



SEMICONDUCTOR INDUSTRY

ATE CALIBRATION ROBOTICS

Owens Design has shipped over 200 calibration units since we introduced our first R-Theta robot in 1993. The design is customized for each tester's requirements and privately labeled with our customer's logo.

As with all of our ATE calibration robots, the probe type and signal cable are application specific. Probe type considerations include performance, mechanical integration, compliance and grounding. Signal cable considerations include performance, length, flexibility, and rated dynamic life.

A special load board is typically used within the probe contact area and is created based on pad size, pad layouts, registration locations and signal ground locations. Advanced applications allow for multiple probes, directly probing to signal pogo pins and directly probing the socket.

The robot control software may run on either a custom or PC-104 board controller. The communication interface is typically serial, but may be customized if needed. High-level commands are then passed

through to the robot. Our standalone diagnostic software is PC-based and is used to simplify troubleshooting.

Technology Platforms

R-Theta: Major features of the R-Theta platform include a maximum probe area of 12.5" in diameter, an accuracy rating of $\pm 0.015"$ and a very stiff structure. This system self-registers to the load board and supports multiple probe types. The self-contained platform also has the advantage of being small and very portable.

X-Y, Cartesian Format: The major features of this high-speed platform include a probe area of 12"x12" X-Y and an accuracy rating of $\pm 0.012"$. This platform is also small and easily portable.

High Accuracy: This platform has a probe area of 16"x22" X-Y and an accuracy rating of $\pm 0.005"$. With its expandable probe area and multi-probe capability, this system is our most accurate calibration robot.

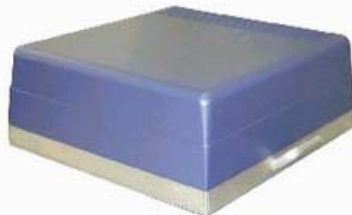




ATE CALIBRATION ROBOTICS: X - Y, CARTESIAN FORMAT



ATE System



Calibration Robot



As ATE pin counts increase and timing requirements become more stringent, Validation and Focused Calibration are best performed by a Calibration Robot.

The Calibration Robot is used in conjunction with an oscilloscope,

TDR or TDM instrument to validate tester signal performance or to perform a calibration at the test head. Commanded by the tester the robot automatically moves the probe tip to the desired DIB pad locations. The measured signal always travels through the same cable path to maximize signal repeatability. Stepper motors and a custom drive keep the system electrically quiet while recording measurements.

Robots are customized to interface with specific ATE models. Customization enables us to accommodate the different communication and mechanical interface requirements of the testers. A variety of probe types are supported

- Resolution: 0.0015" X and Y, 0.008" Z
- Accuracy: ± 0.012 " X and Y, ± 0.016 " Z
- Probe Area: 12" x 12"
- Registration: Self registers to load board
- Probe type: 50 ohm coaxial (customizable)
- Weight: 22 lbs
- Communications: Serial

