



# Motion Controller

## User's Manual

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*MC1000e*

## Service Information

Please call, email, or fax in your questions to Siskiyou Corporation at:

Telephone (toll free): 1-877-313-6418

E-Mail: [service@siskiyou.com](mailto:service@siskiyou.com)

Facsimile: 1-541-479-3314

For a mailing address, refer to page 9.

## Product Warranty

Siskiyou Corporation products carry the following warranty, effective for a period of one year from the original invoice date unless otherwise stated in the product literature:

- Siskiyou Corporation products will be free of defects in material and workmanship.
- Siskiyou Corporation products will meet the specifications stated in this catalog.

If you find any defects in material or workmanship, or a failure to meet specifications within the warranty period, return the product to us clearly marked with a Return Authorization (RA) number and we will either repair or replace it at our discretion. Call our toll free telephone number and ask for the service department to request RA numbers.

Our warranty excludes products that have been improperly installed or maintained, modified or misused. Notification of claim must occur within the warranty period. Siskiyou Corporation's liabilities are limited as set forth in our STANDARD TERMS AND CONDITIONS, copies of which are available upon request.

Siskiyou Corporation products unused and undamaged may be returned to Siskiyou Corporation within 30 days of the initial invoice date (60 days outside of the US), but are subject to a 25% restocking fee.

## Warranty Repairs

Before shipping a part to Siskiyou Corporation, a Return Authorization (RA) number must be obtained by calling our service department at our toll free telephone number. The product must be shipped prepaid in the original or equivalent packing with the RA number clearly marked on the outside of the box. Pack carefully to prevent damage. Place actuators, stages, manipulators, and controllers in a clean plastic bag to prevent contamination from packing materials. Siskiyou Corporation cannot be responsible for any damage occurring in transit to us. Products are not accepted without a Return Authorization number on the outside of the shipping carton.

## Non-Warranty Repairs

If a product needs repairing after the one year warranty period expires, we will first provide an estimate of repair charges and then repair the product upon receiving authorization from you. Repairs are warranted for 90 days. Refer to the above Warranty Repairs information for return procedures.

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# MC1000e

## User's Manual

### 1.0 Introduction

This manual describes the operation of Siskiyou's Model MC1000e micromanipulator motion controller.

### 1.1 Inspection

Siskiyou products are shipped in sturdy, cushioned boxes. Please inspect the instrument immediately and notify the carrier if damage is obvious.



## CERTIFIED DEVICE

### 1.2 Performance Specifications

Minimum controllable motion	0.2 $\mu\text{m}$
Power requirements	110–230 VAC, 50/60 Hz via included power supply adapter
Output	18 VDC / 2.5 A

### 2.0 Description

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  $\mu\text{m}/\text{second}$ ). 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. The controller uses 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 uses a universal switching power supply adapter as its 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.

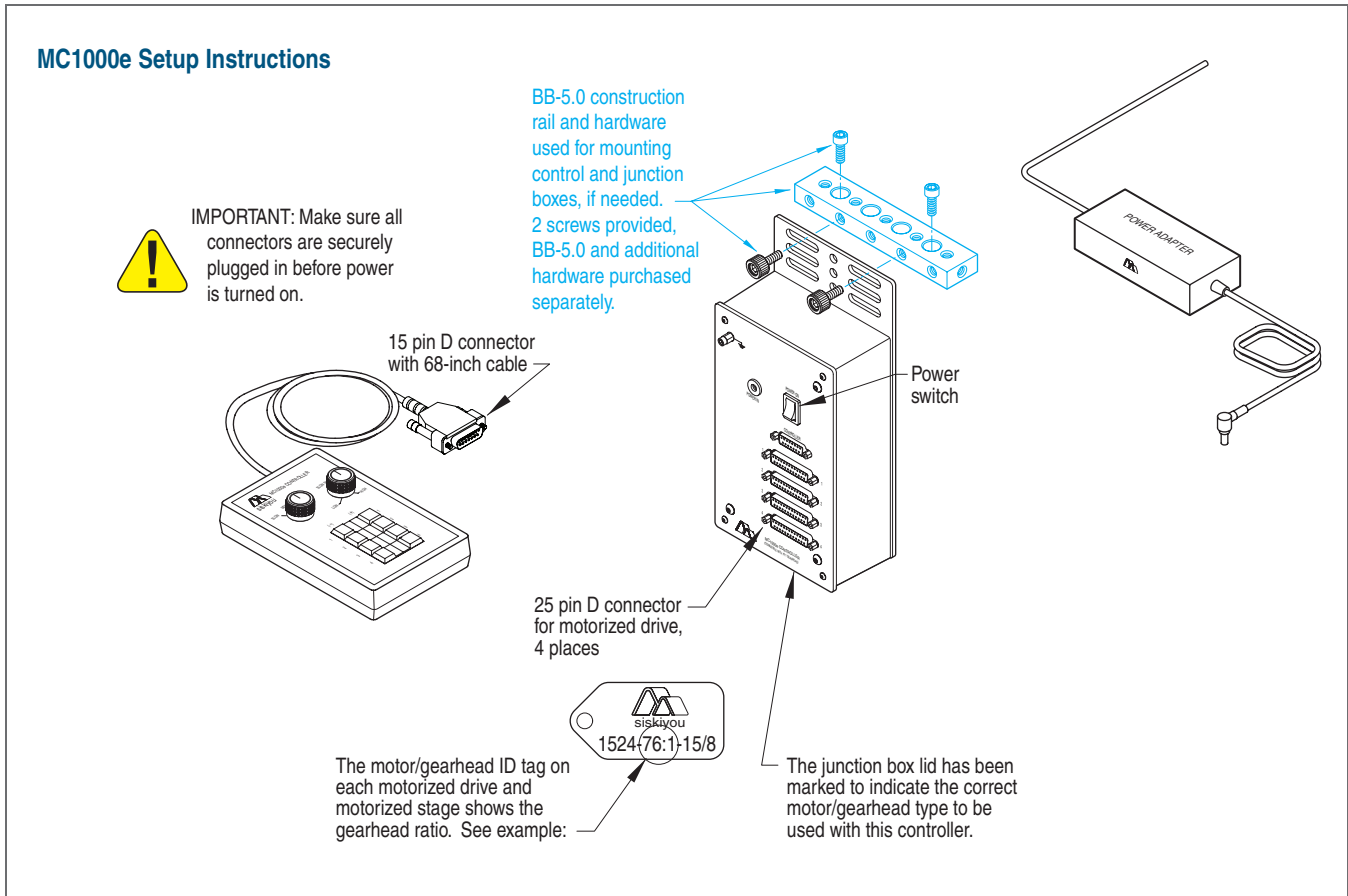


Figure 1: Interface


### 3.0 Installation



**CAUTION:** MAKE SURE ALL CONNECTORS ARE SECURELY PLUGGED IN BEFORE POWER IS TURNED ON. DO NOT REMOVE CONNECTORS WHILE POWER IS ON. FAILURE TO DO SO CAN RESULT IN A SHORT CIRCUIT AND PERMANENT DAMAGE TO THE SYSTEM.

To install the MC1000e, please refer to Figure 1: Interface or the supplied set up instructions. Supplied with the MC1000e are two ¼-20 screws that can be used to secure the junction box to the work station.




It is advised to place the controller away from the experiment area. Any liquid that may come in contact with the controller can cause permanent damage to the system. It is also advised to add a ground wire onto the junction box and attach the free end of the wire to a metal surface outside of the system. The lug to use is labeled by the electrical symbol for "ground": 

### 4.0 Interface

#### 4.1 Junction Box

**Power In:** Using the supplied power adapter, the user can connect the power adapter to the junction box and supply power to the system.

**Power Switch:** The power switch turns on the junction box and the controller. This is required to be on in order to use the MC1000e. Turning off the power switch will cease all operations with manipulators remaining in place. The same applies to loss of power.

**Ground:** By attaching a wire from the ground lug to a metal surface (that is not part of the experimental system), the users helps prevent damage from static shock and to ensure noise-free operation while in use. The lug is represented by the electrical symbol for "ground": 

**Controller:** The 15 pin, female connector, is used for connecting the controller to the junction box.

**1, 2, 3, and 4 Ports:** The 25 pin, female connectors, are used for connecting the motor drive cables to the junction box.

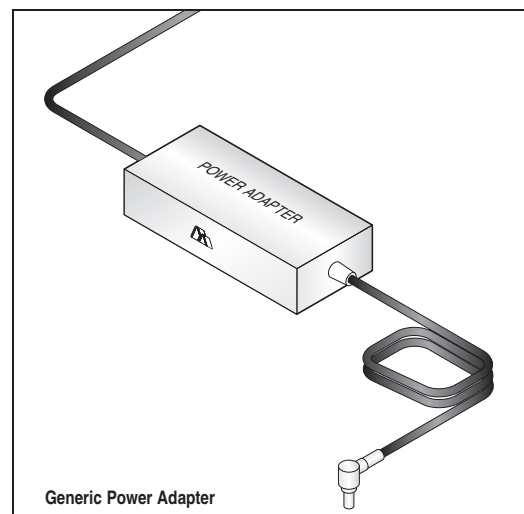
#### 4.2 Controller

**Drive No. 1, 2, 3, and 4:** The eight buttons located by the respective labels of 1, 2, 3, and 4 are used to control the motor drives in both the positive and negative direction of the respective axes plugged into the junction box. Multiple buttons on different axes may be pressed at the same time, but two buttons on the same axis will not have any effect.

**Slow/Med/Rapid:** This knob is used to change the speed of the motor drives. It has three different speeds: slow, medium, and rapid. This feature sets the speed for all axes. Individual axis speed settings are not available.

The MC1000e 4-axis controller has two preset speed settings: rapid (1.7 mm/sec) and medium (300  $\mu\text{m}/\text{sec}$ ).

**Slow Range:** The slow range knob is used during the slow speed of the Slow/Med/Rapid knob. The Slow Range knob has a variable 330° potentiometer that enables settings from high speed (50  $\mu\text{m}/\text{sec}$ ) to low speed (2  $\mu\text{m}/\text{sec}$ ). With the speed selector set at the slowest settings, consistent 0.2  $\mu\text{m}$  moves are made by a bump of the axis button. This feature works for all axes.



### 5.0 Operation

When the MC1000e has been correctly installed, the user can begin use of the system. The operation may be bench tested prior to installing the unit to an experiment.

When the user presses a button for the Drive No. 1, 2, 3, or 4, the motor drive that is plugged into the respective port will also move. For example, if the X axis motor drive is plugged into port 1 on the junction box, when Drive No. 1 is pressed, the X axis will move.

### 6.0 Maintenance and Service

There are no user servicable parts inside the controller or junction box. In the event of the need for service, call Siskiyou Corporation and have the information as shown on the Service Form (page 8) ready to discuss with a technician.

If the problem cannot be solved through telephone or email communication, an RA number will be provided to return the unit to Siskiyou Corporation. Submit a copy of the service form with the unit.

## Related Products

### Switching Box

ABCD 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.



SB-MC1000e Series

### Digital Readout

The DR1000 Digital Readout provides an accurate, highly visible display for axis position. The digital readout may be installed on any of our **e** series controllers and is connected in series *via* a double-sided connector between the controller junction box and the device D connector.



DR1000

### Reverse Polarity Adapter

The RPA is an interface plug that reverses the motion direction of stages and actuators. Used to reverse axis direction relative to controller. Use on MC1000e-1, MC1000e, and MC1100e (except axis number 1).



RPA



# Service Form

Return a copy of this form  
along with the product  
to Siskiyou Corporation

CONTACT	Company _____ Address _____ City, St Zip _____ Country _____ Sales Order _____ PO Number _____ Purchase Date _____	Return Authorization No. _____ <i>Note: Call the toll free number prior to returning the item.</i> Date _____ Technical Contact _____ Telephone _____ Fax _____ Email _____
PRODUCT	Model Number _____ Serial Number _____ Describe any modifications made to the unit _____ _____ _____	
REASON FOR RETURN	List all control settings and describe problems _____ _____ _____ _____ _____ Diagram	
RETURN TO	Email addresses: sales@siskiyou.com service@siskiyou.com tech@siskiyou.com Website: www.siskiyou.com	Siskiyou Corporation RA# _____ 110 S.W. Booth Street Grants Pass, OR 97526-2410 U.S.A.

<b>RA Number</b> must be clearly written on the outside of the shipping carton
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### Contact Information

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webmaster@siskiyou.com

#### International

Please call or visit our website for international contacts.

**All dimensions in this manual are given in inches unless specified otherwise.**

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