

Nanoro-M Specifications

Camera Sensor

Type:	Full colour Bayer pattern CMOS
Pixel size:	1.55 μm square
Aspect:	4:3
Sensor:	12 MP CMOS
Pixels:	4000 x 3000
Analogue converter:	12 bits
Max FPS:	60
Connectivity:	USB 3.0

Illumination

Type:	Variable output LED.
Typical Lifetime:	100 000 h
Power consumption:	3.2 W
Optical Power:	> 800 mW
Max irradiance at 200mm:	24.8 $\mu\text{W} / \text{mm}^2$
Colour:	Cold White (6500 K)
Illumination range:	400 nm – 700 nm
Peak Spectral flux emission:	440 nm
Peak Spectral flux @ ~ 440nm	22 mW / nm

Iris control for SMAL

Type:	Software controlled XY position
XY Control:	100 μm increment
Iris Control:	0.145° increment

Turret

Type:	Manual
Support:	4 lenses
Connection:	M25

Monitor

Interface:	HDMI
Min. resolution requirement [‡] :	1920 x 1080

[‡] Use font set to “Redmond” size ‘8’.



SMAL Lens

Immersion:	Yes
Media:	Oil or water
Resolving limit:	80 – 100 nm
Working distance:	1 – 3 μm
Field of view:	10 – 15 μm diameter
Depth of focus:	200 – 400 nm

Other Lens Support

Type:	Infinity Corrected
Thread:	M25
Standard M25 threading with 10x, 40x, 100x, and SMAL.	
Other lenses available on request, including various Oil, Water and Air lenses.	

XY Scanning Stage – 50 mm

Design:	Anti-creep crossed-roller bearings
Positioning:	True, zero backlash
Encoder:	Linear on sample carriage
Travel range:	50 mm
Max Velocity:	500 mm/s
Resolution / minimum step size:	1 nm
In-position stability:	< 1nm
Bi-directional repeatability:	+/- 75 nm
Accuracy:	+/- 250 nm
Load capacity:	3 Kg
MTBF*:	20,000 h

* Mean time before failure.

Z Stage

Design:	Crossed-roller bearings
Positioning:	True, anti-backlash.
Travel Range:	60 mm
Resolution:	100 nm
Minimum movement:	100 nm

Human Interface

Joystick:	(option) 3-axis Hall effect
Mouse:	2 button and wheel
Keyboard:	Standard alphanumeric



Software

Features:

- . Separated browser, scan manager and explore modes for ease of use.
- . Digital Zoom in live explore and browser modes.
- . Auto Focus configured for x10, x40, x100 and SMAL lenses.
- . Measuring / dimensioning tools.
- . Distance calibration versus encoder.
- . 4k monitor support for super-resolution analysis.
- . Snapshot and Area Scan modes.
- . Image meta-data support (footer legend display).
- . User-sizeable region of interest for stitching.
- . User configurable dwell time between stitched images.
- . User controlled wavelength selectivity.
- . User controlled iris setting (size and position)
- . Integrated software joystick.
- . Support for Nanoro 3-axis Hall effect device.
- . Bespoke lens selection and entry.
- . Image stitching on all lenses, supplied or otherwise.
- . Configurable image export (e.g. to "Image J" or "Gwyddion").

Maximum stitch area:	64 mm ² (limited for files up to 600 Mbyte)
Maximum accessible scan area:	1600 mm ²
Maximum stitch image size:	28,000 x 28,000 pixels
Maximum stitch image size:	784 MP
Updates:	Free

Size & Weight

Nanoro-M Microscope Weight:	24 Kg
Nanoro-M Microscope Size:	30 x 40 x 60 cm
Nanoro-M Controller Weight:	19 Kg
Nanoro-M Controller Size:	27 x 60 x 65 cm

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Aunion Tech Co.,Ltd

Floor 3, F Building, No. 86 Caobao road, Shanghai 200235 P.R. China

Tel: +86-21-51083793

Fax:+86-21-34241962

E-Mail: info@auniontech.com

Website: www.auniontech.com