opentrons FLEX®

Lab automation built for the future

With modular design and intelligent software, the possibilities for innovation are limitless.

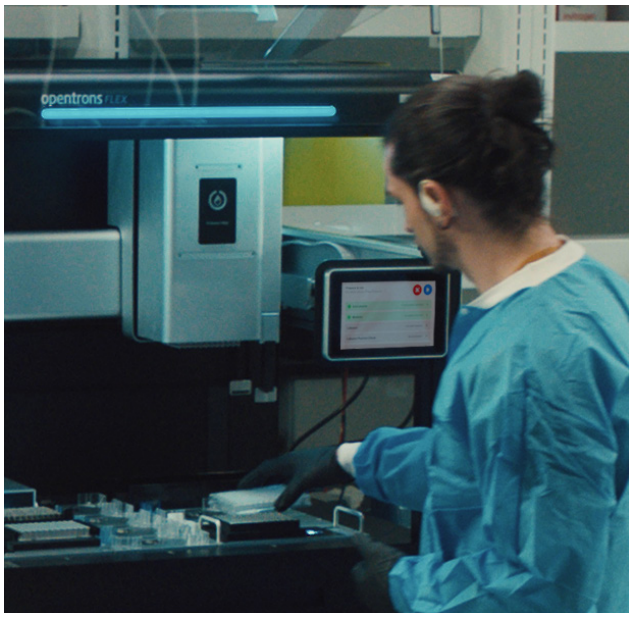
How will you Flex it?

Introduction

You Innovate, We Automate

Automating your scientific workflow doesn't have to be intimidating or take a huge investment of time and resources. With the Opentrons Flex, you have an entire team of scientific and engineering experts backing you up. With modular hardware, unmatched usability, comprehensive support, and available in the configuration that meets your needs. Run your experiments your way, just more of them....a lot more

We're making automation accessible.
How will you Flex it?



Modular system evolves with your needs

Increase throughput, change pipettes or add modules to automate more complex workflows

Maximize walkaway time and throughput

Run high-throughput workflows up to 96 samples

Accessible to all

Easy to use, no-code tools and extensive support

High performance, priced for innovation

Without compromising quality

Flex Fits Your Needs

On-Instrument Guided Setup

Dynamic deck maps match your protocol and guide you through protocol setup

Protocol Selection on the Flex

Send protocols from the desktop app to Flex for easy browsing and initiation

Automated Calibration

One-touch automated pipette and gripper positional calibration

Protocol Development Your Way

No-code Protocol Designer app, Protocol Library, Python API, or design services to build your protocol

Third-Party Integrations

Open source platform enables easy integrations

Flex Specifications

NUMBER OF DECK SLOTS

12 main deck slots, plus 4 additional slots for staging tips and labware

VOLUME RANGE

1–1000 µL

ACCURACY*

+/- 8.00% systematic error at 1 µL
+/- 7.00% random error at 1 µL

PIPETTE CONFIGURATION

Any two Flex 1-Channel or 8-Channel Pipettes, or either Flex 96-Channel Pipette alone

LABWARE COMPATIBILITY

Any automation-compatible, ANSI/SLAS standard footprint well plates, plus a wide range of other labware, including reservoirs and tubes up to 50 mL conical

CONNECTIVITY

USB, Ethernet, and Wi-Fi

DIMENSIONS

87 cm x 69 cm x 84 cm (W, D, H)

*Measured with the Opentrons Flex 1-Channel Pipette (1–50 µL) using a 50 µL tip

Flex Fits Your Application

Opentrons Flex workstations come with the Flex robot and accessories, pipettes and gripper, on-deck modules, and labware you need to automate your chosen application.* You can configure each workstation with either Flex 1- and 8-Channel Pipettes or the Flex 96-Channel Pipette to suit your scale. The workstations are reagent- and kit-agnostic to minimize changes to your current workflow.

Automate up to 96 samples

Choose from these workstations covering some of our most popular applications:

OPENTRONS FLEX HIGH-THROUGHPUT NGS WORKSTATION

Automation of library preparation, enabling full walkaway processing for up to 96 samples

OPENTRONS FLEX PROTEOMICS WORKSTATION

Automation of proteomics workflows including ELISA, mass spec sample prep, and more!

OPENTRONS FLEX NGS WORKSTATION

For end-to-end NGS library prep

OPENTRONS FLEX PCR WORKSTATION

For PCR setup and thermocycling

OPENTRONS FLEX NUCLEIC ACID EXTRACTION WORKSTATION

For nucleic acid extraction

OPENTRONS FLEX PROTEIN PURIFICATION WORKSTATION

For small-scale protein purification using magnetic beads

Flex Fits Your Expectations

OPENTRONS FLEX 1-CHANNEL PIPETTES	OPENTRONS FLEX 8-CHANNEL PIPETTES	OPENTRONS FLEX 96-CHANNEL PIPETTE
1–50 µL	1–50 µL	1–200 µL
5–1000 µL	5–1000 µL	5–1000 µL

Flex pipettes use air displacement technology to offer highly accurate pipetting from 1 to 1000 µL. Smart sensors support automatic calibration, real-time positioning, and error detection. Choose the pipettes that fit your workflow — the gantry supports any two Flex 1-Channel or 8-Channel Pipettes, or the Flex 96-Channel Pipette alone — and swap them out yourself when your workflow changes.

	VOLUME (µL)	SPECIFICATION	
		D (%)	CV (%)
OPENTRONS FLEX 1-CHANNEL PIPETTE (1–50 µL)*†	1	8.00	7.00
	10	1.50	0.50
	50	1.25	0.40
OPENTRONS FLEX 1-CHANNEL PIPETTE (5–1000 µL)‡	5	5.00	2.50
	50	0.50	0.30
	200	0.50	0.15
	1000	0.50	0.15

*Flex 8-Channel and 96-Channel Pipette specifications available from info@opentrons.com

†All volumes tested with 50 µL tip

‡5 and 50 µL volumes tested with a 50 µL tip; 200 µL volume tested with a 200 µL tip; 1000 µL volume tested with a 1000 µL tip

Flex Fits Your Workflow

Opentrons hardware modules are designed, tested and built by Opentrons. They work seamlessly with Opentrons robots and software. Every Opentrons Flex Module that sits on the deck comes with a caddy to secure it into the deck, putting labware close to the deck surface and keeping cables out of the way.

GRIPPER

The Opentrons Flex Gripper attaches to the gantry and is capable of moving labware across the deck and on or off modules such as the Magnetic Block or Thermocycler. It can also access the additional slots to the side of the main deck to replenish tips or labware.

THERMOCYCLER MODULE

The Opentrons Thermocycler Module GEN2 is a fully automated on-deck thermocycler, providing hands-free PCR in a 96-well plate format. The heated lid and disposable seal fit tightly over the plate, ensuring efficient sample heating and minimal evaporation.

TEMPERATURE MODULE

The Opentrons Temperature Module GEN2 is an easy-to-use hot and cold plate that can maintain constant temperatures from 4 to 95 °C. Each module comes with aluminum blocks to hold labware, including 1.5 mL tubes, 2 mL tubes, PCR plates and strips, and most flat bottom well plates.

MAGNETIC BLOCK

The Opentrons Flex Magnetic Block is a 96-well magnetic well plate holder containing static ring magnets. Use it with the Flex Gripper and skirted 96-well PCR or deep-well plates to facilitate quick and efficient separation using magnetic beads.

HEATER-SHAKER MODULE

The Opentrons Heater-Shaker Module provides on-deck heating and orbital shaking of microplates. The module can be heated to 95 °C, and can shake samples from 200 to 3000 rpm. It is compatible with a number of deep-well and 96-well plates.

STACKER

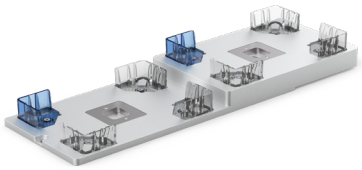
The Opentrons Flex Stacker is a modular tip and plate storage and delivery system designed to enhance the throughput of your laboratory workflows while conserving valuable deck space. Each stacker can accommodate up to 7 tip racks, 48 PCR plates, or 16 deep well plates. Integrate up to four stackers without significantly increasing the instrument's footprint.

ABSORBANCE PLATE READER

The Opentrons Flex Absorbance Plate Reader is a fully automated solution for absorbance-based assays. Capable of detecting absorbance in the 450–1000 nm range, it is optimized for a broad array of applications, including protein quantification, sample normalization, cell viability assays, and bacterial growth monitoring.

HEPA/UV

Keep your work contamination free with the Opentrons Flex HEPA/UV Module. With UV-C sterilization and filters exceeding HEPA standards, rest assured your samples are safe from microorganisms, nucleic acids, and nucleases.



DECK EXPANSION

The Opentrons Flex Deck Expansion Set allows you to utilize up to 4 more positions on the Opentrons Flex worktable. The expansions slots are installed to the right of the worktable, acting as positions A4, B4, C4, and D4 and accepting plates, tube racks, and other labware that support SBS dimensions.

WASTE CHUTE

The Gripper moves and drops tip racks and labware into the Waste Chute and a trash receptacle below to increase walkaway capacity. The Waste Chute accepts plates, tip racks and tips maximizing your throughput.

We’re making automation accessible. How will you Flex it?

Need more information?

- For general sales information, email info@opentrons.com
- Want to speak to a sales rep? Mon – Fri, Global: +1 (646) 212-3703
  UK/EU: +44 7588 611072