Save Time.
Improve your Yields.

WaferSense® & ReticleSense® - The world's most efficient and effective wireless measurement devices.

Nordson TEST & INSPECTION

CYBEROPTICS®

WaferSense® and ReticleSense® Wireless Measurement Devices

When you need the most efficient and effective measurement devices for semiconductor tool set-up and maintenance processes, count on CyberOptics, the global market leader in wireless semiconductor measurement devices for chamber gapping, leveling, wafer handoff teaching, vibration, airborne particle, relative humidity and resistance measurement.

Proven and Adopted

Major semiconductor fabs and equipment OEMs worldwide have **adopted** CyberOptics wireless measurement devices. Several OEM standards require the use of the WaferSense and ReticleSense devices which have been **adopted as the BKM (Best Known Method)** due to the increased level of precision required with today's ever smaller chip geometries.

Most Efficient and Effective

- Since the wireless, battery powered devices are wafer or reticle shaped, they can generally travel anywhere a wafer or reticle travels, providing optimal ease-of-use and access to locations that otherwise may be difficult or impossible to reach.
- Calibrations can be done under closed-chamber process conditions with the vacuum compatible devices.
- Count on accurate, precise, reliable and repeatable results that save time and expense compared to traditional or legacy methods.

Save Time and Expense

- ✓ Improve yields and increase tool uptime
- ✓ Increase throughput
- ✓ Reduce resource needs
- ✓ Speed equipment set-up, maintenance cycles, trouble-shooting, qualification and release to production
- ✓ Speed tool optimization, stabilization and standardization
- ✓ Streamline fab processes
- ✓ Establish repeatable and verifiable standards

Real-Time Data with CyberSpectrum™ Software NEW!

- CyberSpectrum offers multi-application functionality with the WaferSense and ReticleSense lines of devices, while also providing control to run multiple devices simultaneously.
- Receive and record data in real-time on your laptop with this easy-to-use software that includes multi-touch controls.
- Compare past and present data as well as one tool to another easier and faster without opening an additional application with Review functionality integrated into CyberSpectrum.

CYBERSPECTRUM

WaferSense® Portfolio

Available in 150mm, 200mm and 300mm sizes*

Auto Resistance Sensor™

- Shorten equipment maintenance cycles with wafer-like 4-wire resistance sensor.
- Predict when a tool needs maintenance with quantitative analysis of measured mean resistance over time.
- Improve cell-to-cell process uniformity with objective and repeatable resistance measurement.

Auto Vibration & Leveling Sensor™

- Speed real-time vibration and leveling measurements.
- Speed equipment qualification and shorten equipment maintenance cycles,
- Laminated GHC (chemically hardened glass) substrate.

Airborne Particle Sensor™

- Quickly monitors, identifies and enables troubleshooting of airborne particles down to 0.14µm within semiconductor process equipment .
- Easily identifies when and where the particles originate and measures the effectiveness of cleaning adjustments and repairs in real-time.
- Carbon fiber composite substrate.

Auto Multi Sensor™

- Speeds measuring leveling, vibration and humidity with a thinner, lighter, all-in-one multi sensor.
- Monitors humidity when wafers are in the FOUP awaiting next process step to prevent yield loss.
- Carbon fiber composite substrate.

Auto Leveling System™

- Speeds setting the right inclination by measuring pitch, roll, rise over run and vertical inclinations.
- Quickly and accurately enables setting the same level across the tools for better process uniformity.
- Carbon fiber composite substrate.

Auto Gapping System™

- Speeds non-contact gap measurements and parallelism adjustments under vacuum for semiconductor processes such as thin-film deposition, sputtering and etch.
- Improves uniformity, tool availability and repeatability.
- Anoidized aluminum housing.

Auto Teaching System™

- "Sees" inside equipment to capture three dimensional offset data (x, y, and z) to quickly teach wafer transfer positions.
- Lowers particulate contamination with accurate wafer hand-off calibration, proper alignment and set ups.
- Travels through more locations with thinner form factor.
- Chemically hardened glass (CHG).

Auto Vibration System™

- Monitors 3-axis accelerations and vibration to maximizing acceleration and minimize vibration.
- Records data to enable comparison between past and present, as well as one tool to another, to reduce particles, maintenance time and cycle time.
- Carbon fiber composite substrate.

ReticleSense® Portfolio

Available in 6 inch reticle form factor

Airborne Particle Sensor

- Quickly monitors, identifies and enables troubleshooting of airborne particles down to 0.14µm within semiconductor process equipment and automated material handling systems.
- Glass filled PEEK housing (APSR) and Quartz surface housing (APSRQ) available.

Auto Multi Sensor

- Speed leveling, vibration and humidity measurements with all-in-one multi sensor.
- Monitors humidity when reticles are in the stocker awaiting next process step to prevent yield loss.
- Quartz surface housing.

Auto Teaching System™

- "Sees" inside equipment to capture three dimensional offset data (x, y, and z) to quickly teach reticle transfer positions.
- Lowers particulate contamination with accurate reticle hand-off calibration, proper alignment and set ups.

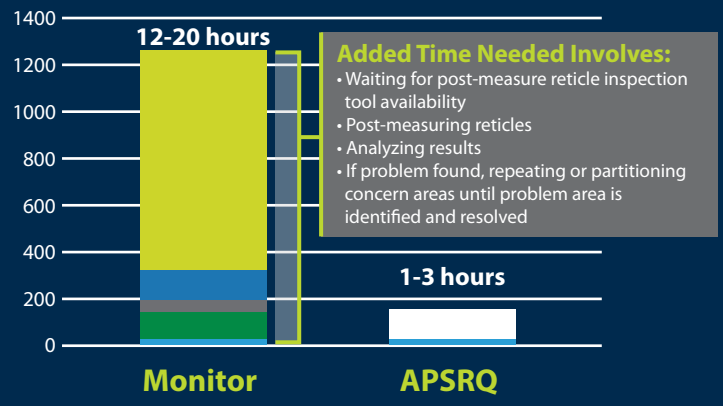
APS Technology

Did You Know?

The APS technology enables equipment engineers to shorten equipment qualification, release to production and maintenance cycles, all while reducing expenses. Customers have experiences up to **88% time savings, up to 95% reduction in costs** and **up to 20X the throughput** with half the manpower requirements by using the APS technology relative to legacy surface scan wafers.

Save Time | **Save Expense** | **Increase Throughput**

Reticle Monitor vs. ReticleSense® APSRQ
Time Comparison: **10x** Time Savings



Deploy WaferSense and ReticleSense measurement devices for chamber gapping, leveling, wafer hand-off teaching, vibration, airborne particle, relative humidity and resistance measurement in your applications. Visit our website for additional application information.

AVS / AMS*


ALS / AVLS3


Applications

- Epitaxy
- Thermal oxidation/metallization
- Plasma vapor deposition; PVD
- Chemical vapor deposition; CVD, ALD
- CMP
- Atomic layer deposition; ALD
- Photo lithography
- Wet (chemical) etch, plasma etch
- Dry etch
- Ion implant
- Diffusion/furnace
- Rapid thermal anneal; RTA, RTP
- Test and inspection
- Metrology
- Micro contamination
- Auto handling system; AMHS
- Module repair

AGS

Applications

- Chemical vapor deposition; CVD, ALD
- Atomic layer deposition; ALD
- Wet (chemical) etch, plasma etch

APS3*

Applications

- Factory interface FI/EFEM
- Photo Lithography
- Diffusion/Furnace
- Test and Inspection
- Rapid Thermal Anneal; RTA, RTP
- Metrology
- Microcontamination
- Auto Handling System; AMHS and Stockers

ATS2* — NEW! V2

Applications

- Plasma vapor deposition; PVD
- Chemical vapor deposition; CVD, ALD
- Photo lithography
- Wet (chemical) etch, plasma etch
- Dry etch
- Ion implant
- Automated handling system

ARS

Applications

- Electrochemical Deposition; ECD

*Available in reticle form factor

Nordson TEST & INSPECTION

CYBEROPTICS®

Contact CyberOptics today for your complimentary on-tool demonstration
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