

ONi

Nanoimager

The first complete solution for single-molecule imaging



TECHNICAL SPECIFICATIONS

Nanoimager

SMLM Resolution	<p>20 nm in XY (incl. STORM, DNA-PAINT, PALM)*</p> <p>Our combination of imaging modalities and advanced software allows single molecules to be observed and tracked with high sensitivity</p>
Illumination Control	<p>Option to select illumination angle: 0° - 65°</p> <p>Imaging Modalities: Flat-field homogeneous laser illumination Epifluorescence/widefield HILO TIRF LED array for bright-field imaging</p>
Powerful Lasers	<p>Single-molecule localization microscopy (SMLM) in multiple colors (4 lasers) and 2 channels (with dichroic mirror split at 640 nm)</p> <p>Power at sample: 405 nm (15 mW), 488 nm (250 mW), 561 nm (250 mW), 640 nm (250 mW)</p> <p>Power at source: 405 nm (1 W), 488 nm (1 W), 561 nm (750 mW), 640 nm (1 W)</p>
Power Density	<p>4 kW/cm² (0.24 kW/cm² for UV)</p> <p>Continuous laser</p>
Temperature Control	<p>Running temperature 30-32°C</p> <p>Heating up to 42°C</p> <p>1.5 - 2 hours warm up</p> <p>Precise temperature control, with heating elements to keep the entire microscope unit at a stable, uniform temperature. Ideal for live cell imaging, facilitating single-particle tracking</p>
Focus Z-Lock	<p>Z offset +/- 10 μm from coverslip interface</p> <p>Rapid and precise stabilization of microscope focus, with locking technology to minimize Z-drift</p>
Channel Mapping	<p>< 20 nm overlap precision</p>
Mechanical Stability	<p><1 μm/K drift</p>

Product Dimensions

Nanoimager

21.5cm (w) x 21.5cm (d) x 15.5cm (h)

Light engine

21.5cm (w) x 42.0cm (d) x 45.0cm (h)

Imaging Technologies

2D and 3D single-molecule localization microscopy (SMLM)

dSTORM, PALM, DNA-PAINT

Single-particle tracking (SPT)

Total internal reflection fluorescence (TIRF)

TIRF achieved by objective-based TIRF microscopy

TIRF depth: 488 nm (216 nm), 561 nm (248 nm), 640 nm (283 nm)

TIRF depth is dependent on the incident wavelength, incident angle, refractive index of coverslip and refractive index of sample**

Förster resonance energy transfer (FRET)

Camera & Temporal Resolution

Camera

Hamamatsu Orca Flash4.0 v3

Frame rate

Full FOV: up to 10 ms / 100 Hz

Cropped FOV: up to 1 ms / 1000 Hz

RMS read noise

1.6

Objectives & Field of View

Objective compatibility

Standard: 100X NA 1.45

Optional: 60X NA 1.42, 40X NA 0.75 or NA 0.6, 20X NA 0.45***

FOV with 100X objective

50 μ m x 80 μ m

Sample stage movement

17.5 x 17.5 x 5 mm XYZ travel range

*Better resolutions may be possible.

**TIRF: The incident angle is taken above the critical angle, 62 degrees, which is dependent on the refractive index of coverslip and sample. Refractive index of the coverslip is 1.52 and sample is 1.33, as for many of our use cases. TIRF depth can be reduced by increasing the TIRF angle. A ~1 degree increase will give TIRF depths of 199 nm for 640 nm incident wavelength, 175 nm for 561 nm incident wavelength and 152 nm for 488 nm incident wavelength.

***Please consult with ONi for objective compatibility options