



PurifiX® 8

Instruction manual

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Definitions

DNA (Deoxyribonucleic acid): Long molecule composed of a succession of nucleotides, and which contains the genetic information of an individual, of a bacterial species ...

RNA (ribonucleic acid): Molecule with an architecture very similar to DNA. RNAs are synthesized by a living organism on the basis of its DNA and allow a specific function to be performed. In the case of some viruses, RNA directly supports the genetic material (RNA viruses).

LoopiX®: Automated molecular biology field analysis device for isothermal amplification (LAMP) and interpretation of results. LoopiX® is used in combination with kits from the LoopDeetect range.

PurifiX®8: Automated nucleic acid purification system for preparing samples prior to analysis. The PurifiX® 10 can purify up to 8 samples simultaneously. It is used in combination with kits marketed by Loop Dee Science.

Recipe: Defined by Loop Dee Science according to the target to be detected and the type of sample, the recipe is materialised by software stored in the LoopiX®. The recipe defines the sequence of operations to be performed and the parameters to be applied to distinguish the absence or presence of the target in the reaction tube.

PPE: Personal protective equipment

Lysis: Step involving the recovery of genetic material from a bacterium in a sample by releasing its cellular content.

Purification: Step involving the cleaning of the extracted genetic material to remove impurities and enable optimal analysis performance.

Preamble

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Technical support

Loop Dee Science provides customer support for any technical questions pertaining to the device. To obtain assistance, please contact our support and assistance team:

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Safety relative information

Before using the PurifiX®8, it is important to read this user manual to familiarise yourself with the device. Follow all instructions to ensure proper operation. Do not use any consumables, accessories or external equipment other than those specified. Safety warnings must be observed at all times to avoid risk of personal injury and/or damage to the device. If the PurifiX®8 is used in a manner not specified by the manufacturer, the protection provided by it may be impaired. The advice given in this manual is intended to supplement, not replace, the normal safety requirements established in the user's country.

The PurifiX® 8 is designed in accordance with safety requirements applicable to electrical laboratory and industrial equipment.

Operators must not open or repair the device without the vendor's authorisation, as this may result in damage and injury, and may affect the warranty.

The device must be placed in an environment with low humidity and low dust levels. It must be kept away from water, sunlight and strong light sources. Ensure that it is placed in a properly ventilated area, free from corrosive gases and major magnetic disturbances, and away from strong heat sources. The openings on the device allow for proper ventilation to prevent overheating. Do not block these vents. If using multiple devices in the same space, the minimum distance between them must be at least 10 cm.

In the following circumstances, immediately disconnect the power supply and contact your distributor.

- Liquid is present inside the instrument.
- The instrument has been exposed to rain or water.
- The instrument is not functioning normally, particularly if there is abnormal noise or odour.
- The casing is damaged.
- Operation is clearly impaired.

Biological safety

Handle biological material with care and in accordance with the required safety rules. The user must take the necessary precautions by ensuring that working conditions and the working environment are optimal, that operators are properly trained and not exposed to dangerous levels of infectious agents.

The wearing of personal protective equipment (gloves, gown, goggles) is recommended, in accordance with internal site procedures.

Any spillage, splashing or contamination must be dealt with in accordance with the safety procedures in force at the site of use.

Thermal safety

The PurifiX® 8 incorporates heating elements that can reach high temperatures (up to approximately 120°C).

- Do not touch the internal parts during operation or immediately after a cycle.

- Wait for the device to cool completely before performing any cleaning or user maintenance.

Device cleaning and decontamination

The surfaces of the PurifiX®8, such as:

- The exterior surfaces of the device,
- The imprint area of the purification strips,
- The magnetic rods,
- The preparation holder,

must be cleaned after each use with an alcohol solution.

The handling area of the PurifiX®8 must be sterilised after each cycle of use to reduce the risk of contamination. The PurifiX®8 has a sterilisation function for the purification area.

The surfaces of the PurifiX®8 can be decontaminated using a sodium hypochlorite (NaOCl) solution. A solution containing 1 g.L-1 of available chlorine is suitable; stronger solutions (5 g.L-1) are recommended in high-risk situations.

Maintenance of the device

Rust removal

The guide rail must be de-rusted annually to ensure the device functions properly.

Spray WD-40 rust inhibitor onto the instrument's guide rails, ensuring it is applied evenly.

Lubrication of components

The components of the PurifiX®8:

- The worm screw,
- The guide rail,

must be lubricated annually to ensure the proper functioning of the device.

You can use a cotton bud to apply the lubricating oil. Be careful not to apply too much, but to distribute it evenly. Once you have finished maintaining the instrument, you can let it perform a mixing movement to distribute the lubricating oil.

Waste disposal

Waste disposal must conform to all national, regional and local laws and regulations pertaining to health and safety.

Applicable standards and directives

The PurifiX® 8 device is mains-powered electrical equipment (**100–240 V AC / 50–60 Hz / 250 VA**). As such, it falls within the scope of the **Low Voltage Directive 2014/35/EU**, which applies to electrical equipment operating at a voltage between 50 V and 1000 V AC.

The **PurifiX® 8** device is designed in accordance with the essential safety requirements of **Directive 2014/35/EU**, in particular with regard to:

- Protection against electric shock,
- Risks associated with the heating of internal components (presence of heating elements),
- Safety under normal conditions and in the event of foreseeable failure.

The **PurifiX® 8** device also complies with the **Electromagnetic Compatibility Directive 2014/30/EU** (EMC). It is designed to function correctly in its intended electromagnetic environment, without generating excessive electromagnetic interference and without being affected in an unacceptable manner by external interference.

The PurifiX® 8 device complies with **Directive 2011/65/EU** (RoHS) on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

An integrated power supply allowing direct connection to the mains is used.

This is designed in accordance with the applicable requirements of **Directives 2014/35/EU** and **2014/30/EU**.

General characteristics of the PurifiX®8 device / Application scope

The PurifiX® 8 is an automated nucleic acid purification system designed to simplify and improve the reliability of extraction steps. It can prepare between 1 and 8 samples per extraction of genetic material (DNA and/or RNA). It operates using magnetic bead technology.

It includes:

- An automated sample processing module,
- Supports adapted to consumables,
- A user interface accessible via a dedicated software application.

The PurifiX® 8 operates by automating the **main steps of the extraction and purification process**:

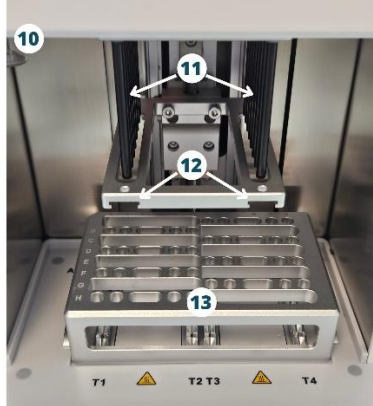
1. Loading of consumables and samples by the user.
2. Selection of a protocol via the software application.
3. Automatic execution of the cycle, including the phases specified in the protocol (heating, agitation, separation).
4. End of cycle and recovery of purified samples.

The PurifiX®8 device has been designed to limit any risk of handling errors and make handling as simple as possible. The manipulator interacts with the consumables and the control interface between the different stages, and sample preparation is automated by the device.

Sample purification is based on a system of metal beads that capture RNA and DNA. A magnetic rod is used to pass these beads through the various washing buffers required for purification. The movement parameters (durations, element movements, etc.) of the device are grouped together in a 'recipe'. The purification recipe lasts approximately 15 minutes.

No internal technical adjustments are required to use the PurifiX® 8.

Detailed description

			
			
1	User interface	9	Connexion port
2	Protective cover	10	UV lamp
3	Switch	11	Magnetic rods
4	Power port	12	Guide rails for combs
5	Power cable	13	Purification strips holder
6	Transport screw	14	Purification strip
7	Placement slot	15	Magnetic rods comb
8	Transport slot		

User interface (1): The user interface is a 4.3-inch touchscreen that allows you to control and monitor the device:

Icons	Signification
	"Quick start" display on the Run screen
	"List" display on the Run screen
	Delete a recipe, delete a report Please note: Deleting an item is permanent
	View the steps and information for a recipe
	Play, start the recipe

	Pause, pause the recipe
	Stop, permanently stop the recipe in progress
	Search for a report
	Turn the appliance light on and off

Protective cover (2): The protective cover reduces the risk of contamination whilst the device is in operation. It must be closed for the PurifiX to run its cycle.

Switch (3): The switch on the rear panel allows the device to be switched on and off.

Power port (4): The power port is located at the rear of the device. Connect the power cable to this port and then to a suitable mains socket to power the device.

Power cable (5): The appliance must be powered using a mains cable that complies with applicable standards and directives and is compatible with the electrical characteristics of the appliance. The cable supplied may be replaced by any other equivalent cable that meets the specifications indicated in this manual.

Transport screw (6): The transport screw must be removed before switching on the appliance. It protects the appliance and keeps in place during transport.

Placement slot (7): While using the appliance, the transport screw must be kept in placement slot to prevent it from being lost.

Transport slot (8): When transporting the unit, screw the transport screw back into place to secure the motors and protect the unit.

Connection port (9): The connection ports allow you to connect external devices (mouse, USB stick, etc.). Please note: Only devices supplied with the unit are approved for use with the PurifiX 8.

UV lamp (10): The device features a UV sterilisation function powered by the lamp. A sterilisation cycle is recommended after each use to minimise the risk of contamination.

Magnetic rods (11): The purification process is based on a technology that involves capturing and releasing magnetic beads which bind to DNA and RNA. The device's magnetic rods enable the beads to be captured in the various buffers, thereby purifying the genetic material.

Guide rails for combs (12): The guide rails ensure that the combs are correctly positioned within the machine. A locking mechanism between the combs and the rails ensures that the consumables are securely fastened.

Purification strips holder (13): The holder allows the strips to be prepared outside the device and positioned within the device for purification.

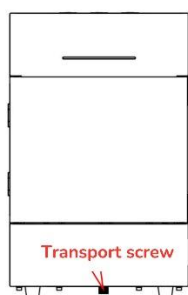
Purification strip (14): The purification strip contains the reagents needed for purification. It has six reaction wells, including well 1, which contains the magnetic beads and receives the sample to be purified. At the end of the cycle, the purified eluate is contained in well 6.

Magnetic rods comb (15): The comb is a consumable component that facilitates the collection and release of magnetic beads; it protects the magnetised rods from direct contact with the beads and allows the beads to be stirred within the various chambers. It fits into the guide rails and is secured by a locking mechanism that engages between the two components.

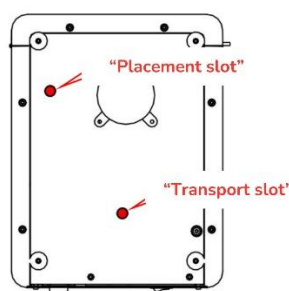
Transporting the unit

For transport, the PurifiX®8 is fitted with a screw designed to secure the axles. This transport screw must always be fitted before transport and removed before the unit is put into operation.

Before carrying out any work, ensure that the unit is switched off, then position the screw according to the intended use:



Front view of the device



View of the device from below

Important note(s)

The PurifiX® 8 is an automated device designed for the extraction and purification of nucleic acids (DNA and/or RNA) from samples.

It is designed for use in the following fields:

- agri-food,
- environmental,
- industrial,
- research and development.

The device works with compatible consumables, protocols and reagents validated by the manufacturer or distributor.

The PurifiX® 8 must not be used outside the conditions of use, installation and environment described in this manual. Any use outside the intended use may result in unreliable results and is the responsibility of the user.

Features

Electrical	AC	100-240V / 50-60Hz / 250 VA
Use conditions	Temperature	10 - 25°C
	Humidity	20 – 80% non-condensing
Storage conditions	Temperature	10 – 35°C
	Humidity	Approximately 70% non-condensing
	Atmospheric range	500~1060 hPa
Physical	Dimensions	208 x 258 x 315 mm
	Weight	7 kg
Temperature	Elution	± 120 °C
Samples	Volumes	50 µL – 1000 µL
	Quantity	1 to 8
Performance	Stability	CV ≤3%

Detailed operating procedure

Installation of the device

NB : For first-time use, please refer to the “Quick start” supplied with the device.

1. Place the appliance in its final position; the base must be level, flat and stable.
2. Remove the **transport bracket** before starting up.
 - a. Underneath the appliance, remove the transport bracket by unscrewing it.
 - b. Screw it into the designated storage position.
3. Connect the PurifiX®8 device to a power source (AC 100-240V; 250 VA) using the power cable supplied with the device.
4. Set the switch to the ‘ON’ position on the rear of the device. The PurifiX®8 will power up and perform a self-check. The user interface will display the loading screen.



Figure 1 : Loading screen and device self-check

5. If the self-check is successful, the user interface displays the ‘Run’ screen. It can be displayed in two different ways:
 - a. « Quick start » mode.
 - b. « List » mode

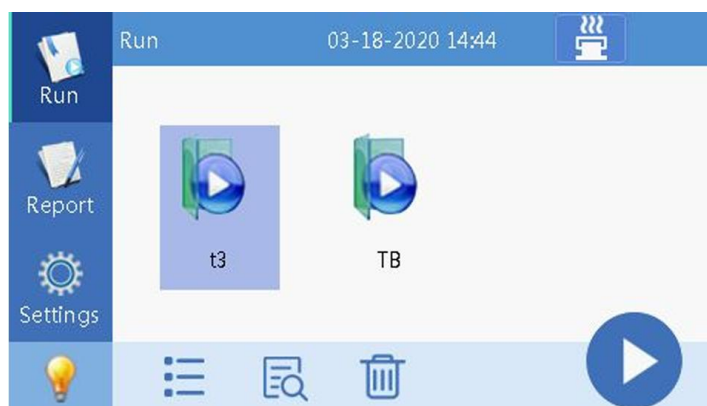


Figure 2 : Run screen – “Quick start” display

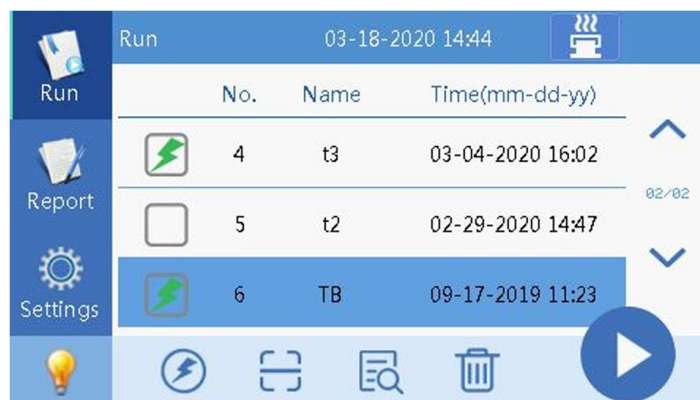


Figure 3 : Run screen – « List » display

Sample preparation

Prepare the sample by carefully following the method's operating procedure.

Repeat these steps for each sample to be prepared.

Thermal lysis

Prepare the sample by carefully following the method's operating procedure.

Thermal lysis can be carried out using the LoopiX® automated system or a heating block.

Repeat these steps for each sample to be prepared.

Purification

1. Take a purification strip and tap it gently against the workbench to homogenise the volumes.

If necessary: Mark the sample reference number on the strip with a marker.

2. Unseal the strip and place it on the preparation support.
3. Using a transfer pipette, transfer the entire contents of tube L1 into tube 1 of the strip, homogenise briefly by aspirating and dispensing.

Repeat these steps for each sample to be prepared.

4. Open the PurifiX®8 protection cover and place the purification strips in the imprints.
5. Place PurifiX®8 comb(s) in the magnetic rods rail(s) until it stops.
6. Select the specific recipe to the method and press Play «  » .
7. The machine starts the purification process. While it is running, the user interface allows you to:
 - a. Follow the recipe (duration, stage, etc.).
 - b. Pause the recipe.

- c. Interrupt the recipe (**Warning**: this permanently interrupts the recipe).

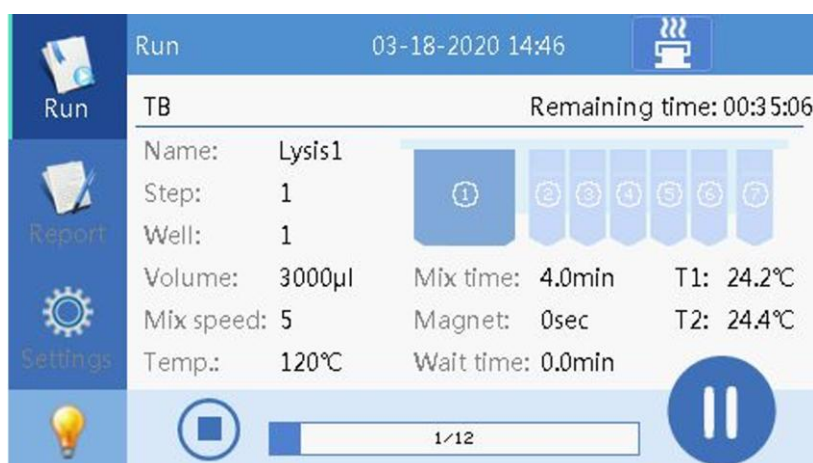


Figure 4 : Run screen – Recipe display

8. At the end of the recipe, the device will emit an audible signal. Open the PurifiX®8 cover.
9. Remove and discard the magnetic rods comb(s) by pressing the clip(s) to unlock it and pulling it out.
10. Remove the strips and place them on the support.
11. Close the device protection cover.

Analysis

1. Continue from the purified sample in well 6 of the strip, according to the desired analysis method.

Device cleaning

The PurifiX®8 must be cleaned daily after use. This step ensures a clean purification area and promotes purification performance without risk of contamination.

1. Open the protective cover
2. Using an alcohol-based solution and an absorbent cloth, clean:
 - The purification bar imprint,
 - The preparation support,
 - The magnetic rods.

UV Sterilization

1. Click on the “**Settings**” menu in the user interface.
2. Click on « **UV sterilizer** ».
3. Set the duration.
4. Press « **Play** »

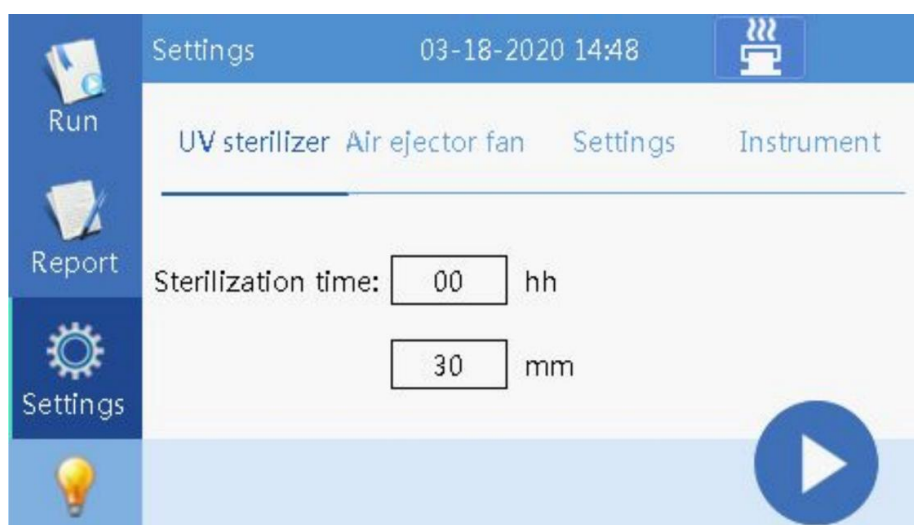


Figure 5 : Settings screen – UV sterilizer display

Recommendations and warnings

- Keep the PurifiX®8 away from high temperatures and store and use it in a cool place away from any heat sources (10-25°C).
- Do not start a recipe with the PurifiX®8 without the comb consumable, as this may damage the magnetic rods.
- PurifiX®8 must be placed horizontally on a flat surface.
- The detection kits and the PurifiX®8 device must be used exclusively as indicated in the instructions. Loop Dee Science World Wide accepts no responsibility for any consequences resulting from misuse or failure to follow the manufacturer's recommendations regarding the PurifiX®8 device.
- During purification, do not disconnect the PurifiX® before the end of the recipe.
- Consumables are single-use only and must be disposed of after use in accordance with site conditions.

Troubleshooting

Observation	The device does not start
Possible causes	- No power supply, - Power cable not properly connected, - Power supply not compliant.
User action	- Check the electrical connection, - Check that the main switch is in the 'on' position, - Ensure that the power supply corresponds to the device specifications.

Observation	The cycle does not start
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Possible causes	- Protocol not selected, - Error reported by the software application, - Consumables incorrectly positioned.
User action	- Check the protocol selection, - Consult the message displayed by the application, - Check that the consumables are correctly installed.

Observation	Error message during a cycle
User action	- Note the message displayed in the application, - Interrupt the cycle only if necessary, - Restart the device if recommended by the application.

Document history / Versions

Revision	Date	Comments
1.0	13/03/2026	Initial revision