



WaferSense® Auto Teaching System (ATS)



Above: WaferSense ATS300C
Inset: ATS200C



Wireless Machine Vision Teaching

WaferSense ATS measures three-dimensional offsets to teach wafer transfer positions. Using machine vision technology it “sees” targets inside semiconductor equipment.

Wireless and wafer-like, it is automatically handled to significantly speed equipment setup and maintenance. The teaching wafer is also vacuum compatible so measurements can be taken while the equipment is sealed, saving qualification time and consumables.

An intuitive graphical user interface provides digital x, y, and z offsets that eliminate guesswork.



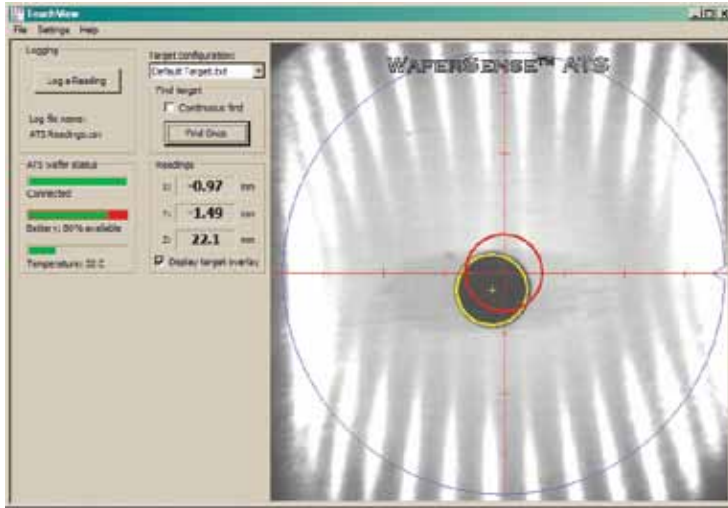
Accurate wafer handoff calibration improves yield and lowers particulate contamination. WaferSense ATS moves through your semiconductor equipment just as a wafer to capture offset data for accurate calibration of transfer positions. Calibrated equipment improves the yield of your manufacturing process.

Repeatable and reproducible setups put you in control of your semiconductor equipment. Because it is based on hard data, the ATS calibration process eliminates technician-to-technician variation, making the setup and maintenance checks repeatable and reproducible. Uniformly controlled equipment is more reliable.

Wireless communications and wafer form factor reduce equipment downtime from hours to minutes. Wireless and vacuum compatible, the ATS teaching wafer makes calibration safe both for technicians and for process stations. Troubleshooting takes less time when equipment stays sealed during inspection. Lower downtime makes the equipment available for productive use faster and with less personnel and consumable expense.

Visual inspection speeds troubleshooting and lowers consumable expense. ATS displays real-time images to technicians as robots move ATS through the tool. Technicians search for lost wafers and verify that pedestals are free of debris without opening the tool. Avoiding one needless process kit replacement may pay for the ATS.

WaferSense ATS Components

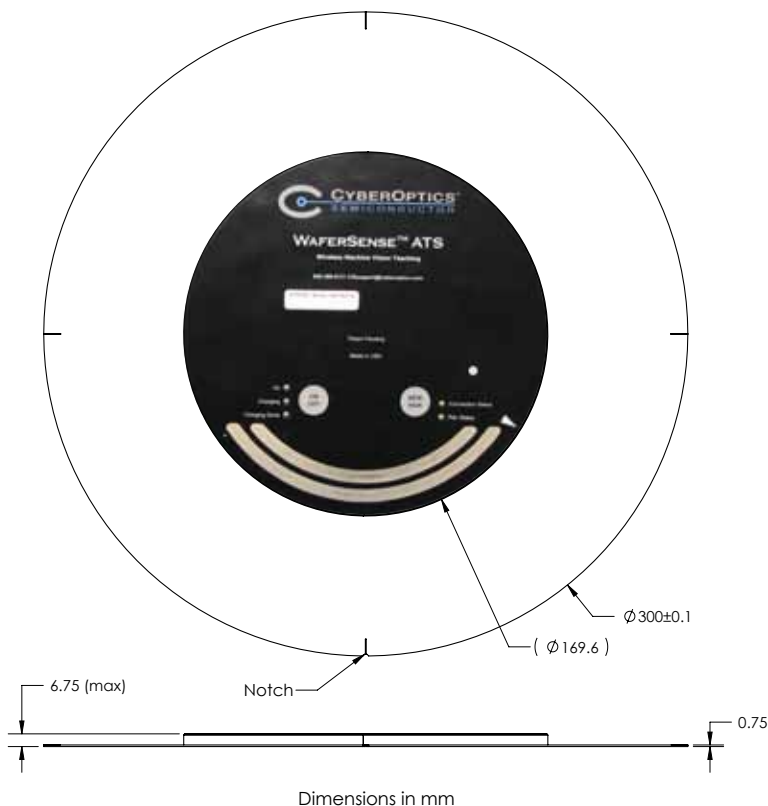


Above: TeachView's real-time display captures live video for inside semiconductor equipment.

Right: WaferSense Link is a compact device enabling wireless communications with the sensor via Bluetooth®.



Dimensions (ATS300C)



Key Features

- **Wireless, wafer-like.** Handles like a wafer; can be placed anywhere a wafer can.
- **Form factor.** SEMI 200 mm notch or flat (ATS200C or ATS200CF) or 300 mm (ATS300C or ATS300CI).
- **Thin and light.** 6.75 mm (max) tall
 - 200 mm: 160 gm
 - 300 mm: 235 gm
- **Housing.** Carbon fiber composite.
- **Reports wafer offsets in three dimensions.** On-board camera captures live video; on-board image processor reports the coordinates (X, Y, Z) of the teaching wafer in relation to a target.
- **Working distance.** Measures offsets to targets 6.5 mm – 45 mm (0.25" – 1.8") below the teaching wafer.
- **Accuracy.** ± 0.1 mm (± 0.004 ") (X and Y position); ± 0.5 mm (± 0.02 ") (Z position).
- **Operating pressure.** $\leq 10^{-6}$ to 760 Torr.
- **Operating temperature.** 20°C – 50°C.
- **Battery operation.** ≥ 2 hours per charge.
- **WaferSense Link.** Bluetooth, 2.4 GHz, USB 1.1, 92 mm x 58 mm x 28 mm.
- **TeachView™ application software.** Displays live video and measurements of target features, logs offsets and user comments.
- **TeachReview™ application software.** Replays log file data for review and analysis.
- **TeachTarget™ application software.** Allows teaching of circular features, 3mm - 10mm (0.1" - 0.4") diameter.
- **Operating systems.** For use with Windows 7, 2000, XP, and Vista
- **Product components.**
 - Teaching wafer
 - Communications link module
 - Application software
 - Charging clean box
 - Carrying suitcase
 - Certificate of calibration



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