

## Signatone S - 1160 | 150mm - 200mm Manual Probe System designed for reliable and accurate analytical testing of DC, CV-IV, and High-Power applications.

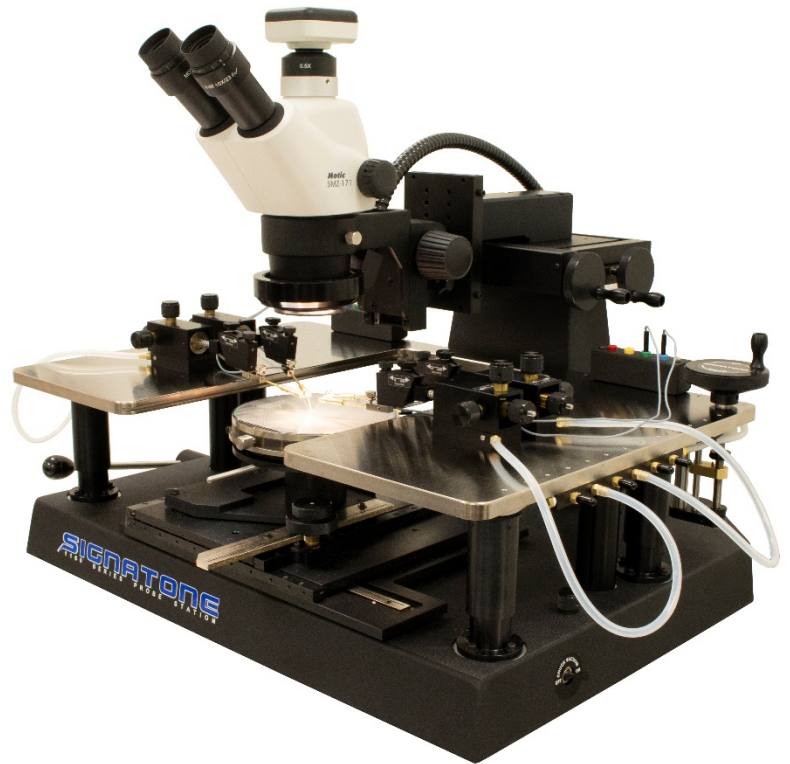
### ❖ FEATURES / BENEFITS

#### Multi – Use

- Designed for a wide variety of DC/HP test.
- Robust design and multiple setup and configuration options allow for a maximum of measurement dynamics

#### Ergonomics and Optional Configurations

- Ease of use , single-handed X-Y Stage knobs for quick movement plus fine knob control
- Quick platen lift with adjustable platen separation
- Chuck fine rotation and lock
- Steel platen accepts DC/HP/CAP Positioners (magnetic or vacuum mount)
- Available in multiple configurations including a variety of chuck options, DC/RF/1 to10KV, Micro positioners, microscopes, camera's, PCB holders, and more.
- Optional Instrumentation racks, Vibration Isolation tables, Thermal chucks dark-box, ...



### ❖ SPECIFICATIONS

#### Chuck XY Stage (Standard)

Travel range	203mm X 203mm (8 x 8 in)
Fine-travel range	12mm x 12mm (0.5" x 0.5") (optional)*
Fine-travel resolution	<1µm (0.001mm) @ 250µm/rev
Planarity	< 10 µm
Theta travel (Standard)	360°
Theta travel (Fine )	± 6.0° (optional)*
Theta resolution	1.5 x 10 <sup>-5</sup> gradient
Motion Control	Coaxial Knob Gear Drive Stage

#### Chuck to Platen

Chuck to Platen Separation (Quick Lift)	9.375mm (3/8")
Chuck to Platen Separation (Fine Adjust)	38.1mm (1.5")

\*All data are relevant with optional configuration

**Manual Microscope Stage (Linear)**

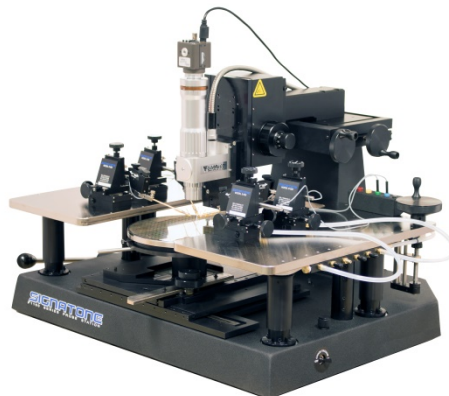
Movement range	50 X 50mm (2" x 2")
Resolution	1° = 2.54μ (0.0001")
Scope "Z" range	25mm-100mm * (dependent on microscope selection)
Motion Control	Independently controlled X and Y knobs

\*All data relevant with optional configuration



**S-1160A###**

➤ "A" option: 50mm X-Y Microscope mount (for use with high-powered optics)



**S-1160B###**

➤ "B" option: 50mm X-Y Microscope mount (for use with low-powered optics)



**S-1160S###**

➤ "S" option: "boom" style Microscope mount (for use with low-powered optics)

❖ **Sample Microscope –SELECTION GUIDE**

- **High Powered Microscope**  
(allows up to 2000x magnification)  
1-4 Objectives - rotatable turret – 1X-2X zoom  
50mm manual "Z" focus adjust- Camera Port



Motic  
PSM-1000



Seiwa  
S-12Z

- **Mono-Zoom Video Scope**  
(100X-600X magnification- Offered by Seiwa)  
Single Objective - Camera Port (no eye pieces)  
Fiber-optic illumination -25mm "Z" focus adjust

- **Stereo -Zoom Low Power Microscope**  
(7.5X -50X magnification – Offered by Motic)  
Long working distance (113mm) - Camera Port  
Fiber-optic or LED illumination  
50mm "Z" focus adjust



Motic  
SMZ-171

## ❖ PROBE PLATEN

### Specifications

Design	Four Post Support
Dimension	L = 406.5mm x W = 610mm x H = 12.7mm 16" x 24" x 0.5"
Chuck to Platen Top	Min. 14.7mm (Variable Separation with Fine Platen Adjust)
Max. No of Micro Positioners	10 x DC/HP/RF (Multiple Probe / Test Configurations)
Quick Platen Lift Control (CVL)	Continuous Variable Lift (0 to 9.375mm)
Contact Repeatability	< 1 μm (0.04 mils) by Manual Control
DC/High Power Micro Positioner Mounting	Magnetic or Vacuum
CAP946 Micro Positioner Mounting	Magnetic or Bolt Down

### Signatone Multi Benefit Ergonomically Correct Platen Adjust and Features:

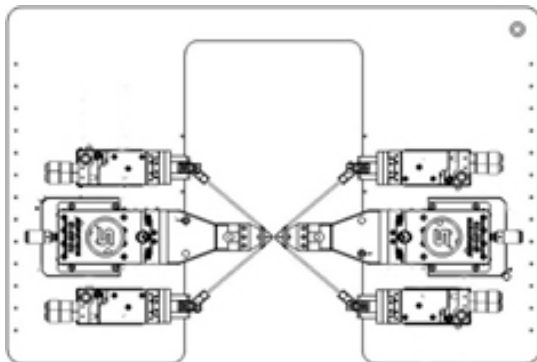
- "Quick Lift" with Continuous Variable Lift (CVL) for easy probe to pad separation and alignment
- "Fine Adjust" for Probe card and variable Chucks and DUT thickness setup



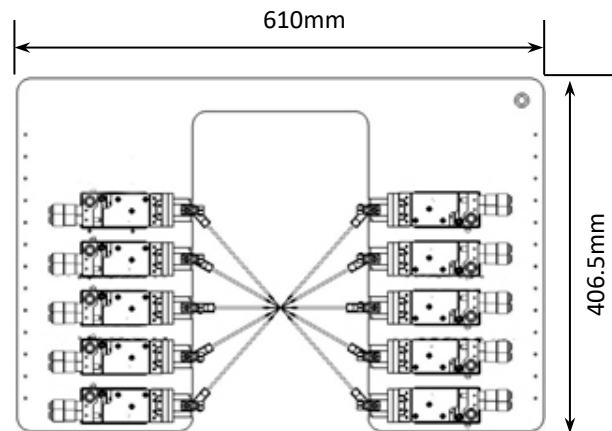
Platen "Quick Lift"



Platen "Fine Adjust"



Sample Configured with 2 RF + 4 DC Probes



Sample Configured with 10 DC Probes

## ❖ MICRO POSITIONER

### Choose the Micro Positioner that's best for your application (more positioner styles available)

The S-1160 Series probe stations include a Steel Platen for use with Vacuum or Magnetic based micro Positioners (Bolt-down optional)

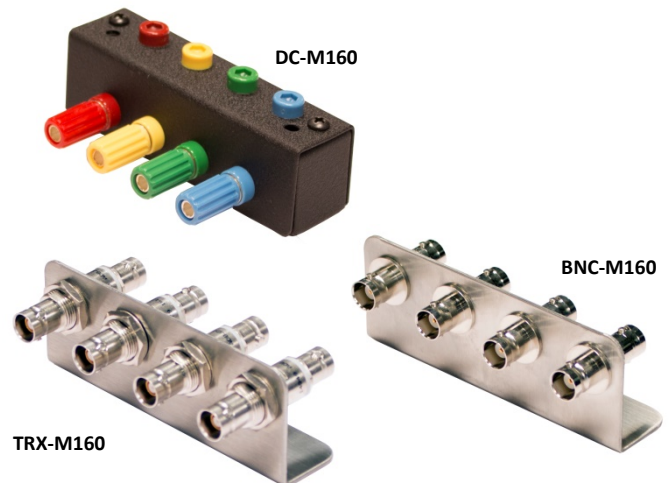
- The **SP-100** Series with 100 TPI linear X-Y-Z motion with in-line micrometer knobs for high precision probing sub-micron features at high magnification – great for use with multi probe applications
- The **S-926** Series with 100 TPI rectilinear X-Y-Z motion, good for probing down to 1 micron, at a very competitive price
- The **S-725** Series with 80 TPI is economically priced, Low profile, great for pad / large contact probing



### Probe Connector Panels:

The S-1160 Series probe stations include mounting for various probe connector panels. Probes (Micro-positioner Probe holder) supply one of the following 3 basic connections styles

- Single line wire with Mini-phone tip
- Micro-coax wire with Coaxial – BNC
- Triaxial wire with Triax Connector



## ❖ DC PROBE –SELECTION GUIDE

	Coax Probe (C)	Triax Probe (T)	Kelvin Probe (K)
Max voltage	500 V	500 V	500 V
Temperature range	-60 °C to 300 °C	-60 °C to 300 °C	-60 °C to 300 °C
Leakage current	< 50fA	< 20fA	< 20fA
Connectivity	BNC	Standard Triax	SSMC
Connectivity type	Single Coaxial	Single low noise Triaxial	Force/Sense Coax
Characteristics impedance	50 Ohms	50 Ohms	50 Ohms
Residual capacitance	< 80fF	< 80fF	< 80fF
Probe holder material	Brass	Brass	Brass
Probe tips material	Tungsten	Tungsten	Tungsten
Probe tips sizes	0.5 µm – 25 µm	0.5 µm – 25 µm	0.5 µm – 25 µm
Minimum pad size	25 µm x 25 µm	25 µm x 25 µm	25 µm x 25 µm



Coax Probe



Triax Probe



Coax Kelvin Probe

## ❖ High Voltage/High Current PROBE –SELECTION

Model	High Voltage Probes			High Current Probe
	HVP-CX-3	HVP-TX-3	HVP-CX-10	HCP 100
Max Voltage	3 kV	3 kV	10 kV	500 V
Max Current	1 A DC/30 A Pulsed	120 mA DC	20 mA DC	10 A DC/100 A Pulsed
Temperature Range	-60 °C to 300 °C	-60 °C to 300 °C	-60 °C to 300 °C	-60 °C to 300 °C
Leakage Current	< 200 pA @ 3 kV, < 5 pA @ 10 V	< 1 pA @ 3 kV, < 100 fA @ 10 V	< 100 pA @ 10 kV	N/A
Connector Type	SHV	HV Triax	UHV Coax	HV Banana
Replaceable Tip	Yes	Yes	Yes	Yes
Probe Material	W	W	W	BeCu or W



HVP-CX-3



HVP-TX-3



HVP-CX-10



HCP-100

## ❖ NON-THERMAL CHUCKS

### Standard Wafer Chuck

Connectivity	Coax BNC (m)
Diameter	203mm
Material	Nickel Plated Brass (gold optional)
Chuck surface	Zone selector knob with Pin Hole vacuum patterns
Vacuum hole pattern sections(diameter)	5mm, 22mm, 50mm, 91mm, 135mm, 168mm
Vacuum actuation	Selector Knob allows individual activation of vacuum zones
Supported DUT sizes	10mm, 25mm, 75mm, 100mm, 150mm, 200mm
Surface planarity	±6.5μ
Rigidity	<3μ / 10N at edge of the chuck

### Electrical Specification (Coax)

Operation voltage	Designed for operation at -200V to + 200VDC
Maximum voltage between chuck top and GND	500 V DC
Isolation	> 150 GΩ

### Wafer Chuck (Triaxial)

Connectivity	Triax (m)
Diameter	203mm
Material	Gold Plated Brass
Chuck surface	Independent Vacuum zones with Pin Hole vacuum patterns
Vacuum hole pattern sections(diameter)	0mm, 65mm, 112mm, 162mm
Vacuum actuation	Multi-Zone Adjustable Control
Supported DUT sizes	3mm, 75mm, 125mm, 200mm
Surface planarity	± 5μm
Rigidity	<3μm / 10N near at edge of the chuck

### Electrical Specification (Triax)

Chuck isolation	Measured @ 10V DC
Force to guard	> 2 TΩ
Guard to shield	> 7 TΩ
Force to shield	> 15 TΩ

## ❖ SIGNATONE THERMAL CHUCKS

### Typical Specifications of *Signatone* Thermal Technology

	200mm Standard Hot	200mm Hot/ Triax	200mm Hot/ 3kV Triax
Temperature Range	+25°C to +300°C	+25°C to +200°C	+25°C to +200°C
Connectivity	Coax (m)	Triax (m)	SHV Triax (m)
Temperature control method	Liquid Cooled / Resistance heater	Liquid Cooled / Resistance heater	Liquid Cooled / Resistance heater
Coolant	Water	Water	Water
Smallest temperature selection step	0.1°C	0.1°C	0.1°C
Chuck temperature display resolution	0.01°C	0.01°C	0.01°C
External touchscreen display operation	Yes	Yes	Yes
Temperature stability	±0.1°C	±0.1°C	±0.1°C
Temperature accuracy	±0.5°C	±0.5°C	±0.5°C
Control method	Low noise DC/PID	Low noise DC/PID	Low noise DC/PID
Interfaces	RS232C	RS232C	RS232C
Optional Interfaces	GP-IB	GP-IB	GP-IB
Chuck surface plating	Nickel	Gold	Gold
Temperature sensor	RTD	RTD	RTD
Temperature uniformity	±0.5°C at ≤ 200°C ±1. °C at > 200°C	±0.5°C at ≤ 100°C ±2.5°C at 200°C	±0.5°C at ≤ 100°C ±3.5°C at 200°C
Surface flatness	< ±1 µm	< ±8µm	< ±15µm
Electrical isolation - Coax BNC (m) / SHV Triax	150nA	> 5TΩ	> 5TΩ
Heating Rates	25°C to 300°C < 12 min	25°C to 200°C < 9 min	25°C to 200°C < 28 min
Cooling Rates	300°C to 25°C < 9 min	200°C to 25°C < 8 min	200°C to 25°C < 8 min
Leakage @ 10 V Kelvin Triax	N/A	<25fA	<400fA
Residual Capacitance		<200fF	<1pF
Maximum voltage between chuck top and GND	500V	500V	3kV
3 Safety Circuits	Yes	Yes	Yes
Vacuum Pattern	Rings	Pin hole	Pin hole
Vacuum Zone (DUT Size)	50, 100, 150, 200mm	2, 50, 100, 150, 200mm	2, 50, 100, 150, 200mm

### System Controller / Dimensions / Weight / Power Consumption

System Model	W x D x H (mm)	Weight (kg)	Weight (Lbs.)	Power cons. (VA)
S-1080	432 x 483 x 267	20.4	45	2000
TC-II	355 x 711 x 610	50.8	112	1500

❖ **SYSTEM OPTIONS – ACCESSORIES**

**Probe Station Dark Box (PSDB-1160)**

Probe Station light tight, electrically shielded enclosure  
Excellent for use in conjunction with the following:

- Low-Leakage measurements
- High-Power measurements
- Thermal measurements
- Light-Sensitive measurements

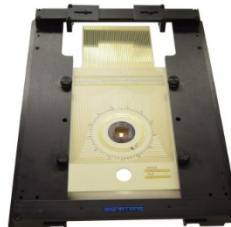
Door and Panel interlock options are typically used for High Voltage and High Temperature safety



**PSDB-1160**

**Probe Card Adapter (S-4710)**

For use with 4.5" wide probe cards



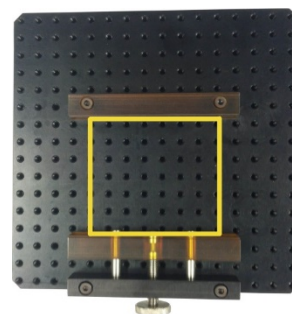
**4710**

**CM-BMVC**

**Board Mount Vice Chuck**

The S-1160 Series probe stations supports the 200mm x 200mm adjustable Vice chuck

- For clamping various size and shaped devices, packaged parts, PCB's, single chips, MEMS, BioMEMS or virtually anything you want to hold view and probe  
(VICE Clamps are non-conductive/ ULTEM)



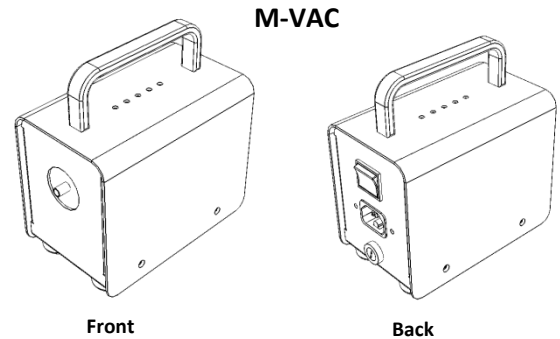
**CM-BMVC**

**M-VAC**

**AC Linear Piston – (Small) Quiet Vacuum Pump**

Supports vacuum hold-down of DUT and mounting of 1-10 Micro-positioners  
(11 in. Hg @ 115VAC /428 mbar @ 230V AC)

- Includes Power Cord, On/Off Switch, 10' flexible vacuum tubing, 5Amp Fuse, Vibration dampening feet, Easy grip handle



**Front**

**Back**

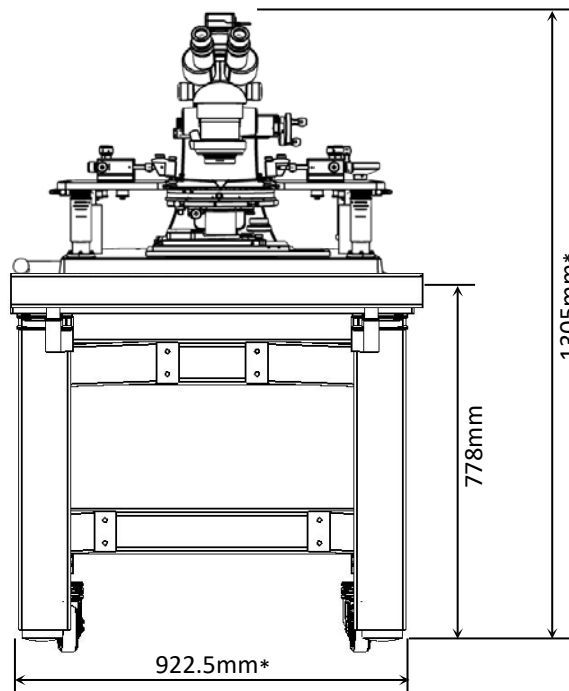
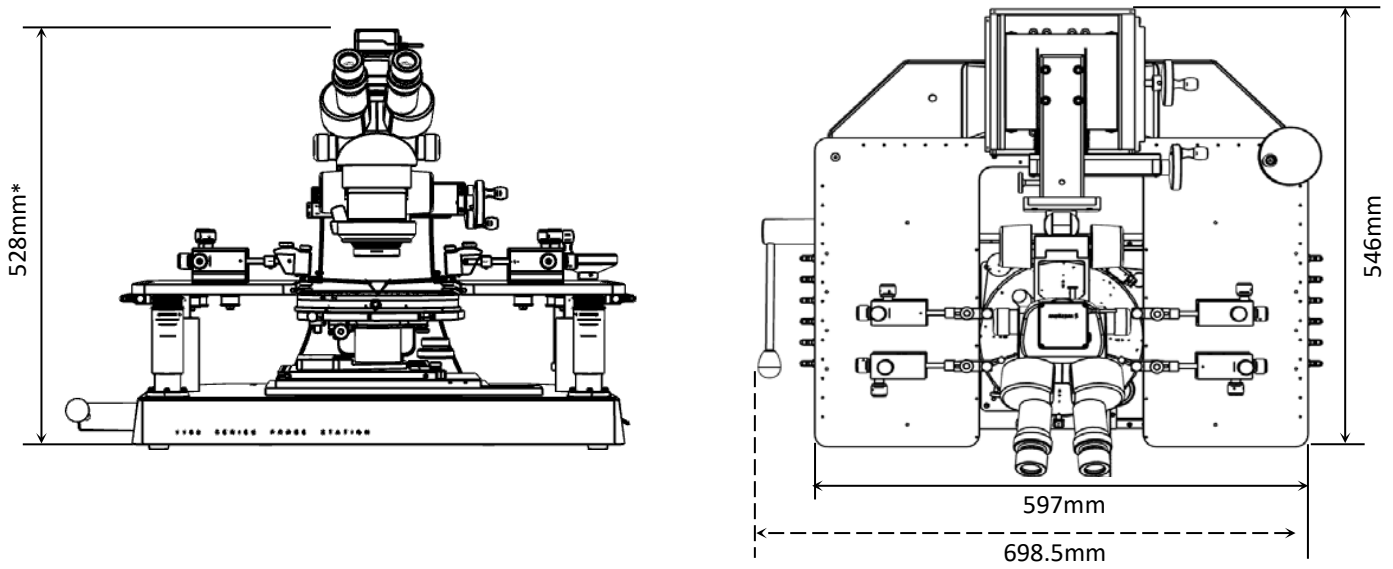


**❖ SYSTEM DIMENSIONS – TABLE OPTIONAL**

**WL-1160 / including microscope\***

Dimensions (L x D x H)	546 x 597 x 528mm	(21.5" x 23.5" x 20.78")
Weight	56.7kg	(125 lbs.)

\* Can vary dependent on monitor, probes, shelf, and microscope selection



## ❖ WARRANTY

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- Standard Warranty 12 months \*
- For Extended Warranty and Service Contracts : Contact Signatone Corp. for more information

*\* See Signatone Corporate Terms and Conditions of Sale for further details.*

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