

## MANIPULATORS

# MANIPULATORS



### DATA SHEET

## MA-8005

The MA-8005 is a small footprint, general purpose manipulator primarily used to probe I/O pads. It has independent X, Y and Z travel of 8 mm. Thumbscrews are used to move each axis and the manipulator is affixed to the platen via a magnetic or vacuum base. Available in left hand and right hand models.



### FEATURES AND BENEFITS

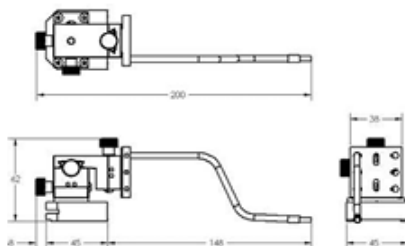
- Small footprint
- Adjustable faceplate provides additional Z travel
- Uses all SemiProbe standard DC, HF and Optical probe arms
- > 20 independent manipulators can be placed on the platen
- Ideal for I/O bond pad probing (> 50  $\mu\text{m}$  x 50  $\mu\text{m}$ )

### SPECIFICATIONS

|                                  |                                                                                         |
|----------------------------------|-----------------------------------------------------------------------------------------|
| <b>Feature resolution:</b>       | 10 $\mu\text{m}$                                                                        |
| <b>Travel Range (X,Y,Z):</b>     | 8/8/8 mm                                                                                |
| <b>Screw resolution (X,Y,Z):</b> | 40 TPI (threads per inch) .025 per turn continuous                                      |
| <b>Mounting:</b>                 | Vacuum, Magnetic                                                                        |
| <b>Dimensions:</b>               | 62 x 39 x 59 mm (L, W, H)                                                               |
| <b>Weight:</b>                   | 200 grams                                                                               |
| <b>Applications:</b>             | General purpose DC measurements<br>Ideal for applications that require > 8 manipulators |

**Note:** Data and specifications vary depending on probe system configurations and accessories

### PHYSICAL DIMENSIONS



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A-LIT-MA-8000

# MANIPULATORS



## DATA SHEET

### MA-8000

The MA-8000 is a small footprint, multi-purpose manipulator primarily used to probe I/O pads for numerous DC, High Frequency and Optoelectronic applications. It is rigidly built to handle additional stress when using heavy high frequency probes and cables. It has independent X, Y and Z travel of 12 mm. Thumbscrews are in-line, which enables placement anywhere around the platen opening without restriction. Precision, high quality 440 stainless steel ball bearings provide precise linear motion on all three axes.



#### FEATURES AND BENEFITS

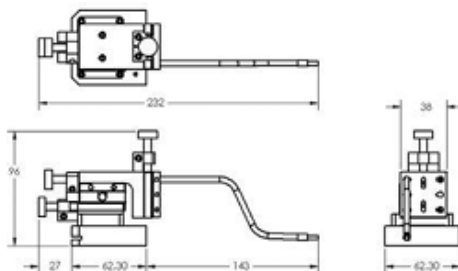
- Multi-Purpose - easily converted to meet a variety of applications
- Adjustable faceplate provides additional Z travel
- Uses all SemiProbe standard DC, HF and Optical probe arms
- > 8 independent manipulators can be placed on the platen
- Ideal for I/O bond pad and internal probing (>10  $\mu\text{m}$  x 10  $\mu\text{m}$ )

#### SPECIFICATIONS

|                                  |                                                                  |
|----------------------------------|------------------------------------------------------------------|
| <b>Feature resolution:</b>       | 5 $\mu\text{m}$                                                  |
| <b>Travel Range (X,Y,Z):</b>     | 12/12/12 mm                                                      |
| <b>Screw resolution (X,Y,Z):</b> | 80 TPI (standard), 100 TPI (optional)                            |
| <b>Mounting:</b>                 | Vacuum, Magnetic                                                 |
| <b>Dimensions:</b>               | 88 x 52 x 96 mm (L, W, H)                                        |
| <b>Weight:</b>                   | 550 grams                                                        |
| <b>Applications:</b>             | General purpose DC & HF measurements with appropriate probe arms |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### PHYSICAL DIMENSIONS



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A-LIT-MA-8000

# MANIPULATORS



## DATA SHEET

### MA-8100

The MA-8100 provides unsurpassed versatility due to its 100 TPI (threads per inch) resolution and its ability to be used as a multi-application manipulator. The MA-8100 can be used for a variety of DC, HF, and Optoelectronic probing applications ranging from sub-micron to large I/O pads. It has independent X, Y and Z travel of 12 mm. High precision, in-line thumbscrews enable small movement, as well as placement anywhere around the platen opening without restrictions.



#### FEATURES AND BENEFITS

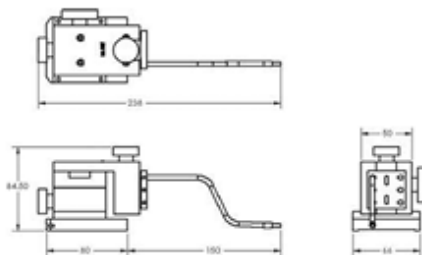
- Multi-purpose manipulator with 100 TPI resolution
- Adjustable faceplate provides additional Z travel
- Uses all SemiProbe standard DC, HF and Optical probe arms
- > 8 independent manipulators can be placed on the platen
- Ideal for internal probing (> 0.5  $\mu\text{m}$ ) as well as large I/O pads

#### SPECIFICATIONS

|                                  |                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Feature resolution:</b>       | 0.35 $\mu\text{m}$                                                                                                                                  |
| <b>Travel Range (X,Y,Z):</b>     | 12 x 12 x 12 mm (linear motion)                                                                                                                     |
| <b>Screw resolution (X,Y,Z):</b> | 100 TPI (threads per inch)                                                                                                                          |
| <b>Mounting:</b>                 | Vacuum, Magnetic                                                                                                                                    |
| <b>Dimensions:</b>               | 100 x 77 x 88 mm (L, W, H)                                                                                                                          |
| <b>Weight:</b>                   | 1,230 grams                                                                                                                                         |
| <b>Applications:</b>             | High precision and high resolution probing, internal device characterization, Failure Analysis, High Frequency, Emission Microscopy, Nanotechnology |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### PHYSICAL DIMENSIONS



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# MANIPULATORS



## DATA SHEET

### MA-8200

The MA-8200 provides unsurpassed versatility. It is unique due to its 200 TPI (threads per inch) resolution and its ability to be used as a multi-application manipulator. The MA-8200 can be used for a variety of DC, HF and Optoelectronic probing applications ranging from sub-micron to large I/O pads. It has independent X, Y and Z travel of 12 mm. High precision, in-line thumbscrews enable small movement, as well as placement anywhere around the platen opening without restrictions.



#### FEATURES AND BENEFITS

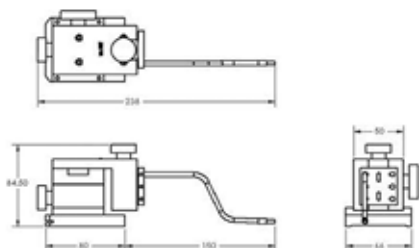
- Multi-purpose manipulator with 200 TPI resolution
- Adjustable faceplate provides additional Z travel
- Uses all SemiProbe standard DC, HF and Optical probe arms
- > 8 independent manipulators can be placed on the platen
- Ideal for internal probing (> 0.5  $\mu$ m) as well as large I/O pads

#### SPECIFICATIONS

|                                  |                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Feature resolution:</b>       | 0.35 $\mu$ m                                                                                                                                        |
| <b>Travel Range (X,Y,Z):</b>     | 12 x 12 x 12 mm (linear motion)                                                                                                                     |
| <b>Screw resolution (X,Y,Z):</b> | 200 TPI (threads per inch)                                                                                                                          |
| <b>Mounting:</b>                 | Vacuum, Magnetic                                                                                                                                    |
| <b>Dimensions:</b>               | 100 x 77 x 88 mm (L, W, H)                                                                                                                          |
| <b>Weight:</b>                   | 1,230 grams                                                                                                                                         |
| <b>Applications:</b>             | High precision and high resolution probing, internal device characterization, Failure Analysis, High Frequency, Emission Microscopy, Nanotechnology |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### PHYSICAL DIMENSIONS



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# MANIPULATORS



## DATA SHEET

### MA-8500

The MA-8500 is the most versatile multi-purpose High Frequency (HF) manipulator available. It is heavy duty and primarily used to probe I/O pads for numerous DC, High Frequency and Optoelectronic applications. It is rigidly built to handle additional mechanical stress when using HF probes, multi-contact wedges, cables and test instrumentation. Tuners, bias network adaptors, and extension modules can be mounted via adaptor plates to the face plate, top or side of the manipulator. It has independent X, Y and Z travel. Micrometers are in-line, which enables placement anywhere around the platen opening without restriction – eliminating the need for dedicated left or right manipulators. Linear cross roller guides provide precise motion on all three axes.



#### FEATURES AND BENEFITS

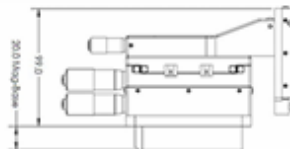
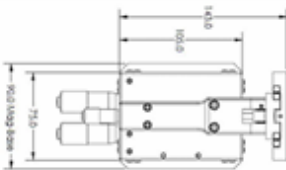
- Four (4) MA-8500 HF manipulators will fit on our standard platen – eliminating special and costly rectangular platens and inserts
- 8 manipulators can be placed on the platen (4 HF and 4 DC)
- Uses all SemiProbe standard DC, HF and Optical probe arms
- Available with 50 TPI micrometer, differential or motorized drives – field upgradeable
- Ideal for I/O bond pad and internal probing (>50 x 50  $\mu\text{m}$ )

#### SPECIFICATIONS

|                           |                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------|
| Feature resolution:       | 10 $\mu\text{m}$                                                                         |
| Travel Range (X,Y,Z):     | 25/25/10mm                                                                               |
| Screw resolution (X,Y,Z): | 50 TPI (standard), 80 TPI (optional) via micrometer, differential or programmable drives |
| Mounting:                 | Magnetic, Boltdown                                                                       |
| Dimensions:               | 200 x 90 x 99 mm (L, W, H)                                                               |
| Weight:                   | 2.5 Kg                                                                                   |
| Applications:             | General purpose High Frequency (HF) measurements with appropriate probe arms             |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### Detailed Dimensions



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A-LIT-MA-8500-0317

# MANIPULATORS



## DATA SHEET

### MA-8500-PROGRAMMABLE

The MA-8500 is a large footprint, multi-purpose manipulator primarily used to probe I/O pads for high frequency/microwave/mmWave applications. It is rigidly built to handle additional mechanical stress when using high frequency probe arms, probes, cables adapter plates and frequency extender modules. It has independent and motorized X, Y and Z travel of 25 mm. Motors are in-line, which enables placement anywhere around the platen opening without restrictions - eliminating the need for dedicated left or right-handed manipulators. For most applications they are positioned in a West/East and North/South direction. Cross roller bearings provide precise linear motion on all three axes. Small footprint control electronics and joystick controllers allow up to four (4) MA-8500 manipulators to be used on SemiProbe or competitors probe systems. Can be controlled from a PC via remote command.



#### FEATURES AND BENEFITS

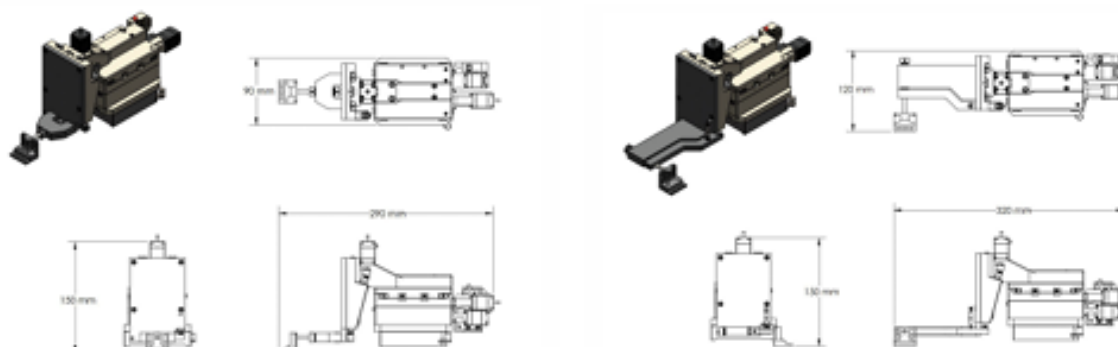
- Multi-Purpose - easily converted to meet a variety of applications
- Primarily used for HF/Microwave/mmWave applications
- Allows frequency extension modules to be integrated – short and long versions – tuners & frequency extenders
- 4 independent MA-8500 PM manipulators can be placed on the platen. Platen has space for 4 additional DC manipulators
- Ideal for I/O bond pad probing (>40  $\mu$ m)

#### SPECIFICATIONS

|                                 |                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------|
| <b>Feature resolution:</b>      | 5 $\mu$ m                                                                           |
| <b>Travel Range (X,Y,Z):</b>    | 25/25/25 mm                                                                         |
| <b>Velocity (X,Y,Z):</b>        | 0-950 mm/sec                                                                        |
| <b>Step Resolution (X,Y,Z):</b> | 0.2 $\mu$ m/step                                                                    |
| <b>Mounting:</b>                | Magnetic, Bolt Down                                                                 |
| <b>Dimensions:</b>              | 290 x 90 x 150 mm (L, W, H) (manipulator, magnetic base and West/East HF Probe Arm) |
| <b>Weight:</b>                  | 3.0 Kg (manipulator and magnetic base)                                              |
| <b>Applications:</b>            | General purpose HF/Microwave/mmWave measurements with appropriate probe arms        |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### PHYSICAL DIMENSIONS





## ORDERING OPTIONS



The MA-8500 Programmable Manipulator Kit includes the manipulator, joystick controller with LED indicator, power supply and USB cables (manipulator to controller and joystick to controller). The power supply is 110/220 V, 50/60 Hz and is supplied with the appropriate plug for the country shipped to. A complete MA-8500 High Frequency programmable manipulator will include the manipulator body, a base, and an HF probe arm. Customer to specify the type of base (magnetic or bolt down) and probe arm (West/East or North/South) desired.

**Bases:** Magnetic or Bolt Down

**Probe Arms:** High Frequency – West/East

**Controller:** 4 unit or 8 unit

Motors are placed at the rear (X & Y) and top (Z) of the MA-8500 to minimize footprint. Up to four (4) manipulators can be placed on SemiProbe PS4L probe system platen. Please contact SemiProbe if there are other configurations required.



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A-LIT-MA-8500 PM 1222

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# MANIPULATORS



## DATA SHEET

### MA-9000

The MA-9000 is a small footprint, multi-purpose manipulator primarily used to probe I/O pads for numerous DC, High Frequency and Optoelectronic applications. It is rigidly built to handle additional stress when using heavy high frequency probe arms, probes and cables. It has independent X, Y and Z travel of 13 mm. Thumbscrews are in-line, which enables placement anywhere around the platen opening without restrictions - eliminating the need for dedicated left or right handed manipulators. Cross roller bearings provide precise linear motion on all three axes.



#### FEATURES AND BENEFITS

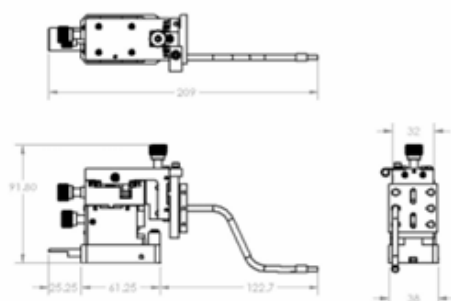
- Multi-Purpose - easily converted to meet a variety of applications
- Adjustable probe arm faceplate provides additional Z travel of +/- 16 mm
- Uses all SemiProbe standard probe arms - DC, HF, Optical and more
- 12 independent manipulators can be placed on the platen
- Ideal for I/O bond pad and internal probing (<1  $\mu\text{m}$ )

#### SPECIFICATIONS

|                                  |                                                                  |
|----------------------------------|------------------------------------------------------------------|
| <b>Feature resolution:</b>       | 1 $\mu\text{m}$                                                  |
| <b>Travel Range (X,Y,Z):</b>     | 13/13/13 mm                                                      |
| <b>Screw resolution (X,Y,Z):</b> | 80 TPI (standard), 100 TPI (optional)                            |
| <b>Mounting:</b>                 | Vacuum, Magnetic                                                 |
| <b>Dimensions:</b>               | 95 x 38 x 92 mm (L, W, H) (manipulator and magnetic base)        |
| <b>Weight:</b>                   | 12 ounces (manipulator and magnetic base)                        |
| <b>Applications:</b>             | General purpose DC & HF measurements with appropriate probe arms |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### PHYSICAL DIMENSIONS



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# MANIPULATORS



## DATA SHEET

### MA-9000-PROGRAMMABLE

The MA-9000 is a small footprint, multi-purpose manipulator primarily used to probe I/O pads for numerous applications - DC, High Frequency, High Power and Optoelectronic and more. It is rigidly built to handle additional stress when using heavy high frequency probe arms, probes and cables. It has independent and motorized X, Y and Z travel of 13 mm. Motors are in-line, which enables placement anywhere around the platen opening without restrictions - eliminating the need for dedicated left or right-handed manipulators. Cross roller bearings provide precise linear motion on all three axes. Small footprint control electronics and joystick controller allows up to eight (8) manipulators to be used on SemiProbe or competitors probe systems. Can be controlled from a PC via remote command.



## FEATURES AND BENEFITS

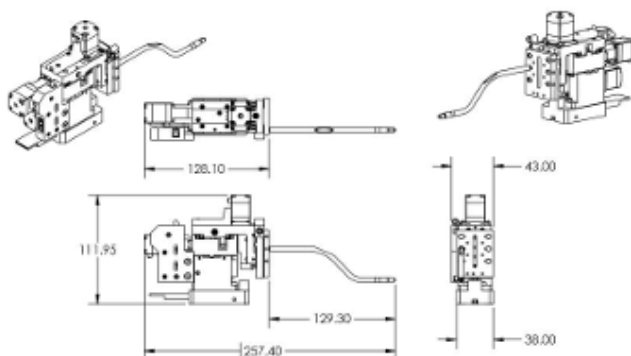
- Multi-Purpose - easily converted to meet a variety of applications
- Adjustable probe arm faceplate provides additional Z travel of about +/- 16 mm
- Uses all SemiProbe standard probe arms - DC, HF, HV, HC, Optical and more
- 8 independent manipulators can be placed on the platen
- Ideal for I/O bond pad and internal probing (>1  $\mu\text{m}$ )

## SPECIFICATIONS

|                                 |                                                             |
|---------------------------------|-------------------------------------------------------------|
| <b>Feature resolution:</b>      | 1 $\mu\text{m}$                                             |
| <b>Travel Range (X,Y,Z):</b>    | 13.5/13.5/13.5 mm                                           |
| <b>Velocity (X,Y,Z):</b>        | 0-950 mm/sec                                                |
| <b>Step Resolution (X,Y,Z):</b> | 0.2 $\mu\text{m}/\text{step}$                               |
| <b>Mounting:</b>                | Vacuum, Magnetic, Bolt Down                                 |
| <b>Dimensions:</b>              | 117 x 43 x 112 mm (L, W, H) (manipulator and magnetic base) |
| <b>Weight:</b>                  | 24 ounces (manipulator and magnetic base)                   |
| <b>Applications:</b>            | General purpose measurements with appropriate probe arms    |

**Note:** Data and specifications vary depending on probe system configurations and accessories

## PHYSICAL DIMENSIONS



## ORDERING OPTIONS



MA-9000 Programmable Manipulator Kit includes the manipulator, joystick controller, power supply and USB cables (manipulator to controller and joystick to controller). The power supply is 110/220 V, 50/60 Hz and is supplied with the appropriate plug for the country shipped to. A complete manipulator will include a base, an adjustable probe arm face plate and a probe arm. Customer to specify the type of base and probe arm desired.

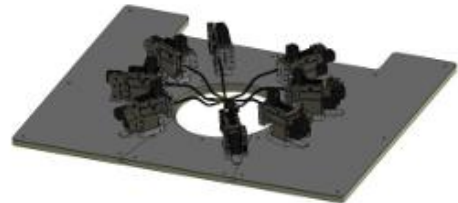
**Bases:** Magnetic, Vacuum or Bolt Down

**Probe Arms:** Coaxial, Triaxial, Kelvin, High Frequency, OPTO, High Voltage, High Current and more

**Adjustable Probe Arm Faceplate:** required to affix SemiProbe probe arm to the manipulator body

**Controller:** 4 unit or 8 unit

Motors are placed at the rear (X & Y) and top (Z) of the MA-9000 to minimize footprint. Up to eight (8) manipulators can be placed on SemiProbe PS4L probe system platen. Please contact SemiProbe if there are other configurations required.



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A-LIT-MA-9000-M 0520

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# MANIPULATORS



## DATA SHEET

### MA-9100

The MA-9100 is a small footprint, multi-purpose manipulator primarily used to probe I/O pads for numerous DC, High Frequency and Optoelectronic applications. It is rigidly built to handle additional stress when using heavy high frequency probe arms, probes and cables. It has independent X, Y and Z travel of 15 mm. Universally mounted thumbwheels with rapid and fine linear movements enables placement anywhere around the platen opening without restrictions - eliminating the need for dedicated left or right handed manipulators. Cross roller bearings provide precise linear motion on all three axes.



#### FEATURES AND BENEFITS

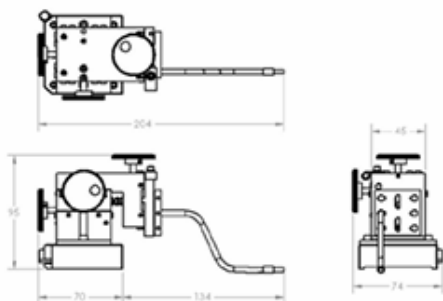
- Multi-Purpose - easily converted to meet a variety of applications
- Adjustable probe arm faceplate provides additional Z travel of +/- 16 mm
- Uses all SemiProbe standard probe arms - DC, HF, Optical and more
- 8 independent manipulators can be placed on the platen
- Ideal for I/O bond pad and submicron internal probing (0.35  $\mu$ m)

#### SPECIFICATIONS

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| <b>Feature resolution:</b>       | 0.35 $\mu$ m                                                                  |
| <b>Travel Range (X,Y,Z):</b>     | 15/15/15 mm                                                                   |
| <b>Screw resolution (X,Y,Z):</b> | 100 TPI (standard), 80 TPI (optional)                                         |
| <b>Mounting:</b>                 | Vacuum, Magnetic or Bolt-down                                                 |
| <b>Dimensions:</b>               | 100 x 74 x 90 mm (L, W, H) (manipulator and magnetic base)                    |
| <b>Weight:</b>                   | 39 ounces (manipulator and magnetic base)                                     |
| <b>Applications:</b>             | General purpose to Submicron DC & HF measurements with appropriate probe arms |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### PHYSICAL DIMENSIONS



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A-LIT-MA-9100-0117

# MANIPULATORS



## DATA SHEET

### MA-9100 PROGRAMMABLE

The MA-9100 is a small footprint, multi-purpose manipulator primarily used to probe I/O pads for numerous applications - DC, High Frequency, High Power and Optoelectronic and more. It is rigidly built to handle additional stress when using heavy high frequency probe arms, probes and cables. It has independent and motorized X, Y and Z travel of 15 mm. Motors are in-line, which enables placement anywhere around the platen opening without restrictions - eliminating the need for dedicated left or right-handed manipulators. Cross roller bearings provide precise linear motion on all three axes. Small footprint control electronics and joystick controller allows up to eight (8) manipulators to be used on SemiProbe or competitors probe systems. Can be controlled from a PC via remote command.



#### FEATURES AND BENEFITS

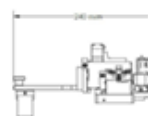
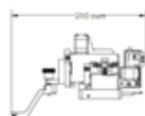
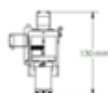
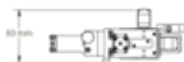
- Multi-Purpose - easily converted to meet a variety of applications
- Adjustable probe arm faceplate provides additional Z travel of about +/- 16 mm
- Uses all SemiProbe standard probe arms - DC, HF, HV, HC, Optical and more
- 8 independent manipulators can be placed on the platen
- Ideal for I/O bond pad and internal probing ( $>1\ \mu\text{m}$ )

#### SPECIFICATIONS

|                                 |                                                             |
|---------------------------------|-------------------------------------------------------------|
| <b>Feature resolution:</b>      | 0.35 $\mu\text{m}$                                          |
| <b>Travel Range (X,Y,Z):</b>    | 15/15/15 mm                                                 |
| <b>Velocity (X,Y,Z):</b>        | 0-950 mm/sec                                                |
| <b>Step Resolution (X,Y,Z):</b> | 0.2 $\mu\text{m}/\text{step}$                               |
| <b>Mounting:</b>                | Vacuum, Magnetic, Bolt Down                                 |
| <b>Dimensions:</b>              | 117 x 43 x 112 mm (L, W, H) (manipulator and magnetic base) |
| <b>Weight:</b>                  | 24 ounces (manipulator and magnetic base)                   |
| <b>Applications:</b>            | General purpose measurements with appropriate probe arms    |

**Note:** Data and specifications vary depending on probe system configurations and accessories

#### PHYSICAL DIMENSIONS



## ORDERING OPTIONS



MA-9100 Programmable Manipulator Kit includes the manipulator, joystick controller with LED indicator, power supply and USB cables (manipulator to controller and joystick to controller). The power supply is 110/220 V, 50/60 Hz and is supplied with the appropriate plug for the country shipped to. A complete manipulator will include a base, an adjustable probe arm face plate and a probe arm. Customer to specify the type of base and probe arm desired.

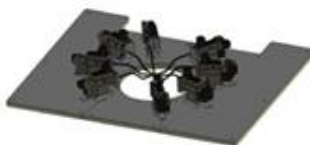
**Bases:** Magnetic, Vacuum or Bolt Down

**Probe Arms:** Coaxial, Triaxial, Kelvin, High Frequency, Opto, High Voltage, High Current and more

**Adjustable Probe Arm Faceplate:** required to affix SemiProbe probe arm to the manipulator body

**Controller:** 4 unit or 8 unit

Motors are placed at the rear (X & Y) and top (Z) of the MA-9100 to minimize footprint. Up to eight (8) manipulators can be placed on SemiProbe PS4L probe system platen. Please contact SemiProbe if there are other configurations required.



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