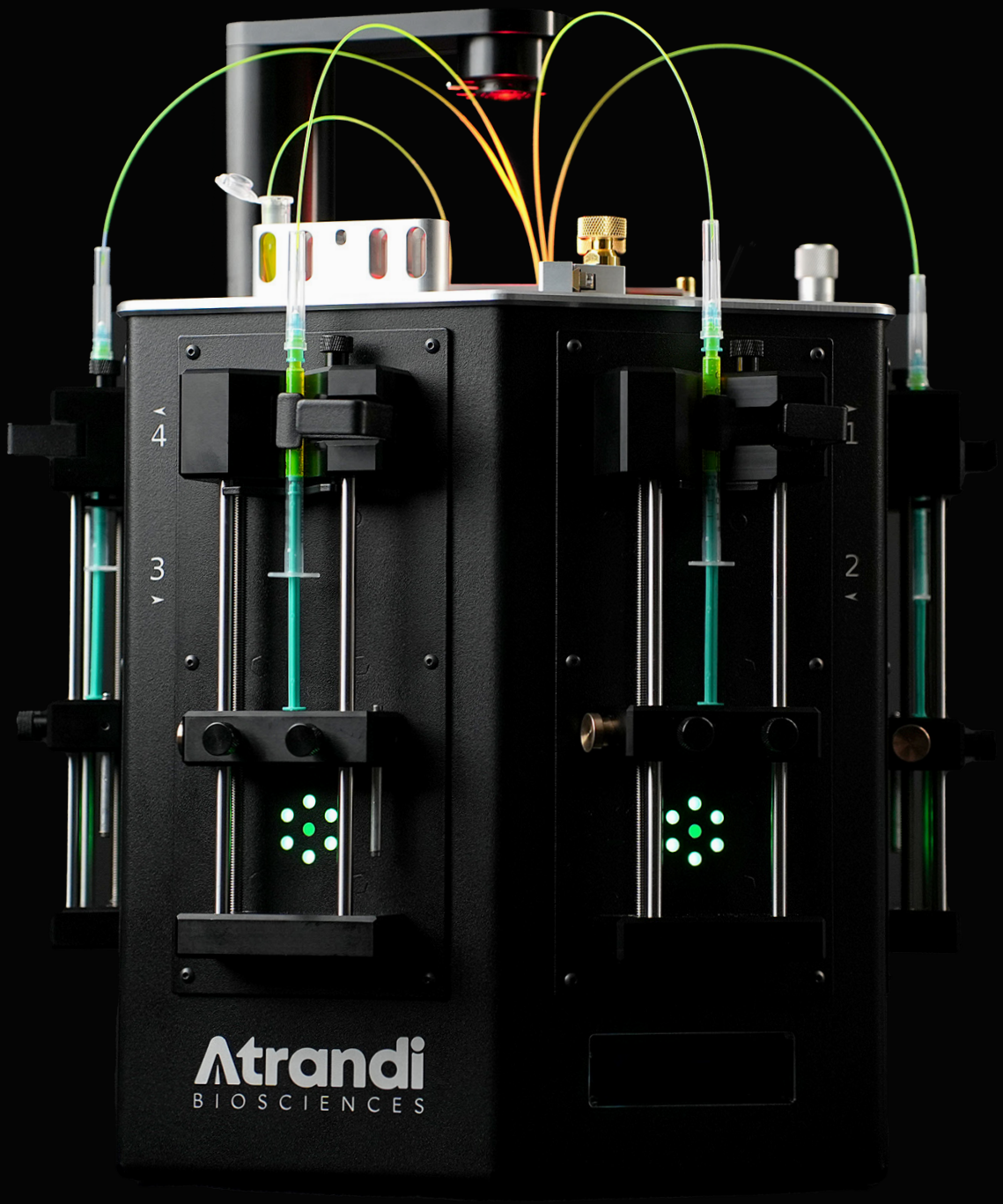
VERSATILE MICROFLUIDICS PLATFORM

Onyx

SPECIFICATION SHEET

Versatile platform for microfluidics research



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SYRINGE PUMPS

Independent pumps: 4
Sample volume: 0.01 - 50.0mL
Syringe diameter: 0.1 mm - 50.0 mm
Maximum flow rate: 9999µL/h (1mL syringe)
Minimum flow rate: 1µL/h (1mL syringe)
Flow rate accuracy: 0.5%
Pump function: Infuse/Withdraw

HIGH-SPEED CAMERA

Resolution: 1440 x 1080
Minimum exposure time: 25µs
Maximum exposure time: 1.5ms
Maximum recording framerate: 10 - 4000 frames/s (region size dependent)
Maximum recording buffer size: 500 frames
Video playback rate: 1 – 30 frames/s

FORCEFIELD GENERATOR

Mode of operation: continuous
Signal frequency range: 10 - 20kHz
Signal amplitude range: 0 - 1.0kV
Channels: 2

ARTIFICIAL INTELLIGENCE SYSTEM

GPU: 512-core NVIDIA Volta, 32 TOPs
CPU: 8-core NVIDIA Carmel Arm®v8.2 64-bit CPU 8MB L2 + 4MB L3
Memory: 32 GB 256-bit LPDDR4x 136.5GB/s
Chip and droplet analysis rate: <2.0s
Droplet size precision: ±5µm (for nominal 100µm size)

INTEGRATED MICROSCOPY

Optical magnification: 1µm/px
Field of view: 1.5 x 1.1mm^2
Illumination source: 0 – 1W LED, 625nm monochromatic
Illumination type: brightfield, diaphragm adjustable collinearity
Microfluidic chip dimensions: up to 50x75mm
Focal plane adjustment: manual, up to 6mm

POWER SUPPLY

Input voltage: 110/240VAC (withstands 300VAC surge for 5 seconds without damage)
Frequency: 47 ~ 63Hz
Power rating during normal operation: 150W
Electric fuses: 3.15A, slow blow
Applicable safety standards: UL60950-1, TUV EN60950-1

CONNECTIVITY

Wired connectivity: Ethernet
Wireless connectivity: 2.4GHz WiFi hotspot with DHCP server
Device control software: integrated into the on-board computer

GENERAL CHARACTERISTICS

Dimensions (W x D x H): 380mm x 255mm x 445mm (14.96" x 10.04" x 17.52")
Weight: 11.8kg (26.01lbs)
Operating temperature: 0 - 40°C, non-condensing

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WHY ONYX?

- Fully integrated, all-in-one microfluidic platform
- Integrated forcefield generator for droplet manipulation
- Machine-vision and in-line droplet analysis
- High-speed microscopy
- 625nm illumination to minimize photodamage (cells, photolinkers, etc.)
- Embedded UI software
- No chip lock-in
- Wireless connectivity
- Small footprint & mobility
- Additional optional syringe pump for complex workflows