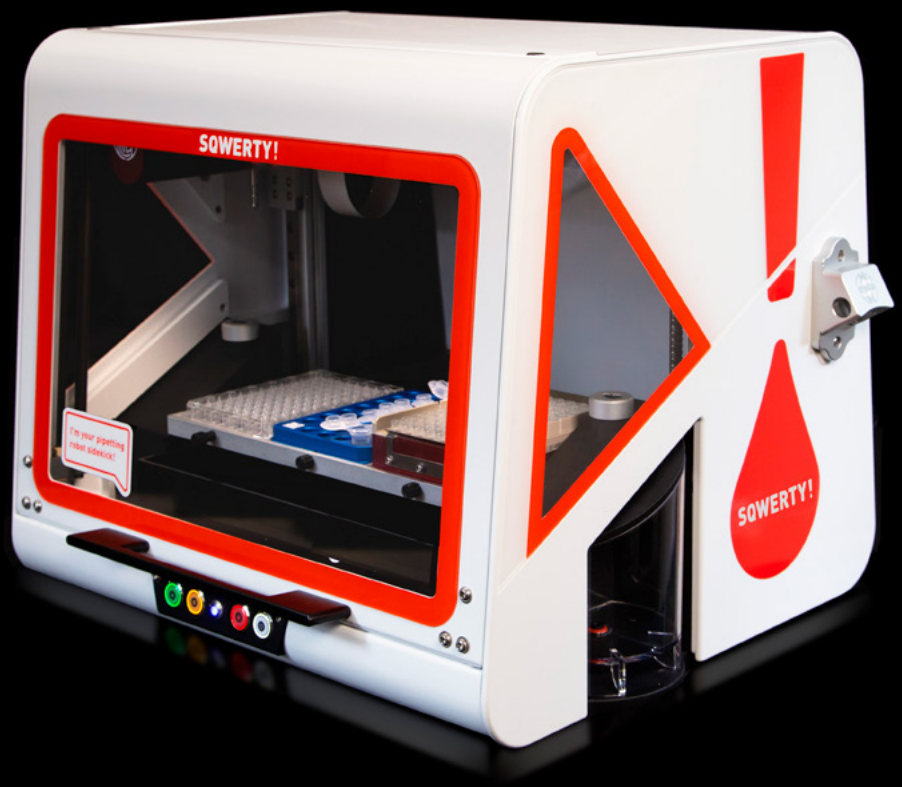
SINGER INSTRUMENTS
A RESPONSIBILITY TO SCIENCE!



SQWERTY!

Compact pipetting robot

Small. Simple. SQWERTY

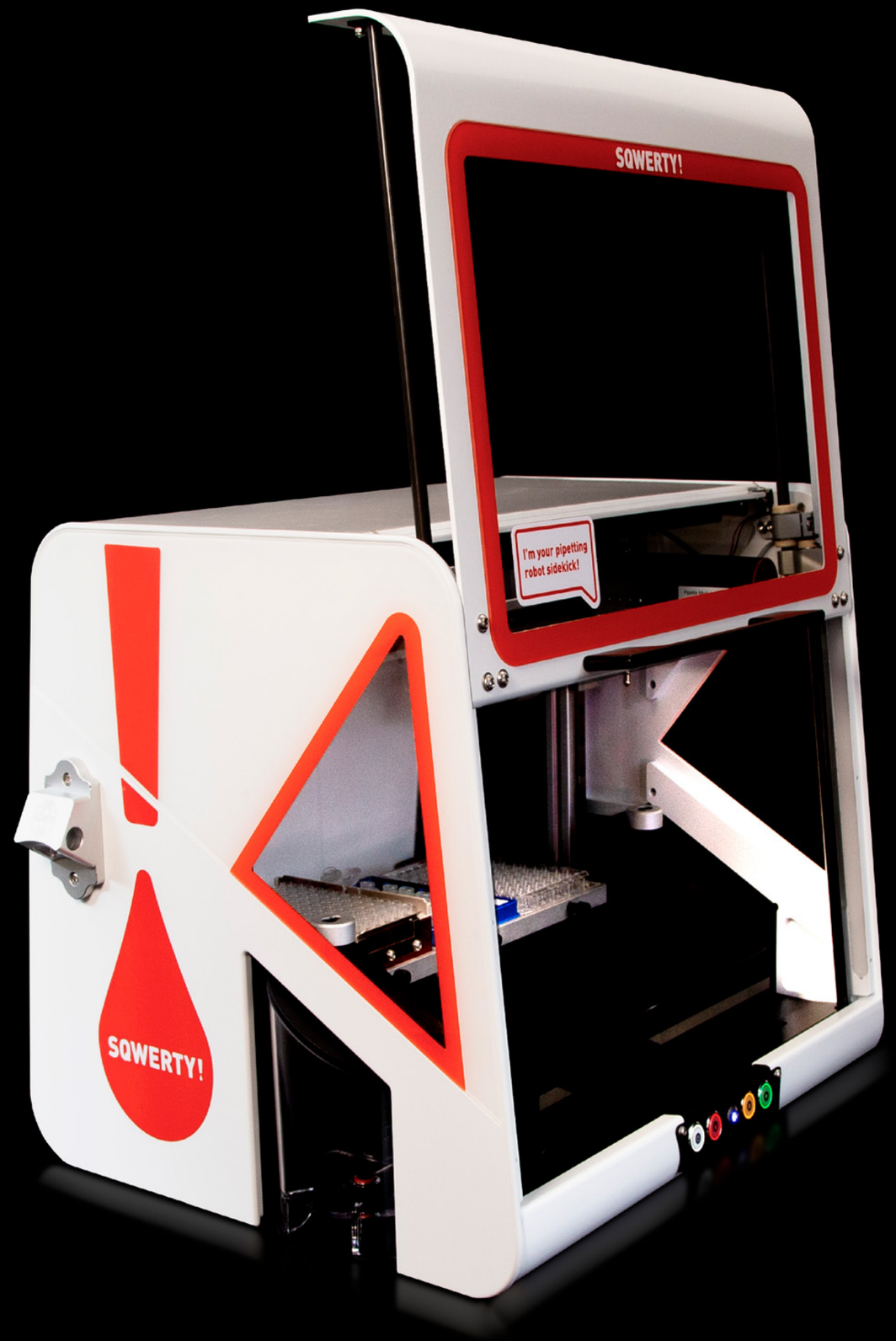
Pipetting sucks!

It’s about time we fixed it.

Eliminate mundane, painful, **error-prone** pipetting. Spend more time on the things that make a difference.

What is SQWERTY?

SQWERTY is a new generation of pipetting. A compact pipetting robot built for everyday use. SQWERTY makes it quick and easy to run complex pipetting workflows involving almost any liquid or labware — even 384 Multi-well plates (MWP).

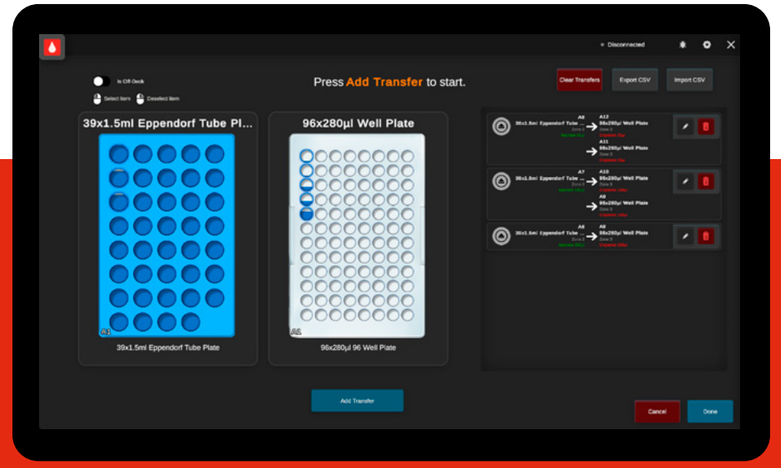


How does it work?

SQWERTY is as "plug-n-play" as liquid handling can get. Program your workflow in minutes and achieve great consistency, from padawan to master.

Pressure-based liquid sensing technology gives you accurate pipetting with just 0.3-2.5% random error across all pipetting modules. That's going to save you a lot of headaches (and wrist aches).

Access multi-dispensing, individual transfers and serial dilution workflows all in one intuitive place.



At 10 µl, SQWERTY's random error is only **0.8%**

The Mean error using a manual pipette is **5 - 8 %**

Lippi, Giuseppe et al. "Estimating the intra- and inter-individual imprecision of manual pipetting." *Clinical chemistry and laboratory medicine* vol. 55,7 (2017): 962-966. doi:10.1515/cclm-2016-0810

Why do I need SQWERTY?

Because pipetting sucks! Science has come a long way since the 1970s... Why hasn't pipetting? SQWERTY was created in collaboration with researchers who were sick of their monotonous, error-prone, daily pipetting tasks.

If you're looking to automate your daily pipetting, you likely don't need the throughput and complexity of a typical liquid handler. SQWERTY is not your typical liquid handler. Liquid handlers are often big, expensive, and a pain in the butt to learn. SQWERTY is for anyone looking to easily automate routine pipetting, without breaking the bank — or your lab bench.

This is the starter Pokémon of automated pipetting: SQWERTY

The best things come in small packages
1-1000 µl volume range, supporting standard SBS labware up to 384 MWP. All in 400mm^2 — the same footprint as your laptop.

Easy peasy lemon SQWERTY
Easy to set up and run — no dedicated expert needed.
Calibrate in 5 minutes.
Software built to support your liquid handling learning journey.

No programming, no problem
Designed for simple transfers, without the hassle of programming a full workflow.
Optimise your settings with less reagent waste.

Guided and advanced pipetting
Easier for learners to jump in quickly, but experienced users can optimise their workflow to perfection.

Got finicky fluids?
Use the 'Travelling air gap' to stop dripping and the 'Blow out' to force the dregs out.

UV to aid sterilisation
20 minutes of UV destroys most contamination.

Zone your source plates
Organise inoculation patterns and data output for traceability based on customisable source plate zones.

Highly versatile

SQWERTY can adapt to any standard labware: Tubes or SBS plates (up to 384 MWP). If we don't have it already we will work with you to integrate it, or you can DIY with our Object Creator.

Supports off-the-shelf tips such as Tecan automated cone 10 - 1000 µl pipette tips, both filtered and unfiltered.

Have full control to adapt and optimise your workflows to suit your liquid and application. Use interactive mode and the liquid class editor to optimise your settings without needing to run a full workflow.

Find the balance between speed and accuracy that best suits your needs. Work with or without liquid level detection and tracking.

Easily integrate manual steps and timers for intricate multi-step protocols.

Stop contamination in its tracks. Tack a UV run onto the end of your workflow to aid your sterilisation process.

Use it wherever you need it. SQWERTY is easily picked up and moved from the lab bench to fume hood and even in a travel-case. Making inter-lab collaboration more efficient.

Applications

Basic research:

Serial dilution/CF
Bradford assay
Mammalian cell culture

Genetic Screening

Electrophoresis loading prep
Library pooling
Library prep for Sanger sequencing

Synthetic biology

Colony/rtPCR/qPCR setup
Microbial screening
Gibson & Golden Gate assembly

Lab party!

Mix tiny shots in Falcon tubes and make waiting for Friday afternoon's gel far more fun.

Science has come a long way since the 1970s...

Why hasn't pipetting?

"The process was very very straightforward... I don't think you need an instruction manual really."

Grace Ryall, University of Bristol

Software

Install the software to your laptop and easily connect to SQWERTY from the other side of the lab

The UI makes it incredibly straightforward to program your workflow with as much, or as little involvement as you like. It adapts to all of your protocols, both simple and complex. Use manual steps and timers to integrate SQWERTY with your workflow.

Automated liquid handling suddenly became simple. With supportive workflow designing options your transfers and serial dilutions can be automated with a few clicks.

Once a workflow has been built, it can be saved, repeated and easily edited elsewhere. Anyone can run the workflow and accuracy and consistency won't be harmed.

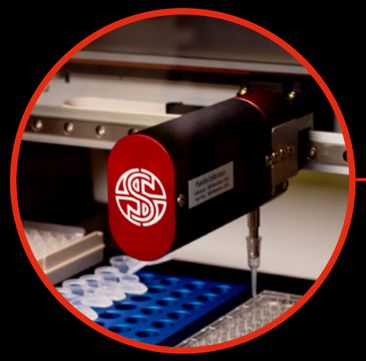
Just a few easy steps

1. **Connect** — via SQWERTY's wifi
2. **Build** — select from guided or advanced options for your protocol.
3. **Labware** — use presets or build your own
4. **Start & finish** — set the source & target destinations
5. **Set the volumes** — set your liquid volumes
6. **Save & go** — Let's do this!

Interactive mode

Test out new settings on the fly
Learn how to operate an automated pipetting robot and optimise your protocol .

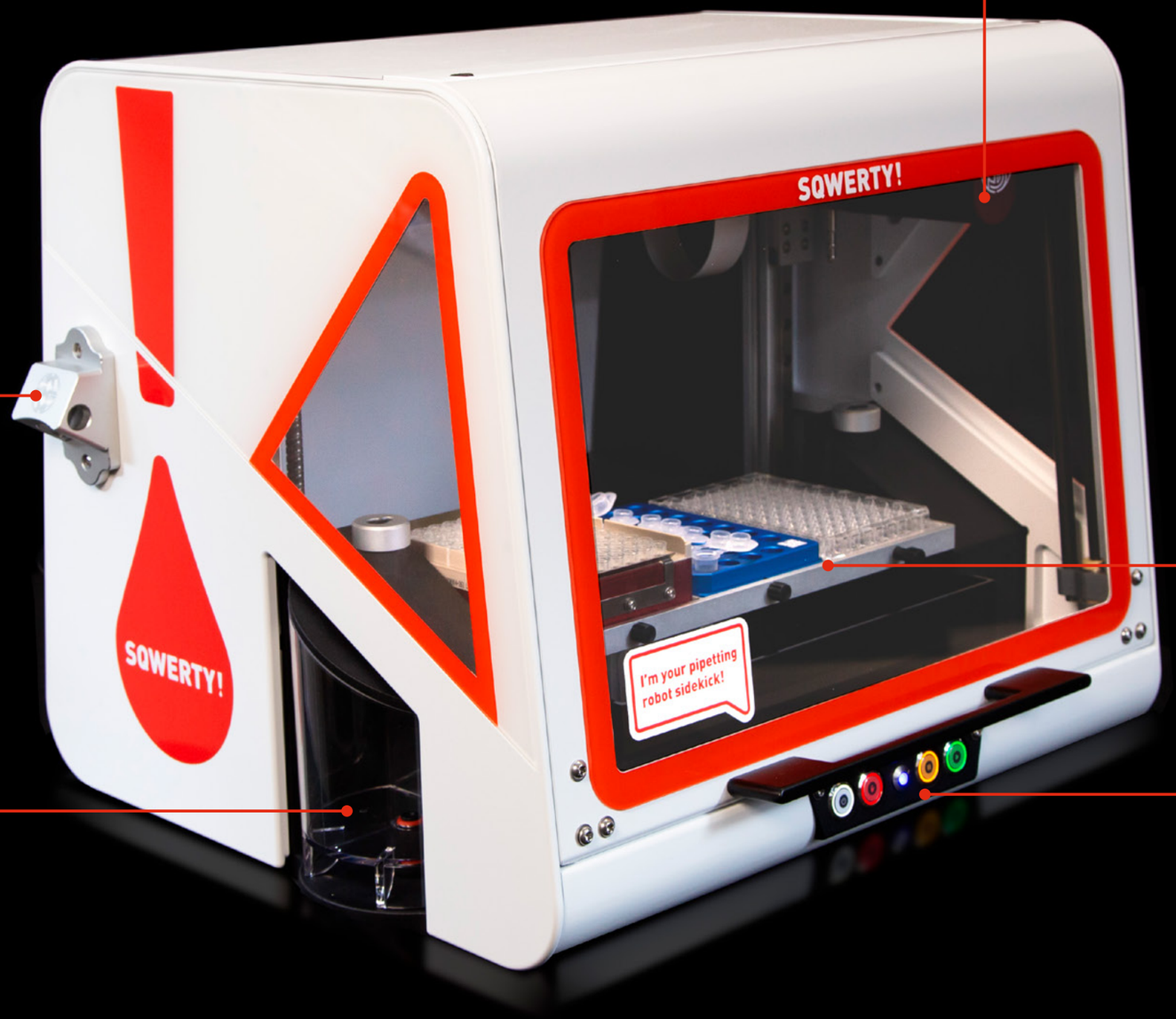
Grab 'n' go setting
Set up your SQWERTY with as much ease as a manual pipette and start pipetting more consistently.



Calibrated 250 µl pipette module
(50 µl and 1000 µl options available)

Classic bottle opener

Removable waste containers and drip tray



Customisable layout

Quick buttons

Technical Specifications

Standard hardware set-up

Model
SQWERTY

Product Code
SQW-001

Technical Specs
- Length: 421mm (16.6")
- Width: 405mm (16")
- Height:
  Door closed: 365mm (14.4")
  Door open: 598mm (23.5")
- Weight: 16kg (35 lbs) without accessories or consumables

Power Requirements
- Power: 10-240V AC 50-60Hz 3 Amps
- External power supply: 24V DC, 6.75A

Minimum System Requirements
- OS Windows 10 Home/Professional
- Memory 4GB Ram
- Storage 60GB SSD
- Processor Intel® Core™ m3 or above
- Display resolution at least 1920x1080

LED Illumination
- Internal Illumination LED (White Light)
- UV-C Sterilisation LED (265nm)

Connectivity
- 2x USB 3.0
- Ethernet
- Wi-Fi

Operating Conditions
- For indoor use only
- Use in a well-ventilated area
- Ambient temperature range 15°C to 40°C (59°F to 104°F)
- Altitude to 2000m (6500ft)
- Mains supply
- Overvoltage category II IEC60364-4-443
- Pollution degree 2 IEC664
- Use with a minimum distance all round of 200mm (8") from walls or other items

Suggested Tip Eject Capacity
- Tip Eject Capacity 10µl - 96 Tips (20µl type with filter)
- Tip Eject Capacity 20µl - 96 Tips
- Tip Eject Capacity 50µl - 48 Tips
- Tip Eject Capacity 175µl - 48 Tips (200µl type with filter)
- Tip Eject Capacity 200µl – 48 Tips
- Tip Eject Capacity 1000µl – 12 Tips

Movement Speed
- Max speed:
  X: 200mm/s
  Y: 200mm/s
  Z: 60mm/s
- Max acceleration:
  X: 300mm/s2
  Y: 300mm/s2
  Z: 300mm/s2

Dispense Speed
- Calibrated Pipette Module ⩽ 50µl - 1800 µl/s
- Calibrated Pipette Module ⩽ 250µl - 450 µl/s
- Calibrated Pipette Module ⩽ 1000µl - 150 µl/s

Compatible Labware
- SBS/ANSI format plates
- Max density 384-well plate
- Tecan LiHa style pipette tips
- Microcentrifuge tubes (1.5-2ml Eppendorf style)
- 0.2ml, 0.5ml PCR tubes

Operating Noise
- < 60dbA

Operating Humidity
- 20-80% RH at 40°C (104°F)

Recommended Media Temperature
- 15-40°C (59-104°F)

Accessories Included
- Bottle Opener
- Calibrated Pipette Module (variable volume ⩽250µl)
- Deck Calibration Verification Plate
- Tip Waste Calibration Tool
- Calibration Probe
- Gloss Black Acrylic Drip Tray
- Tip Waste Container (Left & Right)
- Tip Waste Container Lid (Left & Right)
- Pipette Module Mandrel Long - Type A
- Pipette Module Mandrel Removal Tool - Type A
- Tip Rack Adapter (25mm Height) - Mandrel Type A
- Plate Holder - Stainless Steel

Warranty
- 1 year

Standards

Compliance standards
- ISO 23783

Liquid Handling Standards
- EC61010-1: 2010 + A1:2016 Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1 : General requirements.
- EN 61326-1: 2021 - Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements.
- ETSI EN 301 489-1 v2.2.3 (2019) - Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for Electromagnetic Compatibility.
- FCC CFR 47: Part 15: B: 2015 - Radio Frequency Devices.
- CES-003 Issue 7 - Innovation, Science and Economic Development Canada. Spectrum Management and Telecommunications. Interference-Causing Equipment Standard Information Technology Equipment (including digital apparatus).
- EN 62471:2008 - Photobiological safety of lamps and lamp systems.

Medical Devices & Clinical Diagnostic Compliance & Usage
- Not compliant

Extras

Accessories

SQWERTY Calibrated Pipette Modules
Variable volume ⩽50µl SQP-010
Variable volume ⩽250µl SQP-011
Variable volume ⩽1000µl SQP-012

96x 0.5ml PCR Tubes/Strip Rack
SQS-026

40x 1.5-2ml Tube Rack
SQS-054

4x Dual 19ml Reservoir Rack
SQS-056

15x 5-10ml Falcon® Tube Rack
SQS-057

96x 0.2ml PCR Tube/Strip Rack
SQS-058

2x Dual 19ml Reservoir + 20x 1.5-2ml Tube Combination Rack
SQS-060

Support

1-Year Lab Support
SLS-002

1-Year Lab Support Plus
SLS-003

Pipette module accuracy

Module	Target Volume (µL)	Systematic Error (%)	Random Error (%)
Single Channel 50µL	1*	5	5
	10	1.5	0.8
	50	1	0.4
Single Channel 250µL	5	3	2.5
	50	1.4	0.6
	200	1.5	0.4
Single Channel 1000µL	100	1	0.3
	200	0.8	0.3
	1000	0.8	0.3

* dispensed into liquid.

Note: The systematic and random error values can be achieved only under strictly controlled conditions during test as per ISO 23783 Annex D. The best compatibility is achieved when combining SQWERTY pipette modules with supported tips. The systematic error and random error verification results, in tests, have been achieved using configurations available in the latest SQWERTY firmware release. Due to continuous product development the systemic and random error values are subject to change without notice.
All data is correct at time of writing: September 2024.

90 years of microbial lab awesomation!

We believe science shouldn't be limited by what's humanly possible. It shouldn't be frustratingly laborious or tedious and boring. From the climate crisis and renewable energy to antimicrobial resistance, cancer cures and unlocking the microbiome, science holds the key to many of the world's greatest challenges.

We hope our robots can get humanity there faster.

From our state-of-the-art facility in beautiful Exmoor National Park in the South West of England, we build and manufacture mechatronic workstations and cutting-edge lab automation robots accelerating science in over 50 countries worldwide. With further offices in California, Singapore and Germany, we're able to serve a truly global community.

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A RESPONSIBILITY TO SCIENCE!

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