REQUIREMENTS

PromethION 24/48 A-Series Technical Specification

FOR RESEARCH USE ONLY

Contents

Device part number

PRO-PRCAMP (PromethION A-Series Data Acquisition Unit) PRO-SEQ024 (PromethION 24 Sequencing Unit)/PRO-SEQ048 (PromethION 48 Sequencing Unit) PRO-CMB024 (PromethION 24 Combined*)

Device name

PromethION 24 A-Series PromethION 48 A-Series PromethION 24 Combined*

*available in selected countries only

Short description

The PromethION devices deliver flexible, high-capacity, benchtop sequencing ideal for large-scale projects and high-throughput laboratories. PromethION A-Series is designed to run up to 24 or 48 flow cells, delivering yields of up to 14 Tbases. Each flow cell can be run independently, providing on-demand, long-read sequencing to suit all experimental requirements. Integrated, high-performance compute allows real-time base calling and onward analysis for rapid access to results. The PromethION 24 Combined is a variation on the PromethION 24 A-Series, where the Sequencing Unit and Data Acquisition Unit are physically connected via a cable and are shipped together as one unit. This device is only available in selected countries.

Product overview

PromethION A-Series is a high-throughput nanopore sequencing device using the same technology found in the MinION and GridION devices, but massively paralleled. It allows up to 48 sequencing experiments to be run concurrently or individually. PromethION also allows users to offer nanopore sequencing as a service.

The PromethION consists of a Sequencing Unit with 24/48 sequencing ports (for PromethION 24 and 48, respectively) where PromethION flow cells can be inserted, as well as an A-Series Data Acquisition Unit offering a high performance integrated computer and basecalling accelerators. The device can basecall, in real-time, the data generated by 24 or 48 flow cells. The current chemistry and software enables generation of up to 200 Gbases of data from a single PromethION flow cell.

Setting up a PromethION A-Series requires minimal to no facility upgrades. A new device requires a power source, network connectivity via copper or fibre, and will use existing storage infrastructure. There are USB ports available for peripherals, e.g., keyboard and mouse. Monitors must be connected via HDMI.

Technical specifications

Component	Specification
Size and weight	PromethION 24 Sequencing Unit: H 190 x W 590 x D 430 mm, 23 kg PromethION 48 Sequencing Unit: H 190 x W 590 x D 430 mm, 30 kg PromethION A-Series Data Acquisition Unit: H 470 x W 178 x D 440 mm, 26 kg
Data Acquisition Unit specification	60 TB SSD Storage, 512 GB RAM, 4 x NVIDIA Ampere GPU cards for basecalling acceleration
Pre-loaded software	Linux (Ubuntu) OS, PromethION OS *(MinKNOW inside)*, Guppy software
Environmental conditions	Designed to sequence at room temperature (+18°C–22°C) **Users should allow 30 cm clearance to the rear and sides of the device.** **CAUTION:** Rear of instrument heats up during operation.
Space required	Install the Sequencing Unit and Data Acquisition Unit on a bench. **Allow 30 cm clearance to the rear and sides of the device.** The PromethION 24 Combined needs to be installed with the Sequencing and Data Acquisition units next to each other. The bench space required for a PromethION installation is 167 cm x 75 cm

Shipping and logistics

PromethION 24/48 A-Series

This device ships to most countries worldwide. The device is shipped in two separate boxes: one for the Data Acquisition unit and one for the Sequencing Unit. The devices are stored and shipped at ambient temperature (15–25°C).

	Shipping container weight, kg	Shipping container size (H x W x D), cm
PromethION A-series Data Acquisition Unit	37	45 x 68 x 60
PromethION 24 Sequencing Unit	33	59 x 70 x 54
PromethION 48 Sequencing Unit	44	59 x 70 x 54

PromethION 24 Combined

This device ships to selected countries worldwide. The Data Acquisition Unit and Sequencing Unit that make up The PromethION 24 Combined are shipped in one box. The device is stored and shipped at ambient temperature (15–25°C). **The PromethION 24 Combined must only be unpacked and installed by an Oxford Nanopore Technologies Field Service Engineer.**

	Shipping container weight, kg	Shipping container size (H x W x D), cm
PromethION 24 Combined	120	90 x 120 x 100

Please note that the PromethION A-Series/PromethION Combined devices are shipped separately to the kits and flow cells.

IT requirements

PromethION 24/48 A-Series IT requirements

Safety and legal information

Intended use of the PromethION A-Series device

Oxford Nanopore Technologies® PromethION A-Series device is an electronic analysis system for use in scientific research. The core technology is built around a nanopore that is able to detect single molecule events including nucleic acids (DNA/RNA), proteins and small molecules.

This product is for research use only

The safety information below provides you with the details needed to install and use the system safely.

Electrical information

PromethION A100 / A-Series Data Acquisition Unit	Mains supply voltage: 200-240 VAC (50/60 Hz) Peak power consumption: 2,450 W
PromethION 24/48 Sequencing Unit	Mains supply voltage: 100-240 VAC (50/60 Hz) Peak power consumption: 1,200 W

*PromethION A-Series Data Acquisition Unit contains an additional redundant power supply for reliability.

The PromethION A100/A-series requires electricity from a mains source at 200–240 V. If you are in a region where this is not standard (e.g., the U.S.), you will need access to two main sockets with mains electricity at 200–240 V.

Emergency procedures

In case of emergency, switch the PromethION A-Series off at the power switch and unplug the power cables from the back of the device.

Declaration of conformity

The PromethION A-Series conforms to the EMC and Electrical Safety directives as outlined in the EC Declaration of Conformity.

EC DECLARATION OF CONFORMITY

Manufacturers Name:	Oxford Nanopore Technologies plc	
Manufacturers Address:	Gosling Building Edmund Halley Road Oxford Science Park Oxford, OX4 4DQ, United Kingdom	
Declares that the product:	Model name: Model part No. Equipment type:	PromethION P24 PRO-SEQ024 / ONT-00-00076-00 Laboratory Equipment
	Model name: Model part No: Equipment type:	PromethION P48 PRO-SEQ048 / ONT-00-00075-00 Laboratory Equipment

Conforms to the following Directives:

EMC	The product as detailed above is declared compliant to the protection requirements of Council Directive 2004/108/EC – the EMC Directive. Compliance based on testing to the following standards: EN 61326-2-1:2013 using the technical requirements of EN 61326-1:2013 FCC CFR 47 Part 15B
Electrical Safety	The product as detailed above is declared compliant to the principle safety objectives of Council Directive 2014/35/EU. Compliance based on testing to the following standards: EN 61010-1: 2010 EN 61010-2-010: 2014 IEC 61010-2-010: 2003 UL 61010-1:2012 / CSA C22.2 No. 61010-1-12

We, hereby declare that the equipment specified above conforms to the above directives and standards specified.

Signature: Date:

Full Name: Alison Forrow
Position: Head of Quality Assurance

Document: D-0265
Revision: 2

License and Warranty

The license and warranty contract ensures your instrument is performing optimally by providing the latest up-to-date hardware and software. The contract guarantees that Oxford Nanopore Technologies support obligations are delivered during the contract period as laid out in sections 4 and 7 of the Nanopore Product Terms and Conditions.

For more information, see the Device Warranty page on the Oxford Nanopore Store.

What's in the box

The PromethION A-Series is shipped together with the necessary cables and Configuration Test Cells to confirm your hardware is functioning as expected.

Configuration is the process of testing that communication between the PromethION device and the control software is operational prior to experimental work being performed. This is carried out in the absence of any chemistry and uses a specific flow cell known as the Configuration Test Cell (CTC).

The PromethION is packed into two boxes that contain everything needed for installing the device. No special equipment is required for installing the PromethION in your laboratory.

Product cross-compatibility

The PromethION A-Series can be used together with:

Flow cells

- FLO-PRO114M
- FLO-PRO004RA
- FLO-PRO002

Kits FLO-PRO114M flow cells are suitable for V14 Sequencing kits:

- Ligation Sequencing Kit V14 (SQK-LSK114)
- Ligation Sequencing Kit XL V14 (SQK-LSK114-XL)
- Ultra-Long DNA Sequencing Kit V14 (SQK-ULK114)
- Multiplex Ligation Sequencing Kit XL V14 (SQK-MLK114.96-XL)
- Rapid Sequencing Kit V14 (SQK-RAD114)
- Rapid Barcoding Kit 24 V14 (SQK-RBK114.24)
- Rapid Barcoding Kit 96 V14 (SQK-RBK114.96)
- Rapid PCR Barcoding Kit 24 V14 (SQK-RPB114.24)
- Native Barcoding Kit 24 V14 (SQK-NBD114.24)
- Native Barcoding Kit 96 V14 (SQK-NBD114.96)
- 16S Barcoding Kit 24 V14 (SQK-16S114.24)
- cDNA-PCR Sequencing Kit V14 (SQK-PCS114)
- cDNA-PCR Barcoding Kit V14 (SQK-PCB114.24)

FLO-PRO004RA flow cells are suitable for the Direct RNA Sequencing Kit:

- Direct RNA Sequencing Kit (SQK-RNA004)

FLO-PRO002 flow cells are suitable for:

- Ligation Sequencing Kit (SQK-LSK110)
- Ligation Sequencing Kit (SQK-LSK109)
- PCR-cDNA Sequencing Kit (SQK-PCS111)
- PCR-cDNA Sequencing Kit (SQK-PCS109)

- PCR-cDNA Barcoding Kit (SQK-PCB109)
- Direct cDNA Sequencing Kit (SQK-DCS109)
- Direct RNA Sequencing Kit (SQK-RNA002)

Software Basecalling:

- MinKNOW
- Dorado

Downstream analysis:

- EPI2ME
- Oxford Nanopore-developed tools and pipelines
- Customer-developed tools and pipelines

Change log

Date	Version	Changes made
30th April 2024	V12	- Added a new device part number and name: PRO-CMB024 (PromethION 24 Combined) - Made corrections to the Sequencing Unit weights and added requirements for bench space in "Technical specifications" - In "Shipping and logistics", added shipping container size and weight for the PromethION A-Series and PromethION 24 Combined.
24th April 2024	V11	- Made corrections to "Technical specifications" - Updated the License and Warranty information - Added a Declaration of Conformity - Updated product cross-compatibilities
20th February 2024	V10	- In "Electrical information", the mains supply voltage and peak power consumption values have been updated. The value for the operating current has been removed. - In "Product cross-compatibility", the Guppy compatibility has been removed
October 2023	V9	The "Electrical information" section has been updated with the requirement for a 200-240 V input voltage range.
August 2023	V8	Device name change from A100 to A-Series
February 2023	V7	Updated Kit 14 compatibilities
September 2022	V6	The "Electrical information" table has been updated.
May 2022	V5	The PromethION 24 and PromethION 48 technical specs have been combined into one document
March 2022	V4	Device name updated to PromethION 48 A100, and the description and specs of the A100 Data Acquisition Unit have been changed accordingly
Feb 2022	V3	Updates to flow cell and kit compatibilities
Nov 2020	V2	Updates to kit compatibilities