siskiyou life sciences

www.siskiyou.com

siskiyou's history

Siskiyou Corporation began in Grants Pass, Oregon, in 1972 as a two-man shop with the concept of providing precision positioning devices for photonics research. The first products produced were a mirror mount, support post, support post holder, and mounting base. It was the precision of our instruments that attracted attention and soon we received requests for related devices.

Over the years, advances in life science and photonics research led to new uses for Siskiyou's devices, resulting in an increase in demand. As demand increased, staff and equipment were added to handle both new design requests and manufacturing capacity for all products. By 1992, twenty years after the initial concept, Siskiyou had grown and was equipped with the latest CNC machining centers. Now, forty-five years into our existence, we continue to adapt to changing market demands through the use of technology and our highly skilled staff. From the beginning, through the present, and continuing for years into the future, the one element that Siskiyou will not outgrow is its commitment to quality. Siskiyou's commitment translates into developing and maintaining highly trained and skilled people dedicated to serving our customers.

introduction to siskiyou life sciences

Siskiyou's Life Science product line has been refined utilizing the input provided by end users. Researchers, using our products in their own laboratories, accomplish much of the design testing of our products. This is an ongoing process. We constantly evaluate user feedback to improve our products and develop new products. Many of the features in our products are the result of a close relationship between our customers and our technical staff. Maintaining this dialogue ensures that we will continue to fulfill the needs of our customers. Input from our customers enabled us to develop simulated lab conditions at our facility which allowed us to design and build products with the high levels of stability needed to complete experiments successfully. While we may not be able to incorporate every suggestion into our products, we greatly value the feedback from the users of our equipment. Since the end user is at the heart of the process, there is no one better to know the demands placed on equipment.

Our customers require a great variety of configurations in laboratory experiments. This need for flexibility led to our Modular by Design™ concept. This concept facilitates the incorporation of our products into the individual researcher's system with the least amount of alteration or disruption. The ability to reconfigure the devices ensures that they will not become obsolete when one experiment is completed, but will remain a useful piece of laboratory equipment for future experiments. Our technical staff is ready to help our users accomplish their goals. For us, technical assistance is a two-way street — we find it is an excellent way to learn what our customers' needs are, while providing information to help a user complete a setup. Maintaining direct contact with end users will ensure resolution of their problems or concerns and concurrently improve our service. Customer satisfaction is, and will remain, a top priority at Siskiyou.

manipulator and controller

4-axis Closed Loop Controller

Product Features

- Economical DC controller
- variable, high-resolution speed control
- Preset rapid and medium speed setting

Minimum controllable motion	Power requirements
0.2 µm	110–230 VAC, 50/60 Hz

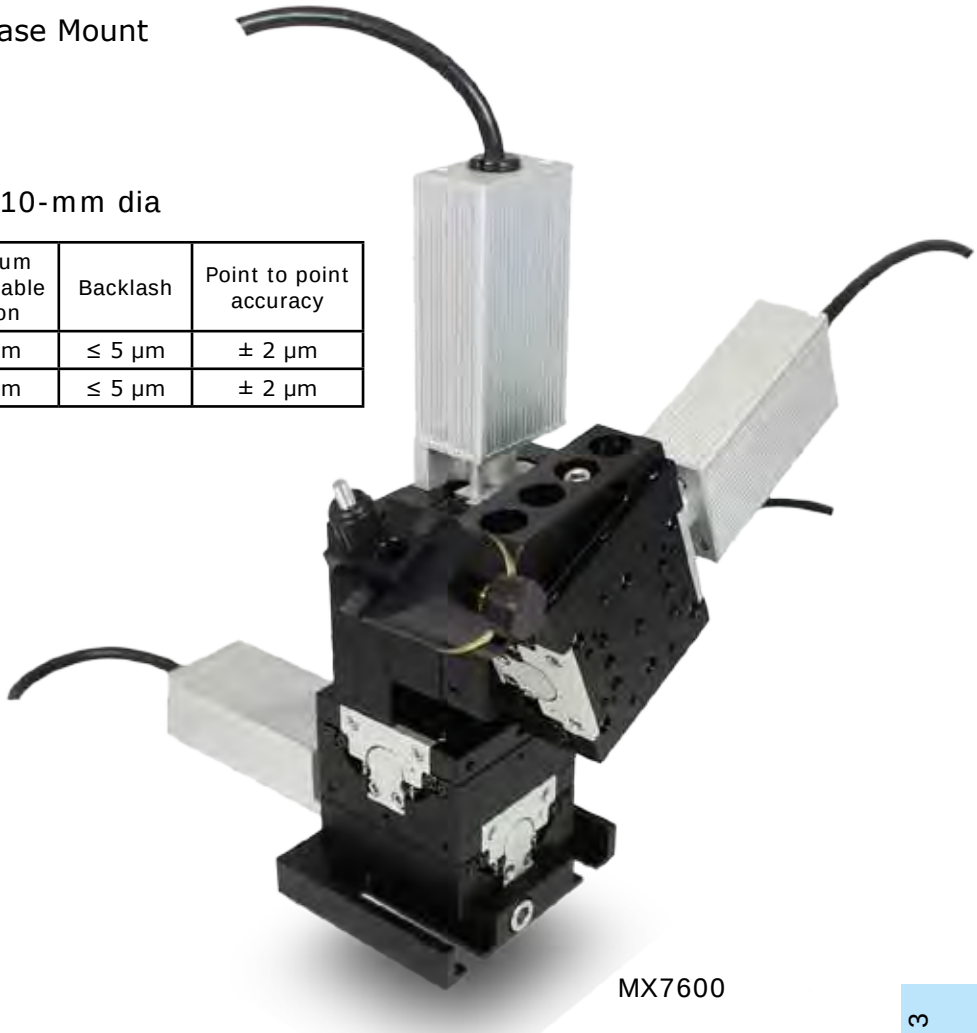
MC1000e

Motorized Manipulator

Product Features

- Motorized Manipulator, 4-axis, Base Mount
- 1.7 mm/sec rapid positioning
- Linear approach on probe axis
- Repeating probe holder
- Holds mounting rods from 3- to 10-mm dia

Model	Maximum load	Travel / axis	Minimum controllable motion	Backlash	Point to point accuracy
MX7600R	2-lbs	20 mm	0.1 µm	≤ 5 µm	± 2 µm
MX7600L	2-lbs	20 mm	0.1 µm	≤ 5 µm	± 2 µm



MX7600

life sciences solutions

Product Features; ST50-CV electrode holder

- High thermal stability
- Low noise
- Thermal expansion coefficient, CTE linear 68°
  - Polycarbonate 70 µm/m-°C
  - Stable-tip 23 µm/m-°C
- Electronic noise characteristics
  - Polycarbonate 0.78–0.79 pA
  - Stable-tip 0.79–0.80 pA

ST50-CV

Product Features; MXB-3h articulating arm

- Firm-grip Delrin® knobs
- Convenient 8-32 and 1/4-20 mounting holes
- Quality machined construction
- Vacuum compatible versions available

MXB.3h

Product Features; MX130L 4-axis manipulator

- Repeating probe holder
- 4-axis manipulator, lh
- Combined coarse and fine control on X-axis
- Narrow space-saving design
- Holds mounting rods from 3-mm to 10-mm in diameter.

Travel range

X-axis, coarse/fast	42-mm
X-axis, fine	3-mm
Pitch/Yaw	7°

Minimum controllable motion

X axis, fine	5 µm
Pitch/Yaw	5 arc sec.

MX130L

Product Features; PC-A perfusion chamber adapter

- Solid aluminum construction
- Secure mounting of perfusion chambers
- Compatible with Nikon's microscope stage

PC-A

Product Features; PC-H & PC-V perfusion chamber

- Non-corrosive LEXAN® construction
- Embedded magnets
- 22mm cover slip chamber bottom

PC-H

PC-V

life sciences solutions

Product Features; MXMS-115 microscope translator

- Available with 40 or 80-pitch drive screws
- Compatible with fixed-stage upright microscopes
- Preconfigured mounting hardware
- Time-tested design

Performance Specifications	
Maximum load	125 lbs, centered
Travel / axis	1.0 inch (25mm)
Minimum controllable motion	
40 pitch	5.0 µm
80 pitch	submicron

MXMS-115

Product Features; MXAE microscope platform

- Solid aluminum construction
- Flexible mounting design

IS-OGP | Optogenetics Positioner

The IS-OGP provides a simple, complete solution that adds a laser light source to your microscope for optogenetics research. It positions a small (10um typical with 20X objective) stimulation spot to any location within the field of view. The single-mode FC connectorized fiber optic cable input from your light source, combined with the included FLG-FC/2 optics internal to the IS-OGP (patent pending), creates a collimated input to the rear aperture of the microscope objective.

Product Features

- Easy microscope mounting
- Simple beam steering
- Uses single-mode connectorized light sources

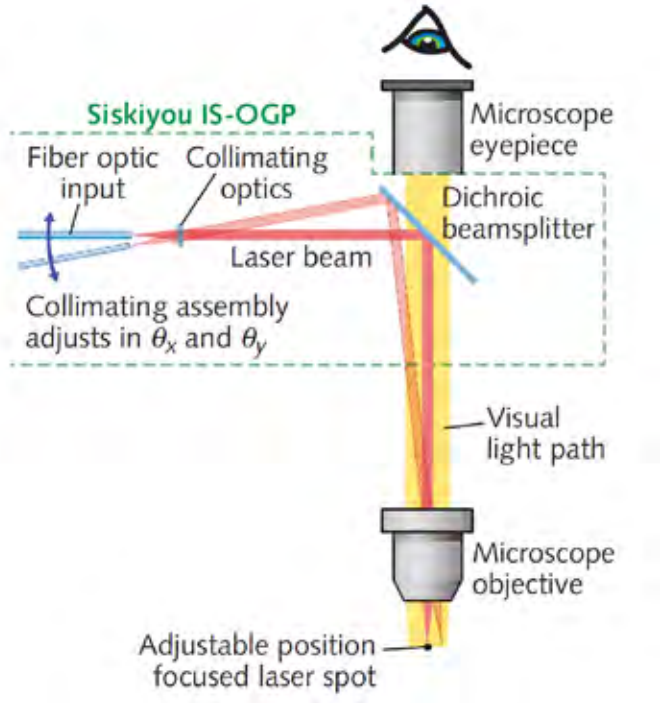


FIGURE 1. Optomechanical modules such as the Siskiyou IS-OGP provide a cost-effective method of integrating an externally controllable, secondary light source into conventional trinocular microscopes. A 45° dichroic, bandpass or other beamsplitter is held in a compact slider assembly that mechanically dovetails between the microscope body and the trinocular head. The slider allows seamless insertion and retraction of the beamsplitter from the microscope optical path, or even swapping for another beamsplitter.

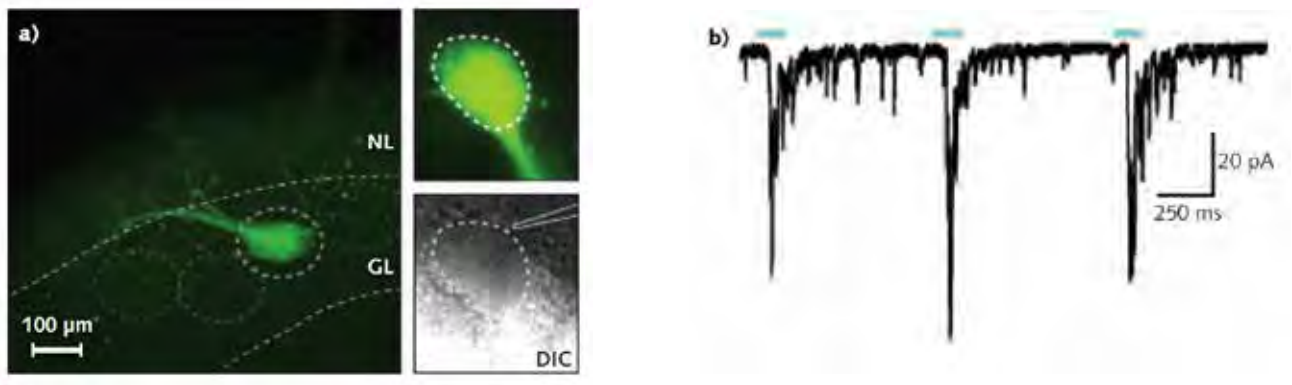
Next-Generation Optomechanics

A new generation of optomechanical modules now provides a cost-effective method of integrating an externally controllable, secondary light source into conventional trinocular microscopes from leading manufacturers such as Zeiss, Nikon, and Olympus. As shown schematically in figure 1 (opposing page), the principle of operation is remarkably simple. A 45° beam splitter is placed in the infinity space in the microscope body (tube). Specifically, a dichroic, bandpass or other beamsplitter is held in a compact slider assembly that mechanically dovetails between the microscope body and the trinocular head. Once incorporated in the microscope, the slider mechanism allows the beamsplitter to be inserted and retracted from the microscope optical path, or even swapped for another beamsplitter, without any mechanical disruption or disassembly required.

Collimated light is input to the assembly laterally, from a single-mode, fiber-coupled collimator mounted in precision, XY, double flexure mount. The microscope objective focuses the resultant spot of light in the sample plane. The spot diameter depends on the wavelength of the light and the power of the objective; with a conventional 20X objective, light at 488 nm is typically focused to a spot diameter of about 20 µm.

The compact collimator is configured with a standard FC-female input socket, and can thus accept any light source delivered via a single-mode fiber. A double flexure tip/tilt mounting arrangement is used, as this provides simple adjustment of the focused spot position with minimized backlash, compared to alternative approaches, e.g., based on dual axis translation. The sensitivity of the spot adjustment in the focal plane again depends on the power of the objective. With the differential screws supplied as standard with this set-up, the relationship is approximately 20 µm per screw revolution, when using a 20X objective. Additionally, the flexure mount accepts motorized actuators for those desiring automated control.

Another advantage of using an optical microscope module that itself consists of several sub-modules is cost-effective flexibility. For example, the system can be deliberately defocused to flood the entire field of view with illumination. Alternatively, the beamsplitter slider module can be used on its own to create a fixed, 45°, bidirectional access to the microscope infinity space. The enables the use of an additional eyepiece, camera or other imaging devices, e.g., with a polarizing or bandpass filter.



Olfactory bulb (OB) neurons are receiving olfactory sensory neuron input exhibit light-evoked responses. (a) An OB slice shows the axons of olfactory sensory neurons co-expressing the odorant receptor M72 and ChR2 (left), and in another slice under fluorescent illumination (right, top) and differential interference contrast (right, bottom), the OB neurons are visible. (b) Whole cell recording in voltage clamp configuration (Vhold = -70 mV) from an OB neuron: Laser stimulation causes large, inward post-synaptic currents, indicating that light-sensitive olfactory sensory neurons form synapses with this cell. (Credit: Andrew H Moberly and Minghong Ma)

Creating opportunity, prosperity, and success for customer, employee, and company.

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