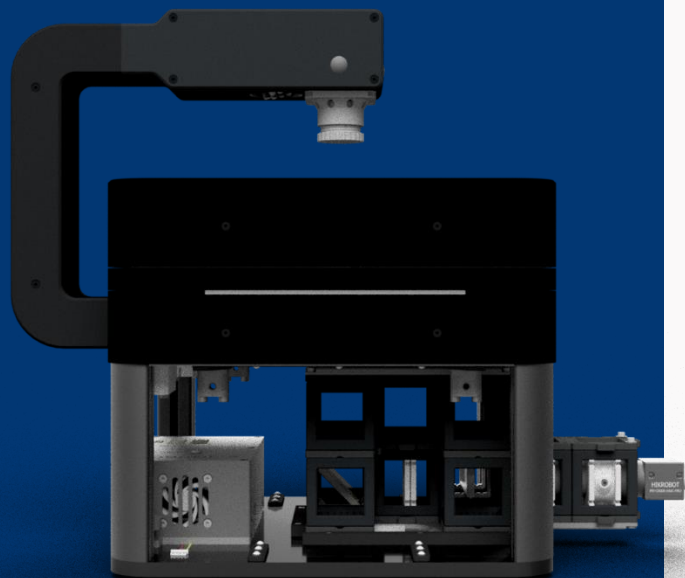


FAST AND RIGID AUTOMATED MICROSCOPE  
ENGINE

# FRAME

The last research microscope you configure, enhance and simply use.

A fully motorised XYZ scanning platform that separates optics from mechanics. Pre-align an optical setup on the bench, slide it into the rigid FRAME body and image immediately — brightfield, phase contrast, fluorescence or FLIM. Open hardware, open software, controlled from anywhere.



## Swap optics, not alignment

01

Optical modules sit in a standardised  $M \times N \times 2$  UC2 cube grid. Every exchange reproduces the same alignment, and every openUC2 kit or third-party module fits.

## Automated XYZ scanning

02

$130 \times 90 \times 10$  mm motorised range with objective turret. Time-lapse, tiling and multi-well screening across plates, flasks, dishes and slides.

## Open by design

03

Our Python/React-based control system “ImSwitch” runs on the built-in Raspberry Pi — any browser, REST API, Python SDK, Jupyter and Napari. Talks to OpenTrons and lab robots out of the box.

### SPECIFICATIONS

|               |                                                                           |
|---------------|---------------------------------------------------------------------------|
| Objectives    | $4\times / 10\times / 20\times / 60\times$ , motorised turret (2x)        |
| Imaging modes | Brightfield, colour BF, phase contrast (qDPC), fluorescence, FLIM         |
| Excitation    | 405   488   520   635 nm, single to quad laser or LED                     |
| Camera        | Single or dual, colour or monochrome, industry + scientific-grade options |
| Labware       | 6–384 well plates, T25/T75 flasks, dishes, 4 slides                       |

### SYSTEM

|             |                                                                        |
|-------------|------------------------------------------------------------------------|
| Control     | ImSwitch on Raspberry Pi or Docker, REST API, SDK                      |
| Electronics | CANOpen bus, UC2-ESP32 firmware, expandable axes, GPIO, camera trigger |
| Data        | OME-ZARR, OME-TIFF, PNG, MP4                                           |
| Footprint   | $300 \times 300 \times 300$ mm, <18 kg, 12 V / 5 A                     |
| Licence     | 100 % open-source hardware and software                                |

## THE MACHINE

# A rigid metal body around a grid of cubes.

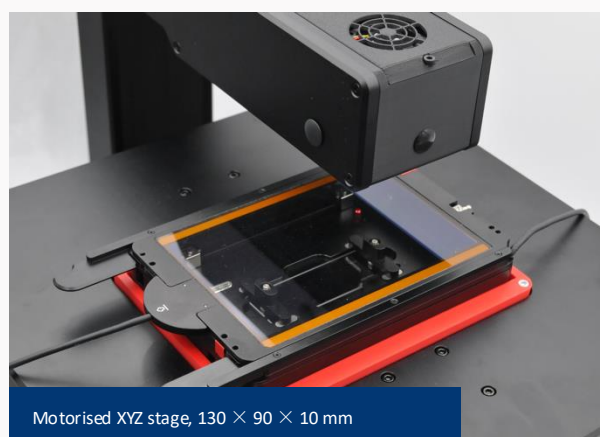
Mechanics, optics and electronics are three separate layers. The stage moves; the optical path does not. Everything underneath the stage is comprised of 50 mm UC2 cubes and locked as a standalone optical engine. This can be a filter set, a second camera, a fibre coupler or an incubation unit. All “hot-swappable” and integrated into our software.



FRAME in the lab — 300 × 300 × 300 mm, under 16 kg



Optical cubes, pre-aligned off the instrument

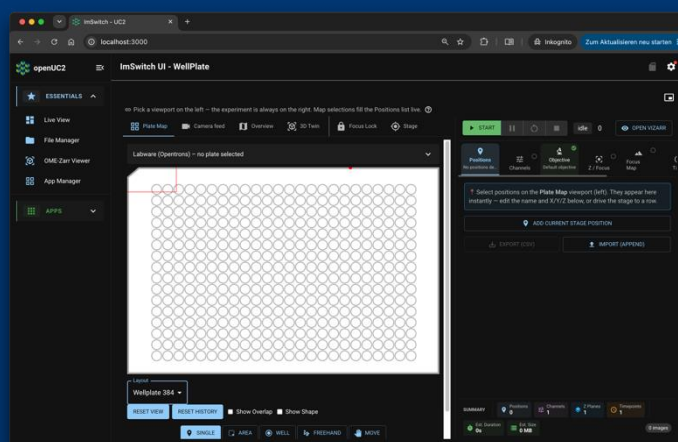


Motorised XYZ stage, 130 × 90 × 10 mm

## CONTROL

## ImSwitch in the browser. Python when you need it.

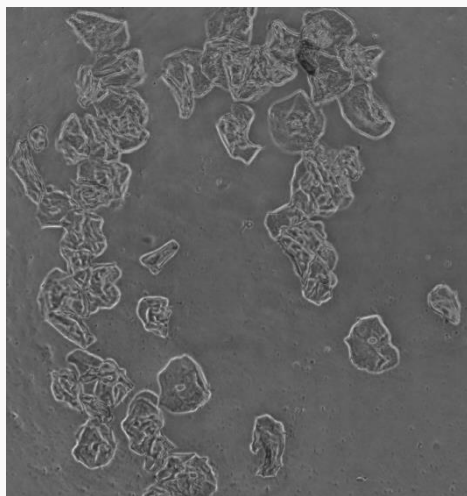
Nothing to install: the built-in Raspberry Pi serves the interface over the network. Scripts run in an internal Jupyter engine, results stream into Napari, and the REST API drives the microscope from your own pipeline or a pipetting robot. It interfaces with MicroManager and other open adapters.



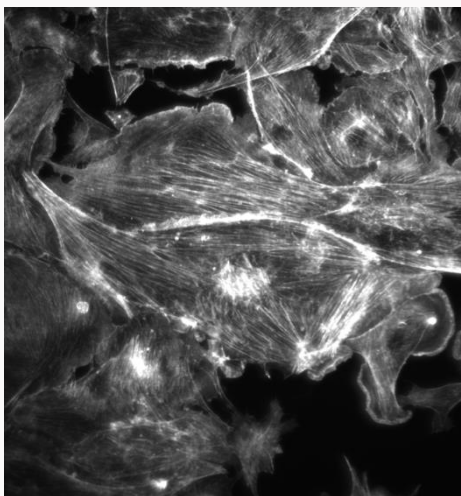
## SAMPLE DATA

# One instrument, five contrast modes.

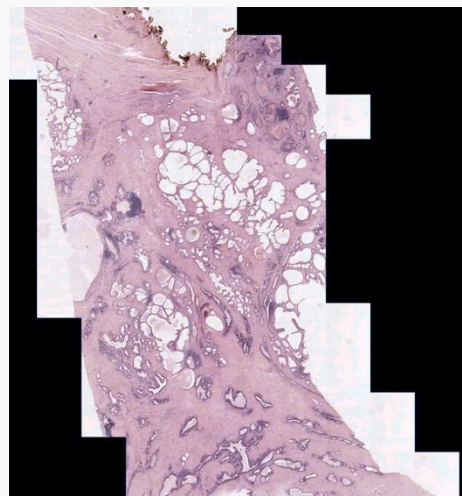
All images below were acquired on the openUC2 FRAME. Because contrast is just a certain arrangement of cubes, moving from label-free brightfield to fluorescence or FLIM is a swap — not a second microscope.



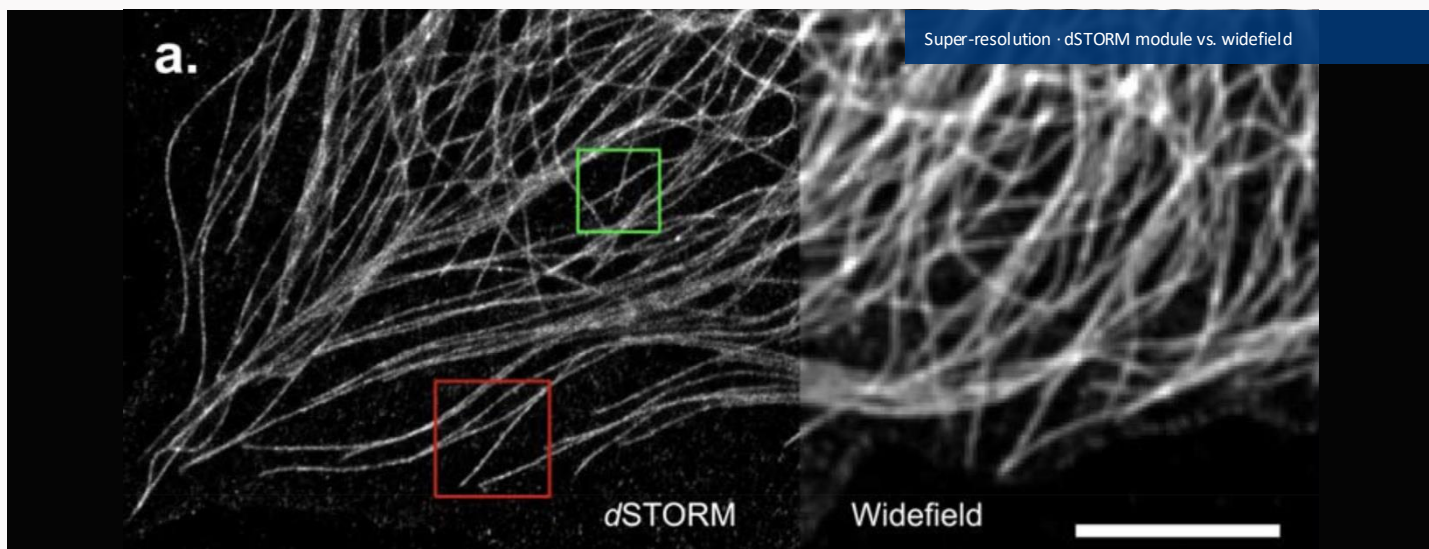
Label-free | qDPC phase



Fluorescence | cytoskeleton



Colour histology | whole slide



## ASSAYS RUNNING ON FRAME

- Proliferation, confluence and scratch assays
- Live-cell imaging and long time-lapse studies
- Transfection efficiency and reporter gene assays
- Cell and particle tracking, neurite growth

## WORKING WITH

- FLIM LABS — fluorescence lifetime imaging
- ARKITEKT.live — decentralised lab automation
- Opentrons — liquid handling and robotics
- 500+ community labs in 15+ countries

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