



## Sion™ RF Detector for Endpoint Control

### HIGHLY ACCURATE, REPEATABLE CHAMBER CLEAN ENDPOINT CONTROL THAT REDUCES COSTS

#### ELIMINATES OVER-ETCHING FOR INCREASED THROUGHPUT

INFICON Sion RF Detector gives users tighter control and higher yields in chemical vapor deposition (CVD) and etch processes by reliably and accurately determining the chamber clean endpoint. More accurate endpointing means lower on-wafer particle levels and more time between preventative maintenance cycles.

Providing a number of advantages over optical emission spectrometer (OES)-based controllers, Sion works with INFICON FabGuard® Integration and Analysis System to reduce the wasted time and materials that result from chamber clean under- or over-etching.

#### MORE COST-EFFECTIVE FOR OEMS

For original equipment manufacturers (OEMs), Sion is a drop-in replacement for OES-based instruments, as data can be input directly to the tool control system. Sion's compact clamp-on detector connects to the process chamber's RF delivery system for collecting voltage and current information. The detector has no negative effects on tool or process performance.

#### UNIQUE RF SENSING TECHNOLOGY OUTPERFORMS OES-BASED SENSORS

Sion RF technology maintains the same high-quality signal regardless of run time. (OES-based controller performance degrades over time because of coated chamber windows.) Since users don't have to replace chamber windows to keep Sion performing at its peak, cost of ownership is lower and tool uptime is higher than with OES units. Sion operates across all chamber pressures and gas flow ranges, while OES-based controllers typically fail at lower levels. In addition,

#### FEATURES AT A GLANCE

- Easy drop-in replacement for OES-based instrument for more accurate endpoint control
- Eliminates chamber clean under- and over-etching, reducing cost of time and materials
- Reduces required clean gas flow levels and cost
- Increases tool uptime by eliminating chamber window maintenance and replacement

Sion monitors the entire process chamber, resulting in much greater sensitivity and accuracy than OES-based controllers.

#### REDUCED GAS CONSUMPTION REDUCES COST

In most processing tools, the clean recipe is developed using an optical system to determine gas flow levels and endpoint. However, optical endpoint systems often require a higher gas density to work properly. Sion can determine the proper chamber clean endpoint with 10% to 20% lower clean gas flow levels—for considerable savings.

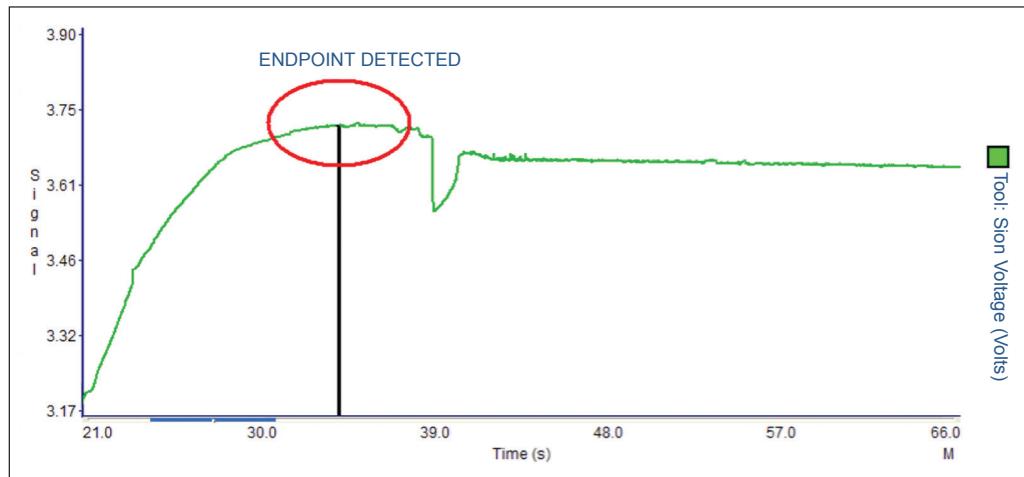
#### POWERFUL DATA ANALYSIS FOR BETTER YIELDS

Sion RF Detector works with INFICON FabGuard Sensor Integration and Analysis System, which processes complex data using unique algorithms to detect the chamber clean endpoint as it happens. Unlike competing products, FabGuard synchronizes endpoint data with other process parameters (including power, pressures and gas flows) for more accurate endpoint detection.

FabGuard offers an easy, intuitive interface that enables advanced diagnostics, fault detection and classification (FDC), and reliable real-time process control. Its sophisticated algorithms virtually eliminate false alarms due to process changes. FabGuard also offers superior statistical and analytical functions for the next generation of FDC.

## OUR EXPERTISE IS YOUR COMPETITIVE ADVANTAGE

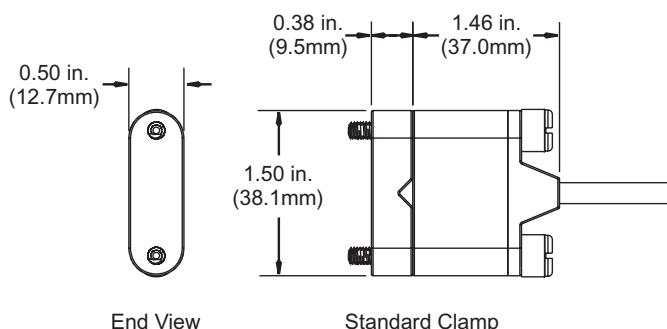
INFICON's worldwide expert applications team brings experience, superior knowledge and problem-solving expertise to fab processes, along with resources for installation, evaluation and support.



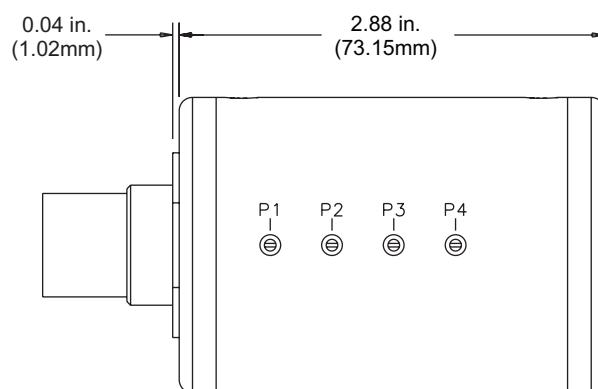
INFICON Sion RF Detector monitors the entire chamber to precisely determine the cleaning endpoint in real time. It achieves this with lower clean gas flow levels and no long-term signal degradation.

## SPECIFICATIONS

Input signal	Voltage: Current:	1 VRMS to 5000 VRMS strap voltage 10 mA RMS to 70 ARMS strap current
Input frequency range	350 kHz to 41 MHz	
Detector voltage rating	Detector clamps to a tool RF delivery strap carrying up to 5000 V(dc) and up to 5000 VRMS	
Converter signal input	≤2 V(ac) p-p on two channels at 350 kHz to 41 MHz	
Operating ambient temperature range	10°C to 80°C	



Detector head dimensions



Side View

Converter dimensions



[www.inficon.com](http://www.inficon.com) [reachus@inficon.com](mailto:reachus@inficon.com)

FabGuard is a registered trademark of INFICON. Sion is a trademark of INFICON.

Due to our continuing program of product improvements, specifications are subject to change without notice.

oibd54a1-b ©2013 INFICON