

GENFINE Purifier HT

User Manual

Rev. 1.0

About This User Manual

Intended users

This user manual is written for the actual end user, for example, research scientist or laboratory technician, and provides information on the Genfine™ Purifier™ 96 magnetic particle processor, including the installation and operating instructions.

How to use this user manual

This user manual is for the Purifier HT instrument (Cat. no. P961001).

It aims to give you the information you need for:

- Reviewing safety precautions
- Installing the Purifier HT
- Using the Purifier HT in routine jobs – the processing step
- Performing basic cleaning and maintenance procedures
- Troubleshooting the instrument performance

This user manual also describes all the features and specifications of the Purifier HT instrument as well as ordering information.

Note that simulated data appears in the screen captures.

Read the manual in its entirety before operating the instrument.

Keep the user manual for future reference. The user manual is an important part of the instrument and should be readily available during use of the instrument.

For more information

For the latest information on products and services, visit our websites at:

<http://www.genfine.com>

In our efforts to provide useful and appropriate documentation, we would appreciate any comments you may have on this user manual to your local Genfine representative.

Safety symbols and markings

These symbols are intended to draw your attention to particularly important information and alert you to the presence of hazards as indicated.

Safety symbols and markings used on the KingFisher Duo

The following symbols and markings appear on the type label and the instrument itself.

	Power ON ▲
	Power OFF ▲
	Warning Hot surface, risk of burns. ▲
	Warning Risk of body parts, hair, jewelry or clothing getting caught in a moving part. ▲
	Serial number ▲
	Catalog number ▲
	Date of manufacture ▲
	Consult instructions for use ▲
	WEEE symbol This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EC. ▲

Warning and other markings used in the documentation

The following symbols and markings appear in this user manual.



Warning Risk of electric shock. ▲



Warning Biohazard risk. ▲



Warning Risk of injury to the user(s). ▲



Caution Risk of damage to the instrument, other equipment or loss of performance or function in a specific application. ▲



Note Marks a hint, important information that is useful in the optimum operation of the system, or an item of interest. ▲

Instrument safety and guidelines for use

- Always follow basic safety precautions when using the Purifier HT to reduce the risk of injury, biohazardous contamination, fire, or electric shock.
- Read this user manual in its entirety prior to operating the instrument. Failure to read, understand, and follow the instructions in the manual may result in damage to the instrument, injury to laboratory and operating personnel or poor instrument performance.
- Observe all “Warning”, “Caution”, and “Note” statements as well as safety symbols and markings on the instrument and in the documentation.
- The device shall be operated only with software specifically designed for the device.
- Never open any other covers of the Purifier HT than the front door (Figure 2–2) while the instrument is plugged into a power source.
- Never force a microplate onto the instrument.
- The Purifier HT is intended for laboratory research use only. Observe proper laboratory safety precautions, such as wearing protective clothing and following approved laboratory safety procedures.
- Preventative maintenance instructions should be followed closely to keep the instrument in the best condition for maximum reliability. A poorly maintained instrument will not give the best results.



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 damaged if it comes in close contact with a strong magnetic field. ▲

Contents

	Intended users	2
	How to use this user manual	2
	For more information	2
	Safety symbols and markings.....	3
	Safety symbols and markings used on the Purifier HT.....	3
	Warning and other markings used in the documentation	4
	Instrument safety and guidelines for use.....	5
Chapter 1	Introduction to the Purifier HT.....	8
	Intended use.....	8
	Principle of operation.....	8
Chapter 2	Functional Description	9
	Instrument layout.....	9
	Front view.....	9
	Back / internal view.....	10
	Purifier HT magnetic particle processor.....	10
	Principle of magnetic particle processing	11
	Working with a magnetic rod.....	12
	Collecting magnetic particles.....	12
	Releasing magnetic particles	12
	Washing magnetic particles and incubation.....	12
	Changing the volume during the magnetic particle processing	12
	USB port for PC	13
	Consumables.....	13
	NFC.....	13
Chapter 3	Installation	14
	What to do upon delivery	14
	Unpacking the instrument	14
	Checking delivery for completeness and damage	14
	Environmental requirements	15
	Precautions and limitations	15
	Installation setups.....	16
	Detaching the transport protected blocks.....	16
	Connecting the power supply cable.....	17
	Operational check.....	17

Chapter 4	Routine Operation	18
	Switching on	18
	Control panel.....	18
	Default.....	19
	Selecting the profile	19
	Run the profile.....	19
	Custom.....	20
	Sign up.....	21
	Log in.....	22
	Creat new program.....	22
	Detail of program.....	23
	Function details.....	24
	Setting.....	26
	Advance.....	27
	How to start.....	28
	Shutdown	29
	Emergency situations	29
Chapter 5	Maintenance	30
	Regular and preventive maintenance	30
	Cleaning the platform.....	30
	Cleaning the magnetic rods	31
	Disposal of materials	31
	Decontamination procedure.....	31
	Packing for service.....	33
	Service contracts.....	34
	Maintaining a system log.....	34
	Disposal of the instrument	34
Chapter 6	Technical Specifications	35
	General specifications.....	35
	Performance specifications	36
	Safety specifications.....	36
	In conformity with the requirements.....	36
Chapter 7	Ordering Information	38
	Purifier HT.....	38
	List of accessories and consumables	38
Appendix A	Certificate of Decontamination.....	40
Appendix B	System Log	41

Chapter 1

Introduction to the Purifier HT

Intended use

The Purifier HT magnetic particle processor (Figure 1–1) is intended for professional research use by trained personnel. The instrument is intended for automated transfer and processing of magnetic particles in a microplate format. Use for self-testing is excluded. It is recommended that Good Laboratory Practice (GLP) is followed to guarantee reliable analyses.

Refer to Chapter 6: “Technical Specifications”.

Principle of operation

The Purifier HT magnetic particle processor (Figure 1–1) is designed for automated transfer and processing of magnetic particles in microplate format.

The patented technology of the Purifier HT system is based on the use of magnetic rods covered with a disposable, specially designed tip comb and plates. The instrument functions without any dispensing or aspiration parts or devices.

Samples and reagents, including magnetic particles, are dispensed into the plates according to the corresponding instructions. The protocol that is selected by the user via touchscreen has already been transferred onto the onboard software. Genfine Purifier HT Software can be used to create and run protocols.



Figure 1–1. Purifier HT magnetic particle processor

Chapter 2

Functional Description

Instrument layout

This section shows the front, back and internal views of the Purifier HT instrument.

Front view

The front views of the Purifier HT instrument are shown in Figure 2-1 and Figure 2-2.

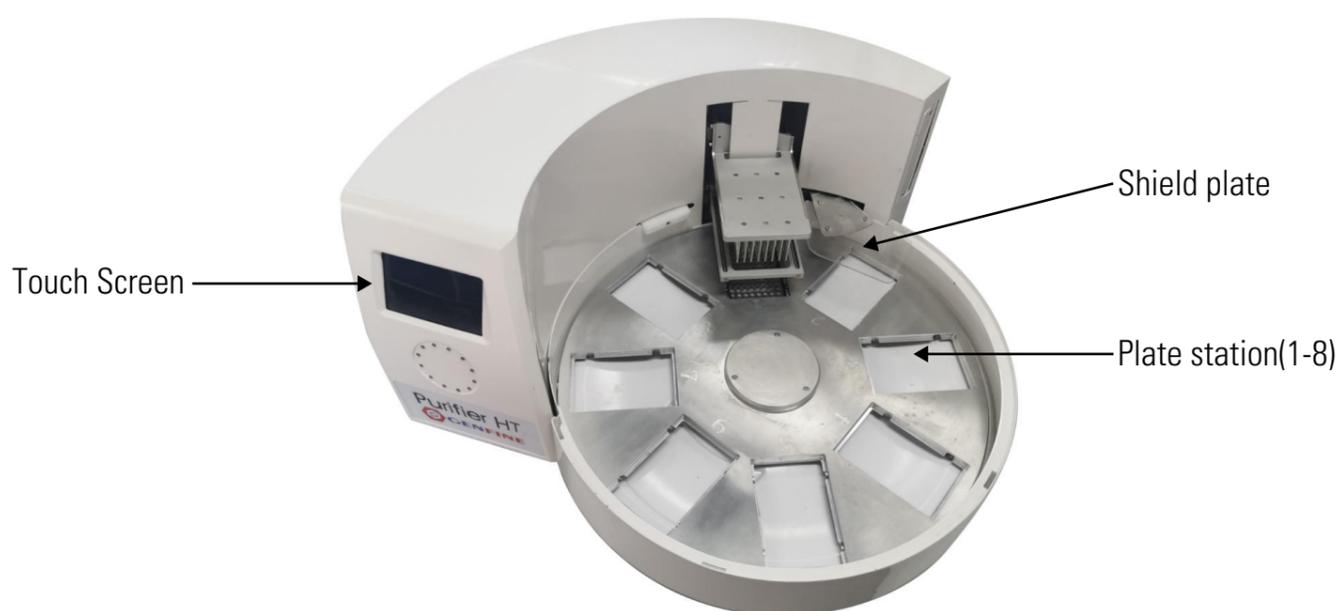


Figure 2-1. Purifier HT front view without see-through lid

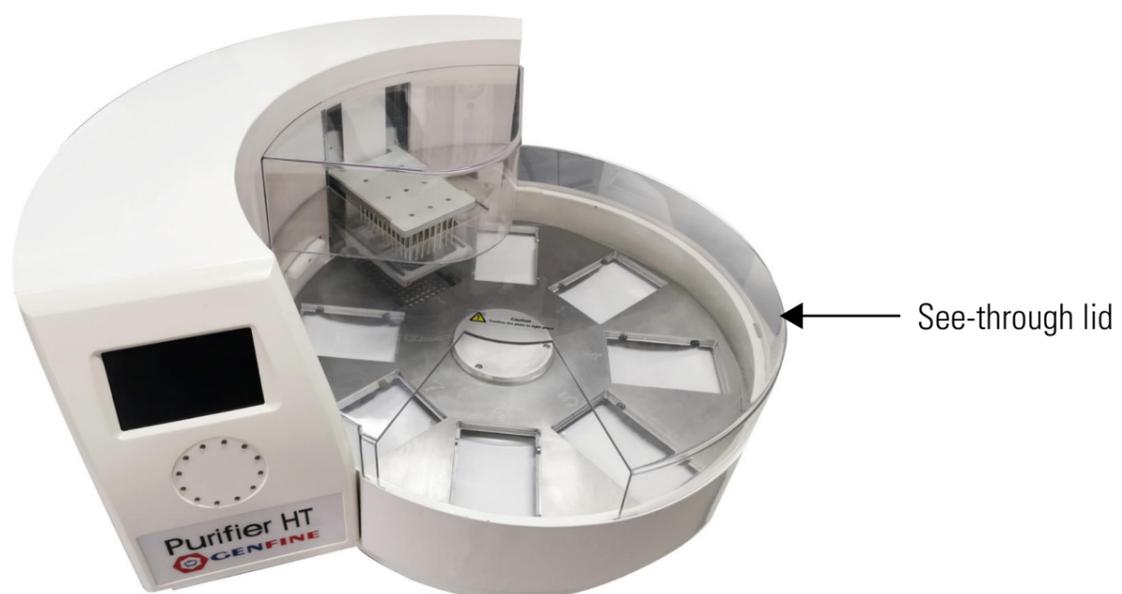


Figure 2-2. Purifier HT front view with plates and see-through lid

Back / internal view

The back view of the Purifier HT instrument is shown in Figure 2–3 and the internal view in Figure 2–4.

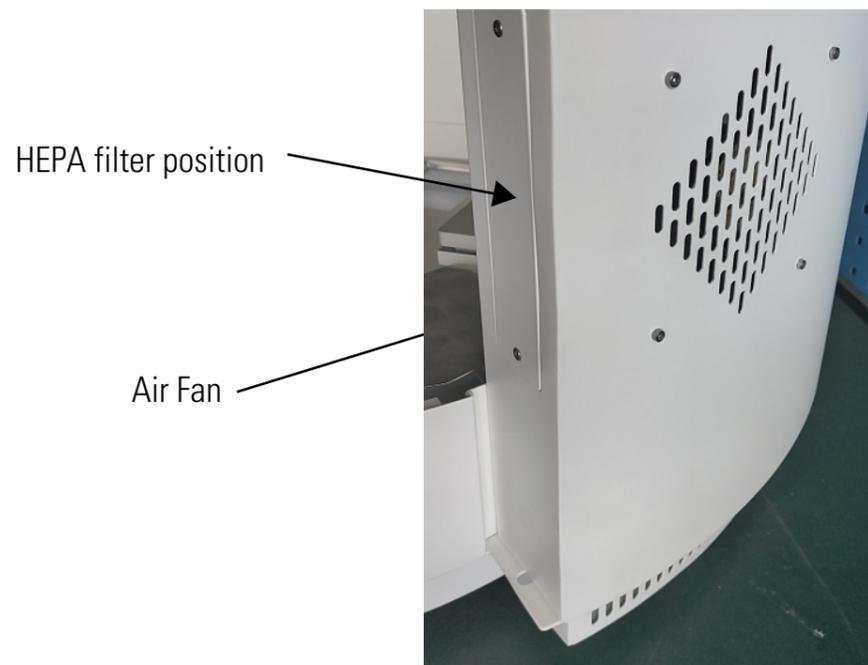


Figure 2–3. Purifier HT back view



Figure 2–4. Purifier HT side view

Purifier HT magnetic particle processor

The Purifier HT (Figure 2–5) has room for eight plates. The tip combs are compatible with the plates. During the individual steps, the plates are kept stationary, and the only moving assembly is the processing head with tip comb and magnetic rods. The head consists of two vertically moving platforms. One is needed for the magnetic rods (24 or 96 pieces) and the other one for the plastic tip comb.

Up to eight plates can be simultaneously on the turntable. However, during one sample processing, the protocol enables the use of more than eight plates in total. One tip comb contains 24 or 96 tips used for processing 24 or 96 samples at a time.

Before starting the magnetic particle processing via the touchscreen, the samples and reagents are dispensed into the plates and the tip comb is placed onto a KingFisher plate, from which it is automatically loaded. The plates are placed onto the turntable into the corresponding plate stations according to the protocol instructions.

During the operation, the front door must be closed. The operation will be paused, if the door is opened, (Figure 2–3). The closed door protects the processing against environmental contamination.

The operating principle employed is MPP (inverse magnetic particle processing) technology (Figure 2–6). Rather than moving the liquids, the magnetic particles are moved row wise on the strip(s) containing specific reagents, in contrast to the external magnet method. Magnetic particles are transferred with the aid of magnetic rods covered with a disposable, specially designed plastic tip comb.

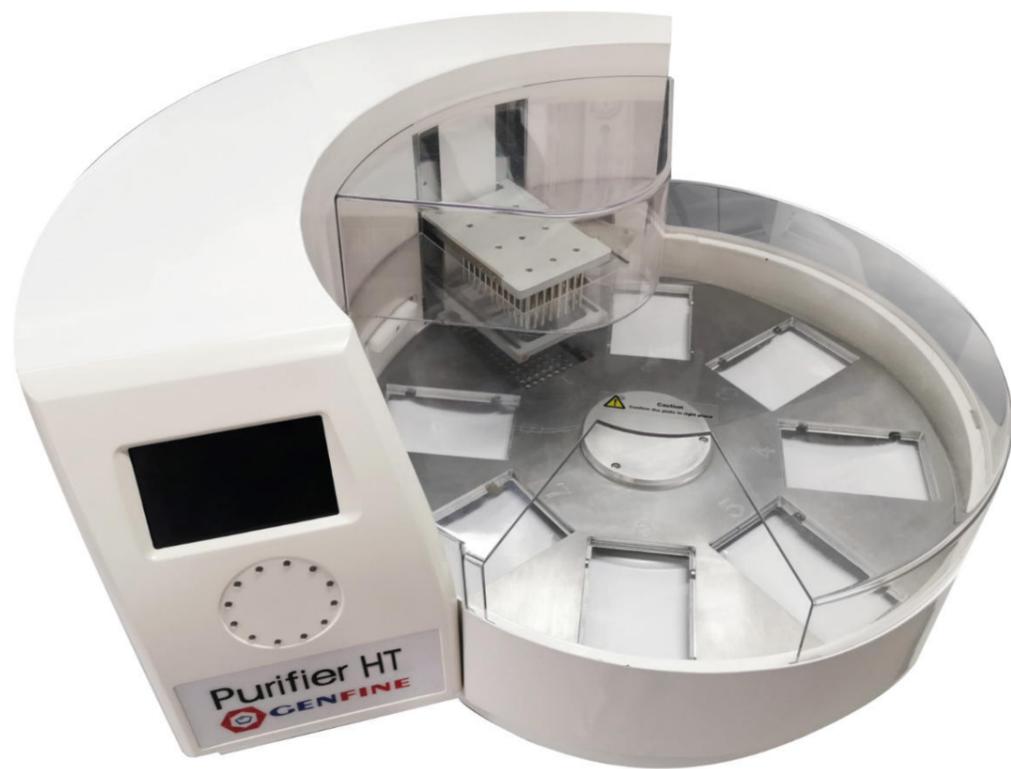


Figure 2–5. Purifier HT magnetic particle processor

Principle of magnetic particle processing

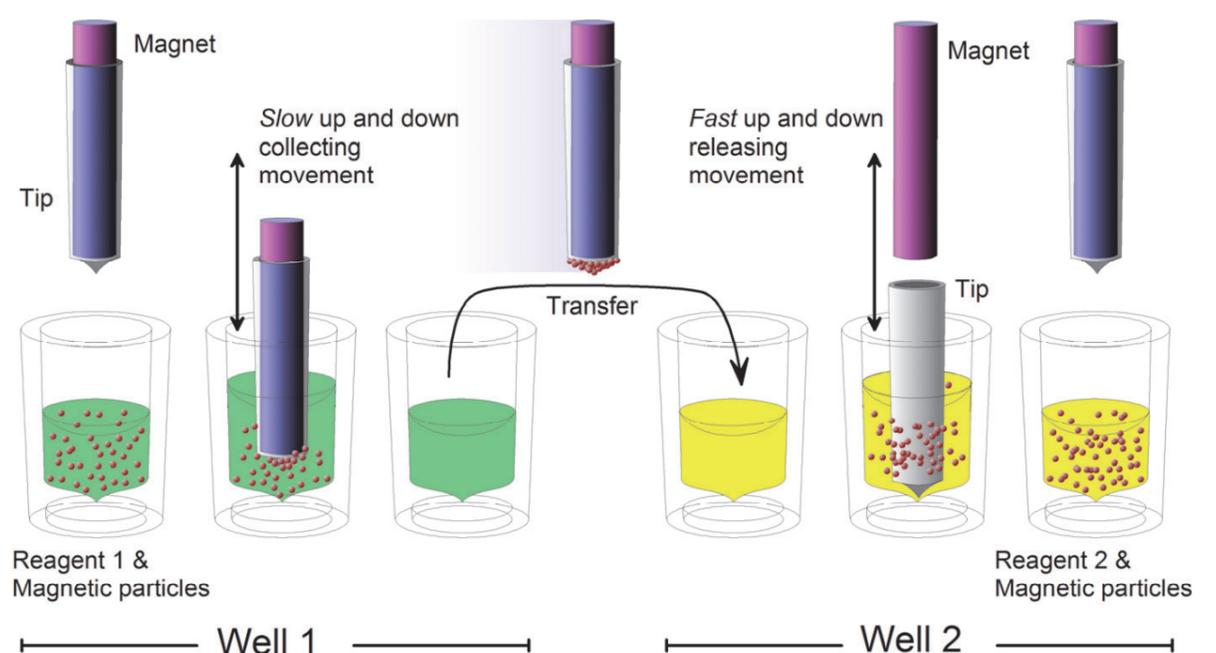


Figure 2–6. Inverse magnetic particle processing

Working with a magnetic rod

Working with magnetic particles can be divided into five separate processes:

- collecting magnetic particles
- releasing magnetic particles
- washing magnetic particles
- incubation
- concentration

Collecting magnetic particles

During the collection of the magnetic particles, the magnetic rod is fully inside the tip. The magnetic rods together with the tip comb move slowly up and down in the plate and the magnetic particles are collected onto the edge of the tips. The magnetic rods together with the tip comb, having collected the magnetic particles, can be lifted out of the wells and transferred into the next wells.

Releasing magnetic particles

After collection of the magnetic particles, the magnetic rods together with the tip comb are lifted from the wells and transferred into the next wells containing the reagent, the magnetic rods together with the tip comb are lowered into the wells and the magnetic rods are lifted off.

Magnetic particles are released by moving the tip comb up and down several times at considerably high speed until all the particles have been mixed with the substance in the next reaction.

Washing magnetic particles and incubation

Washing the magnetic particles is a frequent and an important processing phase. Washing is a combination of the release and collection processes in wells filled with washing solution.

To maximize washing efficiency, the magnetic rods together with the tip comb are designed to have minimized liquid-carrying properties.

To keep the magnetic particle suspension evenly mixed in incubating long-running reactions, the tip comb can be moved up and down in the solution.

Changing the volume during the magnetic particle processing

The volume of the first plate can be larger than the volume of the next plate, and this is used for concentration purposes (see Figure 2–7 below).

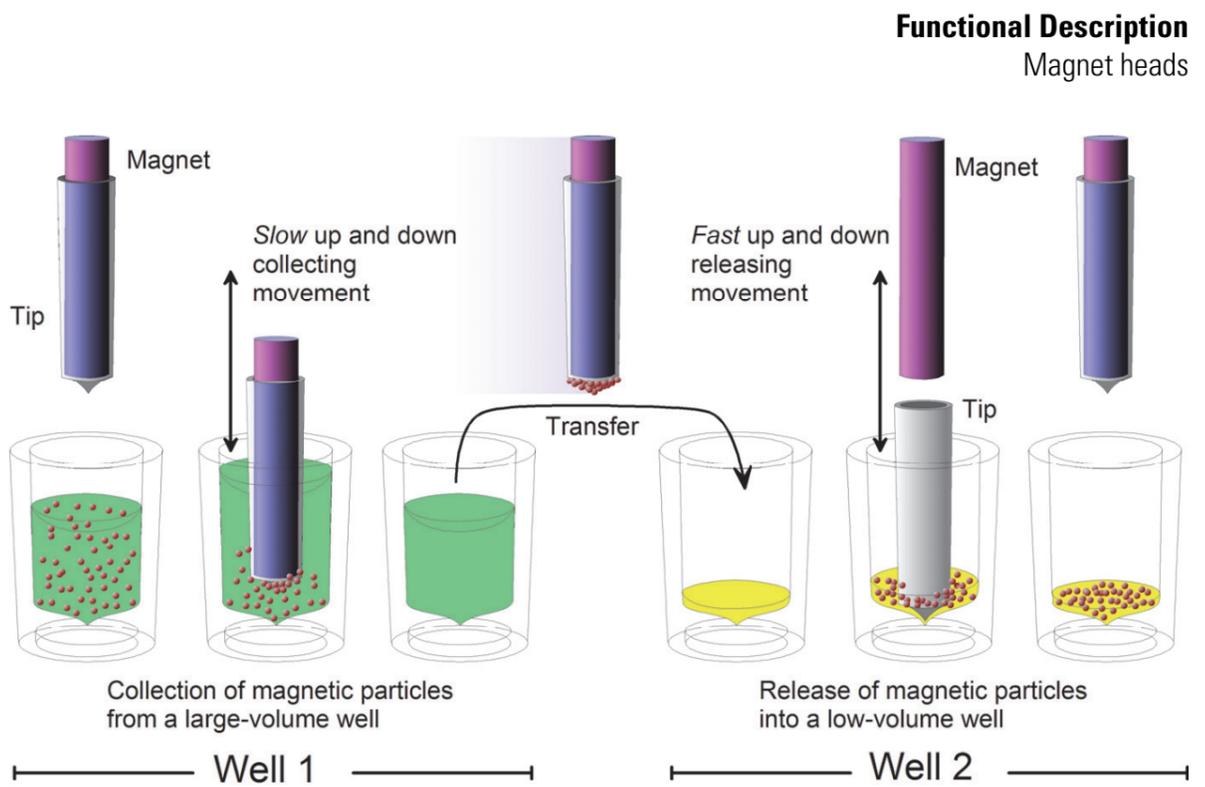


Figure 2–7. A concentration step during magnetic particle processing

USB port for PC

There is a USB port for PC located on the front panel (see Figure 2–4), which is used for update the software of touchscreen and mainboard.

Consumables

For more details and ordering information on plastic consumables, such as plates, tip combs, HEPA, etc. used with the Purifier HT instrument, refer to “List of accessories and consumables” on page 32.

NFC

Reagent company can develop kit products on the Purifier and optimize the experimental conditions to put the optimized workflow on the NFC chip. Users can scan the reagent company's chip, and automatically call out the corresponding program.

Chapter 3

Installation

This chapter describes the installation of the Purifier HT instrument.

What to do upon delivery

This section covers the relevant procedures to be carried out on receipt of the instrument.

Unpacking the instrument

Move the packed instrument to its site of operation. To prevent condensation, the instrument should be left in its protective, antistatic plastic wrapping until the ambient temperature has been reached. Unpack the Purifier HT instrument and accessories carefully with the arrows on the transport package pointing upwards. Remove the instrument from the package and place it on a level surface.

Caution Do not touch or loosen any screws or parts other than those specifically designated in the instructions. Doing so might cause misalignment and will void the instrument warranty. ▲

Warning The Purifier HT weighs approximately 25 kg [55 lbs.] without the transport package and should be lifted with care. It is recommended that two persons lift the instrument together, taking the proper precautions to avoid injury. ▲

To lift the instrument, put your fingers under the bottom on either sides and lift it with your back straight.

Retain the original packaging and packing material for future transportation. The packaging is designed to assure safe transport and minimize transit damage. Use of alternative packaging materials may invalidate the warranty. Also retain all instrument-related documentation provided by the manufacturer for future use.

Checking delivery for completeness and damage

Check the enclosed packing list against order. Visually inspect the transport package, the instrument and the accessories for any possible transport damage. If any parts are damaged, contact your local Genfine representative or Genfine Oy.

Environmental requirements

When you set up your Purifier HT, avoid sites of operation with excess dust, vibrations, strong magnetic fields, direct sunlight or UV light, draft, excessive moisture or large temperature fluctuations. Place the instrument on a normal laboratory bench. Make sure that:

- The working area is flat, dry, clean and vibration-proof and leaves additional room for accessories, cables, and reagent bottles.
- There is at least 10 cm on the laboratory bench of free space around the instrument for ventilation.
- The ambient air is clean and free of corrosive vapors, smoke and dust.
- The ambient temperature range is between +5°C (41°F) and +40°C (104°F).
- The humidity is low so that condensation does not occur (relative humidity is between 10% and 80%).

Install the Purifier HT in a protected location where no one can step on or trip over the power cord, and where the power cord remains accessible if the unit needs to be unplugged.



Caution Do not operate the instrument in an environment where potentially damaging liquids or gases are present. ▲

Precautions and limitations

- Always ensure that the local supply voltage in the laboratory conforms to that specified on the type label on the back of the instrument (Figure 2–3).
- Do not smoke, eat or drink while using the Purifier HT.
- Wash your hands thoroughly after handling test fluids.
- Observe normal laboratory procedures for handling potentially dangerous samples.
- Wear proper protection clothing, such as disposable gloves and laboratory coats, according to good laboratory practice.
- Ensure that the working area is well ventilated.
- Never spill fluids in or on the equipment.

Caution The Purifier HT should not be kept in close proximity to magnetic tapes, computer discs or other magnetic storagesystems, such as credit cards, as these can be damaged by the strongmagnetic field of the Purifier HT heads. Do not uninstall and hold the Purifier heads close to a PC display, since this may cause damage to the display. ▲

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 damaged if it comes in close contact with a strong magnetic field. ▲

This section describes the installation setups that you must carry out before operating or relocating the instrument.

Installation setups

Detaching the transport protected blocks

The instrument comes with a 96-tip comb and a 96 DW plate as transport protected blocks. Detach the transportprotected blocks, after the machine is power on.

Make sure the transport protected blocks is detached before you put the instrument into operation.

Connecting the power supply cable

To connect the power supply cable:

Warning Ensure that the mains switch (Figure 2–3) on the back panel is in the "O" position. Never operate your instrument from a power outlet that has no ground connection. Never use a power supply cable other than the Genfine power supply cable designed for your region. ▲

1. Connect the power supply cable to the power supply connector and plug in the instrument (Figure 3–2).
2. Connect the power supply to a correctly installed line power outlet with a grounded conductor.



Figure 3–1. Mains supply cable connected

Operational check

First switch the instrument ON "-". The instrument performs initialization tests and adjustments.

The display briefly shows User management interface.

It is recommended that you carry out a check run using a maintenance protocol to verify proper instrument operation. If the check is all right, proceed with your own runs.

Chapter 4

Routine Operation

Switching on

Before you switch on the Purifier HT, ensure that the voltage on the type label at the bottom left of the back panel (Figure 2–4) corresponds to the local voltage.

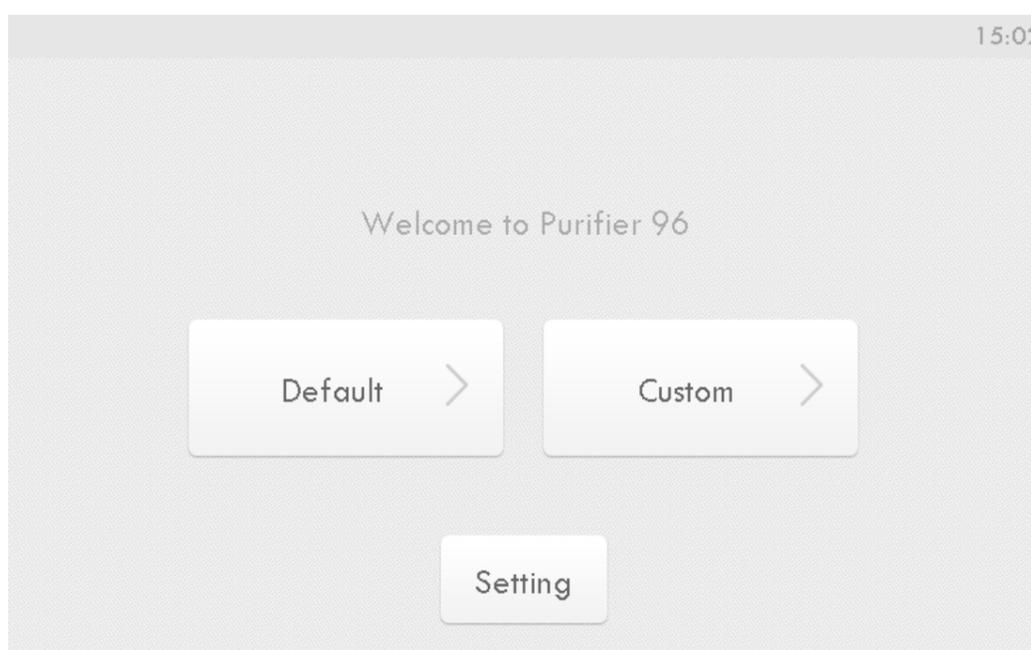


Warning Never operate your instrument from a power outlet that has no ground connection. ▲

Control panel Touchscreen

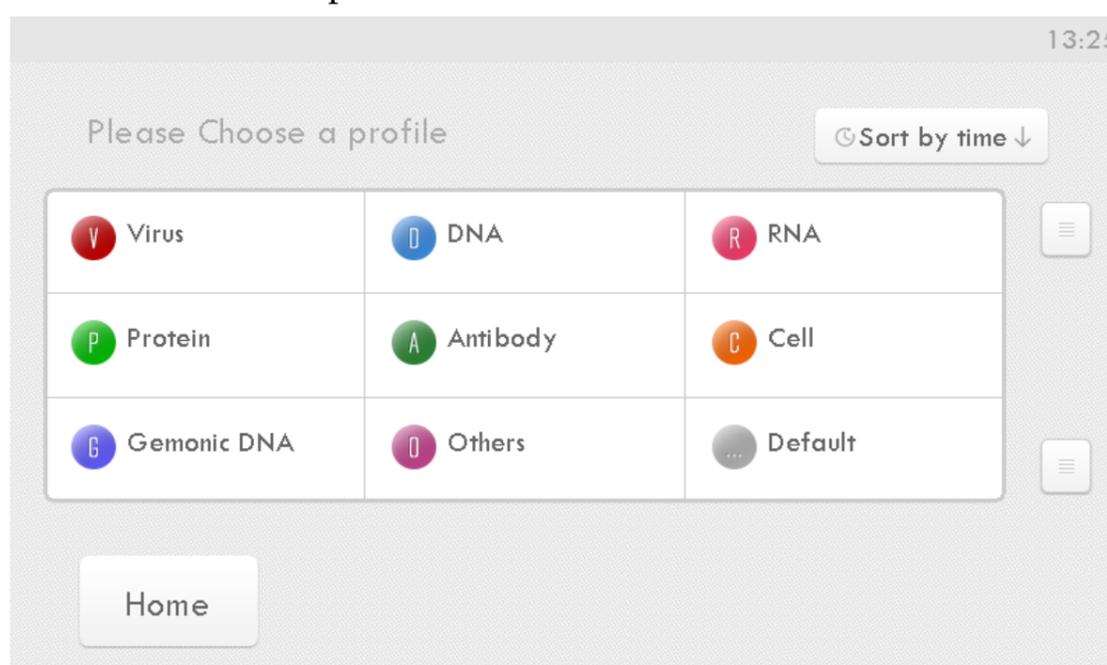
This section describes the Purifier HT control panel and internal software.

The homepage of touchscreen is shown.



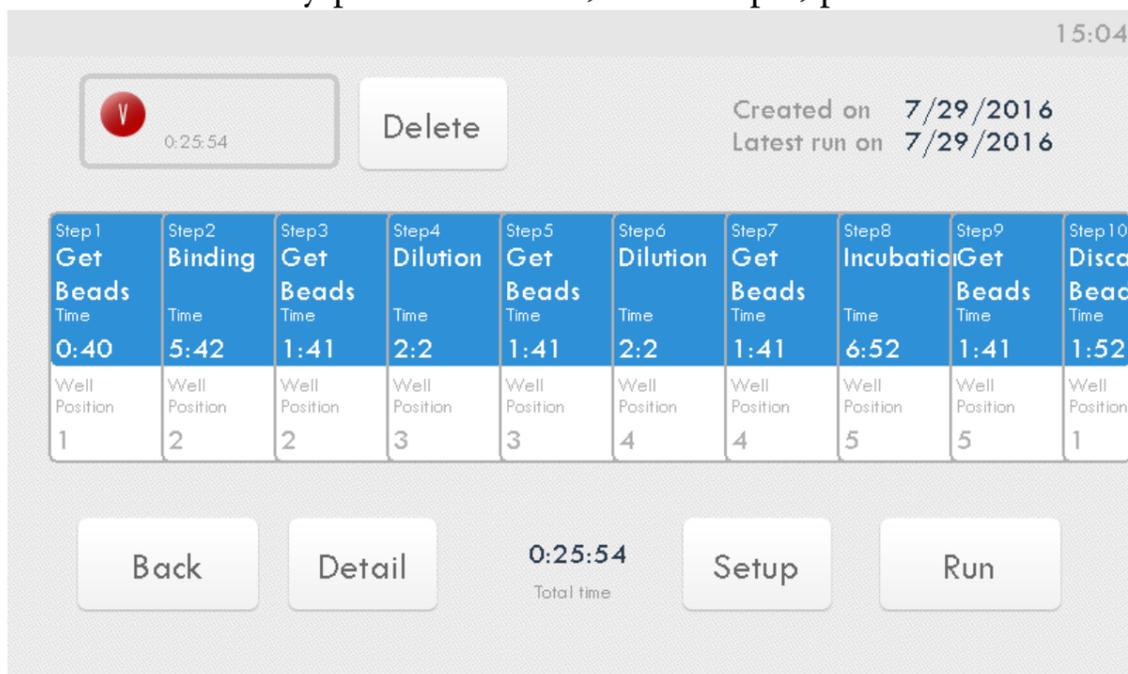
Default

Press default, the profile list is shown, which is pre-built in the software of the Purifier HT. These profile can not be edited and deleted. Press homepage.



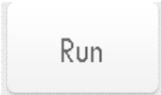
Selecting the profile

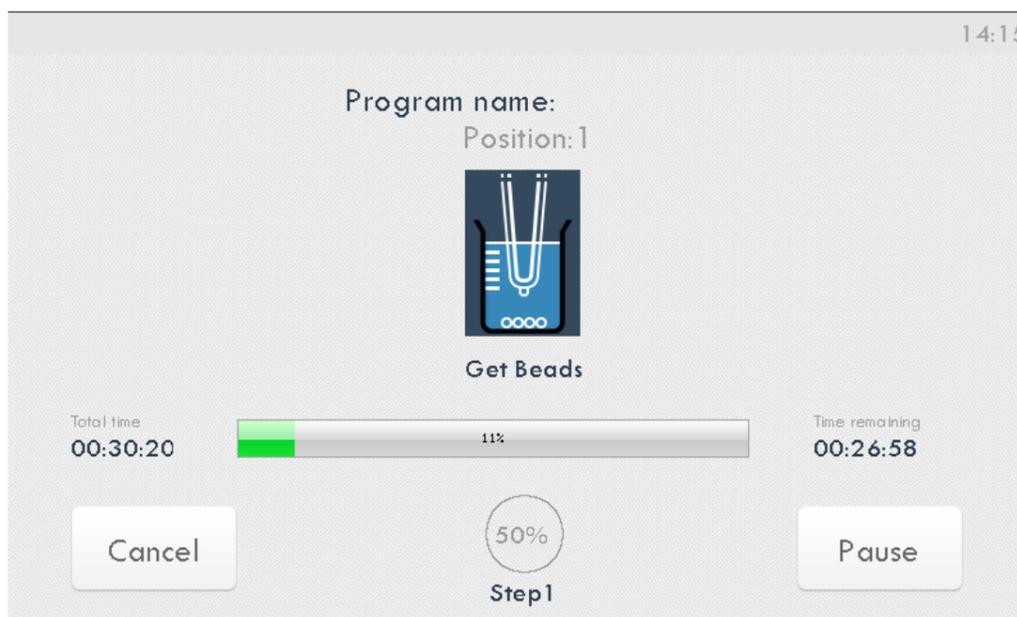
User can select any profiles in table, for example, press the Virus.



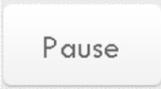
The details of virus protocol is shown, Any one of the steps and parameters can not be edited and deleted.

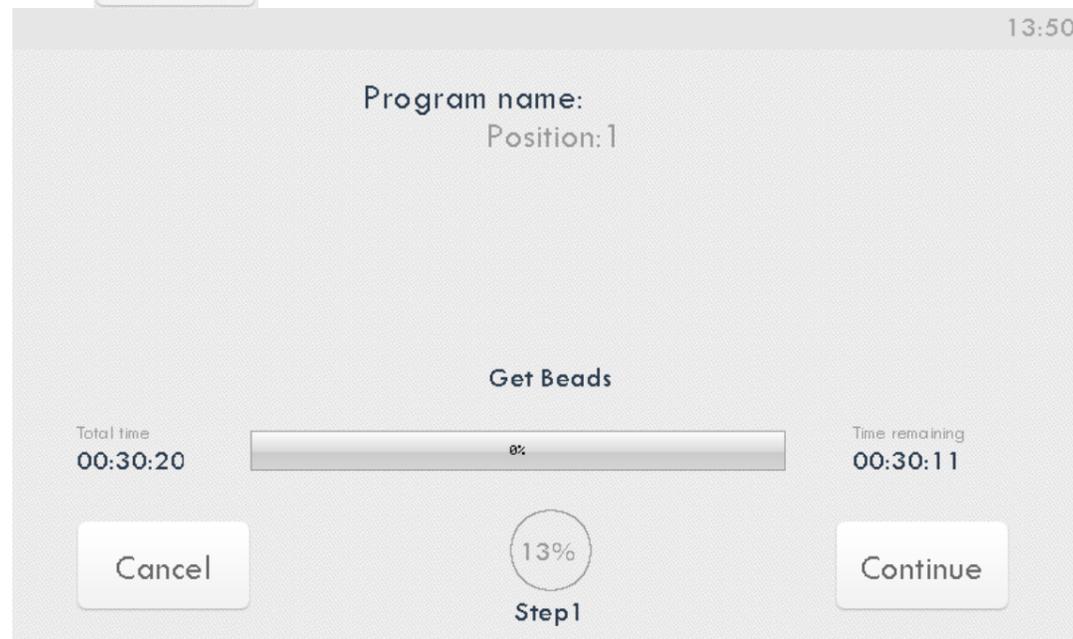
Run the profile

Press  to start the profile.



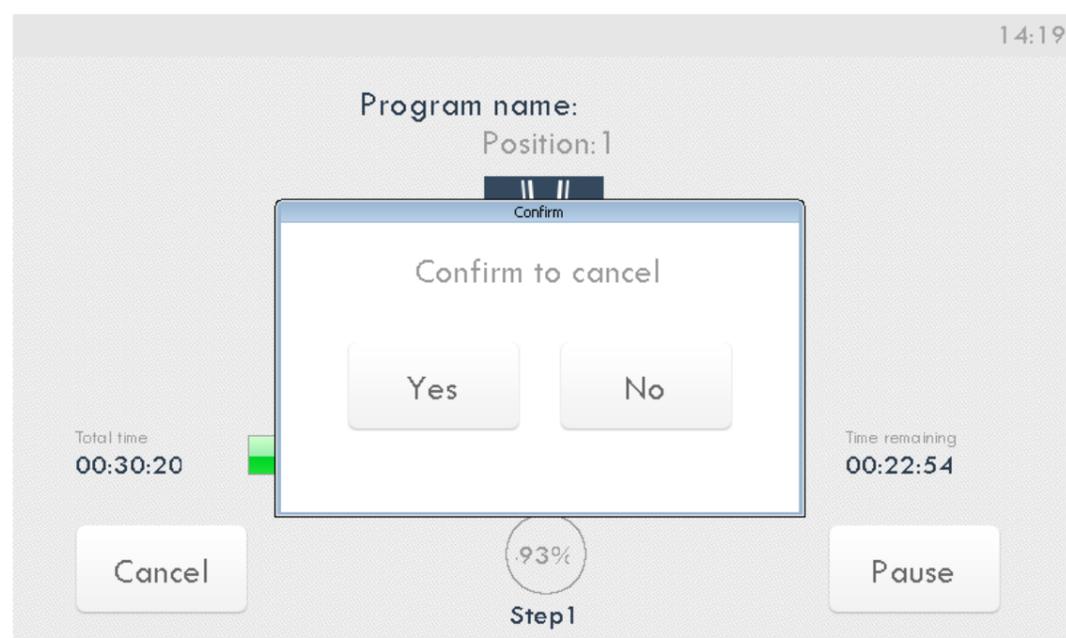
Run the profile

Press  to pause the profile



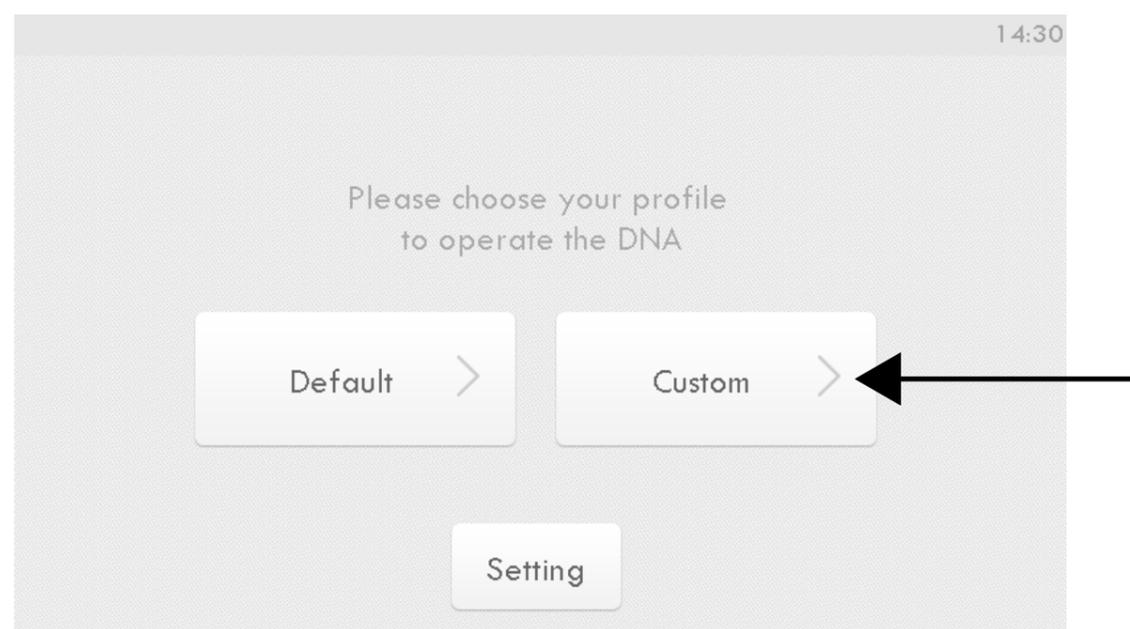
Press **Continue** to go on the profile.

Press **Cancel** to stop and quit the profile.



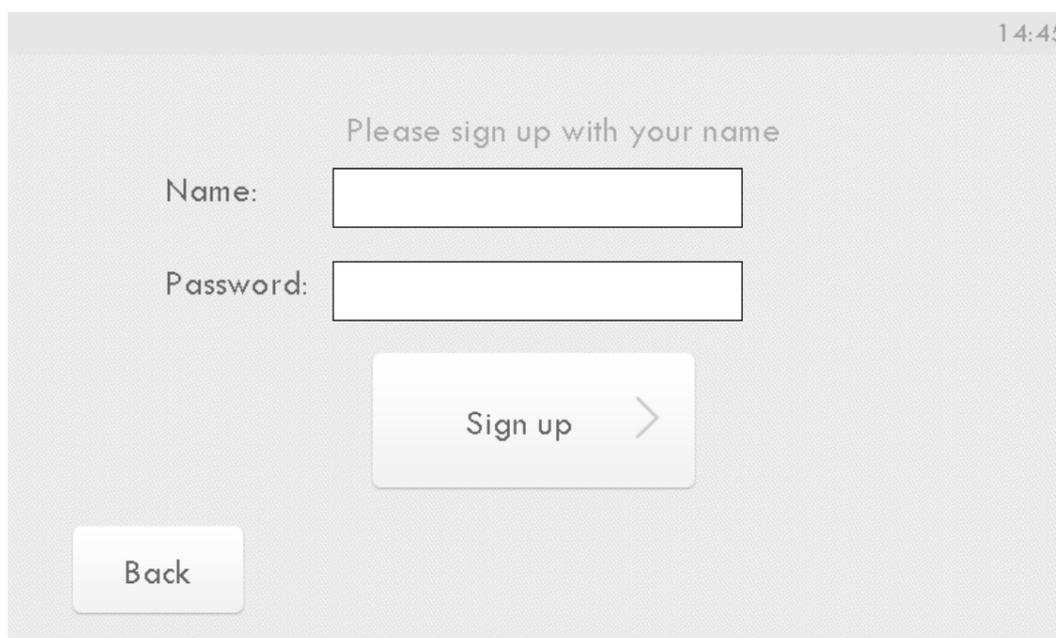
Custom

There is another function module **Custom** in the homepage, in which users can create and manage their own accounts, and also can creat, modify, save,and delete their own profiles.



Sign up

Press Sign up to register the account.



14:45

Please sign up with your name

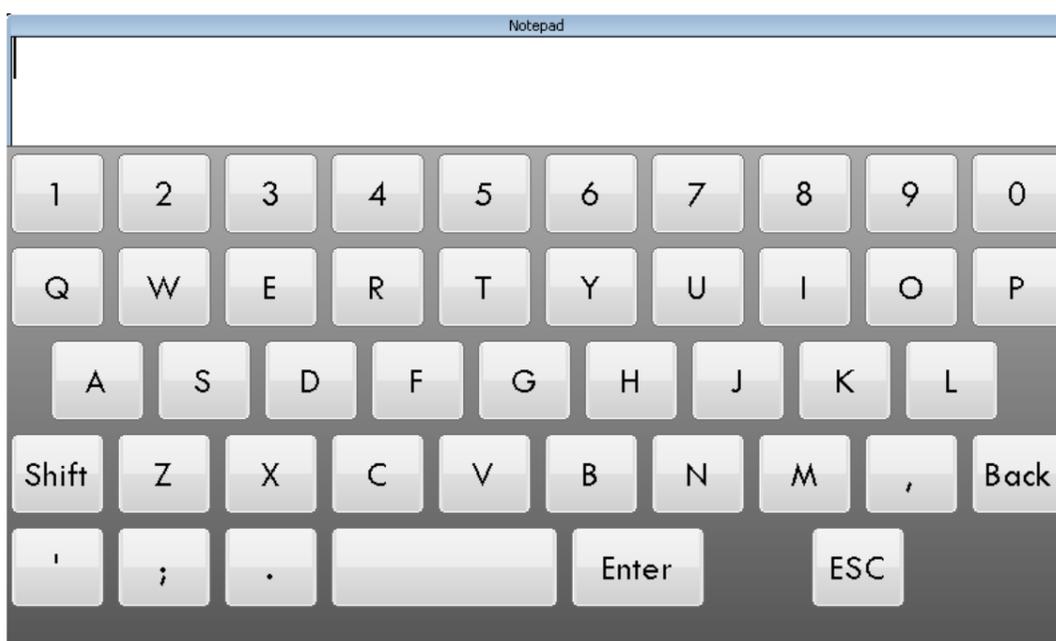
Name:

Password:

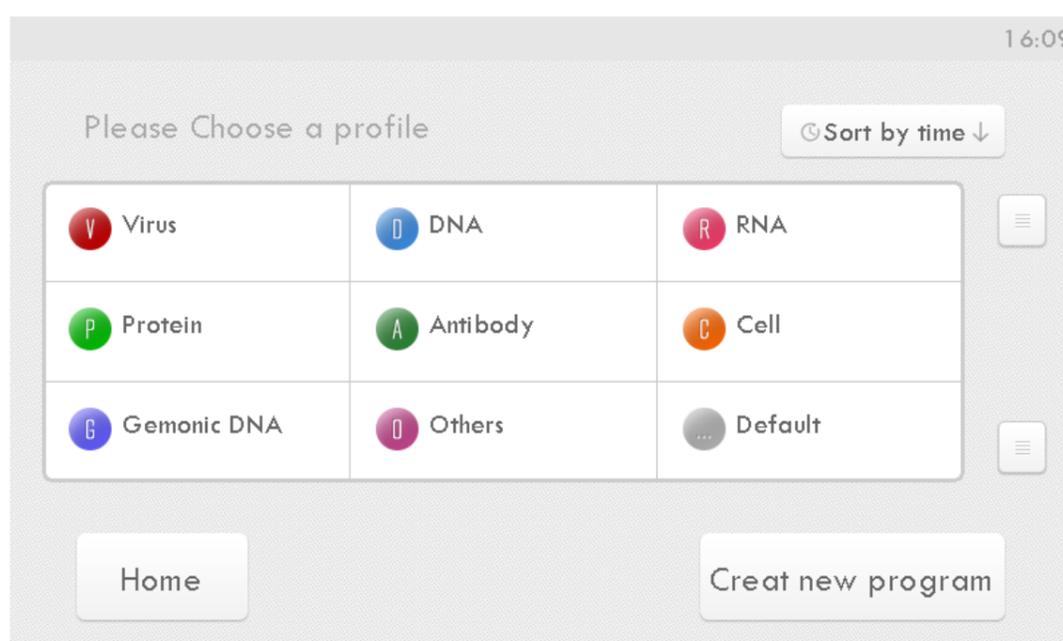
Sign up >

Back

Use the keyboard to enter the name and password. The password is not necessary.



The profile list view is shown, when finishing the sign up account.



16:09

Please Choose a profile

Sort by time ↓

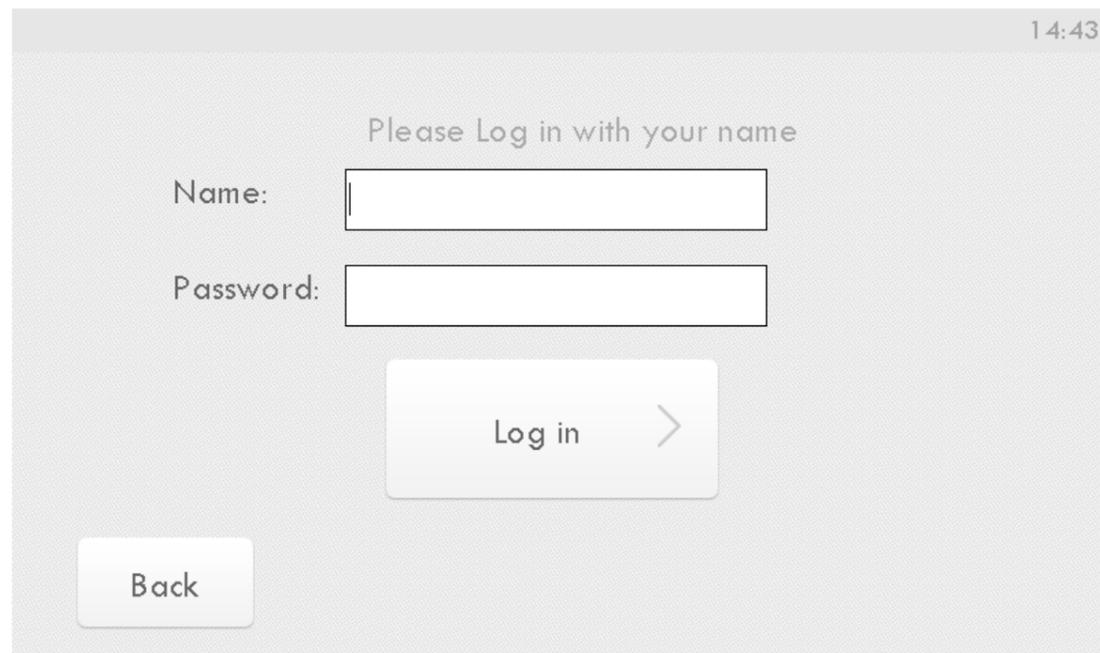
V Virus	D DNA	R RNA
P Protein	A Antibody	C Cell
G Genomic DNA	O Others	... Default

Home

Creat new program

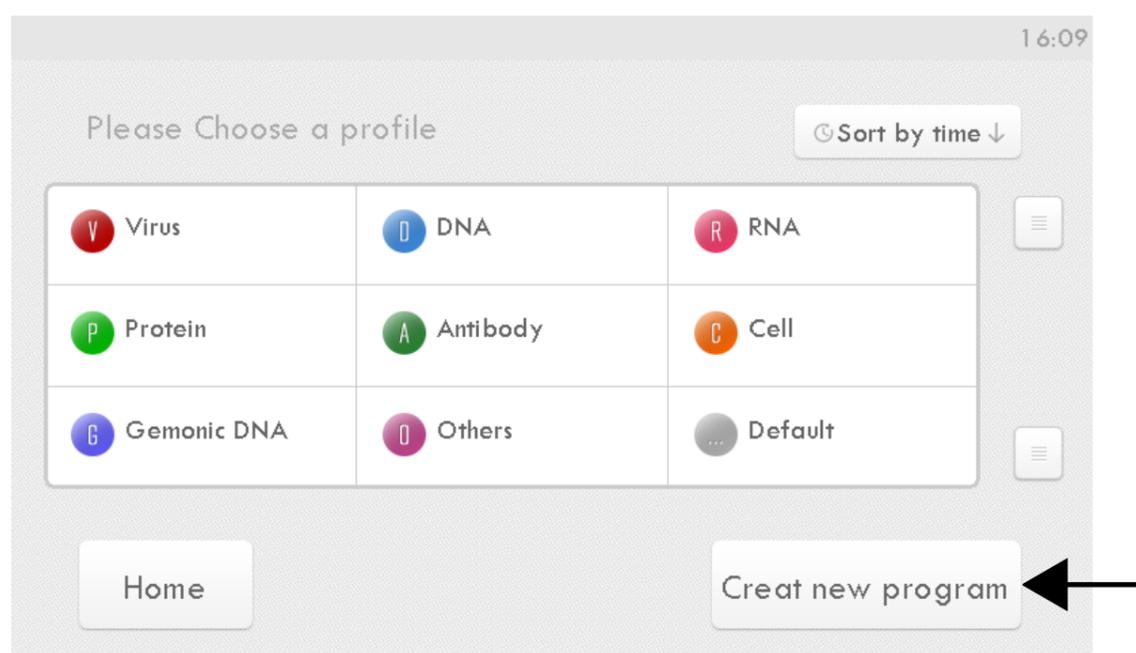
Log in

Once registered the account, the user can log in the original account directly.

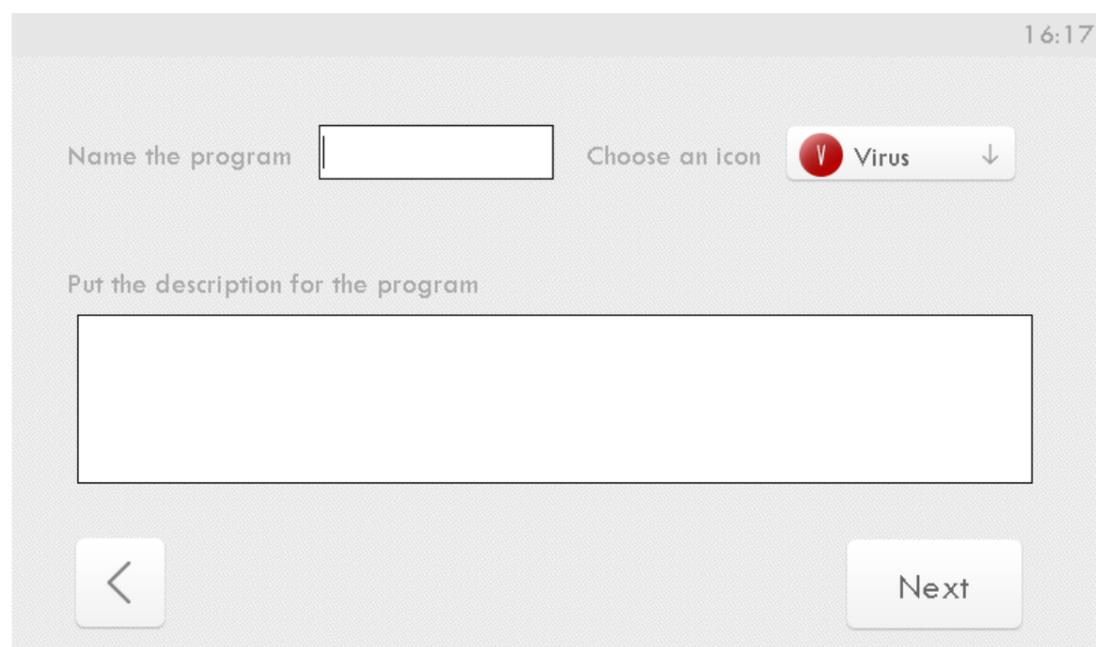


Create new program

After log in, there is a key Creat new program shown in bottom of touchscreen.



Press Creat new program to continue, user can set the name, icon and short description of program, and then press Next.



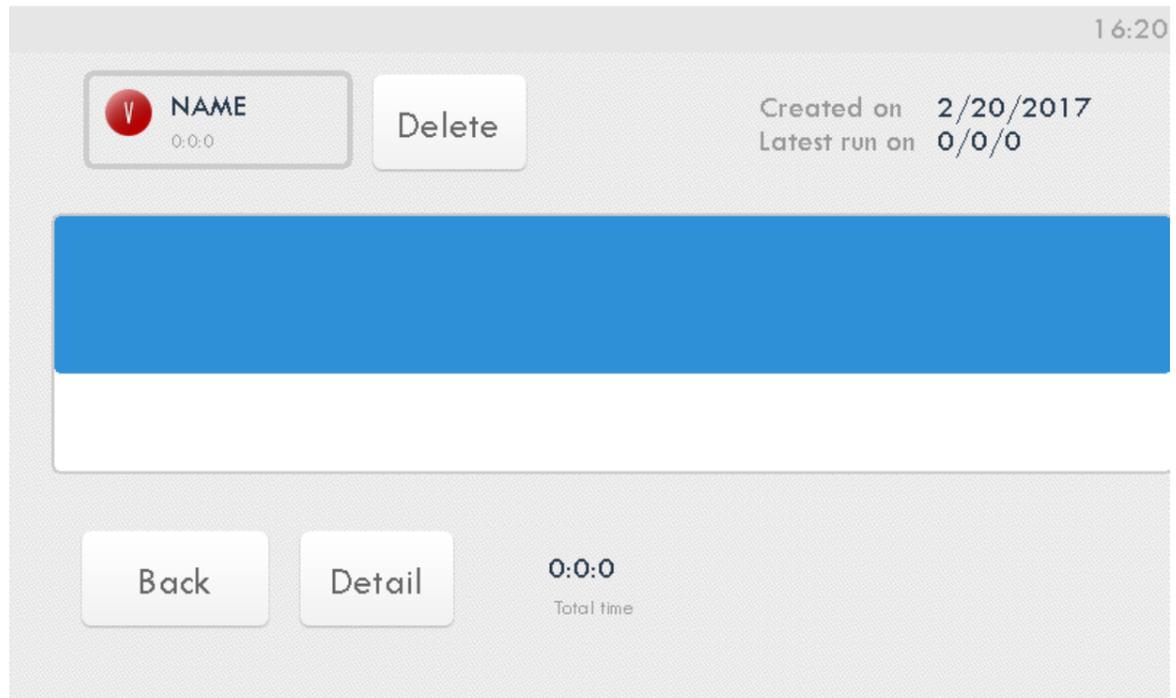
Detail of program

This view is shown about all of the detail of the program, such as steps, time, well.

Press Detail to set up the program.

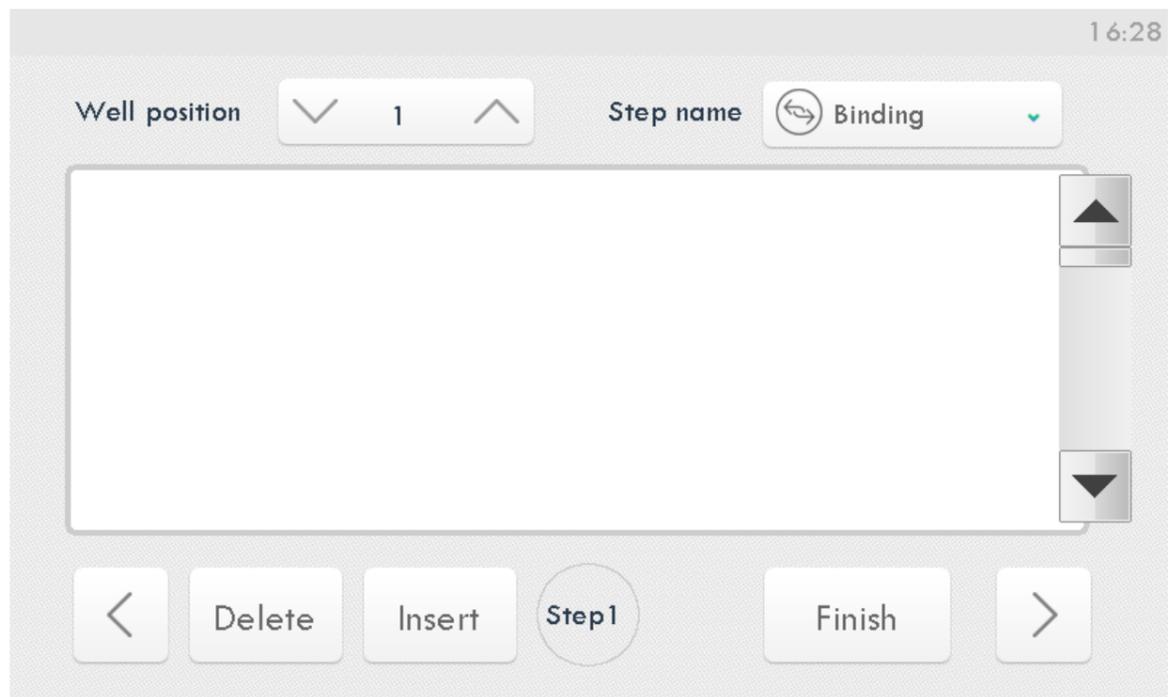
Press Delete to delete the program.

Press Back to return the previous menu.

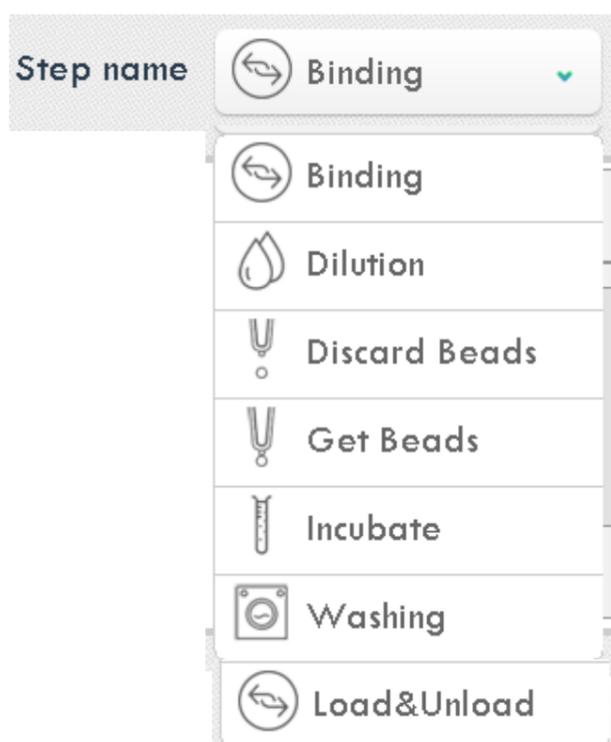


Detail of program

The users can set up and choose the relevant parameters in this view, the meaning of every key as follows:



The current set of step is working in plate station 1



Set the function of current step.



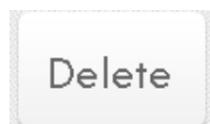
The first step must be chosen Load, and the last step must be chosen Unload, otherwise the program will not be finished.



Back to the previous step.



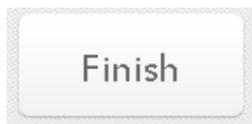
Go to the next step.



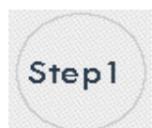
Delete the current step.



Insert a new step prior to the current step.



Finish the program.



Current step

Function details

User can definite function for each step and there are six optional functions in Purifier HT. there are several sub-steps in each function. For example, choose the Binding function, user can see following table and set up relevant parameters.

Well position 1 Step name Binding

Tip comb in the well deep plate → 1.In the cube Position 100% ← Percentage of position of tip comb in cube. Each reduced by 10%, the corresponding distance reduced by 4mm (min. 80%, max.100%)

Time(s) 0

2.Demagnetization Duration

↑ Magnet heads separate from tip combs.

3. Agitation
Vibration up and down

Amplitude

Frequency

Time(s) Duration

4. Stay
Stationary in the current status

Time(s) Duration

5. Magnezation
Magnet heads come into tip combs.

Percentage of position of magnet head in tip comb. Each reduced by 10%, the corresponding distance reduced by 4mm (min. 80%, max. 100%)

6. Out of tube
Magnet heads and tip combs simultaneous leave deep well plate.

Stay time(s) Duration

Function details

After finishing function Binding, Press to next steps. The other functions setting up are similar to the function Binding, except Dilution and Incubation which include temperature setting.

Well position

Step name

1. Temperature (°C)

Time(s)

Users can set the heating temperature and duration. Note:

Temperature range: +10°C to +100°C

Press to finish the program setting, and back to view of detail program. Users can press to modify the steps or press to run the program.

20:15

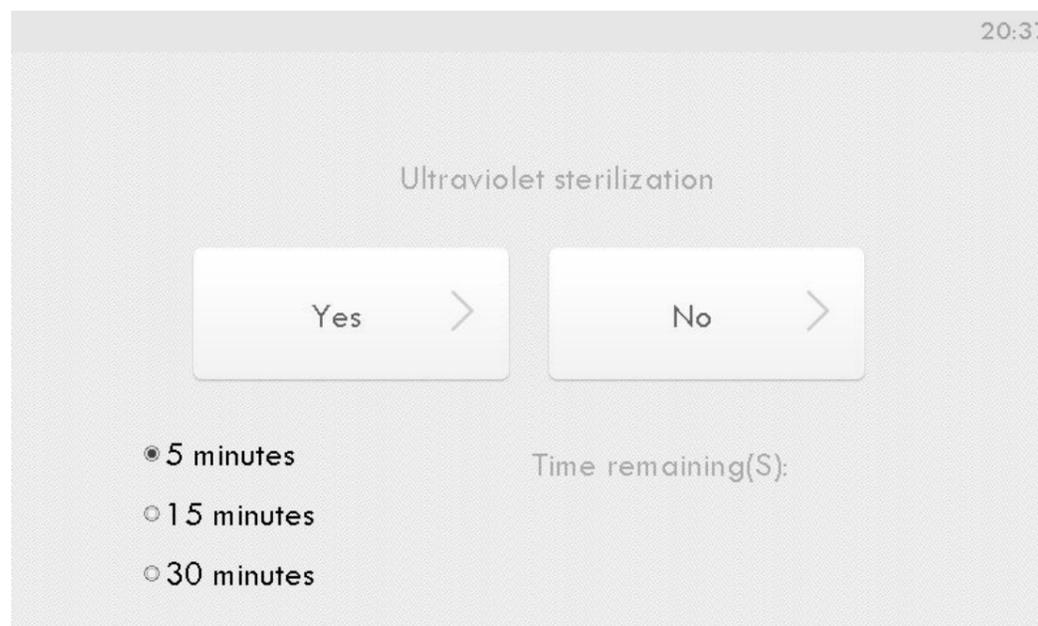
0:16:34

Created on 7/29/2016
Latest run on 7/29/2016

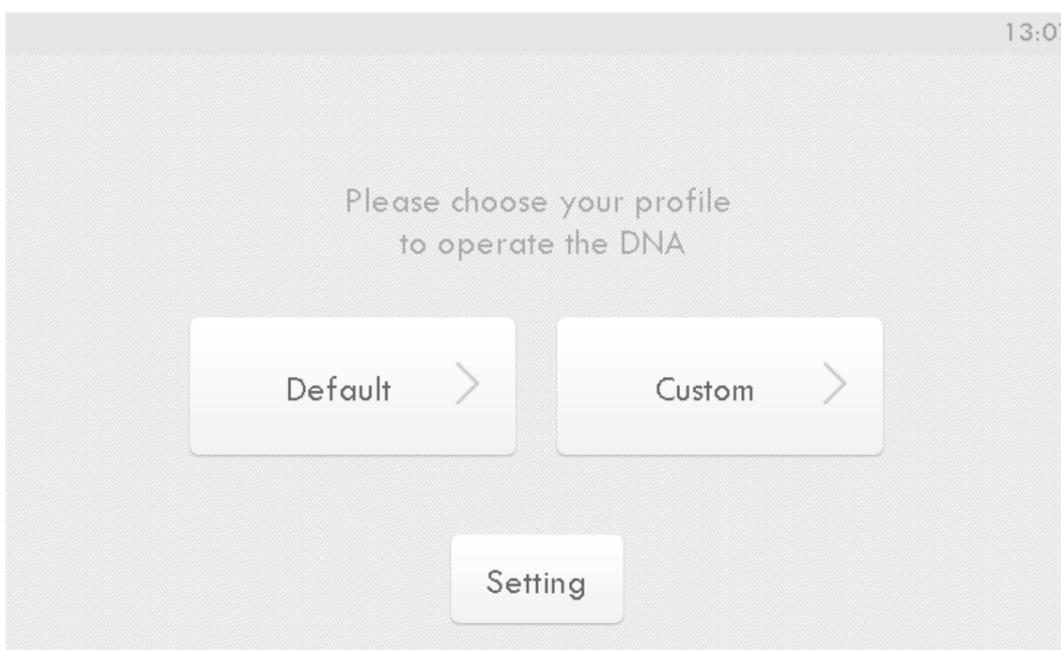
Step1	Step2	Step3	Step4	Step5	Step6
Get Beads	Binding	Washing	Washing	Dilution	Discard Beads
Time	Time	Time	Time	Time	Time
0:40	5:42	2:20	3:0	3:0	1:52
Well Position					
1	2	3	4	5	1

Total time

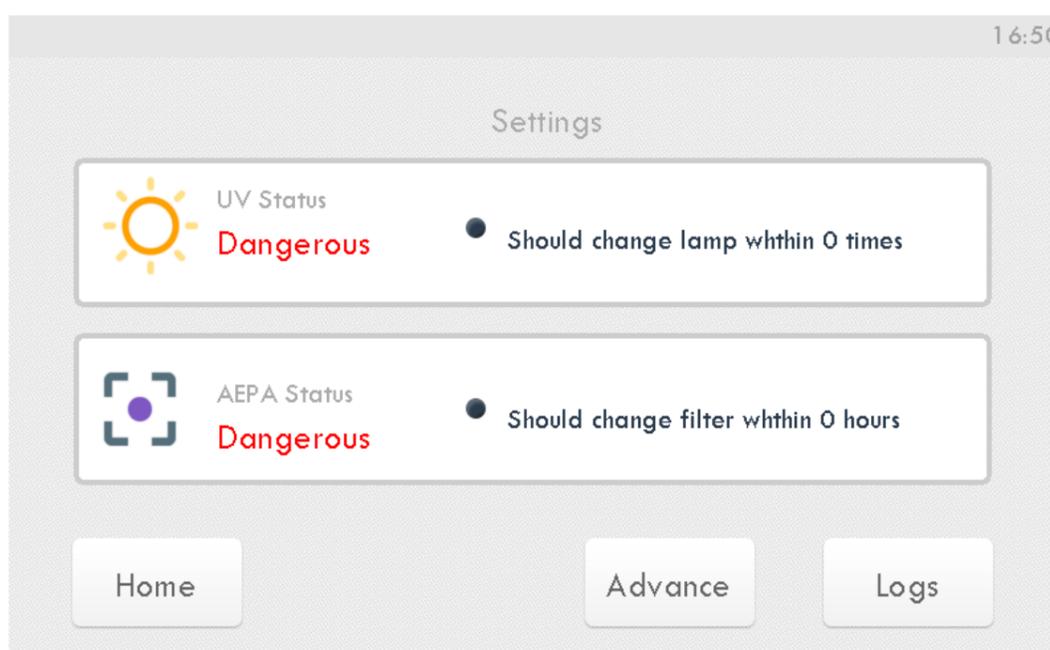
Users can choose whether open the ultraviolet lamp, when the program finished.



Setting Users can choose [Setting](#) to set up the parameters of the Purifier HT instrument in the view of homepage.

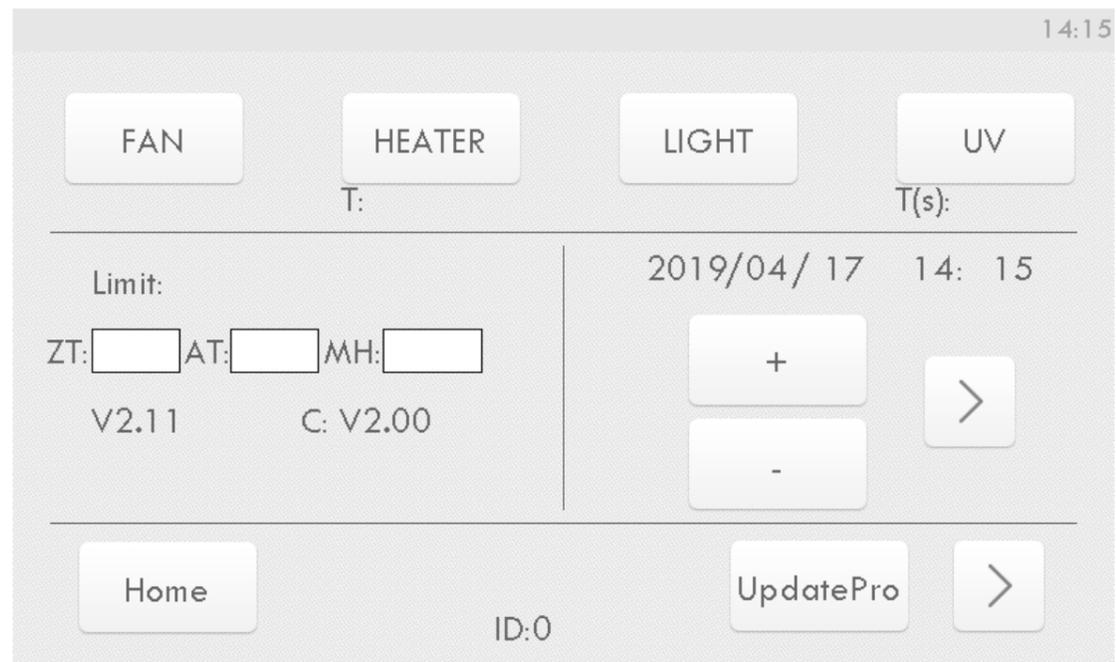


After entering the view of setting, and HEPA filter, which can remind the users to replace and HEPA filter.



Advance

Users can press  to the view of setup.



Press to open the FAN, then press again to close.



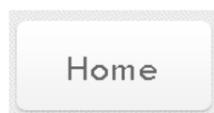
Press to open the HEATER, then press again to close. Users also can see the current temperature.



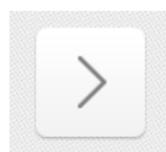
Press to open the LIGHT, then press again to close.



Press to set up the day and date.



Back to the homepage.



The function is only open to the engineers from Genfine.



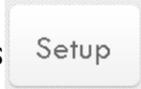
The view shows versions of UI and Mainboard, and two version must be equivalent.

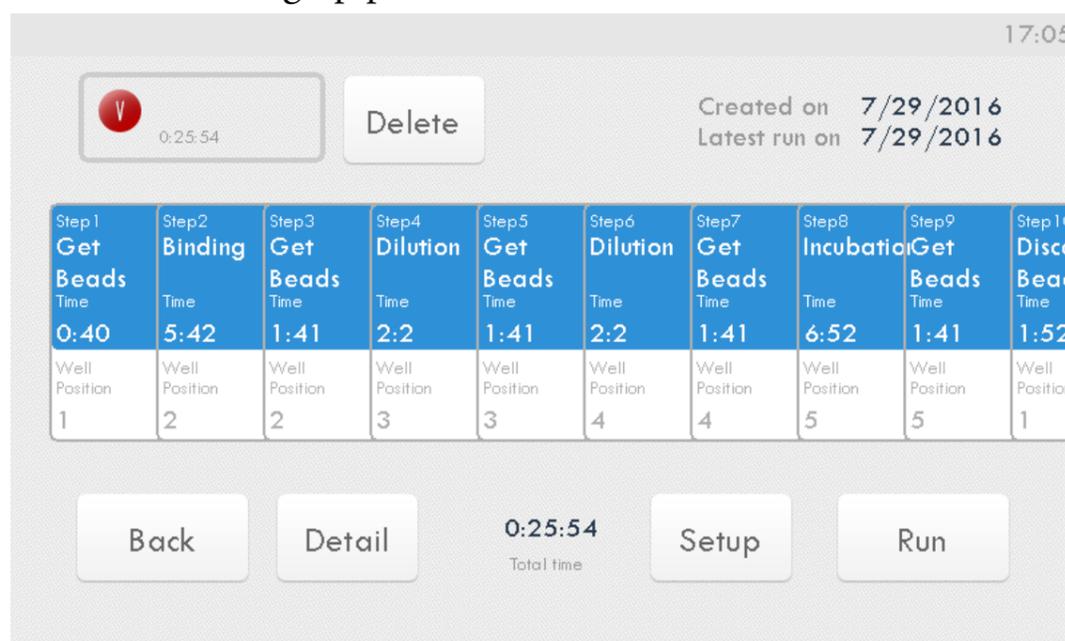


Special magnetization option. Users must be affirmed by Genfine, if users want to use this function.

How to start To start the instrument:

Load the plates and tip comb

After setting up the profile, user can set up plate. Press  to the view of setting up plate.

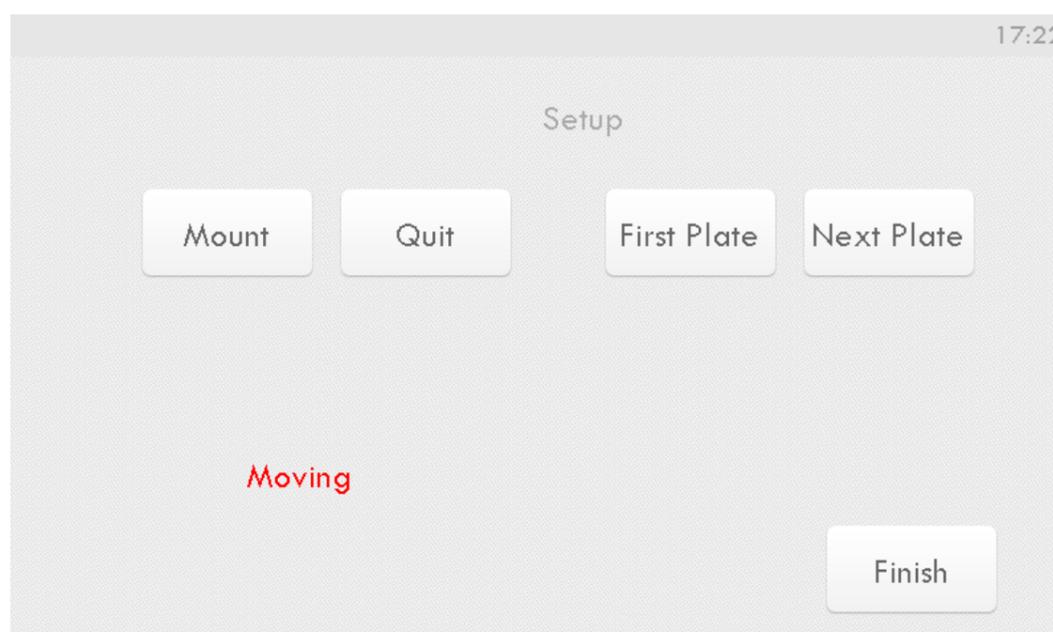


Load the plates in the order that the protocol requests. Place the A1 well of the plate so that it is in the upper right corner. The first A1 row is consequently always in the inner circle.

Press  to make the first plate station to loading plate position, and then place the first plate. Press  to load the others plates.

Combining the tip comb and the first deep well plate, and then press  to set up the tip comb, after the first plate returns to the loading plate position.

The tip comb can be placed automatically onto a Purifier HT. The instrument also functions with either one plate or up to eight plates depending on the amount of steps. **Only one tip comb is placed onto the first plate station per run**. Confirm the plate loading by pressing **Finish**.



3. Set up or choose the program. Ensure the front door closed, and then run the program.

Note: The program will be pause when the front door is open.

Shutdown

To shut down the Purifier HT:

1. Switch the Purifier HT off by pressing the power switch (Figure 2–3) on the back panel of the instrument into the OFF position. It is recommended to shut down the instrument for the night and weekends.



Warning Remove any plates or tip combs still in the instrument. Dispose of all microplates and tip combs as biohazardous waste. ▲

2. Wipe the platform surface and the adjacent instrument surface with a soft cloth or tissue paper moistened with distilled water, a mild detergent (SDS, sodium dodecyl sulfate) or soap solution.
3. If you have spilled infectious agents on the platform, disinfect it with 70% ethanol or another disinfectant (see “Decontamination procedure” on page 33).

Emergency situations

If an abnormal situation occurs during operation, such as fluids spilling inside the instrument, follow the steps below:

1. Switch OFF the instrument (Figure 2–3).
2. Unplug the instrument immediately from the power supply
3. Carry out appropriate corrective measures. However, do not disassemble the instrument.
4. If the corrective measures taken do not help, contact authorized technical service or your local Genfine representative.

Chapter 5

Maintenance

Regular and preventive maintenance

For reliable daily operation, keep the instrument free of dust and liquid spills.

Do not use abrasive cleaning agents, because they are likely to damage the paint finish.

It is recommended that you clean the case of the instrument periodically to maintain its good appearance. A soft cloth dampened with a warm, mild detergent solution will be sufficient.

Clean the outside surfaces of the instrument and the turntable with clean low-pressure compressed air or a cloth dampened with water or a mild detergent when necessary.

Although the Purifier HT is constructed from high-quality materials, you must immediately wipe away spilled saline solutions, solvents, acids or alkaline solutions from outer surfaces to prevent damage.



Caution Painted surfaces can be cleaned with most laboratory detergents. Dilute the cleaning agent as recommended by the manufacturer. Do not expose the surfaces to concentrated acids or concentrated alcohols for prolonged periods of time as they may cause damage. ▲

Clean the display areas with a mild laboratory detergent. The keypad has a wipe-clean surface.

Plastic covers and surfaces can be cleaned with a mild laboratory detergent or alcohol.

Warning If any surfaces are contaminated with biohazardous material, a mild sterilizing solution should be used. ▲

Caution Do not autoclave any part of this instrument. ▲

Cleaning the platform

Keep the platform surface clean to prevent dust and dirt from entering the instrument. Clean the turntable surface at least once a week using a soft cloth or tissue paper soaked in a mild detergent solution (SDS), soap solution or alcohol.

If you have spilled infectious agents on the turntable, clean it with a cloth dampened with water, mild bleach or a mild detergent.

Cleaning the magnetic rods

If required, wipe the magnetic rods using a soft cloth or tissue paper soaked in a mild detergent solution (SDS), soap solution or alcohol.

Caution The Purifier HT should not be kept close to magnetic tapes, computer discs or other magnetic storage systems, such as credit cards, as they can be damaged by the strong magnetic field of the Purifier HT heads.

Do not hold the Purifier heads close to a PC display, since this may cause damage to the display.

Do not use metal tools when handling Purifier heads.

Be careful not to break the magnets while cleaning. ▲

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 damaged if it comes in close contact with a strong magnetic field. ▲

Disposal of materials

Follow laboratory and country-specific procedures for the disposal of biohazardous or radioactive waste. Refer to local regulations for the disposal of infectious material.



Warning The samples can be potentially infectious. Dispose of all used disposable plates, strips and tip combs, disposable gloves, syringes, disposable tips, and so on as biohazardous waste. ▲

Decontamination procedure



If you have spilled infectious agents, carry out the decontamination procedure.

Warning The decontamination procedure should be performed by authorized trained personnel in a well-ventilated room wearing disposable gloves, protective glasses and clothing. ▲

Perform decontamination in accordance with normal laboratory procedures. Any decontamination instructions provided with the reagents used should be followed.

It is strongly recommended to perform the complete decontamination procedure before relocating the instrument from one laboratory to another or before sending it to service.

Example of decontaminants:

- Ethanol 70%
- Virkon™ solution 1–3%
- Glutaraldehyde solution 4%
- Chloramine T
- Microcide SQ™ 1:64
- Decon™ 90 min. 4%



Warning The decontamination procedure should be performed by authorized trained personnel wearing disposable gloves, protective glasses and clothing in a well-ventilated room. ▲

1. Wear disposable gloves to protect yourself.
2. Prepare the decontaminant: 200 ml 4% glutaraldehyde solution (or another agent recommended by your safety officer).
3. Empty the turntable.
4. Switch OFF the power and disconnect the mains supply cable
5. Disinfect the outside of the instrument using a cloth dampened with 70% ethanol.
6. Place the instrument in a large plastic bag. Ensure that the front lid is open.
7. Place a cloth soaked in the prepared solution into the bag. Ensure that the cloth does not come into contact with the instrument.
8. Seal the bag and leave the instrument in the bag for at least 24 hours.

9. Remove the instrument from the bag.
10. Clean the instrument using a mild detergent.
11. Remove any stains with 70% ethanol.
12. After performing this decontamination procedure, enclose a signed and dated Certificate of Decontamination inside the transport package and attached to the outside of the package (see Appendix A: “*Certificate of Decontamination*”).

Packing for service



To pack for service, follow the guidelines presented below.

Caution It is important that the instrument is thoroughly decontaminated before it is removed from the laboratory or any servicing is performed on it. ▲

When you ship the instrument for service, remember to:

- Inform about the use of hazardous materials.
- Decontaminate the instrument beforehand.
- Install the transport protected blocks.
- Pack the instrument according to the enclosed packing instructions.
- Use the original packaging to ensure that no damage will occur to the instrument during shipping. Any damage will incur additional labor charges.
- Enclose a dated and signed Certificate of Decontamination (see Appendix A: “*Certificate of Decontamination*”) inside and attached to the outside of the package, in which you return your instrument (or other items).
- Enclose the return goods authorization number (RGA) given by your Genfine representative.
- Indicate the fault after you have contacted your local Genfine representative or Genfine’s technical service department.

Refer to “General specifications” on page 37 for details on storage and transportation temperatures.

Service contracts

It is recommended to maintain and service the instrument regularly every 12 months on a contract basis by the manufacturer's trained service engineers. This ensures that the product is properly maintained and gives trouble-free service. Contact the Genfine technical service department for more details.

Maintaining a system log

A system log, which includes a short summary of the use, maintenance procedures, error messages and other information on the use of the system is useful in properly maintaining the system. Refer to Appendix B: "System Log". Copy the table as many times as necessary, but leave the blank original inside the user manual.

Disposal of the instrument

If the Purifier HT has to be disposed of, follow the guidelines below.



Warning Decontaminate the instrument before disposal. Refer to "Decontamination procedure" on page 33. ▲

Follow laboratory and country-specific procedures for biohazardous or radioactive waste disposal.



Dispose of the instrument according to the legislation stipulated by the local authorities concerning take-back of electronic equipment and waste. The procedures vary by country.

Pollution degree	2 (see "Safety specifications" on page 38)
Method of disposal	Electronic waste Contaminated waste (Infectious waste)

Regarding the original packaging and packing materials, use the recycling operators known to you.

For more information, contact your local Genfine representative.

Chapter 6

Technical Specifications

General specifications

Genfine reserves the right to change any specifications without prior notice as part of our continuous product development program. The general specifications are presented in Table 6–1.

Table 6–1. General specifications

General specifications	
Overall dimensions	
– instrument	<i>ca.</i> 685 mm (W) x 600 mm (D) x 390 mm (H)
– transport package	810 mm (W) x 760 mm (D) x 610 mm (H)
– transport package with Shovel plate	720 mm (W) x 1170 mm (D) x 940 mm (H) 28.3" (W) x 40.1" (D) x 37.0" (H)
Weight	
– instrument	<i>ca.</i> 41kg [49 lbs.]
– transport package with Shovel plate	<i>ca.</i> 75 kg [154 lbs.]
Operating conditions (indoor use)	+5°C to +40°C; maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C Indoor use only
Transportation conditions	-40°C to +70°C, packed in transport packaging
Storage conditions	-25°C to +50°C, packed in transport packaging
Mains power supply	100–240 Vac, 50/60 Hz, nominal Automatic voltage detection
Power consumption	96 VA max.; 10 VA standby
Heat dissipation	328 BTU max.
Internal memory	Space for <i>ca.</i> 500 protocols
Protocol import	Using PC or USB memory device
Computer interface	USB
Robot compatibility	No
Normal use	10 runs/day, 250 days/year, with 40 min protocols having a medium speed setting, RT

Performance specifications

The performance specifications are presented in Table 6–2.

Table 6–2. Performance specifications

Performance specifications	
Processing volume	20–1000 µl (8 DW plate, 96-pin magnet head)
Capacity (samples per run) Up to	
Collection efficiency of the particles (indoor use)	≥ 95%, Microtiter deep well 96 plate, neutral wash buffer containing detergent, 2.8 µm particles, 3 collections, RT
Magnetic particle size	ca. > 1 µm
Magnet rods	96 , irreplace Purifier HT head
Plates per deck	8
Plate types (disposable)	Microtiter deep well 96 plate (20–1000 µl*)
Tip combs (polypropylene – disposable)	one frame for eight Microtiter deep well 96 plate
Heating temperature	
- plate row block	From +10°C to 75°C, instrument in RT
- elution strip block	From 4°C to 75°C, instrument in RT
Heating block accuracy	± 1°C, up to +75°C, instrument in RT
Keypad / Display	LCD 5" 480 x 800 pixel color display

Safety specifications

This section describes the safety specifications for the Purifier HT instrument.

In conformity with the requirements

Purifier 32 bears the following markings:

+15 VDC / 6 A

CE mark

Purifier HT conforms to the following requirements:

2006/95/EC (Low Voltage Directive)

2004/108/EC (Electromagnetic Compatibility Directive, EMC)

FCC Part 15, Subpart B/Class B (July 2004)

2012/19/EC (Waste of Electrical and Electronic Equipment)

2011/651/EC (RoHS Directive – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment)

2006/42/EC (Machinery Directive)

The safety specifications are also met under the following environmental conditions in addition to or in excess of those stated in the operating conditions:

Altitude	Up to 2000 m
Temperature	+5°C to +40°C
Humidity	Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C
Mains supply fluctuations	± 10% from nominal
Installation category (overvoltage category)	II according to IEC 60664-1 (see Note 1)
Pollution degree	2 according to IEC 60664-1 (see Note 2)



Note 1) The *installation category* (overvoltage category) defines the level of transient overvoltage which the instrument is designed to withstand safely. It depends on the nature of the electricity supply and its overvoltage protection means. For example, in CAT II which is the category used for instruments in installations supplied from a supply comparable to public mains, such as hospital and research laboratories and most industrial laboratories, the expected transient overvoltage is 2500 V for a 230 V supply and 1500 V for a 120 V supply.

2) The *pollution degree* describes the amount of conductive pollution present in the operating environment. Pollution degree 2 assumes that normally only nonconductive pollution, such as dust, occurs with the exception of occasional conductivity caused by condensation. ▲

Chapter 7

Ordering Information

Contact your local Genfine representative for ordering and service information. Ordering information codes are presented in Table 7-1 through Table 7-4.

Purifier HT

The following configurations of the Purifier HT system are available (Table 7-1).

Table 7-1. Cat. No. for products

Cat. No.	Instrument / System
P961001	Purifier HT Magnetic Particle Separator (Professional)
P961002	Purifier HT Magnetic Particle Separator (Standard, No NFC, No Heating)
P961001	Purifier HT Magnetic Particle Separator (OEM Model)

List of accessories and consumables

The following accessories and consumables are to be used with the Purifier HT instrument (Table 7-2).

Table 7-2. Codes for accessories and consumables

Cat. No.	Item	Quantity
210101	Purifier HT tip comb, for Microtiter deep well 96 plate. 600 pcs for one box.	1
210201	Purifier HT deep well 96 plate 50 pcs for one box.	1
P10011	A type HEPA Filter(125*125*21mm)	1
P10018	8*A type HEPA Filter(125*125*21mm)	1
P10022	Philips UV lamp	1

List of IP Kits

The following optimized IP kits for the Purifier HT are available (Table 7-3).

Table 7-3. Cat. No. for purification kits

Cat. No.	Item	Assay
S00801	Ni NTA Magarose Beads	1ml
S00805		5ml
S00201	Glutathione Magarose Beads	1ml
S00205		5ml
S00302	rProtein A Magarose Beads	2ml
S00305		5ml

Ordering Information

List of Purifier Kits

Cat. No.	Item	Assay
S00402	rProtein G Magarose Beads	1ml
S00405		5ml
S01501	rProtein A/G MagPoly Beads	1ml
S01505		5ml
S01510		10ml
S01701	Streptavidin MagPoly Beads	1ml
S01705		5ml
S01710		10ml

Appendix A

Certificate of Decontamination

Name: _____

Address: _____

Tel./Fax: _____

Instrument: _____ Serial no.: _____

A) I confirm that the returned items have not been contaminated by body fluids, toxic, carcinogenic or radioactive materials or any other hazardous materials.

B) I confirm that the returned items have been decontaminated and can be handled without exposing the personnel to health hazards.

Materials used in the unit: Chemicals + Biological • Radioactive *)

Specific information about contaminants:

Decontamination procedure¹:

Date and place: _____

Signature: _____

Name (block capitals): _____

*) The signature of a Radiation Safety Officer is also required when the unit has been used with radioactive materials.

This unit is certified by the undersigned to be free of radioactive contamination.

Date and place: _____

Signature: _____

Name (block capitals): _____

PHOTOCOPIABLE

¹ Please include decontaminating solution used.

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