

# PROBE SYSTEM FOR LIFE



## DATA SHEET

### SA-4 – 100 mm Semiautomatic probe system

The SemiProbe SA-4 is the most modular and flexible 100 mm semiautomatic probe system available today. It is built using our patented Probe System for Life (PS4L) architecture which provides unsurpassed flexibility and significant capital equipment savings. With the PS4L, customers can purchase a semiautomatic 100 mm system that meets their precise specifications and requirements.

The Probe System for Life (PS4L) family of wafer probing systems is designed based on SemiProbe's patented adaptive architecture. Unlike traditional probe systems, all foundation modules – bases, stages, chucks, microscope mounts, microscope movements, optics, manipulators and more - are interchangeable, making the PS4L the consummate solution for many different applications and budgets. This unique modular design enables customers to acquire test capabilities that precisely match their requirements. More important, as the environment or test conditions change, the PS4L can easily be field-upgraded to meet these new demands. With this design philosophy, PS4L customers realize substantial time and cost savings over traditional probe systems because they do not need to invest in a new platform when wafer size, levels of automation, or test requirements change.

All SemiProbe semiautomatic and fully automatic systems operate on the powerful PILOT control software suite, designed employing the same adaptive architecture philosophy as the PS4L hardware. PILOT is modular, intuitive and easy to learn. Additional control modules for added features and accessories can be implemented without changes to the core control software. Common functions such as 2 point alignment are wizard-based for easy operation - even for the occasional user. For setup or occasional users, the software can be bypassed and total control moved to a local joystick.



SA-4 semiautomatic probe system mounted on a vibration isolation table with an A-Zoom compound microscope, CCTV system, manipulators and test instrumentation - several configurations available.

This powerful DLL-based software allows users to quickly and easily communicate with the probe system and test instrumentation. Full driver libraries are available for LabView, C++, and Visual Basic with specific instrument drivers to support the most advanced instrumentation available, including the Agilent B1500 Semiconductor Device Analyzer and Keithley 4200 Parametric Analyzer series. Communications may be made using RS-232, GPIB or TCP/IP enabling the system to be either a controller or a slave in an integrated solution.

A complete line of accessories is available for the PS4L including probe card holders, manipulators, probe arms and bases, probe tips, thermal chucks, environmental chambers, lasers, optics, CCTV systems, material handling (robotics for auto load), vibration isolation tables, dark boxes and more.

## FEATURES AND BENEFITS

- 100 mm semiautomatic system with upgrade path to 150 mm/200 mm semiautomatic and 100/150/200mm fully automatic systems
- All key components are interchangeable which enables the system to easily be configured to meet applications and budgets – present and future
- Software and hardware modules provide a perpetual field upgrade path

### Major Applications/Markets Served

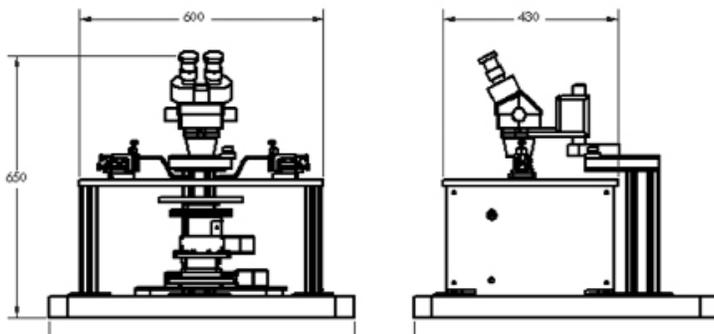
Device Characterization, MEMS, Optoelectronics, HF/Microwave, High Power, Photovoltaic, Failure Analysis, Research, Material Science and more.

## SPECIFICATIONS

Dimensions	900 mm x 650 mm x 750 mm (35.5" x 25.4" x 29.5") (W,H,L) – with optics
Weight	80 Kg (175 lbs.)
Chuck Stage X-Y Movement	Travel: 105 mm x 105 mm Speed: 50 mm/sec (max) Resolution: 0.1 $\mu$ m Repeatability: +/- 0.5 $\mu$ m Accuracy: +/- 3 $\mu$ m Planarity: +/- 6 $\mu$ m over travel range Nema 17 stepper motor Optical linear encoder
Chuck Stage Z Movement	Z Travel: 12 mm Resolution: 0.1 $\mu$ m Repeatability: +/- 1.5 $\mu$ m
Theta Movement	Travel: +/- 4 degrees (User specified) Resolution: 0.29 arc-secs, (0.003 degrees)
Chucks	Vacuum or mechanical clamping, round or square, HF, HV/HC, ambient, thermal and custom Handle die, wafer packs, sawn wafers on frame, broken wafers and full wafers up to 100 mm Nickel plated steel with concentric vacuum rings (standard), other plating materials available Planarity: 5 $\mu$ m
Platen:	Aluminum with stainless steel top with removable front wedge 360 degree manipulator placement Manipulator fixation – magnetic (standard), vacuum (optional with vacuum manifold kit)
Platen Movement	Platen Lift: Choice of fixed or adjustable (linear) Adjustable: Coarse - 40 mm, Fine – 200 $\mu$ m contact/separation stroke via lever - lockable
Microscope Mounting/Movement	Mounting – Boom, Post or Bridge Movement – Manual or Programmable – 50 x 50 mm, 50 x 75 mm, 100 x 100 mm or 200 x 200 mm
Microscope (Optics)	Stereo Zoom, Zoom Tube, A-Zoom or Compound Microscope
Utilities	Power: AC 110/220 V AC 50-60 Hz 20 A Vacuum: 23 Hg or -0.8 bar

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

## PHYSICAL DIMENSIONS



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