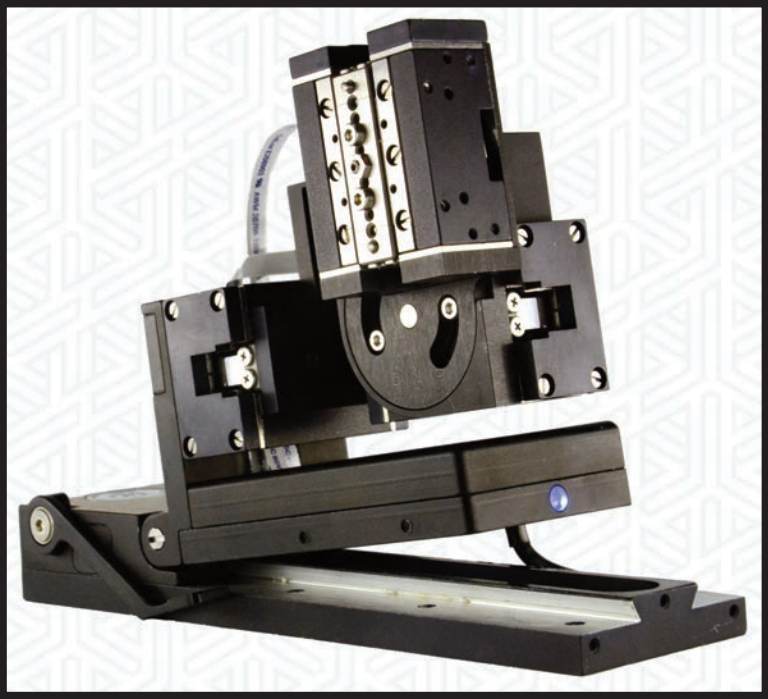
PRIOR
Scientific

SMALLEST HIGH PERFORMANCE MICROMANIPULATORS FOR ELECTROPHYSIOLOGY, MICROINJECTIONS AND OPTOGENETICS



Micromanipulator Systems Offer:

- 20 mm range with 7 nm resolution (XYZ)
- **Zero** drift solid-state technology
- **Zero** electrical noise in recording mode
- Easy-to-use pipette exchange mechanisms
- Compact battery operated controller
- **Up to 14** manipulator systems on one controller

SENSAPEX

Products that meet your needs

The Sensapex mission is to help you to make new discoveries. Sensapex develops products in co-operation with top researchers to provide easy to use solutions that enable eliminating technical limitations even from most demanding experiments.

Benefit From Latest Piezo Technology

- Holds position when powered off: zero drift and no electrical noise
- 7 nm step resolution
- Tunable high-acceleration piezo thrusts for clean cell membrane penetrations

Smaller Size Equals Better Stability

- Close-up installation minimizes lever arms for mechanical vibrations
- Compact design minimizes thermal effects

...And Easiest Installation

- Fits to most space constrained environments (e.g. imaging systems)
- Add as many manipulators to your rig as you need - up to 14 manipulators per single controller - for the most cost efficient solution for larger systems!

"It may be the best piece of electrophysiology hardware I have laid my eyes upon since npi amplifiers."

Dr. Bart Geurten, Göpfert Lab, Georg August Universität Göttingen

Sensapex aims to provide products that excel in outstanding usability, state-of-art performance, compact size and full digital integration with computer control interfaces.

Specification Comparison

	SENSAPEX	SCIENTIFICA MICROSTAR	BURLEIGH PCS6200	SUTTER MPC-265
Operating principle	**Linear piezo-drive**	Stepper motor	Stepper motor + piezo	Stepper motor
Positioning range (X / Y / Z mm)	**20 / 20 / 20**	14 / 20 / 20	25 / 25 / 25 (motor) 0.15 / 0.15 / 0.15 (piezo)	12.5 / 25 / 25
Step resolution	**7 nm**	20 nm	1.6 µm / 60 nm (piezo)	63 nm
Max. speed [mm/s]	**5 mm/s**	NA	3.5 mm/s	2.9 mm/s
Size [WxHxL mm]	**39x87x77**	68x125x200	213x188x175	42x110x160
Cell impalement	**Adjustable piezo thrust**	NA	NA	NA
Controller	**Compact, stand-alone** **Battery operated** **Up to 14 manipulators**	Rack controller + remote Mains, AC 50/60 Hz Up to 2 manipulators	Controller box + remote Mains, AC 50/60 Hz Up to 2 manipulators	Rack controller + remote Mains, AC 50/60 Hz Up to 2 manipulators
Pipette exchange	**Back-flip (+slide)** **Side-rotate (+slide)**	Back-slide	Back-slide Side-rotate	Side-rotate
PC control	**USB** **Free open-source software**	USB Free software	USB Free software	USB Free software
8 manipulator system control equipment	**1 controller** **Connector hub**	4 rack controllers 4 remotes	4 table top controllers 4 remotes	4 rack controllers 2 remotes

Designed and manufactured by SENSAPEX in Oulu, Finland.

"It is a dream to use. It has run stably without any issues or hiccups, the preset speeds are great, covering the full range of what I need."

Dr. Christian Wilms, Häusser Lab, University College London

Micromanipulators

PRIOR Scientific

Micromanipulator

Positioning range:	20x20x20 mm3 (XYZ)
Step resolution:	7 nm
Max. speed:	5 mm/s
Load:	0 - 70 g | 70 - 120 g*
True approach angle:	0 - 50 | 40-90 degrees*
Dimensions:	39x87x77 mm
Weight:	295-375 g

Table mounting: magnet & bolt

Electrode exchange: back-flip | side-rotate with slide option

4th virtual axis: orthogonal positioning in angled approach

Electrode holder and head-stage mounting adapters included

Controller

Rotary knob or 3D joystick; backlit display	
Six speed settings + Impalement mode	
Programmable Home and Target positions	
Batteries:	Li-ion (rechargeable), up to 1 week usage time
AC charger:	90-264 V, 50-60 Hz
Dimensions:	190 x 210 x 40 mm
Weight:	510 g

Single controller can operate up to 14 micromanipulators

Zero noise recording mode

USB computer interface + open-source software development kit

2 year warranty with free firmware updates for registered users

System Configuration

The micromanipulators can be customized for plug-and-play installation using selection of standard options. The configuration is reflected in the product code as illustrated below. Please note that custom options and accessories, such as special stands and tool holders, are available on special request.

SMX- (manipulator)	R- (single R-handed)	F (back-flip)	50 (0-50 deg angle)	HL (heavy load)*
	L- (single L-handed)	R (side-rotate)	90 (40-90 deg angle)	
		FS (back-flip + slide)		
		RS (side-rotate + slide)		

*Leave blank for 0-70 g standard load range. Heavy load option is 70-120g and is limited to 0-30 degree approach angle.

System part number example:
SMX-R-RS-50-HL (Right hand manipulator with side rotate and slide. 50 degree approach angle with heavy load option.

Also from Prior Scientific - ZDeck Quick Adjust Platform Systems

The ZDeck Quick Adjust Platform System increases productivity by allowing the user to image multiple areas of interest with unsurpassed speed and precision. Ideal for use with micromanipulators, the ZDeck lowers quickly and easily, providing easy access for loading and unloading of samples. No tools are required for height adjustment, simplifying the transition of changing between a thin sample and whole animal imaging heights. Condenser and pillar spacers are included with the system to allow for Koehler illumination at a wide range of focus heights. The motorized system incorporates a custom Prior Scientific ProScan series high precision motorized stage which provides submicron repeatability and smooth movement. Prior also offers manual drive and non-moving top versions of the ZDeck that eliminate electronic noise for electrophysiology applications. Oversized plates are provided on both sides of the sample area for mounting micromanipulators. The ZDeck Mounting System is universally compatible with 6mm or 1/4-20 vibration isolation tables. Please contact Prior to see how you can incorporate the ZDeck Quick Adjust Platforms and micromanipulators into your system!

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