : Pick-up and leave tip(s).



Run : Run a protocol.



Reports : Manage history data.

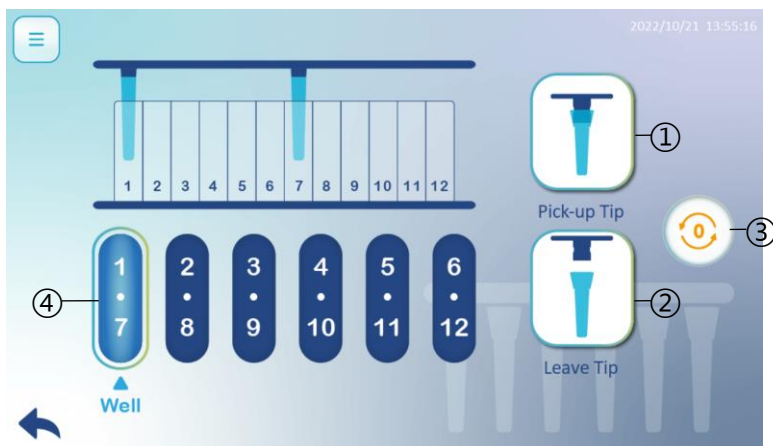


UV lamp : Switch the UV lamp on/off.

5. Software Applications(8+ tips)



Pick-up and leave tip(s)



Caution: Before a run,

- ① Pick-up Tip : Press the icon to pick up tips.
- ② Leave Tip : Press the icon to leave tips.
- ③ Origin: Press the icon to initialize instrument.
- ④ Well : Press the icon 1~6, Pick-up or Leave tips in different positions.

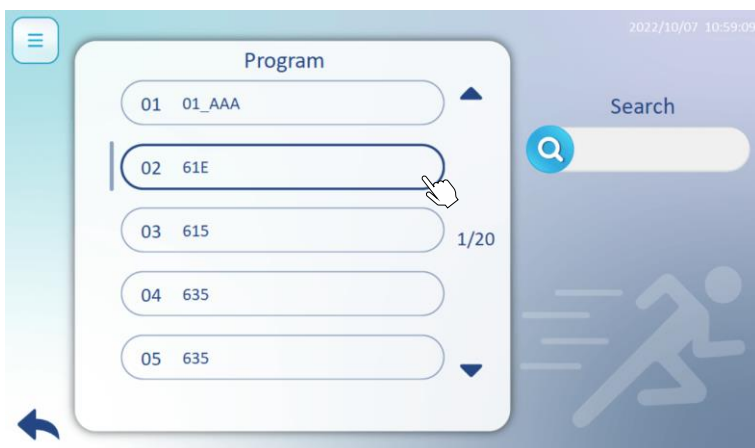


Please use a consumable part that is compatible with gearbox.

5. Software Applications(8+ tips)



Run a protocol



Switch 8 has an impressively large store of 100 programs. Choose a program which is preinstalled and in line with reagent kit. Type in key words in search box to look for a program sooner.

5. Software Applications(8+ tips)

2022/10/07 11:28:49

Program 61E

Kit Lot.

Tip Lot.

Navigation arrows: back (left) and forward (right, with a hand icon pointing to it).

Type in Kit lot and Tip lot numbers for further tracking. Press arrow to proceed next page.

2022/10/21 13:56:36

Scan barcode or use on-screen keyboard to input Sample ID

	1	2	3	4	5	6	7	8	9	10	11	12
A	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
B	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
C	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
D	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
E	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
F	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
G	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
H	☒	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐

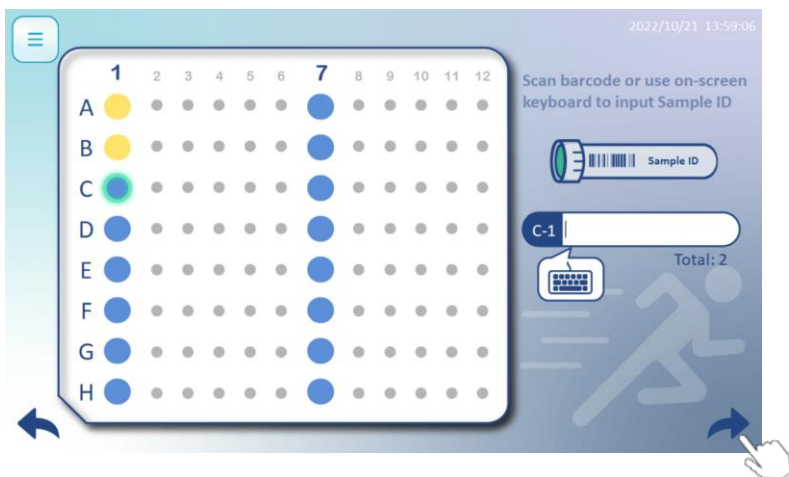
Sample ID

Total: 0

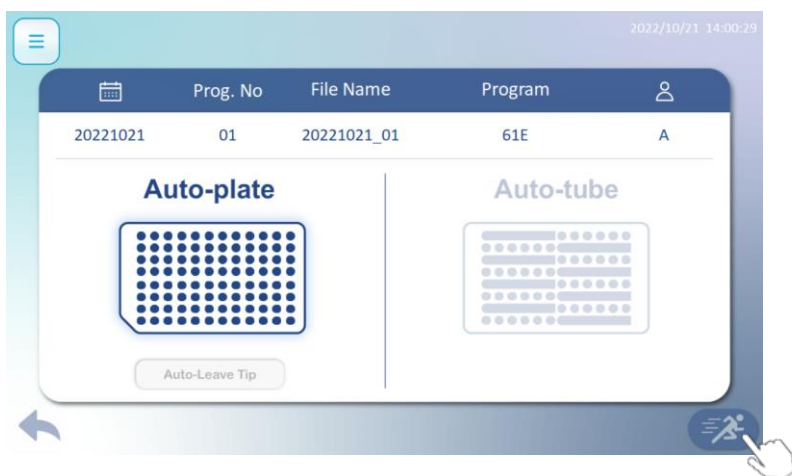
Navigation arrows: back (left) and forward (right).

Press a circle(A7~H7) to input sample ID by using 1-D barcode
①barcode or ②manual type in.

5. Software Applications(8+ tips)

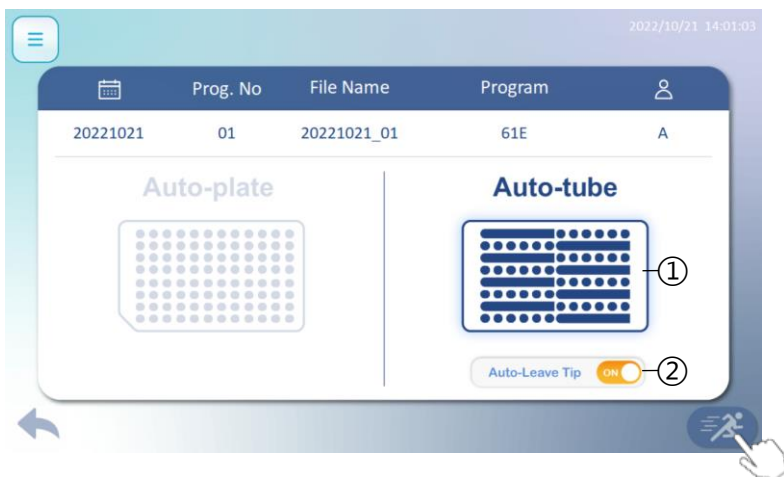


A circle turns yellow when inputs sample ID successfully. Then it moves to next sample ID automatically. E.g. A1→B1, B1→C1 etc. Press arrow to proceed next page.



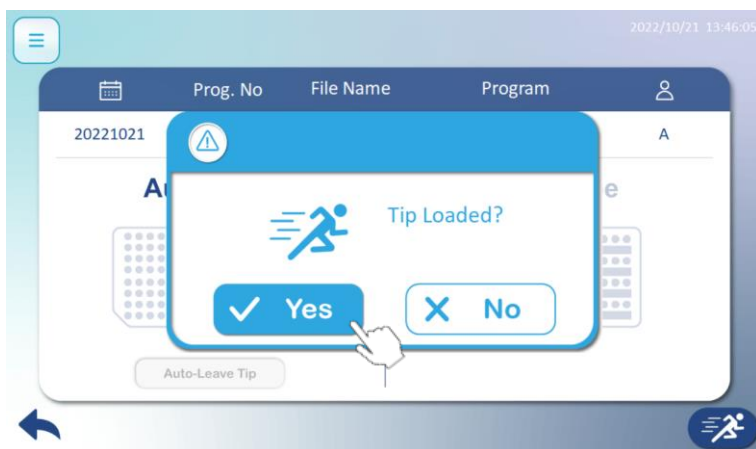
Choose Auto-Plate, Tip(s) is auto-leave after finishing a run. Please check above information is correct such as Date, Program No., File Name etc. Press run icon to execute the program.

5. Software Applications(8+ tips)



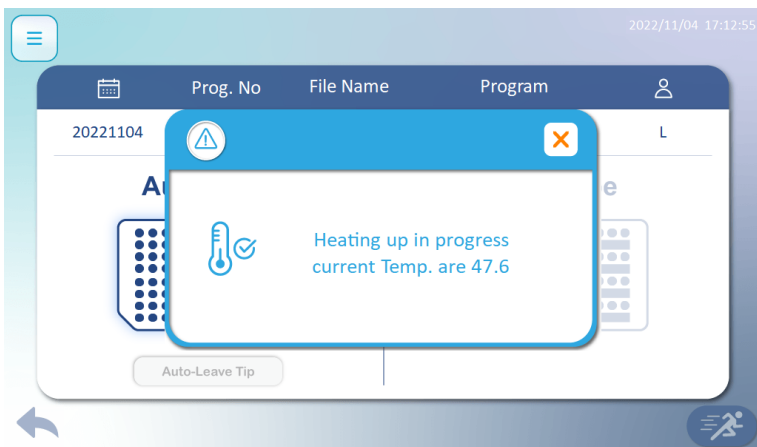
- ① Choose Auto-Tube
- ② Tip(s) auto-leave can be turned on/off.

Please check above information is correct such as Date, Program No., File Name etc. Press run icon to execute the program.



Please check Tip(s) is/are loaded. Press Yes to begin the program.

5. Software Applications(8+ tips)



Program will be executed until temperature reaches setting value.



Realize following symbols is highly recommended. It helps you acknowledge protocol status.

- ① Current Step
- ② Start Time, Estimated Time, Pause Time
- ③ PV refers to the actual temperature. SV is really the set value.

5. Software Applications(8+ tips)



Pause : Pause a protocol that is in progress



Resume : Continue a pause protocol



Stop : Stop a protocol that is in progress

5. Software Applications(8+ tips)



Mix :This step is to mix beads and reagents



Collection : This step is used for collecting the magnetic beads from the wells of the plate, press Pause or Stop. Maelstrom Switch8 is not action immediately until finish collection.



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



Completion : Buzzer rings up after a protocol finished.



Pause : Pause a protocol



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

5. Software Applications(8+ tips)



Reports : Manage history data.

 2022/10/12 16:19:12

☐		File Name	Kit Lot.		Error	
☒	20220714	20220714_01		L	00000000	1/25
☒	20220706	20220706_01		L	00000000	
☐	20220706	20220706_02		L	00000000	
☐	20220705	20220705_01		L	00000000	



Delete

Page
1/2
100 records per page switch

Export to USB

Please press the square(s) to delete data or export data to USB.

5. Software Applications(8+ tips)



UV lamp : Switch the UV lamp on/off.



Set UV light, then press bulb to start.



Please close the door before turn on the UV light, running time is recommended over 30 minutes.

6. Technical Support

In case of any questions, please try to contact our authorized distributor nearest to you. 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 magnetic rods cannot be cleaned, please contact TANBead (Tel: +886-3-3167568) for technical assistance.

8. Disposal

The decision whether or not 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.
- **Manufacturer Address** : 6F, No. 188, Wenhe Rd. Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
- **Manufacturer Tel** : +886-3-3167568

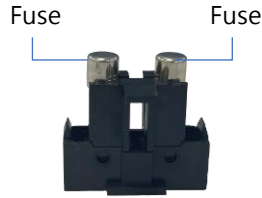
EC	REP
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- **Contact details** : mdi Europa GmbH
- **Address** : Langenhagener Street 71, D-30855 Langenhagen, Germany
- **Telephone** : +49-511-3908-9530

11. Appendix

Specification of Fuse:

- UL recognized component
- F5A L 250V
- 5.2Φ x 20mm



Precautions

The following safety precautions will prevent injury to personnel and damage to equipment. There are the MINIMUM safety precautions for replacing fuse(s).

1. Turn the power off and discharge the circuit before removing a blown fuse.
2. Use a fuse puller (an insulated tool) when you remove a fuse from a clip-type fuseholder.
3. Please always replace the faulty fuse(s) with one equal in size, amperage, rating and type.
4. Turn the main power switch back on and see if electricity is restored.

12. Previous Generation

ENGLISH



ITEM	SPECIFICATION
Model Name	Magnetic rotary mixer
Weight	600 g
Dimensions	112(W)x327(H)x63(D)mm
Power	5 Vac, 2 A
Battery	3.7 Vac , 2850mAh
Throughput	8 samples per run
Pro. volume	50 μ l ~ 1,500 μ l
Spin Speed	up to 3000 rpm
Magnetic rod	>3000 gauss
Display	2.4" LCD, 240 x 320 pixels



ITEM	SPECIFICATION
Model	Autostage
Weight	9.6 kg
Dimensions	357(W)x285(H)x190(D)mm
Power	19 Vac, 120 W
Heater	1 heating block