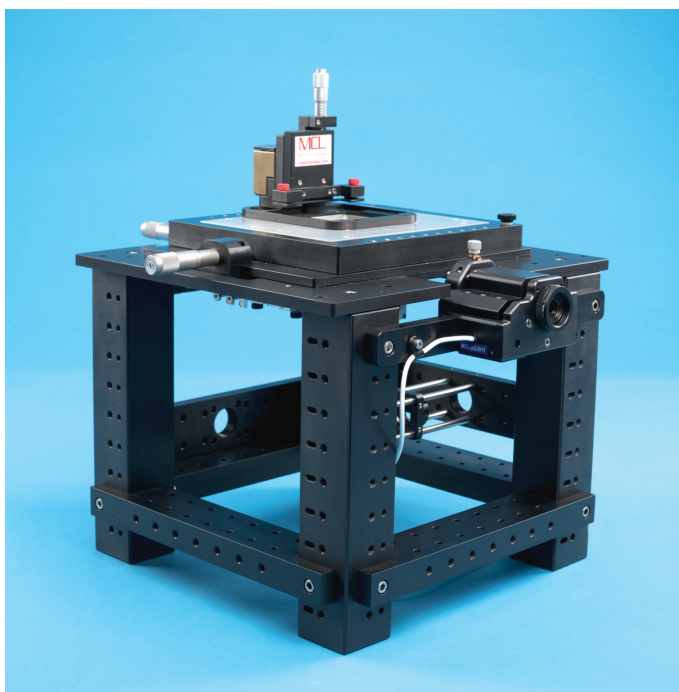


RM21[®] MicroMirror TIRF

Features

- ▶ *Unique MicroMirror TIRF modality ideally suited for multispectral single molecule microscopy*
- ▶ *Spatially separated excitation & emission beams yielding superior signal-to-noise ratios*
- ▶ *High stability microscopy platform with open access to optical pathways - ideal for future innovation*
- ▶ *Integrated high resolution closed loop nanopositioning*
- ▶ *3rd Generation Micromirrors with synchronized motorized movement and software control*
- ▶ *Options: TIRF lock control, dichroic TIRF mode, multiview imaging*



Product Description

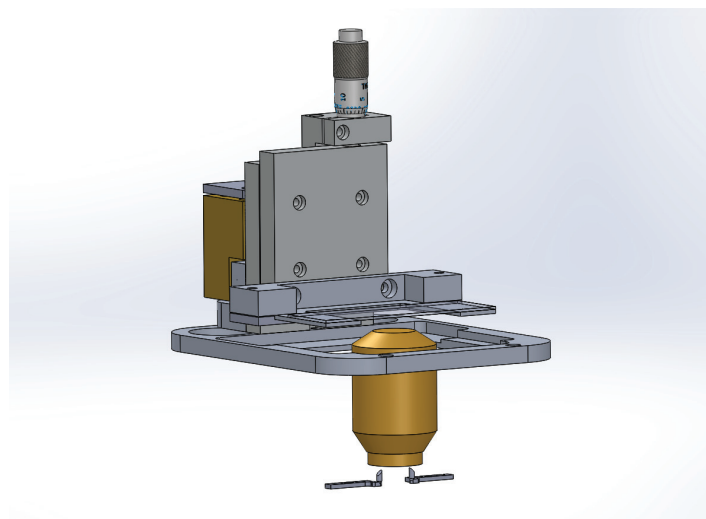
The RM21[®] MicroMirror TIRF microscope was developed specifically for multispectral single molecule microscopy. Techniques such as colocalization single molecule spectroscopy (CoSMoS) study the ordered assembly and function of multi-component biomolecular machines and require exceptional signal-to-noise ratios. This microscope is the only commercially available MicroMirror TIRF microscope.

The MicroMirror TIRF microscope uses through-the-objective excitation, but replaces the dichroic used in conventional TIRF systems with two broadband micromirrors positioned at the back aperture of the (fixed) objective lens. Spatially separating the excitation and emission beams and eliminating the dichroic mirror leads to superior signal-to-noise ratios and simplifies the introduction of multiple spectral lines to your experiment. Typical biomolecular systems studied using micromirror TIRF incorporate three or more laser lines which can be difficult to accommodate in conventional dichroic TIRF microscopes.

Each micromirror is installed on a factory calibrated manipulator designed to place the micromirrors in close

proximity to the back aperture of the objective lens. The micromirrors are stepper motor driven and are controlled via software. Setpoints for different TIRF angles can be saved in software for easy return during experiments. Moreover, the final focusing lens just prior to the entrance micromirror moves in synchrony with these positional changes. The micromirrors can be moved independently to facilitate alignment procedures or experimental needs. When micromirror TIRF is not used on the microscope, the mirrors can be manually retracted.

The RM21[®] MicroMirror TIRF microscope is part of the RM21[®] single molecule microscope family. These microscopes have been designed for users who wish to adapt and innovate techniques on their instruments - in essence a sophisticated "do-it-yourself" microscope.



Above: Rendering of the MicroMirror TIRF microscope showing the relation between the micromirrors, fixed objective lens and z-axis sample positioner. For illustration purposes only.

Our RM21[®] microscopes are designed to maximize optical access and adaptability, simplify optical alignment, and optimize stability for single molecule microscopy and nanoscopy applications. The microscope has been designed for use with piezo nanopositioners. The inclusion of our closed loop nanopositioners with proprietary PicoQ[®] sensors ensures high precision and high stability of sample motion.

What is included?

- ▶ RM21[®] MicroMirror TIRF Microscope.
- ▶ On-site installation with training.
- ▶ Support documentation, including bill of materials for excitation and emission pathways (parts not included).
- ▶ Extensive pre-installation support.

Models \ Methods	Epi-Fluorescence	Single Molecule Localization	MicroMirror TIRF	Dichroic TIRF	Magnetic Tweezers	Atomic Force Microscopy	Z Drift correction	3D Drift correction	Multi-View Imaging
RM21 [®] Versa	●	●		○	○		○		○
RM21 [®] Classic	●	●		○	○	○	○	○	○
RM21 [®] Advanced	●	●	●	●	○	○	○	○	○
RM21 [®] MicroMirror TIRF		●	●	○	○		○	○	○

● supported ○ requires additional options

RM21[®] MicroMirror TIRF

Technical Specifications

Sample Control	
Closed loop nanopositioner	200µm x 200µm x 200µm
Mechanism	Piezo, flexure guided
Position Sensors	PicoQ [®]
Nanopositioner resolution	0.4nm
Recommended max. load	500g
Body material	anodized aluminum
Controller	Nano-Drive [®]
Micropositioners	25mm (XY, manual)
	10mm (Z, manual)
Sample media supported	75mm slide, 30mm petri dish, selected incubators
MicroMirrors	
Retractable micromirrors	YES, manual
MicroMirror motion	10mm
Focusing lens motion	10mm
Mechanism	stepper motor
Minimum step size	95nm
Controller	MicroMirror TIRF
Synchronous movement	YES, in MicroMirror TIRF mode
Micromirrors	Broadband 5mm prisms
Saved positions	YES
General	
Microscope body	Black anodized aluminum, brass microscope thread
Objective position	fixed (45mm or 60mm parfocal)
Nano-Drive [®] features	16bit DAC/ADC ISS (TTL synchronization)
Controller interface	USB 2.0
Nanopositioner connector	DB-9 (male) per channel
Micropositioner connector	DB-9 (female) per channel
Available options	TIRF module (dichroic) TIRF-Lock [®] Magnetic Tweezers Nano-Cyte [®] MadView [®] multiview imaging
Available accessories	75mm slide holders 30mm petri dish holders 3 point adjustable sample holder

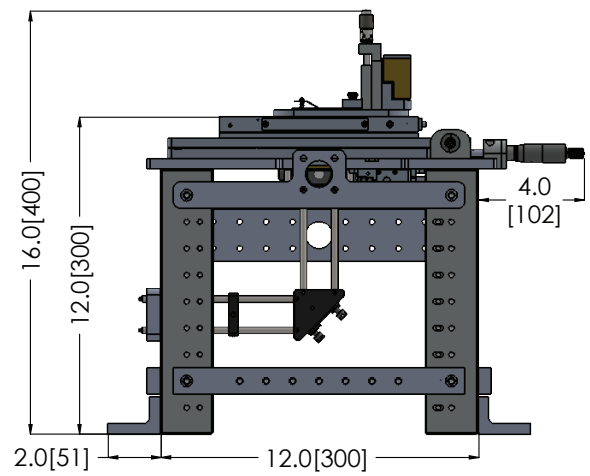
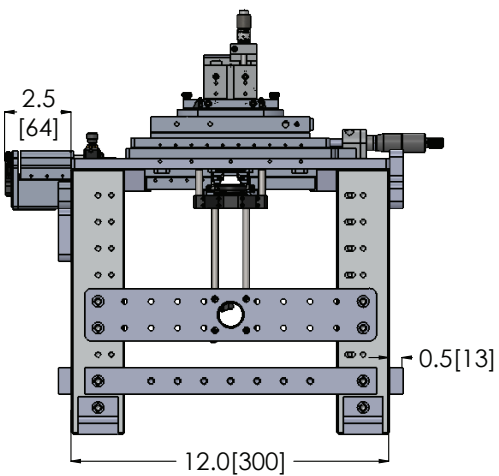
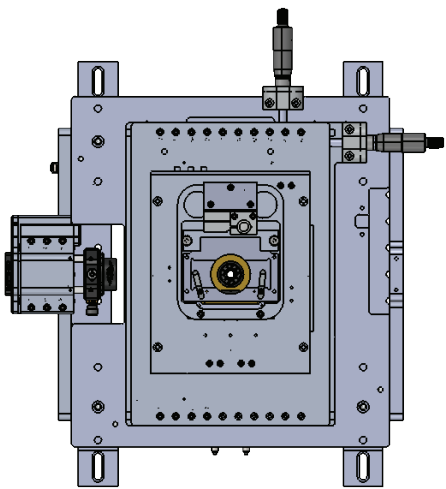
Compatible Software



Examples, tutorial,
and Mad City Labs
Nano-Route[®] 3D
motion control software



Dimensions



Note: All Dimensions in inches [millimeters]