

### Fixed Platform System #1 - Parts Required as pictured (right)

Model	Quantity
8090P	1
PSR-6	3
BB-5.0	2
RTC-0.5	1
RTC-A3	1
AS-1A	3
PH-1	1

### Basic Platform System 2



### Fixed Platform System #2 - Parts Required as pictured (above)

Model	Quantity
8090P	1
1280P	2
PSR-6	4
AS-1A	4
PH-1	1

### Fixed Platform System #3 - Parts Required (not pictured)

Model	Quantity
1280P	1
AS-1A	1
BB-1	2
RTC-0.5	1
RTC-A3	1
PH-1	1

# Adapt your microscope to any application.



## Basic Platform Systems

Fixed platforms, stages and shelves can be built from custom pieces or from standard configurations. Many platforms begin with the model 8090P perfusion chamber holder or mounting plates. The platform is held up by several spacers and support rods or towers.

Please contact AutoMate Scientific with your microscope model and application (patch clamping, multi-site patch clamping, blind patch or extracellular work, etc.) and we can configure an economical platform for your inverted or upright microscopes.

# Manual and motorized microscope mounting.

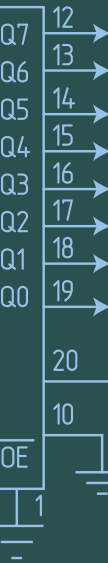


## Manual & Motorized Microscope Platform

The MXZP platform system can be custom tailored to suit your needs. The platform configuration shown is just one of many that Siskiyou can produce.

The system is supported by our 100cr series stages (crossed roller). They are available in manual or motorized versions. A full 25mm of travel is provided on both models. The manual versions, can be fitted with either 20, 40, 80, or 100 TPI adjustment screws with resolution from 20  $\mu\text{m}$  down to 5  $\mu\text{m}$ , respectively. Please specify which pitch of adjustment screw you require when ordering. Replace -xx in the Model Number with the desired thread.

Motorized versions can be controlled with any e series and MC2000 controllers. Our controllers drive the stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2  $\mu\text{m}$  and 0.1  $\mu\text{m}$  resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments.





# A solid support solution.



## Platform Support Rods & Spacers

### Platform Support Rods

The PSR series platform support rods are a solid solution for supporting platforms or other mechanical hardware. Our PSR platform support rods are specifically designed to be used with our 1200 and 12000 series platforms. PSR platform support rods are cross drilled to accept a 3/16 hex wrench. This cross hole enables secure tightening to AS spacers, isolation table tops, or other mechanical devices. When used in conjunction with AS aluminum spacers, accurate placement of our platforms, manipulators, or other devices is easily achieved.

### Aluminum Spacers

Use AS aluminum spacers for spacing of any device that needs to be adjusted in either the vertical or horizontal plane. AS spacers can be used by themselves or with ABP series base plates. They are also useful for added height adjustment on top of our PSR platform support rods. For horizontal applications use our BB-1.0 building block cube attached to the top of an AS spacer, then bolt another AS spacer to one or more of the four sides. Individual size spacers are available in packages of 4. The assortment kit (AS-1A) includes one(1) each of AS-0.125, AS-0.25, AS-0.50, AS-1.0, AS-1.50 & AS-2.0 spacers size plus two (2) 1/4-20 x 5/8 stainless steel set screws for attaching the AS-1.50 to the AS-2.00.

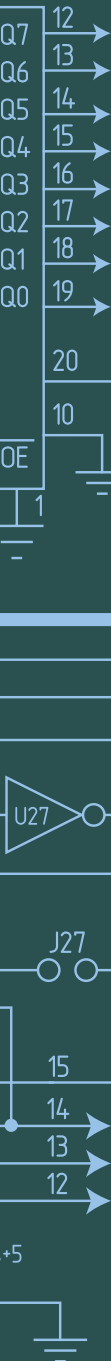
### Features

- 2.5- to 12.0-inch vertical adjustability
- Solid aluminum construction
- Flexible mounting design
- Vacuum compatible versions available upon request

### PRS Series



### AS Series



## Siskiyou Fixed Platform Ordering Information

Part No.	Product Description	Price
SD-BB-5.0	Building block, 5.0 inch	\$ 16
SD-RTC-0.5	Rotation/translation clamp, 0.5 inch	\$ 16
SD-RTC-A3	RTC adapter, 1/4-20 or M6 clearance, pkg of 3	\$ 15
SD-PH-1	Platform hardware kit, assortment	\$ 20
SD-8090P	Platform, 8.0"x 9.0", 10.8cm aperture	\$ 275
SD-1280P	Platform, 12.0"x 8.0", beveled	\$ 265
SD-BB-1	Building block, 1.0 inch	\$ 16

## Siskiyou Manual & Motorized Platform Ordering Information

Part No.	Product Description	Price
SD-MXZP-i2	Motorized platform with one '200cr' motorized crossed roller XY stage and one 'floater' '200cr' crossed roller XY stage	\$ 9,000
SD-MXZP-xx	Manual platform with one '100cr' XY stage with either 20, 40, 80, or 100 TPI adjustment screws and three 'floater' '100cr' crossed roller XY stages	\$ 6,000

## Siskiyou Tower Ordering Information

Part No.	Product Description	Price
SD-MX312-P	Coarse vertical adjustment platform, 3.0"x3.0"	\$ 285
SD-MX312P-T	MX312P top plate	\$ 75
SD-MX312P-B	MX312P base plate	\$ 100

## Siskiyou Spacer Ordering Information

Part No.	Product Description	Price
SD-PSR-4.0	1.5" diameter Platform Support Rods x 4.0 inch tall	\$ 50
SD-PSR-6.0	1.5" diameter platform support rod, 6.0 inch	\$ 55
SD-PSR-10.0	1.5" diameter platform support rod, 10.0 inch	\$ 70
SD-AS-1A	Aluminum spacer kit assortment	\$ 20
SD-AS-.125	Aluminum spacers, .125", pkg of 4	\$ 16
SD-AS-.250	Aluminum spacers, .250", pkg of 4	\$ 17
SD-AS-.500	Aluminum spacers, .500", pkg of 4	\$ 18
SD-AS-1.00	Aluminum spacers, 1.00", pkg of 4	\$ 22
SD-AS-1.50	Aluminum spacers, 1.50", pkg of 4	\$ 23
SD-AS-2.00	Aluminum spacers, 2.00", pkg of 4	\$ 25
SD-AS-4.00	Aluminum spacers, 4.00", pkg of 1	\$ 25
SD-AS-6.00	Aluminum spacers, 6.00", pkg of 1	\$ 26
SD-PSR-100	1.5" diameter platform support rod, 100 mm tall	\$ 50
SD-PSR-150	1.5" diameter platform support rod, 150 mm	\$ 55
SD-PSR-250	1.5" diameter platform support rod, 250 mm	\$ 70
SD-AS-25A	Aluminum spacer kit assortment -metric	\$ 20
SD-AS-3	Aluminum spacers, 3 mm, pkg of 4	\$ 16
SD-AS-7	Aluminum spacers, 7 mm, pkg of 4	\$ 17
SD-AS-015	Aluminum spacers, 15 mm, pkg of 4	\$ 18
SD-AS-25-4	Aluminum spacers, 25 mm, pkg of 4	\$ 22
SD-AS-40	Aluminum spacers, 40 mm, pkg of 4	\$ 25
SD-AS-50	Aluminum spacers, 50 mm, pkg of 4	\$ 25
SD-AS-100	Aluminum spacers, 100 mm, pkg of 1	\$ 25
SD-AS-150	Aluminum spacers, 150 mm, pkg of 1	\$ 26

U.S./Canada prices shown. International prices add 20%. Email or visit web store for latest prices.

# Move the microscope, not the experiment.



## Manual & Motorized Microscope Translator

MXMS-100cr series microscope translators are designed to be stable XY translators for fixed stages experiments. MXMS-100cr series translators have a full 25 mm of XY translation and have full crossed roller bearing stages in all three locations.

MXMS crossed roller translators are available in motorized and manual versions. Motorized versions can be controlled with any e series and MC2000 controllers. Controllers drive the stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2  $\mu\text{m}$  and 0.1  $\mu\text{m}$  resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments. Manual versions can be fitted with either 20, 40, 80, or 100 TPI adjustment screws with resolution from 20  $\mu\text{m}$  down to 5  $\mu\text{m}$ , respectively.

MXMS-100cr series stages can be sized to fit most microscopes. Please include the manufacturer name and model of your microscope when ordering. A clamp kit appropriate for your microscope will be included.

## Features

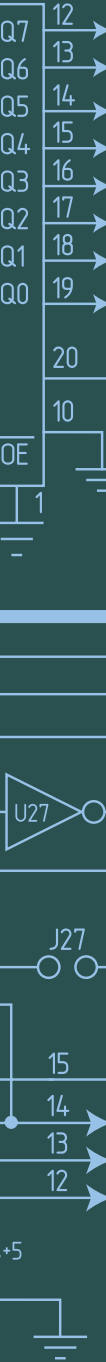
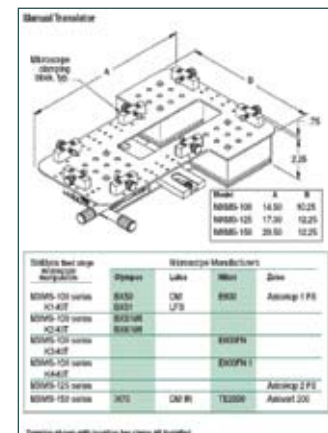
- 20-, 40-, 80-, or 100-pitch drive screws
- Compatible with fixed stage microscopes
- Full crossed roller stage support

## Performance Specifications

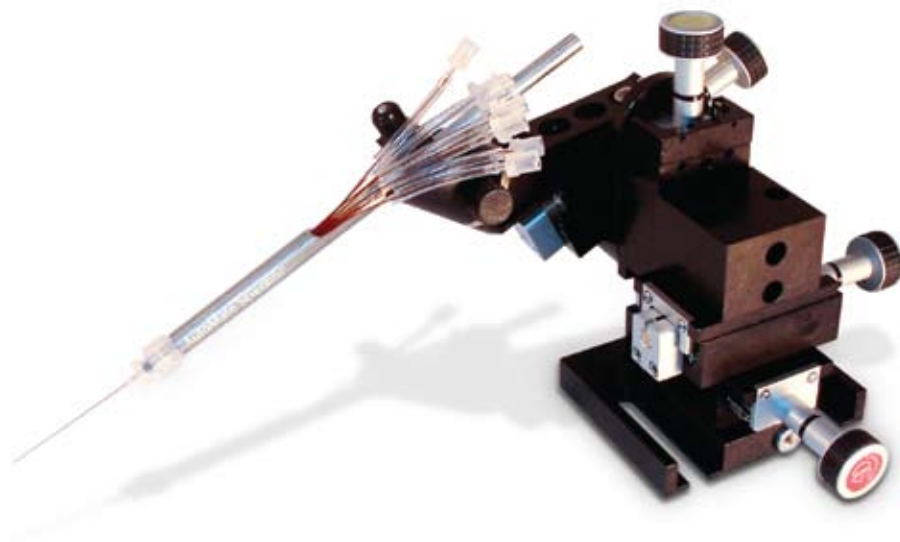
- Maximum load 200 lbs, centered
- Travel / axis 1.0 inch (25 mm)
- Minimum controllable motion:
  - Manual
    - 20 TPI 10  $\mu\text{m}$
    - 40 TPI 5  $\mu\text{m}$
    - 80 TPI submicron
    - 100 TPI submicron
  - Motorized
    - Backlash  $\leq$  5  $\mu\text{m}$
    - Point to point accuracy  $\pm$  2  $\mu\text{m}$

## Economy Translator

- MXMS-100 series translators have a full 25 mm of XY translation and use ball transfer pads in the back two bearing locations instead of full crossed rollers.



# Stability and full features at a great price.

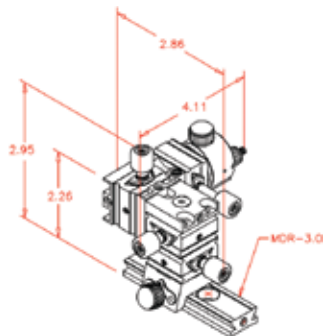


## Manual Base Mount Micromanipulators

- **Four-axis control with soft touch knobs on all models shown**
- **Five or ten micron accuracy**
- **Combine with a Perfusion Pencil<sup>®</sup> for focal drug application**

The AutoMate Scientific Perfusion Pencil makes a perfect companion to these four-axis micromanipulators. Mount the Perfusion Pencil for micron accurate drug delivery and rapid rotational change-out. The small SD-10 manipulator offers 5  $\mu\text{m}$  resolution. Its compact size makes it ideal for stimulator applications. The SD-130 manipulator is designed to maximize available space. Its narrow profile allows several manipulators to be placed in one quadrant. With a long 22 mm (0.86 inches) of travel on its probe axis and X axis, the SD-160 is ideal for axial cell probing. It includes an adapter mounted to the  $\Theta$  axis with a rotational stop for convenient electrode/pipette replacement.



**SD-10 Micromanipulator**

Only 4.11 x 2.95" (10.44 x 7.49 cm)

**SD-10 Performance Specs**

- 10 mm travel in all 4 axes
- Dovetail mounting rail for easy removal or replacement
- Maximum load 0.5 lbs
- Travel/axis 0.39 inch (10 mm)
- Resolution 5  $\mu$ m

**SD-10 Miniature Micromanipulator**

The SD-10 is a miniature micromanipulator ideal for positioning applications requiring micron-level resolution. DT100 series stages use a precision-rolled 80 TPI lead screw for smooth positioning along their entire travel. The miniature dovetail slide uses an adjustable spring-loaded gib design. This feature ensures stability, straightness of travel and also works as a locking mechanism. The device is equipped with a fourth axis which can be set at any angle through 360° of motion.

The compact size of the SD-10 makes it ideal for stimulator applications. The mounting method makes removal and replacement very straightforward. The addition of a simple stop allows repeatable placement.

**Siskiyou Manual Manipulator Ordering Information**

Part No.	Product Description	Price
SD-10	4 axis mini micromanipulator (specify right or left hand)	\$ 525
SD-130	4 axis compact micromanipulator	\$ 730
SD-160	4 axis full micromanipulator	\$ 1,200

U.S./Canada prices shown. International prices add 20%. Email or visit web store for latest prices.

# Exceptionally smooth linear travel and drift-free operation.



## Siskiyou Motorized & Hydraulic Manipulators

Siskiyou manipulators are well-known for their reliable performance in electrophysiology recording and stimulation. Motorized manipulators are available with push-button, joystick, dial and computer controllers for single or multiple manipulators. Headstage and electrode mounts are available for major amplifier brands.

### Motorized Manipulators, Four-axis Base Mount

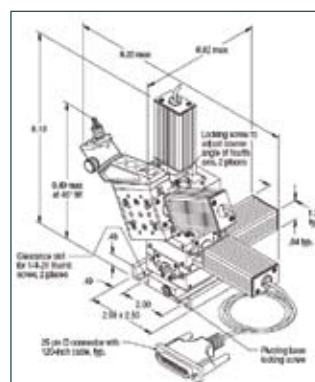
The MX7600 motorized crossed roller bearing micromanipulator is ideal for patch recording experiments. Offering exceptionally smooth linear travel and a precision preloaded lead screw to ensure drift-free operation. The motorized 4-axis micromanipulator incorporates our MXC-45 pipette holder mounted to an adjustable clamp on the  $\theta$  axis. This clamp allows the MXC-45 and  $\theta$  axis to be adjusted to the desired angle of approach from  $0^\circ$  to  $180^\circ$  for true axial approach. The MXC-45's built in rotational stop allows easy pipette replacement. The MX7600 can be used with our e series and MC2000 controllers to drive the 7600 stage through a closed loop interface between the controller and the

### Features

- 1.7 mm/second rapid positioning
- Axial approach on 4th axis
- Repeating probe holder

### Performance Specifications

- Maximum load 2 lbs
- Travel / axis 0.80 inch (20 mm)
- Minimum controllable motion  $0.1 \mu\text{m}$
- Backlash  $\leq 5 \mu\text{m}$
- Point to point accuracy  $\pm 2 \mu\text{m}$



Q7 12  
Q6 13  
Q5 14  
Q4 15  
Q3 16  
Q2 17  
Q1 18  
Q0 19

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U27

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12

+5

motor encoder. The closed loop connection ensures 0.2  $\mu\text{m}$  and 0.1  $\mu\text{m}$  resolution, respectively.

MX7600 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes to attach to the base of the MX7600.

### Push-Button Controller

The MC1000e is a simple push-button controller with submicron positioning capability that is compatible with our 800 and 7000 series actuators, manipulators, and stages.

The MC1000e 4-axis controller has two preset speed settings: rapid (1.7 mm/second) and medium (300  $\mu\text{m}$ /second). The third speed selector (slow) has a variable 330° potentiometer that enables settings from high speed (50  $\mu\text{m}$ /second) to low speed (2  $\mu\text{m}$ /second). With the speed selector set at the slowest settings, consistent 0.2  $\mu\text{m}$  moves are easily made by the simple bump of an axis button.



All of the Siskiyou controllers on these two pages use encoder feedback from the motor to drive the device. This encoder coupling enables the use of the DR1000 digital readout for repeated positioning requirements.

The MC1000e controllers also use a wall mounted power supply as their source for clean DC power. All cables are shielded and a central ground lug is located on the junction-box to ensure noise-free operation during sensitive electrophysiology experiments.

### Four-axis Closed Loop Dial Controller

The MC1000e-R/T 4-axis dial controller acts as a remote micrometer control for 800 & 7000 series actuators, manipulators, and stages. It uses encoder feedback from our closed loop devices to create an electronic link between the controller dial and the device being driven. This direct coupling to the encoder ensures smooth and coordinated motion between the controller and the drive.

A two-position rocker switch is conveniently located on the top of the controller. The rapid setting is set to maximize speed (1.7 mm/second) when the dial is turned at 180 RPM. The slow setting is set to maximize resolution (0.2  $\mu\text{m}$ ) but still allow coarse positioning (800  $\mu\text{m}$ /second).



### Three-axis Closed Loop Joystick Controller

The MC1000e-J joystick controller is designed for coarse micron level positioning of our 800 and 7000 series actuators, manipulators, and stages.

The joystick control is proportional from slow to high through the travel range of the joystick motion. A two-position rocker switch is conveniently located on the top of the controller. The rapid setting is set to maximize speed (1.7 mm/second) when the joystick is moved to its farthest position from center. The slow setting is set to maximize resolution (0.2  $\mu\text{m}$ , 30  $\mu\text{m}/\text{second}$ ).

Polarity switches on the junction box allow the joystick motion to be set to match the output of the device being driven. This feature ensures intuitive interaction between the joystick operator and the operation.



### Four-axis Closed Loop Push-Button with Target

The MC1100e uses the same control features as our popular MC1000e controller with a TARGET/RETRACT feature on one axis. The TARGET/RETRACT allows the user to set a target location at a desired point. When it becomes necessary to back away from the experiment area, the user simply depresses the RETRACT button. The stage/actuator plugged into that axis then automatically retracts to its full negative limit. The user then can return to the previously set position by simply depressing the TARGET button.

The MC1100e 4-axis controller has two preset speed settings: rapid (1.7 mm/second) and medium (300  $\mu\text{m}/\text{second}$ ). The third speed selector (slow) has a variable 330° potentiometer that enables settings from high speed (50  $\mu\text{m}/\text{second}$ ) to low speed (2  $\mu\text{m}/\text{second}$ ). With the speed selector set at the slowest settings, consistent 0.2  $\mu\text{m}$  moves are easily made by the simple bump of an axis button.



### Controller Switch Box

Our easy to use ABDC switching box allows control of one to four 4-axis micromanipulators by one controller (MC2000 excluded). The basis of the design is simple and requires only an extra controller junction box for each added micromanipulator or motor drive group (up to four per group). Junction boxes must be purchased separately, however this is more cost-effective than individual handheld control units.

When used with the MC1100e controller, the user can save a "target" location for each manipulator independent of the operation of the others even after switching between micromanipulators. The switch box comes with enough cables to attach four junction boxes, and all connections are shielded.



Q7 12  
Q6 13  
Q5 14  
Q4 15  
Q3 16  
Q2 17  
Q1 18  
Q0 19  
20  
10  
OE 1

U27

J27

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14

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12

+5



### Features

- Water based hydraulic system
- Less than 2  $\mu\text{m}$  drift / hour
- Ideal for intracellular recording

### Performance Specifications

- Travel / axis:  
Total 0.80 inch (20 mm)  
Fine 0.2 inch (5 mm)
- Minimum controllable motion:  
Coarse 10  $\mu\text{m}$   
Fine 0.5  $\mu\text{m}$



### Features

- Unique swing-out design
- Spring-loaded lock knob
- Compatible with Axon 200/700 series, HEKA EPC-10, and A-M Systems model 2400

## Hydraulic, Integrated Base Mount Micromanipulators

Smooth motion and instant response to hand adjustments makes the MX6600 ideal for long term intracellular recordings. The water based hydraulic mechanism has a thermal expansion two to three times less than that of oil based systems, thus minimizing drift to less than 2  $\mu\text{m}$  per hour at constant temperatures.

The MX6600 design integrates the metal bellow system with our precision crossed roller stage to ensure precision movement and long life. The fine positioning dials on three axes use our ultrafine 127TPI adjustment screws to enable 0.5  $\mu\text{m}$  resolution. The coarse positioning knobs on four axes incorporate 20TPI screw drive positioning for smooth motion in the X,Y, Z, and  $\Theta$  axes. The  $\Theta$  axis can be adjusted to the desired angle of approach from 0° to 180°.

The MX6600 has our MXC-45 mounted to the  $\Theta$  axis. The MXC-45's built-in rotational stop allows easy electrode/pipette replacement. MX6600s come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R as well as to the base of the MX6600.

## Repeatable Headstage and Probe Clamps

### Axon 200/700 Headstage Mount

The MXC-45D's unique design allows repeatable electrode replacement with a simple but accurate rotating clamp. The top clamp of the MXC-45D is designed to be compatible with Axon CV200B, CV-7A, and HEKA EPC-10 headstages. The rotating portion is configured such that the probe /pipette rotates up and away from the experiment at a 45° angle through a full 180°. The repeatable stop returns to its location with micron level accuracy and the stop's orientation can be changed simply by loosening a single 1/4-20 cap screw.

### Probe Clamp

The MXC-45's unique design allows repeatable electrode replacement with a simple but accurate rotating clamp. The top clamp of the MXC-45 is designed to be compatible with headstage mounting rods from 3- to 10-mm in diameter. The rotating portion is configured such that the probe /pipette rotates up and away from the experiment at a 45° angle through a full 180°. The repeatable stop returns to its location with micron level accuracy and the stop's orientation can be changed simply by loosening a single 1/4-20 cap screw.

## Siskiyou Motorized Manipulator Ordering Information

Part No.	Product Description	Price
SD-MX7600L	Motorized manipulator, 4-axis, base mount with round clamp	\$ 4,250
SD-MX7600R	Motorized manipulator, 4-axis, base mount with round clamp	\$ 4,250
SD-MX7600/45DL	Motorized manipulator, 4-axis, base mount with dovetail clamp	\$ 4,300
SD-MX7600/45DR	Motorized manipulator, 4-axis, base mount with dovetail clamp	\$ 4,300

## Siskiyou Controller and Accessory Ordering Information

Part No.	Product Description	Price
SD-MC1000e-Std	Controller, 4-axis closed loop push-button	\$ 995
SD-MC1000e-R/T	Controller, 4-axis closed loop dial	\$ 2,895
SD-MC1000e-J	Controller, 3-axis closed loop Joystick	\$ 1,275
SD-MC1100e	Controller, 4-axis target	\$ 1,475
SD-SB-MC1000e/R	Switch box & cables for MC1000e, MC1000e-R and-MC1000e-R1	\$ 50
SD-JB-MC1000e-Std	Junction box for MC1000e	\$ 585
SD-JB-MC1000e-RO	Junction box for MC1000e-R	\$ 1,485
SD-JB-MC1000e-R1	Junction box for MC1000e-R1	\$ 1,125
SD-SB-MC1100e	Switch box and cables for MC1100e	\$ 50
SD-JB-MC1100e	Junction box for MC1100e	\$ 885
SD-SB-MC1000e-J	Switch box and cables for MC1000e-J	\$ 50
SD-JB-MC1000e-J	Junction box for MC1000e-J	\$ 705

## Siskiyou Hydraulic Manipulator Ordering Information

Part No.	Product Description	Price
SD-MX630R	Hydraulic manipulator, 3-axis, right-hand	\$ 3,895
SD-MX6600L	Hydraulic manipulator base mount with round clamp	\$ 5,700
SD-MX6600R	Hydraulic manipulator base mount with round clamp	\$ 5,700
SD-MX6600/45DL	Hydraulic manipulator base mount with dovetail clamp	\$ 5,750
SD-MX6600/45DR	Hydraulic manipulator base mount with dovetail clamp	\$ 5,750

## Siskiyou Headstage & Pipette Holder Ordering Information

Part No.	Product Description	Price
SD-MXC-45DR	Repeatable headstage mount for Axon 200/700 series and HEKA EPC-10, rh	\$ 200
SD-MXC-45DL	Repeatable headstage mount for Axon 200/700 series and HEKA EPC-10, lh	\$ 200
SD-MXC-45R	Repeatable probe clamp, rh	\$ 175
SD-MXC-45L	Repeatable probe clamp, lh	\$ 175
SD-2A-45D	Axon 2A amplifier mount for MXC-45D series	\$ 35
SD-CV4-45D	Axon CV4 amplifier mount for MXC-45D series	\$ 35

U.S./Canada prices shown. International prices add 20%. Email or visit web store for latest prices.



# Outfit your entire rig with Siskiyou accessories.

## 3 Axis Shuttle System



Shown in Retracted Position



### Horizontal



### Vertical



### Round

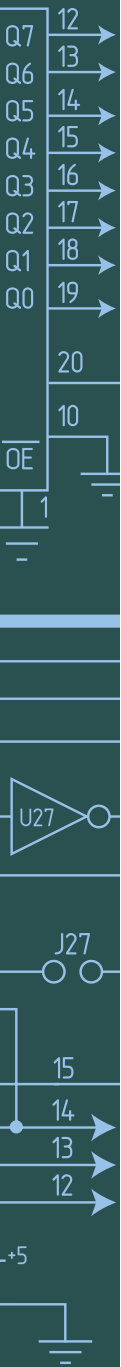


### Chamber Shuttle System: 3 Axis

One inch working travel in XYZ. Choice of 20, 40, 80, and 100 TPI adjustment screws. Magnetic coupling (pat. pend) allows quick withdrawal of perfusion chamber from working area.

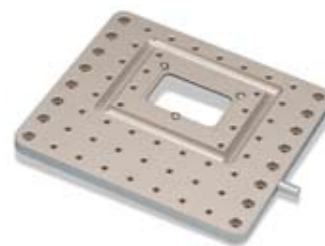
### Perfusion Chambers: Horizontal, Vertical, Round

The PC series perfusion chambers have embedded magnets that are conveniently located to retain perfusion plumbing and ground plugs. They are designed to fit into our 8090c fixed stage platform. A standard 22 mm cover slip is used to create the chamber bottom that is attached with vacuum grease, silicon, or parafilm. There are two plastic retention screws for added security. Both openings accept 13-mm round cover slips for cultured specimens. PC series chambers come in three styles: horizontal, vertical, and round. All models have two small but very powerful magnets located next to the input/output reservoirs and two more located closer to the recording chamber.



### The 8090c Platform

The 8090c perfusion chamber platform is specifically designed with the electrophysiologist in mind. With adequate mounting holes and a drainage trough around the perimeter for solution overflows. The 8090c is ideal for fixed stage electrophysiology setups. The drainage trough is designed to protect your expensive microscope optics by funneling the solution to the outer edge of the platform and down the drainage tube to a safe location. The chamber receiver is located off of center and accepts our PC series perfusion chambers. Clearance holes along the right and left hand edges allow mounting as a stand-alone fixed stage or as the center chamber platform in a bridged platform setup.



### PC-A Chamber Adapter

The PC-A chamber adapter allows the user to mount our PC-V and PC-H chambers into our 8090P platform. Their 10.8-cm diameter is also compatible with Olympus microscope stages and allows 360° rotation of the chamber.



### Amplifier Electrode Holders

The new Stable-tip electrode holders eliminate the final instability in the electrophysiology experimental setup. We've taken a thermally stable base material and coated it with aluminaoxide. This coating has two benefits: first, it is non-conductive so the holder does not act as an electrical antenna; second, it is very resistant to corrosion. Under conditions of a high resistance electrode seal (gigaseal), the ST series electrode holder has a noise level of 0.79–0.80 pA RMS (5kHz filter); polycarbonate measured 0.78–0.79 pA. The base material of the Stable-tip has a thermal expansion coefficient of 23 $\mu\text{m}/\text{m}^\circ\text{C}$  versus 70 $\mu\text{m}/\text{m}^\circ\text{C}$  of a polycarbonate holder. That is an improvement by a factor of three.



### Pipette Puller

Our dual stage EP-450 pipette puller uses several unique methods to make consistent electrodes pull after pull. The theory of operation is based on time management and millivolt control of the element for both first and second pulls. By controlling the time, or at least establishing a time basis, the user can create a pipette shape and length consistently and repeatedly. The EP-450 has been designed to be multi-user friendly. A simple data log book is included to record electrode glass type, electrode glass diameter, first pull time, first pull voltage, second pull time and second pull voltage. Using this information, any user can easily reestablish their settings and recreate a specific electrode shape. The EP-450 has a unique ergonomic design. It is comfortable for the user to operate on a daily basis. It has been constructed for easy access to the loading mechanism, which eliminates operator bending and kneeling. All controls



Q7	12
Q6	13
Q5	14
Q4	15
Q3	16
Q2	17
Q1	18
Q0	19
	20
	10
OE	1
	1



J27

15
14
13
12

+5



are set at a 45° angle for comfortable viewing. A fine pitch 100TPI pipette stop adjustment screw makes it very easy to balance the upper and lower electrodes to ensure symmetric electrode lengths every pull. The filament carriage travels from the first pull location to the second pull location and has a micrometer dial read-out for fine adjustment. The carriage also has a simple heat shield that uses a standard 25mm x 75mm microscope slide to protect the element during the pull process.

### Tissue Slicer

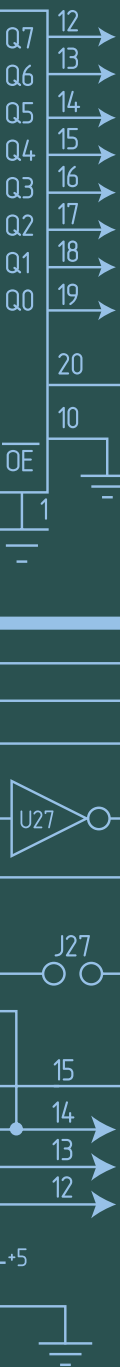
The MX-TS tissue slicer consistently slices sectioned cortical or hippocampal tissue to either a 200-, 300-, or 400- $\mu$ m thickness in a straightforward operation. Thicknesses are selected by simply replacing the lead screw on the frame winder. This style of tissue slicer ensures consecutive slices of the specifically sectioned area. The MX-TS tissue slicer comes complete with an instructional video, frame winder, frame accelerator, 4 frames, 100 clamping wires, 1000 feet of 20- $\mu$ m tungsten wire, and 20 Petri dishes.

### Siskiyou Accessories Ordering Information

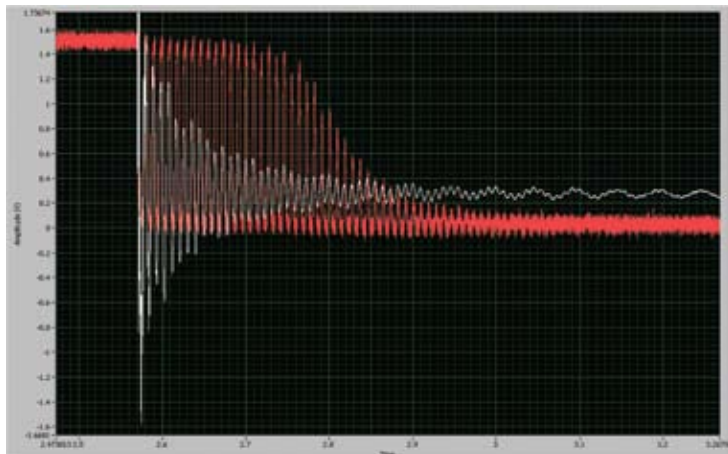
Part No.	Product Description	Price
SD-Shuttle	Three axis Chamber Shuttle System	\$ 2,950
SD-PC-H	Horizontal Perfusion Chamber w/4 magnetic clips	\$ 125
SD-PC-V	Vertical Perfusion Chamber w/4 magnetic clips	\$ 125
SD-PC-R	Round Perfusion Chamber w/4 magnetic clips	\$ 125
SD-8090c	Perfusion Chamber Platform, 8.0 x 9.0" w/drain	\$ 275
SD-PC-A	Perfusion chamber adapter, 10.8cm or 11cm diameter	\$ 275
Co-48510-00	Coverslips, borosilicate 22x22mm square #1, ~156 pcs.	\$ 25
SD-ST50-200/HS	Electrode holder fits Axon 200/700 & HS-2A amplifiers	\$ 100
SD-ST50-BNC	Electrode holder fits amplifiers with BNC connectors	\$ 100
SD-ST50-CV	Electrode holder fits Axon CV-4 amplifiers	\$ 100
SD-EP-450	Two-stage automated pipette puller	\$ 4,995
SD-MX-TSslice	Tissue slicer	\$ 3,200
SD-MX-TS-FS	Tissue slicer, extra frames, pkg of 2	\$ 275
SD-MX-TS-CW	Tissue slicer, clamping wires, pkg of 100	\$ 75
SD-MX-TS-TW	Tissue slicer, 20 $\mu$ m tungsten wire, 1000-foot spool	\$ 250

U.S./Canada prices shown. International prices add 20%. Email or visit web store for latest prices.

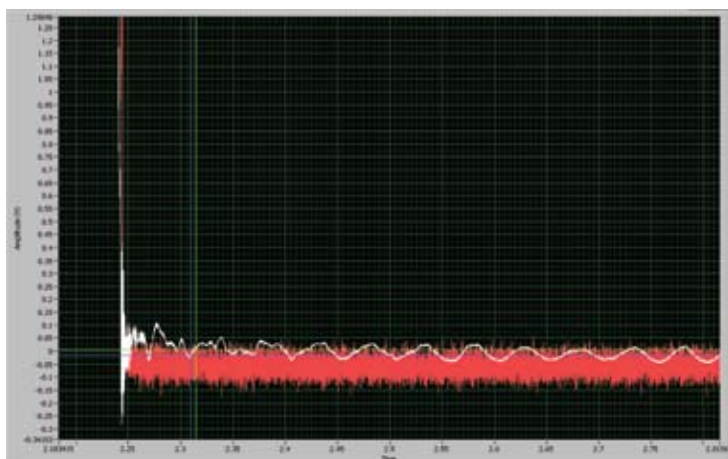




## Rapid Pipette Sweeping: Eliminating Unwanted Switching



Rapid theta-glass transitions cause ringing of the mechanical structure. Zoomed-in view at target position. White: vibrometer real-time position output. Red: HEKA amp current. Correlation between physical position and HEKA amp output is evident. The vibration of the theta-glass pipette assembly causes repetitive switching of the patch-clamp signal.



Same as graph above, using patented vibration-cancellation technology. The undesirable rapid switching of the HEKA amp output (red) due to rapid recoil-driven structural oscillations of the theta glass is eliminated.

## Fast Piezo Ordering Information

Part No.	Product Description	Price
SD-Piezo	Fast Piezo Perfusion Switcher	\$ 9,000
SU-QT120-90	7.5 Quartz Theta Tubing - 50 pieces, 1.20 mm o.d. / 0.9 i.d., 7.5cm	\$ 76
SU-BT-150-10	Borosilicate Theta Tubing - 100 pieces, 1.50 mm o.d. / 1.17 i.d., 10cm	\$ 89

U.S./Canada prices shown. International prices add 15%. Email or visit web store for latest prices.