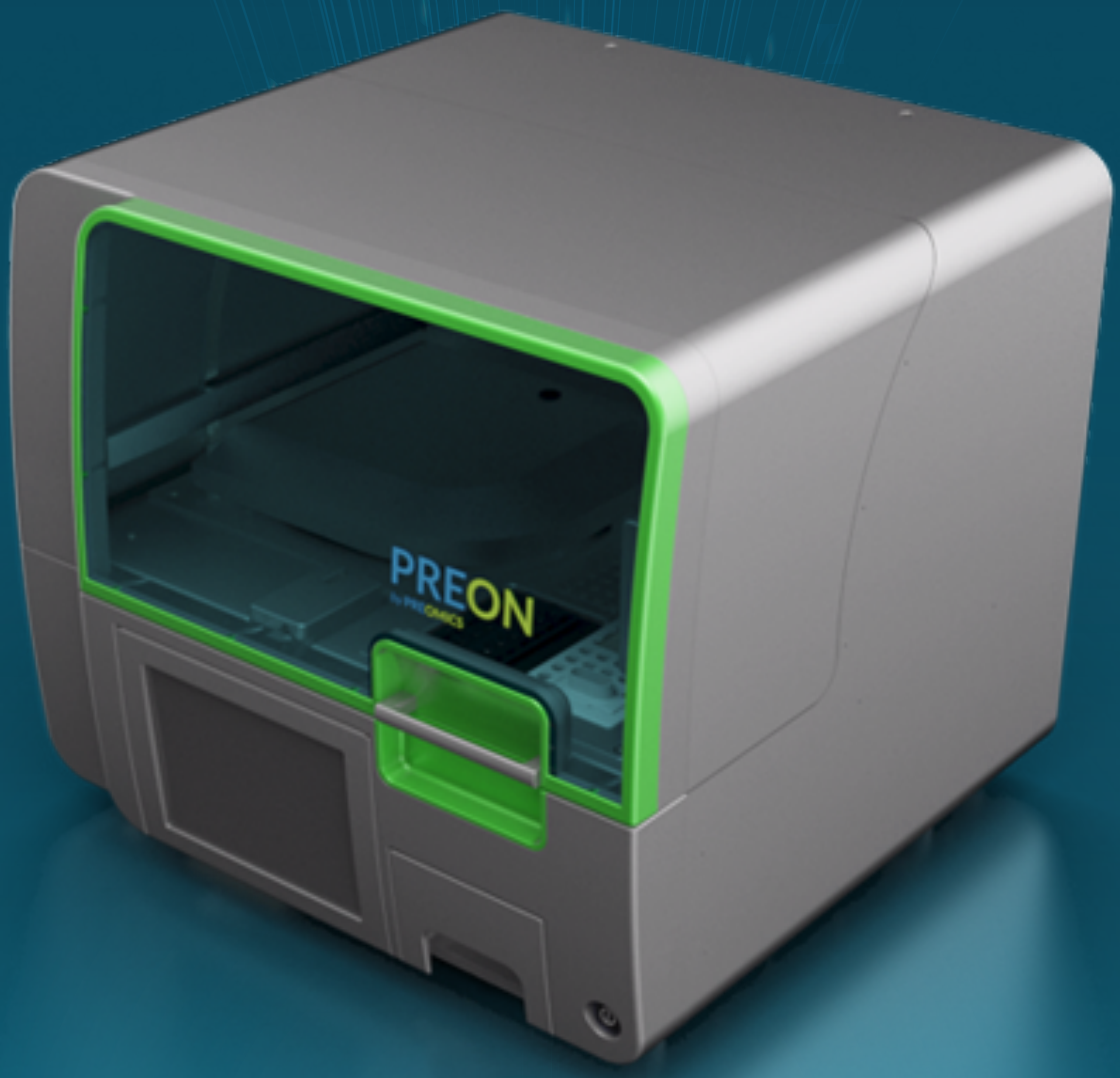
PREOMICS | Setting the Standard for Protein Analysis

PreON User Manual



Document Information

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Document Change Control

Adaptations and updates of the present document are a consequence of technical improvements and amendments of the PreON. Any changes within this document are to be controlled.

Document revisions

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01	SM-PN1001-01	New Document	HSE	08/10/2019
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04	SM-PN1001-04	Updates for SW 1.4	HSE	29/01/2021
05	SM-PN1001-05	Updates for PreON fuses	HSE	22/03/2021
06	SM-PN1001-06	Updates for SW 1.10	HSE	06/05/2022

Trademarks

Trademarks: PreON

Table of content

1 Introduction

Thank you for choosing the PreON. We are confident it will become an integral part of your laboratory. Before using the PreON, it is essential that you read this user manual carefully and pay attention to the safety information. The instructions and safety information in the user manual must be followed to ensure safe operation of the instrument and to maintain the instrument in a safe condition.

Only professionals who understand the user manual in the introduction and safety information section must operate the device.

Seuls les professionnels qui comprennent le manuel d'utilisation dans la section introduction et informations de sécurité doivent utiliser l'appareil.

Nur Fachleute, die das Benutzerhandbuch im Abschnitt Einführung und Sicherheitshinweise verstehen, dürfen das Gerät bedienen.

Solo i professionisti che comprendono il manuale d'uso nella sezione introduzione e informazioni sulla sicurezza devono utilizzare l'apparecchio.

1.1 About this user manual

This user manual provides information about the PreON in the following sections:

1. Introduction
2. Safety Information
3. General Description
4. Installation Procedures
5. Operating Procedures
6. Maintenance Procedures
7. Troubleshooting
8. Automated Status Supervision
9. Appendix A – Technical data
10. Appendix B – PreON Accessories
11. Appendix C – Consignes de sécurité (Safety Information in French)
12. Appendix D – Sicherheitshinweise (Safety Information in German)
13. Appendix E – Informazioni di sicurezza (Safety Information in Italian)

1.1.1 Technical assistance change

At PreOmics, we pride ourselves on the quality and availability of our technical support. Our Technical Services Departments are staffed by experienced scientists with extensive practical and theoretical expertise in molecular biology and the use of PreOmics products. If you have any questions or experience any difficulties regarding the PreON or PreOmics products in general, do not hesitate to contact us.

PreOmics customers are a major source of information regarding advanced or specialized uses of our products. This information is helpful to other scientists as well as to the researchers at PreOmics We therefore encourage you to contact us if you have any suggestions about product performance or new applications and techniques.

For technical assistance and more information, please call one of the PreOmics Technical Service Departments or local distributors (see back cover or visit **www.PreOmics.com**).

1.1.2 Policy statement

It is the policy of PreOmics to improve products as new techniques and components become available. PreOmics reserves the right to change specifications at any time.

To produce useful and appropriate documentation, we appreciate your comments on this user manual. Please contact PreOmics Technical Services.

1.2 Intended use of the PreON

The PreON is designed to perform fully automated purification of peptides and proteins in molecular biology applications. The system is intended for use by professional users, such as technicians and physicians trained in molecular biological techniques and the operation of the Proton. The Proton system is not intended for diagnostic use.

The PreON is intended to be used only in combination with PreOmics kits indicated for use with the PreON for the applications described in the kit handbooks.

1.3 Requirements for PreON users

The table below covers the general level of competence and training necessary for transportation, installation, use, maintenance, and servicing of the PreON.

Task	Personnel	Training and experience
Transportation	No special requirements	No special requirements
Storage	No special requirements	**No special requirements**
Routine use and maintenance	Laboratory technicians or equivalent	Professional personnel, such as technicians and physicians, who are trained in molecular biological techniques and in the operation of the proton.
Installation and servicing	PreOmics Field Service Specialists only	Trained and authorized by PreOmics

2 Safety Information

Before using the PreON, it is essential that you read this user manual carefully and pay attention to the safety information. The instructions and safety information in the user manual must be followed to ensure safe operation of the instrument and to maintain the instrument in a safe condition. **Note**: Translations of the Safety Information in French, German and Italian are available in Appendix C – Consignes de sécurité, Appendix D – Sicherheitshinweise and Appendix E – Informazioni di sicurezza.

The following types of safety information appear in this manual.

WARNING

The term WARNING is used to inform you about situations that could result in personal injury to you or other persons.
Details about these circumstances are given in a box like this one.

CAUTION

The term CAUTION is used to inform you about situations that could result in damage to the instrument or other equipment.
Details about these circumstances are given in a box like this one.

Important note: All symbols that are marked on the PreON are explained in detail in the related sections of this user manual. In particular it is mandatory to consult the user manual in case of the generic symbol shown below and all specific symbols that are safety related.

Safety related information. User manual must be consulted to find out the nature of potential hazards and any actions which have to be taken to avoid them

The advice given in this manual is intended to supplement, not supersede, the normal safety requirements prevailing in the user's country.

2.1 Proper use

WARNING

Risk of personal injury and material damage **[W1]**
Improper use of the PreON may cause personal injuries or damage to the instrument. The PreON must only be operated by professional personnel who have been appropriately trained. Servicing of the PreON must only be performed by a PreOmics Field Service specialist.

Perform the maintenance as described in section Maintenance Procedures. PreOmics charges for repairs that are required due to incorrect maintenance.

WARNING

Risk of personal injury and material damage **[W2]**
The PreON is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

WARNING

Risk of personal injury and material damage **[W3]**

Do not attempt to move the PreON during operation.

CAUTION

Damage to the instrument **[C1]**

Avoid spilling water or chemicals onto the PreON. Damage caused by water or chemical spillage will void your warranty.

In case of emergency, power OFF the PreON at the power switch located in front of the instrument and unplug the power cord from the power outlet.

CAUTION

Damage to the instrument **[C2]**

Only use PreOmics spin column-based cartridges and PreON specific consumables with the PreON. Damage caused by use of other types of spin column-based cartridges or chemistries will void your warranty.

WARNING

Risk of personal injury and material damage **[W4]**

Do not use damaged rotor adapters. The rotor adapters can only be used once. High g forces exerted in the centrifuge can cause damage to re-used rotor adapters.

CAUTION

Damage to the instrument **[C3]**

Empty the tip disposal container prior to use to prevent a tip jam in the waste drawer. Failure to empty the waste container may block the robotic arm that could cause run failure or instrument damage.

WARNING

Risk of personal injury and material damage **[W5]**

To prevent plastic crash, load the tubes properly. After a plastic crash, sharp plastic particles could be inside the centrifuge. Be careful when handling items inside the centrifuge.

CAUTION

Damage to the instrument **[C4]**

Only use the correct volume of liquids.

Exceeding the recommended volume of liquids may damage the centrifuge rotor or instrument.

WARNING

Risk of fire or explosion **[W6]**

When using flammable liquids on the PreON (Acetonitrile, Isopropyl alcohol), handle such liquids carefully and in accordance with the required safety regulations. If liquid has been spilled, wipe it off and leave the PreON hood open to allow flammable vapors to disperse.

WARNING

Risk of fire or explosion **[W7]**

The PreON is intended for use with reagents and substances supplied with PreOmics kits. Use of other reagents and substances may lead to fire or explosion.

If hazardous material is spilled on or inside the PreON, the user is responsible for carrying out appropriate decontamination.

CAUTION

Damage to the instrument **[C5]**

Avoid contact of the reagents with the instrument surfaces and centrifuge (rotor, buckets, gasket) as this will damage instrument surfaces and centrifuge gasket and cause corrosion of metal on the worktable, the centrifuge rotor and buckets.

Clean spillage on the worktable and centrifuge immediately after the run.

Note: Do not place items on top of the PreON hoods.

CAUTION

Damage to the instrument **[C6]**

Do not lean against the touchscreen when it is pulled out.

2.2 Electrical safety

Note: Disconnect the line power cord from the power outlet before servicing.

WARNING

Electrical hazard **[W8]**

Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument dangerous.

Intentional interruption is prohibited.

Lethal voltages inside the instrument

When the instrument is connected to line power, terminals may be live and opening covers or removing parts is likely to expose live parts.

WARNING

Damage to electronics **[W9]**

Before powering ON the instrument, make sure that the correct supply voltage is used.

Use of incorrect supply voltage may damage the electronics.

To check the recommended supply voltage, refer to the specifications indicated in the type plate of the instrument.

WARNING

Risk of electric shock **[W10]**

Do not open any panels on the PreON.

Risk of personal injury and material damage may occur.

Only perform maintenance that is specifically described in this user manual.

To ensure satisfactory and safe operation of the PreON, follow these guidelines:

- The line power cord must be connected to a line power outlet that has a protective conductor (earth/ground).
- Do not adjust or replace internal parts of the instrument.
- Do not operate the instrument with any covers or parts removed.

If the instrument becomes electrically unsafe, prevent other personnel from operating it, power OFF the instrument, disconnect it from the power outlet and contact PreOmics Technical Services.

The instrument may be electrically unsafe when:

- It or the line power cord appears to be damaged.
- It has been stored under unfavorable conditions (see chapter 9.3 Storage conditions) for a prolonged period.
- It has been subjected to severe transport stresses. Indications can be that the transportation crate is damaged, or the instrument housing is compromised.
- Liquids come in contact directly with electrical components of the PreON.

2.3 Environment

2.3.1 Operating conditions

WARNING

Explosive atmosphere **[W11]**

The PreON is not designed for use in an explosive atmosphere.

CAUTION

Damage to the instrument **[C7]**

Direct sunlight may bleach parts of the instrument and cause damage to plastic parts.

The PreON must be located out of direct sunlight.

2.4 Biological safety

Specimens and reagents containing materials from humans should be treated as potentially infectious. Use safe laboratory procedures as outlined in publications such as Biosafety in Microbiological and Biomedical Laboratories, HHS (**www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2009-P.PDF**).

2.4.1 Samples

Samples may contain infectious agents. You should be aware of the health hazard presented by such agents and should use, store, and dispose of such samples according to the required safety regulations.

WARNING

Samples containing infectious agents **[W12]**

Some samples used with this instrument may contain infectious agents. Handle such samples with the greatest of care and in accordance with the required safety regulations.

Always wear safety glasses, 2 pairs of gloves, and a lab coat.

The responsible body (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe, and that the instrument operators are suitably trained and not exposed to hazardous levels of infectious agents as defined in the applicable Safety Data Sheets (SDSs) or OSHA[1] or ACGIH[2] or documents.

Venting for fumes and disposal of wastes must be in accordance with all national, state, and local health and safety regulations and laws.

[1] OSHA : Occupational Safety and Health Administration (United States of America).
[2] ACGIH : American Conference of Government Industrial Hygienists (United States of America).

2.5 Chemicals

WARNING

Hazardous chemicals **[W13]**

Some chemicals used with this instrument may be hazardous or may become hazardous after completion of the protocol run.

Always wear safety glasses, gloves, and a lab coat.

The responsible body (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe and that the instrument operators are not exposed to hazardous levels of toxic substances (chemical or biological) as defined in the applicable Safety Data Sheets (SDSs) or OSHA or ACGIH documents.

Venting for fumes and disposal of wastes must be in accordance with all national, state, and local health and safety regulations and laws.

CAUTION

Damage to the instrument **[C8]**

Avoid contact of the reagents with the instrument surfaces and centrifuge (rotor, buckets, gasket) as this will damage instrument surfaces and centrifuge gasket and cause corrosion of metal on the worktable, the centrifuge rotor and buckets.

Clean spillage on the worktable and centrifuge immediately after the run.

2.5.1 Toxic fumes

If working with volatile solvents or toxic substances, you must provide an efficient laboratory ventilation system to remove vapors that may be produced.

WARNING

Vapors from volatile solvents **[W14]**

Some of the solvents used with the instrument are volatile. Use the instrument only with adequate ventilation according to the applicable Safety Data Sheets (SDSs) or OSHA or ACGIH† documents.

WARNING

Toxic fumes **[W15]**

Do not use bleach to clean or disinfect the PreON. Bleach in contact with salts from the buffers can produce toxic fumes.

WARNING

Toxic fumes **[W16]**

Do not use bleach to disinfect used labware. Bleach in contact with salts from the buffers used can produce toxic fumes.

2.6 Waste disposal

Used labware, such as sample tubes, PreOmics spin column-based cartridges, filter-tips, buffer bottle and enzyme tubes, or rotor adapters, may contain hazardous chemicals or infectious agents from the purification process. These hazardous wastes must be collected and disposed of properly according to local safety regulations.

For more information about how to dispose of the PreON, see section 10.6 Waste Electrical and Electronic Equipment (WEEE).

WARNING

Hazardous chemicals and infectious agents **[W17]**

The waste may contain toxic material and must be disposed of properly. Refer to your local safety regulations for proper disposal procedures.

2.7 Mechanical hazards

The hood of the PreON must remain closed during operation of the instrument. Only open the hood when instructed to do so by the instruction for use.

While loading the worktable, always stand clear of the instrument. Do not lean on the worktable when the robotic arm of the instrument is moving to reach loading position with its lid open. Wait until the robotic arm completed its movements before you start to load or unload.

WARNING

Moving parts **[W18]**

Avoid contact with moving parts during operation of the PreON. Under no circumstances should you place your hands under the robotic arm when it is lowering. Do not attempt to move any tip racks or tubes whilst the instrument is operating.

WARNING

Moving parts **[W19]**

To avoid contact with moving parts during operation of the PreON, the instrument must be operated with the hood closed.

If the hood sensor or lock is not functioning correctly, contact PreOmics Technical Services.

2.7.1 Centrifuge

Make sure that the rotor and buckets are installed correctly. All buckets must be mounted before starting a protocol run, regardless of the number of samples to be processed. If the rotor or buckets show signs of mechanical damage or corrosion, do not use the PreON; contact PreOmics Technical Services.

CAUTION

Damage to the instrument **[C9]**

The PreON must not be used if the centrifuge lid is broken, or if the lid lock is damaged.

Make sure that no loose material is inside the centrifuge during operation.

Make sure that the rotor is installed correctly and that all buckets are properly mounted, regardless of the number of samples to be processed. Load the rotor only as instructed by the software.

Only use rotors, buckets, and consumables designed for use with the PreON. Damage caused by use of other consumables will void your warranty.

We recommend replacing the centrifuge after 20,000 cycles, which is equivalent to 9 years of usage with two runs per day for 220 days each year. For more information contact PreOmics Technical Services.

In case of breakdown caused by power failure, the centrifuge lid can be opened manually to remove the samples (see section 7.3.2).

Cleaning and decontamination may be necessary as a safeguard before LABORATORY, CENTRIFUGES, ROTORS, and any accessories are maintained, repaired, or transferred.
Manufacturers may provide a format for users to document that such treatment has been carried out. For more information contact PreOmics Technical Services.

WARNING

Moving parts **[W20]**

In case of breakdown caused by power failure, remove the power cord and wait 10 minutes before attempting to manually open the centrifuge lid.

CAUTION

Damage to the instrument **[C10]**

After a power failure, do not move the z-module (robotic arm) manually. Damage may occur if the centrifuge lid is closed and collides with the z-module.

WARNING

Risk of personal injury and material damage **[W21]**

Raise the centrifuge lid carefully. The lid is heavy and may cause injury if it falls.

CAUTION

Risk of overheating **[C11]**

To ensure proper ventilation, maintain a minimum clearance of 10 cm at the sides and rear of the PreON.

Slits and openings that ensure the ventilation of the PreON must not be covered.

2.8 Heat hazard

The PreON worktable contains a heated shaker.

WARNING

Hot surface **[W22]**

The shaker can reach temperatures of up to 83°C (181.4°F). Avoid touching it when it is hot. Carefully remove the samples after a run.

2.9 Maintenance safety

WARNING/ CAUTION

Risk of personal injury and material damage **[W23]**

Only perform maintenance that is specifically described in this user manual.

WARNING

Risk of explosion **[W24]**

When cleaning the PreON with alcohol-based disinfectant, leave the PreON hood open to allow flammable vapors to disperse.

Only clean the PreON when worktable components have cooled down.

WARNING

Risk of fire **[W25]**

Do not allow cleaning fluid or decontamination agents to come into contact with the electrical parts of the PreON.

WARNING

Risk of personal injury and material damage **[W26]**

To prevent the rotor nuts from loosening during operation of the centrifuge, securely tightened the nuts using the rotor key supplied with PreON.

WARNING

Risk of personal injury and material damage **[W27]**

Make sure that lids from spin column-based cartridges and 1.5 ml microcentrifuge tubes are in the correct position and pushed all the way down to the bottom of the slots on the sides of the rotor adapter. Incorrectly positioned lids can break off during centrifugation.

WARNING

Risk of personal injury and material damage **[W28]**

Be sure the lid is completely removed from the spin column. Spin column-based cartridges with partially removed lids may not be removed properly from the rotor, causing the protocol run to crash.

CAUTION

Damage to the instrument **[C12]**

Do not use bleach, solvents, or reagents containing acids, alkalis or abrasives to clean PreON.

CAUTION

Damage to the instrument **[C13]**

Avoid contact of the reagents with the instrument surfaces and centrifuge (rotor, buckets, gasket) as this will damage instrument surfaces and centrifuge gasket and cause corrosion of metal on the worktable, the centrifuge rotor and buckets.

Clean spillage on the worktable and centrifuge immediately after the run.

CAUTION

Damage to the instrument **[C14]**

Do not use spray bottles containing alcohol or disinfectant to clean surfaces of the PreON. Spray bottles should be used only to clean items that have been removed from the worktables.

2.10 Radiation safety

WARNING

Risk of personal injury **[W29]**

Hazard Level 2 laser light: Do not stare into the light beam when using handheld bar code scanner, Read for further instructions the user manual of the handheld scanner.

2.11 Symbols on the PreON

Symbol	Location	Description
	Next to the shaker	Hot surface – the temperature of the shaker can reach up to 83°C (181.4°F) (cf. section 2.8)
	Near the centrifuge; near the robotic arm	Safety related information. User manual must be consulted to find out the nature of potential hazards and any actions which have to be taken to avoid them Mechanical hazard — avoid contact with moving parts (cf. section 2.7).
	On the instrument, near bottle rack	Safety related information. User manual must be consulted to find out the nature of potential hazards and any actions which have to be taken to avoid them Fire hazard – usage of ethanol in bottle rack (cf. section 2.1).
	In front of worktable Inside the waste drawer	Biohazard risks – substances in the waste drawer or used with this instrument may be hazardous. based on biological activity must be handled with gloves (cf. section 2.4).
	Back of the instrument next to the mains connection	Possibility of electric shock. Do not open any panels on the PreON (cf. section 2.2)
	Front of Barcode- scanner	Laser radiation - do not stare into the light beam (cf. 2.10)
	Type plate on the back of the instrument	CE marking to indicate conformity with the applicable requirements of the European Community
	Type plate at the back of the instrument	CSA marking to indicate compliance to applicable CSA and ANSI/UL Standards, for use in Canada and the U.S..
	Type plate on the back of the instrument	Waste Electrical and Electronic Equipment (WEEE) marking for Europe to indicate that product must not be disposed of with other waste (cf. section 9.6)
	Type plate on the back of the instrument	Manufacturer
	Type plate on the back of the instrument	Serial number of the instrument

3 General Description

The PreON performs fully automated processing of up to 12 samples (up to 16 samples with iST-NHS and TMT16plex) per run. The PreON is designed to automate selected PreOmics kits. The PreON controls integrated components, including a centrifuge, heated shaker, pipetting system and robotic gripper.

The PreON is preinstalled with iST, iST-NHS and iST-BCT protocols for processing PreOmics spin column-based cartridges for sample preparation and peptide cleanup. The user selects a protocol using the touchscreen and loads labware, samples, and reagents onto the PreON worktable. The user then closes the instrument hood and starts the protocol, which provides all necessary commands for sample lysis and purification using PreOmics spin column-based cartridges. A fully automated load check helps to ensure correct loading of the worktable.

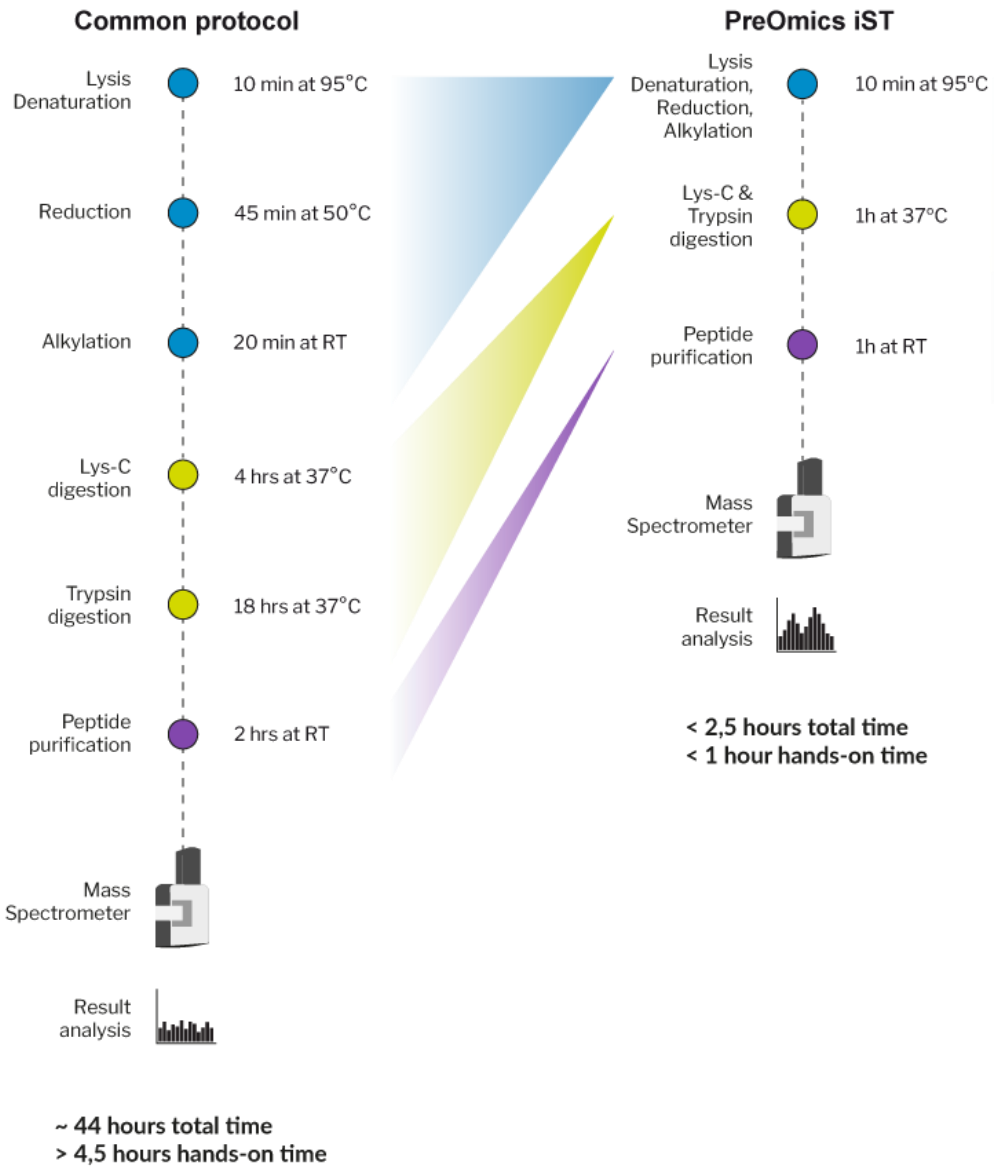
The range of protocols available is continually expanding.

PreON principle

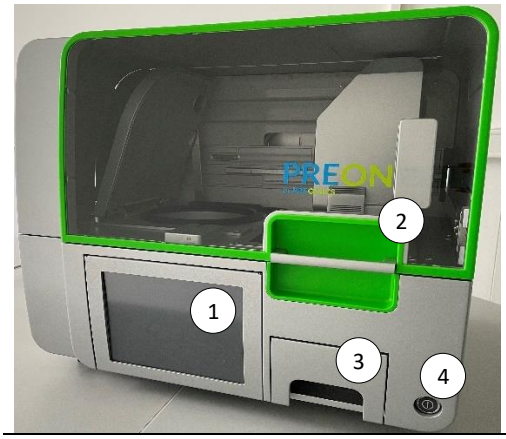
Sample preparation using the PreON follows the same steps as the manual procedure (i.e., lyse, proteolytically digest, wash and elute). No change in purification chemistry is required as you simply continue to use trusted PreOmics kits.

1. Samples are lysed in the heated orbital shaker.
2. Each lysate is digested with Proteases added to the lysate by the PreON. Digestion reaction is stopped.
3. Each lysate protease mix is transferred to a spin column-based spin column-based cartridge in a rotor adapter.
4. Peptides bind to the membrane. During washing steps of the PreOmics spin column-based spin column-based cartridge salts and contaminants are removed.
5. The spin column-based cartridge is transferred to a microcentrifuge tube for elution of purified peptides.

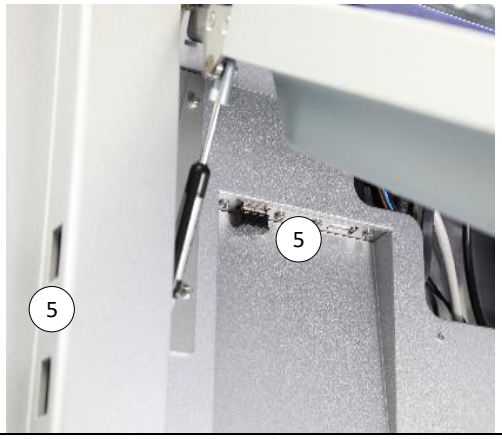
For an example workflow using a PreOmics iST Kit, see the flowchart on the next page.


Common protocol
Lysis Denaturation
10 min at 95°C
Reduction
45 min at 50°C
Alkylation
20 min at RT
Lys-C digestion
4 hrs at 37°C
Trypsin digestion
18 hrs at 37°C
Peptide purification
2 hrs at RT
Mass Spectrometer
Result analysis
~ 44 hours total time
> 4,5 hours hands-on time
PreOmics iST
Lysis Denaturation, Reduction, Alkylation
10 min at 95°C
Lys-C & Trypsin digestion
1h at 37°C
Peptide purification
1h at RT
Mass Spectrometer
Result analysis
< 2,5 hours total time
< 1 hour hands-on time

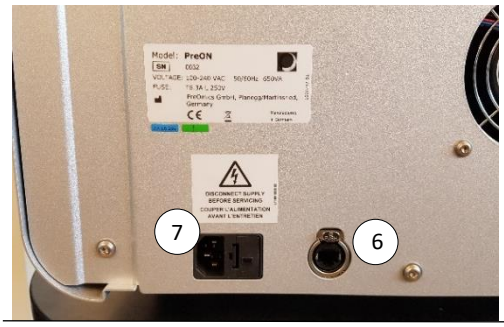
3.1 External features of the PreON



Front view of the PreON



Pulled-out touchscreen



Rear view of PreON

Rear view of PreON

1	Touchscreen	5	2x USB ports on the left side of the touchscreen; 2x USB ports behind the touchscreen (Wi-Fi module plugged into 1 USB port)
2	Hood	6	RJ-45 Ethernet port
3	Waste drawer	7	Power cord socket
4	Front power switch	8	Cooling air outlet

Touchscreen

The PreON is controlled using a swivel-mounted touchscreen. The touchscreen allows the user to select and run protocols, install or delete protocols, save data files and operate the shaker and centrifuge individually. Information displayed on the touchscreen guides the user through worktable setup after a protocol has been selected. During sample processing, the touchscreen shows the protocol status and remaining time.

Pulled-out touchscreen

Hood

The PreON hood protects users from the moving robotic arm and from potentially infectious material placed on the worktable. The hood can be manually opened to gain access to the worktable. During operation of the PreON, the hood must remain closed and should only be opened when instructed to do so by the software. Therefore, a hood lock has been implemented to avoid inappropriate opening.

WARNING 	**Moving parts** **[W18]** To avoid contact with moving parts during operation of the PreON, the instrument must be operated with the hood closed. If the hood sensor or lock is not functioning correctly, contact PreOmics Technical Services.

Power switch

The power switch is located at the front right of the PreON. To power ON the PreON, press the switch. The beeper sounds, and the startup screen appears. The instrument then automatically performs initialization tests.

To conserve energy, the PreON can be powered OFF when not in use. To power OFF the PreON, press the switch.

Note: After powering OFF the PreON, you must wait for a few seconds before you power ON the instrument again. The system might fail to start if you do not allow the PreON to rest for a few seconds before powering ON.

RJ-45 Ethernet port

The RJ-45 Ethernet port located at the back of the instrument beside the power cord socket, is only used to connect the PreON to local area network via cable.

USB ports

The PreON has four USB ports. Two are located on the left of the touchscreen and two are located behind the touchscreen.

The USB ports located on the left of the touchscreen allow connection of the PreON to a USB stick. Data files, such as support package, protocols or report files, can be transferred via the USB port from the PreON to the USB stick. The USB ports can also be used to plug in an external 2D bar code reader.

New protocols and software versions, available at **www.preomics.com/downloads**, can be downloaded to the USB stick and transferred to the PreON via the USB port.

Important: The USB port is only for use B devices provided by PreOmics. Do not connect other devices to this port.

Important: Do not remove the USB stick while downloading or transferring data or software to or from the instrument.

Waste drawer

Used disposable filter-tips are discarded through two slots in the worktable and collected in the waste drawer.

CAUTION 	**Damage to the instrument** **[C3]** Empty the tip disposal container prior to use to prevent a tip jam in the waste drawer. Failure to empty the waste container may block the robotic arm that could cause run failure or instrument damage.
WARNING 	**Hazardous chemicals and infectious agents** **[W16]** The waste may contain toxic material and must be disposed of properly. Refer to your local safety regulations for proper disposal procedures.
WARNING 	**Hazardous chemicals** **[W13]** Some chemicals used with this instrument may be hazardous or may become hazardous after completion of the protocol run. Always wear safety glasses, gloves, and a lab coat. The responsible body (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe and that the instrument operators are not exposed to hazardous levels of toxic substances (chemical or biological) as defined in the applicable Safety Data Sheets (SDSs) or OSHA[3], ACGIH[4] documents. Venting for fumes and disposal of wastes must be in accordance with all national, state, and local health and safety regulations and laws.

[3] OSHA : Occupational Safety and Health Administration (United States of America).
[4] ACGIH : American Conference of Government Industrial Hygienists (United States of America).

WARNING

Samples containing infectious agents **[W12]**

Some samples used with this instrument may contain infectious agents. Handle such samples with the greatest of care and in accordance with the required safety regulations.

Always wear safety glasses, 2 pairs of gloves, and a lab coat.

The responsible body (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe, and that the instrument operators are suitably trained and not exposed to hazardous levels of infectious agents as defined in the applicable Safety Data Sheets (SDSs) or OSHA[6], ACGIH[5]documents.

Venting for fumes and disposal of wastes must be in accordance with all national, state, and local health and safety regulations and laws.

Power cord socket

The power cord socket is located at the rear right of the PreON and allows connection of the PreON to a power outlet via the supplied power cord.

WARNING

Electrical hazard **[W8]**

Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument dangerous.

Intentional interruption is prohibited.

Lethal voltages inside the instrument

When the instrument is connected to line power, terminals may be live and opening covers or removing parts is likely to expose live parts.

WARNING

Damage to electronics **[W9]**

Before powering ON the instrument, make sure that the correct supply voltage is used.

Use of incorrect supply voltage may damage the electronics.

To check the recommended supply voltage, refer to the specifications indicated in the type plate of the instrument.

WARNING

Risk of electric shock **[W10]**

Do not open any panels on the PreON.

Risk of personal injury and material damage

Only perform maintenance that is specifically described in this user manual.

[6] OSHA : Occupational Safety and Health Administration (United States of America).

[5] ACGIH : American Conference of Government Industrial Hygienists (United States of America).

Cooling air outlet

Cooling air outlets are located at the rear left side of the PreON and allow cooling of the internal components of the PreON.

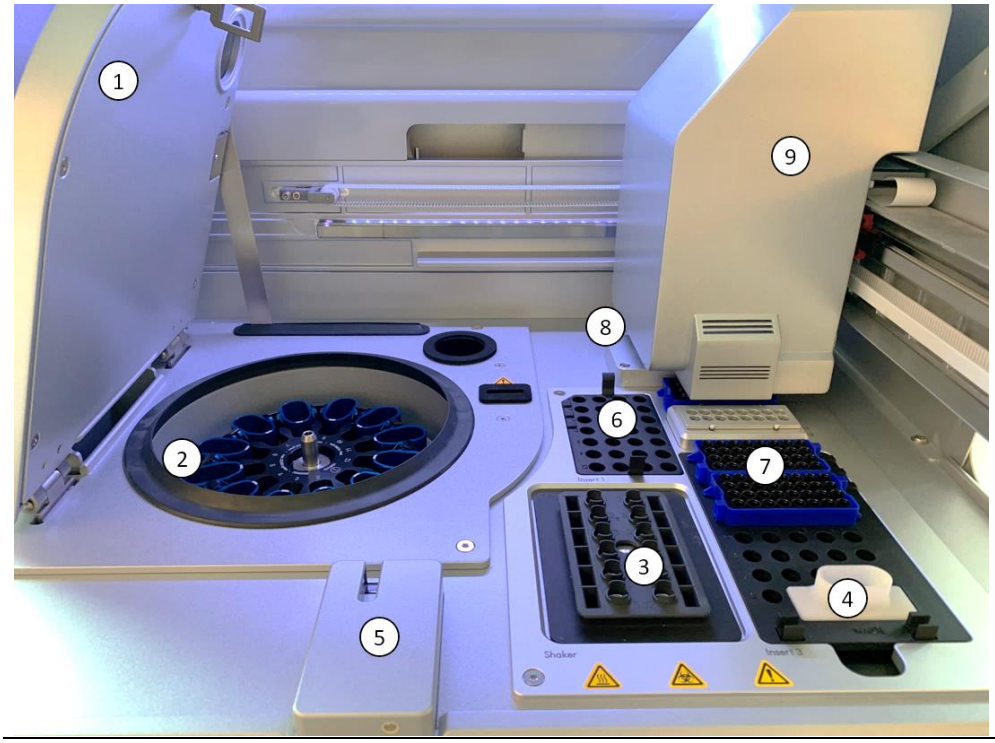
CAUTION

Risk of overheating **[C11]**

To ensure proper ventilation, maintain a minimum clearance of 10 cm at the sides and rear of the PreON.

Slits and openings that ensure the ventilation of the PreON must not be covered.

3.2 Internal features of the PreON



Internal view of the PreON.

1	Centrifuge lid	6	Microcentrifuge tube slots
2	Centrifuge	7	Slots for tip racks
3	Shaker	8	Disposal slots for tips and columns
4	Liquid waste	9	Robotic arm (includes 1 channel pipettor, gripper, ultrasonic and optical sensor
5	Tip sensor and hood lock		

Centrifuge

The centrifuge is equipped with 12 swing-out buckets, each of which can hold a disposable rotor adapter. Up to 12 samples can be processed per run. For ease of use and high process safety, a grey line marks the side of the bucket that must face toward the center of the rotor. All centrifuge buckets must be mounted before starting a run, regardless of the number of samples to be processed. Be sure to follow the loading instructions provided by the software to ensure correct loading of the centrifuge.

The centrifuge can also be operated individually via the touchscreen.

Note: Be sure to follow the centrifuge loading instructions provided by the software.

WARNING

Risk of personal injury and material damage **[W5]**

To prevent plastic crash, load the tubes properly. After a plastic crash, sharp plastic particles, toxic and aggressive reagents could be inside the centrifuge. Be careful when handling items inside the centrifuge and thoroughly clean the centrifuge according to the maintenance procedure.

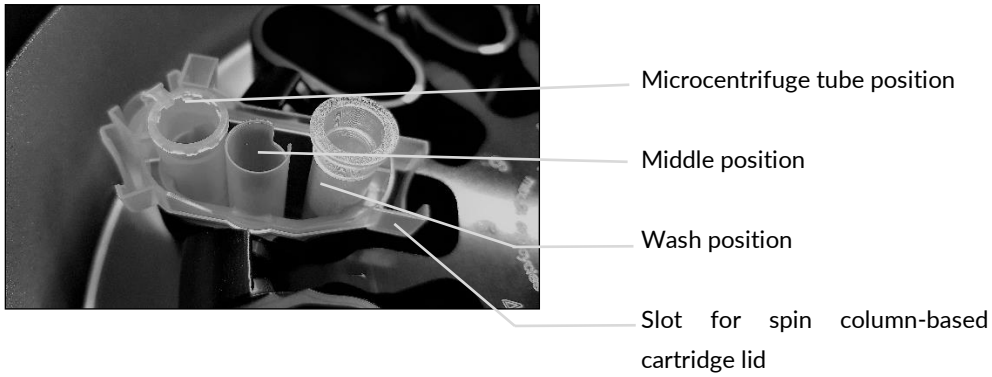
WARNING

Risk of personal injury and material damage **[W20]**

Raise the centrifuge lid carefully. The lid is heavy and may cause injury if it falls.

Rotor adapter

A disposable rotor adapter holds a PreOmics spin column-based cartridge placed in a spin column-based cartridge adaptor and a microcentrifuge tube in a centrifuge bucket during sample processing. For ease of use and high process safety, the rotor adapters are designed so that they fit into a centrifuge bucket only in the correct orientation. Spin column-based cartridge and microcentrifuge tube lids are held securely in slots at the edge of the rotor adapter.



Assembly of a rotor adapter

The wash position of the rotor adapter is open at the bottom, enabling wash buffers to flow through and collect at the bottom of the rotor adapter during centrifugation. The other two positions in the rotor adapter are closed. Be sure to follow the loading instructions provided by the software.

WARNING

Risk of personal injury and material damage **[W4]**

Do not use damaged rotor adapters. The rotor adapters can only be used once. High g forces exerted in the centrifuge can cause damage to used rotor adapters.

WARNING

Risk of personal injury and material damage **[W5]**

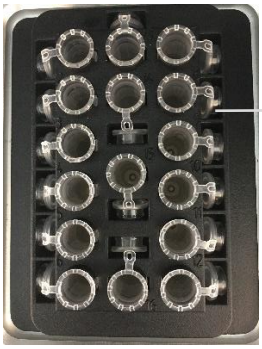
To prevent plastic crash, load the tubes properly. After a plastic crash, sharp plastic particles, toxic and aggressive reagents could be inside the centrifuge. Be careful when handling items inside the centrifuge and thoroughly clean the centrifuge according to the maintenance procedure.

Shaker

The heated orbital shaker enables fully automated lysis of up to 12 or 16 samples. Sample tubes are placed into a rack that fits onto the shaker adapter. The lid of each microcentrifuge tube is held in a slot at the edge of the shaker rack. This ensures that microcentrifuge tubes cannot be displaced during sample processing and allows shaker loading to be checked. The positions on the shaker rack are numbered to enable easy loading.

Sample tube lids are held in slots at the edge of the shaker rack

Shaker rack for 12 samples



Sample tube lids are held in slots at the edge of the shaker rack

Shaker rack for 16 samples

Note: For shaker loading follow instructions provided by the software.

WARNING

Risk of personal injury and material damage **[W5]**

To prevent plastic crash, load the tubes properly. After a plastic crash, sharp plastic particles could be inside the centrifuge. Be careful when handling items inside the centrifuge.

WARNING

Hot surface **[W21]**

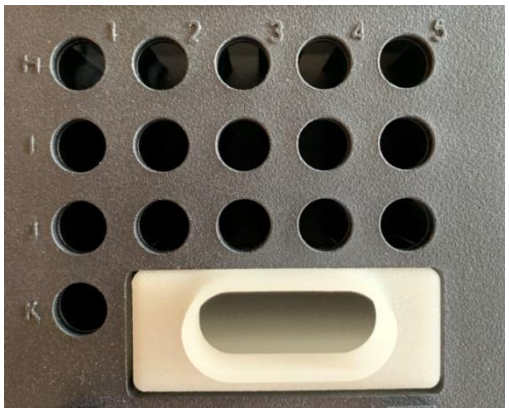
The shaker can reach temperatures of up to 83°C (181.4°F). Avoid touching it when it is hot. Carefully remove the samples after a run.

Additional reagent racks - Reagent work decks for position Insert 3

Insert 3 for screwcap microtubes:

The additional reagent work deck for position Insert 3 is able to host 15+1 screwcap microtubes. Liquid is aspirated from the microtubes by the pipetting system.

Note: Screw-cap microtubes are used with the PreON.



Insert 3 with 16 microtubes positions and waste bottle

Insert 3 for 16 plex TMT:

The additional reagent work deck for position Insert 3 is able to host 16 TMT tubes and 4 screwcap microtubes. Liquid is aspirated from the microtubes by the pipetting system.

Note: Screw-cap microtubes are used with the PreON.

Insert 3 with 16 microtubes positions

WARNING	**Risk of fire or explosion** **[W6]** When using flammable liquids on the PreON (Acetonitrile, Isopropyl alcohol), handle such liquids carefully and in accordance with the required safety regulations. If liquid has been spilled, wipe it off and leave the PreON hood open to allow flammable vapors to disperse.
WARNING	**Risk of explosion** **[W7]** The PreON is intended for use with reagents and substances supplied with PreOmics kits or other than outlined in respective Information for use. Use of other reagents and substances may lead to fire or explosion.
WARNING	**Hot surface** **[W21]** The shaker can reach temperatures of up to 83°C (181.4°F). Avoid touching it when it is hot. Carefully remove the samples after a run.

Tip sensor

During sample preparation, the tip sensor checks that the tip adapter has picked up a tip.

Tip rack slots

Two tip racks can be placed on the PreON worktable. Tips can be purchased in prefilled tip racks holding 200 µl filter-tips.

Note: Only filter-tips designed for use with the PreON must be used.

Tip disposal slots

Disposable filter-tips are alternately discarded through each of the tip disposal slots into the waste drawer. This prevents discarded tips from piling up in the waste drawer.

Robotic arm

The robotic arm provides accurate and precise positioning of the robotic gripper and pipetting system on the PreON worktable and includes an optical and ultrasonic sensor.

WARNING

Moving parts **[W18]**

To avoid contact with moving parts during operation of the PreON, the instrument must be operated with the hood closed.

If the hood sensor or lock is not functioning correctly, contact PreOmics Technical Services.

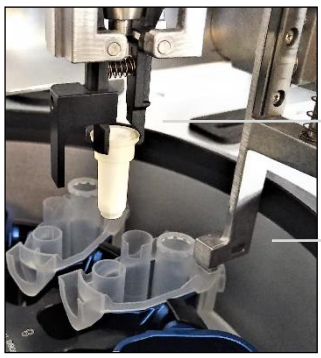
WARNING

Moving parts **[W17]**

Avoid contact with moving parts during operation of the PreON. Under no circumstances should you place your hands under the robotic arm when it is lowering. Do not attempt to move any tip racks or tubes whilst the instrument is operating.

Robotic gripper

The robotic gripper transfers spin column-based cartridges. During transfer of a spin column-based cartridge, a stabilizing rod holds the rotor adapter in place, ensuring it remains properly seated in the centrifuge bucket. The robotic gripper is behind the panel covering the robotic arm.



Fully automated spin column-based cartridge processing

Pipetting system

The PreON is equipped with a single-channel pipetting system that moves in the X, Y and Z directions. The dilutor, fitted with a tip adapter, is connected to a precision syringe pump, which enables accurate transfer of liquids. The tip adapter allows aspiration and dispensing of liquid through an attached disposable tip. Disposable filter-tips (200 µl) are used for sample processing to minimize the risk of cross-contamination.

Optical sensor

During the load check, the optical sensor checks that the number of rotor adapters corresponds to the number of samples in the shaker and that both shaker and rotor are correctly loaded.

Ultrasonic sensor

During the load check, the ultrasonic sensor checks that the reagent microtubes contain enough liquid for the protocol run. The ultrasonic sensor also checks the type of tips loaded on the worktable and whether there are enough tips for the protocol run.

Note: The ultrasonic sensor has a black beam columnator. If, for any reason, this beam columnator falls off or is missing, the instrument will display an error message to inform the user that the beam columnator is missing and that runs cannot be started. To replace the beam columnator, it needs to be manually adjusted to its original position (see image below).

Black beam columnator (see red circle) of the ultrasonic sensor

External hand scanner

The PreON is equipped with a 2D handheld scanner modell Gryphon GD4400 to allow kit bar code and sample bar code scanning. Appendix A – Technical data on page 112

WARNING 	**Risk of personal injury** **[W28]** Hazard Level 2 laser light: Do not stare into the light beam when using handheld bar code scanner.

4 Installation Procedures

This section provides instructions on unpacking, packing and installing the PreON.

4.1 Installation environment

4.1.1 Site requirements

The PreON must be located out of direct sunlight, away from heat sources and away from sources of vibration and electrical interference. Refer to Appendix A – Technical data on page 112 for the operating conditions (temperature and humidity). The site of installation should be free of excessive drafts, excessive moisture and excessive dust and should not be subject to large temperature fluctuations.

The PreON must be used only in well ventilated areas.

Use a level workbench that is large enough and strong enough to accommodate the PreON. Refer to Appendix A – Technical data for the weight and dimensions of the PreON.

Ensure that the workbench is dry, clean and vibration-proof and has additional space for accessories.

The PreON must be placed within approximately 1.5 m of a properly grounded (earthed) AC power outlet. The power line to the instrument should be voltage regulated and surge protected. Ensure that the PreON is positioned so that it is easy to access the power connector at the back of the instrument and the power switch on the front at all times, and that it is easy to power the instrument OFF and disconnect it.

Note: It is recommended to plug the instrument directly into its own power outlet and not to share the power outlet with another lab equipment. Do not place the PreON on a vibrating surface or near vibrating objects.

WARNING

Explosive atmosphere **[W11]**

The PreON is not designed for use in an explosive atmosphere.

WARNING

Vapors from volatile solvents **[W14]**

Some of the solvents used with the PreON are volatile. Use the PreON only with adequate ventilation according to the applicable Safety Data Sheets (SDSs) or OSHA,* ACGIH† documents.

CAUTION

Risk of overheating **[C11]**

To ensure proper ventilation, maintain a minimum clearance of 10 cm at the sides and rear of the PreON.

Slits and openings that ensure the ventilation of the PreON must not be covered.

WARNING 	**Risk of personal injury and material damage** **[W2]** The PreON is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.
CAUTION 	**Damage to the instrument** **[C6]** Direct sunlight may bleach parts of the instrument and cause damage to plastic parts. The PreON must be located out of direct sunlight.

4.1.2 Power requirements

The PreON operates at: 100–240 V AC, 50/60 Hz, 650 VA

Ensure that the voltage rating of the PreON is compatible with the AC voltage available at the installation site. Mains supply voltage fluctuations are not to exceed 10% of nominal supply voltages.

WARNING 	**Damage to electronics** **[W9]** Before powering ON the instrument, make sure that the correct supply voltage is used. Use of incorrect supply voltage may damage the electronics. To check the recommended supply voltage, refer to the specifications indicated in the type plate of the instrument.
WARNING 	**Electrical hazard** **[W8]** Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument dangerous. Intentional interruption is prohibited. **Lethal voltages inside the instrument** When the instrument is connected to line power, terminals may be live and opening covers or removing parts is likely to expose live parts.

4.1.3 Grounding requirements

To protect operating personnel, the PreON shall be correctly grounded (earthed). The instrument is equipped with a 3-conductor AC power cord that, when connected to an appropriate AC power outlet, grounds (earths) the instrument. To preserve this protection feature, do not operate the instrument from an AC power outlet that has no ground (earth) connection.

WARNING 	**Electrical hazard** **[W8]** Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument dangerous. Intentional interruption is prohibited. **Lethal voltages inside the instrument** When the instrument is connected to line power, terminals may be live and opening covers or removing parts is likely to expose live parts.

4.2 Installation of AC power cord

The AC power cord connects to the socket located at the rear of the PreON, and the other end to the AC power outlet.

4.3 Unpacking the PreON

WARNING 	**Risk of personal injury and material damage** **[W2]** The PreON is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

Important: Only qualified service personnel is allowed to unpack, install the PreON & re-pack the device for returns.

14. Before unpacking the PreON, move the package to the site of installation and check that the arrows on the package point upward. In addition, check whether the package is damaged. In case of damage, contact PreOmics Technical Service.
15. Open the top of the transportation box to remove the PreON power cord before lifting the box.
16. Remove the black foam protector lid and lift the box.
17. When lifting the PreON, slide your fingers under both sides of the workstation and keep your back straight.

    Important: Do not hold the touchscreen display while unpacking or lifting the PreON, this might damage the instrument.
18. Check if the packing list document is included after unpacking the PreON.
19. Read the packing list to check that you have received all items. If anything is missing, contact PreOmics Technical Services.
20. Check that the PreON is not damaged and that there are no loose parts. If anything is damaged, contact PreOmics Technical Services. Make sure that the PreON has equilibrated to ambient temperature before operating it.
21. Retain the package in case you need to transport the PreON in the future. Refer to section 4.6, Packing the PreON for more details. Using the original package minimizes the possibility of damage during transportation of the PreON.

4.4 Installing the PreON

Important: Only qualified service personnel is allowed to unpack, install the PreON & re-pack the device for returns.

This section describes important actions that must be performed before operating the PreON. These actions include:

- Removal of the PreON accessories.
- Removal of the protective film from the PreON hood.
- Removal of the protector for the robotic arm.
- Connection of the power cord to the back of the PreON.
- Powering ON the PreON.
- Installation of the centrifuge rotor and buckets.

4.4.1 Remove PreON accessories

Remove the power cord and all accessories from the foam packing material on top of the PreON.

Remove the USB stick, rotor key, rotor nut, Allen key and shaker rack plugs from the waste drawer.

4.4.2 Remove the foam protector

During transportation, a foam protector prevents the movable parts of the PreON from moving along the X- and Y-axes. Before using the instrument, this protector must be removed.

Foam protector for robotic arm.

To remove the foam protector, gently pull the foam protector towards you (see picture above). After removing the protector for the robotic arm, make sure to close the PreON hood.

4.4.3 **Installation of AC power cord**

1. Remove the power cord from the foam packing material on top of the PreON.

   Note: Only use the power cord that is supplied with the PreON.
2. Ensure that the power switch is set to OFF: outer position is OFF and inner position is ON.
3. Check that the voltage rating on the label at the back of the PreON matches the voltage available at the installation site.

4. Plug the power cord into the instrument power-cord socket.
5. Plug the power cord into a grounded power outlet.

WARNING 	**Damage to electronics** **[W9]** Before powering ON the instrument, make sure that the correct supply voltage is used. Use of incorrect supply voltage may damage the electronics. To check the recommended supply voltage, refer to the specifications indicated in the type plate of the instrument.

WARNING 	**Electrical hazard** **[W8]** Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument dangerous. Intentional interruption is prohibited. **Lethal voltages inside the instrument** When the instrument is connected to line power, terminals may be live and opening covers or removing parts is likely to expose live parts.

4.4.4 Powering ON the PreON

1. Check that the PreON operates properly:
2. Make sure that the hood of the PreON is closed.
3. Power ON the PreON using the power switch (inner position is ON; outer position is OFF).

   The beeper sounds and the startup screen appears.

   The instrument automatically performs initialization tests.

   The centrifuge lid opens.
4. If there is an initialization error, check that the power cord is properly connected to the PreON and power outlet. Retry the initialization process. If the problem persists, contact PreOmics Technical Services.

Note: If you powered ON the PreON before closing the hood, the instrument will not perform an initialization and the centrifuge lid will not open. Power OFF the PreON, close the hood, and then power ON the PreON again.

4.4.5 Installing the centrifuge rotor and buckets

The centrifuge rotor and buckets are pre-installed in the PreON. When setting up the PreON for the first time, turn on the instrument and remove the transportation foam inserts from the centrifuge after it opens. In case you have manually removed the centrifuge rotor and buckets (e.g., during maintenance), follow the instructions below to re-install them.

The rotor can be mounted in only one orientation: a pin on the rotor shaft fits into a notch on the underside of the rotor directly underneath rotor position 1. Line up position 1 of the rotor with the pin on the rotor shaft and carefully lower the rotor onto the shaft. Install the rotor nut on top of the rotor and tighten using the rotor key supplied with the PreON. Make sure that the rotor is securely seated. Check that all buckets are properly suspended and can swing freely.

Note: The side of the rotor bucket that must face towards the rotor shaft is marked with a grey line to help prevent buckets from being loaded incorrectly.

Important: All centrifuge buckets must be mounted before starting a protocol run, even if fewer than 12 samples are to be processed.

WARNING

Risk of personal injury and material damage **[W25]**

To prevent the rotor nuts from loosening during operation of the centrifuge, securely tightened the nuts using the rotor key supplied with PreON.

WARNING

Risk of personal injury and material damage **[W20]**

Raise the centrifuge lid carefully. The lid is heavy and may cause injury if it falls.

CAUTION

Damage to the instrument **[C7]**

The PreON must not be used if the centrifuge lid is broken, or if the lid lock is damaged.

Make sure that no loose material is inside the centrifuge during operation.

Make sure that the rotor is installed correctly and that all buckets are properly mounted, regardless of the number of samples to be processed. Load the rotor only as instructed by the software.

Only use rotors, buckets, and consumables designed for use with the PreON. Damage caused by use of other consumables will void your warranty.

We recommend replacing the centrifuge after 20,000 cycles, which is equivalent to 9 years of usage with two runs per day for 220 days each year. For more information contact PreOmics Technical Support.

4.5 Configuration of the PreON

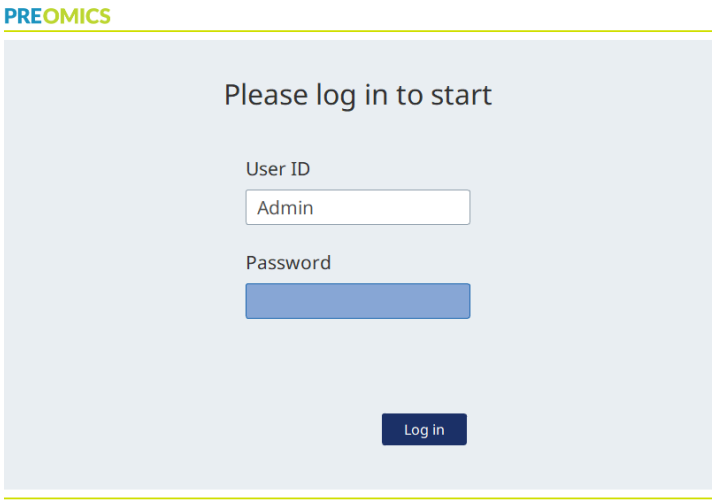
When using the PreON for the first time, it is recommended to define the required settings. Other settings can be made later when needed.

For details on using the touchscreen and software, refer to section 5.1 PreON software on page 53

To configure the PreON, follow the steps below.

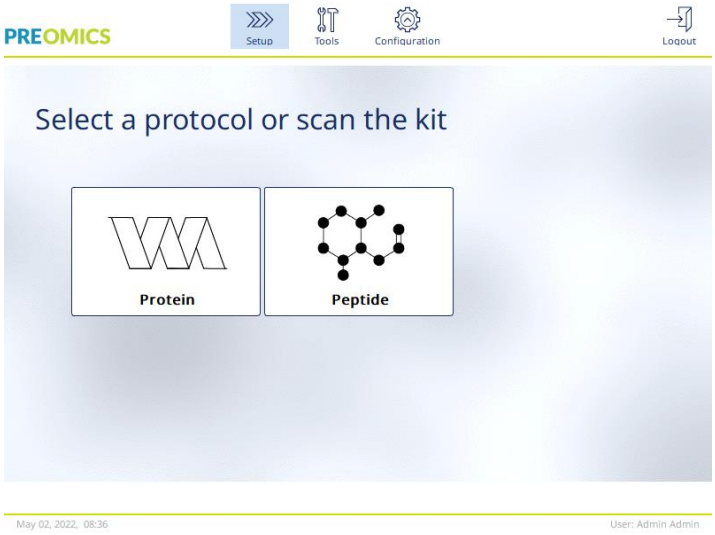
1. Close the instrument hood.
2. Press the power switch to the inner position to power ON the instrument. The startup screen appears and the beeper sounds (if enabled in the sound settings). The instrument automatically performs the initialization tests. If the centrifuge lid is closed, it will open.
3. Initially, only one user account is available: the pre-installed default user. Press **OK** on the touchscreen to confirm the message.
4. Initially, if no maintenance has been recorded yet, the maintenance status is initialized using default values. Press **OK** to confirm the message.

5. The **Login** screen appears after the initialization.



Login screen

6. Initially, only one default user is available. In this case, enter '**Admin'** in the **User ID** and 'admin' in the **Password** field using the on-screen keyboard. Touch in the entry field to open the on-screen keyboard. For details, refer to section 5.1.1 Entering text and numbers.
7. Press **Log in**. The **Home** (main) screen appears.



Home (main) screen

8. If you need to return to the **Home** screen from another screen, press the **Setup** icon.

4.5.1 Setting basic system data

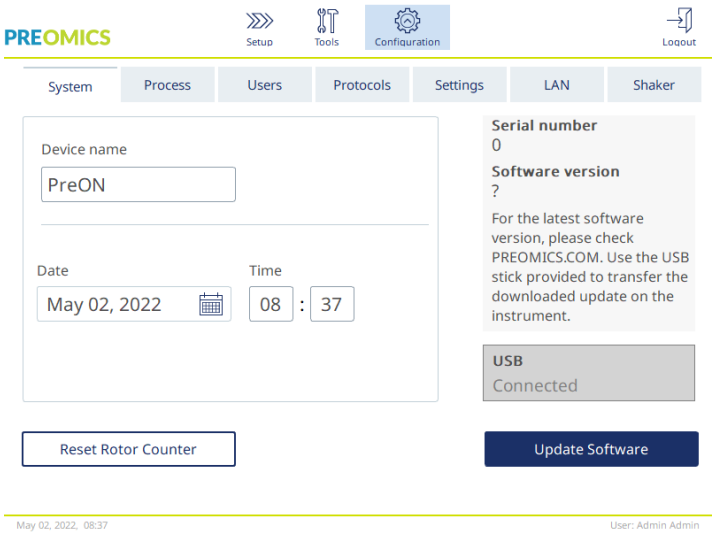
This section describes how to set the following:

- Name for the PreON
- Current date and time

When using the PreON for the first time, it is recommended to set the current date and time.

1. On the main screen, press the **Configuration** icon.

2. Press the **System** tab. This tab is only available for users assigned the Administrator role.



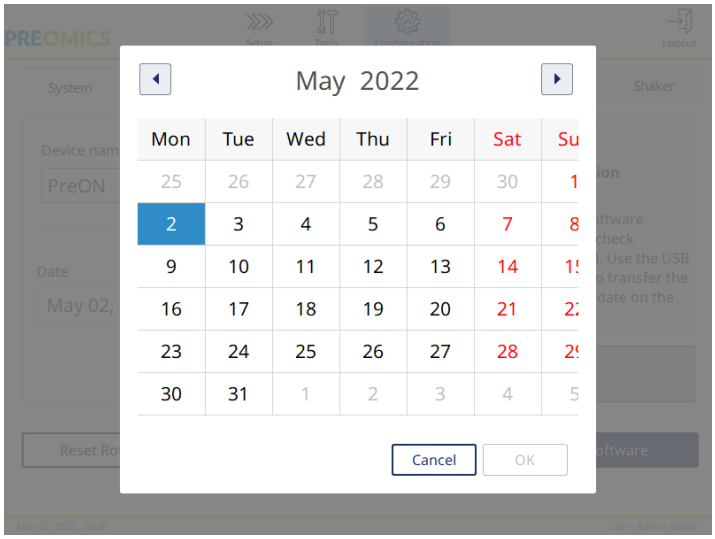
3. Optionally, enter a name for the PreON. The device name serves as the network/host name when connecting the instrument to the network.

   The name can have up to 24 characters: letters A–Z, a–z, digits 0–9 and a hyphen (-).

   The name must start with a letter and cannot end with a hyphen (-).

4. In the **Date** and **Time** fields, select the current date and enter the current time for the instrument. These are used to track the start and end time of a run and are also part of the run report. Date and time are not synchronized using the network. To change the date, touch the calendar icon () and select the date.

5. Use the left and right arrow icons to change the month then touch the current day and press **OK** to confirm.



4.5.2 User settings

This section describes the optional settings that can be defined by each user:

- Audio volume
- Display brightness
- Internal light

The settings apply to the current user.

1. On the main screen, press the **Configuration** icon.

2. Press the **Settings** tab. This tab is available for all users.

3. To adjust the audio volume or display brightness, touch the desired position on the virtual slider on the screen. For audio volume, a sound is played with the set volume.
4. Check the box next to **Use internal light** to turn on the LED light inside the instrument. Uncheck the box to turn it off.
5. To return to the main screen, press the **Setup** icon.

4.5.3 Managing users

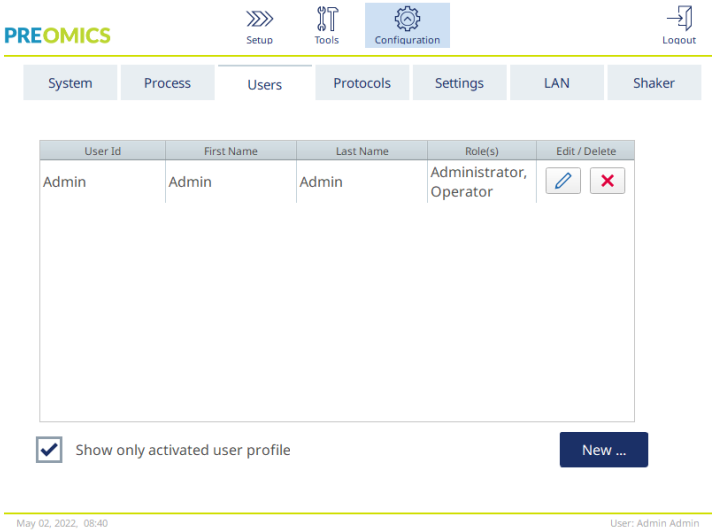
The PreON is provided with a User Management feature. This feature enables you to set up multiple users with two different roles: administrator and operator. When you use the PreON for the first time, a default user named Admin is already pre-installed and configured with both roles assigned. The user management feature is only available for users assigned the Administrator role.

Setting up a new user

1. Press the **Configuration** icon on the main screen.

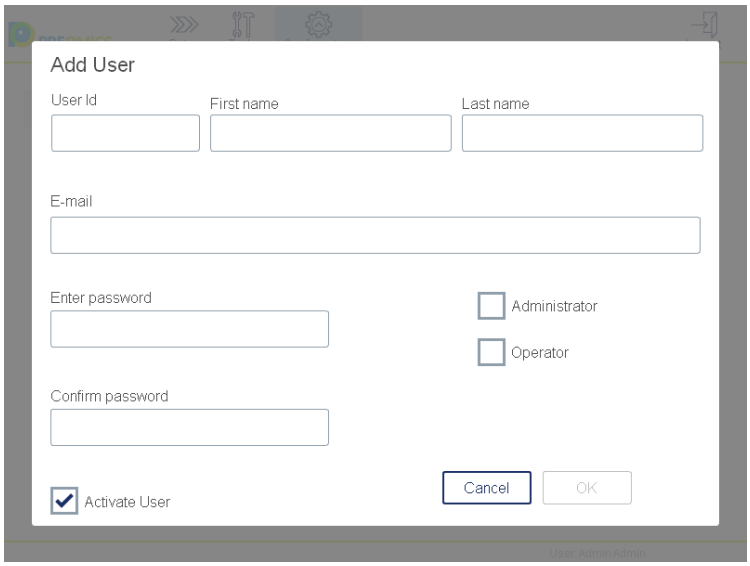
2. Press the **Users** tab.

The configured users are shown in the table. Each row contains the data for one user.



Note: It is recommended to create at least one other user with the administrator role.

3. Press **New** to add a new user.
4. Enter the respective data for the new user. Keep the **Activate User** box checked.



The **User ID**, **First name** and **Last name** fields are mandatory. These fields may contain up to 30 letters and numerical characters. The user ID must be unique for each user profile. It must contain at least one letter and cannot contain blank spaces. The user ID is used for logging in and is printed on run reports. The first and last name are displayed on the touchscreen for the currently logged in user.

The **Password** field is mandatory and must contain 8–40 letters or numerical characters. Enter the same password into the **Confirm password** field.

Select the user role: **Administrator** and/or **Operator**. The operator may only use the instrument, while the administrator is also allowed to configure the system. One user can have both roles assigned at the same time. The default user **Admin** has both user roles assigned.

The **E-mail** address field is optional. The system does not confirm whether the e-mail address entered is valid.

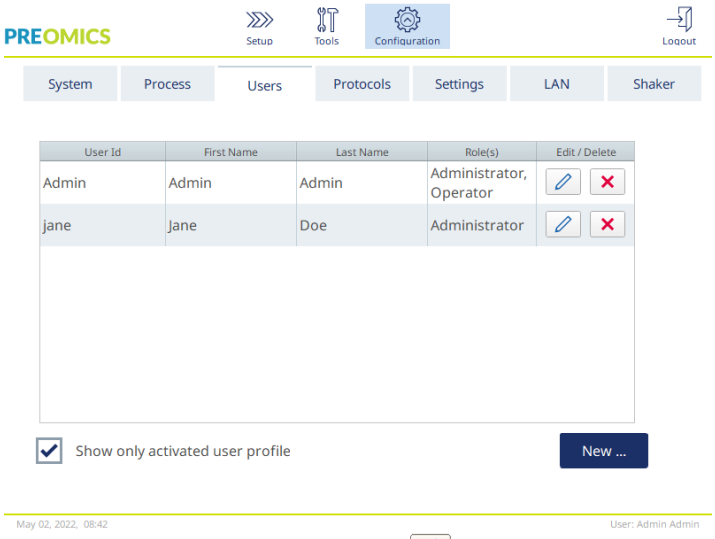
5. Press **OK** to save the new user.

Changing data for an existing user

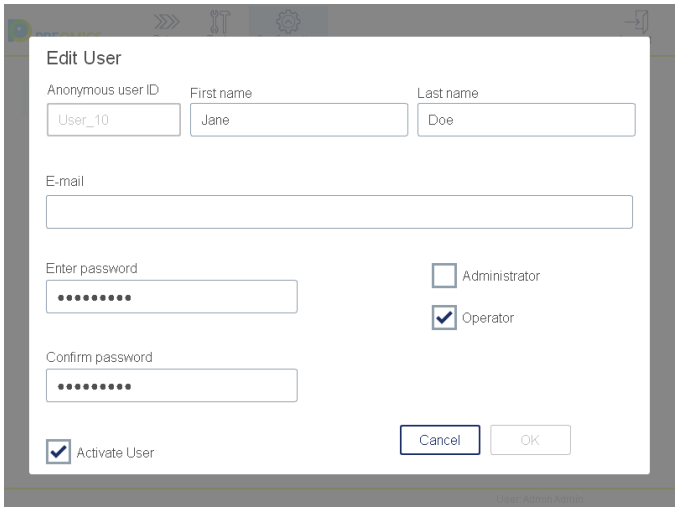
1. Press the **Configuration** icon on the main screen.

2. Press the **Users** tab.

   The configured users are shown in the table. Each row contains the data for one user.



3. In the user profile row, press the **Edit** ( ) icon.
4. A screen will appear showing the current information of the user. Edit the information as necessary.



   The user's password will not be displayed. If you touch the password field, the existing password will be cleared, and a new password must be entered and confirmed.

5. To confirm the changes, press **OK**. To close the dialog and discard the changes, press **Cancel**.

Deleting or temporarily deactivating a user

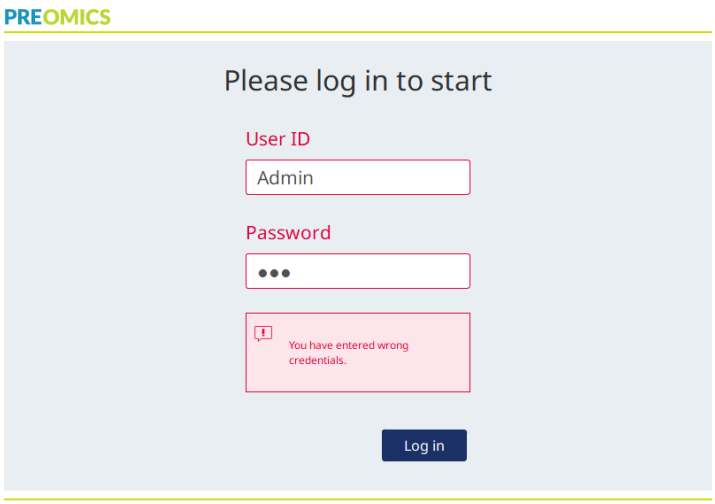
1. To delete a user, press the **Delete** icon ( ) in the user profile row. It is not possible to delete the currently logged-in administrator.
2. To temporarily deactivate a user, press the **Edit** icon ( ) in the user profile row. Uncheck the **Activate User** box. It is not possible to deactivate the currently logged-in administrator.

3. To reactivate a user profile, press the **Edit** icon ( ) in the user profile row. Check the **Activate user** box.

Note: If a user tries to login with the wrong password, the user profile will be automatically deactivated after 10 failed login attempts.

Deactivated users can be displayed in the users list by unchecking the box **Show only activated user profiles.** If the box is unchecked, all user profiles will be listed.

If the pre-installed administrator user **Admin** has more than 10 failed login attempts, the password can be reset. To do so, press **Reset admin user**. Then log in again with the default user ID **Admin** and password **admin**.



4.5.4 Changing password

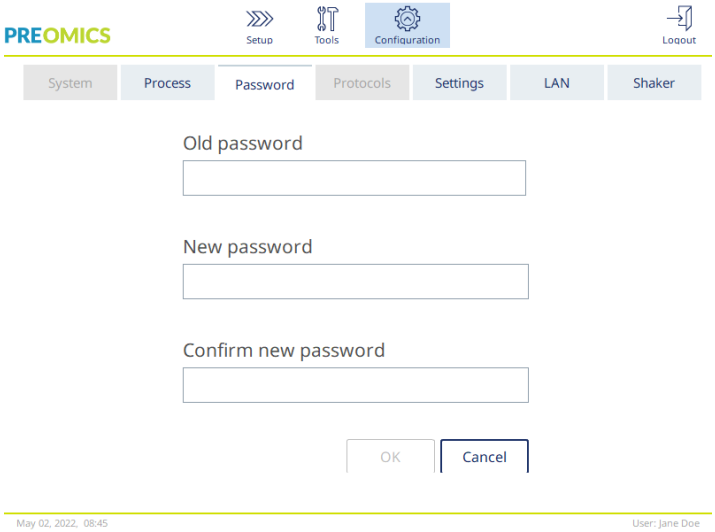
Every user can change their own password.

A user with the role **Administrator** is allowed to change the password for every user by editing the user profile. Refer to section Changing data for an existing user on page 42 for more details. Passwords are never displayed in this process, so the administrator cannot view a user's password.

Changing your password

1. Press the **Configuration** icon on the main screen.

2. For users with the role **Operator**, the **Password** tab is automatically active.



3. Enter the old password into the **Old password** field. Touch the field to open the on-screen keyboard.

   Enter a new password into the **New password** field and re-enter the new password in the **Confirm new password** field. The **Password** must contain 8–40 letters or numerical characters.

4. Press **OK** to save the new password. Press **Cancel** to discard any changes and to keep the old password.
5. To return to the main screen, press the **Setup** icon.

4.5.5 Managing protocols

Commonly used PreOmics standard protocols are installed on the PreON upon delivery. The range of PreOmics standard protocols is continuously expanding. To learn more, please reach out to your local PreOmics contact. If unsure, get in touch at preomics.com/contact. PreOmics's Application Lab Specialists can also customize these protocols or develop new protocols depending on your needs. Protocols that are no longer required can be removed from the PreON.

Protocols can only be managed by users assigned the Administrator role.

Installing new protocols

1. On a computer running Microsoft® Windows®, download the new protocols provided to you by PreOmics

   Use the USB stick that was shipped with the PreON to transfer the protocol files to the instrument.
   Copy the new protocol zip file(s) to the USB stick into the **Protocol_Upload** directory. Do not unzip the files.
   Make sure to use the correct directory, otherwise, the PreON will not find the protocols.

   Note: Do not rename or modify the protocol files. Otherwise, they cannot be used.

2. Connect the USB stick to the PreON using one of the USB ports at the left of the touchscreen.
3. Select the **Configuration** icon.

4. Press the **Protocols** tab.

5. Press **Copy from USB**.
6. A message is displayed indicating how many protocols are found on the USB stick. Press **Yes** to start uploading.

   All protocol zip file(s) in the **New Protocols** folder will be installed.

   Note: Already installed protocols will not be overwritten. If you attempt to re-install an existing protocol, a message will appear indicating that not all protocols could be copied.
7. Wait until the transfer is complete. A message is displayed when the transfer is complete.
8. Remove the USB stick and power OFF the PreON.
9. Wait a few seconds and then power ON the PreON. To use the new protocols, log in again.

To transfer all installed protocols to the USB stick, press **Copy to USB**.

Deleting protocols

Important: Before deleting, you should back up the protocols on the USB stick provided with the instrument.

1. Select the **Configuration** icon.

2. Press the **Protocols** tab.

3. To delete all protocols installed on the instrument, press **Delete All**. It is not possible to delete a single protocol from the PreON.

Note: After deleting all protocols, a selective upload of protocols will reduce the options during run setup.

4.5.6 Updating software

Please reach out to your local PreOmics contact or get in touch at preomics.com/contact to learn if an updated software version is available for download.

The software can only be updated by users assigned the role Administrator. It is recommended to download all run reports before updating the software, because run reports and support packages will be lost during software update (see section 5.7 Saving run reports to the USB stick).

1. On the main screen, press the **Configuration** icon.

2. Press the **System** tab.
3. The currently installed software version is shown at the right.

4. On a computer running Microsoft Windows, download the software to the main folder of the USB stick provided with the PreON. Wait until the download has completed before removing the USB stick.

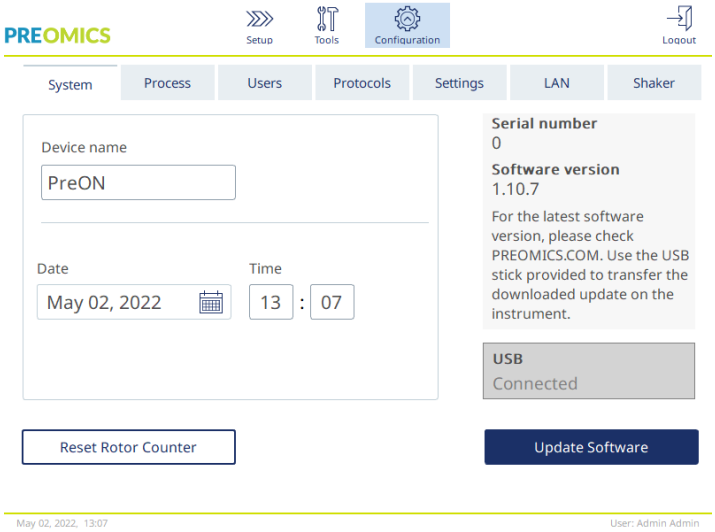
   Note: After download, make sure the following 3 files are in the main folder of the USB stick:
   preon1.bin
   preon2.bin
   preon-<version>.tar.gz

   The update will not work if one of the files is missing or has been renamed. Make sure that only the files for one software version are in the root folder of the USB stick.

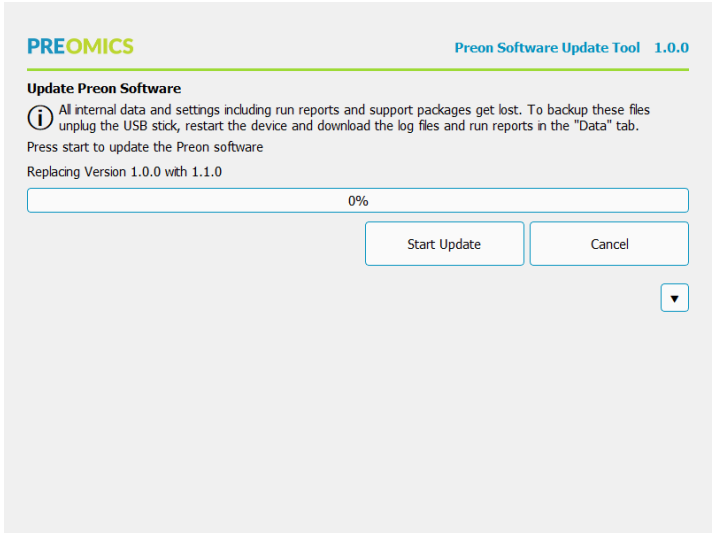
5. Connect the USB stick to the instrument using one of the USB ports at the left of the touchscreen.

   Important: Make sure that all run reports and support packages have been backed up before proceeding to the next step.

6. Press **Update Software** to start the software update. Follow the instructions on the screen.



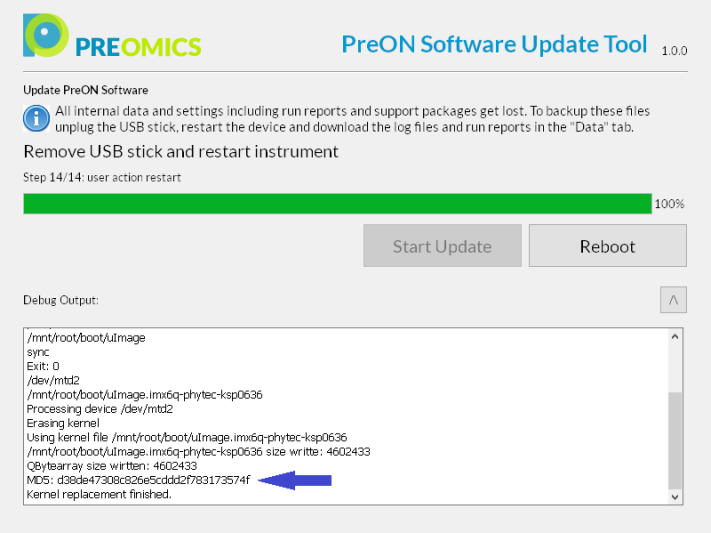
7. The software update tool is displayed. Press **Start update** to start the software update.



Press **Cancel** if you do not want to update the software. In this case, the instrument will initialize without updating the software.

8. Wait until the update has completed.

9. Press the arrow button to open the **Details** screen.



10. Compare the MD5 checksum on the screen with the checksum provided on the software download page. If the checksums are not identical, contact PreOmics Technical Services.
11. Press **Reboot** to continue. The instrument will initialize with the updated software.
12. When instructed by the screen, remove the USB stick from the USB port.
13. Use a computer running Microsoft Windows to delete the previously downloaded software files from the USB stick.

4.6 Packing the PreON

Warning: The PreON is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

WARNING 	**Risk of personal injury and material damage** **[W2]** The PreON is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

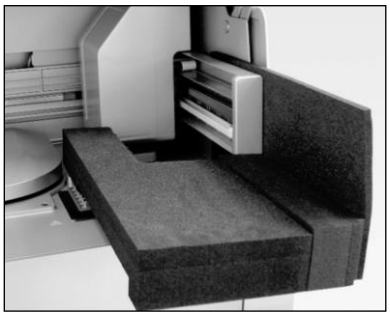
Important: Only qualified service personnel is allowed to unpack, install the PreON & re-pack the device for returns.

Before transporting the PreON, the instrument must first be decontaminated. Refer to section 6.7, Decontaminating the PreON for more details. Then prepare the instrument as follows:

1. Prepare the packing material. Materials required are the cardboard carton, the pallet with foam blocks, the foam lid and the foam protector for the robotic arm.

   Note: The centrifuge lid must be open to allow access to the inside of the centrifuge. If the lid is not open, perform steps 2–5 below. If the lid is already open, proceed to step 6.
2. Close the instrument hood.
3. On the **Main** screen, press the **Tools** button.
4. In the Tools menu, press the Run Modules tab.
5. In the Run Modules menu, press the Centrifuge tab and then press Open Centrifuge Lid.
6. Undo the rotor nut on top of the rotor using the rotor key, and carefully lift the rotor off the rotor shaft.

7. Close the hood.
8. On the **Main** screen, press the **Tools** button.
9. In the **Tools** menu, press the **Run Modules** tab.
10. In the **Run Modules** menu, press the **Centrifuge** tab and then press **Close Centrifuge Lid**.
11. When the centrifuge lid is closed, power OFF the PreON and open the hood.
12. Insert the foam protector into the front of the instrument.
13. Press the foam down between the centrifuge and the robotic arm.



Foam protector inserted between the centrifuge and the robotic arm

14. Push the foam until the rear end touches the back wall of the instrument. Ensure that the arm is held firmly in place and cannot move.
15. Make sure that the PreON hood can be closed properly. The hood should lightly brush against the foam.
16. Place the accessories into the waste drawer. The following accessories should be packed in air cushion bags:
    - Rotor key
    - Allen key
    - Rotor nut
    - USB stick
    - Shaker rack plugs
17. Place the handheld scanner into dedicated handheld scanner box.
18. Place the PreON onto the pallet and put the black foam lid over the top of the instrument. Place the box onto the instrument.

    Important: When lifting the PreON, slide your fingers under both sides of the instrument and keep your back straight.

    Important: Do not hold the touchscreen display while lifting the PreON, as this might damage the instrument.

WARNING	**Risk of personal injury and material damage** **[W2]**
	The PreON is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

19. Place the accessories into the black foam lid. The following accessories should be packed in air cushion bags:
    - Rotor with swing-out buckets
    - Power cord
20. Seal the outside edges of the carton with tape to protect against moisture.

    Note: Using the original package minimizes potential damage during transportation of the PreON.

5 Operating Procedures

This section describes how to operate the PreON.

Before proceeding, we recommend that you familiarize yourself with the features of the instrument by referring to sections 3.1 and 3.2.

Important: The PreON is designated for use with PreOmics spin column-based cartridges only. Use of other types of spin column-based cartridges or chemistries will void your warranty.

CAUTION

Damage to the instrument **[C2]**

Only use PreOmics spin column-based cartridges and PreON specific consumables with the PreON. Damage caused by use of other types of spin column-based cartridges or chemistries will void your warranty.

The hood of the PreON must remain closed during operation of the instrument. Only open the hood when instructed to do so by the software.

WARNING

Moving parts **[W18]**

To avoid contact with moving parts during operation of the PreON, the instrument must be operated with the hood closed.

If the hood sensor or lock is not functioning correctly, contact PreOmics Technical Services.

WARNING

Risk of personal injury and material damage **[W3]**

Do not attempt to move the PreON during operation.

WARNING

Risk of personal injury and material damage **[W1]**

Improper use of the PreON may cause personal injuries or damage to the instrument. The PreON must only be operated by qualified personnel who have been appropriately trained.

Servicing of the PreON must only be performed by a PreOmics Field Service specialist.

WARNING

Risk of personal injury and material damage **[W4]**

Do not use damaged rotor adapters. The rotor adapters can only be used once. High g forces exerted in the centrifuge can cause damage to used rotor adapters.

CAUTION

Damage to the instrument **[C3]**

Empty the tip disposal container prior to use to prevent a tip jam in the waste drawer. Failure to empty the waste container may block the robotic arm that could cause run failure or instrument damage.

WARNING

Risk of personal injury and material damage **[W5]**

To prevent plastic crash, load the tubes properly. After a plastic crash, sharp plastic particles, toxic and aggressive reagents could be inside the centrifuge. Be careful when handling items inside the centrifuge and thoroughly clean the centrifuge according to the maintenance procedure.

CAUTION

Damage to the instrument **[C4]**

Only use the correct volume of liquids.

Exceeding the recommended volume of liquids may damage the centrifuge rotor or instrument.

WARNING

Risk of fire or explosion **[W6]**

When using flammable liquids on the PreON (Acetonitrile, Isopropyl alcohol), handle such liquids carefully and in accordance with the required safety regulations. If liquid has been spilled, wipe it off and leave the PreON hood open to allow flammable vapors to disperse.

WARNING

Risk of explosion **[W7]**

The PreON is intended for use with reagents and substances supplied with PreOmics kits or other than outlined in respective Information for use. Use of other reagents and substances may lead to fire or explosion.

CAUTION

Damage to the instrument **[C5]**

Do not lean against the touchscreen when it is pulled out.

WARNING

Samples containing infectious agents **[W12]**

Some samples used with this instrument may contain infectious agents. Handle such samples with the greatest of care and in accordance with the required safety regulations.

Always wear safety glasses, 2 pairs of gloves, and a lab coat.

The responsible body (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe, and that the instrument operators are suitably trained and not exposed to hazardous levels of infectious agents as defined in the applicable Safety Data Sheets (SDSs), OSHA[6] or ACGIH[7] documents.

Venting for fumes and disposal of wastes must be in accordance with all national, state, and local health and safety regulations and laws.

[6] OSHA : Occupational Safety and Health Administration (United States of America).
[7] ACGIH : American Conference of Government Industrial Hygienists (United States of America).

WARNING

Hazardous chemicals **[W13]**

Some chemicals used with this instrument may be hazardous or may become hazardous after completion of the protocol run.

Always wear safety glasses, gloves, and a lab coat.

The responsible body (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe and that the instrument operators are not exposed to hazardous levels of toxic substances (chemical or biological) as defined in the applicable Safety Data Sheets (SDSs), OSHA or ACGIH† documents.

Venting for fumes and disposal of wastes must be in accordance with all national, state, and local health and safety regulations and laws.

WARNING

Vapors from volatile solvents **[W14]**

Some of the solvents used with the instrument are volatile. Use the instrument only with adequate ventilation according to the applicable Safety Data Sheets (SDS), OSHA or ACGIH† documents.

WARNING

Moving parts [**W17]**

Avoid contact with moving parts during operation of the PreON. Under no circumstances should you place your hands under the robotic arm when it is lowering. Do not attempt to move any tip racks or tubes whilst the instrument is operating.

WARNING

Hot surface **[W21]**

The shaker can reach temperatures of up to 83°C (181.4°F). Avoid touching it when it is hot. Carefully remove the samples after a run.

WARNING/ CAUTION

Risk of personal injury and material damage **[W22]**

Only perform maintenance that is specifically described in this user manual.

5.1 PreON software

The PreON is operated through a touchscreen, which guides you step-by-step through the correct loading of the work deck and selection of the protocol.

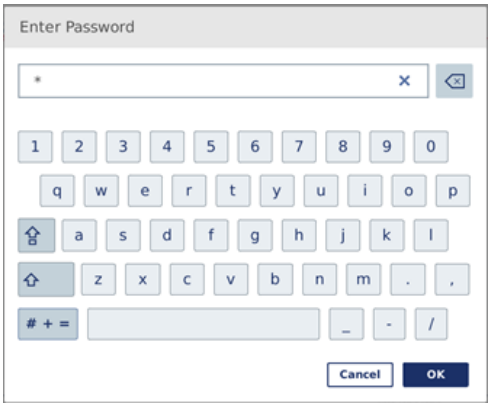
General functions of the PreON touchscreen are described below.

Button/Icon	Function
	Enables the user to scroll up through a list.
	Enables the user to scroll down through a list.
	The software automatically proceeds to the next screen.
	Returns to the previous screen.
	Returns to previous screen without saving any changes.
	Enables the user to change certain settings (e.g., to edit a user account).
	Enables the user to delete certain settings (e.g., to delete a user).
Text fields	Enables to edit text or value. A pop-up keyboard enables these changes.
Row in tables	Can be pressed to select the respective row. Either item will be selected, or row will be highlighted.
	Press to show additional information to respective item
	Press to show important information that must be followed during run setup for respective item.
	Press to show additional information to respective item
	Press to show important information that must be followed during run setup for respective item.
	Navigation back to the home screen
	Tools/Maintenance functions
	Configuration
	Log out from the instrument

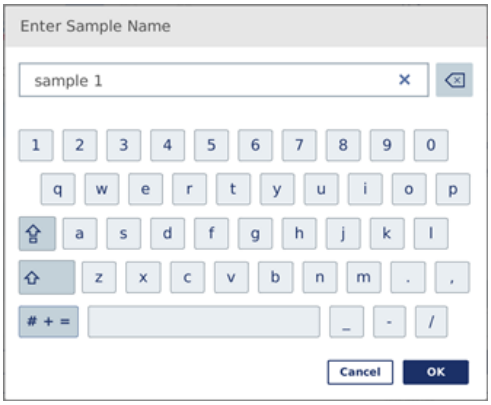
Note: The instrument's touchscreen does not support swiping gestures.

5.1.1 Entering text and numbers

To enter text or numbers, touch the respective field. The corresponding on-screen keyboard will be displayed.



Keyboard for entering a password



Keyboard for entering a sample name

Keyboard for editing a protocol parameter

For protocol parameters, the value range is displayed. In the example shown in the screenshot above, values from 50–100 µl can be entered, but only in steps of 10 µl.

Buttons and icons in the on-screen keyboard are described below.

Button/Icon	Function
⌫	Remove character to the left.
✕	Clear all from the field.
⇧	To type the next letter in upper-case. After the letter has typed, the keyboard will show lower-case letters again.
⇧	Switch to upper-case letters. Allows to type a number of upper-case letters. Press the symbol again to return to lower-case letters.
# + =	Show special characters.
A B C	Return to letters.

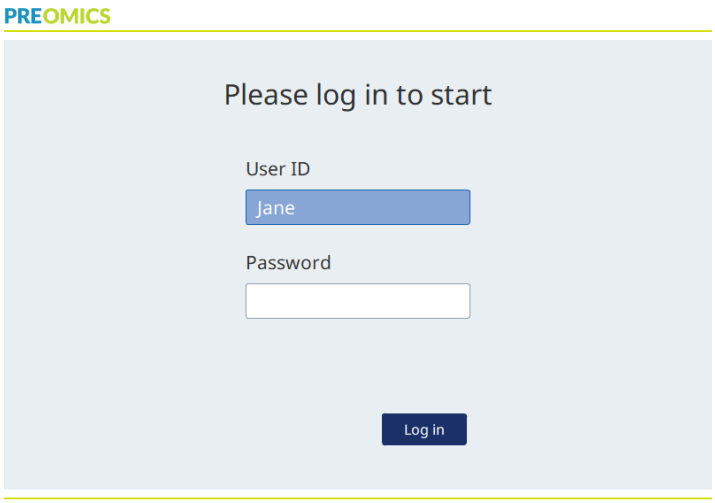
Button/Icon	Function
OK	Confirm and close.
Cancel	Discard and close.

If the entered value is not correct, the field border will change to red. It is not possible to proceed to the next screen in this case. Press the field again and correct the value according to the range displayed next to the field.

5.2 Switching on the instrument and logging in

1. Close the instrument hood.
2. Switch on the instrument by pressing the power switch to the inner position. You will hear a sound (if sound settings are enabled), and a startup screen appears. The instrument automatically performs initialization tests. If the centrifuge lid was closed, it will open.

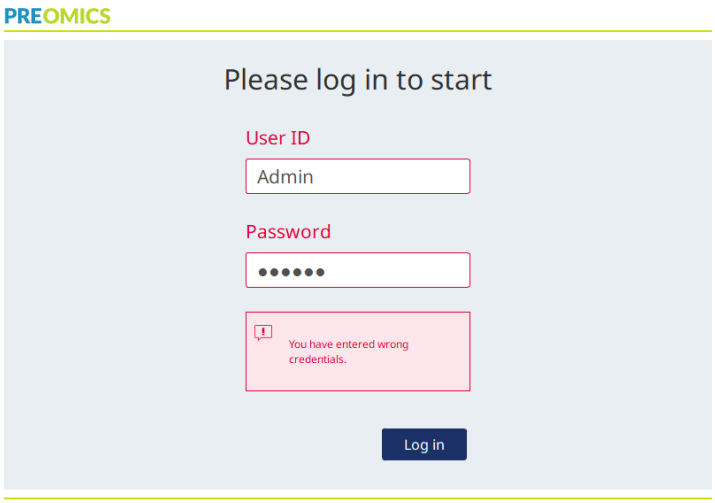
   After the initialization is complete, the **Login** screen appears.



Login screen

3. Enter **User ID** and **Password** using the on-screen keyboard.
4. Press **Log in**.
5. The **Home** screen appears.

In case of a failed login, an exclamation icon ( ) and information screen will appear. Touch the respective field to enter the **User ID** and **Password** again, ensuring that you enter the information correctly. The **User ID** is case sensitive.



Information screen from failed login, for example, due to entering incorrect password

5.3 Setting up a protocol run

Protocol setup starts from the **Home** screen.

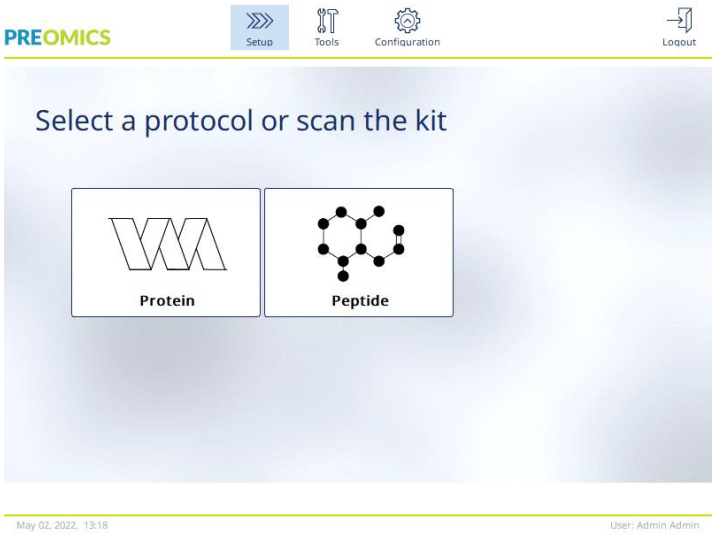
PreOmics standard protocols are installed on the PreON upon delivery.

Important: Before starting any protocol, thoroughly read the relevant PreOmics kit handbook.

The touchscreen software will guide you through the protocol run setup and loading steps. The display screens vary depending on the protocol in use and may look different from the screens shown in this section.

1. Prepare the samples to be processed using the protocol indicated in the protocol selection screen. Refer to the kit handbook for more information, if required.

2. To start the run setup, select from **Applications**, **Favorites** or **Scan kit**. To scan the 2-D bar code of the PreOmics kit, press **Scan Kit** and then use the handheld scanner, or just scan the bar code.



The software will automatically proceed to the next screen. If you scanned a kit bar code or if you selected a protocol from **Favorites**, the software may skip the **Kit**, **Material** and/or **Protocol Selection** screens. The software will skip the selection screen if the required information will be provided by kit bar code scanning or selection from **Favorites**.

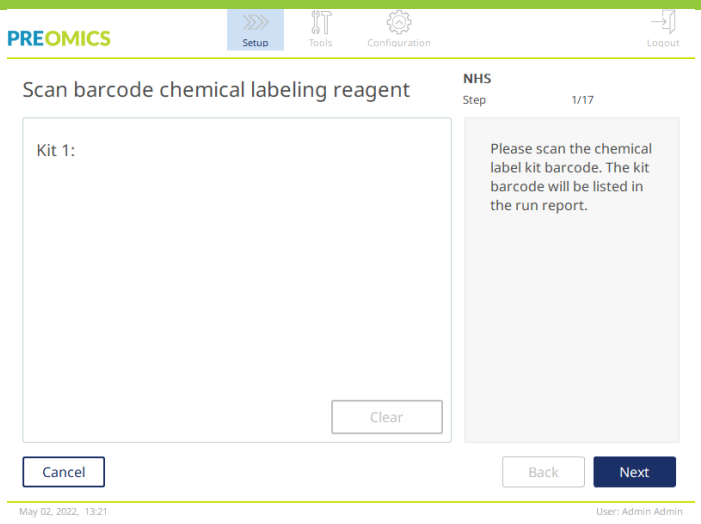
3. To enter information in the next screens, follow the instructions provided in the sections below. Depending on your selections, the number and order of the screens displayed on your instrument may vary.

   Each section below contains a screenshot image. Follow the instructions in that section with the corresponding screen displayed on your instrument.

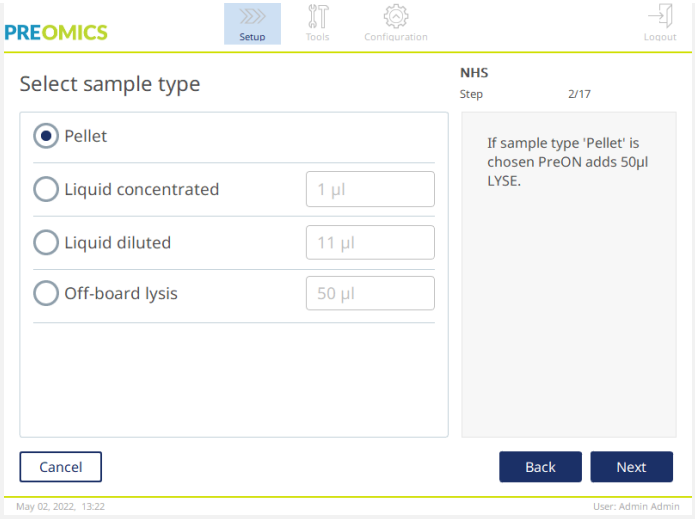
   In general, press **Next** to proceed to the next screen, or press **Back** to return to the previous screen. **Next** will only be active if all required information has been entered in the current screen.

iST-NHS protocol

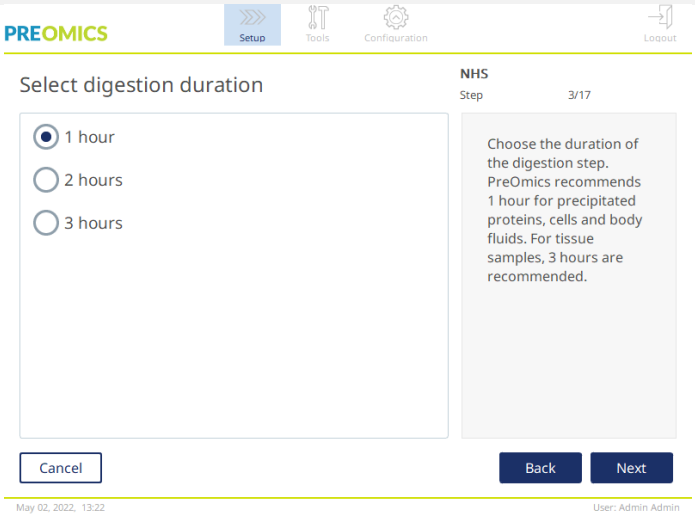
Step 1
Scan barcode chemical labeling reagent



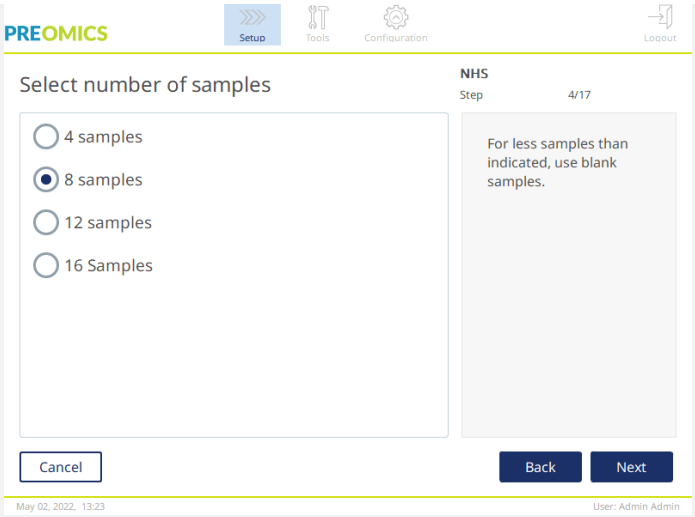
Step 2
Select sample type



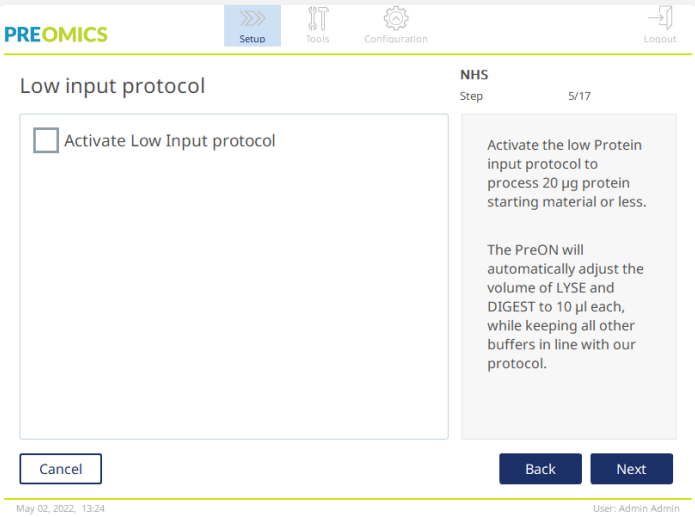
Step 3
Select digestion duration



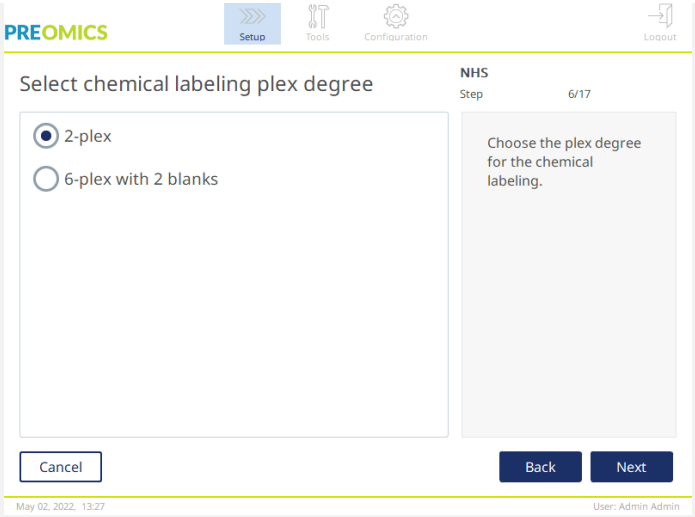
Step 4
Select number of samples



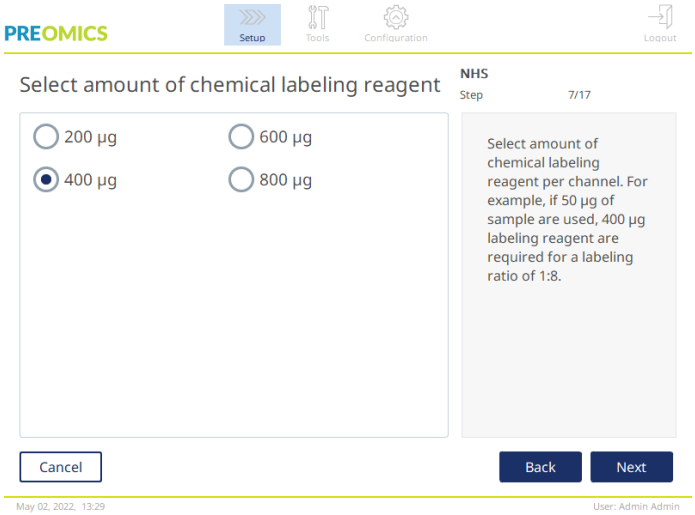
Step 5
Activate Low Input protocol



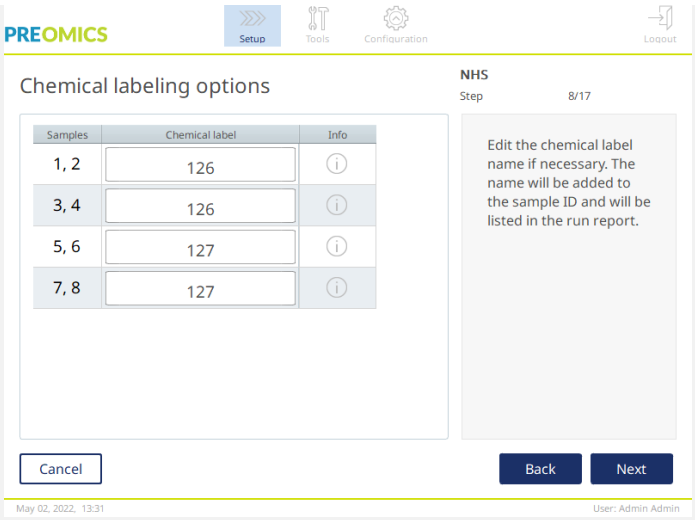
Step 6
Select chemical labeling plex degree



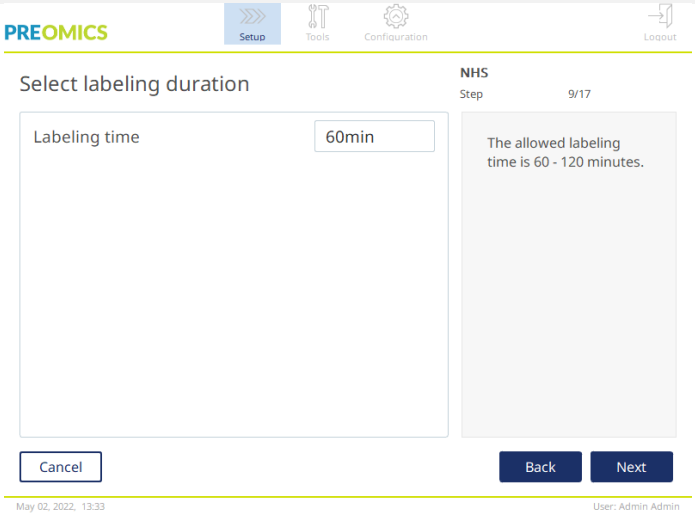
Step 7
Select amount of chemical labeling reagent



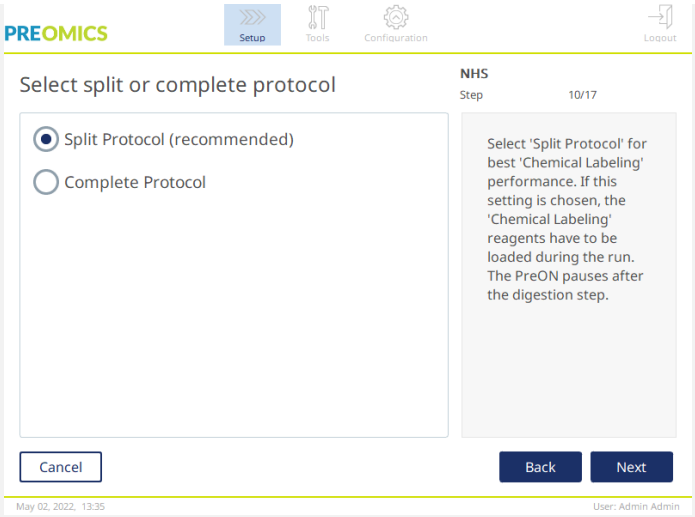
Step 8
Chemical labeling options



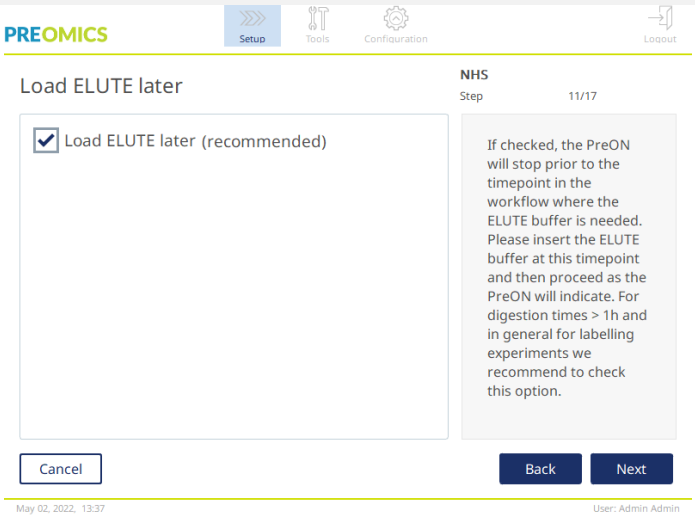
Step 9
Select labeling time



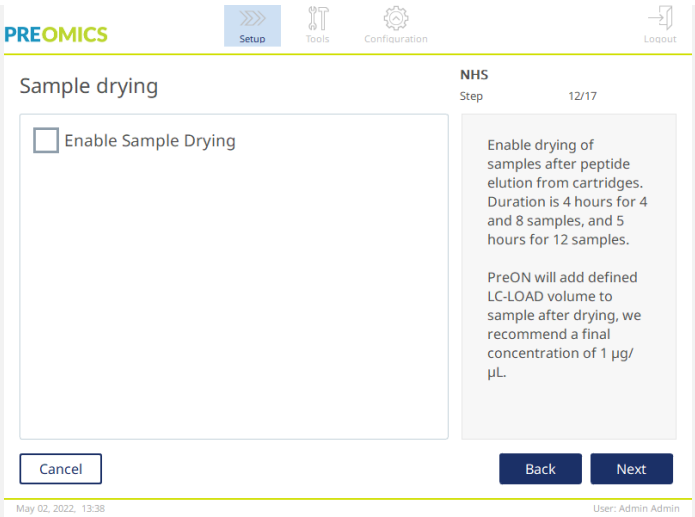
Step 10
Select split or complete protocol



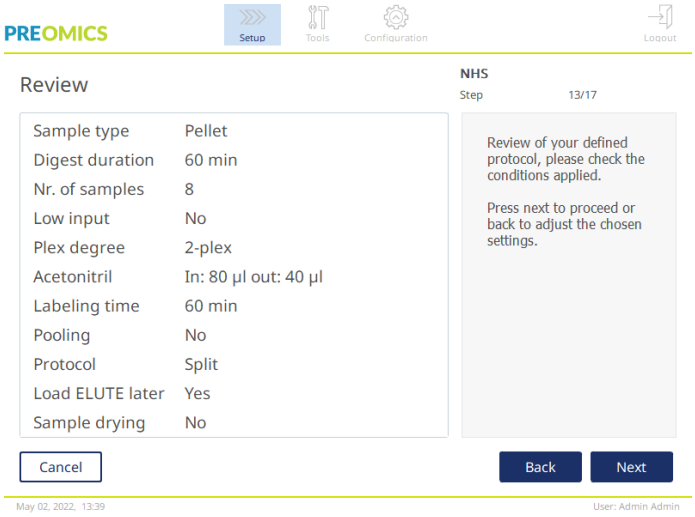
Step 11
Load ELUTE later



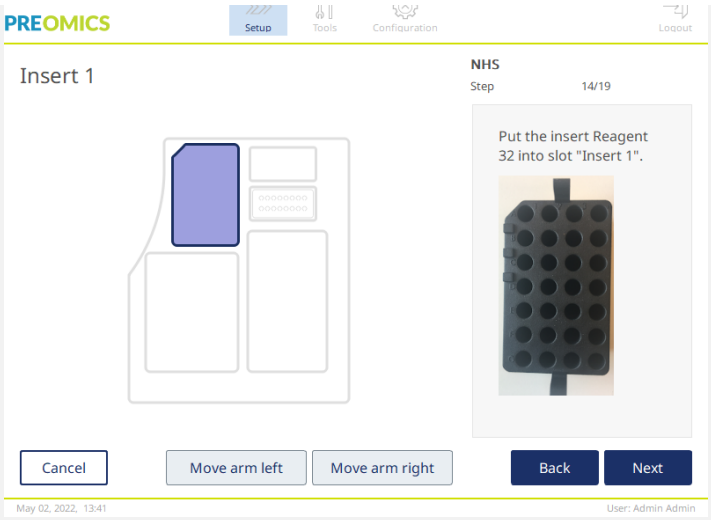
Step 12
Sample drying



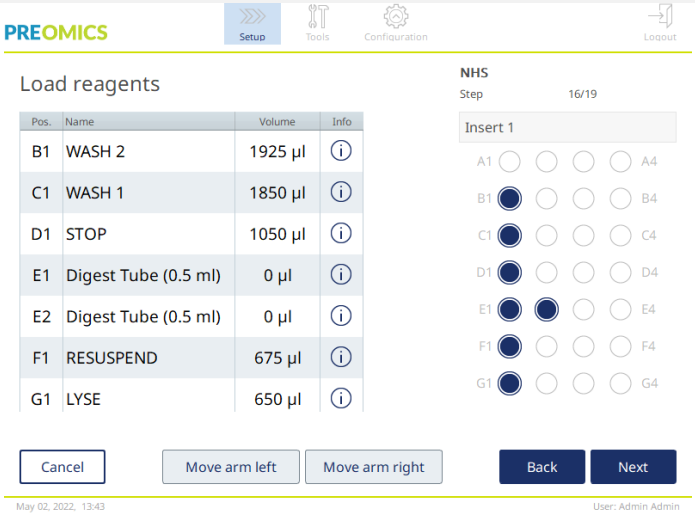
Step 13
Review Settings



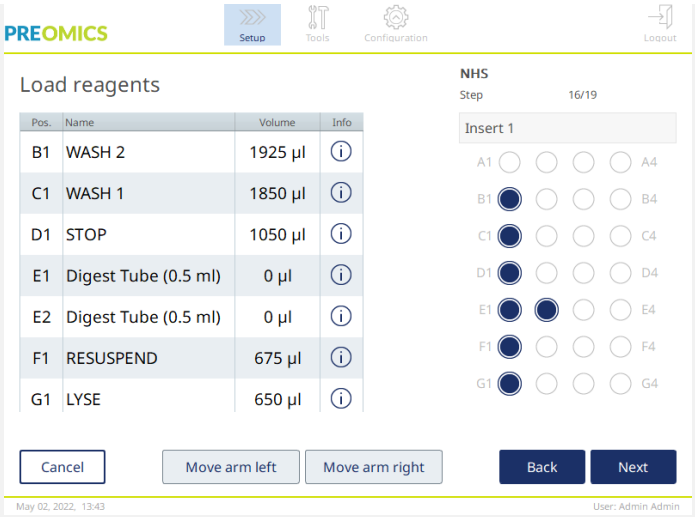
Step 14
Insert 1



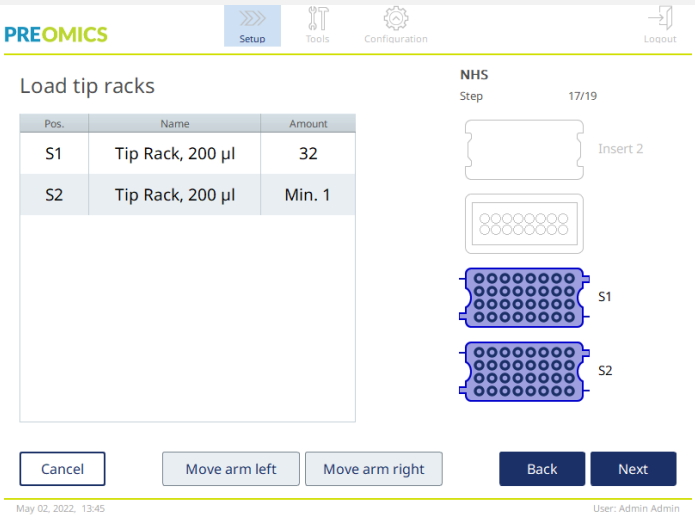
Step 15
Insert 3



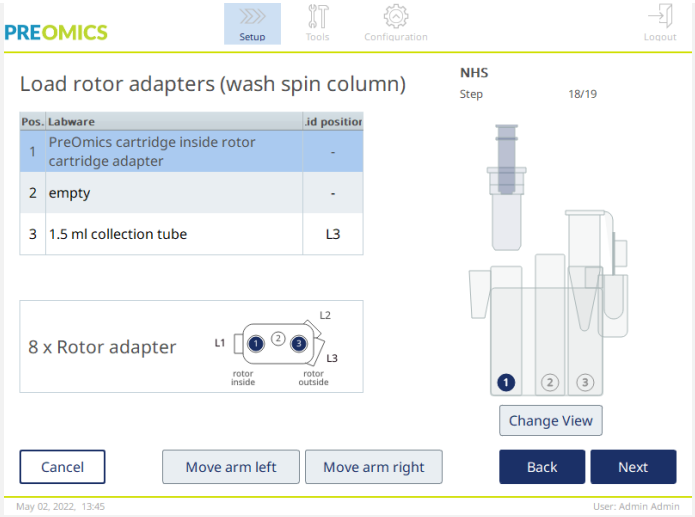
Step 16
Load reagents



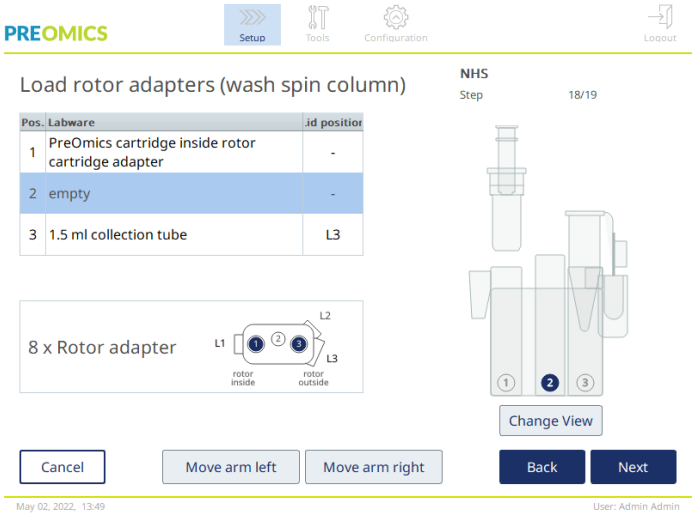
Step 17
Load tip racks



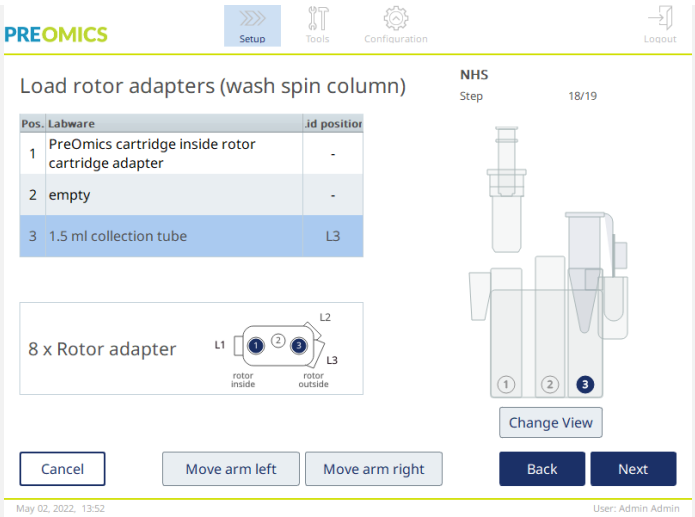
Step 18-1
Load the centrifuge rotor adapter – Spin Column



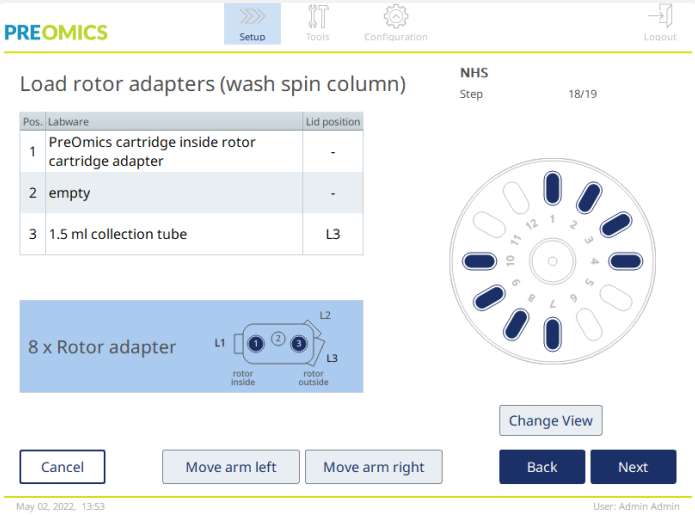
Step 18-2
Load the centrifuge rotor adapter – Middle Position



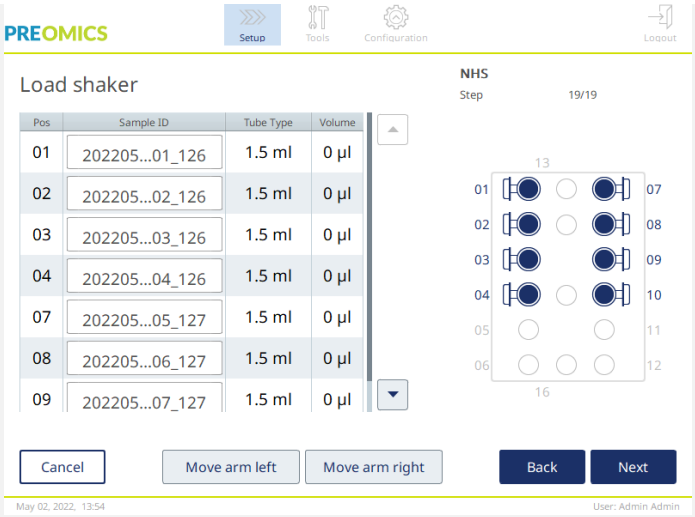
Step 18-3
Load the centrifuge rotor adapter – Elute Position



Step 18-4
Load the centrifuge rotor adapter

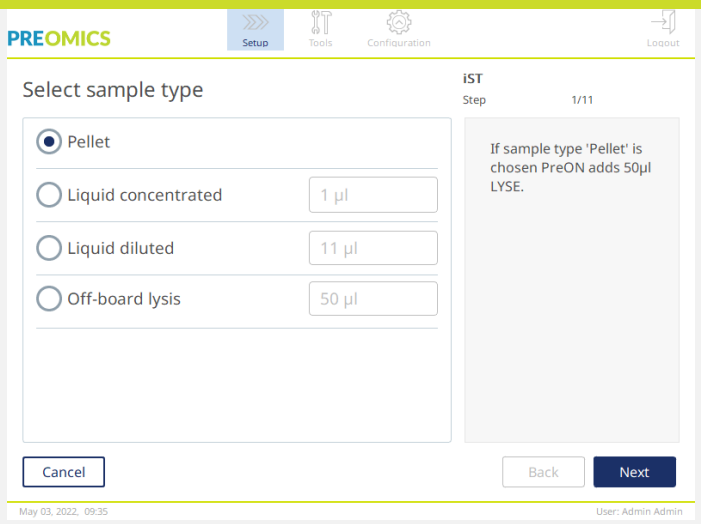


Step 19
Load shaker

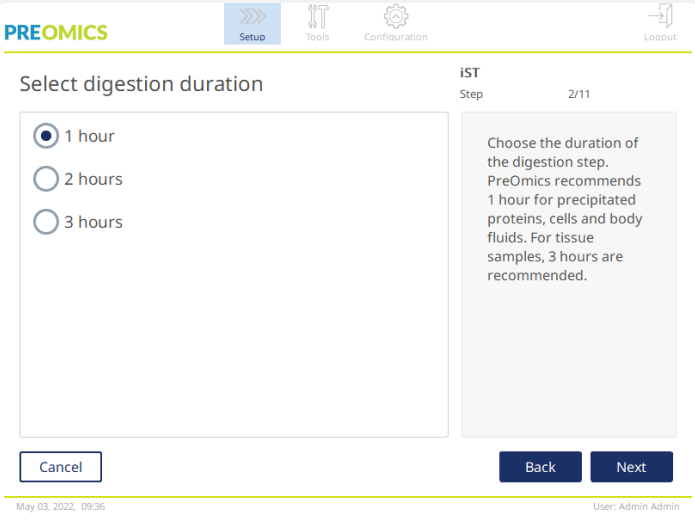


iST protocol

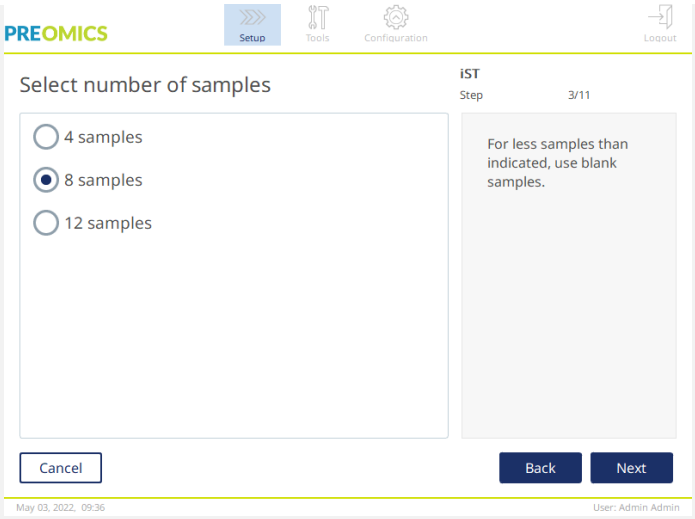
Step 1
Select sample type



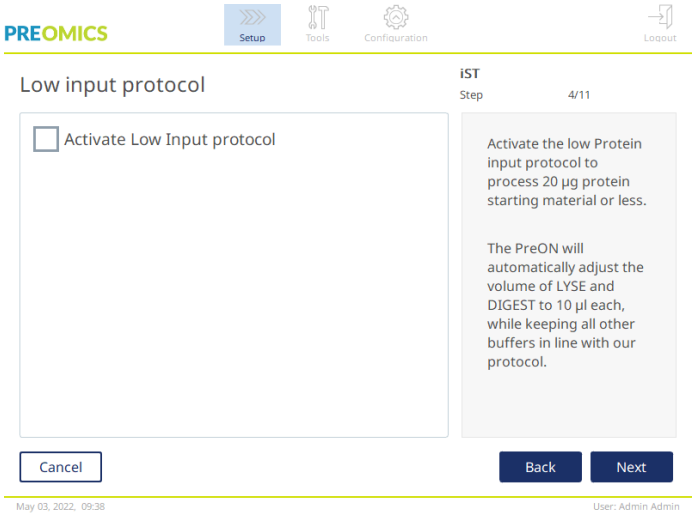
Step 2
Select digestion duration



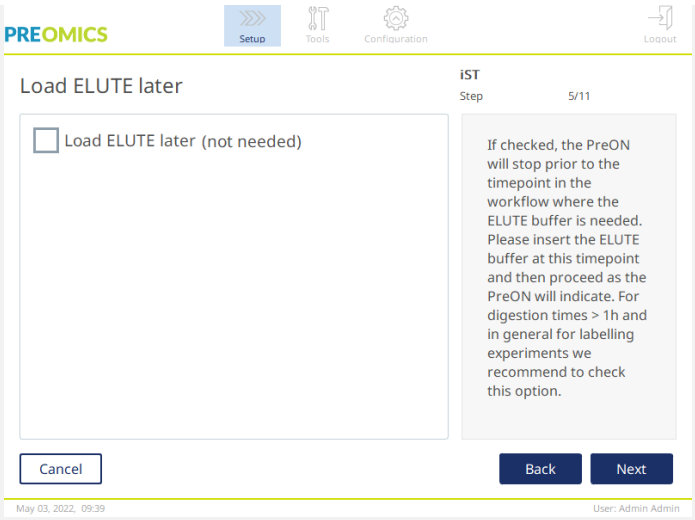
Step 3
Select number of samples



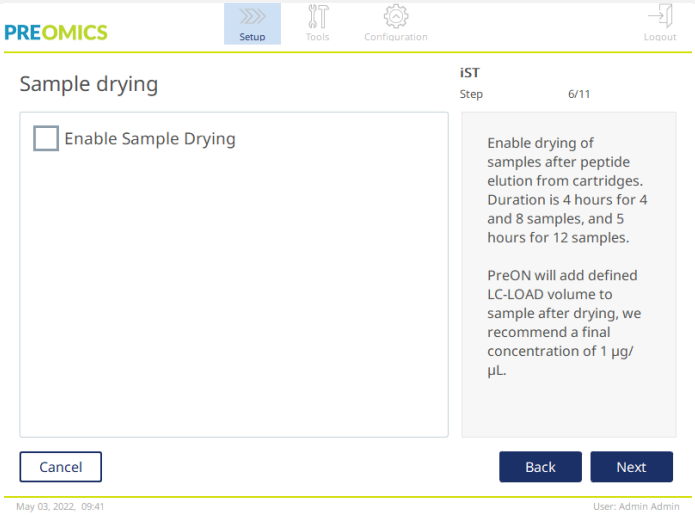
Step 4
Low input protocol



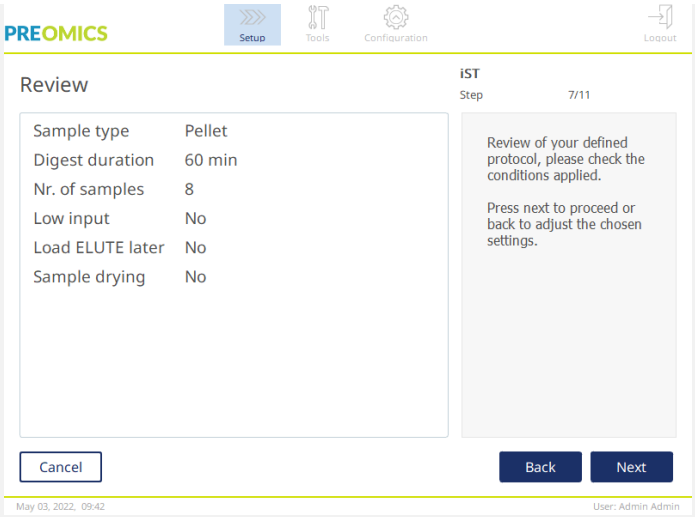
Step 5
Load ELUTE later



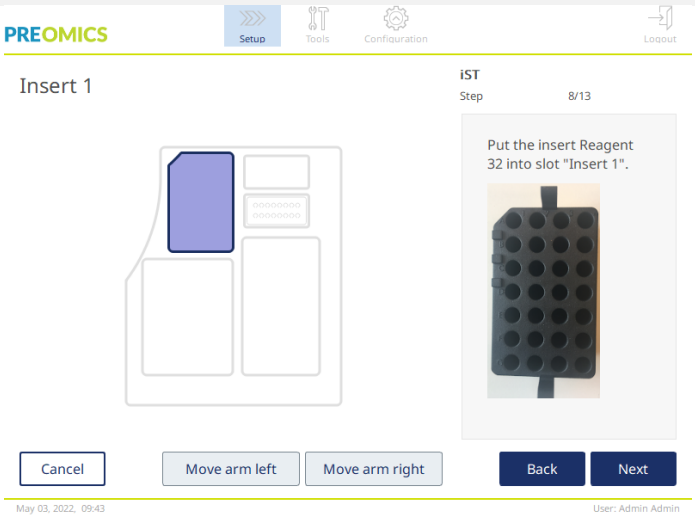
Step 6
Sample drying



Step 7
Review

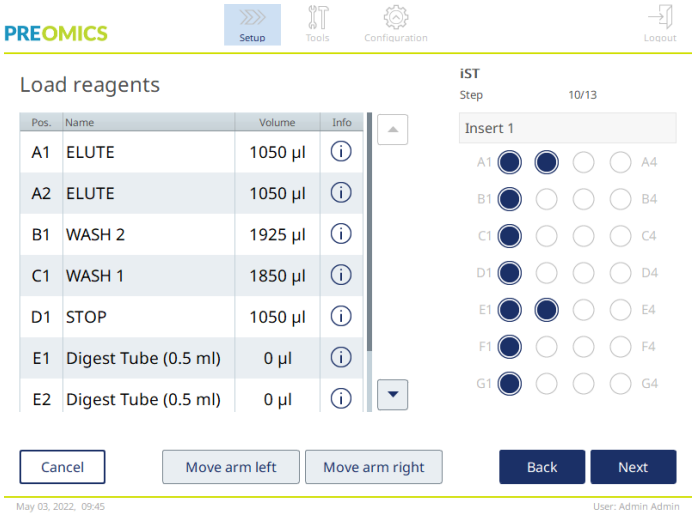


Step 8
Insert 1

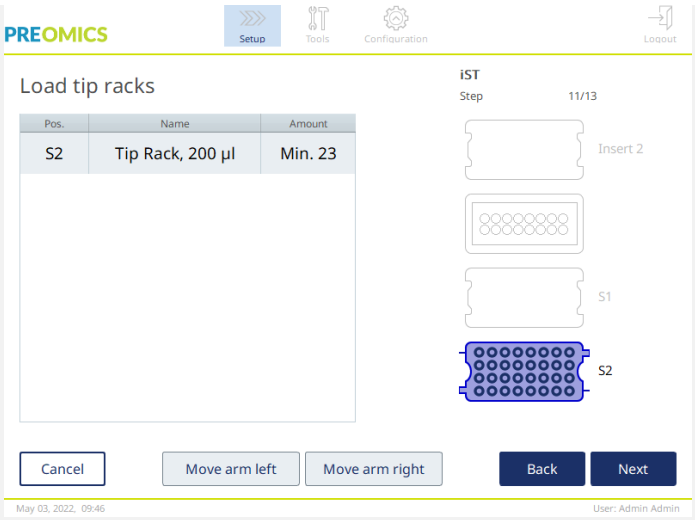


Step 9
Insert 3

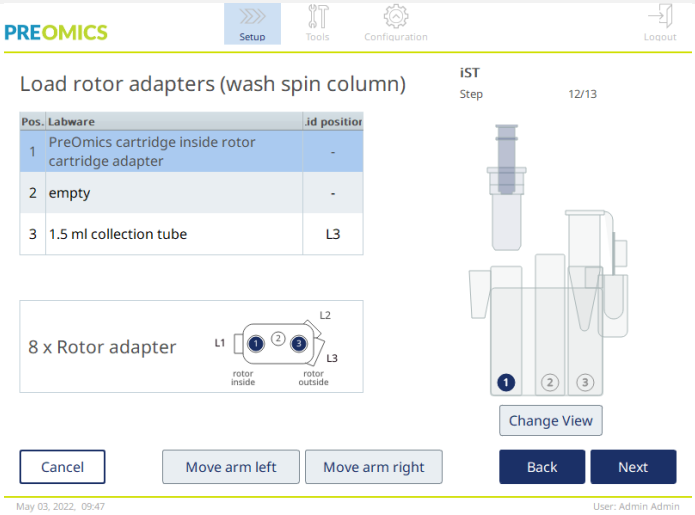
Step 10
Load reagents



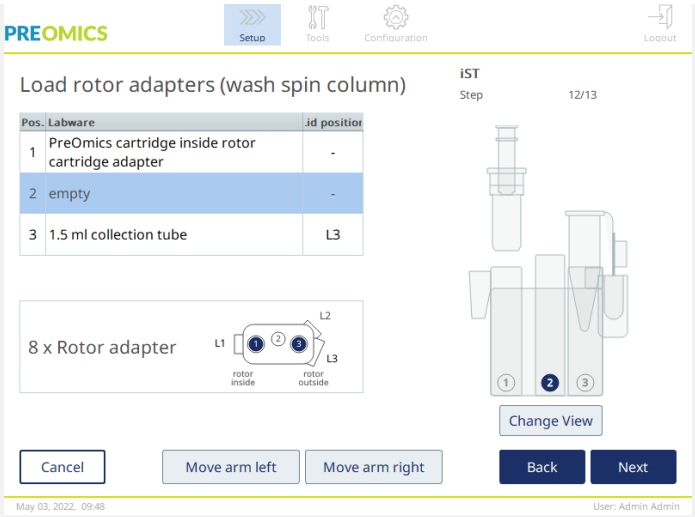
Step 11
Load tip racks



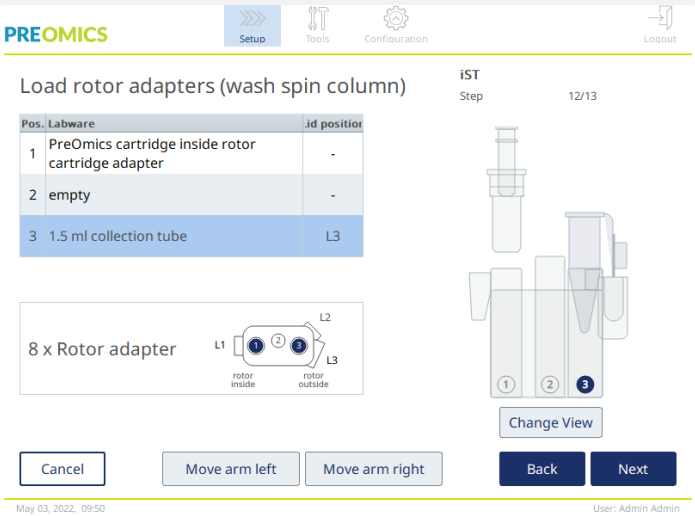
Step 12-1
Load the centrifuge rotor adapter – Spin Column



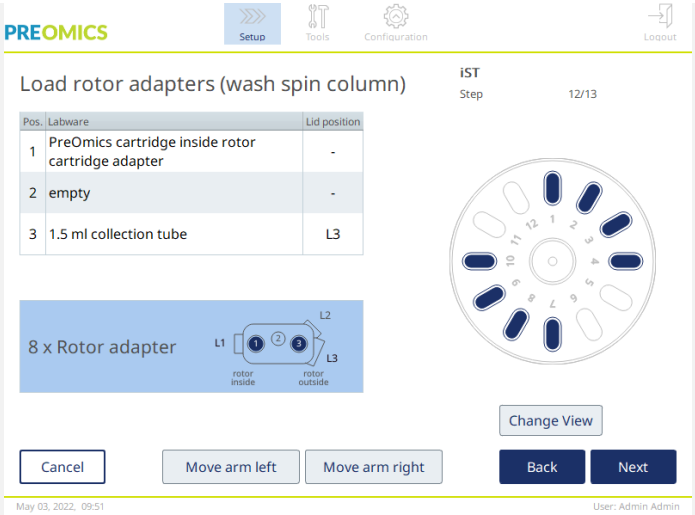
Step 12-2
Load the centrifuge rotor adapter – Middle Position



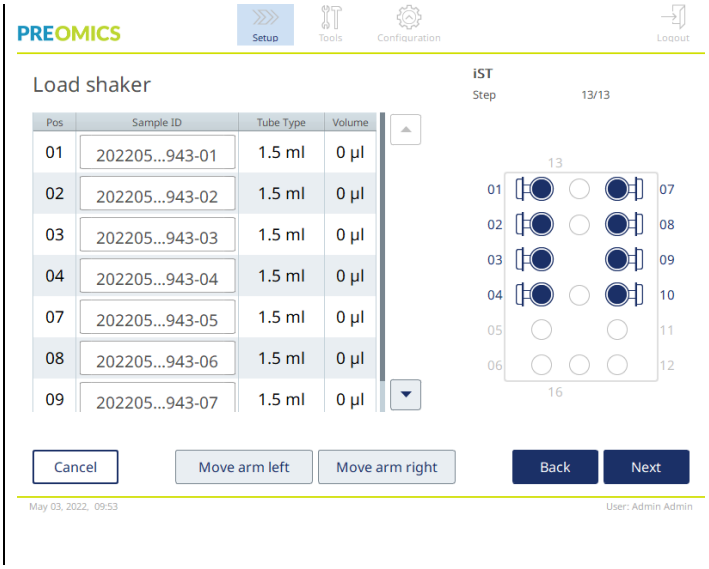
Step 12-3
Load the centrifuge rotor adapter – Elute Position



Step 12-4
Load the centrifuge rotor adapter

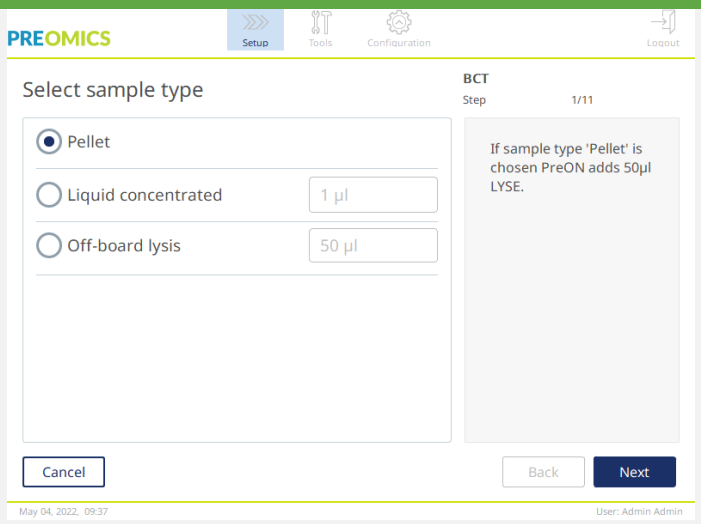


Step 13
Load shaker

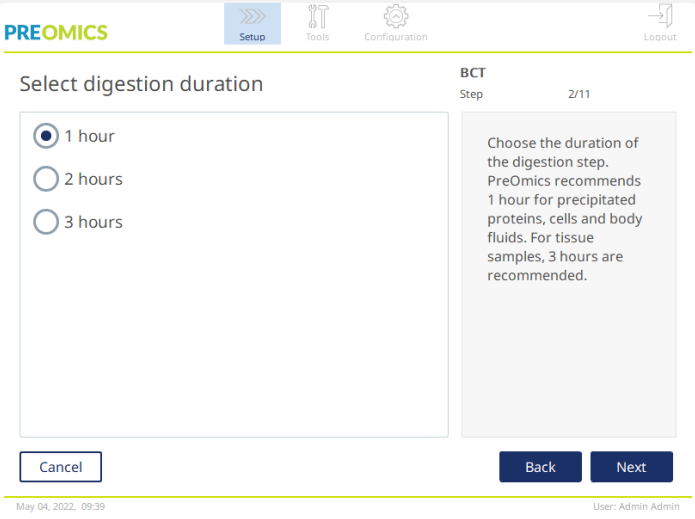


iST-BCT protocol

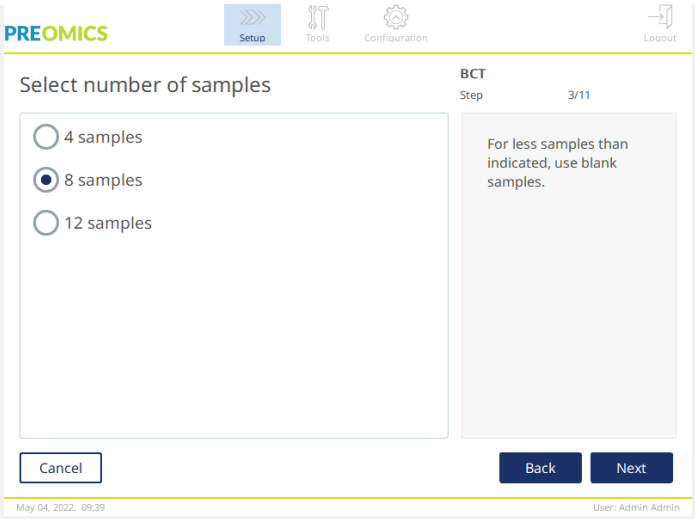
Step 1
Select sample type



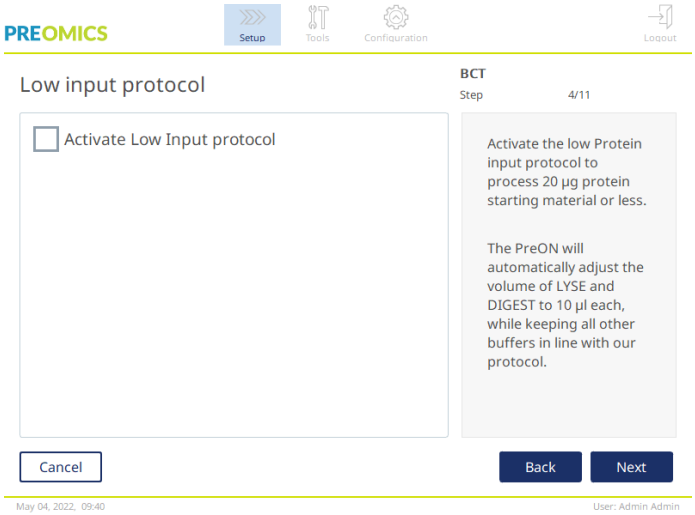
Step 2
Select digestion duration



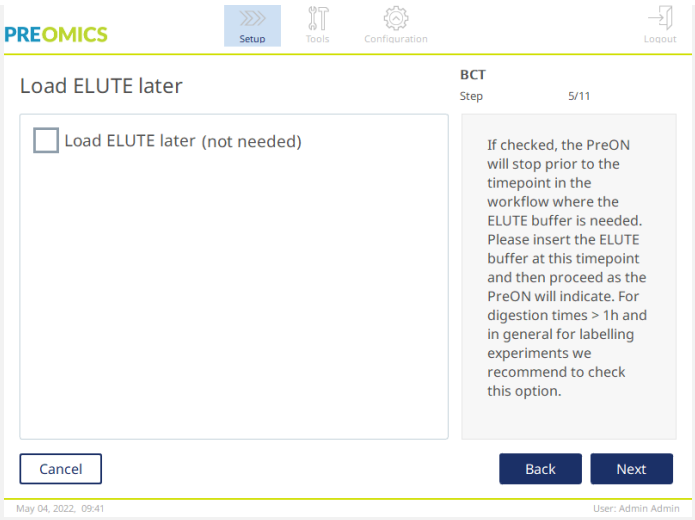
Step 3
Select number of samples



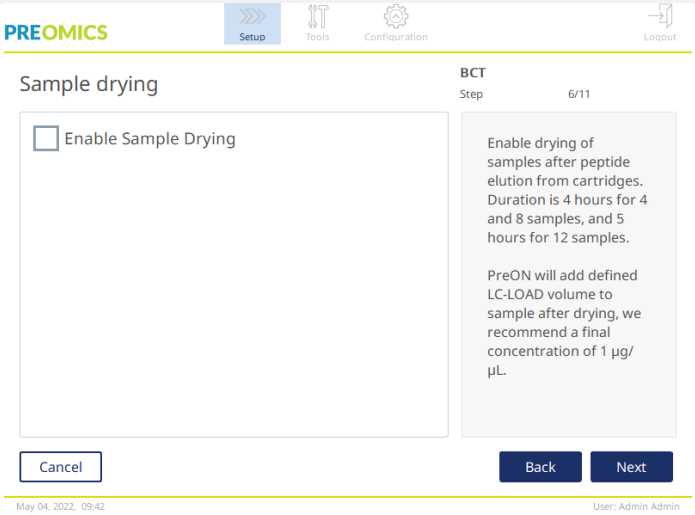
Step 4
Low input protocol



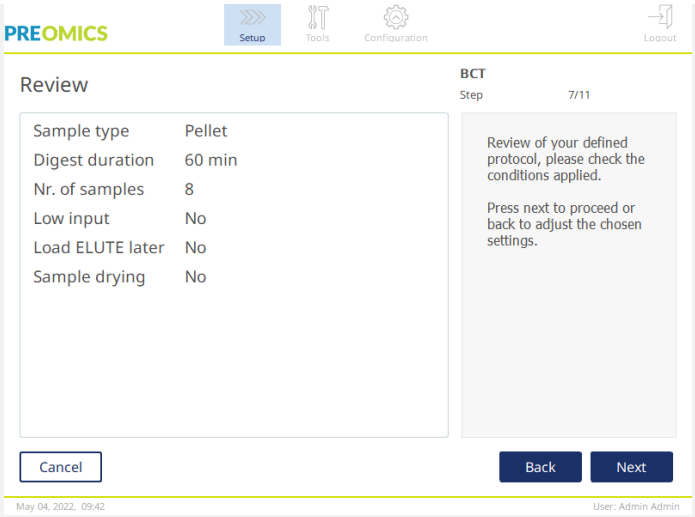
Step 5
Load ELUTE later



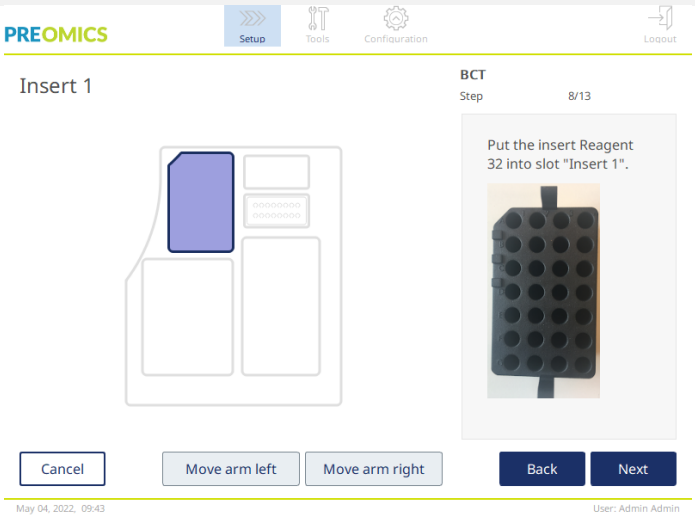
Step 6
Sample drying



Step 7
Review

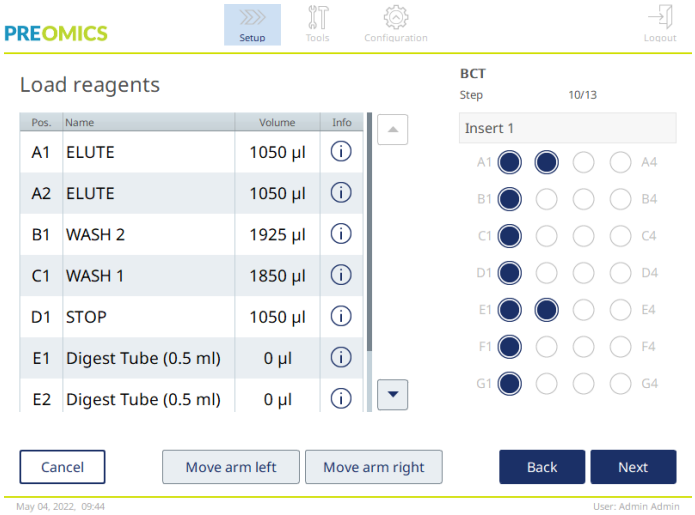


Step 8
Insert 1

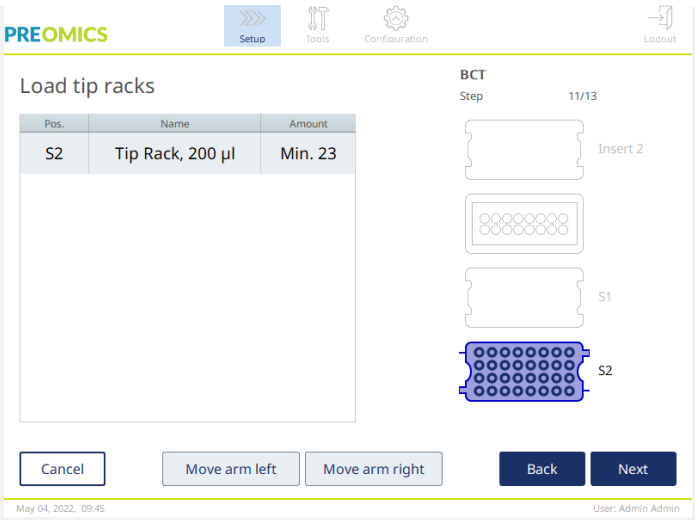


Step 9
Insert 3

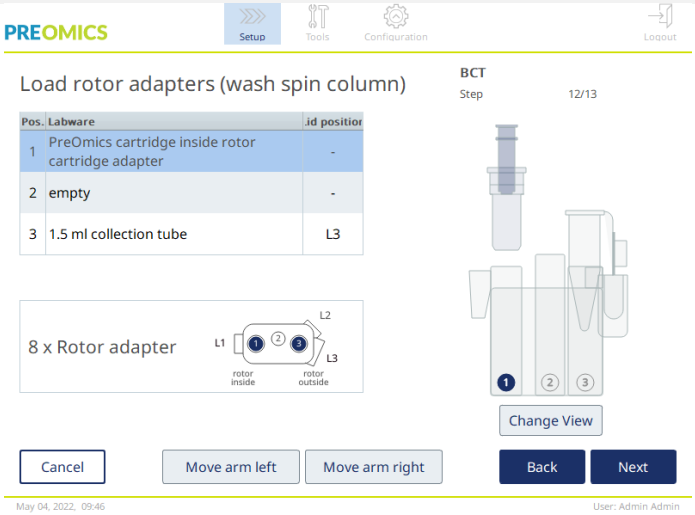
Step 10
Load reagents



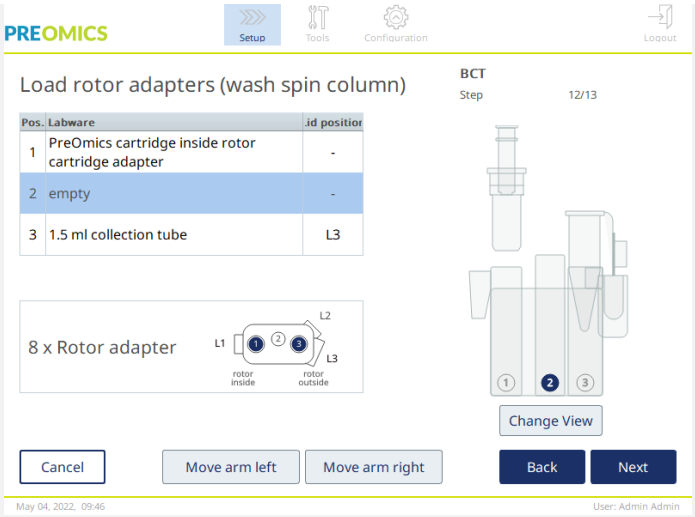
Step 11
Load tip racks



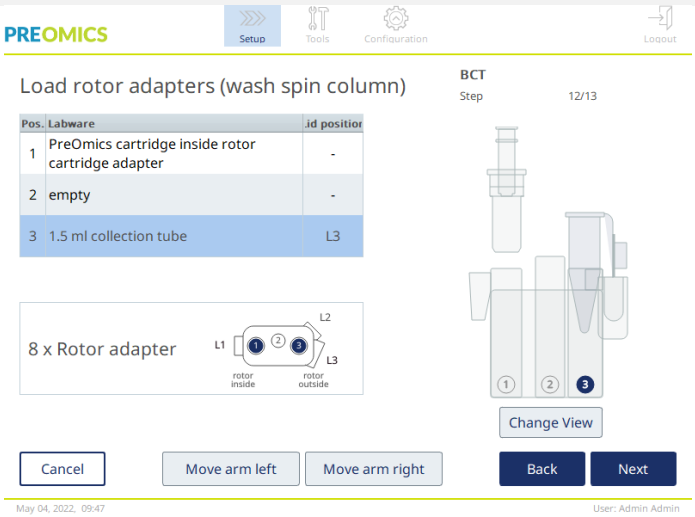
Step 12-1
Load the centrifuge rotor adapter – Spin Column



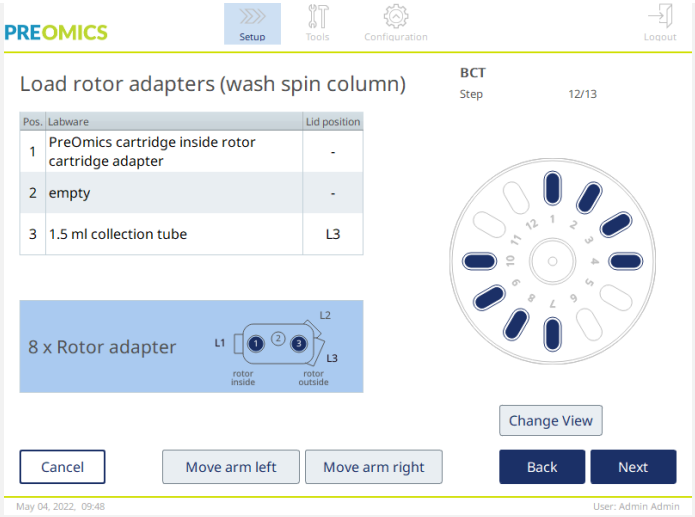
Step 12-2
Load the centrifuge rotor adapter – Middle Position



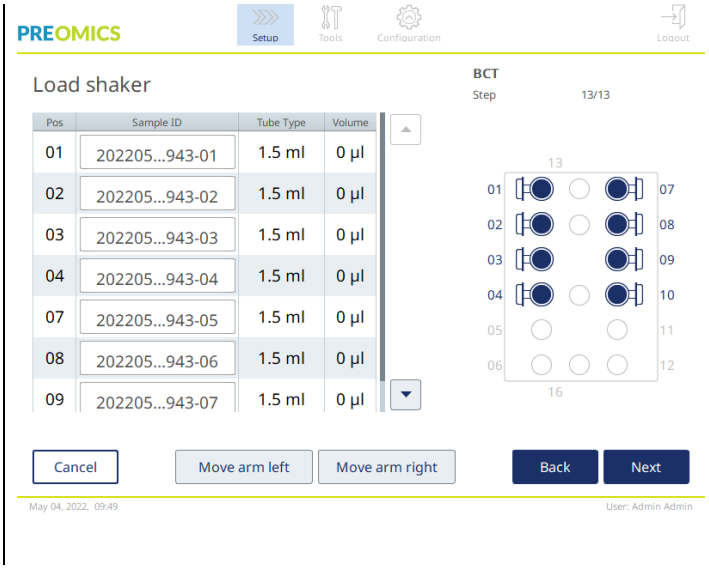
Step 12-3
Load the centrifuge rotor adapter – Elute Position



Step 12-4
Load the centrifuge rotor adapter



Step 13
Load shaker



WARNING

Risk of fire or explosion **[W6]**

When using flammable liquids on the PreON (Acetonitrile, Isopropyl alcohol), handle such liquids carefully and in accordance with the required safety regulations. If liquid has been spilled, wipe it off and leave the PreON hood open to allow flammable vapors to disperse.

5.3.1 Loading reagents and tips

Important: When the **Load reagents** screen appears, the robotic arm will automatically move slowly – even when the instrument hood is open – so you can access all of the loading positions. Always stand clear of the instrument while the robotic arm is moving. Wait until the robotic arm has completed its movements before you start to load or unload reagents or tip racks. After you are finished loading and you proceed from this screen, the robotic arm will automatically move back to its original position (above tip rack position 3).

There is one tip rack that can be used on the PreON. A blue rack for 200 µl filter-tips. The instrument uses the notches on the filter-tip rack to identify the type. Only use tips designed for use with the PreON.

Important: Do not use damaged filter tips. Do not load damaged tip racks onto the worktable.

Waste drawer

Ensure that you empty the waste drawer containing used disposable labware before every run to avoid waste accumulation.

Press **Next** to proceed to loading the centrifuge or shaker rack, depending on the selected protocol.

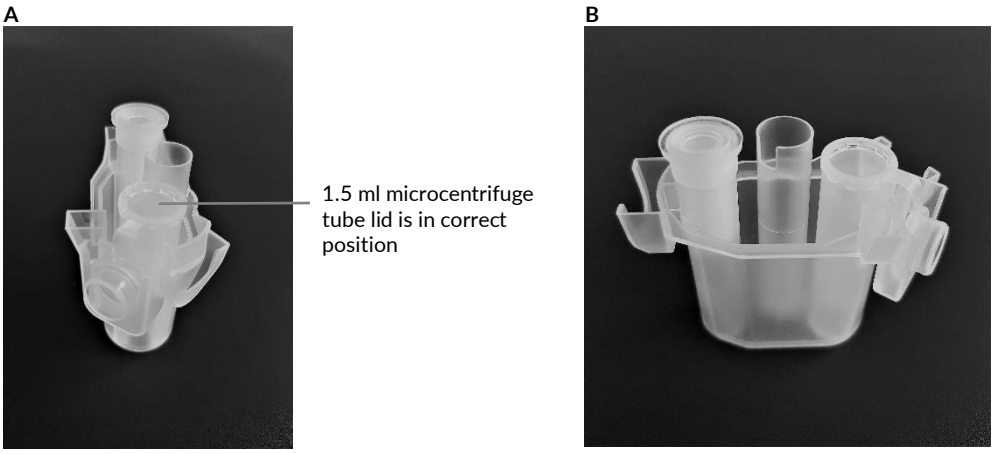
Important: After loading and you proceed from the **Loading tips and enzymes** screen, the robotic arm will automatically move back to its original position (above tip rack position 3).

5.3.2 Loading the centrifuge

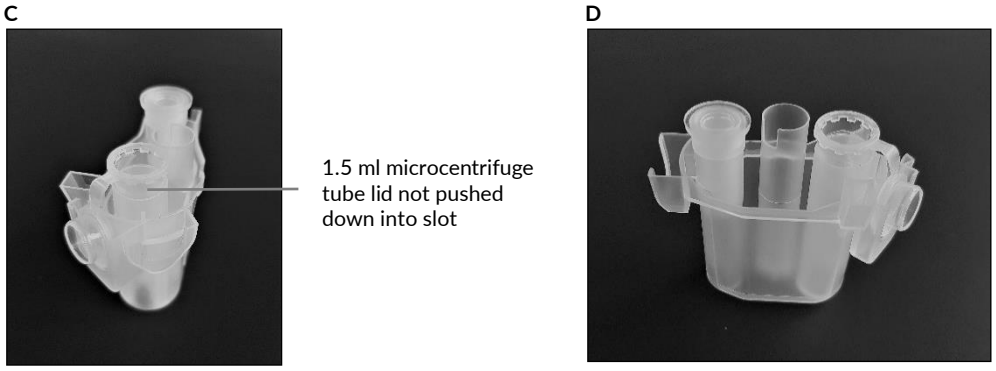
The **Loading centrifuge** screen guides you through setting up the required rotor adapters and centrifuge for the run. Make sure to read all essential and critical information before proceeding to the next step.

Rotor adapters can be placed into a rotor adapter holder, enabling convenient and easy preparation and loading of columns. Place the spin column-based cartridge adapters and spin column-based cartridges, tubes or samples into the appropriate positions in each rotor adapter as instructed by the software.

Place the lids into the correct lid position of the rotor adapter as indicated on your screen in the **Lid position** table column and the rotor adapter illustration. Make sure that the lids are pushed all the way down to the bottom of the slots on the sides of the rotor adapter. Incorrectly positioned lids can break off during centrifugation and cause the protocol run to crash.



Correctly loaded rotor adapter. A Rotor adapter is correctly loaded, and the 1.5 ml microcentrifuge tube lid is in the correct position; **B** Correctly loaded rotor adapter seen from the side.



Incorrectly loaded rotor adapter. C Rotor adapter is incorrectly loaded with a 1.5 ml microcentrifuge tube. The lid of the tube is not pushed all the way down to the bottom of the slot of the rotor adapter and could break off during centrifugation (compare with part A of the above figure); **D** Incorrectly loaded rotor adapter seen from the side (compare with part **B** of the above figure).

E

Rotor adapter is incorrectly loaded with a 1.5 ml microcentrifuge tube. The lid of the tube is positioned in the wrong slot of the rotor adapter. During column transfer, the lid of the spin column-based cartridge could crash onto the lid of the 1.5 ml microcentrifuge tube, causing the protocol run to crash.

WARNING

Risk of personal injury and material damage **[W5]**

To prevent plastic crash, load the tubes properly. After a plastic crash, sharp plastic particles, toxic and aggressive reagents could be inside the centrifuge. Be careful when handling items inside the centrifuge and thoroughly clean the centrifuge according to the maintenance procedure.

WARNING

Risk of personal injury and material damage **[W4]**

Do not use damaged rotor adapters. The rotor adapters can only be used once. High g forces exerted in the centrifuge can cause damage to used rotor adapters.

WARNING

Risk of personal injury and material damage **[W27]**

Make sure that lids from spin column-based cartridges and 1.5 ml microcentrifuge tubes are in the correct position and pushed all the way down to the bottom of the slots on the sides of the of the rotor adapter. Incorrectly positioned lids can break off during centrifugation.

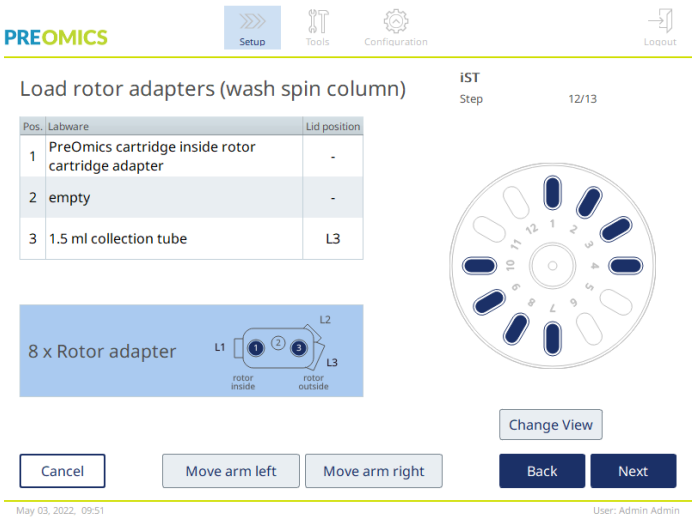
WARNING

Risk of personal injury and material damage **[W28]**

Be sure the lid is completely removed from the spin column. Spin column-based cartridges with partially removed lids may not be removed properly from the rotor, causing the protocol run to crash.

Loading the centrifuge

Tubes with samples need to be loaded onto the shaker unit (refer to section 5.3.3 Loading the shaker), and the centrifuge must be prepared according the following description.



The number and tube positions of rotor adapters required for the protocol run will be shown in the table and illustration on your screen. The table shows how to load and position each rotor adapter. The **Pos.** column indicates the position in the rotor adapter, and the **Lid position** column indicates where to place the lid of a particular tube.

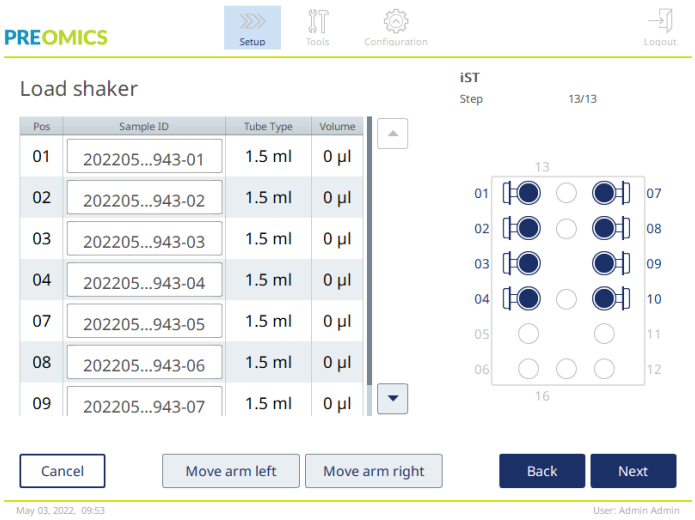
For each rotor adapter:

1. Load each tube/spin column-based cartridge adapter with spin column-based cartridge in its correct position as indicated in the table on the screen. Touch the table row to highlight the particular tube position in the illustration below the table.
2. Ensure that the tubes and spin column-based cartridge adapter with spin column-based cartridge are pushed firmly into the appropriate rotor adapter position.
3. Make sure that the lids are pushed all the way down to the bottom of the slots on the sides of the rotor adapter. Ensure that you place the lids in the correct lid positions.
4. Repeat steps 1–3 until all rotor adapters have been prepared.
5. Place the loaded rotor adapters into the centrifuge buckets as shown on the right side of the screen. For ease of use and high process safety, the rotor adapters only fit into the centrifuge buckets in one orientation.
6. Press **Next** to proceed with loading the samples into the shaker. Follow the instructions in the corresponding section below.

5.3.3 Loading the shaker

The **Load shaker** screen guides you through the loading of the shaker.

Sample tubes must be loaded on the shaker.



Loading of shaker; lid positions filled with shaker rack plugs

In this step, the software displays the shaker positions, tubes and volume to be loaded in the table and in the schematic on the right.. Make sure to read all essential and critical information before proceeding to the next step.

1. If required, change the default **Sample IDs** in the respective fields using the on-screen keyboard. You can enter the value manually or scan the sample bar code using a handheld scanner. The sample ID is initially created using the YYYYMMDD-HHMM-no. format.

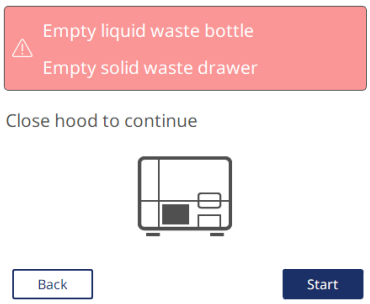
   Note: Sample IDs are part of the run reports and can be part of log files and audit trail. They are not encrypted.
2. Prepare the correct tubes.
3. Load the tubes into the correct position of the shaker rack. Touch the table row to highlight the position in the schematic at the right.
4. Depending on the tube type, the tube lid must be placed into the slot next to the tube, as shown on the screen or indicated in the **Information** icon (ⓘ). Make sure that the lid/shaker rack plug is securely seated in the slot. Do not place a lid or shaker rack plug next to an empty shaker rack position.

5. Press **Next** to proceed to starting the run

Do not use 1.5 ml microcentrifuge tubes on the shaker. These microcentrifuge tubes can cause filter-tips to stick during sample transfer. Using this tube on the shaker can damage the pipetting system and can cause a centrifuge crash.

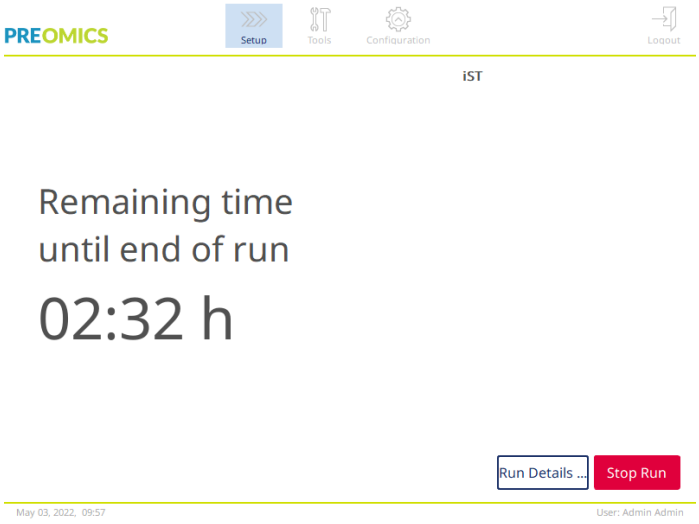
5.4 Starting the protocol run

A confirmation message will appear when the final step on the last setup screen has been completed.

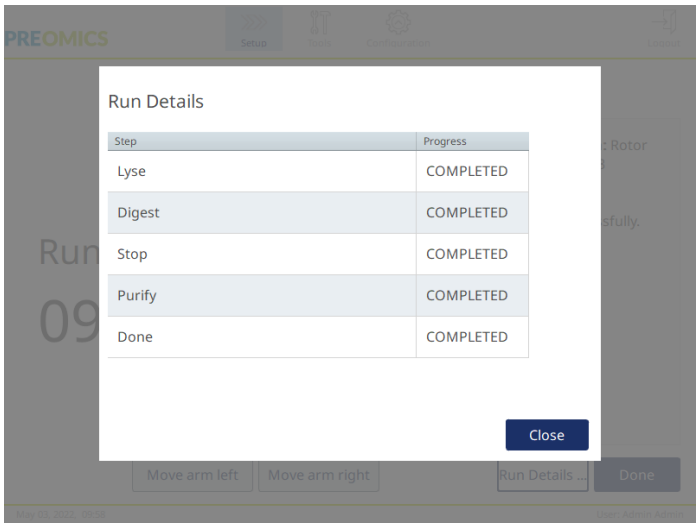


1. Empty the liquid waste bottle
2. Empty the solid waste in the waste drawer
3. Close the hood to continue.
4. Press **Start** to begin the run. The screen will display the estimated run duration.

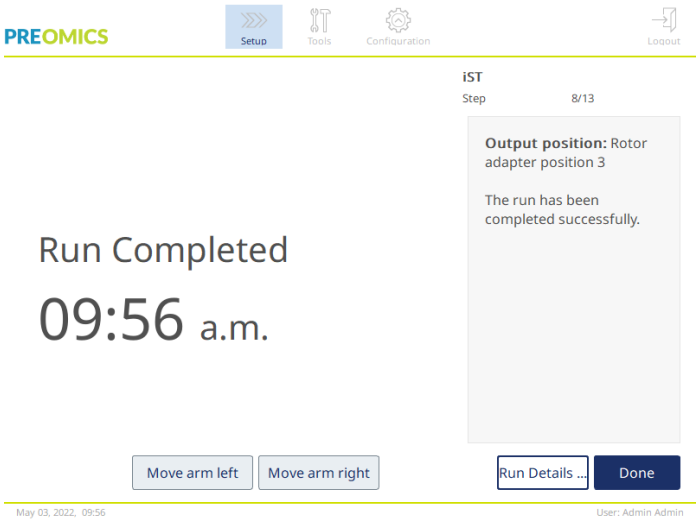
   Important: Do not open the instrument hood during a run. In the event the hood is opened during a run, the run will stop. If the tip adapter has picked up a tip, it must be removed manually.



During the run, you can press the **Run Details** button to display the run steps. To return to the run view, press **Close**.



5.5 End of the protocol run



When the protocol run is completed, the elution position and content will be shown on the right side of the screen. Make sure that you follow the proper procedures for storing and handling the samples.

Perform regular maintenance as described in section 6.3 Regular maintenance procedure before starting the next run.

5.6 Stopping a protocol run

In case of emergency, a run can be stopped by pressing the **Stop Run** button.

If a run is stopped, perform the daily maintenance as described in section 6.4 Daily maintenance procedure, and ensure that no plastic parts are present in the centrifuge before starting the next run.

Note: If a protocol run is stopped, the run cannot be restarted; the samples must be processed manually (refer to section 7.3.1 Protocol interruption).

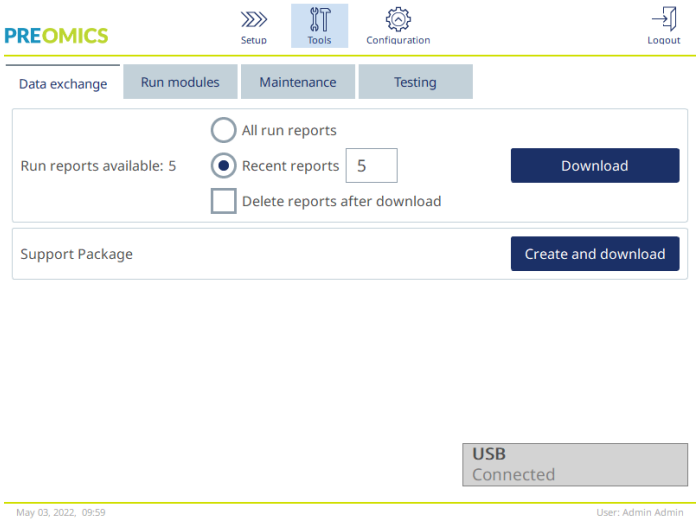
5.7 Saving run reports to the USB stick

Run reports are automatically saved on the instrument after each run. The number of run reports on the instrument is limited to 200. If this number is reached, the oldest run report will be replaced by the new run report.

To transfer run reports to the USB stick, proceed as follows:

1. Press the **Tools** icon.

2. Press the **Data exchange** tab. The number of available run reports is shown on the screen.



3. If not yet connected, connect the USB stick to one of the USB ports at the left of the touchscreen.
4. To save all available run reports to the USB stick, select **All run reports**. To save only the recent reports, select **Recent reports**. To enter the number of reports to be saved, touch in the **Recent reports** field.
5. If you would like to delete reports from the instrument after download, press **Delete reports after download**.
6. Press **Download** to save the reports to the USB stick.

   A confirmation message that run reports are successfully saved to the USB stick will appear. The USB stick can be removed from the instrument.

   Important: Do not remove the USB stick while the files are downloading. Wait until the download is completed.

5.8 Logging out

To log out from the instrument, follow these steps:

1. Press **Logout** at the top right of the screen.

2. To log out, confirm the message with **OK**. To stay logged in, press **Cancel**.
3. The **Login** screen appears.

6 Maintenance Procedures

WARNING/ CAUTION 	**Risk of personal injury and material damage** Only perform maintenance that is specifically described in this user manual.	**[W22]**

The following maintenance procedures must be carried out to ensure reliable operation of the PreON:

- Regular maintenance: after each protocol run
- Daily maintenance: after the last protocol run of the day
- Monthly maintenance: every month
- Periodic maintenance: when necessary; at least every 6 months

Optionally, these procedures may be performed to check and ensure the reliability of operation of the PreON:

- Tightness Test: ensures the tightness of the tip adapter (e.g., after O-Ring change)

The software provides step-by-step guidance under **Tools/Maintenance** for the maintenance procedures listed above, except for the regular maintenance.

Following these procedures ensures that the PreON is free from dust and liquid spills.

Select the cleaning agent according to the objective of the cleaning procedure, the sample material used and the downstream assay.

WARNING 	**Risk of fire or explosion** When using flammable liquids on the PreON (Acetonitrile, Isopropyl alcohol), handle such liquids carefully and in accordance with the required safety regulations. If liquid has been spilled, wipe it off and leave the PreON hood open to allow flammable vapors to disperse.	**[W6]**

Before using any cleaning or decontamination methods except those recommended by the manufacturer, users should check with the manufacturer that the proposed method will not damage the equipment.

6.1 Cleaning agents

The following disinfectants and detergents are recommended for cleaning the PreON.

Note: If you want to use disinfectants different from those recommended, ensure that their compositions are like those described below.

General cleaning of the PreON:

- Mild, alcohol-free Detergents (e.g., Mikrozid® AF sensitive)
- 70% ethanol may be used for cleaning the metallic surfaces of the worktable only; it must not be used for cleaning the plastic inserts or the PreON hood

6.1.1 Disinfection

Mild, alcohol-free disinfectants, e.g. Mikrozid® AF sensitive.

Ethanol-based disinfectants must not be used for disinfection of the plastic inserts and can only be used for disinfection of metallic surfaces, such as the worktable or inside the centrifuge: e.g., 25 g ethanol and 35 g 1-propanol per 100 g liquid or mikrozid® AF liquid (Schülke & Mayr GmbH).

General instructions

- Do not use spray bottles to spray cleaning or disinfectant liquids onto surfaces of the PreON workstation. Spray bottles should be used only for items that have been removed from the workstation.
- If solvents or saline, acidic, or alkaline solutions are spilt on the PreON or if PreOmics buffers splash the instrument hood, wipe the spilt liquid away immediately.
- Follow manufacturer's safety instruction for handling cleaning agents.
- Follow manufacturer's instruction for soaking time and concentration of the cleaning agents. Immersing for longer than the recommended soak time can harm the instrument.
- Do not use alcohol or alcohol-based disinfectants to clean the PreON hood. Exposing the PreON hood to alcohol or alcohol-based disinfectants will cause surface cracking. Clean the PreON hood with distilled water only or a mild detergent.
- Take care that no liquid runs down the touchscreen. Liquid may be drawn through the dust protection sealing by capillary forces and cause malfunction of the display. To clean the touchscreen, moisten a soft lint-free cloth with water, ethanol, or a mild detergent and carefully wipe the display. Wipe dry with a paper towel.
- Before using any cleaning or decontamination methods except those recommended by the manufacturer, users should check with the manufacturer that the proposed method will not damage the equipment

CAUTION 	**Damage to the instrument** **[C10]** Do not use bleach, solvents, or reagents containing acids, alkalis, or abrasives to clean PreON.

CAUTION 	**Damage to the instrument** **[C11]** Do not use spray bottles containing alcohol or disinfectant to clean surfaces of the PreON. Spray bottles should be used only to clean items that have been removed from the worktables.

WARNING

Risk of fire **[W24]**

Do not allow cleaning fluid or decontamination agents to come into contact with the electrical parts of the PreON.

WARNING

Risk of electric shock **[W10]**

Do not open any panels on the PreON.

Risk of personal injury and material damage

Only perform maintenance that is specifically described in this user manual.

WARNING

Hazardous chemicals and infectious agents **[W16]**

The waste may contain toxic material and must be disposed of properly. Refer to your local safety regulations for proper disposal procedures.

WARNING

Risk of personal injury and material damage **[W1]**

Improper use of the PreON may cause personal injuries or damage to the instrument. The PreON must only be operated by qualified personnel who have been appropriately trained.

Servicing of the PreON must only be performed by a PreOmics Field Service specialist.

WARNING

Risk of explosion **[W23]**

When cleaning the PreON with alcohol-based disinfectant, leave the PreON hood open to allow flammable vapors to disperse.

Only clean the PreON when worktable components have cooled down.

WARNING

Risk of fire or explosion **[W6]**

When using flammable liquids on the PreON (Acetonitrile, Isopropyl alcohol), handle such liquids carefully and in accordance with the required safety regulations. If liquid has been spilled, wipe it off and leave the PreON hood open to allow flammable vapors to disperse.

WARNING

Vapors from volatile solvents **[W14]**

Some of the solvents used with the instrument are volatile. Use the instrument only with adequate ventilation according to the applicable Material Safety Data Sheets (MSDSs) or OSHA,* ACGIH† or COSHH‡ documents.

WARNING

Toxic fumes **[W14]**

Do not use bleach to clean or disinfect the PreON. Bleach in contact with salts from the buffers can produce toxic fumes.

6.2 Servicing

Contact your local PreOmics Field Service Specialist or your local distributor for more information about flexible Service Support Agreements from PreOmics.

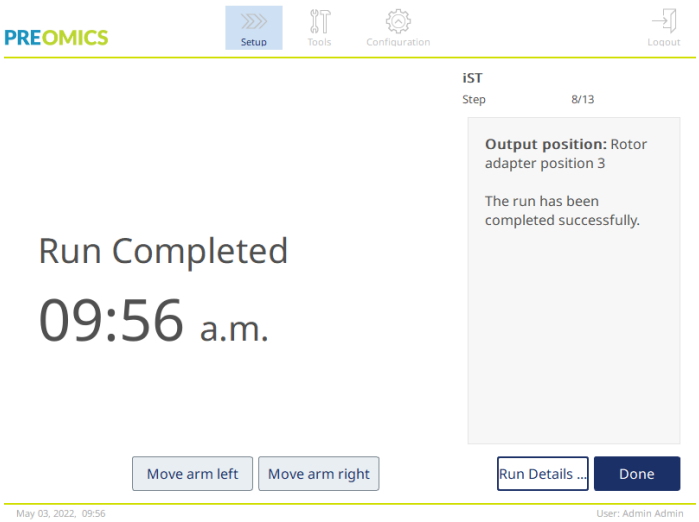
WARNING

Risk of personal injury and material damage **[W1]**

Improper use of the PreON may cause personal injuries or damage to the instrument. The PreON must only be operated by qualified personnel who have been appropriately trained. Servicing of the PreON must only be performed by a PreOmics Field Service specialist.

6.3 Regular maintenance procedure

After running a protocol, perform the regular maintenance procedure described below.



Regular maintenance procedure:

1. Open the waste drawer and empty tips and columns (if necessary) into a suitable laboratory waste container.
2. Remove used disposable labware and unwanted samples and reagents from the worktable. Discard them according to your local safety regulations.

   Note: If the robotic arm prevents you from reaching a position, do not move the robotic arm manually. Instead, proceed as follows:

   Press **Move left** or **Move right**, as needed. The robotic arm will start to move. The hood can remain open during this movement.

   Ensure that you stand clear of the instrument while the robotic arm is moving. Wait until the robotic arm has completed its movements.
3. Replace the lids of the reagent bottles and close tightly. Store the bottles according to the instructions in the relevant kit handbook.

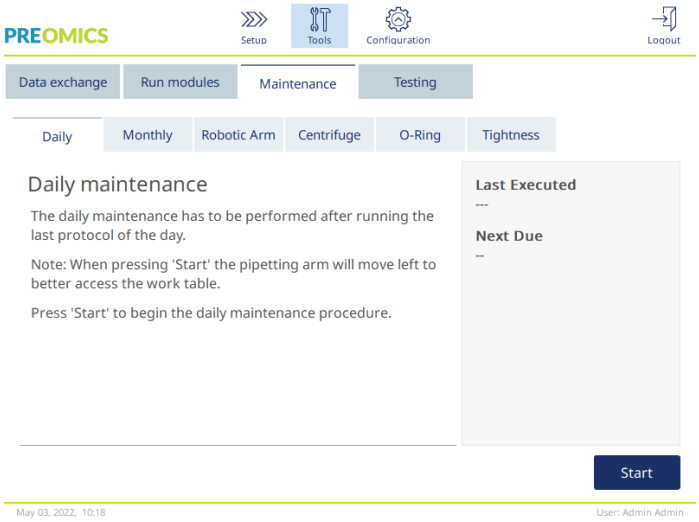
You can now run another protocol or switch off the PreON.

6.4 Daily maintenance procedure

After running the last protocol of the day, perform the daily maintenance procedure. The software guides you through each step to be performed:

1. To start the daily maintenance, press the **Tools** icon.

2. Then press the **Daily** subtab under the **Maintenance** tab. The screen shows the **Last Executed** and the **Next Due** daily maintenance dates.



3. Press **Start**. Follow the instructions on the screen. Details are provided in the next steps below.

   The robotic arm will automatically move slowly to the left – even if the instrument hood is open – to provide access to the loading positions. Always stand clear of the instrument while the robotic arm is moving. Wait until the robotic arm has completed its movements before you start to unload.

4. Remove used disposable labware, adapters and unwanted samples and reagents from the worktable. If required, discard them according to your local safety regulations.
5. Close the buffer bottles tightly and store according to the instructions in the relevant kit handbook.
6. Press **Done** to confirm that the steps have been completed.
7. Empty the waste drawer and check that the inlay is clean. If necessary, clean the inlay of the waste drawer with alcohol-based disinfection wipes, or by soaking using one of the cleaning agents listed above, and then rinse with distilled water.
8. Wipe and clean the worktable with alcohol-based disinfection wipes. Incubate as appropriate, rinse thoroughly with distilled water and wipe dry with paper towels.

   Note: Do not use alcohol or alcohol-based disinfectants to clean the hood.

9. Press **Done** only when the steps listed above have been successfully completed. The date of the last performed daily maintenance is updated automatically.

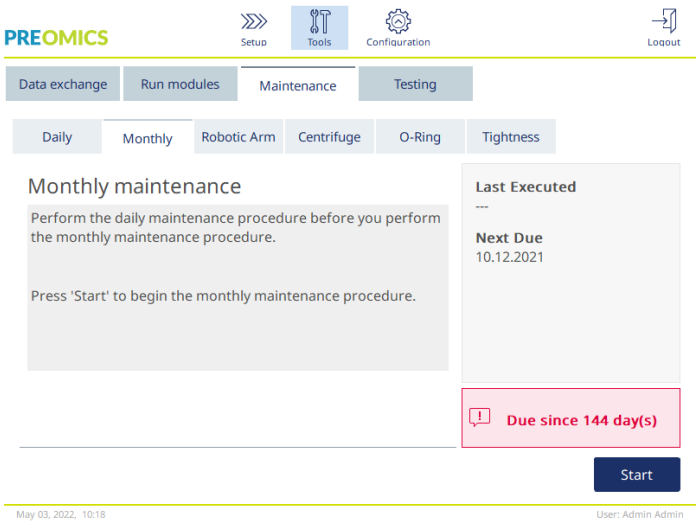
   The robotic arm will automatically move back to its original position (above tip rack position 3).

6.5 Monthly maintenance procedure

Perform the daily maintenance procedure before you perform the monthly maintenance procedure. Select the appropriate cleaning agent according to the sample material and downstream assay (refer to section 6.1 Cleaning agents).

1. To start the monthly maintenance, press **the Tools** icon.

2. Then press the **Monthly** subtab under the **Maintenance** tab. The screen shows the **Last Executed** and the **Next Due** monthly maintenance dates.



3. Close the hood.
4. See Cleaning procedure section 6.1 Cleaning agents
5. Incubate the shaker adapter (grey), shaker tray (metal adapter), buffer bottle rack and waste drawer in liner by soaking as appropriate. Rinse thoroughly with distilled water and wipe dry with paper towels.
6. Press **Done** only when the steps listed above have been successfully completed. The date of the last performed monthly maintenance is updated automatically.

   Important: Inspect the waste drawer during maintenance. Contact PreOmics Technical Services if any broken parts are observed.
7. Transfer the run reports from the instrument to the USB stick and remove the run reports from the instrument. Only the last 200 run reports are saved on the instrument. For details refer to section 5.7 Saving run reports.

6.6 Periodic maintenance procedure

The periodic maintenance consists of cleaning the robotic arm modules and centrifuge.

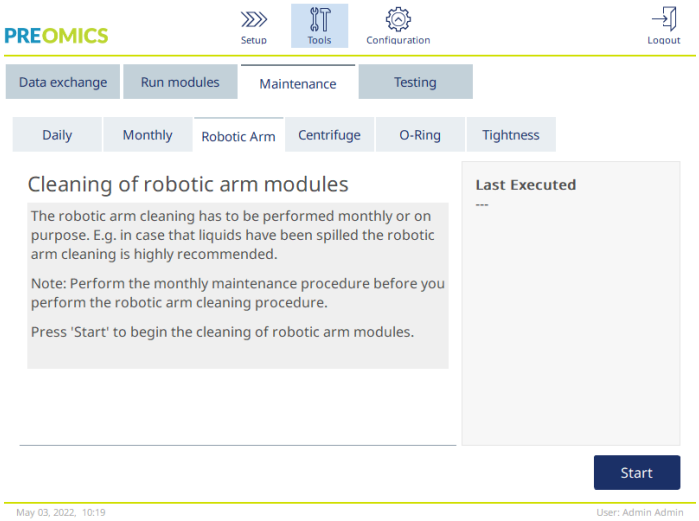
Select the appropriate cleaning agent according to the sample material and downstream assay (refer to section 6.1 Cleaning agents).

6.6.1 Cleaning the robotic arm modules

Cleaning of the robotic arm modules must be performed periodically or could be performed if required. For example, the robotic arm modules must be cleaned if liquids were spilled due to crash.

Note: Perform the monthly maintenance procedure before you perform the robotic arm cleaning procedure.

1. To start cleaning the robotic arm modules, press the **Tools** icon and press the **Robotic Arm** subtab under the **Maintenance** tab. The screen shows the **Last Executed** maintenance date of the robotic arm modules.



2. Press **Start** to begin the cleaning of robotic arm modules. Follow the instructions on the screen. Details are provided in the next steps below.
3. Make sure that used Labware, adapters and reagents are removed from the worktable. Close the hood.
4. Press **Next** to move to cleaning position.
5. Remove the waste drawer and open hood.
6. Open the waster drawer. Moisten a soft lint-free cloth with water and carefully clean the optical sensor, tip adapter, gripper unit, rotor adapter stabilization rod and the spin column-based cartridge lid holder. Wipe these items dry as indicated on the touchscreen of the instrument.
7. Close the hood and press **Done** to finish cleaning of robotic arm. The date of the last performed cleaning of robotic arm is updated automatically.

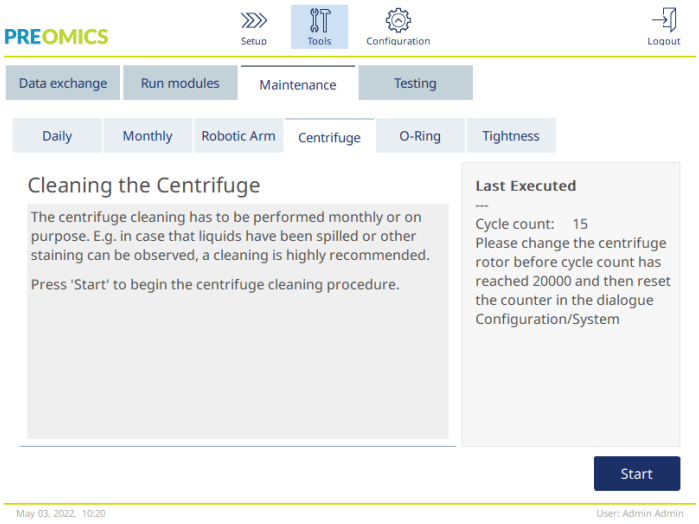
6.6.2 Cleaning the centrifuge

Cleaning of the centrifuge arm must be performed periodically or could be performed if required. For example, the centrifuge must be cleaned in case of plastic crash or spillage of liquids due to crash.

WARNING 	**Risk of personal injury and material damage** **[W5]** To prevent plastic crash, load the tubes properly. After a plastic crash, sharp plastic particles, toxic and aggressive reagents could be inside the centrifuge. Be careful when handling items inside the centrifuge and thoroughly clean the centrifuge according to the maintenance procedure

Note: Perform the monthly maintenance procedure before you perform the cleaning of centrifuge procedure.

1. To start cleaning the centrifuge, press the **Tools** icon and press the **Centrifuge** subtab under the **Maintenance** tab. The screen shows the **Last Executed** centrifuge maintenance date.



2. Press **Start** to begin the centrifuge cleaning procedure. Follow the instructions on the screen. Details are provided in the next steps below.
3. The centrifuge lid must be open to allow access to the inside of the centrifuge. The lid should be opened only after the centrifuge has come to a complete stop. If the lid does not open automatically, close the hood and press the **Open Centrifuge Lid** button.
4. Perform cleaning as outlined in the following sections (below): Cleaning the rotor and buckets, Cleaning the centrifuge, Maintenance of the rotor nut, and Installing the centrifuge rotor and buckets.
5. Turn on the instrument. Press the **Tools** icon and press the **Centrifuge** subtab under the **Maintenance** tab.
6. When cleaning is completed, press **Start** again then press **Done** to confirm cleaning. The date of the last performed cleaning of centrifuge is updated automatically.

Cleaning the rotor and buckets

1. Switch off the PreON.
2. Remove all disposable rotor adapters, including tubes and spin column-based cartridges, from the buckets.
3. Remove the buckets from the rotor. Undo the rotor nut on top of the rotor using the rotor key, and carefully lift the rotor off the rotor shaft.

Rotor key

4. Submerge the rotor, buckets and rotor nut in cleaning agent. Incubate as appropriate.
5. Rinse thoroughly with distilled water. Use a brush (e.g., a toothbrush or tube brush) to clean any parts that are difficult to access, such as the bucket mount and the rotor head. Wipe surfaces dry with a soft lint-free cloth. If available, dry the buckets and rotor with pressurized air.

Brushing a bucket

Brushing the rotor

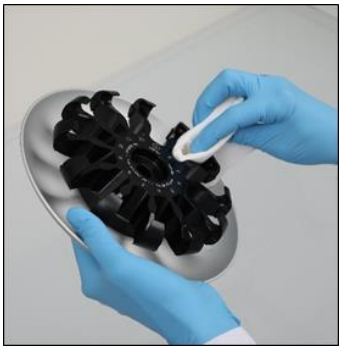
Important: Make sure the paper towels and brush used are lint-free.

Important: Make sure that all residual salt is removed.

Important: Make sure to remove all traces of cleaning agent from the centrifuge buckets. Residual agent can cause the buckets to jam.

6. Carefully check the rotor for damage. If the rotor is damaged or shows signs of wear or corrosion, do not use the rotor. Contact PreOmics Technical Services.
7. Apply a few drops of mineral oil (Anti-Corrosion Oil (rotor)) on a soft, lint-free cloth, and wipe the bucket mount and rotor claw. A thin, invisible oil film should cover the bucket mount and rotor claw, but no droplets or smear should be apparent.
8. Apply oil to the rotor claw and to the bucket mount.

   Important: Before applying oil to the rotor buckets on the rotor, make sure that the rotor and all buckets are completely dry.



Rotor head

Bucket mounts

Cleaning the centrifuge

1. Moisten a soft lint-free cloth with cleaning agent and clean the inside of the centrifuge and the centrifuge gasket. Incubate as appropriate.
2. Clean the inside of the centrifuge and the gasket with distilled water and wipe dry with lint-free paper towels. If available, use a vacuum cleaner.

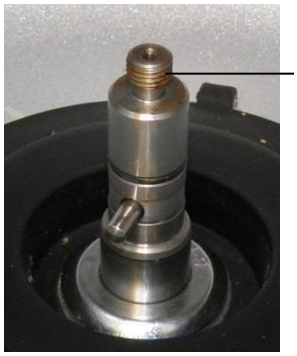
   Important: Make sure the gaskets remain in the proper positions.
3. Clean the centrifuge lid with a soft lint-free cloth moistened with cleaning agent. Incubate as appropriate, clean with water and wipe dry with paper towels.

4. Check the centrifuge gasket for damage. If the gasket is damaged or shows signs of wear, contact PreOmics Technical Services.

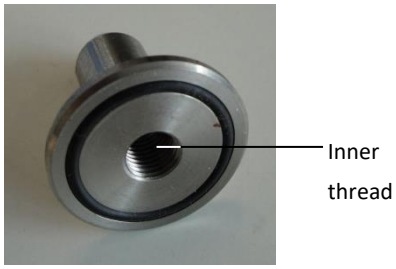
Maintenance of the rotor nut

Note: Always perform the cleaning procedure after disassembly of the rotor and at least twice a year.

After cleaning the rotor thread, apply a few drops of mineral oil (Anti-Corrosion Oil (rotor)) on a lint-free cloth, and wipe the thread. A thin, invisible oil film should cover the rotor thread but no droplets or smear should appear.



Rotor thread.



Inner thread of the rotor nut.

After cleaning the inner thread of the rotor nut, wipe the thread using Anti-Corrosion Oil as described above.

Installing the centrifuge rotor and buckets

1. Mount the rotor.
2. The rotor can be mounted in only one orientation. The pin on the rotor shaft fits into a notch on the underside of the rotor directly underneath rotor position 1. Line up position 1 of the rotor with the pin on the rotor shaft and carefully lower the rotor onto the shaft.
3. Install the rotor nut on top of the rotor and tighten securely using the rotor key supplied with the PreON. Make sure that the rotor is securely seated.

Rotor key.

Rotor nut.

If the rotor nut is not tightened properly, it can become loose during operation of the centrifuge and can cause serious damage to the instrument. Such damage is not covered by the warranty.

WARNING

Risk of personal injury and material damage **[W25]**

To prevent the rotor nuts from loosening during operation of the centrifuge, securely tightened the nuts using the rotor key supplied with PreON.

4. Replace the rotor buckets.

   When replacing the rotor buckets, the side of the rotor bucket that must face toward the rotor shaft is marked with a grey line. Hold the bucket at an angle with the grey line facing the center of the rotor and hang the bucket on the rotor. Check that all buckets are properly suspended and can swing freely.

   Important: All centrifuge buckets must be mounted before starting a run.

Before starting next protocol run, the centrifuge must be operated independently before starting further runs to check if residual plastic parts are still in the centrifuge. Follow the instructions below:

1. Login as User
2. To start a centrifuge run, press the Tools icon and then the Run Modules tab.
3. In the Set speed and Set duration fields, set the speed to 10,000 g and the duration to 1 min (1:0 m:s), respectively.
4. Press Start to begin the centrifuge run.
5. Carefully listen to the sound during centrifugation. See below for more details regarding the sound.

Unusual sound during centrifugation

If any grinding, rattling or crunching sounds are heard during the centrifugation, there are still loose plastic particles inside the centrifuge. Repeat the cleaning procedure as described above.

Note: It may be necessary to repeat the procedure several times to remove all plastic particles.

No unusual sound during centrifugation

If no unusual sound from loose plastic particles can be heard during centrifugation, the next protocol run can be started.

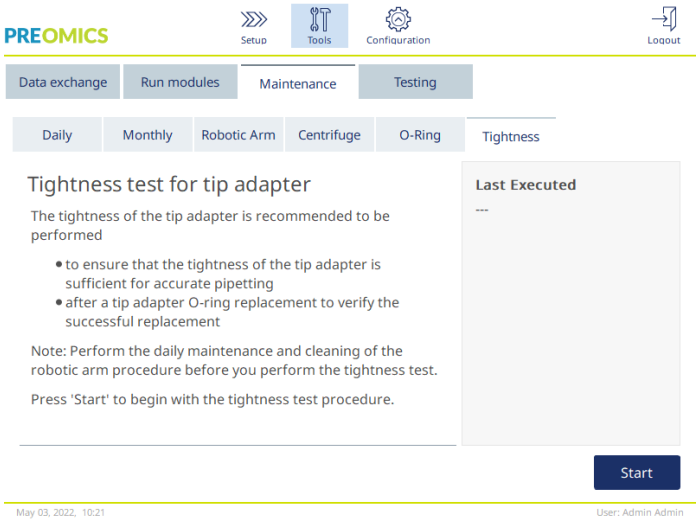
Note: The Open centrifuge lid and Close centrifuge lid buttons are not needed to start a centrifuge run, as the lid will close automatically. Instead, they are needed in case you need to prepare the PreON for shipment or during troubleshooting.

6.6.3 Tightness test

To ensure that the tightness of the tip adapter is sufficient for accurate pipetting, the tightness test of the tip adapter must be performed. This test must also be performed after replacing a tip adapter O-Ring to verify if replacement is successful.

Note: Perform the daily maintenance and cleaning of the robotic arm procedure before you perform the tightness test.

6. To start the tightness test, press the **Tools** icon and press the **Tightness** subtab under the **Maintenance** tab. The screen shows the **Last Executed** tightness test date.



7. Press **Start** to begin with the tightness test procedure. Follow the instructions on the screen. Details are provided in the next steps below.
8. Open the hood and load a 200 µl tip rack with at least one 200 µl tip into tip rack position S3.
9. Place an empty 1.5 ml tube in position 1 of the shaker.
10. Place a 2 ml screw-cap microtube filled with 2 ml 96–100% ethanol in position H1.
11. Close the hood and press **Next** to start tightness test.

    After the load check, the robotic arm will pick up a tip, aspirate ethanol and move to the tube. The tip will remain in place above the tube for 2 minutes. The tip will be discarded into the waste afterwards.
12. Wait until the test has been completed and then press **Next**.
13. Remove the tube and visually check if liquid is present:

    If no liquid is present, press **Yes** to record that the test passed.

    If liquid is present, press **No** to record that the test failed.
14. In case the test failed, repeat the test. If test fails again, it is recommended to replace the O-Ring first (using the O-Ring tab) or contact PreOmics Technical Services.
15. Remove all remaining consumables and store accordingly
16. Press **Done** to finalize tightness test procedure. The date of the last performed tightness test is updated automatically.

6.6.4 O-Ring exchange

O-Ring replacement must be performed if the tightness test failed or if the following issues are observed:

- Uneven volume transfers
- Dripping on the worktable

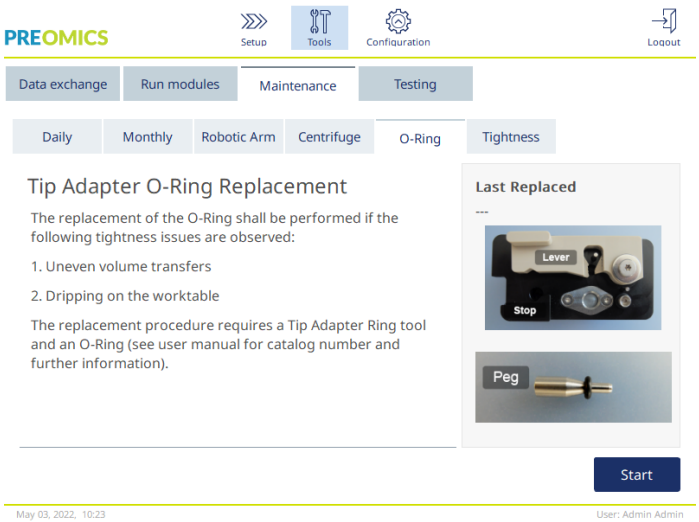
The replacement procedure requires the O-Ring change tool and an O-Ring. See Appendix B – PreON Accessories for ordering details.

O-Ring tool with prepared new O-Ring

The O-Ring replacement is semi-automatically and includes movement of robotic arm.

Note: Perform the daily maintenance and cleaning of the robotic arm procedure before you replace the O-Ring.

1. To start the O-Ring replacement, press the **Tools** icon and press the **O-Ring** subtab under the **Maintenance** tab. The screen shows the last O-Ring replacement date.

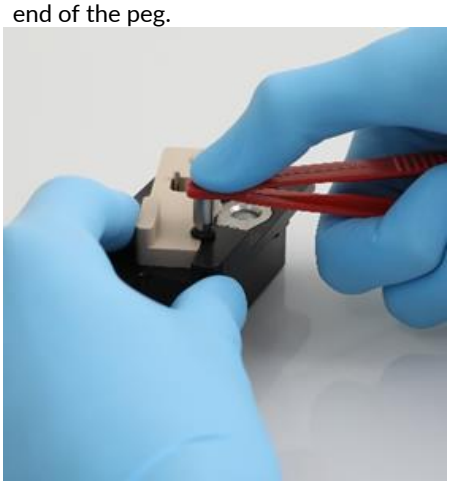


2. Close the hood and press **Start** to begin the O-Ring replacement procedure. Follow the instructions on the screen. Details are provided in the next steps below.
3. To prepare the O-Ring tool, perform the following steps:

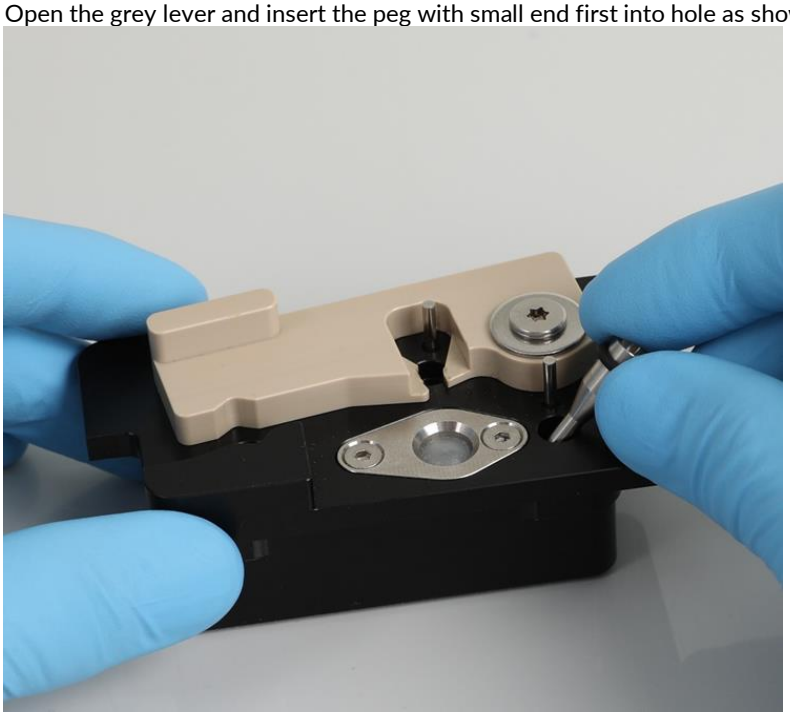
   3a. Slide the new O-Ring over the small end of the peg.

3b. Push the grey lever until you reach the black stop and insert the small end of the peg into the hole.

3c. Press the peg down using the back end of the tweezers until the O-Ring sits (in the middle) on the larger end of the peg.

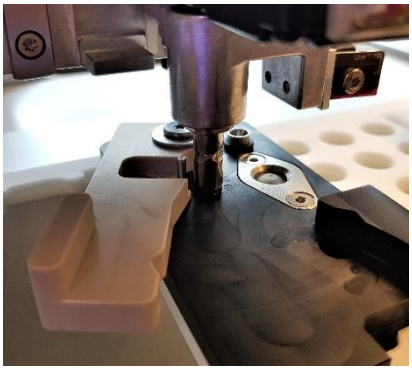


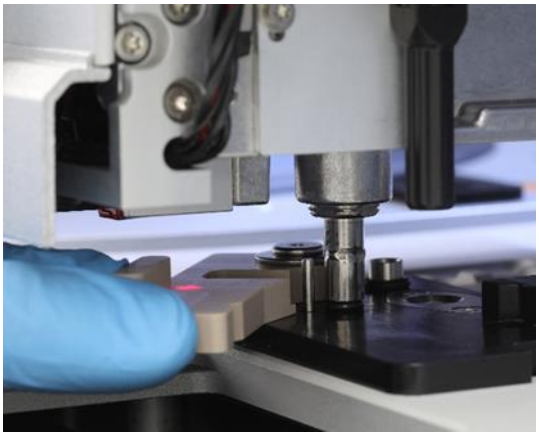
3d. Open the grey lever and insert the peg with small end first into hole as shown.



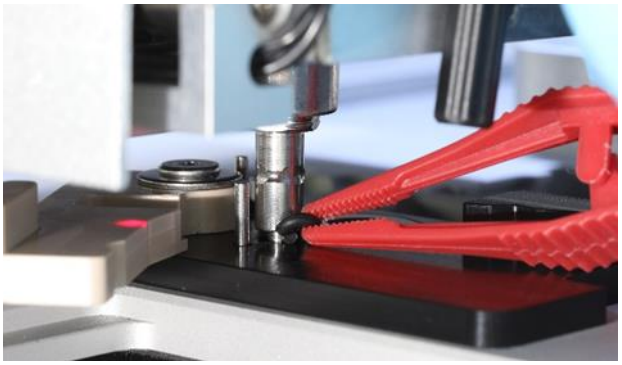
4. Press **Next** to begin loading of the O-Ring tool into the PreON.
5. Load the O-Ring tool by opening the grey lever into tip rack position 1 (nearest to user).
6. Close the hood and press **Next** to begin cutting of the O-Ring.
7. To cut and remove the O-Ring, perform the following steps:

   7a. To cut the O-Ring, open the hood and rotate the grey lever counter-clockwise until you reach the black stop.

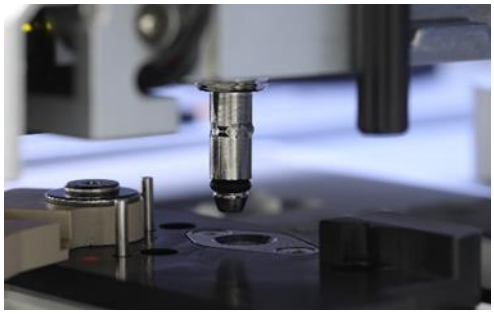




7b. Open the grey lever and remove the O-Ring (by using the tweezers) from pipetting channel.
Note: If required, repeat cutting process until O-Ring is cut completely and can be removed.



8. Close the hood and press **Next** to pick up the prepared new O-Ring.
9. Open the hood and visually check if new O-Ring sits firmly on tip adapter.



Note: If the O-Ring was not successfully picked up, complete the O-Ring replacement procedure and restart.

10. Close the hood press **Next** to remove the O-Ring change tool.
11. Open the hood and remove the O-Ring change tool.

12. Wipe and clean the O-Ring change tool with alcohol-based disinfection wipes. Incubate as appropriate, rinse thoroughly with distilled water and wipe dry with paper towels.
13. Press **Done** to complete the O-Ring replacement. The date of the last performed O-Ring replacement is updated automatically.

WARNING 	**Risk of personal injury and material damage** **[W1]** Improper use of the PreON may cause personal injuries or damage to the instrument. The PreON must only be operated by qualified personnel who have been appropriately trained. Servicing of the PreON must only be performed by a PreOmics Field Service specialist.

6.7 Decontaminating the PreON

If the PreON is contaminated with infectious material, it should be decontaminated. If hazardous material is spilt on or inside the PreON, the user has responsibility for carrying out appropriate decontamination.

The PreON has to also be decontaminated before handling by a service engineer or shipping. In this case, a decontamination certificate must be completed to confirm that the decontamination procedure has been carried out.

To decontaminate the PreON, follow the daily, monthly and periodic maintenance procedure in sections 6.4–6.6.4, using the recommended disinfection agents.

7 Troubleshooting

7.1 General information

This section provides information about what to do if an error occurs while using the PreON.

7.2 Contacting PreOmics Technical Services

Whenever encountering a PreON error, be sure to have the following information at hand:

- Protocol name and version (found in the report file)
- Software version (see section 4.5.6).
- Sample input material
- Detailed description of the error situation

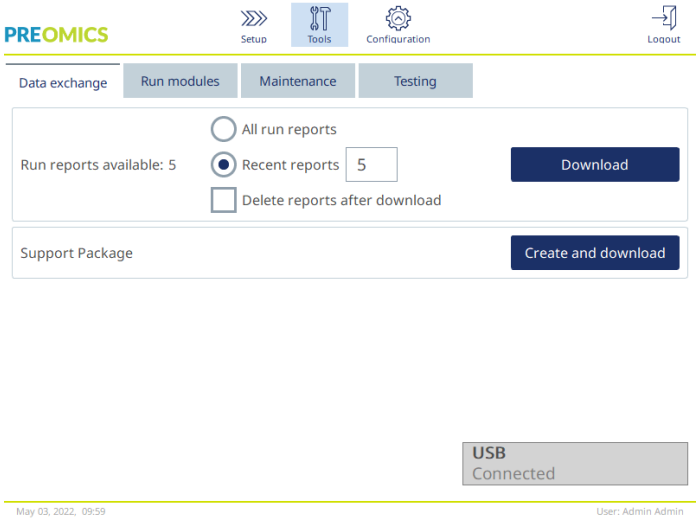
This information will help you and your PreOmics Technical Service Specialist to deal most efficiently with the issue. Please reach out to your local PreOmics contact for assistance. If unsure, get in touch at preomics.com/contact

In some cases, updates may be available for addressing specific problems.

7.2.1 Creating a support package

1. On the main screen, press the **Tools** button.

2. Press the **Data Exchange** tab.
3. Connect the USB stick to one of the 2 USB ports next to the touchscreen.



4. Press **Create and Download**. The support package will be created and saved on the USB stick in the folder Support_Package. The support package is a zip file that can be sent to PreOmics Technical Services.

7.3 Operation

	Comments and suggestions
Centrifuge	
Bucket does not swing back into place	Clean the centrifuge and rotors as described in section 6.
Imbalance detected	Make sure the rotor is symmetrically loaded according to instructions on run setup screens. Remove the rotor and check the centrifuge chamber for loose plasticware. Power OFF the PreON, wait for a few minutes, and power it ON again. If the error persists, contact PreOmics Technical Services.
Imbalance detected; loud noise heard during centrifugation	Ensure that loose parts are cleared from the worktable prior to centrifuge operation to avoid loose parts jamming or damaging the centrifuge.
Shaker	
Incorrect repositioning of shaker	The shaker should re-position itself towards the right side once shaking is completed. Remove any obstructions that prevent the shaker from returning to the correct position.
Robotic arm	
Robotic arm does not return to set position	Ensure that the instrument is placed on a stable, flat and level surface as described in section 4.1.1. In other cases, contact PreOmics Technical Services.
Pipettor	

	Comments and suggestions
Pipet tips not picked up by automatic pipettor	Make sure that the tip rack is not damaged and is correctly positioned on the worktable.
Pipet tips not disposed of correctly	Empty the waste drawer and ensure it is not broken. Check that tip disposal slot is not damaged or obstructed. Perform regular maintenance, as described in section 6.3
Droplets observed on worktable	The pipettor is dripping liquid. Check that the reagent bottles contain the correct buffers and are correctly placed in the reagent bottle rack. Be sure to use the right plasticware. Check the volumes in the sample tubes and tubes of accessory buffer(s), if applicable. Do not exceed the recommended amount of starting material to avoid blocking disposable filter-tips. If tip racks have been refilled, make sure that the correct tips were used. Check tightness of pipettor in maintenance section as described in section 6.6.3. If leakage could be detected change O-Ring as described in section 6.6.4. If issue persists, contact PreOmics Technical Services.
Mechanical	
Frame of instrument is distorted (e.g., uneven, unstable or not level)	Ensure that the instrument is placed on a stable, flat and level surface as described in section 4.1.1.
Hood sensor error: instrument will not function	Ensure the hood is properly closed. The instrument will not function if the hood is open.
Broken instrument hood	Ensure that only the cleaning products as described in section 6 are used on the hood.
Waste drawer jams but can still be inserted	Empty the waste drawer. Perform daily maintenance, as described in section 6.4.
Incorrectly inserted waste drawer	Handle the waste drawer with both hands when inserting or removing the drawer.
Pipet tips not disposed of correctly	Make sure the top of the tip disposal slot (refer to section 3.2) is not broken.
Scratches appear on the instrument	Always use the cleaning products as described in section 6. Do not use bleach or ethanol, as they can damage the surface of the instrument.
Electronic	
Display does not turn on	Do not touch the display with excessive force or use corrosive chemicals to clean the display surface. Contact PreOmics Technical Services for repair.
Error when copying files to USB	Power OFF the PreON, wait for a few minutes, and power it ON again. Save the file(s) to the USB stick again. Check the USB stick on a PC to ensure it is functional. If the error persists, contact PreOmics Technical Services.
USB device not detected	Power OFF the PreON, wait for a few minutes, and power it ON again. Insert the USB stick into the USB port. Check the USB stick on a PC to ensure it is functional. If the error persists, contact PreOmics Technical Services.

	Comments and suggestions
Login screen not visible when launching instrument	If the touchscreen does not display the login screen, but instead a software update message is shown, power OFF the PreON, wait for a few minutes. Ensure that the USB stick is not inserted in the USB port. Power ON the PreON again. The login screen should be visible. If the error persists, contact PreOmics Technical Services.
Error displayed when inserting the USB stick into a Windows PC	Ignore the message. In most cases, no scan is needed; use the USB stick as usual. Do not reformat the USB on the Windows PC. This will lead to complete data loss on the USB stick, and it can no longer be used with the PreON.

7.3.1 Protocol interruption

If an error occurs during a protocol run, it is possible to continue sample preparation manually. The error code, the description and the step at which the protocol stopped are displayed in the touchscreen.

To continue sample processing:

1. Note the step at which the protocol stopped. This is displayed in the touchscreen.
2. Remove the samples and reagents from the PreON.
3. Refer to the appropriate protocol in the relevant kit handbook and continue sample processing manually.

7.3.2 Centrifuge

Opening the centrifuge lid in the event of a breakdown

In case of power failure, the centrifuge lid can be manually opened so that the samples can be removed. To open the centrifuge lid, follow the instructions below.

WARNING

Moving parts **[W19]**

In case of breakdown caused by power failure, remove the power cord and wait 10 minutes before attempting to manually open the centrifuge lid.

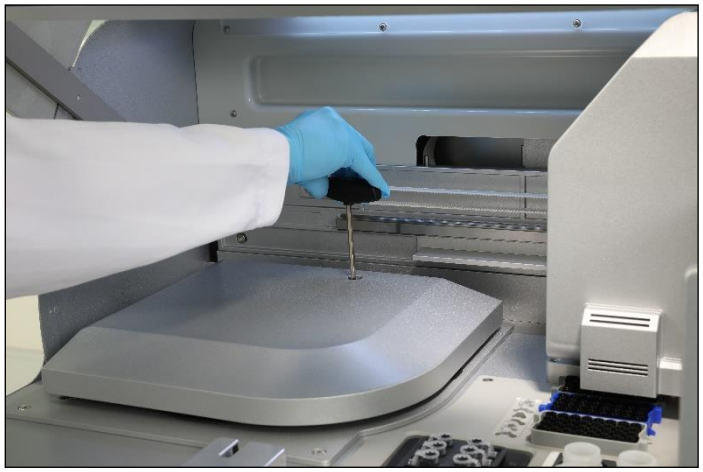
WARNING

Risk of personal injury and material damage **[W20]**

Raise the centrifuge lid carefully. The lid is heavy and may cause injury if it falls.

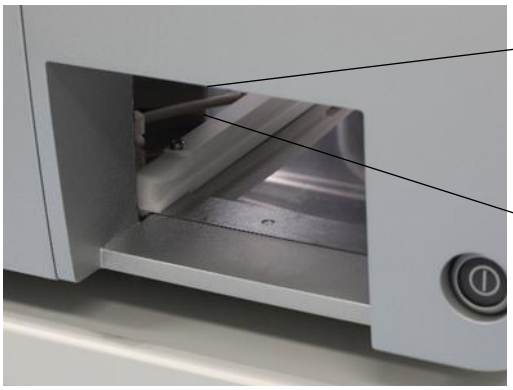
1. Power OFF the PreON.
2. Unplug the power cord from the power outlet. Wait 10 minutes for the rotor to stop.
3. Open the instrument hood.
4. Carefully move the robotic arm to the right side of the worktable, furthest away from the centrifuge lid.

5. Remove the screw protection on top of the centrifuge lid. Using the rotor key, turn the screw counter-clockwise.



Turning the screw in the centrifuge lid

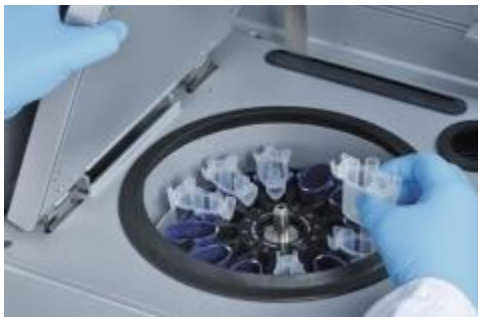
6. Remove the waste drawer. The centrifuge release cord will be visible on the left side of the waste drawer compartment.



Removed waste drawer

Centrifuge release cord

7. Pull the cord firmly to release the lid from the lock.
8. Manually raise the centrifuge lid.
9. Hold the raised lid and remove the samples and rotor adapters from the rotor.



Removing rotor adapters

Contact PreOmics Technical Services for instructions on how to reset the lid.

Liquid spills in the centrifuge

The rotor adapter is designed for use with PreOmics automated protocols. Do not fill the rotor adapters with liquid.

Liquid spills may occur if PreOmics spin column-based cartridges become blocked due to sample overloading. Do not exceed the maximum amount of starting material.

Incorrect installation of the centrifuge buckets may also cause rotor adapters to leak. Check that the buckets are installed properly and can swing freely.

If there is a liquid spill in the centrifuge, clean according to the instructions in section 6.

7.3.3 Reagent volume detection and ultrasonic pipe

The instrument does not start a load check if the ultrasonic pipe (black cap) of the ultrasonic sensor is missing. Check if cap has been installed before starting a load check.

Black beam columnator (see red circle) of the ultrasonic sensor

7.3.4 Touchscreen

Every time the user presses a button on the touchscreen, a small red sign is displayed at the place where the touchscreen recognizes the contact. If the point of touch and the recognized contact are at different positions, a re-calibration of the touchscreen can be performed. The calibration function can be reached during the instrument's startup procedure.

It is recommended to use a touch pen or an unused tip for optimal calibration results. In case you use a tip, discard the tip after calibration.

To re-calibrate the touchscreen:

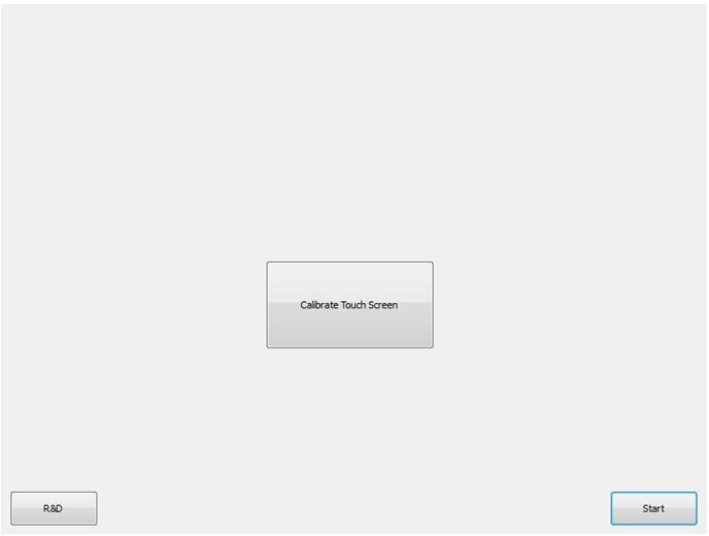
1. Turn OFF the PreON.
2. Wait a few minutes and then turn ON the instrument again.

3. In the second screen press the PreOmics logo.

   Note: If you do not press the logo, the instrument will continue initialization.

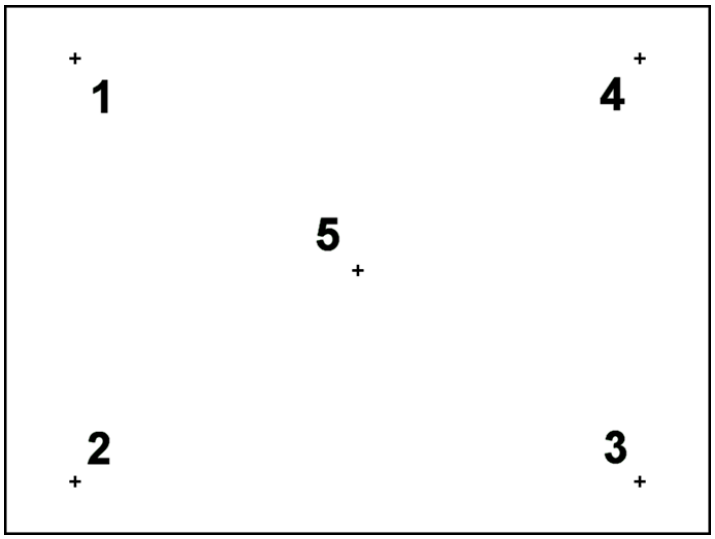
PreON

4. Press **Calibrate touchscreen**.



5. An information message is displayed. The message will close automatically after 10 seconds.

6. Plus signs (+) will be shown at different positions on the screen. For each of these, press the center of the + sign. After one position is touched, the next position will be shown. The graphic below shows the positions and the order in which the + signs will appear.



7. The calibration is finished after all five positions have been touched. Calibration results are saved automatically. The previous screen is shown again.
8. Press **Start**. The instrument continues initialization using the new calibration settings.

To cancel the calibration process, turn OFF the PreON.

8 Automated Status Supervision

The PreON has an internal web server which is accessible on port 80 with the HTTP protocol. The server delivers two different pages:

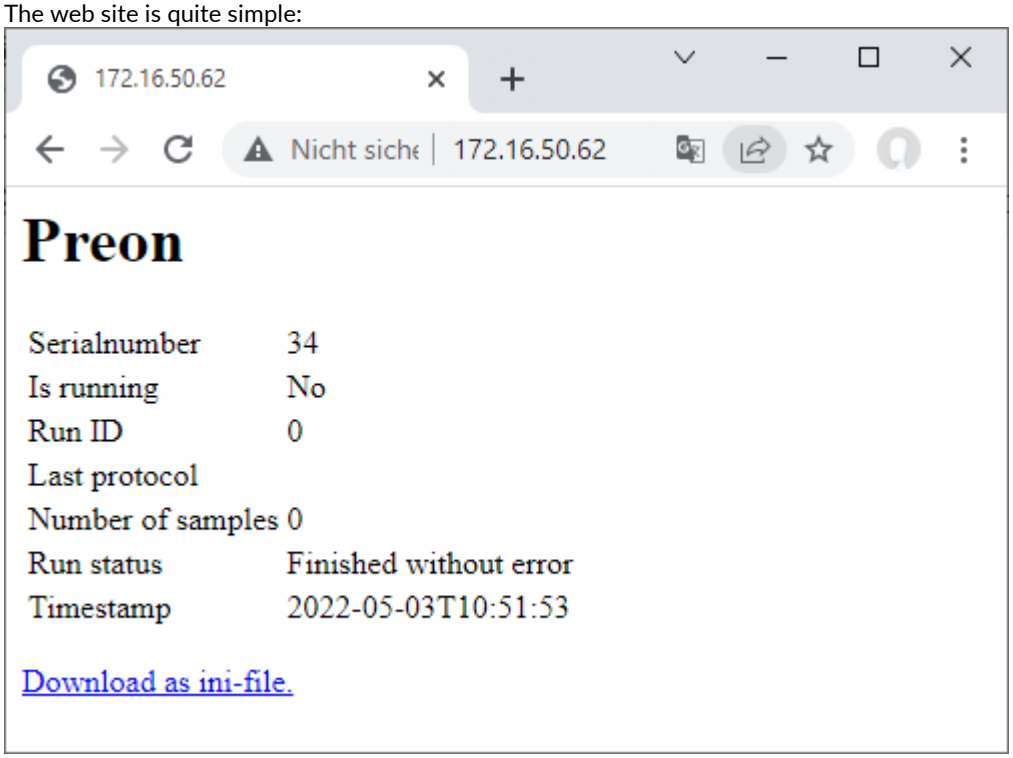
A HTML website with the status of the instrument.

/status.ini file with the status of the instrument in an ini-file format.

The pages are new generated on each call and reflect therefore always the actual state of the instrument.

8.1 HTML Website

The web site is quite simple:



8.2 /status.ini file

The purpose of the status.ini file is automated tracking of the instrument state. The file can be downloaded for example with *wget*:

```
wget  HOSTNAME/status.ini
```

8.2.1 Format

Section	Name	Value
Preon	Serialnumber	The serial number of the instrument as a number.
PreonStatus	IsRunning	String "Yes" or "No".
	RunID	The run id as a number.
	Protocol	The name of the actual (or last) protocol (string).
	NumberOfSamples	The number of samples of the actual (or last) protocol (number).
	RunStatus	When running "Running". If the protocol ended without an error "Finished without error" or in case of an error "Finished with error (xx)".
	Duration	The duration of the actual (or last) protocol in [s].
	Remaining	The remaining time of the actual protocol in [s].
	UserIntervention	Empty string or in case of a required user intervention a describing text.
	Timestamp	Timestamp in ISO 8601 format.

Example:

```
[Preon]
Serialnumber=12
[PreonStatus]
IsRunning=No
RunID=0
Protocol=
NumberOfSamples=0
RunStatus=Finished without error
Duration=46
Remaining=17
UserIntervention=
Timestamp=2022-03-10T17:32:22
```

9 Glossary

Term	Description
Centrifuge	A component of the PreON that accommodates a rotor with 12 swing-out buckets. Each bucket holds a disposable rotor adapter.
Hood	The main door at the front of the PreON. When open, it provides complete access to the worktable.
Error code	A 3- or 4-digit number that indicates an error of the PreON.
Filter-tip	An item of labware that is picked up by the tip adapter during operation of the PreON. Liquid is aspirated into and dispensed from a filter-tip.
Initialization	An operation performed automatically when the PreON is switched on and if required before each protocol run to check the operation of the PreON.
Pipetting system/ Pipettor unit	The component of the PreON that aspirates and dispenses liquid. The pipetting system moves up and down above the worktable and contains a syringe pump that is connected to a tip adapter.
Power switch	A button located at the front of the PreON in the bottom-right corner. It allows the user to switch the PreON on and off; inner position is ON and outer position is OFF.
Protocol	A set of instructions for the PreON that allows the instrument to automate protein purification procedure. Protocols are run using the touchscreen.
Robotic gripper	A component of the PreON robotic arm that moves spin column-based cartridges during sample processing.
Rotor adapter	A disposable plastic adapter that fits into a centrifuge bucket and holds a PreOmics spin column-based cartridge and microcentrifuge tube during sample processing.
Tip adapter	A metal probe installed on the pipettor head. During operation of the PreON, the tip adapter picks up filter-tips from the worktable.
Tip disposal slots	Slots in the PreON worktable through which used filter-tips are discarded into the waste drawer.
Tip rack	A plastic rack that accommodates filter-tips on the worktable.
Touchscreen	The user interface that allows the user to operate the PreON.

Term	Description
Waste drawer	A drawer that collects used filter-tips and disposable columns.
Worktable	The surface of the PreON where samples, reagents, and filter-tips are loaded.

10 Appendix A – Technical data

10.1 Operating conditions

Power	100–240 V AC, 50/60 Hz, 650 VA Mains supply voltage fluctuations are not to exceed 10% of nominal supply voltages. **Note**: The apparent power can exceed 650 VA for up to 2 seconds during the centrifuge acceleration and can reach an approximate value of 1000 VA.
Fuse	2x T8A L 250V
Overvoltage category	II
Air temperature	18 to 28°C (64.4 to 82.4°F)
Relative humidity	15–75% (noncondensing)
Altitude	Up to 2000 m (6500 ft.)
Place of operation	For indoor use only
Pollution level	2
Environmental class	3K2 (IEC 60721-3-3)

10.2 Transport conditions

Air temperature	–25°C to 60°C (–13°F to 140°F) in manufacturer's package
Relative humidity	Max. 75% (noncondensing)
Environmental class	2K2 & 2M2 (IEC 60721-3-2)

10.3 Storage conditions

Air temperature	15°C to 30°C (59°F to 86°F) in manufacturer's package
Relative humidity	Max. 75% (noncondensing)
Environmental class	1K2 (IEC 60721-3-1)

10.4 Mechanical data and hardware features

Dimensions (hood closed)	Width: 65 cm (25.6 in.) Height: 58 cm (22.8 in.) Depth: 62 cm (24.4 in.)
Dimensions (hood open)	Width: 65 cm (25.6 in.) Height: 86 cm (34 in.) Depth: 62 cm (24.4 in.)

Mass	PreON: 71.5 kg (157.6 lb.) Accessories: 3 kg (6.6 lb.)
Centrifuge	10,640 rpm maximum 12,000 *x g* maximum Swing-out rotor, maximum 45° 12 rotor positions
Shaker	Speed 100–2000 RPM Amplitude 2 mm Heating range of ambient temperature to 83°C (181.4°F) Ramp-up time of <5 minutes from ambient temperature to 55°C (±3°C) Difference in the temperature detected by the internal sensor and the temperature of the sample liquid is approximately –2°C
Pipetting system	Syringe size 1 ml Pipetting range 5–900 µl
Capacity	Up to 12 samples per run. Up to 16 samples per run with iST-NHS and TMT16plex
Touchscreen	10.4" TFT Touchscreen, active area 211.2 x 158.4 mm, resolution 800*600 SVGA
USB stick	USB2.0 Compatible OS: Windows 8, Windows 7, Windows Vista, Windows XP (SP3 or later); Mac OS X 10.1 or later Operating temperature range: 0 to 35°C Operating humidity range: 10 to 90% (with no condensation) Storage temperature range: –20 to 60°C (–4 to 140°F) Storage humidity range: 10 to 90% (with no condensation) Formatting: FAT32
Handheld scanner	Imager Sensor: Wide VGA (752 x 480 pixels) Motion Tolerance: 25 IPS Light Source: Aiming: 650 nm VLD Print Contrast Ratio: 25% minimum Decode Capability: Reads standard 1D, PDF, 2D, Postal and OCR symbologies
Software	PreOmics protocols are preinstalled on the PreON. To learn more, please reach out to your local PreOmics contact. If unsure, get in touch at preomics.com/contact

10.5 Declaration of Conformity

Name and address of the legal manufacturer:

PreOmics GmbH
Am Klopferspitz 19
D-82152 Planegg/Martinsried

Phone: +49-89-2314163-0
Fax: +49-89-2314163-99
E-mail: info@preomics.com

An up-to-date declaration of conformity can be requested from PreOmics.

10.6 Waste Electrical and Electronic Equipment (WEEE)

This section provides information about disposal of waste electrical and electronic equipment by users.

The crossed-out wheeled bin symbol (see below) indicates that this product must not be disposed of with other waste; it must be taken to an approved treatment facility or to a designated collection point for recycling, according to local laws and regulations.

The separate collection and recycling of waste electronic equipment at the time of disposal helps to conserve natural resources and ensures that the product is recycled in a manner that protects human health and the environment.

Recycling can be provided by PreOmics upon request at additional cost. In the European Union, in accordance with the specific WEEE recycling requirements and where a replacement product is being supplied by PreOmics, free recycling of its WEEE-marked electronic equipment is provided.

To recycle electronic equipment, contact PreOmics Technical Support for the required return form. Once the form is submitted, you will be contacted by PreOmics either to request follow-up information for scheduling collection of the electronic waste or to provide you with an individual quote.

10.7 FCC Declaration

The ''United States Federal Communications Commission'' (USFCC) (in 47 CRF 15. 105) declared that the users of this product must be informed of the following facts and circumstances.

''This device complies with part 15 of the FCC:

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.''

"This Class B digital apparatus complies with Canadian ICES-003.''

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in an installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

PreOmics is not responsible for any radio television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connection cables and equipment other than those specified by PreOmics. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

10.8 Liability Clause

PreOmics shall be released from all obligations under its warranty in the event repairs or modifications are made by persons other than its own personnel, except in cases where the Company has given its written consent to perform such repairs or modifications.

All materials replaced under this warranty will be warranted only for the duration of the original warranty period, and in no case beyond the original expiration date of original warranty unless authorized in writing by an officer of the Company. Read-out devices, interfacing devices, and associated software will be warranted only for the period offered by the original manufacturer of these products. Representations and warranties made by any person, including representatives of PreOmics, which are inconsistent or in conflict with the conditions in this warranty shall not be binding upon the Company unless produced in writing and approved by an officer of PreOmics.

11 Appendix B – PreON Accessories

For more information and an up-to-date list of available protocols, visit **https://preomics.com/downloads**.

Product	Contents
PreON[8]	Instrument and 1-year warranty on parts and labor
Starter Pack, PreON	rotor adapters (12); spin column-based cartridge adapter (12); 200 µl Tips, racked (4x32)
Accessories	
iST PreON consumables	For 96 preps: 96 Disposable Rotor Adapters, 96 spin column-based cartridge adapters and 100 microcentrifuge tubes (1.5 ml); for use with the PreON
iST PreON Tips (1024)	Disposable Filter-Tips, racked; (8 x 4 x32)
Rotor Adapters (10 x 24)	For 240 preps: 240 Disposable Rotor Adapters and 240 microcentrifuge tubes (1.5 ml); for use with the PreON
Rotor Adapter Holder	Holder for 12 disposable rotor adapters; for use with the PreON
USB Stick	USB Stick; for use with the PreON
O-Ring Change Tool	O-Ring change tool for use with the PreON
O-Ring Set	Set of 10 O-Rings for use with the PreON

For up-to-date licensing information and product-specific disclaimers, see the respective PreOmics kit handbook or user manual. PreOmics kit handbooks and user manuals are available at **www.PreOmics.com** or can be requested from PreOmics Technical Services.

[8] All configurations include: PreON robotic workstation for automated purification of peptides using iST Kits , bar code reader and 1-year warranty on parts and labor.

12 Appendix C – Consignes de sécurité

Avant d'utiliser le PreON il est impératif de lire attentivement ce manuel et de porter une attention particulière aux consignes de sécurité. Afin de garantir un fonctionnement de l'appareil en toute sécurité et de maintenir l'appareil en bon état de marche, il est impératif de suivre les instructions et consignes de sécurité fournies dans le présent manuel d'utilisation.

Les types d'informations de sécurité suivants sont fournis tout au long du manuel.

AVERTISSEMENT 	Le terme AVERTISSEMENT signale des situations risquant d'entraîner des accidents corporels dont l'utilisateur, ou d'autres personnes, pourraient être victime. Les détails concernant ces circonstances sont donnés dans un encadré identique à celui-ci.

ATTENTION 	Le terme ATTENTION signale des situations risquant d'entraîner des détériorations de l'appareil ou de tout autre matériel. Les détails concernant ces circonstances sont donnés dans un encadré identique à celui-ci.

Les conseils donnés dans ce manuel ont pour but de venir compléter les exigences de sécurité habituelles en vigueur dans le pays de l'utilisateur, et non de s'y substituer.

12.1 Utilisation appropriée

AVERTISSEMENT/ ATTENTION 	**Risque d'accident corporel et de détérioration du matériel** **[W1]** L'utilisation inappropriée du PreON peut entraîner des accidents corporels ou une détérioration de l'appareil. L'utilisation du PreON est réservée exclusivement au personnel qualifié ayant été convenablement formé. L'entretien du PreON doit être effectué uniquement par des spécialistes de l'entretien sur site PreOmics ou par des techniciens d'un agent agréé.

Procéder à la maintenance comme décrit dans Maintenance Procedures, section 6. PreOmics facture les réparations dues à une maintenance inappropriée.

AVERTISSEMENT 	**Risque de dommages corporels et matériels** **[W2]** Le PreON est trop lourd pour être soulevé par une personne. Pour éviter des dommages corporels ou matériels, ne pas soulever l'instrument tout seul.

AVERTISSEMENT 	**Risque de dommages corporels et matériels** **[W3]** Ne pas essayer de bouger le PreON pendant son fonctionnement.

ATTENTION

Détérioration de l'instrument **[C1]**

Eviter de renverser de l'eau ou des substances chimiques sur le PreON. Tout dommage causé par de l'eau ou des produits chimiques mettra fin à la garantie.

En cas d'urgence, éteindre le PreON à l'aide de l'interrupteur d'alimentation situé à l'arrière de l'appareil et débrancher le cordon d'alimentation de la prise de courant.

ATTENTION

Détérioration de l'instrument **[C2]**

Utilisez uniquement des colonnes de centrifugation PreOmics et des consommables spécifiques au PreON avec l'instrument. Les détériorations causées par l'utilisation d'autres types de colonnes de centrifugation ou de réactions chimiques annulent la garantie.

AVERTISSEMENT

Risque de dommages corporels et matériels **[W4]**

N'utilisez pas d'adaptateurs pour rotor abîmés. Les adaptateurs pour rotor sont à usage unique. L'action importante de la force g exercée à l'intérieur de la centrifugeuse risque d'abîmer les adaptateurs pour rotor déjà utilisés.

ATTENTION

Risque de dommages matériels **[C3]**

Videz le conteneur de cônes usagés avant toute utilisation afin d'empêcher tout amoncellement de cônes dans le tiroir à déchets. Si vous ne videz pas le conteneur de déchets, le bras robotisé risque de se bloquer, ce qui peut conduire à un dysfonctionnement ou un endommagement de l'instrument.

AVERTISSEMENT

Risque de dommages corporels et matériels **[W5]**

Pour éviter tout écrasement du plastique, chargez les tubes correctement. Suite à l'écrasement du plastique, il se peut que des particules de plastique pointues se trouvent à l'intérieur de la centrifugeuse. Faites attention lors de la manipulation des éléments à l'intérieur de la centrifugeuse.

ATTENTION

Détérioration de l'instrument **[C4]**

Utilisez uniquement le bon volume de liquides.

Tout dépassement du volume de liquides recommandé risque d'abîmer le rotor de la centrifugeuse ou l'instrument.

AVERTISSEMENT

Risque d'incendie ou d'explosion **[W6]**

En cas d'utilisation d'éthanol ou de liquides à base d'éthanol sur le PreON, manipulez ces liquides avec prudence et conformément aux règles de sécurité nécessaires. En cas de déversement de liquide, essuyez-le et laissez le capot du PreON ouvert pour que les vapeurs inflammables puissent s'évaporer.

AVERTISSEMENT

Risque d'explosion **[W7]**

Le PreON est conçu pour être utilisé avec les réactifs et les substances fournis avec les kits PreOmics ou autrement que de la façon décrite dans le mode d'emploi correspondant. L'utilisation d'autres réactifs et d'autres substances peut provoquer un incendie ou une explosion.

Si des substances dangereuses sont renversées sur le PreON ou à l'intérieur de celui-ci, l'utilisateur porte l'entière responsabilité de la réalisation de la procédure de décontamination appropriée.

Remarque: ne pas placer d'objets à la surface des capots des appareils PreON.

ATTENTION 	**Détérioration de l'instrument** Ne vous appuyez pas contre l'écran tactile lorsqu'il est déboîté.	**[C5]**

12.2 Sécurité électrique

Avant l'entretien, débrancher les cordons d'alimentation des prises de courant.

AVERTISSEMENT 	**Risque d'électrocution** Toute interruption du conducteur de protection à l'intérieur ou à l'extérieur de l'instrument, ou déconnexion du raccord du conducteur de protection (terre) peut rendre l'instrument dangereux. Il est interdit d'interrompre volontairement ce conducteur. **Présence de tensions mortelles dans l'instrument** Lorsque l'instrument est relié au secteur, les raccords peuvent être sous tension, et des parties sous tension peuvent être découvertes en ouvrant des capots ou en retirant des pièces (à l'exception de celles auxquelles il est possible d'accéder manuellement).	**[W8]**
AVERTISSEMENT 	**Endommagement des composants électroniques** Avant de mettre l'instrument SOUS tension, vérifiez que vous utilisez la bonne tension d'alimentation. L'utilisation d'une tension d'alimentation incorrecte risque d'endommager les composants électroniques. Pour prendre connaissance de la tension d'alimentation recommandée, consultez les spécifications indiquées sur la plaque signalétique de l'instrument.	**[W9]**
AVERTISSEMENT 	**Risque d'électrocution** Ne pas ouvrir les panneaux du PreON. Risque de dommages corporels et matériels Réaliser uniquement la maintenance décrite spécifiquement dans ce manuel.	**[W10]**

Afin que le PreON fonctionne de manière satisfaisante et en toute sécurité, suivre les conseils suivants :

- Les cordons d'alimentation de l'appareil doivent être branchés sur des prises d'alimentation munies d'un conducteur de protection (terre/masse).
- Les fiches d'alimentation reliées au secteur doivent être facilement accessibles s'il est nécessaire de débrancher rapidement l'équipement du secteur.
- Utilisez uniquement le cordon d'alimentation fourni par PreOmics.
- En cas de déversement de liquides à l'intérieur de l'appareil, débrancher celui-ci de la prise d'alimentation et contacter les Services techniques de PreOmics.

Si l'appareil présente un danger électrique, empêcher le reste du personnel de s'en servir et contacter les Services Techniques de PreOmics. L'appareil peut présenter un danger électrique dans les cas suivants :

- Le cordon d'alimentation présente des signes de détérioration.
- L'appareil a été stocké pendant une longue période dans des conditions non conformes à celles énoncées dans l'Annexe A.
- L'appareil a subi des chocs sévères durant le transport.
- Un liquide a pénétré à l'intérieur de l'appareil

12.3 Atmosphère

AVERTISSEMENT 	**Atmosphère explosive** **[W11]** Le PreON n'est pas conçu pour fonctionner dans une atmosphère explosive.
ATTENTION 	**Détérioration de l'instrument** **[C6]** La lumière directe du soleil peut décolorer des parties de l'instrument et endommager des parties en plastique. Placer le PreON en dehors de la lumière directe du soleil.

12.4 Sécurité biologique

Lors de la manipulation de substances biologiques, employer des procédures de laboratoire sûres comme décrit dans des publications telles que Biosafety in Microbiological and Biomedical Laboratories, HHS (www.cdc.gov/od/ohs/biosfty/biosfty.htm).

12.4.1 Échantillons

En cas de déversement de liquides à l'intérieur de l'appareil, débrancher celui-ci de la prise d'alimentation et contacter les Services techniques de PreOmics .

AVERTISSEMENT

Echantillons contenant des agents infectieux **[W12]**

Certains échantillons utilisés avec cet instrument peuvent contenir des agents infectieux. Manipuler ce type d'échantillon avec le plus grand soin et en accord avec les règles de sécurité requises.

Toujours porter des lunettes de protection, deux paires de gants et une blouse de laboratoire.

La personne responsable (par exemple le Chef du laboratoire) doit prendre les précautions nécessaires pour assurer la sécurité de l'environnement du poste de travail et pour être sûr que les opérateurs de l'instrument sont suffisamment formés et non exposés à des quantités dangereuses d'agents infectieux comme défini dans "Material Safety Data Sheets (MSDS)" ou des documents "OSHA[9], ACGIH[10] ou COSHH[11]".

L'évacuation des vapeurs et déchets doit être conforme à tous règlements et dispositions légales - au plan national, départemental et local - concernant la santé et la sécurité.

12.5 Produits chimiques

AVERTISSEMENT

Substances chimiques dangereuses **[W13]**

Certaines substances chimiques utilisées avec cet instrument peuvent être dangereuses ou peuvent le devenir après que le protocole ait été effectué.

Toujours porter des lunettes de protection, paire de gants et une blouse de laboratoire.

La personne responsable (par exemple le Chef du laboratoire) doit prendre les précautions nécessaires pour assurer la sécurité de l'environnement du poste de travail et pour être sûr que les opérateurs de l'instrument sont suffisamment formés et non exposés à des quantités dangereuses de substances toxiques (chimique ou biologique) comme défini dans "Material Safety Data Sheets (MSDS)" ou des documents "OSHA*, ACGIH† ou COSHH‡".

L'évacuation des vapeurs et déchets doit être conforme à tous règlements et dispositions légales - au plan national, départemental et local - concernant la santé et la sécurité.

12.5.1 Vapeurs toxiques

Si vous travaillez avec des solvants volatils ou des substances toxiques, vous devez disposer d'un système de ventilation de laboratoire efficace afin d'évacuer les vapeurs qui peuvent être générées.

AVERTISSEMENT

Vapeurs toxiques **[W14]**

N'utilisez pas d'eau de Javel pour nettoyer ou désinfecter le PreON. Le contact de l'eau de Javel avec des sels provenant des tampons peut produire des vapeurs toxiques.

AVERTISSEMENT

Vapeurs toxiques **[W15]**

Ne pas utiliser de produit à base d'eau de Javel pour désinfecter les accessoires de laboratoire usagés. Le contact d'un produit à base d'eau de Javel avec des sels provenant des tampons utilisés peut produire des vapeurs toxiques.

[9] OSHA: Occupational Safety and Health Administration (États-Unis d'Amérique) (Administration pour la santé et la sécurité du travail).

[10] ACGIH: American Conference of Government Industrial Hygienists (États-Unis d'Amérique) (Conférence américaine des hygiénistes industriels gouvernementaux).

[11] COSHH: Control of Substances Hazardous to Health (Royaume-Uni) (Contrôle des substances dangereuses pour la santé).

12.6 Traitement des déchets

Les produits en plastique usagés, le, peuvent contenir des produits chimiques ou des agents infectieux dangereux. Ces déchets doivent être convenablement collectés et mis au rebut conformément aux règles de sécurité locales.

Pour plus d'informations sur la mise au rebut du PreON, consultez la section 10.6 Waste Electrical and Electronic Equipment (WEEE).

AVERTISSEMENT

Produits chimiques dangereux et agents infectieux **[W16]**

Les déchets peuvent contenir des matières toxiques et doivent être mis au rebut de manière appropriée. Reportez-vous aux règles de sécurité locales concernant les procédures de mise au rebut appropriées.

12.7 Dangers mécaniques

Le capot du PreON doit rester fermé pendant le fonctionnement de l'instrument. Ouvrir le capot uniquement lorsque les instructions d'utilisation vous demandent de le faire.

Lors du chargement de la table de travail, restez toujours à bonne distance de l'instrument. Ne vous penchez pas sur la table de travail quand le bras robotisé de l'instrument se déplace vers la position de chargement lorsque le couvercle est ouvert. Attendez que le bras robotisé termine son déplacement avant de commencer un chargement ou un déchargement.

AVERTISSEMENT

Pièces mobiles **[W17]**

Évitez tout contact avec les pièces en mouvement lorsque le PreON est en marche. Ne placez en aucun cas vos mains sous le bras robotisé lorsque celui-ci s'abaisse. Ne tentez pas de déplacer des portoirs à cônes ou des tubes lorsque l'instrument est en marche.

AVERTISSEMENT

Pièces mobiles **[W18]**

Pour éviter tout contact avec des pièces en mouvement pendant le fonctionnement du PreON, l'appareil doit être utilisé avec le capot fermé.

Si le capteur ou le verrou du capot ne fonctionne pas correctement, contactez les services techniques de PreOmics.

12.7.1 Centrifuge

Vérifiez que le rotor et les godets sont correctement installés. Tous les godets doivent être montés avant de lancer un cycle de protocole, quel que soit le nombre d'échantillons à traiter. Si le rotor ou les godets présentent des signes de détérioration mécanique ou de corrosion, cessez d'utiliser le PreON et contactez les services techniques de PreOmics .

ATTENTION

Détérioration de l'instrument **[C7]**

Le PreON ne doit pas être utilisé si le capot de la centrifugeuse est cassé ou si le verrou du capot est endommagé.

Veillez à ce qu'aucun résidu ne se trouve à l'intérieur de la centrifugeuse en cours de fonctionnement.

Assurez-vous que le rotor est installé correctement et que tous les godets sont bien montés, quel que soit le nombre d'échantillons à traiter. Chargez uniquement le rotor en suivant les instructions du logiciel.

Utilisez uniquement des rotors, des godets et des consommables conçus pour une utilisation avec le PreON. Les détériorations causées par l'utilisation d'autres consommables annulent la garantie.

Nous vous recommandons de remplacer la centrifugeuse après 20 000 cycles, ce qui équivaut à 9 années d'utilisation avec deux fonctionnements par jour, pendant 220 jours par an. Pour de plus amples informations, contactez les services techniques de PreOmics.

In case of breakdown caused by power failure, the centrifuge lid can be opened manually to remove the samples (see section 7.3.2).

AVERTISSEMENT

Pièces mobiles **[W19]**

Dans le cas d'un arrêt causé par une panne de courant, retirer le câble d'alimentation et attendre 10 minutes avant d'essayer d'ouvrir manuellement le couvercle de la centrifugeuse.

ATTENTION

Détérioration de l'instrument **[C8]**

Après une coupure de courant, ne déplacez pas le bras robotisé manuellement devant l'instrument. Vous risquez d'endommager l'instrument si le couvercle de la centrifugeuse est fermé et entre en collision avec le bras robotisé.

AVERTISSEMENT

Risque de dommages corporels et matériels **[W20]**

Soulever le couvercle de la centrifugeuse avec précaution. Le couvercle est lourd et peut causer des blessures s'il tombe.

ATTENTION

Risque de surchauffe **[C9]**

Laisser un espace d'au moins 10 cm sur les côtés et à l'arrière du QIAcube pour assurer une ventilation efficace.

Les grilles et prises d'air assurant la ventilation du QIAcube ne doivent pas être couvertes.

12.8 Dangers liés à la chaleur

La table de travail du PreON contient un agitateur chauffé.

AVERTISSEMENT

Surface brûlante **[W21]**

L'agitateur peut atteindre des températures jusqu'à 83°C (181.4°F). Eviter de le toucher quand il est chaud.

12.9 Sécurité relative à la maintenance

AVERTISSEMENT/ ATTENTION

Risque de dommages corporels et matériels **[W22]**

Effectuer uniquement la maintenance spécifiquement décrite dans ce manuel.

AVERTISSEMENT

Risque d'explosion **[W23]**

Lors du nettoyage du PreON avec un désinfectant à base d'alcool, laisser la porte du PreON ouverte pour permettre aux vapeurs inflammables de s'évaporer.

Nettoyer le PreON uniquement quand les composants de la table de travail ont refroidi.

AVERTISSEMENT

Risque d'incendie **[W24]**

Ne laissez pas le liquide de nettoyage ou les agents de décontamination entrer en contact avec les contacts électriques du PreON.

AVERTISSEMENT

Risque de dommages corporels et matériels **[W25]**

Pour empêcher l'écrou du rotor de se desserrer pendant le fonctionnement de la centrifugeuse, serrez-le bien à l'aide de la clé du rotor fournie avec le PreON.

AVERTISSEMENT

Risque de dommages corporels et matériels **[W27]**

Assurez-vous de positionner correctement les couvercles des colonnes de centrifugation et des tubes de 1,5 ml et de les enfoncer jusqu'au bout de l'emplacement sur les bords de l'adaptateur à rotor. Les couvercles placés incorrectement peuvent se casser lors de la centrifugation.

AVERTISSEMENT

Risque de dommages corporels et matériels **[W28]**

Assurez-vous d'enlever les couvercles des colonnes de centrifugation. Les colonnes de centrifugations avec un couvercle partiellement enlevé se détachent difficilement du rotor ce qui est la cause d'un crash du protocole.

ATTENTION

Détérioration de l'instrument **[C10]**

Ne pas utiliser de produit à base d'eau de Javel, de solvants ou de réactifs contenant des acides, des agents alcalins ou des produits abrasifs pour nettoyer le PreON.

ATTENTION

Détérioration de l'instrument **[C11]**

N'utilisez pas de flacons pulvérisateurs contenant de l'alcool ou un agent désinfectant pour nettoyer les surfaces du PreON. Les flacons pulvérisateurs ne doivent être utilisés que pour nettoyer les éléments qui ont été retirés de la table de travail.

12.10 Sécurité contre les rayonnements

AVERTISSEMENT 	**Risque de blessure personnelle** **[W28]** Lumière laser de niveau de risque 2 : Ne pas fixer le faisceau lumineux lorsque vous utilisez un lecteur de codes-barres à main, lire le manuel d'utilisation du lecteur à main pour obtenir des instructions supplémentaires.

12.11 Symboles sur le PreON

Symbol	Location	Description
	Agitateur	Risque de brûlures — la température de l'agitateur peut atteindre jusqu'à 83°C (181.4°F)
	Près de la centrifugeuse ; près du bras robotique	Danger mécanique — éviter d'entrer en contact avec les parties mobiles
	Sur l'instrument, près du portoir de flacons	Risque d'incendie – Utilisation d'éthanol dans le portoir de flacons
	Devant la table de travail, a l'intérieur du compartiment à déchets	Risque biologique - Certains échantillons utilisés avec cet appareil peuvent contenir des agents infectieux et doivent être manipulés avec des gants
	Dos de l'instrument à côté du branchement au réseau	Possibilité de choc électrique. N'ouvrez aucun panneau sur le PreON (cf. section 2.2)
	Face avant du scanner de codes à barres	Rayonnement laser - ne pas fixer le faisceau lumineux (cf. 2.10)
	Plaque signalétique à l'arrière de l'appareil	Marque CE (certification de conformité à la réglementation Européenne)
	Plaque signalétique à l'arrière de l'appareil	Label CSA pour le Canada et les Etats-Unis
	Plaque signalétique à l'arrière de l'appareil	Marquage WEEE pour l'Europe
	Plaque signalétique à l'arrière de l'appareil	Fabricant légal
	Plaque signalétique à l'arrière de l'appareil	Numéro de série de l'instrument

13 Appendix D – Sicherheitshinweise

Lesen Sie dieses Handbuch sorgfältig durch, bevor Sie den PreON benutzen. Beachten Sie dabei insbesondere die Sicherheitshinweise. Die Gebrauchsanweisungen und Sicherheitshinweise im Handbuch müssen befolgt werden, um einen sicheren Betrieb des Geräts zu gewährleisten und das Gerät in einem sicheren Zustand zu erhalten.

In diesem Handbuch werden die folgenden Kategorien von Sicherheitshinweisen verwendet:

WARNUNG 	Der Begriff „WARNUNG“ (“WARNING”) weist Sie auf Situationen hin, in denen eine Verletzungsgefahr für Sie selbst oder andere Personen besteht. Nähere Einzelheiten über diese Situationen werden in einem Textfeld wie diesem beschrieben.
ACHTUNG 	Der Begriff „ACHTUNG“ (“CAUTION”) weist Sie auf Situationen hin, in denen das Gerät oder andere Geräte beschädigt werden könnten. Nähere Einzelheiten über diese Situationen werden in einem Textfeld wie diesem beschrieben.

Die in diesem Handbuch enthaltenen Hinweise stellen eine Ergänzung und keinen Ersatz der üblichen Sicherheits-anforderungen dar, die im jeweiligen Land gelten.

13.1 Sachgemäße Handhabung

WARNUNG/ ACHTUNG 	**Verletzungsgefahr und Beschädigung des Geräts** **[W1]** Die unsachgemäße Bedienung des PreON kann zu einer Verletzung des Benutzers oder zur Beschädigung des Geräts führen. Die Bedienung des PreON darf nur durch qualifiziertes, entsprechend geschultes Personal erfolgen. Die Instandhaltung des PreON darf nur durch einen Servicespezialisten des PreOmics Außendiensts oder Servicetechniker eines autorisierten Vertreters durchgeführt werden.

Führen Sie alle Wartungsarbeiten gemäß den Anweisungen unter Maintenance Procedures, Abschnitt 6, durch. PreOmics stellt Reparaturen, die auf nicht fachgerecht durchgeführte Wartungsmaßnahmen zurückzuführen sind, in Rechnung.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W2]**

Der PreON ist zu schwer, um von einer Person gehoben zu werden. Um Verletzungen des Benutzers oder eine Beschädigung des Gerätes zu vermeiden ist davon abzusehen, das Gerät alleine zu heben.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen
[W3]

Den PreON während eines Laufes nicht bewegen.

ACHTUNG

Beschädigung des Geräts
[C1]

Vermeiden Sie es, Wasser oder Chemikalien auf dem PreON zu verschütten. Durch verschüttetes Wasser oder verschüttete Chemikalien verursachte Geräteschäden sind nicht durch die Garantie abgedeckt.

Schalten Sie im Notfall den PreON aus (der Netzschalter befindet sich auf der Gerätevorderseite), und ziehen Sie den Netzstecker aus der Steckdose.

ACHTUNG

Beschädigung des Geräts **[C2]**

Es dürfen ausschließlich PreOmics Spin-Säulen und PreON-spezifische Verbrauchsmaterialien mit dem PreON verwendet werden. Kommt es bei der Verwendung von Spin-Säulen oder Chemikalien anderer Hersteller zu Geräteschäden, erlischt die Garantie.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W4]**

Verwenden Sie keine beschädigten Rotoradapter. Rotoradapter sind nur für den Einmalgebrauch konzipiert. Benutzen Sie die Rotoradapter kein zweites Mal, da sie durch die hohen g-Kräfte bei der Zentrifugation beschädigt werden können.

ACHTUNG

Gefahr von Materialbeschädigungen **[C3]**

Leeren Sie den Pipettenspitzen-Abfallbehälter vor dem Gebrauch, um einen Rückstau der Spitzen in der Abfallschublade zu vermeiden. Wenn der Abfallbehälter nicht geleert wird, kann es zu einer Blockade des Roboterarms kommen, die zu einem Ausfall oder Sachschäden am Gerät führen kann.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W5]**

Um eine Beschädigung von Kunststoffteilen zu vermeiden, müssen die Röhrchen ordnungsgemäß geladen werden. Sollten Kunststoffteile beschädigt sein, können sich scharfe Kunststoffstücke innerhalb der Zentrifuge befinden. Bei der Handhabung von Gegenständen innerhalb der Zentrifuge ist daher Vorsicht angebracht.

ACHTUNG

Beschädigung des Geräts **[C4]**

Verwenden Sie stets das korrekte Flüssigkeitsvolumen.

Eine Überschreitung der empfohlenen Flüssigkeitsvolumen kann Schäden am Zentrifugenrotor oder am Gerät hervorrufen.

WARNUNG

Brand- oder Explosionsgefahr **[W6]**

Bei der Verwendung von Ethanol oder von Flüssigkeiten auf Ethanolbasis auf dem PreON müssen diese Flüssigkeiten vorsichtig und in Übereinstimmung mit den erforderlichen Sicherheitsbestimmungen gehandhabt werden. Entfernen Sie verschüttete Flüssigkeiten direkt mit den dafür vorgesehenen Materialien. Lassen Sie dabei die Haube des PreON geöffnet, sodass sich entzündbare Dämpfe verflüchtigen können.

WARNUNG

Brand- oder **Explosionsgefahr** **[W7]**

Der PreON darf ausschließlich mit Reagenzien und Substanzen aus den PreOmics Kits verwendet werden. Die Verwendung anderer Reagenzien und Substanzen kann zu einem Brand oder zu einer Explosion führen.

Falls Gefahrstoffe auf dem oder im PreON verschüttet werden, ist der Benutzer für die Durchführung einer entsprechenden Dekontamination verantwortlich.

Hinweis: Stellen Sie keine Gegenstände oben auf der Gerätehaube des PreON ab.

ACHTUNG

Beschädigung des Geräts **[C5]**

Do not lean against the touchscreen when it is pulled out.

13.2 Schutz vor Stromschlag

Ziehen Sie das Netzanschlusskabel aus der Steckdose, bevor Sie Wartungsarbeiten am Gerät vornehmen.

WARNUNG

Gefährdung durch Elektrizität **[W8]**

Das Gerät muss zum Betrieb immer geerdet sein.

Es ist verboten, die Schutzleiter im Gerät oder in der Netzzuleitung zu trennen oder zu entfernen.

Gefährliche Spannung im Gerät

Auch in ausgeschaltetem Zustand kann an einigen Stellen im Gerät Netzspannung anliegen, wenn das Gerät am Stromnetz angeschlossen ist. Das Öffnen oder Entfernen von Gehäuseteilen kann diese stromführenden Teile freilegen.

WARNUNG

Beschädigung von elektronischen Bauteilen **[W9]**

Stellen Sie vor dem Einschalten des Geräts sicher, dass die korrekte Versorgungsspannung verwendet wird.

Eine falsche Versorgungsspannung kann Schäden an der Elektronik hervorrufen.

Überprüfen Sie die empfohlene Versorgungsspannung anhand der technischen Daten auf dem Typenschild des Geräts.

WARNUNG 	**Gefährdung durch Elektrizität** Unter keinen Umständen darf das Gehäuse des PreON geöffnet werden. **Gefahr von Verletzungen und Sachbeschädigungen** Keine Pflege- und Wartungsarbeiten durchführen, die nicht in diesem Handbuch beschrieben sind.	**[W10]**

Um einen zufriedenstellenden und sicheren Betrieb des PreON zu gewährleisten, befolgenden Sie bitte die nachstehenden Richtlinien:

- Das Netzkabel muss an eine Wechselstrom-Steckdose mit Schutzleiter (Erdungs-/ Masseleiter) angeschlossen werden.
- Nehmen Sie im Geräteinneren keine Einstellungen an Teilen vor und wechseln Sie keine Teile aus.
- Nehmen Sie das Gerät nicht in Betrieb, wenn Abdeckungen oder Teile entfernt worden sind.

Falls die elektrische Sicherheit bei der Bedienung des Geräts nicht mehr gewährleistet werden kann, muss das Gerät gegen unbefugte oder unabsichtliche Benutzung gesichert, ausgeschaltet und das Stromkabel entfernt werden. Kontaktieren Sie anschließend den Technischen Service von PreOmics. Die elektrische Sicherheit des Geräts ist nicht mehr gegeben, wenn:

- Das Netzkabel beschädigt ist.
- Das Gerät längere Zeit unter ungünstigen Bedingungen, d. h. unter anderen Bedingungen als in Anhang A angegeben, gelagert wurde.
- Das Gerät unsachgemäß transportiert worden ist. Hinweise darauf sind eine beschädigte Verpackung oder ein beschädigtes Gehäuse.

13.3 Atmosphären

13.3.1 Operating conditions

WARNUNG 	**Explosionsfähige Atmosphären** Der PreON darf nicht in explosionsfähigen Atmosphären betrieben werden.	**[W11]**

ACHTUNG 	**Beschädigung des Geräts** Direktes Sonnenlicht kann Teile des Gerätes bleichen und Plastikteile schädigen. Der PreON darf nicht ins direkte Sonnenlicht gestellt werden.	**[C6]**

13.4 Biologische Sicherheit

Bei Substanzen und Reagenzien, die humanes Untersuchungsmaterial enthalten, sollte immer von einer möglichen Infektionsgefahr ausgegangen werden. Wenden Sie nur sichere Laborverfahren an, wie sie z. B. in Veröffentlichungen wie Biosafety in Microbiological and Biomedical Laboratories (HHS, www.cdc.gov/biosafety/publications) beschrieben werden.

13.4.1 Proben

Proben können infektiöse Erreger enthalten. Sie sollten sich der Gesundheitsgefahr bewusst sein, die von diesen Erregern ausgeht, und derartige Proben gemäß den erforderlichen Sicherheitsbestimmungen handhaben, lagern und entsorgen.

WARNUNG

Infektiöses Probenmaterial **[W12]**

Einige Proben, die mithilfe dieses Geräts verarbeitet werden, können infektiöse Erreger enthalten. Gehen Sie beim Umgang mit diesen Proben mit der größtmöglichen Vorsicht und gemäß den erforderlichen Sicherheitsbestimmungen vor.

Tragen Sie immer eine Schutzbrille, zwei Paar Laborhandschuhe und einen Laborkittel.

Die verantwortliche Person (z. B. der Laborleiter) muss alle erforderlichen Vorsichtsmaßnahmen treffen, um sicherzustellen, dass die unmittelbare Umgebung des Arbeitsplatzes sicher ist und die Bediener des Geräts ausreichend geschult sind. Außerdem dürfen die Grenzwerte in Bezug auf infektiöse Erreger, die in den entsprechenden Sicherheitsdatenblättern (SDS) oder den Vorschriften der OSHA[12], ACGIH[13] oder COSHH[14] festgelegt sind, nicht überschritten werden.

Beim Betrieb des Abzugs und bei der Entsorgung von Abfallstoffen müssen alle Bestimmungen und Gesetze zu Gesundheitsschutz und Sicherheit am Arbeitsplatz auf übernationaler, nationaler und regionaler Ebene eingehalten werden.

[12] OSHA: Occupational Safety and Health Administration (Vereinigte Staaten von Amerika).
[13] ACGIH: American Conference of Government Industrial Hygienists (Vereinigte Staaten von Amerika).
[14] COSHH: Control of Substances Hazardous to Health (Vereinigtes Königreich).

13.5 Chemikalien

WARNUNG

Gefährliche Chemikalien **[W13]**

Einige Chemikalien, die mit diesem Gerät verwendet werden, können gefährlich sein oder nach Beendigung eines Protokolllaufs gefährlich werden.

Tragen Sie immer eine Schutzbrille, Laborhandschuhe und einen Laborkittel.

Die verantwortliche Person (z. B. der Laborleiter) muss alle erforderlichen Vorsichtsmaßnahmen treffen, um sicherzustellen, dass die unmittelbare Umgebung des Arbeitsplatzes sicher ist. Auch dürfen die Grenzwerte in Bezug auf infektiöse Erreger, die in den entsprechenden Sicherheitsdatenblättern (SDS) oder den Vorschriften der OSHA[15], ACGIH[16] oder COSHH[17] festgelegt sind, nicht überschritten werden.

Beim Betrieb des Abzugs und bei der Entsorgung von Abfallstoffen müssen alle Bestimmungen und Gesetze zu Gesundheitsschutz und Sicherheit am Arbeitsplatz auf übernationaler, nationaler und regionaler Ebene eingehalten werden.

Bei der Behandlung von Abluft und bei der Abfallbeseitigung sind alle gesetzlichen Regelungen zur Gesundheit und Sicherheit auf nationaler, regionaler und lokaler Ebene zu berücksichtigen.

13.5.1 Giftige Dämpfe

Alle Arbeiten mit flüchtigen Lösungsmitteln oder toxischen Substanzen müssen unter einem funktionierenden Laborabzugssystem durchgeführt werden, damit die möglicherweise entstehenden Dämpfe abziehen können.

WARNUNG

Giftige Dämpfe **[W14]**

Verwenden Sie keine Bleichmittel zum Reinigen oder Desinfizieren des PreON Geräts. Bleichmittel können mit Salzen, die in den Puffern enthalten sind, reagieren und giftige Dämpfe erzeugen.

WARNUNG

Giftige Dämpfe **[W15]**

Verwenden Sie zum Desinfizieren von gebrauchtem Labormaterial keine Bleichmittel. Bleichmittel können mit Salzen, die in den Puffern enthalten sind, reagieren und giftige Dämpfe erzeugen.

13.6 Entsorgen von Abfällen

Benutzte Kunststoff-Laborartikel können gefährliche Chemikalien enthalten. Derartige Abfälle müssen gemäß den geltenden regionalen Sicherheitsbestimmungen gesammelt und entsorgt werden.

Weitere Informationen zur Entsorgung des PreON finden Sie unter Abschnitt 10.6 Waste Electrical and Electronic Equipment (WEEE).

[15] OSHA : Occupational Safety and Health Administration (Vereinigte Staaten von Amerika).
[16] ACGIH : American Conference of Government Industrial Hygienists (Vereinigte Staaten von Amerika).
[17] COSHH : Control of Substances Hazardous to Health (Vereinigtes Königreich).

WARNUNG

Gefährliche Chemikalien und infektiöse Erreger **[W16]**

In diesem Abfall können toxische Probenmaterialien enthalten sein, die sachgerecht entsorgt werden müssen. Bitte beachten Sie bei der Entsorgung die geltenden Sicherheitsbestimmungen.

13.7 Gefahren durch mechanische Teile

Die Gerätehaube des PreON muss während des Betriebs geschlossen sein. Öffnen Sie die Gerätehaube nur, wenn Sie dazu in der Gebrauchsanweisung angewiesen werden.

Halten Sie immer Abstand zum Gerät, wenn Sie die Arbeitsplattform beladen. Stützen Sie sich nicht auf die Arbeitsplattform, wenn sich der Roboterarm des Geräts bei geöffnetem Deckel bewegt, um die Ladeposition einzunehmen. Warten Sie, bis der Roboterarm seine Bewegungen abgeschlossen hat, bevor Sie mit dem Beladen oder Entladen beginnen.

WARNUNG

Sich bewegende Geräteteile **[W17]**

Vermeiden Sie jeglichen Kontakt mit sich bewegenden Geräteteilen, während der PreON in Betrieb ist. Ihre Hände dürfen sich niemals unter dem Roboterarm befinden, während dieser sich senkt. Versuchen Sie niemals, Pipettenspitzen oder Reaktionsgefäße zu entnehmen oder zu bewegen, während der Roboterarm in Betrieb ist.

WARNUNG

Sich bewegende Geräteteile **[W18]**

Um einen Kontakt mit sich bewegenden Teilen beim Betrieb des PreON Geräts zu vermeiden, darf das Gerät nur mit geschlossener Haube betrieben werden.
Sollten der Haubensensor oder die Haubenverriegelung nicht ordnungsgemäß funktionieren, kontaktieren Sie bitten den Technischen Service von PreOmics.

13.7.1 Zentrifuge

Vergewissern Sie sich, dass der Rotor und die Zentrifugenbecher ordnungsgemäß installiert sind. Vor dem Start eines Protokolllaufs müssen unabhängig von der Anzahl der zu verarbeitenden Proben alle Zentrifugenbecher eingesetzt werden. Falls der Rotor oder die Zentrifugenbecher Anzeichen einer mechanischen Beschädigung oder von Korrosion aufweisen, verwenden Sie den PreON nicht; kontaktieren Sie den Technischen Service von PreOmics.

ACHTUNG

Beschädigung des Geräts **[C7]**

Der PreON darf nicht verwendet werden, wenn der Zentrifugendeckel defekt ist oder die Deckelverriegelung beschädigt ist.

Stellen Sie sicher, dass sich während des Betriebs kein loses Material in der Zentrifuge befindet.

Stellen Sie sicher, dass der Rotor korrekt installiert ist und dass sämtliche Zentrifugenbecher ordnungsgemäß montiert sind, ungeachtet der Anzahl der zu verarbeitenden Proben. Beladen Sie den Rotor nur gemäß den Softwareanweisungen.

Benutzen Sie ausschließlich Rotoren, Zentrifugenbecher und Verbrauchsmaterialien, die für die Verwendung mit dem PreON konzipiert sind. Kommt es bei der Verwendung anderer Verbrauchsartikeln anderer Hersteller zu Geräteschäden, erlischt Ihre Garantie.

Wir empfehlen, die Zentrifuge nach 20.000 Zyklen zu ersetzen. Bei 2 Läufen am Tag an 220 Tagen im Jahr entspricht dies einer Betriebsdauer von 9 Jahren. Weiterführende Informationen erhalten Sie beim Technischen Service von PreOmics.

In case of breakdown, caused by power failure, the centrifuge lid can be manually opened to remove the samples (see section 7.3.2).

WARNUNG

Sich bewegende Geräteteile **[W19]**

Bei einem durch Stromausfall entstandenen Ausfall des Gerätes das Stromkabel entfernen und 10 Minuten warten bevor der Zentrifugendeckel manuell geöffnet werden kann.

ACHTUNG

Beschädigung des Geräts **[C8]**

Bewegen Sie den Roboterarm nach einem Stromausfall nicht manuell vor das Gerät. Bei geschlossenem Zentrifugendeckel kann es zu Schäden kommen, wenn der Roboterarm mit diesem kollidiert.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W20]**

Den Zentrifugendeckel vorsichtig anheben. Der Deckel ist schwer und kann Verletzungen verursachen falls er herunterfällt.

ACHTUNG

Überhitzung des Gerätes **[C9]**

Zur Sicherstellung einer ausreichenden Belüftung des PreON muss ein Mindestabstand von 10 cm an den Seiten und an der Rückseite des Gerätes eingehalten werden.

Lüftungsschlitze und –öffnungen des Gerätes nicht abdecken.

13.8 Hitzegefahr

Die Arbeitsplattform des PreON enthält einen beheizten Schüttler.

WARNUNG

Heiße Oberfläche **[W21]**

Der Schüttler kann Temperaturen bis zu 83°C (181.4°F) erreichen. Vermeiden Sie es den Schüttler zu berühren, solange er heiß ist.

13.9 Sicherheitshinweise – Wartungsarbeiten

WARNUNG/ ACHTUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W22]**

Führen Sie nur Wartungsarbeiten durch, die ausdrücklich in dieser Gebrauchsanweisung beschrieben sind.

WARNUNG

Explosionsgefahr **[W23]**

Beim Reinigen des PreON mit einem auf Alkohol basierenden Desinfektionsmittel muss die Tür des PreON offengelassen werden, damit die brennbaren Dämpfe entweichen können.

Den PreON nur reinigen, sobald die entsprechenden Module auf der Arbeitsfläche abgekühlt sind.

WARNUNG

Brandgefahr **[W24]**

Achten Sie darauf, dass keine Reinigungsflüssigkeit oder Dekontaminationsmittel in Kontakt mit den elektrischen Kontakten des PreON kommen.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W25]**

Die Rotorschraube muss zur Sicherheit mit dem Rotorschlüssel angezogen werden, der zusammen mit dem PreON geliefert wird. Sollte die Schraube nicht fest genug angezogen sein, kann sie sich während der Zentrifugation lösen.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W27]**

Stellen Sie sicher, dass die Deckel von den Spin-Säulen und den 1,5 ml Mikrozentrifugationsröhrchen in der korrekten Position angebracht sind und bis zum Boden des Deckelschachts an den Seiten des Rotor-Adapters durchgedrückt sind. Falsch positionierte Deckel können während der Zentrifugation abgerissen werden.

WARNUNG

Gefahr von Verletzungen und Sachbeschädigungen **[W28]**

Stellen Sie sicher, dass der Deckel von der Spin-Säule abgetrennt ist. Spin-Säulen mit unvollständig entfernten Deckeln lassen sich nicht korrekt aus dem Rotor entnehmen, was einen Protokollabbruch zur Folge hätte.

ACHTUNG

Beschädigung des Geräts **[C10]**

Verwenden Sie keine Bleichmittel, Lösungsmittel oder Reagenzien, die Säuren, Laugen oder Abrasivstoffe enthalten, um den PreON zu reinigen.

ACHTUNG

Beschädigung des Geräts **[C11]**

Verwenden Sie keine Sprühflaschen, die Alkohol oder Desinfektionsmittel enthalten, um die Oberflächen des PreON zu reinigen. Sprühflaschen sollten nur zum Besprühen von Gegenständen benutzt werden, die zuvor von der Arbeitsplattform entfernt wurden.

13.10 Strahlensicherheit

WARNUNG

Verletzungsgefahr **[W28]**

Laserlicht der Gefahrenklasse 2: Schauen Sie bei Verwendung des Bar code-Handscanners nicht in den Laserstrahl.

13.11 Symbols on the PreON

Symbol	Location	Description
	Schüttler	Verbrennungsgefahr — die Temperatur des Schüttlers kann bis zu 83°C (181.4°F) heiß werden
	Nahe der Zentrifuge; nahe des Roboterarms	Mechanische Gefahr — Kontakt mit beweglichen Geräteteilen vermeiden
	Im Gerät, in der Nähe des Flaschengestells	Feuergefahr – Verwendung von Ethanol im Flaschengestell
	Vor der Arbeitsfläche Innerhalb des Abfallbehälters	Biologische Gefährdung – Manche Proben, die mit diesem Gerät verwendet werden, können infektiöse Erreger enthalten und dürfen nur mit Laborhandschuhen angefasst werden
 	Auf der Rückseite des Gerätes neben dem Netzanschluss Auf der Vorderseite des Barcode-Scanners	Gefahr eines Stromschlags. Öffnen Sie keine Verkleidungen am PreON (vgl. Abschnitt 2.2) Laserstrahlung - nicht in den Lichtstrahl blicken (vgl. 2.10)
	Plakette auf der Rückseite des Gerätes	CE-Kennzeichen (Zertifizierung gemäß europäischen Richtlinien)
 	Plakette auf der Rückseite des Gerätes Plakette auf der Rückseite des Gerätes	CSA-Label für Kanada und die Vereinigten Staaten WEEE-Zeichen für Europa
	Plakette auf der Rückseite des Gerätes	Hersteller i.S.d. Gesetzes

14 Appendix E – Informazioni di sicurezza

Prima di usare il PreON, è essenziale leggere con attenzione questo manuale d'uso e prestare attenzione alle informazioni di sicurezza. Le istruzioni e le informazioni di sicurezza nel manuale d'uso devono essere osservati per garantire la sicurezza operazionale e per mantenere lo strumento in condizioni di sicurezza.

Le seguenti tipologie di informazioni di sicurezza sono incluse in questo manuale.

PERICOLO

Il termine Pericolo è usato per informare riguardo quelle situazioni che possono risultare in un infortunio per l'operatore o altre persone.
Informazioni dettagliate riguardo queste situazioni sono esplicitate in una casella come questa.

PRUDENZA

Il termine PRUDENZA è usato per informare riguardo quelle situazioni che possono risultare in un danno per lo strumento o altro dispositivo.
Informazioni dettagliate riguardo queste situazioni sono esplicitate in una casella come questa.

Le indicazioni fornite in questo manuale sono da intendersi come supplemento, non in sostituzione, ai normali obblighi di sicurezza vigenti nel paese d'uso.

14.1 Uso corretto

PERICOLO

Rischio d'infortunio e danni materiali **[W1]**
L'uso improprio del PreON può causare rischio d'infortunio o danni allo strumento. Il PreON deve essere usato unicamente da personale qualificato che sia stato opportunamente istruito.
Il servizio di assistenza del PreON deve essere eseguito solamente dal personale di servizio specializzato PreOmics.

Eseguite la manutenzione così come descritta nella sezione 6: Maintenance Procedures. PreOmics applica una commissione per le riparazioni necessarie in seguito a incorretta manutenzione.

PERICOLO

Rischio d'infortunio e danni materiali **[W2]**
Il PreON è troppo pesante per essere sollevato da una sola persona. Per evitare infortuni alla persona o danni allo strumento, non sollevate lo strumento da soli.

PERICOLO

Rischio d'infortunio e danni materiali **[W3]**
Non cercate di spostare il PreON mentre è in funzione.

PRUDENZA

Danni allo strumento **[C1]**

Evitare sversamento d'acqua o prodotti chimici nel PreON. Danni causati da sversamento d'acqua o prodotti chimici invaliderà la vostra garanzia.

In caso di necessità, spegnere il PreON dall'interruttore posizionato di fronte allo strumento e staccare la spina dalla presa di corrente.

PRUDENZA

Danni allo strumento **[C2]**

Usare solo cartucce con colonnine da centrifuga (spin column-based cartridges) e specifici ma PreOmics con il PreON. Danni causati dall'uso di altri tipi di cartucce con colonnine da centrif based cartridges) o da reagenti non PreOmics invaliderà la vostra garanzia.

PERICOLO

Rischio d'infortunio e danni materiali **[W4]**

Non usare adattatori da centrifuga (rotor adapters) danneggiati. Gli adattatori da centrifuga (rotor adapters) possono essere usati una sola volta. Le alte forze centrifughe (g) esercitate nella centrifuga possono causare danni agli adattatori da centrifuga (rotor adapters) riutilizzati.

PRUDENZA

Danni allo strumento **[C3]**

Svuotare il contenitore dei puntali usati prima dell'uso per evitare un blocco dei puntali nel contenitore dei rifiuti. Il mancato svuotamento del contenitore dei rifiuti può bloccare il braccio robotico e causare un fallimento della corsa o danni allo strumento.

PERICOLO

Rischio d'infortunio e danni materiali **[W5]**

Per evitare danni al materiale plastico, caricate i tubi correttamente. In caso di danni al materiale plastico, frammenti plastici taglienti potrebbero essere presenti all'interno della centrifuga. Prestate attenzione nel maneggiare oggetti dentro la centrifuga.

PRUDENZA

Danni allo strumento **[C4]**

Vogliate usare il corretto volume per i liquidi.

Il superamento del volume dei liquidi consigliato può danneggiare il rotore della centrifuga o lo strumento.

PERICOLO

Rischio d'incendio o esplosione **[W6]**

Quando si usano liquidi infiammabili sul PreON (Acetonitrile, Alcool isopropilico), manipolare tali liquidi con cura e nel rispetto delle norme di sicurezza richieste. Se è stato versato del liquido, asciugarlo e lasciare la cappa del PreON aperta per consentire la dispersione di vapori infiammabili.

PERICOLO

Rischio d'esplosione **[W7]**

Il PreON è destinato all'uso con reagenti e sostanze fornite con i kit PreOmics. L'uso di altri reagenti e sostanze può provocare incendi o esplosioni.

In caso di fuoriuscita di materiale pericoloso su o all'interno del PreON, l'operatore è responsabile dell'esecuzione di un'adeguata decontaminazione .

PRUDENZA

Danni allo strumento **[C5]**

Evitare il contatto dei reagenti con le superfici dello strumento e della centrifuga (rotore, cestelli, guarnizioni) in quanto ciò danneggia le superfici dello strumento e la guarnizione della centrifuga e causa la corrosione del metallo sul piano di lavoro, sul rotore della centrifuga e sui cestelli.

Pulire eventuali sversamenti sul piano di lavoro e nella centrifuga subito dopo la corsa.

Nota: Non collocare oggetti sopra la cappa del PreON.

PRUDENZA

Danni allo strumento **[C6]**

Non appoggiarsi al touchscreen quando questo viene estratto.

14.2 Sicurezza elettrica

Nota: Scollegare il cavo di alimentazione dalla presa di corrente prima di eseguire la manutenzione.

PERICOLO

Rischio di natura elettrica **[W8]**

Qualsiasi interruzione del conduttore di protezione (conduttore di messa a terra/cavo di terra) all'interno o all'esterno dello strumento o la disconnessione del morsetto del conduttore di protezione può rendere pericoloso lo strumento.

L'interruzione intenzionale non è consentita.

Tensioni letali all'interno dello strumento

Quando lo strumento è collegato all'alimentazione di corrente, i terminali possono essere sotto tensione e l'apertura dei pannelli di rivestimento o la rimozione di parti può esporre parti sotto tensione.

PERICOLO

Danni all'elettronica **[W9]**

Prima di accendere lo strumento, assicurarsi che venga utilizzata la corretta tensione di alimentazione.

L'uso di una tensione di alimentazione errata può danneggiare l'elettronica.

Per verificare la tensione di alimentazione consigliata, fare riferimento alle specifiche indicate sulla targhetta dello strumento.

PERICOLO

Rischio di scosse elettriche **[W10]**

Non aprire alcun pannello sul PreON.

Pericolo di lesioni personali e danni materiali.

Eseguire solo la manutenzione specificamente descritta in questo manuale d'uso.

Per garantire un funzionamento soddisfacente e sicuro del PreON, attenersi alle seguenti indicazioni generali. :

- Il cavo di alimentazione deve essere collegato ad una presa di rete con conduttore di protezione (messa a terra).
- Non regolare o sostituire le parti interne dello strumento.
- Non azionare lo strumento con i pannelli di protezione o parti rimosse.

Se lo strumento diventa elettricamente pericoloso, impedire ad altro personale di farlo funzionare, spegnere lo strumento, scollegarlo dalla presa di corrente e contattare il Servizio Tecnico PreOmics.

Lo strumento può essere elettricamente pericoloso quando:

- Esso o il cavo di alimentazione di linea sembra essere danneggiato.
- È stato conservato in condizioni sfavorevoli per un periodo prolungato.
- È stato sottoposto a forti sollecitazioni durante il trasporto. Per esempio, il contenitore usato per il trasporto presenta segni di danneggiamento o la carena esterna dello strumento risulta compromessa.
- I liquidi entrano in contatto diretto con i componenti elettrici del PreON.

14.3 Ambiente

14.3.1 Condizioni d'uso

PERICOLO 	**Atmosfera esplosiva** **[W11]** Il PreON non è progettato per l'uso in atmosfera esplosiva.
PRUDENZA 	**Danni allo strumento** **[C7]** La luce diretta del sole può scolorire parti dello strumento e danneggiare le parti in plastica. Il PreON deve essere posizionato al riparo dalla luce diretta del sole.

14.4 Sicurezza biologica

I campioni e i reagenti contenenti materiali di origine umana devono essere trattati come potenzialmente infettivi. Utilizzare procedure di laboratorio sicure, come descritto in pubblicazioni quali Biosafety in Microbiological and Biomedical Laboratories, HHS. (**www.cdc.gov/biosafety**).

14.4.1 Campioni

I campioni possono contenere agenti infettivi. È necessario essere consapevoli dei rischi per la salute presentati da tali agenti e utilizzare, conservare e smaltire tali campioni secondo le norme di sicurezza richieste. .

PERICOLO

Campioni contenenti agenti infettivi **[W12]**

Alcuni campioni utilizzati con questo strumento possono contenere agenti infettivi. Maneggiare tali campioni con la massima cura e nel rispetto delle norme di sicurezza vigenti.

Indossare sempre occhiali di sicurezza, 2 paia di guanti e un camice da laboratorio.

L'organismo responsabile (ad esempio, il responsabile di laboratorio) deve prendere le precauzioni necessarie per garantire che il luogo di lavoro circostante sia sicuro e che gli operatori dello strumento siano adeguatamente formati e non siano esposti a livelli pericolosi di agenti infettivi come definiti nelle relative Schede di Sicurezza dei Materiali (MSDSs) o nella documentazione OSHA[18], ACGIH[19] o COSHH[20].

Lo sfiato dei fumi e lo smaltimento dei rifiuti deve essere conforme a tutte le norme e leggi nazionali, statali e locali in materia di salute e sicurezza.

14.5 Prodotti chimici

PERICOLO

Sostanze chimiche pericolose **[W13]**

Alcune sostanze chimiche utilizzate con questo strumento possono essere pericolose o possono diventare pericolose dopo il completamento del protocollo.

Indossare sempre occhiali di sicurezza, guanti e camice da laboratorio.

L'organismo responsabile (ad esempio, il responsabile di laboratorio) deve prendere le precauzioni necessarie per garantire che il luogo di lavoro circostante sia sicuro e che gli operatori dello strumento non siano esposti a livelli pericolosi di sostanze tossiche (chimiche o biologiche) come definito nelle relative Schede di Sicurezza dei Materiali. (MSDSs) o nella documentazione OSHA,* ACGIH† o COSHH‡.

Lo sfiato dei fumi e lo smaltimento dei rifiuti deve essere conforme a tutte le norme e leggi nazionali, statali e locali in materia di salute e sicurezza.

PRUDENZA

Danni allo strumento **[C8]**

Evitare il contatto dei reagenti con le superfici dello strumento e della centrifuga (rotore, cestelli, guarnizioni) in quanto ciò danneggia le superfici dello strumento e la guarnizione della centrifuga e causa la corrosione del metallo sul piano di lavoro, sul rotore della centrifuga e sui cestelli.
Pulire eventuali sversamenti sul piano di lavoro e nella centrifuga subito dopo la corsa.

14.5.1 Fumi tossici

Se si lavora con solventi volatili o sostanze tossiche, è necessario fornire un efficiente sistema di ventilazione nel laboratorio per rimuovere i vapori che possono essere prodotti.

[18] OSHA : Occupational Safety and Health Administration (United States of America).
[19] ACGIH : American Conference of Government Industrial Hygienists (United States of America).
[20] COSHH : Control of Substances Hazardous to Health (United Kingdom).

PERICOLO

Vapori da solventi volatili **[W14]**

Alcuni dei solventi utilizzati con lo strumento sono volatili. Utilizzare lo strumento solo con un'adeguata ventilazione in conformità alle relative Schede di Sicurezza dei Materiali. (MSDSs) o nella documentazione OSHA,* ACGIH† o COSHH‡.

PERICOLO

Fumi tossici **[W15]**

Non usare la candeggina per pulire o disinfettare il PreON. La candeggina a contatto con i sali dei tamponi può produrre fumi tossici.

PERICOLO

Fumi tossici **[W16]**

Non utilizzare la candeggina per disinfettare il materiale da laboratorio. La candeggina a contatto con i sali dei tamponi utilizzati può produrre fumi tossici..

14.6 Smaltimento dei rifiuti

Gli strumenti da laboratorio usati, come le provette, le cartucce con colonnine da centrifuga (spin column-based cartridges) PreOmics, i puntali con filtro, le bottiglie dei tamponi e i tubi per enzimi, o gli adattatori da centrifuga, possono contenere sostanze chimiche pericolose o agenti infettivi derivanti dal processo di purificazione. Questi rifiuti pericolosi devono essere raccolti e smaltiti correttamente in conformità con le norme di sicurezza locali.

Per ulteriori informazioni su come smaltire il PreON, vedere la sezione 10.6 Waste Electrical and Electronic Equipment (WEEE).

PERICOLO

Sostanze chimiche pericolose e agenti infettivi **[W17]**

I rifiuti possono contenere materiali tossici e devono essere smaltiti correttamente. Per le corrette procedure di smaltimento, fare riferimento alle norme di sicurezza locali.

14.7 Pericoli di natura meccanica

La cappa del PreON deve rimanere chiusa durante il funzionamento dello strumento. Aprire la cappa solo se richiesto dalle istruzioni per l'uso.

Durante il caricamento del piano di lavoro, mantenere una distanza di sicurezza dallo strumento. Non appoggiarsi sul piano di lavoro quando il braccio robotizzato dello strumento si muove per raggiungere la posizione di carico con il coperchio aperto. Attendere che il braccio robotico abbia completato i suoi movimenti prima di iniziare a caricare o scaricare.

PERICOLO

Parti in movimento [**W18]**

Evitate il contatto con parti in movimento durante il funzionamento del PreON. In nessun caso si devono mettere le mani sotto il braccio robotico quando questo si abbassa. Non tentate di spostare i porta puntali o i tubi mentre lo strumento è in funzione.

PERICOLO

Parti in movimento [**W19**]

Per evitare il contatto con parti in movimento durante il funzionamento del PreON, lo strumento deve essere azionato con la cappa chiusa.

Se il sensore della cappa o il blocco non funziona correttamente, contattate il Servizio Tecnico PreOmics.

14.7.1 Centrifuga

Assicurarsi che il rotore e i cestelli siano installati correttamente. Tutti i cestelli devono essere montati prima di avviare un protocollo, indipendentemente dal numero di campioni da processare. Se il rotore o i cestelli mostrano segni di danni meccanici o corrosione, non utilizzate il sistema PreON; contattate il Servizio Tecnico PreOmics.

PRUDENZA

Danni allo strumento [**C9**]

Il PreON non deve essere utilizzato se il coperchio della centrifuga è rotto o se il blocco del coperchio è danneggiato.

Assicurarsi che non vi sia materiale libero all'interno della centrifuga durante il funzionamento.

Assicurarsi che il rotore sia installato correttamente e che tutti i cestelli siano montati correttamente, indipendentemente dal numero di campioni da processare. Caricare il rotore solo secondo le istruzioni del software.

Utilizzare solo rotori, cestelli e materiali di consumo progettati per l'uso con il PreON. I danni causati dall'uso di altri materiali di consumo invalidano la garanzia.

Si consiglia di sostituire la centrifuga dopo 20.000 cicli, che equivalgono a 9 anni di utilizzo con due cicli al giorno per 220 giorni all'anno. Per maggiori informazioni contattare il Servizio Tecnico PreOmics.

In caso di guasto causato da mancanza di corrente elettrica, il coperchio della centrifuga può essere aperto manualmente per rimuovere i campioni (vedi sezione 7.3.2).

La pulizia e la decontaminazione possono essere necessarie come misura di sicurezza prima della manutenzione, della riparazione o del trasferimento delle CENTRIFUGHE DA LABORATORIO, dei ROTORI e di qualsiasi altro accessorio.
I produttori possono fornire agli utenti un formulario per documentare che tale trattamento è stato effettuato.

PERICOLO

Parti in movimento [**W20**]

In caso di guasto causato da mancanza di corrente, rimuovere il cavo di alimentazione e attendere 10 minuti prima di tentare di aprire manualmente il coperchio della centrifuga.

PRUDENZA

Danni allo strumento [**C10**]

Dopo un'interruzione di corrente, non spostate manualmente il modulo "z" (braccio robotico). Possono verificarsi danni se il coperchio della centrifuga è chiusa e si scontra con il modulo "z".

PERICOLO

Rischio d'infortunio e danni materiali [W21]

Sollevare con cautela il coperchio della centrifuga. Il coperchio è pesante e può causare lesioni in caso di chiusura.

PRUDENZA

Pericolo di surriscaldamento [C11]

Per garantire una corretta ventilazione, mantenere una distanza minima di 10 cm sui lati e sul lato posteriore del PreON.

Le fessure e le aperture che garantiscono la ventilazione del PreON non devono essere coperte.

14.8 Rischio di ustioni

14.9 Il piano di lavoro PreON contiene un agitatore riscaldato.

PERICOLO

Superficie calda [W22]

L'agitatore può raggiungere temperature fino a 83°C (181.4°F). Evitate di toccarlo quando è caldo. Rimuovete con cautela i campioni dopo una corsa.

14.10 Sicurezza nella manutenzione

PERICOLO/ PRUDENZA

Rischio d'infortunio e danni materiali [W23]

Eseguite solo la manutenzione specificamente descritta in questo manuale d'uso.

PERICOLO

Rischio d'esplosione [W24]

Quando si pulisce il PreON con un disinfettante a base di alcool, lasciate la cappa PreON aperta per consentire la dispersione dei vapori infiammabili.

Pulite il PreON solo quando i componenti del piano di lavoro si sono raffreddati.

PERICOLO

Pericolo d'incendio [W25]

Evitate che il liquido detergente o gli agenti decontaminanti entrino in contatto con le parti elettriche del PreON.

PERICOLO

Rischio d'infortunio e danni materiali [W26]

Per evitare che i dadi del rotore si allentino durante il funzionamento della centrifuga, serrate saldamente i dadi utilizzando la chiave del rotore fornita in dotazione con il PreON.

PERICOLO

Rischio d'infortunio e danni materiali [W27]

Assicurarsi che i coperchi delle cartucce con colonnine da centrifuga (spin column-based cartridges) e dei tubi per microcentrifuga da 1,5 ml siano nella posizione corretta e spinti fino in fondo alle fessure sui lati dell'adattatore del rotore. I coperchi posizionati in modo errato possono rompersi durante la centrifugazione.

PERICOLO

Rischio d'infortunio e danni materiali **[W28]**

Assicurarsi che il coperchio sia completamente rimosso dalla colonnina da centrifuga. Cartucce con colonnine da centrifuga (spin column-based cartridges) con coperchi parzialmente rimossi non possono essere estratti correttamente dal rotore, causando l'arresto anomalo del protocollo..

PRUDENZA

Danni allo strumento **[C12]**

Non utilizzate candeggina, solventi o reagenti contenenti acidi, alcali o agenti abrasivi per pulire il PreON..

PRUDENZA

Danni allo strumento **[C13]**

Evitate il contatto dei reagenti con le superfici dello strumento e della centrifuga (rotore, cestelli, guarnizioni) in quanto possono danneggiare le superfici dello strumento e la guarnizione della centrifuga e causare la corrosione del metallo sul piano di lavoro, sul rotore della centrifuga e sui cestelli.

Pulire eventuali sversamenti sul piano di lavoro e nella centrifuga subito dopo la corsa.

PRUDENZA

Danni allo strumento **[C14]**

Non utilizzate bombolette spray contenenti alcool o disinfettante per pulire le superfici del PreON. I flaconi spray devono essere usati solo per pulire gli oggetti che sono stati rimossi dai piani di lavoro.

14.11 Sicurezza dalle radiazioni

PERICOLO

Rischio d'infortunio **[W29]**

Luce laser con Livello di Pericolo 2: Non fissare il raggio di luce quando si utilizza lo scanner portatile per codici a barre.

14.12 Simboli sul PreON

Simbolo	Posizion	Descrizione
	Accanto all'agitatore	Pericolo di ustione – L'agitatore può raggiungere temperature fino a 83°C (181.4°F).
	Vicino alla centrifuga; vicino al braccio robotizzato	Pericolo meccanico - evitate il contatto con parti in movimento.
	Sullo strumento, vicino al porta flaconi	Pericolo d'incendio - uso di etanolo nel porta flaconi.
	Davanti al piano di lavoro All'interno del contenitore dei rifiuti	Rischio biologico - alcuni campioni utilizzati con questo strumento possono contenere agenti infettivi e devono essere manipolati con i guanti.
 	Sul retro dell'apparecchio, accanto al collegamento alla rete elettrica Sul lato anteriore del lettore di codici a barre	Rischio di scossa elettrica. Non aprire alcun coperchio sul PreON (vedi paragrafo 2.2) Radiazione laser - non guardare nel raggio di luce (vedi 2.10)

Simbolo	Posizion	Descrizione
	Targhetta di identificazione sul retro dello strumento	Marchio CE per la Conformità Europea
	Targhetta di identificazione sul retro dello strumento	Marchio di iscrizione CSA per il Canada e gli USA
	Targhetta di identificazione sul retro dello strumento	Marchio per Rifiuti per Apparecchiature Elettriche ed Elettroniche (WEEE) per l'Europa
	Targhetta di identificazione sul retro dello strumento	Produttore legale

15 Version history

Document	Revision	Date	Description of changes
PreON User Manual UM-PN-1001	01	March 2019	First release
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