

Sion™ RF Detector for Plasma Arc Detection

ULTRA-FAST, HIGH POWER ANALYSES OF MICRO-ARCING

NON-INTRUSIVE, CLAMP-ON RF DETECTOR DELIVERS HIGH-SPEED ARC DETECTION IN CVD AND ETCH

REDUCING WAFER LOSS AND IMPROVING YIELDS

The INFICON Sion RF Detector provides real-time, high-power analyses of plasma micro-arcing which can cause damage to the target, the film being deposited, and even the wafer surface in chemical vapor deposition (CVD) and ETCH processes. More compact than any other device on the market, Sion employs the INFICON FabGuard® Integration and Analysis System to detect arcs that were previously undetectable. The result is reduced wafer loss, improved yields – and increased profitability.

SMALL EASY CLAMP-ON SENSOR EQUALS HUGE ADVANTAGE

Sion's performance isn't hampered as are inline cable mount sensors; it doesn't change the tool's RF delivery system characteristics. The innovative clamp-on design is an extremely compact, non-intrusive detector which connects directly to the process chamber's high-power RF delivery system to collect voltage and current information at speeds up to 20 KHz. This includes a high-speed signal converter connecting directly to the FabGuard data collection and analysis system.

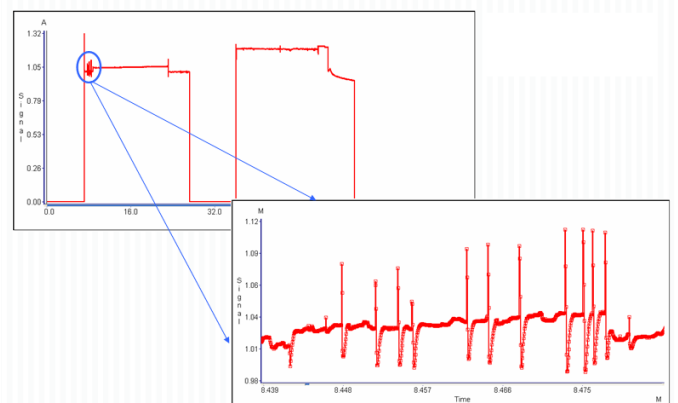
FEATURES AT A GLANCE

- non-intrusive ultra-small detector design
- high-speed data collection (20 KHz)
- integrated data management with FabGuard

Other devices cannot compete with the performance of the Sion RF Detector, because large RF detectors must be squeezed into locations which allow only inadequate arc detection.

ANALYZE ARC EVENTS IN REAL TIME

INFICON FabGuard Sensor Integration and Analysis System processes high-speed data and performs simple or complex analysis to detect arcing as it happens. This is possible, because unlike competing products, FabGuard synchronizes arc data with other process parameters from the tool (including power, pressures and gas flows), providing the information necessary to identify and isolate potential arcing events. This allows for simple SPC limits on the arc indices, so that wafers can be tagged for off-line particle analysis.



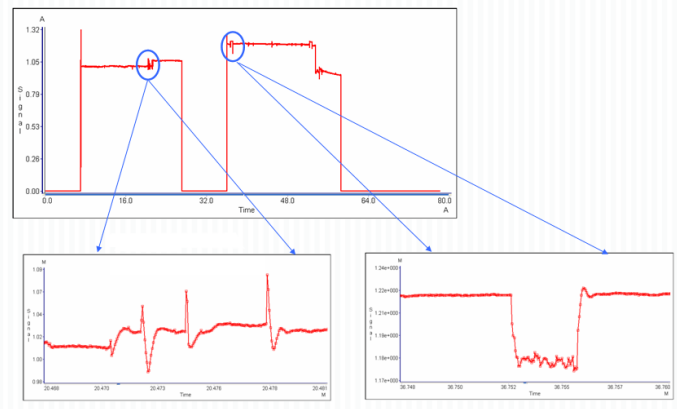
Close-up view of ultra-fast micro-arcs in real time. Data is collected at 20 KHz to catch arcing events whenever they occur.

POWERFUL DATA ANALYSIS FOR BETTER YIELDS

FabGuard offers an easy, intuitive interface enabling advanced diagnostics, fault detection and classification (FDC) and reliable real-time process control. Because FabGuard runs complex algorithms, false alarms due to process changes are eliminated. FabGuard also offers superior statistical and analytical functions to provide the next generation of FDC.

OUR EXPERTISE IS YOUR COMPETITIVE ADVANTAGE

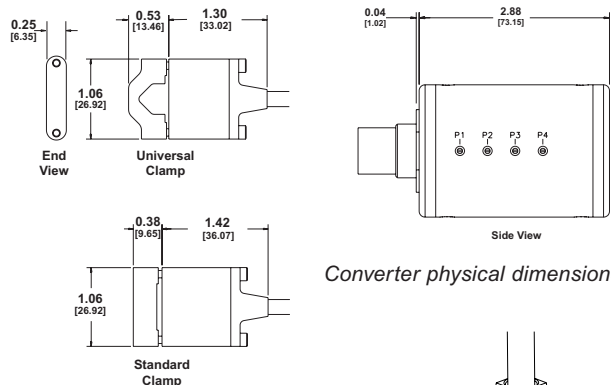
We offer a worldwide expert applications development team and resources for installation, evaluation and support. Our highly skilled semiconductor applications engineers provide the right solutions at the right time.



Ultra-fast micro-arcing with the Sion RF Detector.

SPECIFICATIONS

Input signal	Voltage: 1 VRMS to 1000 VRMS strap voltage Current: 10 mA RMS to 70 ARMS strap current
Input frequency range	350 kHz to 60 MHz
Detector voltage rating	Detector clamps to a tool RF delivery strap carrying up to 1000 V(dc) and up to 1000 VRMS
Converter signal input	≤ 2 V(ac) p-p on two channels at 350 KHz to 60 MHz
Operating ambient temperature range	10 °C to 80 °C

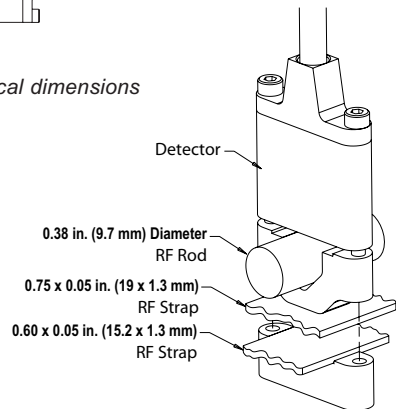


Converter physical dimensions

Detector head physical dimensions

ORDERING INFORMATION

Sion RF Detector Systems	
One Detector	927-600-G1
Two Detectors	927-600-G2
Three Detectors	927-600-G3
Four Detectors	927-600-G4
Five Detectors	927-600-G5
Six Detectors	927-600-G6
Additional detector head systems (maximum four heads)	927-601-G1



Detector head strap and rod sizes



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Due to our continuing program of product improvements, specifications are subject to change without notice. FabGuard is a registered trademark of INFICON. Sion is a trademark of INFICON.

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