

ElysION

Operating manual

Revision: 2

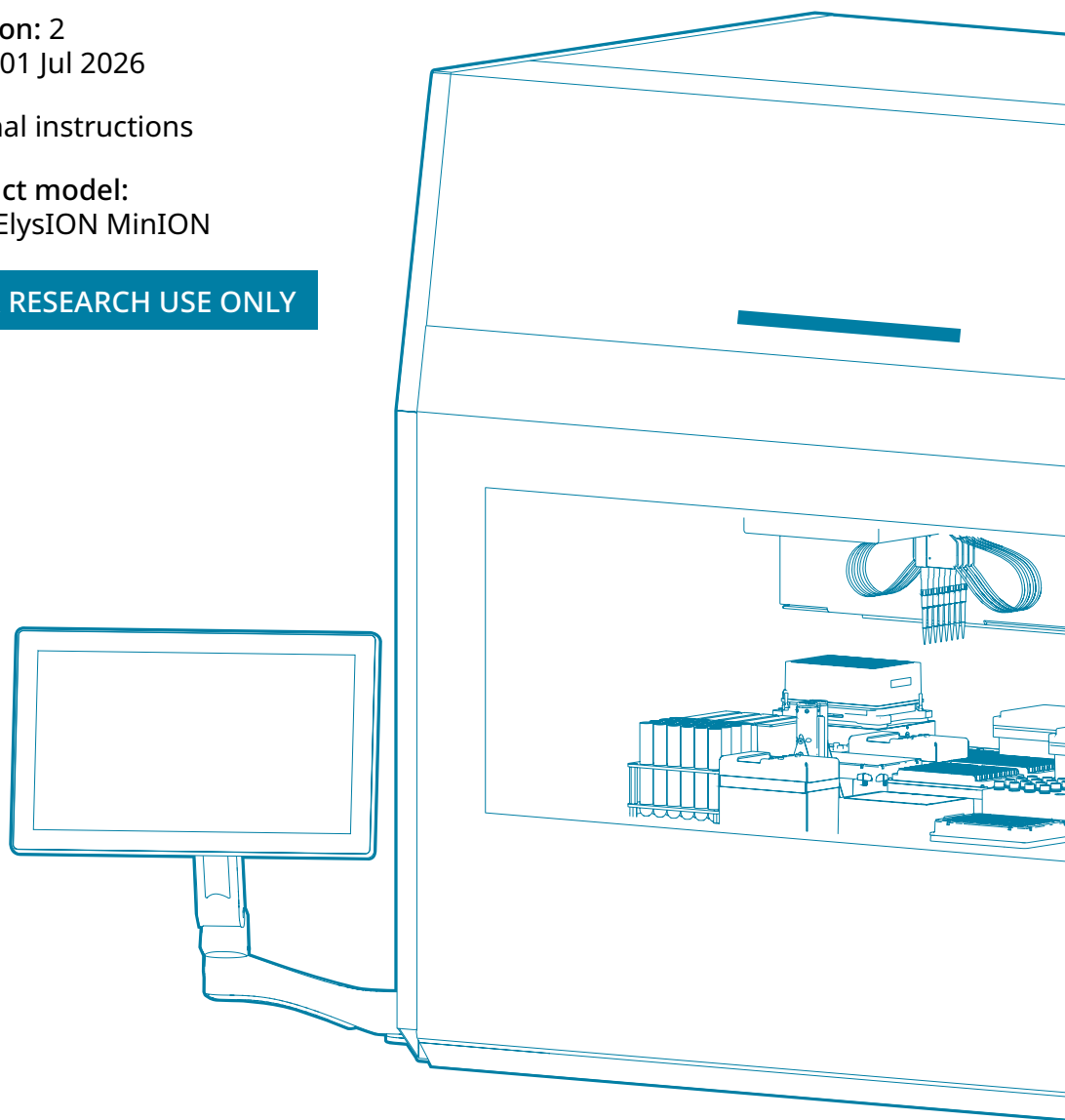
Date: 01 Jul 2026

Original instructions

Product model:

- ElysION MinION

FOR RESEARCH USE ONLY



IMPORTANT
READ THE INSTRUCTIONS BEFORE USE OF YOUR ELYSION MINION. CONTACT SUPPORT
IF YOU ARE UNSURE ABOUT ANY INSTRUCTION OF THIS OPERATING MANUAL:

support@nanoporetech.com

Document title:	Document number:	Document type:
ElysION MinION operating manual	ONT-08-01279-00	Original instructions

Version:	Revision:	Issue:
Original instructions: ElysION MinION	ONT-08-01279-00 Rev. 2	01 Jul 2026

Document history:
The document is renamed for the sub-type of the ElysION (ElysION MinION). The Table of Contents reflects the new order. Section 1. Generally rewritten throughout. The subcomponents have been included; namely, the MinION Control Unit and MinION Mk1Ds throughout and specifically in Section 1. Websites are up to date to include correct references. Documentation is up to date too and includes latest references for the ElysION. Section 2. Further information provided on the ElysION MinION and its three components. Section reordered to read better and match an ordered structure considering the function of the device. Section 3. Technical specification ordered. Label descriptions updated. Ventilation dimensions updated and figure added to contain all components needed to run the ElysION MinION. Technical specification added and updated for MinION Control Unit and MinION Mk1D. Section 4. Safety – reordered General Safety disclaimers moved to beginning of the section; the decontamination declaration added, magnetic fields typo corrected in table and symbol within Section 4. ElysION Sample Preparation Device safety disclaimers are mostly rewritten. MinION Control Unit safety disclaimers added. MinION Mk1D safety document referenced. Section 5. to 9. Have been largely retained but rewritten for clarity and ease of understanding for the user. Note: Thermoshake refilling instructions have been removed as these instructions should only be available to the Oxford Nanopore Technologies field staff.

Technical abbreviations:	
ARP: Air Restriction Pipettor	USB: Universal Serial Bus
cLLD: Capacitive Liquid Level Detection	XCA: Channel Arm
DiTi: Disposable Tip	XCG: Channel Gripper
EMC: Electromagnetic Compatibility	XEBU: Enclosed Frame Base Unit
PSU: Power Supply Unit	XTA: Tool Arm
RF: Radio Frequency	

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1. Introduction

This operating manual is for the ElysION™ MinION™: an automated robot for liquid handling, DNA library preparation, and nanopore sequencing provided by Tecan and Oxford Nanopore Technologies plc (referred to as Oxford Nanopore). This manual contains all the instructions for operating the ElysION safely and for maintaining the device. Read the manual carefully before you perform any work with your ElysION.

Your ElysION MinION features:

- **Low barrier to entry, sample-to-answer:** The ElysION Sample Preparation Device is an automated end-to-end — sample to result — platform.
- **Adaptable and scalable:** The device has a range of sample input specifications, allowing for high throughput and scalable use.
- **Reproducible and reliable:** The automated process ensures reproducible, reliable results due to a reduction in human error, while also minimising risk.

Section 1 outlines the purpose of the operating manual and ElysION. Furthermore, this section explains the use of symbols and conventions, along with other general information.

1.1. Device and model variants

This manual contains the operational instructions for the ElysION MinION. The ElysION MinION has three MinION Mk1D devices to sequence DNA libraries for Oxford Nanopore sequencing.

1.1.1. ElysION MinION

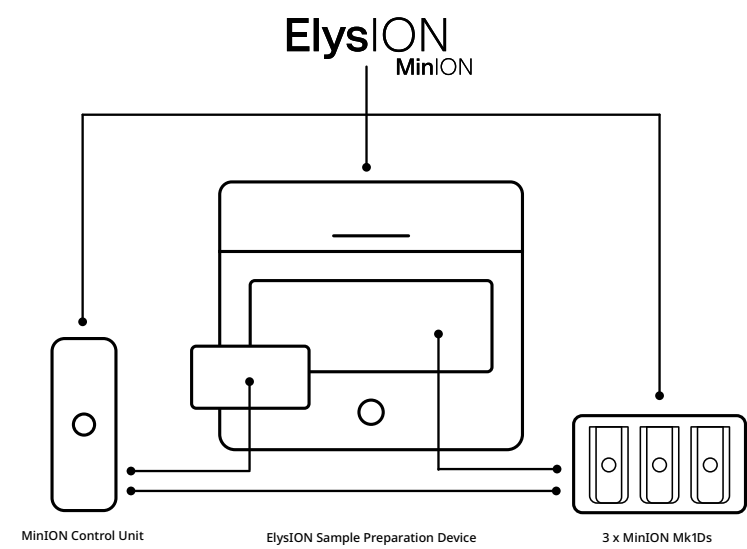
- ElysION Sample Preparation Device (Reference: ElysION 6-grid model)
- ElysION MinION Control Unit
- ElysION MinION Mk1D

1.2. Model numbers

The ElysION MinION is composed of three main devices:

1. A sample preparation device (robot)
2. A compute unit
3. An Oxford Nanopore Technologies sequencing device (or multiples of)

1. Introduction



The model numbers of the respective devices are below.

Sample preparation device

Component	Type	Model number
ElysION Sample Preparation Device	Cavro® Magni Flex 44A00-6G-XE	ELY-SPD001

For more information on the configuration on the Cavro® Magni Flex 44A00-6G-XE, see the technical specification in the table below:

Sample preparation device: sub-components

Component part	Technology type
Pipetting system	ARP
Left arm	8 channels
Right arm	N/A

Compute unit

Component	Type	Model number
ElysION Compute Unit	MinION Control Unit	ELY-MCU01

Sequencing device

Component	Type	Model number
Oxford Nanopore sequencing device	MinION Mk1D*	MIN-101D-ELY

*Three MinION Mk1D devices are installed and operational on the ElysION Sample Preparation Devices deck.

1. Introduction

1.3. Manufacturer

Address of Manufacturer:

Oxford Nanopore Technologies plc.
Gosling Building
Oxford Science Park
Edmund Halley Road
Oxford
OX4 4DQ
United Kingdom

1.4. Use disclaimer

The ElysION is an automated multi-purpose liquid handling, library preparation and sequencing platform for Oxford Nanopore sequencing.

ElysION is not intended for use for health assessment or to diagnose, treat, mitigate, cure, or prevent any disease or condition.

Only trained and authorised personnel should operate the device and its components.

1.5. Improper use

Improper use will prevent the ElysION MinION from operating safely.

- The ElysION MinION configurations and modules are National Recognised Testing Laboratory NRTL (MET) recognised components.
- The ElysION MinION is not explosion-proof and should not be installed in locations where there is an explosion hazard.
- Familiarise yourself with all safety precautions and training to prevent death, injury, or equipment damage (see Section 4) before interacting with the ElysION Sample Preparation Device.
- Evaluate additional safety features based on your use disclaimer.

1.6. Warranty

The use of unapproved components may impair the safe use of the ElysION.

The use of unapproved components will invalidate any warranty of safety and compliance to national and international standards, as required for NRTL (MET) certification, by EC directives, etc.

1.7. Trademarks

Whether registered or unregistered trademarks, the product names mentioned in this manual are reproduced solely for identification purposes and remain the exclusive property of their respective owners.

1. Introduction

1.8. Websites

This section provides a link to the Nanopore Community for ElysION documentation.

Oxford Nanopore ElysION documentation:

Visit the Nanopore Community for user documentation, troubleshooting, forums, and support.

www.nanoporetech.com/documentation

Note: Select **ElysION** in the side bar filters.

1.9. Documentation

1.9.1. Oxford Nanopore documents for ElysION

Check the document is the latest version and corresponds to your ElysION version used.

Note: the most recent revision of the protocol will be available on the Oxford Nanopore Documentation page. Do check locally saved protocols before use to ensure the most recent instructions are implemented.

The ElysION MinION operating manual will ship with the ElysION MinION.

You will receive an operating manual for your compute unit with the ElysION MinION Control Unit.

A quick start guide will be sent with your MinION Mk1D. A quick start guide is included by default in every MinION Mk1D pack but should not be used for installing the ElysION MinION Mk1Ds with your ElysION MinION.

The ElysION user guide will provide all necessary information for daily use of the ElysION MinION and ElysION MinION Control Unit. The ElysION user guide can be found here:

www.nanoporetech.com/document/elysion-user-guide

1.9.2. Document identifiers (Doc IDs) for third-party documentation

Doc ID refers to the Tecan documentation identifier that you should use to reference any third-party reference documents.

The Doc IDs do not contain the language, version, or form variants of this information.

Doc ID does not refer to ordering information. When placing orders, refer to the number on the document binder, etc.



Consult the operating manual for optional equipment.

1.9.3. Reference documents

- CPAC 2-TEC: Inheco CPAC devices (Doc ID 900650-001)
- Thermoshake AC: Inheco Shaker with clamping mechanism (Doc ID 901325-000)
- Inheco Multi TEC Control (Doc ID 900067-003)
- Inheco On Deck Thermal Cycler (Doc ID 900584-005)
- Theleshake AC: Inheco heater/shaker with clamping mechanism (Doc ID: 901775-000)

1. Introduction

1.10. Document conventions

IMPORTANT

The following statements are important and must be read and followed to prevent injury to the user or damage to the equipment.

Cross references

Cross references appear as follows, e.g.

➔ Refer to section 'Safety'

* 'Safety' refers to the corresponding section header.

Prerequisites

Prerequisites appear as follows, e.g.

P 'General safety' information has been read.

Tips

Additional tips appear as follows, e.g.

 For safety conventions and symbols refer to section 'Safety.'

2. Function

2.1. The ElysION MinION

The ElysION MinION is a comprehensive modular device designed to automate the sample extraction, library preparation, and sequencing using the Tecan liquid handling system and Oxford Nanopore Technologies MinION sequencing device.

Oxford Nanopore Technologies devices are electronic preparation and analysis systems for use in scientific research. The core technology is built around a nanopore that can detect single-molecule events including nucleic acids (DNA).

2.2. Components

The ElysION requires three components to perform the end-to-end workflows. The three sub-components of a complete ElysION are:

For ElysION MinION

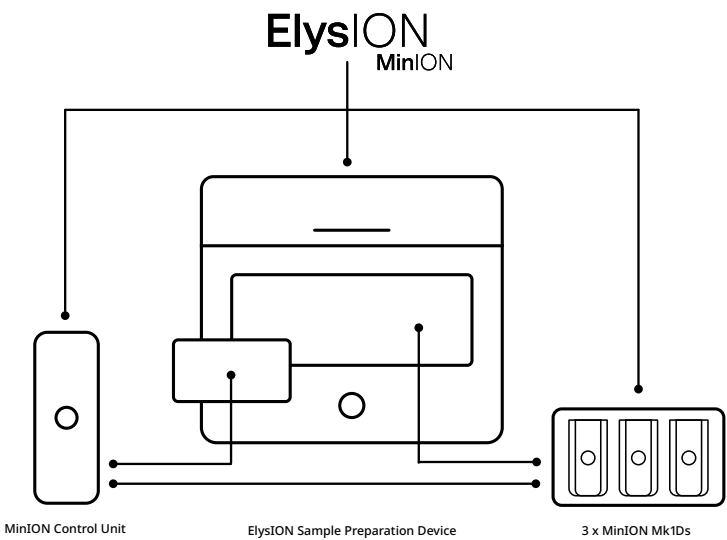
- The ElysION Sample Preparation Device
- The compute unit (e.g. the ElysION MinION Control Unit)
- The sequencing device(s) (three ElysION MinION Mk1Ds)

2.3. ElysION Sample Preparation Device

The ElysION Sample Preparation Device is a robot that pipettes, mixes, dispenses, and disposes of liquid that can be in or go into a variety of vessels (tubes, plates, bins, etc.) to allow a biological sample to be processed from extracted DNA to its sequencing.

The ElysION Sample Preparation Device has three integrated MinION Mk1Ds that are loaded by the automated liquid handling arms of the robot. The ElysION Sample Preparation Device controls and performs all steps of preparing the DNA for sequencing.

This section explains the basic principle of the ElysION, shows how it is structured, and gives a functional description of the components.



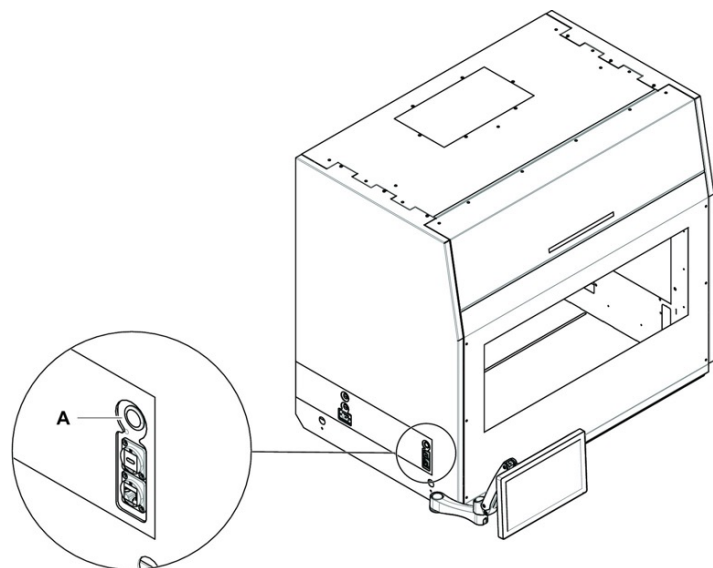
2. Function

2.4. Operation of your ElysION Sample Preparation Device

2.4.1. Power button location

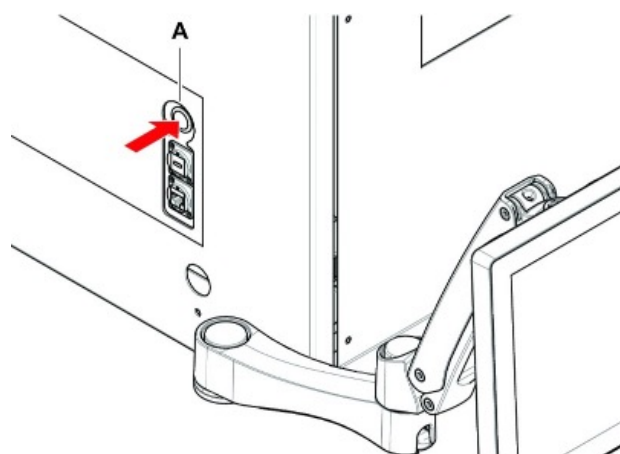
Power button:

The power button (A) of the ElysION Sample Preparation Device is located on the left-hand side of the instrument.



2.4.1.1. Powering on:

Switch on the power by pressing the power button (A).



2. Function

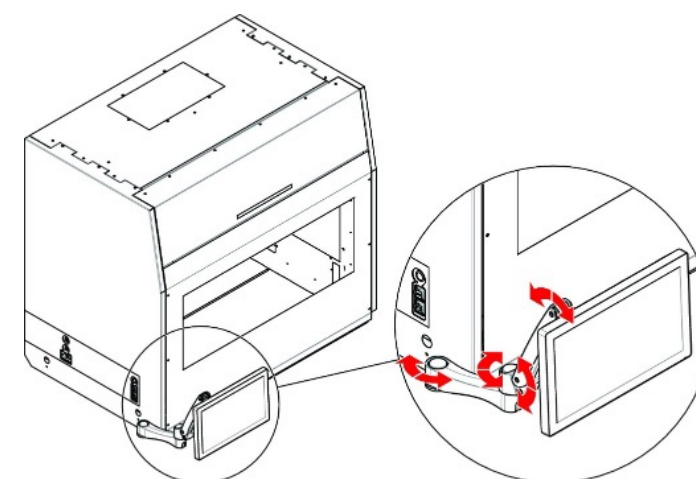
2.4.1.2. Powering off:

1. Switch off the ElysION Sample Preparation Device by exiting the application/shutting down Windows OS via the touchscreen.
2. If the integrated compute stops working, you can force a shutdown by pressing the power button (A) for 5 seconds to power off the instrument and the ElysION integrated compute.

Note: The forced shut down will not shut down the compute unit (ELY-MCU01). You will find the compute unit emergency power in the MinION Control Unit Operating Manual that ships with this device.

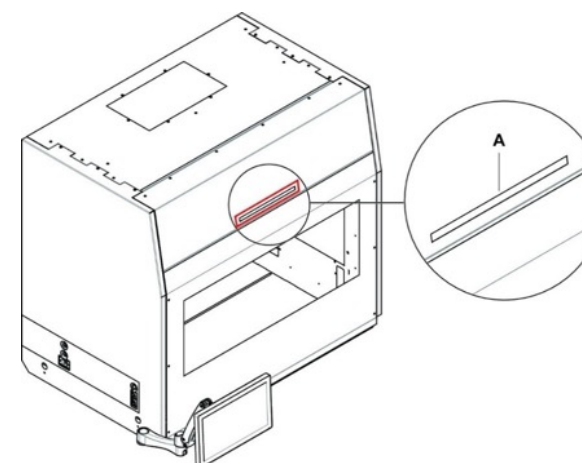
2.4.2. Adjust your touchscreen

The touchscreen can be adjusted for comfort using the hinges displayed below:



2.4.3. Status LED

Above the housing opening there is an LED bar (A) showing the status of ElysION Sample Preparation Device and its application software.



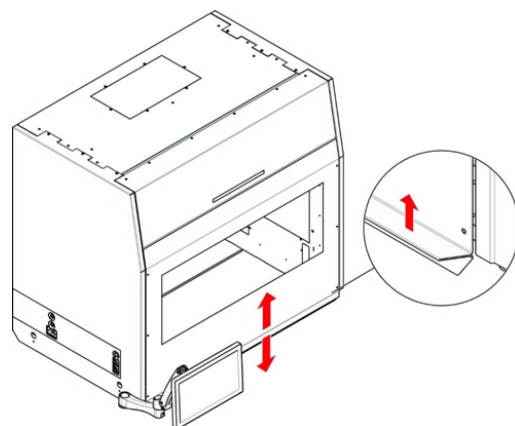
Note: Refer to the application software for the LED status.

2. Function

2.4.4. Opening the front safety panel

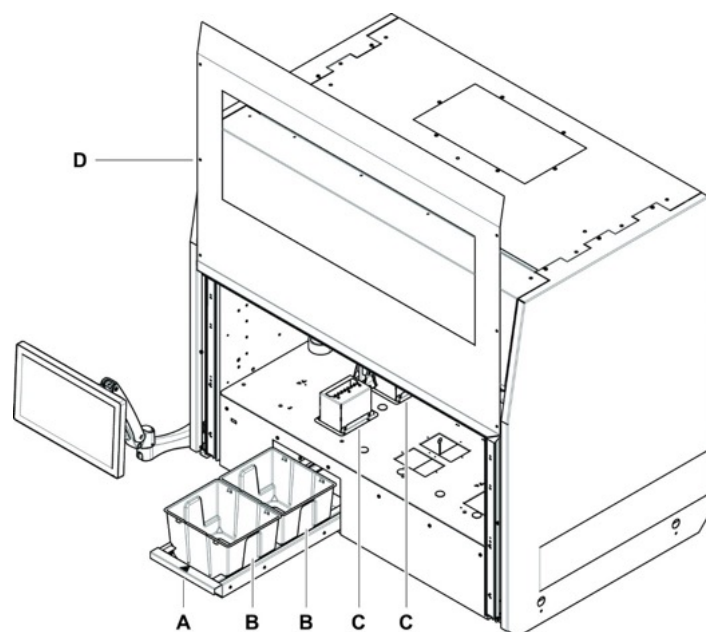
IMPORTANT

ONE-PERSON OPERATION AT A TIME. USE BOTH HANDS TO OPEN THE DOOR AS BELOW.



To open the front safety panel, disengage the door lock via the application (e.g. at the end of a sequencing run) or after the instrument has been switched off. After the door is unlocked, lift the front safety panel holding the rail at its bottom end. Keep your fingers away from the lower rail when lowering the front safety panel to prevent crushing fingers.

The front safety panel is monitored by a door sensor.



A) Waste drawer B) Waste bin
C) DiTi drop station* D) Front safety panel

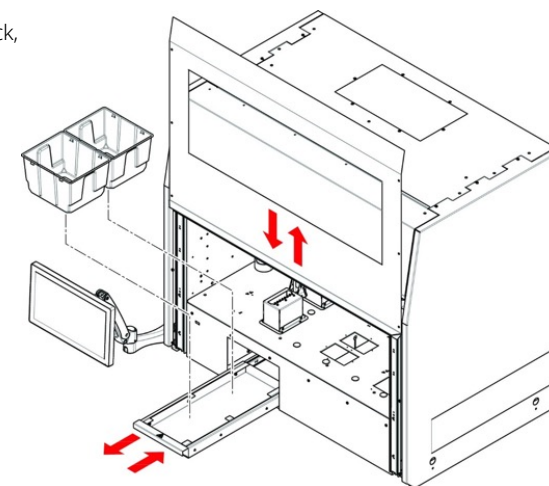
*Disposable tips (DiTi)

2. Function

2.4.5. Exchanging the waste bin

Ensure the application has released the door lock, or the liquid handler is switched off.

1. Lift the front safety panel.
2. Pull out the waste drawer.
3. Remove the waste bin(s).
4. Insert new waste bin(s).
5. Push the waste drawer back fully.
6. Lower the front safety panel.



2.4.6. Removing a carrier

Pull the carrier upwards to detach it from the positioning pins.

2.4.7. DiTi drop station

An ElysION Sample Preparation Device equipped with an ARP requires the installation of a DiTi drop station on the worktable. For each DiTi drop station, a mounting frame is fixed on the worktable. The DiTi drop station itself can be removed for maintenance purposes by pushing it to the left and lifting it out of the frame. For each DiTi drop station, a waste bin must be placed in the waste drawer at sub-worktable level to collect the used DiTi.

Note: Do not unscrew the mounting frame of the DiTi drop station.



2. Function

2.5. MinION Control Unit

You will receive an operating manual for the compute unit with the ElysION MinION Control Unit. The Operating Manual is also available here: www.nanoporetech.com/documentation

The MinION Control Unit is an example Compute Unit sold with the ElysION that provides suitable compute requirements for operating and serving up to three MinION Mk1Ds.

The MinION Control Unit has the Sequencing Software installed, which runs the integrated MinIONs on the ElysION Sample Preparation Device worktable. The Compute Unit is connected to the ElysION Sample Preparation Device via an Ethernet cable, which allows data transfer to and from the MinIONs, enabling control and data storage of sequencing files produced. The compute also runs downstream analysis of basecalled data to provide sample-to-answer solutions using the latest bioinformatic workflows, which are integrated into the Sequencing Software.

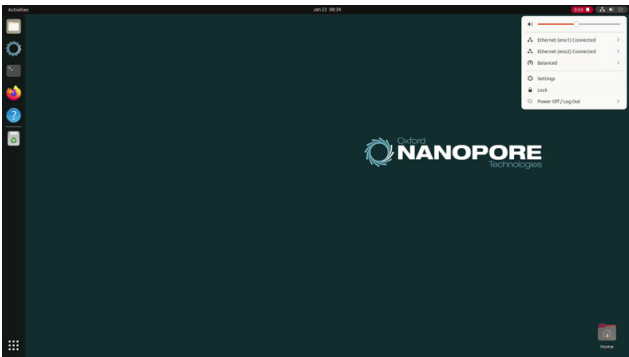
The ElysION Sample Preparation Device integrates the MinION Mk1D nanopore sequencer into the end-to-end process. The MinION Mk1D uses the MinION Control Unit and its Linux Operating System to run the Oxford Nanopore Sequencing Software. The Sequencing Software controls the MinION, while the Dorado basecaller within the Sequencing Software converts per-base current changes from the nanopore into a genetic sequence. The MinION Control Unit has 6.7 TB of data storage to save sequencing files produced during the assay.

2.5.1. Operation of your MinION Control Unit



2. Function

2.5.2. Using the MinION Control Unit

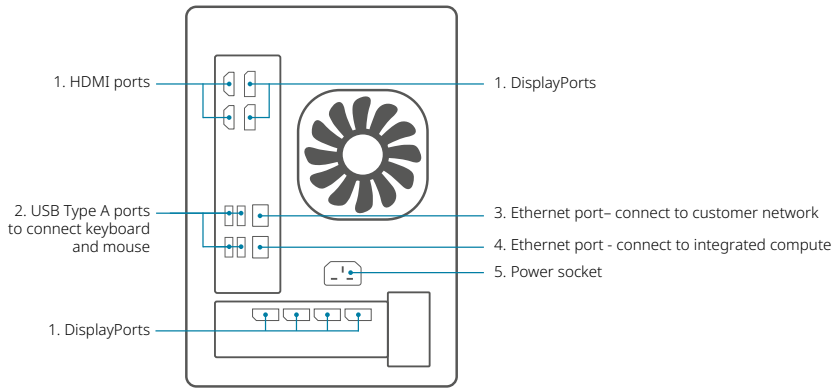


You will need a:

- Suitable power supply (see Technical Specification of the MinION Control Unit)
- Display monitor (DisplayPort or HDMI compatible)
- USB-A mouse
- USB-A keyboard
- Two Cat6 shielded Ethernet cables

2.5.3. Set up your MinION Control Unit

1. Connect your display monitor (HDMI or DisplayPort compatible) (1), keyboard (2), and mouse (2) to the correct ports as shown below.



2. Connect your first Ethernet cable (3), then connect your second Ethernet cable (4).
3. Connect your power cable to your mains power supply and to the power socket (5) on the MinION Control Unit. Turn on the mains power, as required.

2.5.4. Powering on

Press the power button on the front of the MinION Control Unit to power on the compute. Wait ~30 seconds until you arrive at a login screen.

2. Function

2.5.5. Log in

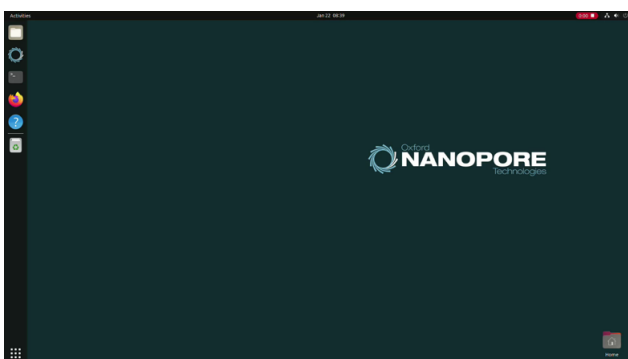
Log in to the MinION Control Unit with the

Username: **nanopore**

Password: **nanopore**

2.5.6. Powering off

1. Click on the power icon in the top right corner of the home screen.
2. Click **Power Off/Log Out** in the drop-down menu.



3. Click **Power Off**. Wait until the LED lights on the compute turn off to ensure the MinION Control Unit is fully powered off.

IMPORTANT!
EMERGENCY POWER OFF PROCEDURE:
In case of emergency, immediately disconnect the plug of the MinION Control Unit from the mains.

2.6. ElysION MinION Mk1D

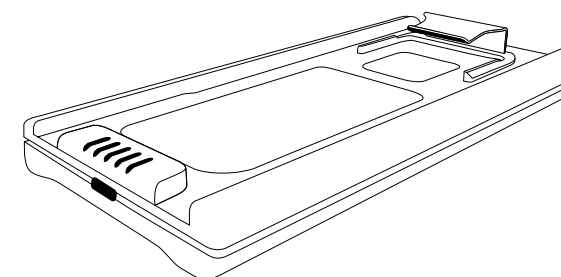
The MinION Mk1D is a single MinION Flow Cell sequencer. See the Oxford Nanopore Documentation webpage for the product information for your integrated MinION Mk1D: www.nanoporetech.com/documentation

The MinION Mk1D is the latest generation of compact nanopore sequencing devices from Oxford Nanopore Technologies. The ElysION MinION has **three MinION Mk1Ds**, serving three sequencing positions, to provide the option to run up to three individually addressable flow cells. The MinION Mk1D supports sequencing of DNA samples and is compatible with MinION Flow Cells.

Please check which compatible protocols are supported with your ElysION MinION and the corresponding consumables and reagents with your Oxford Nanopore Field Application Scientist or qualifying documentation provided on installation of your ElysION MinION.

2. Function

2.6.1. Operation of your MinION Mk1Ds



All sequencing and use instructions will be provided in the Nanopore Community documentation under the ElysION tab: www.nanoporetech.com/documentation

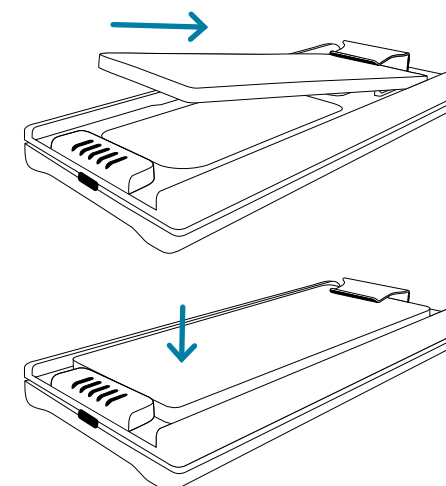
2.6.2. Position check

You are required to perform a position check on your MinION Mk1Ds using the white Configuration Test Cell, Compute Unit, and its Sequencing Software whenever the components:

- Have their software updated
- Have been moved, re-installed, or significant changes to the environment have occurred
- Have been disconnected and reconnected (between a MinION Mk1D and the Compute Unit)
- Have significant disturbance or disruption (e.g. local infrastructure, environmental, or integrity changes)

Use the following instructions to perform position checks on your MinION Flow Cell positions.

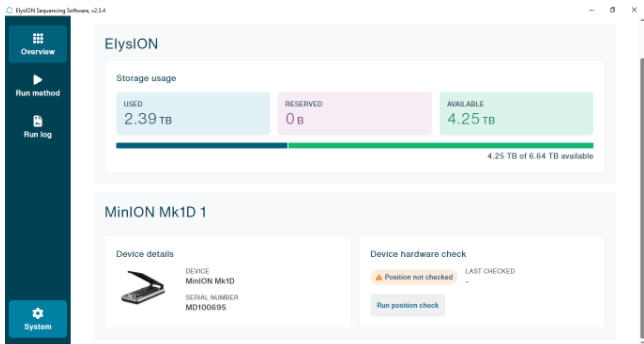
1. Insert your white Configuration Test Cells into your MinION Mk1Ds.
 - 1a. Open the ElysION MinION front safety panel door upwards.
 - 1b. Remove the MinION Flow Cell guards from your three MinION Mk1Ds.
 - 1c. Insert the white CTCs into each MinION Flow Cell position, as shown below.



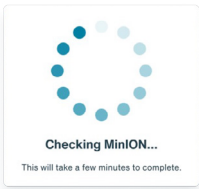
- 1d. Replace the Flow Cell guards on top of your three MinION Mk1Ds.

2. Function

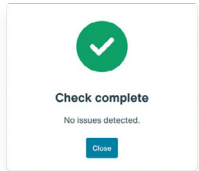
- 2. Open your Sequencing Software from the home screen.
- 3. Click **System** in the side bar on the left, then click **Device information**.
- 4. Click **Run position check** to start the position check for your flow cell position.
- 5. Click **Start check** in the pop up window.



Note: The following progress wheel indicates that the position check is underway.



- 6. A successful position check is highlighted with a tick.



- 7. If the position check fails, repeat the Position check by clicking **Run position check**.
Note: If the position check fails, contact the Oxford Nanopore Technical Support team at: support@nanoporetech.com

3. Technical information

Section 3 of this manual contains the technical instructions, specifications, and labelling needed to operate the ElysION and its components.

3.1. Label

See the figure and Table 3.1.1. on how to interpret the label.

The label is on the rear side of the ElysION Sample Preparation Device and contains the following information:

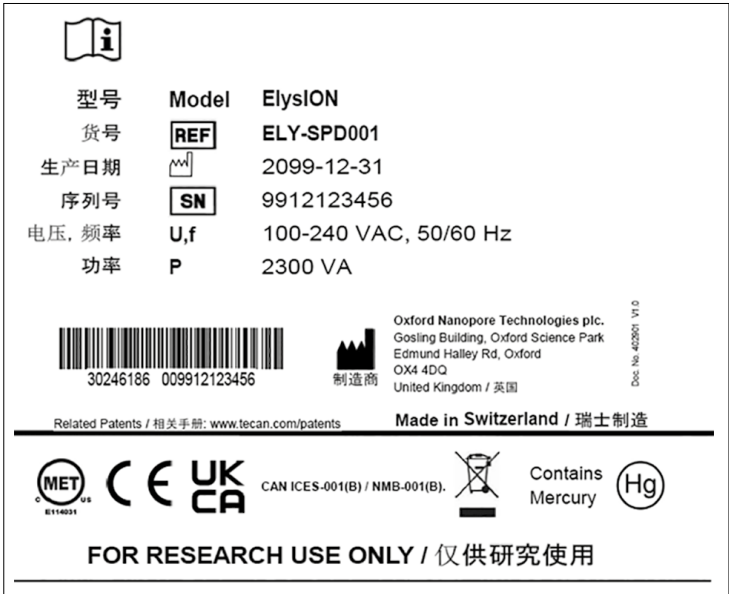
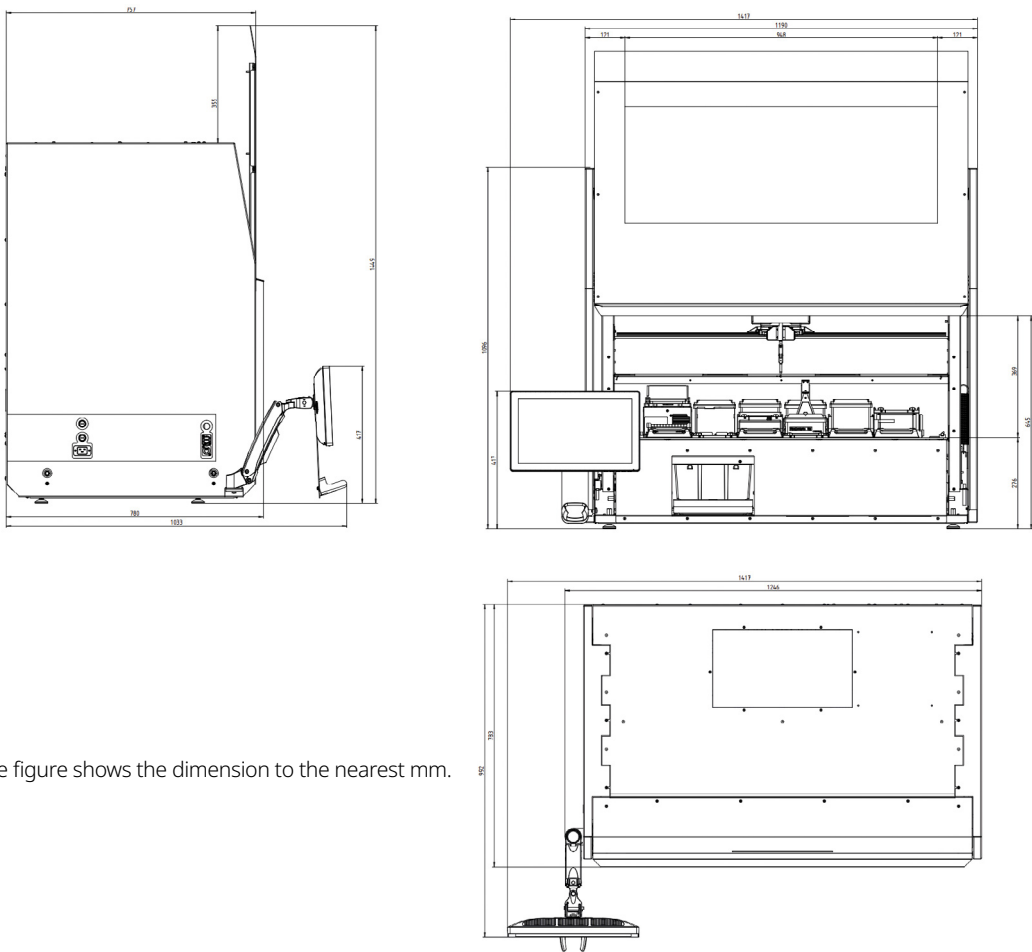


Table 3.1.1. Type plate description

Field	Model
Informing data	REF: Ordering information (material number and revision level)
	Date of manufacture (YYYYMMDD)
	SN: Serial number
Technical data	U, f: Supply voltage (Volts), frequency (Hertz)
Address data	Manufacturer's name and address
Conformity data	Conformity marking

3. Technical information

3.2. In-use dimensions and weights



Dimensions, ElysION Sample Preparation Device

Total height: 1,096 mm — with closed front safety panel

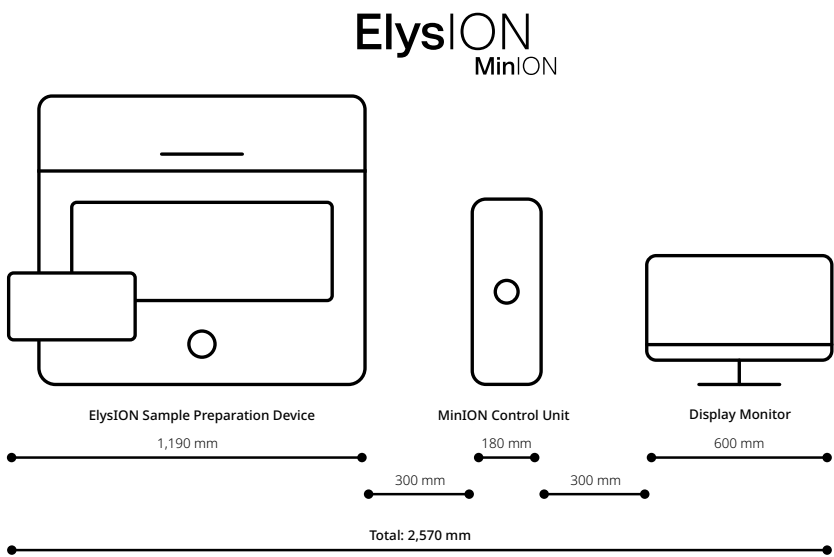
Total width: 1,190 mm — without touchscreen

Total length: 783 mm — without touchscreen

Note:

- The width increases by 332 mm with mounted, detachable carrying handles
- The total height increases by 360 mm with the front safety panel open. The total width increases by at least 227 mm with the touchscreen. The total length increases by at least 224 mm with the touchscreen.

3. Technical information



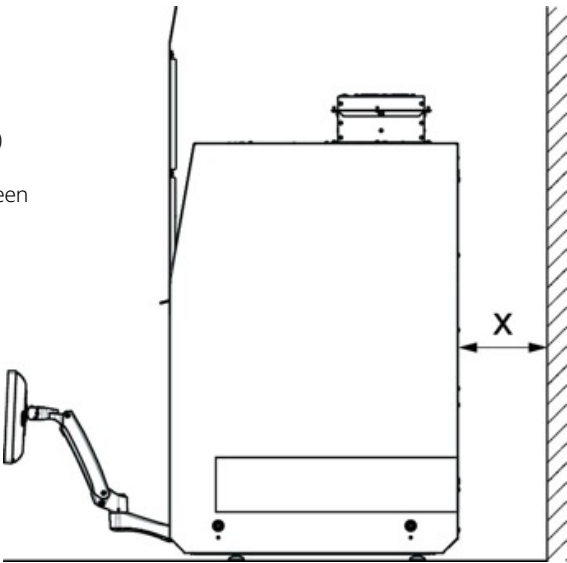
3.2.1. Ventilation requirements

Ensure you have enough space to fit the:

- MinION Control Unit*
- Display monitor (connected to your ELY-MCU01)

Ensure 300 mm ventilation space is adhered to between the ElysION MinION and the MinION Control Unit.

*Minimum clearance (X – see figure) between instrument back and wall: 300 mm.



Component	Dimensions	Weight
ElysION Sample Preparation Device	Length (l) x width (w) x height (h) 783 x 1,190 x 1,096 mm	243 kg
ElysION Sample Preparation Device + ventilation gap + MinION Control Unit + ventilation gap + standard display monitor	Width of bench (additive end-to-end + spacing needs) 1,190 + 300 + 180 + 300 + 600 = 2,570 mm	251 kg (+ display monitor)

3. Technical information

3.3. Additional specifications for your ElysION Sample Preparation Device

3.3.1. Cable specifications

- **USB-C:** The USB cable must be rated 0.5 A or higher. The cable must not be longer than three meters.
- **RJ45:** The Ethernet cable must not be powered. The cable must be Cat6, shielded, and not be longer than 30 meters.

3.3.2. Storage and transport conditions

Environmental type	Environmental range
Transport temperature	–20°C to +60°C
Storage temperature	+1°C to +60°C
Operating temperature	+20°C to +27°C
Operating humidity	+30% to +60% relative (non-condensing)
Transport humidity	+20% to +80% relative (non-condensing)

Note: Do not install the ElysION and its components until the device modules have adjusted to room temperature, to avoid condensation that may damage electronics.

3.3.3. Noise emission

≤80 dBA (sound pressure), measured at 1 m from the instrument.

3.3.4. IT and software requirements

ElysION is compatible with the following ElysION software packages:

- Sequencing Software
- BotQL

IMPORTANT

DO NOT update your software from the Oxford Nanopore Software Downloads page. ONLY Oxford Nanopore or your Nanopore Distributor will perform updates at your site once agreed with your regional FAS by email.

3. Technical information

3.4. Component specifications in your ElysION Sample Preparation Device

3.4.1. Communication

Location	Type and rate
Internal communication	CAN2* 500 kb/s CAN1* 100 kb/s
To host	USB
Integrated modules communication	USB, COM, Ethernet

*Proprietary protocol

3.4.2. ARP pipetting precision

Volume	Coefficient of Variation (CV)
1 µl	≤5%
200 µl	≤2%
1,000 µl	≤2%

3.4.3. Maximum load weight

Gripper type	Load weight
DiTi XCG-1	400 g

3.4.4. Software and programming

Type	Operating system
Required OS	Windows 10
Offered	Windows 10

3. Technical information

Module	Description
UVC light	UVC emitting lamp for decontamination of the inside of the instrument housing and work deck.
Integrated computer	The integrated computer option enables connectivity of the ElysION. Including an MS Windows Operating System, network port, and USB ports, this option is equipped with the application software to operate the instrument.
Touchscreen	The optional touchscreen is an extension of the integrated computer and enables user interaction over the height adjustable touchscreen.
Inheco Thermoshake AC	Compact 'all-in-one' heating, cooling, and shaking solution with automated clamping for robotic integration.
Inheco CPAC	Compact cold plate air cooled heater/cooler.
Inheco on-deck thermal cycler	The ODTC is designed for use as an integrated thermal cycler in automated liquid handling workstations to heat and cool labware with biological or chemical samples.

3.5. MinION Control Unit

You can find the technical specification of the MinION Control Unit in the MinION Control Unit Operating Manual in the Oxford Nanopore Documentation.

Oxford Nanopore Documentation: www.nanoporetech.com/documentation

3.6. MinION Mk1D

You can find the technical specification of the MinION Mk1D in its quick start guide shipped with the MinION Mk1Ds and can be found at: www.nanoporetech.com/documentation

You can find dimensions and other measurements for MinION Mk1D at the end of this section.

3. Technical information

3.7. Technical specifications for ElysION MinION

Specifications	ElysION Sample Preparation Device	ElysION MinION Control Unit	ElysION MinION Mk1D
Model number	ELY-SPD001	ELY-MCU01	MIN-101D-ELY
Supply voltage (V)	200–240 AC ± 10% (50/60 Hz)	100–240 AC ± 10% (50–60 Hz)	5 DC
Maximum rated current (A)	10	10	1.5
Maximum rated power (W)	2,300	750	7.5
Size (H x W x D) (mm)	1,096 (1,428 with door open) x 1,190 x 783	300 x 180 x 340	13 x 55 x 125
Weight (g)	243,000	9,000	130
Installation ports	1 x Power socket 1 x Ethernet port 1 x USB-C 3.0 port	1 x Power socket 2 x HDMI port 6 x DisplayPort 2 x Ethernet port 4 x USB-A 2.0 port 1 x USB-C 3.0 port	1 x USB-C 3.0 port
Software installed	Windows 10	Ubuntu 24.04	MinION driver
Compute specification	1 x Intel CPU 16 GB RAM 500 GB SSD storage	1 x Intel CPU (12 cores) 64 GB DDR4 1 x NVIDIA RTX A6000 48 GB 7.6 TB SSD (6.7 TB of data storage)	N/A

3. Technical information

Specifications	ElysION Sample Preparation Device	ElysION MinION Control Unit	ElysION MinION Mk1D
Environmentals			
Operational environment temperature range	Designed to sequence in environmental temperatures of +20°C to +27°C	Functional range of electronics is within environmental temperatures of +5°C to +40°C	Functional range of electronics is within environmental temperatures of +5°C to +40°C
Humidity	Use within 30% to 60% relative non-condensing humidity limits	Use within 30% to 75% relative non-condensing humidity limits	Use within 30% to 75% relative non-condensing humidity limits
Sequencing temperature	Designed to sequence in environmental temperatures of +20°C to +27°C	N/A	Designed to sequence in environmental temperatures of +10°C to +35°C
Clearance	The user should maintain 100 mm clearance to all but the bottom face of the device	The user should maintain 300 mm clearance to all but the bottom face of the device	The user should maintain 300 mm clearance to all but the bottom face of the device
Altitude range	Can be used up to altitudes of 2,000 m	Can be used up to altitudes of 2,000 m	Can be used up to altitudes of 2,000 m
Indoor use	Intended for indoor use	Intended for indoor use	Intended for indoor use
Pollution	The device has a Pollution Degree 2	The device has a Pollution Degree 2	The device has a Pollution Degree 2
Overvoltage	This has an Overvoltage 2 Category	This has an Overvoltage 2 Category	This has an Overvoltage 2 Category

4. Safety

The ElysION components (i.e. the liquid handler, compute, and sequencing device) are a safety hazard under all circumstances. The safety measures can prevent death or injury to personnel or damage to the equipment and must be adhered to strictly and at all times. Refrain from using damaged equipment.

The safety information for your ElysION MinION is in this section (Section 4) of this document. Advice to use your ElysION Sample Preparation Device, the MinION Control Unit, and the MinION Mk1Ds are in or referenced in this section.

4.1. General safety

All general safety disclaimers around ElysION MinION use and the symbols used to signal how you are advised to be safe when using the ElysION MinION are provided in 4.1. General safety.

4.1.1. Safety messages

Signal word	Description
 DANGER	Indicates a hazardous situation that, if not avoided, will result in death or serious injury. It is important not to proceed until all stated conditions are met and clearly understood.
 WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury. It is important not to proceed until all stated conditions are met and clearly understood.
 CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. It is important not to proceed until all stated conditions are met and clearly understood.
 NOTICE	Indicates a situation that is not hazard-related but, if not avoided, could result in damage to or malfunctioning of the equipment, or the incorrect processing of results.

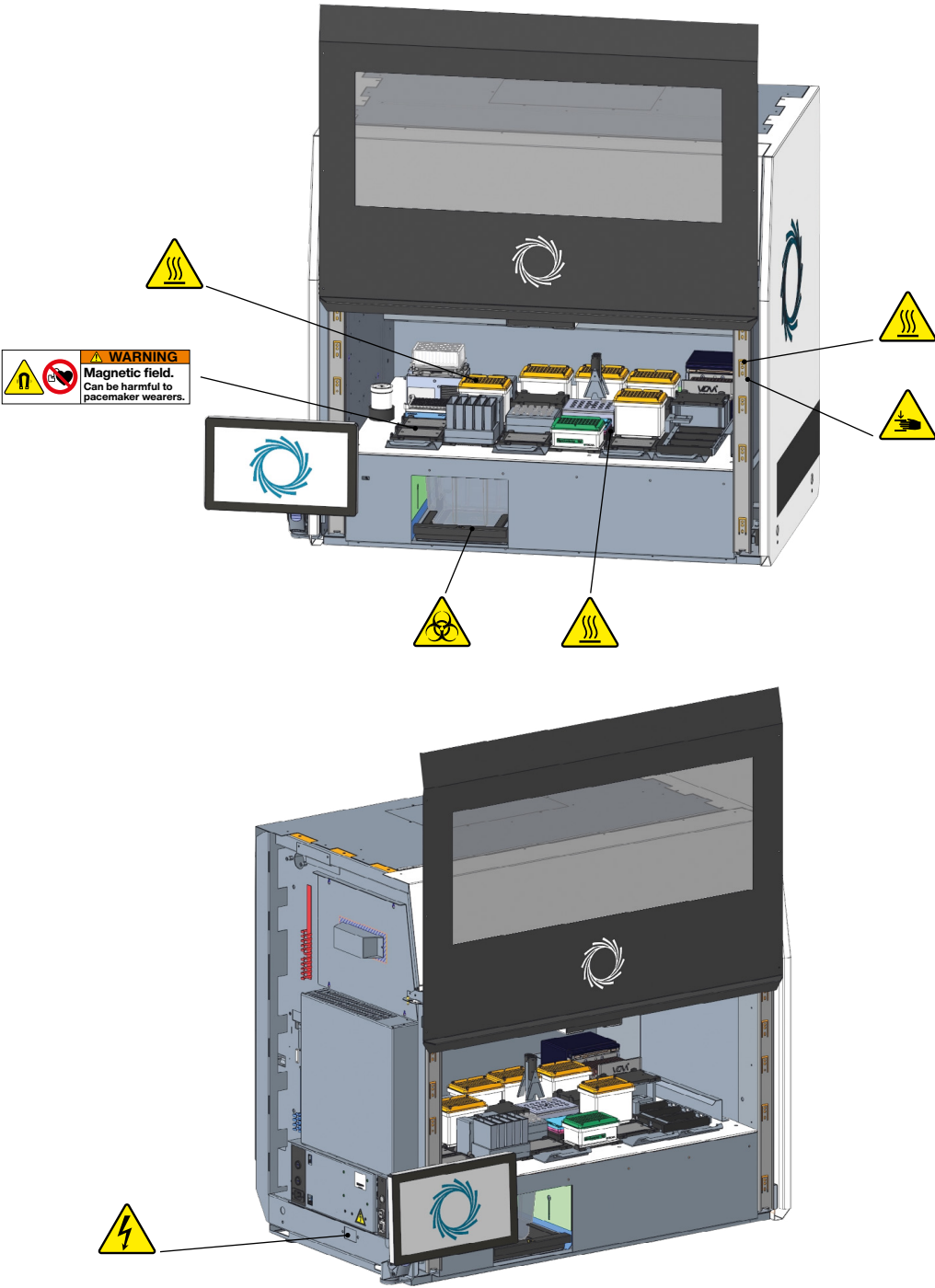
4.1.2. Safety symbols

Symbol	Description
	General warning
	Biohazard
	Magnetic field
	Electrical shock
	Crushing hazard
	Hot surfaces

➔ Refer also to the safety symbols in the Reference documents (refer to 'Reference documents').

4. Safety

Safety symbols on your ElysION



4. Safety

4.1.3. Product safety signs

➔ Safety signs are fixed to the ElysION MinION for safety. Damaged, lost, or illegible safety signs must be replaced immediately. For safety symbols, refer to the ‘Safety messages’ section of this manual.

Icon	Location	Message
	Thermoshake ODTC Inheco CPAC carrier	Temperature hazard Surfaces can reach high temperatures. Use caution before touching the surface.
	ODTC	Crushing hands warning Hazard to hands if you reach into the worktable while instrument components are moving.
	Waste drawer	Biohazard Hazard by opening the waste slide. Use gloves to remove the waste container. Avoid skin and eye contact after touching contaminated waste.
	Power supply	Electrical shock Potential hazard of electrical shock from compromising the power supply. Do not remove the instrument side panel nor open the power supply.
	Side of the Alpaqua MAGNUM FLX plate and on the worktable next to the Alpaqua plate	Magnetic field hazard Magnetic fields can interfere with the proper functioning of cardiac pacemakers or surgically implanted medical devices. People entering magnetic fields should be carefully screened and should stay at least 300 mm away from the device. Furthermore, these individuals should not move the magnetic plate and may be prohibited from accessing the device. Keep tools and objects that could be damaged by the magnetic field out of the working area. Avoid contact between two magnets. If contact is made, avoid pulling magnets apart. Twist magnets apart to prevent damage to unit and fingers.

4.1.4. Flammable liquids

Maximum allowed volumes for various flammable liquids if used alone.

To mitigate the risk of fire, the volumes of flammable liquids present at any time inside the instrument shall not exceed the volumes as provided in Table 4.1.4.

The volumes below are only applicable if only a single liquid type is used. If multiple liquid types are used, the cumulative volume of all flammable liquids needs to be considered.

Example: if 15 ml of toluene are used (= 51.4% of allowance), only 29.6 ml of methanol can be used at the same time (= 48.6% of remaining allowance).

The recent IEC 61010-1 standard stipulates to limit the maximum volumes of flammable liquids. The maximum volumes defined in Table 4.1.4. are considered safe for use in ElysION workflow settings. The volumes have been determined to stay below the lower explosive limit of the formed gas mixture inside the instrument in the event of a liquid spill followed by complete evaporation.

4. Safety

IMPORTANT!

Any amount exceeding table in 4.1.4. significantly increases the risk of fire and should not be used, processed, or stored within the instrument.

Table 4.1.4. Maximum allowed volumes for various flammable liquids if used alone

Flammable liquids	Maximum volume (ml)
Toluene	29.2
THF	31.3
DMSO	31.8
n-Hexane	31.9
Acetonitrile	38.4
Isopropanol	38.4
Ethanol	45.1
Acetone	46.2
Methanol	60.9
Dichloromethane	204.1

4.1.4.1. Restrictions

Operator compliance: Operators must strictly adhere to the specified volume limit. Under no circumstance should an operator place or handle a volume of flammable liquid greater than those in Table 4.1.4.

Monitoring and enforcement: It is the responsibility of the Safety Officer to regularly monitor the handling of flammable liquid and ensure compliance with these guidelines.

4.2. User training

The work described in this operating manual must only be performed by authorised personnel with the qualifications prescribed below.

All personnel in contact with the ElysION MinION are adequately trained in:

- Method and process validation
- Defining the processes in compliance with the Standard Operating Procedures
- Ensuring that all personnel in contact with the ElysION MinION are adequately trained
- Appropriate protective clothing and equipment
- Maintenance and safe operation of the ElysION MinION
- Laboratory safety regulations and directives

Laboratory personnel must:

- Have suitable technical training
- Be familiar with the laboratory safety regulations and directives
- Be familiar with the instructions for the safety elements of the instrument

4. Safety

- Use protective clothing and equipment
 - Be familiar with and adhere to good laboratory practices
 - Have read and understood the instructions in the operating manual
- ➔ Oxford Nanopore Technologies plc recommends that the operator attends an operator training course. Refer to section 'Customer support'.

Operator

The operator (lab technician) works as a customer in the end-user lab.

Required skills include:

- Command of English

The operator has application software access to run methods and perform system checks.

Key operator

The key operator (application specialist) supports or works for your company.

Required skills include:

- Extensive application knowledge
- Limited system knowledge
- Command of local languages
- Command of English
- In-depth knowledge of the corresponding software manual

Responsibilities include:

- Instructing the operator
- Writing, running, and validating methods
- Helping the operator to solve problems with the instrument

The key operator has application software access to run methods and perform system checks.

Note: Your FAS/FSE will perform the Installation Qualification and Operational Qualification (IQOQ) to ensure the ElysION MinION is accurate and safe to use before use by laboratory personnel, the operator and/or the key operator.

4.3. Safety information – ElysION Sample Preparation Device (ELY-SPD001)

The ElysION Sample Preparation Device is manufactured as state-of-the-art technology, adhering to recognised safety regulations. Nevertheless, risks can arise if the ElysION Sample Preparation Device is not used with care and attention.

Safety information is provided to ensure safety when using the ElysION Sample Preparation Device and the risk of danger is adequately reduced. This operating manual must be available to anyone using the ElysION Sample Preparation Device to perform the tasks in this document at all times.

Pay special attention to the following information.

4. Safety

4.3.1. General

⚠ WARNING

Legal regulations, such as local, state, and federal laws concerning the use or application, as well as the handling of dangerous materials in connection with the ElysION Sample Preparation Device must be strictly followed.

Your organisation is responsible for defining instructions and procedures that satisfy local legal requirements. The instructions provided by Oxford Nanopore Technologies plc must be strictly adhered to.

4.3.2. Important disclaimers

IMPORTANT – USE PROCEDURE

CHEMICAL AND BIOLOGICAL HAZARDS: The ElysION Sample Preparation Device will contain biological and chemical hazards. You should perform risk assessments before use of the device. Consult the safety data sheet before use of the expansions and sequencing kit.

ELECTRICAL HAZARDS: In case of emergency, immediately disconnect the plug of the MinION Control Unit from the mains.

4.3.3. English safety disclaimers

The mains power input of the ElysION Sample Preparation Device is protected by two 15 A fuses.

Only use the bundled power cable set with this product, which is rated 15 A or higher. Do not use the bundled power cable set with other products. The ElysION must be connected to a grounded power source using an approved power cable with grounding conductor. Always use a power cable rated 15 A or higher.

4.3.4. Japanese safety disclaimer

「製品には、同梱された電源コードセットを使用すること」及び「同梱された電源コードセットは、他の製品に使用しないこと」

4.3.5. Photobiological safety of lamps and lamp system

The device is tested according to Photobiology IEC 62471-1 standard.

4.3.6. Electromagnetic Compatibility (EMC)

The device complies with the emission and immunity requirements described in IEC 61326-1, FCC Part 15 and CISPR 11 Class A standard. However, the electromagnetic environment should be evaluated prior to the operation of the device. It is the operator's responsibility to ensure that a compatible electromagnetic environment for the device can be maintained so that the device performs as intended.

IC Compliance

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. «CAN ICES-001(B) / NMB-001(B)»

This equipment is designed for use in a basic electromagnetic environment. It is likely to perform incorrectly if used in an industrial electromagnetic environment. If it is suspected that performance is affected by electromagnetic interference, correct operation may be restored by increasing the distance between the equipment and the source of the interference.

Do not operate the device in close proximity to RF sources (e.g., unshielded intentional RF sources), as these can interfere with the proper operation. Keep magnetic sources (e.g. NFC, RFID) at least 100 mm away from the device.

➔ Refer to 'Dimensions and weights'

4. Safety

4.3.7. Safe use

4.3.7.1. Installation, operation, and maintenance

Ensure the correct transport, storage and operation environmental conditions for the ElysION MinION.

Do not attempt to move the ElysION MinION once installed. Moving the ElysION MinION must be done by a trained Field Service Engineer (FSE).

You are responsible for ensuring that ElysION MinION is operated in the correct conditions, and that maintenance, service, and repair tasks are performed with care, on schedule, and only by authorised and trained personnel.

After system care or maintenance, operation may only be resumed after the correct set up and operating conditions (e.g. removing all labware from the ElysION, performing the ElysION initialisation and the sequencing device position check) are confirmed.

Only use recommended consumables and original spare parts for maintenance or repair to ensure good performance.

The ElysION MinION must be installed as per the installation and clearance dimensions in this document to ensure the front safety panel will not collide and damage surrounding infrastructure when fully opened.

Be careful when closing the front safety panel. Keep your fingers away from the lower rail of the panel to prevent fingers from being injured.

Ensure the ElysION access door and front safety panel are closed when the device is in operation.

Do not insert any part of the body into the device while it is in operation under any circumstance.

Ensure empty waste bin(s) are in the waste drawer prior to use.

Remove all labware from the worktable before initialisation, including grippers or tips attached to the pipette channels. Grippers must be on the gripper mount before initialising.

To transport labware, allow access to the grip-point on the labware by the carriers' fingers. Ensure the arm can move freely and will not collide with any obstacles before initialisation.

Use approved cleaning agents only.

➔ Refer to 'Cleaning agents'

4.3.8. Performance

Spin down sample plates and reagent tubes to ensure proper volume detection. Sample and reagents must be at the bottom of the containing vessel as a single aliquot to avoid mis-detection.

Ensure your sample(s) or reagent(s) are not covered (e.g. lids, barriers, etc.) when on the device.

Note: DNA barcodes containing plates are sealed with pierceable foil to limit contamination.

Do not apply force to the Channel Arm. The arm is automatic and should not be operated manually. Do not apply force to the arm while it is powered.

Interference between the plate magnet and the magnets in the gripper may alter sample treatment.

Incompatible labware may cause the device, pipette arm, or labware to break during transport by the grippers.

The user is responsible for ensuring that the correct DiTi size is placed in the correct deck location as described in the software. Placement of the incorrectly sized DiTi on the worktable may result in liquid aspiration into pipette body, potentially causing irreparable damage to the channel. Suboptimal sample preparation can result from pipetting errors.

4. Safety

The ElysION Sample Preparation Device must be on a workbench that supports at least 250 kg and with minimum dimensions of 1,200 mm wide by 790 mm deep. The workbench must be 800–1,000 mm tall. The workbench must also provide a minimum clearance of 100 mm from the rear of the instrument, 355 mm from the top of the instrument, and 100 mm from the front of the instrument.

Waste bin(s) may overflow and cause collision with the XCA. Used DiTs may be contaminated with biohazardous material and may contaminate your work area.

Labware must only be located in positions specified on the ElysION MinION software on the touchscreen. Failure to do so may lead to mishandling, damage and liquid spilling.

Metal (ferrous) objects, when moved, risk becoming stuck to the magnet in the ElysION MinION. The magnet or labware may be prevented from staying stable, liquid handling, or moving without colliding with the pipette arm.

Sample contamination may occur when using the Thermoshake Air Conditioning (AC); the plate type must be selected for the application. If the plate type is incompatible with the Thermoshake (i.e. not ANSI/SLAS compliant), or the shaking speed is not set according to the specification, this will cause risks of liquid spillages and/or damage to the shaker.

Assays may be degraded by the UVC light. Evaluate the impact of the UVC light on chemicals and labware intended for use.

When using the ElysION compute, data loss due to a hard drive failure is a risk. Back up your data regularly.

4.3.9. Emergencies and hazards: chemical, biological, physical, and mechanical

Structural changes to the ElysION MinION are forbidden.

Any damaged protective safety mechanism (such as the door lock or its sensors) must be replaced immediately as described in this manual. For example, the liquid handler door, any sensors, electrical connections, or anything mentioned in this manual that could cause a hazard should be replaced immediately (e.g. stop the use of the platform and do not use until fixed/replaced/serviced).

Fire hazards can be caused by the improper use of the ElysION MinION. The ElysION MinION should not be installed in locations where there is an explosion hazard.

Chemical, biological, and radioactive hazards can occur from the substances, the samples, and/or reagents processed by the ElysION MinION. This applies to waste disposal of these materials and substances. Always be aware of hazards from these materials and substances.

Use appropriate personal protective equipment (PPE) such as laboratory coats, safety goggles, and gloves.

Contact your FAS if the ARP pump on the ElysION Sample Preparation Device is radiating heat.

The ElysION MinION is not a Biosafety Cabinet (BSC). All samples must be inactivated and not present a biohazard risk.

Substance handling and waste disposal may be subject to local, state, and federal law, or to regulations regarding health, environment, or safety. Observe these corresponding regulations strictly.

Contamination must be dealt with immediately as described in this manual.

There is a risk of burns when touching the heating elements of Thermoshake, CPAC, and Thermocycler modules, even after the device is shut down. If contact with the device is required, allow sufficient time for the heating elements to adjust to room temperature.

Do not activate heating of the plate heater/cooler in the integrated software when the cooling block is mounted.

4. Safety

The ElysION MinION magnetic plate contains strong neodymium magnets; these can be harmful to people with pacemakers and/or other medical implants (such as implantable cardioverter defibrillators, insulin pumps, or similar devices). These individuals must stay at least 300 mm away from the ElysION MinION and its components.

Keep tools and other metal objects away. Failure to follow this warning can result in serious injury.

In case of an emergency, immediately disconnect the mains plug of the power supply unit from the mains power.

Ensure access to the mains power supply and the connected ElysION MinION component plug(s).

Ensure any cables that are to be plugged into the device(s) are not stretched. Taut cables pose electrical and physical risks.

Only use the bundled power cable shipped with the ElysION MinION. Do not use any cables other than the ones provided with the ElysION MinION.

Do not use the bundled power cables sent with other products.

Do not use any detachable mains cable with inadequate power ratings for the mains power supply to the ElysION MinION.

Do not reach into the 'disposable area' lid when opening or closing to avoid injuring fingers.

There is a risk of injuring fingers when the magnet plate contacts other magnetic plates, magnets, or metal objects. These can result in a collision risk or inhibited liquid handling accuracy.

You risk injuring fingers when opening and closing the ElysION MinION door. The ElysION MinION should only be used by one person at a time, and the door should be closed using both hands outside the ElysION MinION.

You risk injuring fingers when opening and closing the waste drawer. The ElysION MinION should only be operated by one user at a time, and the waste drawer should only be opened and closed using both hands.

Your deck layout and use of the UVC light will affect the UVC light decontamination efficiency. Decontamination efficiency needs validating for applications. The UV lamp at 60% of irradiation duration (for a new lamp) will simulate the end-of-life of the UV lamp's decontamination efficiency.

For California residents only: This product can expose you to chemicals such as lead which is known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to: www.P65Warnings.ca.gov/product

4.4. Decontamination declaration

In addition to regular system care and in accordance with standard laboratory regulations, the ElysION MinION, its parts, and its accessories must be thoroughly decontaminated in the following circumstances:

- Before maintenance or service work is performed on the device and before an FSE works with the device
- In the event of an accident (e.g. crash, spillage, etc.)
- Before returning the device, its parts, or accessories, to Oxford Nanopore Technologies and/or Tecan (e.g. for repair)
- Prior to storage of the ElysION (e.g. temporarily out of use) at your end-use laboratory
- Prior to disposal of the ElysION (e.g. out of service) from your end-use laboratory
- Before moving the device or its parts from its location

The owner of the instrument has full responsibility to decontaminate the equipment.

4. Safety

Before any intervention on the device by an FSE, and before returning the ElysION MinION, its parts, or its accessories to Oxford Nanopore Technologies, you (or the owner) must complete and sign the Decontamination Declaration form, confirming that the decontamination has been performed in accordance with good laboratory practice. To obtain this form and refer to section 'Decontamination', see the Tecan Decontamination Declaration here: www.tecan.com/knowledge-portal/certificate-of-decontamination

4.4.1. Returns, recycling, and disposal

 For more information, see the section 'Transport, storage, and disposal'.

Before returning devices, fully decontaminate the devices and/or flow cells so they do not present any health risk to Oxford Nanopore staff.

Collect and dispose of used plasticware, such as reagents, tubes, and pipette tips, properly in accordance with local waste regulations and laboratory procedures.

Do not mix the flow cell buffer, the sample preparation kit buffers, and wash kit buffers in ways other than those stated in the user protocols, and keep them away from strong acids, alkalis, and oxidisers.

Dispose of the flow cell buffer, wash kit buffers, and sample preparation kit buffers according to the local waste regulations.

The Terms and Conditions for the use of an Oxford Nanopore Technologies plc device stipulate any flow cells that have been used with, or otherwise been in contact with, materials or agents above ACDP hazard group 2 and/or handled within CL3 or above laboratories must not be returned. The sequencing device shall be decontaminated before decommissioning, and all local regulations for electronic and electrical waste shall be followed regarding disposal of the components if they are not being returned to Oxford Nanopore Technologies plc.

Decontaminate the device before decommissioning and follow all local regulations for electronic and electrical waste regarding disposal of the components if they are not being returned to Oxford Nanopore Technologies.

Visit: www.nanoporetech.com/support/customer-support/flow-cell-and-devices-returns/flow-cell-returns for information on how to return your used flow cells.

When returning devices to Oxford Nanopore Technologies, visit:

www.nanoporetech.com/support/customer-support/flow-cell-and-devices-returns/device-returns and follow the instructions provided.

 Tecan and Oxford Nanopore Technologies reserve the right to refuse to deal with any device, its parts, or its accessories that is not accompanied by the Decontamination Declaration form.

4. Safety

4.5. Safety information – MinION Control Unit (ELY-MCU01)

The ElysION MinION Control Unit is a small compute for sequence data acquisition, basecalling, and interpretive analysis.

This equipment is to be used by **trained and authorised personnel only**.

This equipment is not intended for use in locations where children are likely to be present.

This equipment is not to be opened or tampered with, unless by authorised and trained engineers.

Opening the equipment can expose components which pose burn risks, and fans which pose physical risks and can lead to serious injury. Do not open the equipment unless you are an authorised and trained engineer.

This equipment contains no user serviceable parts; do not attempt to service the unit.
Contact Oxford Nanopore Technologies Support at: support@nanoporetech.com

The equipment is to be used in the vertical position only.

Only use the cable supplied, or a suitable approved and rated power cable.

The equipment's power cable must be connected to a grounded power supply that has a reliable earth connection.

4.5.1. Nordic safety disclaimers

Denmark: 'Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord'

Finland: 'Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan'

Norway: 'Apparatet må tilkoples jordet stikkontakt'

Sweden: 'Apparaten skall anslutas till jordat uttag'

IMPORTANT
EMERGENCY POWER OFF PROCEDURE:
In case of emergency, immediately disconnect the plug of the MinION Control Unit from the mains.

4.6. Safety information – MinION Mk1D

The MinION Mk1D has specific safety and regulatory disclaimers in a safety and regulatory information document available here: community.nanoporetech.com/to/safety

5. Maintenance and repair

IMPORTANT!
TURN OFF THE ELYSION MINION (ALL COMPONENTS) BEFORE
ANY MAINTENANCE OR REPAIR (E.G. DECONTAMINATION).

5.1. Decontamination

➔ Decontamination, according to standard laboratory regulations, is required under the circumstances listed in section 'Decontamination Declaration'.

⚠ WARNING

5.1.1. Contamination

Ensure the waste bins are emptied before the end of each day the ElysION Sample Preparation Device is used to avoid waste exposure overnight.

Substance residues on the ElysION can cause personal injury and affect the integrity of the ElysION MinION.

Decontaminate the ElysION MinION, its components, and accessories before resuming operation of the ElysION MinION.

The decontamination method must be defined by the key operator based on the type of contaminant and level of contamination. Guidance on decontamination agents and application modes is provided in this section.

5.1.2. Cleaning agents

Special cleaning agents are required to care for the ElysION MinION. All the recommended cleaning agents have been carefully selected and tested.

NOTICE

There is no guarantee for the effectiveness of cleaning agents and chemical compatibility if other cleaning agents than those recommended are used.

- Only use cleaning agents recommended by Tecan and Oxford Nanopore Technologies plc.
- Cleaning agents are defined for each specific use in the system care tables. Do not use cleaning agents if not specified for a specific task.

The following table specifies the cleaning agents referred to in this manual:

Cleaning agent	Specification
DI water	Distilled or deionised water
Alcohol	70% ethanol or 100% isopropanol (2-propanol)
Weak detergent	Liqui-Nox
Disinfectant	Bacillol plus, Bomix, Lysetol FF
System liquid	Distilled or deionised water
Base	0.025–0.25 mol/l NaOH
Bleach	6% sodium hypochlorite
RNase Away Decontamination Reagent	Alkali hydroxide <0.1%

5. Maintenance and repair

5.2. Maintenance schedule

Perform the maintenance and cleaning as recommended for optimum performance and reliability.

5.2.1. Daily maintenance

The following preventive maintenance tasks must be performed at the end of each day:

Component	Task	Reference
Waste bin	Empty and decontaminate waste bin with 70% ethanol or replace the waste bin with a new one	➔ Refer to section 'Cleaning the DiTi drop station and the waste drawer'

Note: ensure the waste bins are emptied before the end of each day the ElysION Sample Preparation Device is used to avoid waste exposure overnight.

5.2.2. Weekly maintenance

The following preventive maintenance tasks must be performed at the end of each week:

Component	Task	Reference
XEBU	Clean the waste drawer	➔ Refer to section 'Cleaning agents'
	Rinse the DiTi drop station with 70% ethanol	➔ Refer to section 'Cleaning the DiTi drop station and the waste drawer'
	Clean the touchscreen with 70% ethanol	➔ Refer to section 'Cleaning agents'

5.2.3. Monthly maintenance

The following preventive maintenance tasks must be performed at the end of each month:

Component	Task	Reference
XEBU	Clean the waste drawer	➔ Refer to section 'Cleaning agents'
	Rinse the DiTi drop station with 70% ethanol	➔ Refer to section 'Cleaning the DiTi drop station and the waste drawer'
	Clean the touchscreen with 70% ethanol	➔ Refer to section 'Cleaning agents'
	Clean the UVC light with 70% ethanol using a lint-free, non-abrasive tissue	➔ Refer to section 'Cleaning agents'
XCA	Clean the arm housing with 70% ethanol	➔ Refer to the section 'Cleaning the XCA'
ARP	Clean the pipetting unit housing with 70% ethanol	➔ Refer to the section 'Cleaning the ARP'
DiTi adapter	Check that the adapter is firmly screwed into the cLLD isolation block	➔ Refer to the section 'DiTi Cone'
XCG	Clean with 70% ethanol	➔ Refer to the section 'Cleaning the XCG'

5. Maintenance and repair

5.2.4. Biannual maintenance

The following preventive maintenance tasks must be performed every six months or whenever appropriate software prompt occurs:

Component	Task	Reference
Dehumidifier	Exchange	➔ Refer to section 'Dehumidifier'

5.2.5. Five-year maintenance

The following preventive maintenance tasks must be performed every five years or after 20,000 gripper pick-ups (whichever comes first). The integrated software will notify you when it has passed 20,000 gripper pick-ups.

Component	Task	Reference
XCG	Exchange the gripper	➔ Refer to section 'Replacing the Gripper'

5.3. Maintenance tasks

5.3.1. Cleaning the XCA

Gently wipe the XCA with a lint-free tissue impregnated with 70% ethanol in deionised water.

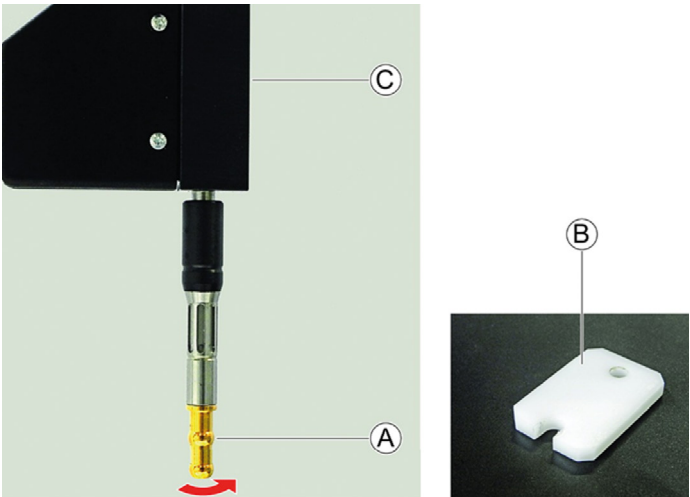
5.3.2. Cleaning the ARP

Gently wipe the pipetting unit housing of the ARP with a lint-free tissue impregnated with 70% ethanol in deionised water.

5.3.3. Check the DiTi cone

Note: Handle the DiTi cone with great care. Avoid any contact between cones and metal parts.

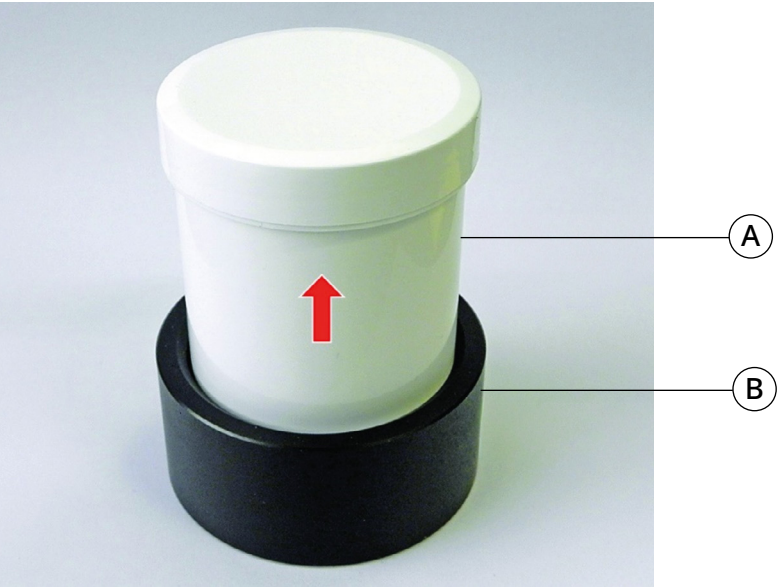
1. Check that the DiTi cone is tightly screwed on and there is no visible gap between the cone and the adapter.
2. If needed, screw the DiTi cone (A) with the wrench (B) while holding the cLLD insulation block (C).



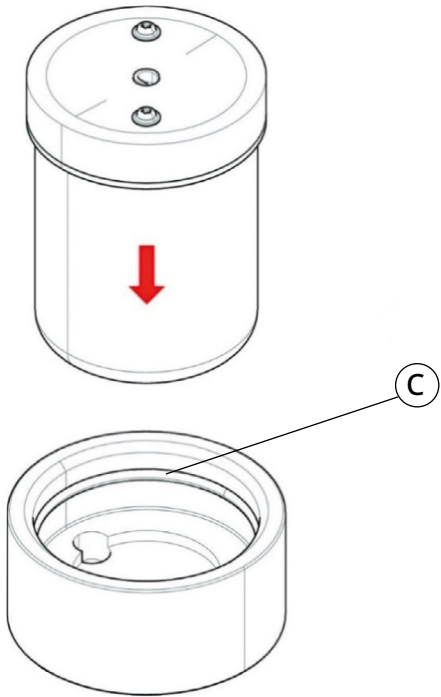
5. Maintenance and repair

5.3.4. Exchanging the dehumidifier

1. Pull the dehumidifier (A) straight out of its support (B).



2. Remove any dirt present and ensure that the cap of the new dehumidifier cartridge is closed tightly.
3. Ensure that the O-ring (C) is correctly placed in the support groove, then insert the new dehumidifier into its support.



5. Maintenance and repair

5.3.5. Cleaning the XCG

Gently wipe the XCG with a lint-free tissue dosed with 70% ethanol (in deionised water).

Note: Do not soak the tissue or XCG with the cleaning agent.

5.3.6. Replacing the gripper

1. Remove the grippers from the XCG station.
2. Install the replacement grippers onto the XCG station, ensuring they are seated correctly.

5.3.7. Cleaning the DiTi drop station and the waste drawer

1. Pull out the waste drawer and remove the waste bin(s), any contaminated bin(s), and DiTis, then, if required, autoclave these waste materials before disposal.
2. Remove the drop station(s) and clean the surface with suitable cleaning solution (e.g. 70% ethanol).
3. If necessary, autoclave the drop station(s).
4. Clean the drop comb(s) with a lint-free tissue impregnated with cleaning alcohol or 70% ethanol.
5. Clean the golden DiTi cones with a lint-free tissue impregnated by cleaning alcohol.
6. Fully re-insert the drop station(s).
7. Place empty waste bin(s) in the waste drawer.
8. Push the waste drawer back.

Note: Ensure the waste drawer is fully pushed back into the ElysION Sample Preparation Device.

6. Transport, storage, and disposal

This section 6 covers returns, recycling and disposal of the ElysION MinION and its consumables.

 Refer to 'Technical information' for more information on environmental conditions.

NOTICE

Packing, unpacking, transport, and storage of the ElysION MinION should only be performed by personnel from or authorised by Tecan or Oxford Nanopore Technologies plc.

➔ For more information consult 'Customer support'.

Symbol	Meaning	Description
	Caution: Read instructions	Ensure instructions are read and followed for item storage, transport, delivery, installation, and use.
	Recycle	The packaging material can be recycled. Do not dispose of as domestic waste. Information on the material used for this packaging is provided under this symbol.
	This side up	Ensure that the package is transported and stored with the top side, indicated by the arrows, uppermost. Do not topple over.
	Keep dry	Ensure that the package does not get wet during transport and storage.
	Fragile	Handle the package with care. There are fragile goods inside.
	Keep away from sunlight	Ensure that the package will not be exposed to heat during transport and storage. Protect against strong sunlight.
	Do not stack	Do not stack packages. The package is not designed to carry extra weight.
	Do not use if damaged	Do not use device if the device or packaging shows evidence of damage.

6. Transport, storage, and disposal

6.1. Packaging label

Correct and complete marking of packaging helps to prevent incorrect handling, accidents, incorrect delivery, loss of weight, and damage during storage.

6.2. Disposal and recycling instructions

This section includes regulatory information about recycling that must be followed.

NOTICE

6.2.1. Recycling in accordance with applicable legal regulations

Observe the laws applicable in your country for recycling.

6.2.2. Local requirements for the European Union

The European Commission has released the Directive on Waste Electrical and Electronic Equipment (WEEE; 2012/19/EU).

Since August 2005, producers have been responsible for taking back and recycling electrical and electronic equipment.

Marking	Description
	There are negative environmental impacts associated with the treatment of this waste. - Do not treat electrical and electronic equipment as unsorted municipal waste - Collect waste electrical and electronic equipment separately

6.2.3. Other requirements

Marking	Description
	This lamp contains mercury. Recycle or dispose of as required by applicable local laws

6.2.4. Oxford Nanopore Technologies plc product returns, recycling, and disposal

6.2.4.1. CAUTION:

Before returning devices, fully decontaminate the devices and/or flow cells so they do not present any health risk to Oxford Nanopore staff.

Collect and dispose of used plasticware, such as reagents, tubes, and pipette tips, properly in accordance with local waste regulations and laboratory procedures.

Do not mix the flow cell buffer, the sample preparation kit buffers, and wash kit buffers in ways other than those stated in the user protocols, and keep them away from strong acids, alkalis, and oxidisers.

Dispose of the flow cell buffer, wash kit buffers, and sample preparation kit buffers according to the local waste regulations.

6. Transport, storage, and disposal

The Terms and Conditions for the use of an Oxford Nanopore Technologies plc device stipulate any flow cells that have been used with, or otherwise been in contact with, materials or agents above ACDP hazard group 2 and/or handled within CL3 or above laboratories must not be returned. The sequencing device shall be decontaminated before decommissioning, and all local regulations for electronic and electrical waste shall be followed regarding disposal of the components if they are not being returned to Oxford Nanopore Technologies plc.

Decontaminate the device before decommissioning and follow all local regulations for electronic and electrical waste regarding disposal of the components if they are not being returned to Oxford Nanopore Technologies.

6.2.4.2. ADVISORY:

Visit: www.nanoporetech.com/support/customer-support/flow-cell-and-devices-returns/flow-cell-returns for information on how to return your used flow cells.

When returning devices to Oxford Nanopore Technologies, visit: www.nanoporetech.com/support/customer-support/flow-cell-and-devices-returns/device-returns and follow the instructions provided.

7. Spare parts

Section 7 contains a list and ordering information of spare parts and accessories for the maintenance and repair of the ElysION MinION.

7.1. ElysION Sample Preparation Device consumable components

Component	Part/item number	Type
Microplate	HSP9631	SBS Format, 96 well MTP, e.g. Hard-Shell 96-Well PCR Plates, low profile, thin wall, skirted
DeepWell plate	95040452	SBS Format, 96 well DWP, e.g. Nunc 96-Well Polypropylene DeepWell Sample Processing & Storage Plates with Shared-Wall Technology
Tubes	72-694-006	Sarstedt microtubes 2 ml with screw caps screen printed
	72.730.106	Sarstedt X1,000 Screwcap microtubes, 0.5 ml with skirted base
Pipette tips	30057817	1,000 µl Disposable Tips – Filtered, Pure, Single Stack
	30057815	200 µl Disposable Tips – Filtered, Pure, Single Stack
	30057813	50 µl Disposable Tips – Filtered, Pure, Single Stack
	30104974	10 µl Disposable Tips – Filtered, Pure, Single Stack
	Note: Disposable pipette tips are listed in individual ElysION protocols on the Nanopore Community: www.nanoporetech.com/documentation	
Pipette tip boxes	30058506	LiHa empty Disposable Tip Box Small Tecan
	30058507	LiHa empty Disposable Tip Box Large Tecan
Waste bins	30185747	ElysION Waste Bin

7.2. Spare parts

7.2.1. How to order spare parts

- Look up the ordering information in the tables.
- Order the parts from Oxford Nanopore Technologies plc by contacting your local Oxford Nanopore Technologies Sales Representative or Distributor.

➔ Refer to 'Customer support'.



This section only contains spare parts that can be replaced by the operator. To order spare parts other than listed here, please consult 'Customer support'.

7. Spare parts

7.2.2. Spare parts list

Text description	Part/item number	Label designation
Channel Gripper DiTi (XCG-DT-1)	30143387	SET GRIPPER DITI XCG-1 SP
Set of 4 DiTi cones	30172595	SET DITI CONE ARP 4PCS SP
Inlet filter	30066883	INLINE FILTER AIR LIHA
Dehumidifier	30164606	DEHUMIDIFICATION UNIT ASSY ARP SP
Waste bin	30185747	WASTE BIN 36 PCE
Sarstedt adapter	30245506	ADAPTER SARSTEDT 2ML 24POS
Sequencer cover with triangle	30238702	FRAME POSITIONING MINION FLOWCELL ASSY
Valve opener	30238610	OPENER VALVE MINION

7.2.3. Accessories

Text description	Part/item number	Label designation
Power Cable EU	30188551	CORD POWER EU BLACK 2M 16A
Power Cable CH	30188550	CORD POWER CH BLACK 2M 16A
Power Cable AUS/NZS	30232566	CABLE MAINS 3*1.5MM2 2.5M SAA2_15- C19 AU
Power Cable UK	30188554	CORD POWER UK BLACK 2M 16A
Power Cable US	30188552	CORD POWER US BLACK 2M 15A
Power Cable CN	30188549	CORD POWER CHINA BLACK 2M 16A
Power Cable JP	30188553	CORD POWER JP BLACK 2M 16A
ElysION MinION Mk1D	MIN-101D-ELY	Not applicable

7.2.4. Modules and adapters

7.2.4.1. Plate Magnet 96

Text description	Part/item number	Label designation
ALPAQUA Magnet	30111595	PLATE MAGNET 96 MAGNUM FLX ALPAQUA P/N A00400

7.3. Tools

Text description	Part/item number	Label designation
DiTi cone wrench	10619517	Wrench cone DiTi option 5 pce.

8. Troubleshooting

Consult Section 8 for help to resume operation after a problem has occurred with the ElysION MinION.

➔ For further information or, in the event of problems not covered in this manual, or in insufficient detail, consult the ‘Customer support’ section.

8.1. Troubleshooting tables

8.1.1. Base Unit (XEBU) troubleshooting

Symptom	Possible cause	Corrective measures
No reaction by the ElysION (robot arm remains static or the integrated software stops working)	Communication error.	Switch off the ElysION MinION for 30 seconds, then switch it back on.

8.1.2. Channel Arm (XCA) troubleshooting

Symptom	Possible cause	Corrective measures
Communication error (An error will be displayed in the integrated software)	Power is not ON. Power or communication is interrupted.	Switch off the ElysION MinION. Switch off the MinION Control Unit. Check cable and plugs. Switch on the ElysION MinION and MinION Control Unit. Contact support@nanoporetech.com for help.
X-, Y-, or Z-drive on the robot arm is physically blocked (The robot arm will move to the crash position)	Blocking of the XCA.	Power off the ElysION MinION before moving the XCA. Move the XCA manually out of the crash position and remove obstacle.
Initialisation error (The arm cannot be initialised due to unresponsiveness to commands from the user)	Blocking of the XCA.	Power off the ElysION MinION before moving the XCA. Check for obstacles. Ensure that the arm can move freely.

8. Troubleshooting

8.1.3. Air Restriction Pipettor (ARP) troubleshooting

Symptom	Possible cause	Corrective measures
Disposable tip not fetched	Insufficiently tightened DiTi cone.	Check the DiTi box is placed correctly. Tighten the DiTi cone. ➔ (Refer to ‘DiTi Cone’)
Disposable tip not discarded	Insufficiently tightened DiTi cone.	Tighten the DiTi cone. ➔ (Refer to ‘DiTi Cone’)
Disposable tip drips	Dirty DiTi cone causes leakage.	Clean the DiTi cone. Tighten the DiTi cone. ➔ (Refer to ‘DiTi Cone’)
High humidity in the dehumidifier (software error message)	Humidity level in the dehumidifier is too high.	Exchange the dehumidifier. ➔ (Refer to ‘Dehumidifier’)

9. Customer support

9.1. Oxford Nanopore Technologies plc contacts

Please contact your local distributor or one of the addresses below.

Also, see our homepage on the web: www.nanoporetech.com

To browse or order products, visit: store.nanoporetech.com

For additional support, visit: www.nanoporetech.com/support

For help with your ElysION platform, contact: support@nanoporetech.com

Country/region	Address	Telephone/telefax/online support	
United Kingdom Oxford Headquarters	Gosling Building Edmund Halley Road, Oxford Science Park, OX4 4DQ, UK	Phone:	+44 (0) 845 034 7900
		Fax:	+44 (0) 845 034 7901
		Online support:	www.nanoporetech.com/support
United Kingdom MinION Building	Becquerel Avenue, Harwell Campus, Didcot OX11 0RA, UK	Phone:	+44 (0) 845 034 7900
		Fax:	+44 (0) 845 034 7901
		Online support:	www.nanoporetech.com/support
United Kingdom Harwell	Rutherford Appleton Laboratories, Building R70, Room 5, Harwell, OX11 0QX, UK	Phone:	+44 (0) 845 034 7900
		Fax:	+44 (0) 845 034 7901
		Online support:	www.nanoporetech.com/support
United Kingdom Norwich	Quadram Institute, Norwich Research Park, Norwich, NR4 7UQ, UK	Phone:	+44 (0) 845 034 7900
		Fax:	+44 (0) 845 034 7901
		Online support:	www.nanoporetech.com/support
USA Lexington	20 Maguire Road, Suite 102, Lexington, MA 02421, USA	Phone:	+1 (212) 202 1712
		Online support:	www.nanoporetech.com/support
USA New York	101 Avenue of the Americas, New York, NY 10013, USA	Phone:	+1 (212) 202 1712
		Online support:	www.nanoporetech.com/support
USA San Francisco	1000 Atlantic Ave, Suite 101, Alameda CA 94501-1170, USA	Phone:	+1 (212) 202 1712
		Online support:	www.nanoporetech.com/support

9. Customer support

Country/region	Address	Telephone/telefax/online support	
China Shanghai	RM 2208, No.1 Hongqiao Road, Office Tower I, Grand Gateway 66, Shanghai, 200030, China	Online support:	www.nanoporetech.com/support
China Beijing	Room 1565, China World Tower A, 1 Jian Guo Men Wai Avenue, Beijing, 100004, China	Online support:	www.nanoporetech.com/support
Japan Tokyo	Nihonbashi Life Science Bld7. 8F, 1-9-10 Nihonbashi horidomecho, Chuo-Ku, Tokyo, 103-0012, Japan	Online support:	www.nanoporetech.com/support
Singapore	Helios #12-07/08, 11 Biopolis Way, Singapore, 138667	Online support:	www.nanoporetech.com/support
UAE Oxford Nanopore Technologies Gulf Ltd	Office 303A, Entrance 3, Incubator Building, Masdar City, Abu Dhabi, United Arab Emirates.	Online support:	www.nanoporetech.com/support

Oxford Nanopore Technologies

- phone +44 (0) 845 034 7900
- email support@nanoporetech.com
- in oxford-nanopore-technologies
- X @nanopore
- 🦋 @nanoporetech.com

nanoporetech.com

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