Current electronics trend shows a major direction for the board production: miniaturization. More products have now very small dimensions and the request of testing becomes more demanding on mechanical aspects than in electrical measurement difficulties.

What is MEMS Technology?
Micro-Electro-Mechanical Systems, or MEMS, is a technology that in its most general form can be defined as miniaturized mechanical and electro-mechanical elements. The technological challenge, in testing these objects, finds a solution in the CAD data management expertise, with the target to generate automatically a test program, starting from a mix of electrical and mechanical information. The solution for this application is the flying probe technology, integrating the high accuracy of positioning probes on the UUT and the capability of the probe to land with a perfect control of the pressure.

Based on the consolidated and complete solution of the Seica Flying Probes line, the PILOT4DV8HR includes the performance of a 10 MegaPixel High Resolution camera and a dedicated Z-axes control. The PILOT4DV8HR vertical architecture is the optimum solution for probing both sides of the UUT simultaneously. The reliable and repeatable dual-side probing increases test accessibility and flexibility, while guarantees the complete continuity tests from side to side of the UUT.

The vertical architecture represents the unique technology overcoming the intrinsic limitations of the horizontal systems. The requirement for standard ICT & Functional testing of the DUT is still part of the basic requirement and is satisfied using the Seica proprietary hardware: ACL measurement card with 18 bit resolution and switching matrix allow to reach most the testing requirement, remaining a solid base for any future expansion capabilities.

The test techniques of the PILOT4DV8HR include:
- FNODA signature analysis on the nets of the UUT
- Standard analog and digital in-circuit test
- Vectorless tests (JSCAN and OPENFIX), to test ICs for opens and shorts
- PWMON net analysis for power on the boards
- Continuity test to detect open tracks on the PCB
- Visual tests for component presence/absence and rotation
- Optional Thermal Scan Resources
- ALI: Automatic Laser Inspection for testing the presence / absence of components and for warpage compensation
### PROBES AND CAMERAS

**Probes Position - Test Side**
- **Standard Configuration** *(Head 2 not available)*
  - 6 "Standard Probe" (2 front, 4 rear)
  - 1 "High Resolution Probes" (front)
- **Optional Configuration** *(Head 2 and 6 not available)*
  - 4 "Standard Probe" (2 front, 2 rear)
  - 2 "High Resolution Probes" (1 front, 1 rear)

**Number of CCD view probes Color Cameras**
- Standard Configuration: 2 (1 front, 1 rear)
- Optional Configuration: 2 CCD HR 10 MegaPixel Color Cameras (front)

**Optional Configuration** *(Head 2 and 6 not available)*
- 4 "Standard Probe" (2 front, 2 rear)
- 2 "High Resolution Probes" (1 front, 1 rear)
- 2 CCD HR 10 MegaPixel Color Cameras (front)

**Number of Fixed Probes up to 192**
- **Number of Fixed Probes up to 192**
- **Number of CCD view probes Color Cameras**
- 2 (1 front, 1 rear)
- **Maximum Digital Embedded Channels**
- 4
- **Marker Recognition**
- Automatic
- **UUT Planarity Compensation (by Laser)**
- Automatic

### BOARD CLAMPING SYSTEM, UUT SIZES AND WORK AREA (*)

**Board Clamping System**
- Manual (Dual Action)

**Active Test Area**
- 500 x 450 mm *(19.68" x 17.72")*

**Minimum Board Size**
- 20 x 20 mm *(0.79" x 0.79")*

**Minimum Board Thickness**
- 0.3 mm *(0.0012")*

**Maximum Board Thickness**
- 7 mm *(0.28")*

**Maximum Thickness testable**
- 13 mm *(0.512")*

**UUT Clamping Clearance**
- 2 mm *(0.08")*

**UUT Clearance**
- 19 mm Top, 40 Bottom *(Standard Configuration)*
- 19 mm Top, 19 Bottom *(Optional Configuration)*

**Universal Carrier**
- Option *(for clamping not-regular shape PCB)*

### PROBE FEATURES

**Minimum Pad Pitch**
- 150 µm *(6 mil)*

**Minimum Pad Size**
- 75 µm *(3 mil)*

**XY axis resolution (brushless motor)**
- 2.5 µm

**Z axis resolution (linear motor)**
- 1 µm

**Z-axis Travel**
- -3.0 mm to 40 mm *(programmable)*

**Contact Force:**
- Standard Probe 10 g – 100 g *(programmable)*
- High Resolution Probe 1 g – 13 g *(programmable)*

### TESTS AND MEASUREMENTS (INSTRUMENTS DSP)

**Voltage Generator 1 (DRA)**
- DC/AC ±1 mV to ±10 V *(±0.1%)*

**Voltage Generator 2 (DRB)**
- DC/AC ±1 mV to ±10 V *(±0.1%)*

**Voltage Generator 3 (DRC)**
- DC/AC ±25 mV to ±100 V *(±0.2%)*

**Current Generator**
- DC/AC ±1 nA to ±0.5 A *(±0.1%)*

**Waveform Generator 1 (DRA)**
- Sin, Tri, Arbitrary 1 Hz to 3 MHz *(±1 mHz), ±10 Vmax*

**Waveform Generator 2 (DRC)**
- Sin, Tri, Arbitrary 1 Hz to 10 kHz *(±10 mHz), ±100 Vmax*

**Voltage Measurements**
- DC/AC ±200 µV to ±100 V

**Current Measurements**
- DC/AC ±3 nA to ±0.5 A

**Frequency Measurement**
- 0.1 Hz to 50 MHz

**Digital Embedded Channel**
- ±12 V - 500 mA - 10 MHz

**Resistance Measurement**
- 1 mΩ to 100 MΩ

**Capacitance Measurement**
- 1 pF to 1 F

**Inductor Measurement**
- 1 µH to 1 H

**Zener Measurement**
- up to 100 V *(200V option)*

**Visual Inspection**
- Automatic

### GENERAL REQUIREMENTS

**Temperature Range**
- 23°C ± 2°C

**Humidity**
- 30 - 80 %

**Power Consumption**
- 2.5 kW max *(1.0 kW typical)*

**Air Flow**
- 0.35 CFM – 10 l/min. 0.3 CFM – 6 l/min.

**Weight**
- 1400 kg *(3086 lbs)*

**Depth**
- 1265 mm *(49.8")* 2165 mm open doors *(85.3")*

**Width**
- 1750 mm *(68.9")* 3374 mm open doors *(132.8")*

**Height**
- 1800 mm *(70.9")* 2230 mm *(87.8")* with light-tower

### SOFTWARE FEATURES

**PC/Operating System**
- Windows 7

**Software**
- VIVA

**Automatic Test Generation**
- Yes

**Autodebug**
- Yes

**Data Input Format**
- CAD Data or Manual

---

Seica reserves the right to change the technical specifications without notice.