Taiwan
Advanced
Nanotech

TANBead Nucleic Acid Extractor (Non-Sterile)

039.M0501.X21 Rev V1.4_2020.07.10

Maelstrom 4800

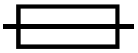
User Manual

Table of Contents

About this manual

ENGLISH

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

REF	Catalog number
SN	Serial number
	Specification of fuse
	Manufacturer
	The date of manufacture
CE	This product fulfills the requirements of the European Directive
IVD	In Vitro Diagnostic Medical Device
	Consult Instructions for Use
EC REP	Authorized Representative in the European Community
	Caution, consult accompanying documents
	Hot surface, contact with skin may cause burns
	Watch your fingers and your hands

1. Introduction

Maelstrom 4800 is an automated nucleic acid extraction platform designed for mid-to-high throughput application. Specialized spin tips bring in high efficiency in mixing magnetic beads and proceeding larger volume. Operating the instrument is straightforward and effortless, it is a walk-away solution greatly boosting lab productivity. **This medical device should be used by specialized people.**

Operation Principle

This instrument utilizes magnetic rod to collect and transfer magnetic beads from well to well and evenly mix the solution thru spin tips. In the course of mixing process, nucleic acid can be adsorbed by magnetic beads, and purified DNA & RNA can be obtained after lysis, wash, and elution process.

Intended Use

This instrument is a robotic system mainly purifying and isolating nucleic acid (DNA & RNA. It is highly advised to be used in combination with TANBead Nucleic Acid Extraction Kits for optimal performance.

Environmental Requirements

To avoid shortening the lifespan of the instrument, please use it in a location that meets the following criteria.

- In-door use with temperature in between 10 - 32C
- Do not use this instrument in a location where there is large temperature variation or/and high humidity.
- Place the instrument on a table that can bear the weight of at least 45kg
- Do not use this instrument in a location higher than 2000m sea level altitude

1. Introduction

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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 normal condition, sound pressure level from Maelstrom 4800 does not exceed 80 dB and does not cause a hazard. Please contact technical support in case of 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 in this device.

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

- This device must be user with compatible spin tips. Using incompatible spin tips may cause poor extraction performance.

- Read this user manual in its entirety 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 personnel and poor performance.

1. Introduction

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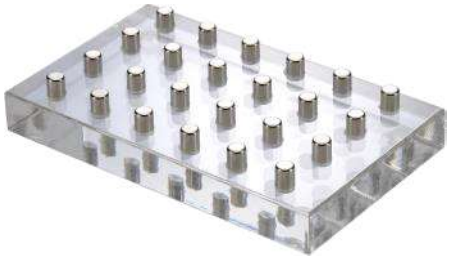
Please note that following accessories accompanying with instrument may vary from region to region.

Power cord x1

Spin Tips Combo Pack x 1



Magnet Base x 1

User manual x1

Remark :
1) Power cord varies from region to region

2. Instrument Appearance

- Main Specification

ITEM	SPECIFICATION
Model Name	Maelstrom 4800
Net Weight	Approx. 45 kg
Instrument Dimension	W 585 x H 478 x L 430 mm
Power Requirement	AC100-AC240 V, 50/60 Hz, 3.8 A~7.5 A Max.
Max. Processing Capacity	48 samples/run
Processing Volume	50~1600 µl
Spin Speed	500~3000 rpm
Heating System	12 x heating blocks
Magnet	>3000 gauss
Display	7" PCAP Type Touch LCD (1280x800)

2. Instrument Appearance

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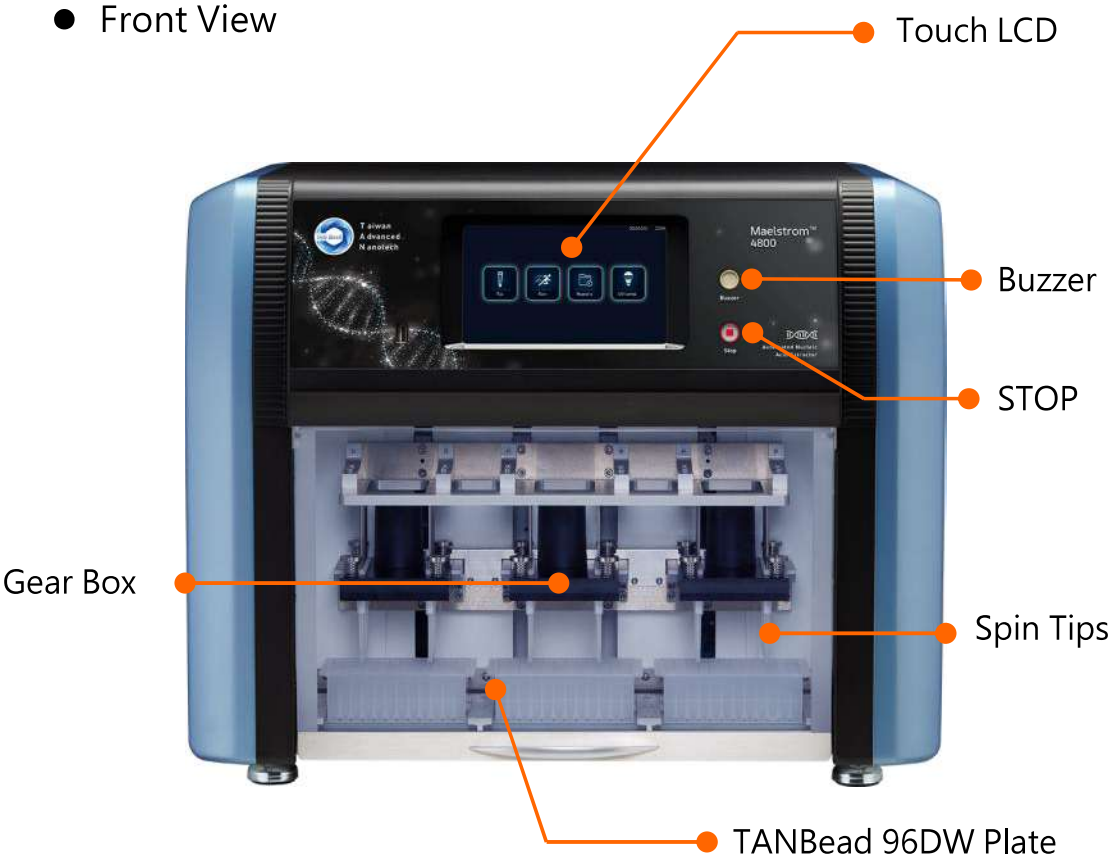
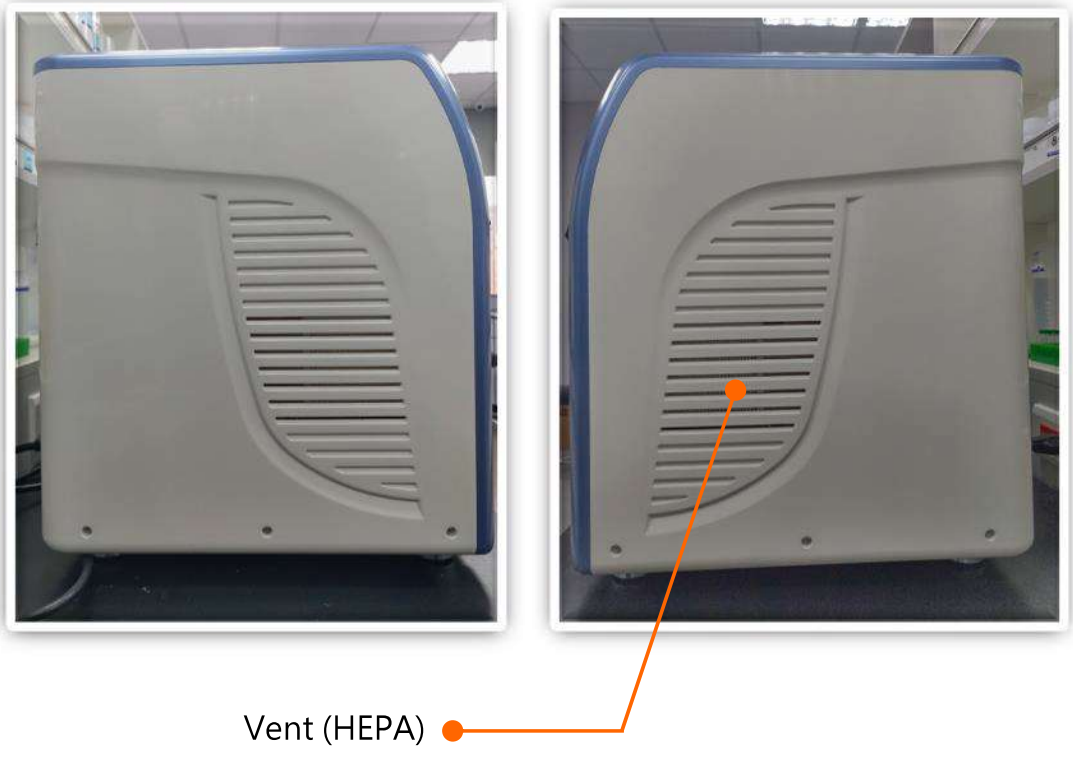
- Front View



- Side View



2. Instrument Appearance

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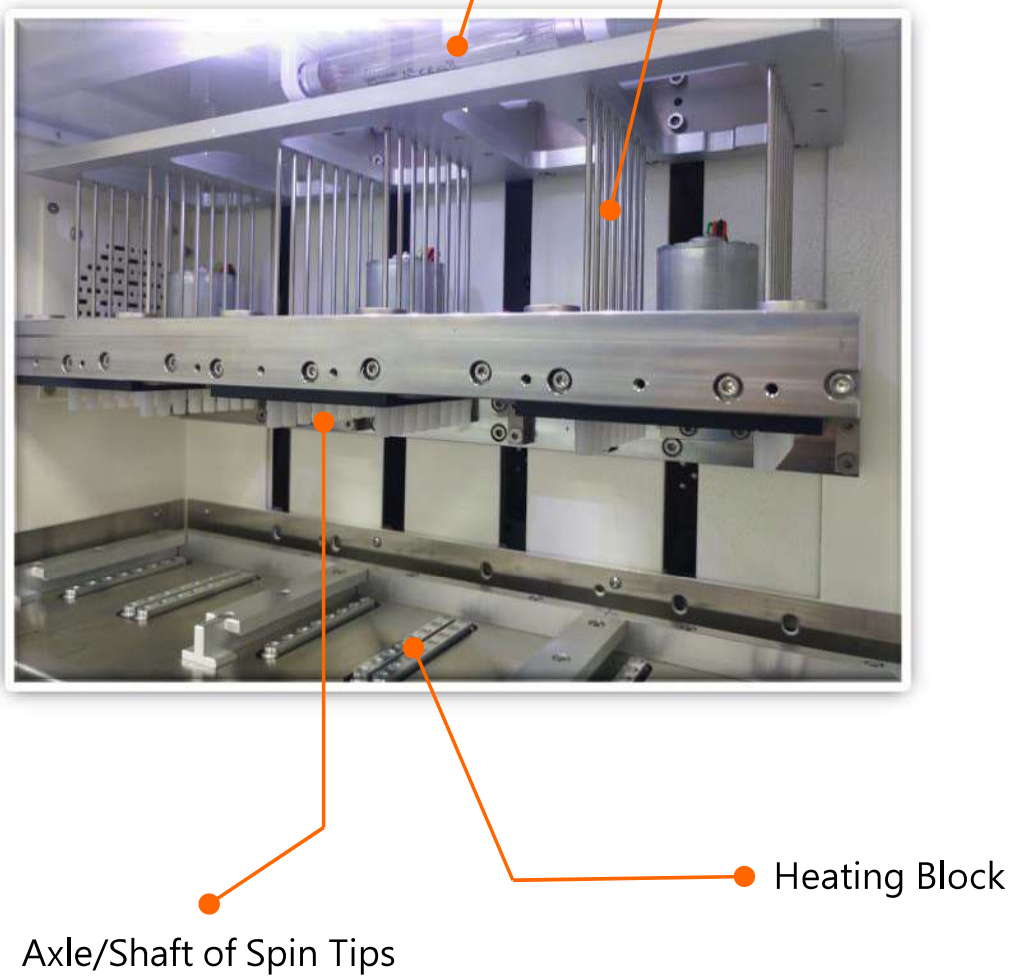
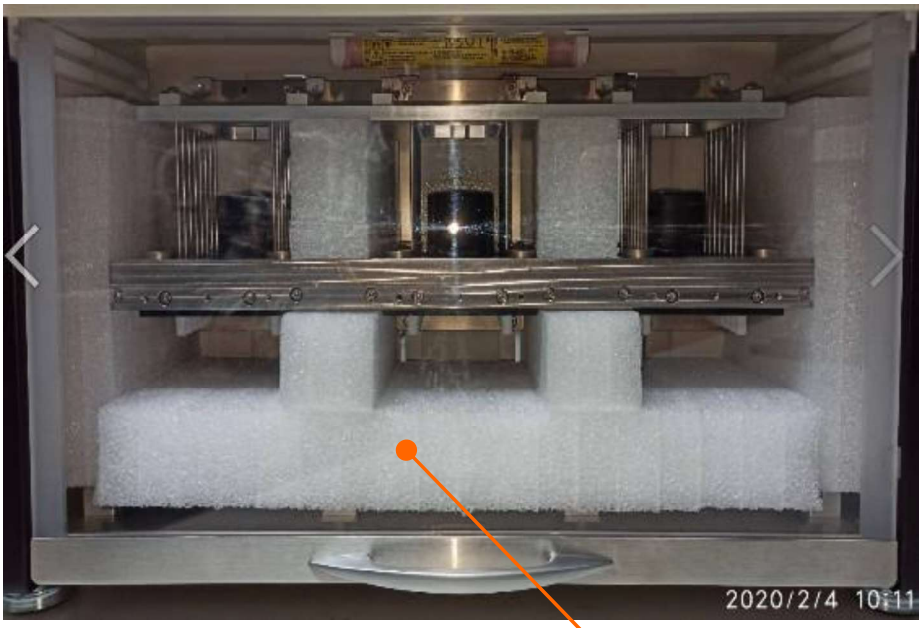
- Interior



3. Installation

Installing this instrument is effortless, please refer to the guide to correctly set up your instrument.



▲ After taking out the instrument from the box, you must remove the cushion before connecting to the power. This instrument weights more than 40kg, it is highly recommended to have 2 persons to operate the transportation and pay attention to safety.

- ☐ Step 1: Take out the instrument from the box (2 persons to operate are recommended)
- ☐ Step 2: Remove the cushion inside the instrument
- ☐ Step 3: Connect to the power
- ☐ Step 4: Power on and wait for 40-45 seconds for instrument ready

4. On Screen Display & How to Use

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After turning on for few seconds, the booting page will be shown as below.

▲ It takes around 30-40 seconds for the instrument ready to go.

▲ You will be asked to key in user code* to assess the system. If you forget the user code, please contact the instrument supplier nearest to you for help.

※ Default user code is 333. If change of user code is required, please contact your local reseller or TAN Bead directly for further assistance.

4. On Screen Display & How to Use

- Main Page

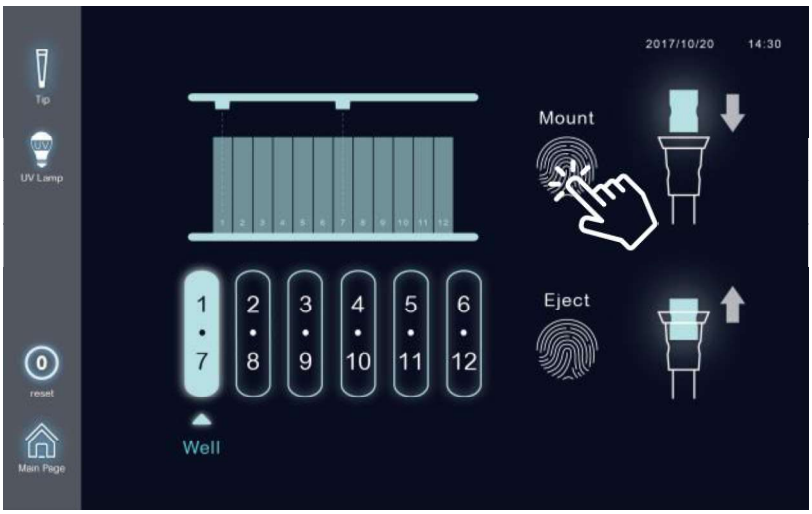
▲ On the main page, there are four functions that can be used.

- Tip: Mount and eject tips
- Run: Execute the extraction protocol
- Reports: Output extraction reports
- UV Lamp: Set up and control the ON / OFF of UV Lamp

4. On Screen Display & How to Use

ENGLISH

- Tip (Mount and eject the tips)



▲ Before running the protocol, there is a need to mount tips in advance. There are 3 extraction modules inside the instrument, left, middle, and right side, you can mount and eject tips thru the icons.

- ☐ Step 1: Place tip combo pack into the instrument
- ☐ Step 2: Press mount icon to execute

Please note that you need to run "Mount" three times to set up 48 tips. Please pay attention to the position where tips are placed so as to correctly choose the right well to mount tips.

4. On Screen Display & How to Use

- Run - Choose a program

◀ Once you finish mounting tips, you can press “Run” to enter the extraction program.

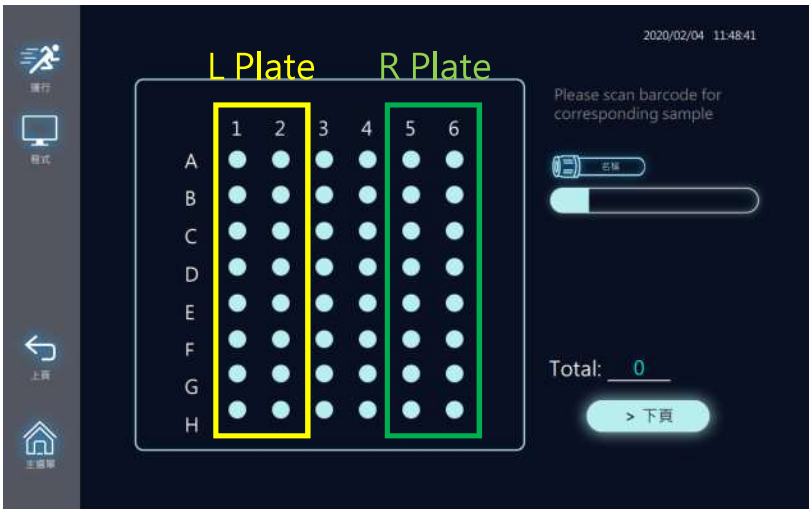
▲ This instrument is capable of storing 100 programs. Follow the guideline of reagent kits and correctly select the program, then double press to enter.

▲ Kit Lot & Tip Lot are not a must for executing the program but we highly advise you to have them for further tracking. Double press symbol of Run to proceed.

4. On Screen Display & How to Use

ENGLISH

- Run - Name the sample



▲ Fill in the name of sample

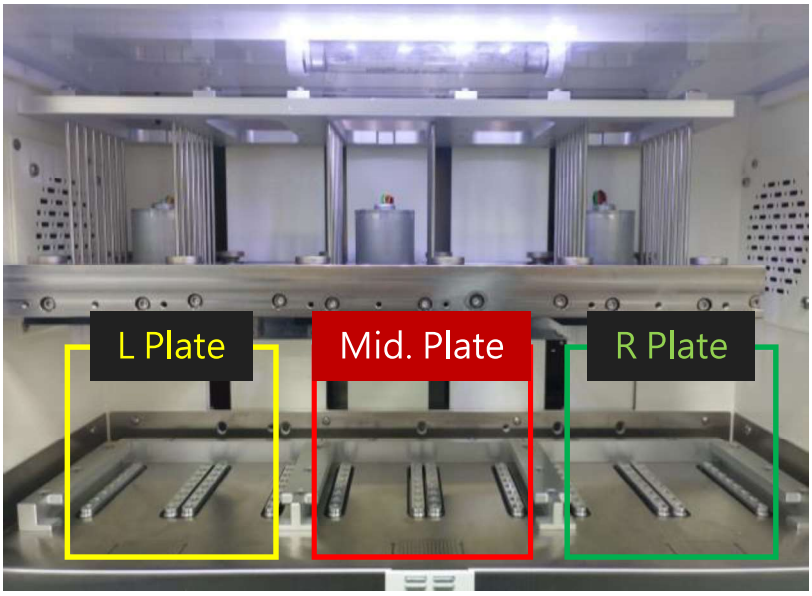
- Row 1& Row 2 stand for the Well 1 and Well 7 accordingly of left plate.

- Row 3 & Row 4 stand for the Well 1 and Well 7 accordingly of middle plate.

- Row 5 & Row 6 stand for the Well 1 and Well 7 accordingly of right plate.

- A to H are 8 samples in each row.

4. On Screen Display & How to Use

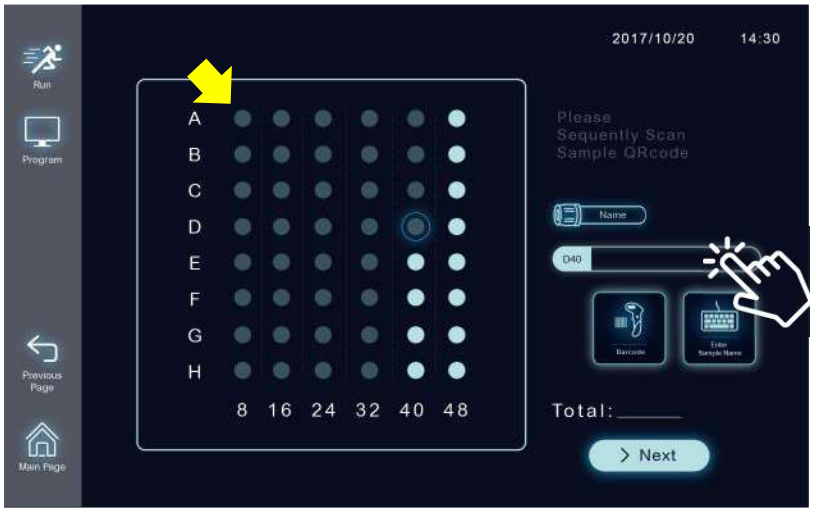


- A1~H1 are 8 samples on Well 1 position of left plate
- A2~H2 are 8 samples on Well 7 position of left plate
- A3~H3 are 8 samples on Well 1 position of middle plate
- A4~H4 are 8 samples on Well 7 position of middle plate
- A5~H5 are 8 samples on Well 1 position of right plate
- A6~H6 are 8 samples on Well 7 position of right plate

4. On Screen Display & How to Use

ENGLISH

- Run - Preheating



▲ Press the sample and key in the name on the right column via keyboard or you can just scan barcode label of blood tube to fill in.

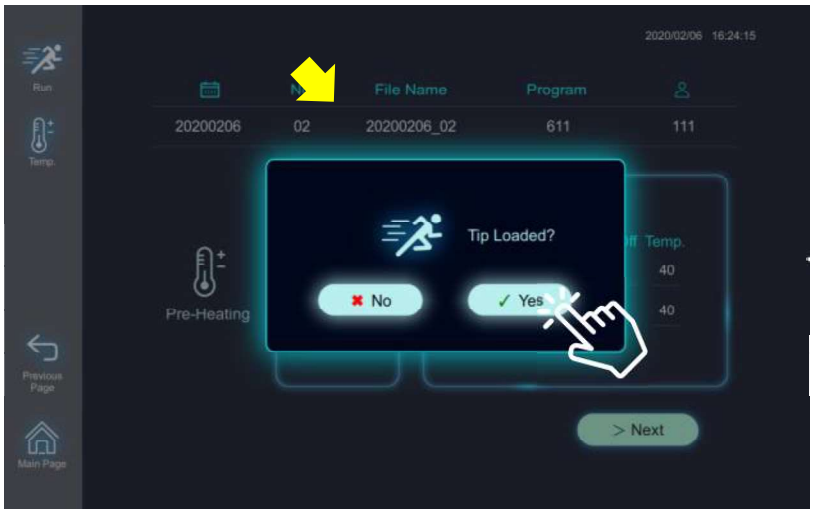
▲ Pre-heating: it means the heating block on Well1/7 and Well 6/12 will heat up to set temperature before running the program. You can press icon of "Manual" to change the parameter or turn off the pre-heating.

Please note that pre-heating temp is set on the program itself and manually switch off at this page is limited to the program to be executed.

4. On Screen Display & How to Use

ENGLISH

- Run - Execute



▲ Once pre-procedure has been completed, system will final check about spin tips. Click "Yes" to start.

▲ Extraction in progress (Mixing)

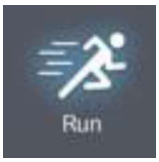
▲ Extraction in progress (Collect)

▲ It shows the current step in process and the name of solution filled in this well

4. On Screen Display & How to Use

ENGLISH

- Run - Icon



Program in running

Pause program

Switch ON/OFF
LED Light

Stop/Cancel the program

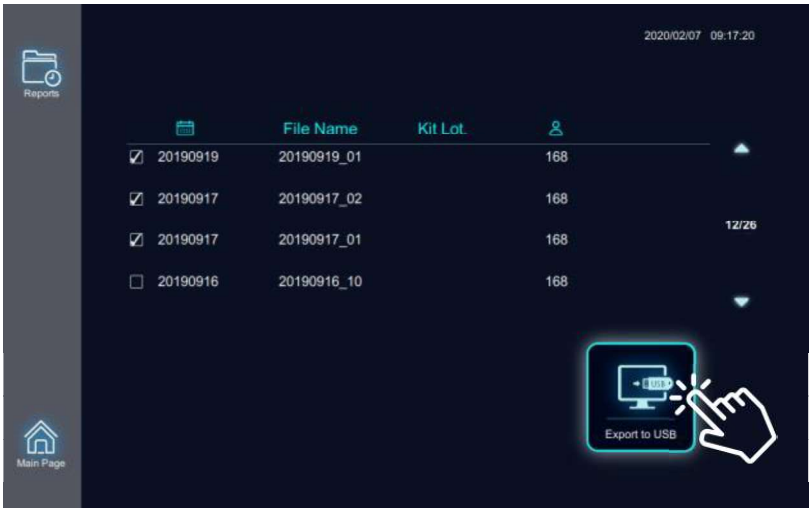
 is given manually during the course of running a program. If a Pause is assigned by the program (auto pause during extraction process), you need to press  to resume the extraction

▲ For a program pause, you need to press  to resume the extraction.

4. On Screen Display & How to Use

- Report

◀ On the main page, you can press “Reports“ to export all extraction records.



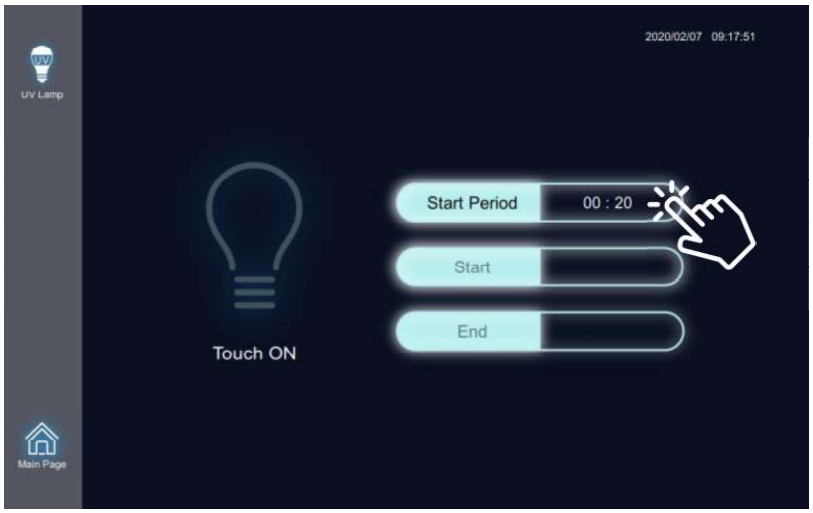
▲ Mark the records required to be export, then press  to proceed.

4. On Screen Display & How to Use

ENGLISH

- UV Lamp

◀ We strongly suggest you switching on UV lamp for sterilization after each process of extraction.



▲ To set up duration of UV light, please press “Start Period” and key in the value. Please note that the number you insert here is a minute base. For example, 00:20 stands for 20 mins and 01:30 stands for 1 hour and 30 mins.

▲ Once the duration is settled, press the lamp icon to switch on UV lamp.

5. Technical Support

Taiwan Advance Nanotech Inc. provide post-sales service and technical support. In case of any questions, please try to contact our authorized distributor nearest to you or our company for more help.

If there is a need to contact us, you can call our rep number at +886-3-3167568 or email us at service@tanbead.com for technical assistance.

To efficiently solve the problems and answer your questions, please provide us your instrument serial number when you talk to our technician personnel. Thanks for your cooperation.

6. Clean & Maintenance

ENGLISH

Please refer to the following instructions to keep your instrument in optimal condition.

- It is important to clean the instrument after every use. If samples or reagents have been spilled, you must clean the device immediately to prevent any damages or contamination on samples.

- Wearing gloves and appropriate personal protection is highly advised. If the instrument is used with biohazardous materials, disposal of material has to be made in accordance with your institutional guidelines.

- The instrument may operate as the magnetic rod is in unprotected condition. In this case, the magnetic rods need to be cleaned.

- To clean the magnetic rods, please wipe it with a soft cloth moistened with water. Do not use organic solvents.

- If the magnetic rods can not be cleaned, please contact our authorized distributor nearest to you or call us at +886-3-3167568 or email to service@tanbead.com for technical assistance.

7. Disposal

If there is a need to dispose the instrument, please pay attention to relevant local laws and regulations that may vary from region to region. If need, please contact your instrument supplier for more detail. If disposal of instrument is required, please must follow your institutional and country-specific requirement to deal with, including instrument accessories. The device must be decontaminated prior to disposal.

Spin tips and reagent plates or vessels that contact with specimen are potentially infectious. Please follow the infectious waste treatment protocols.

Disposal of UV lamp, LED lamp, battery, and NdFeB magnet in the instrument has to follow local legal regulations.

ENGLISH

8. Patent

Here comes patents about our instrument that owned by Taiwan Advanced Nanotech Inc.

Patent	
North America	US09616398B2
Europe	EP2937136
Canada	CA2862946
Japan	JP6151735B2
Korea	10-1696517
China	CN104971638B
Taiwan	TWI526245B
WIPO	WO2016127292

9. Manufacturer

- Manufacturer：Taiwan Advanced Nanotech Inc.
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- Manufacturer Tel：+886-3-3607555

EC REP

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