



smartsignal®

INTRODUCING SMARTSIGNAL

SmartSignal invented predictive analytics for equipment health, and we maintain our worldwide leadership. We provide software and service solutions that detect impending equipment and process problems before they grow into large and costly problems or catastrophic failures.

In detecting problems early, our customers focus their maintenance resources where needed, reduce maintenance costs, and prevent unplanned outages. The net results are lower risk; increased workplace safety; improved reliability, availability, capacity, and fuel efficiency; and increased productivity and profitability.

SMARTSIGNAL: A PROVEN SOLUTION

SmartSignal is providing value across industries and around the world. We protect equipment for over 200 power plants and 10000 assets—for industry leaders responsible for over 350,000 megawatts of power generation—including coal, combined cycle, wind, nuclear, and hydro generation. We also protect equipment for oil and gas super majors worldwide, along with industry leaders in mining, pulp and paper, and aviation. In fact, we monitor and protect over 2000 jet engines—in-flight.

Our customers claim high value from using SmartSignal; in fact, they pay back in a matter of months, sometimes even sooner. And they continue to report routine and consistent value every day.

SAMPLES OF THE VALUE

SmartSignal works on all critical rotating and non-rotating equipment, across

all OEMs, to detect a wide variety of equipment, process, and sensor problems across industries. Below are a few high-value examples:

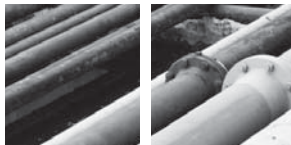
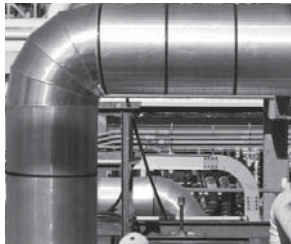
- \$35 million in savings due to early detection of a generator rotor crack
- \$3.2 million in savings from avoidance of catalyst buildup on a refinery hot gas expander
- \$820,000 in savings due to early detection of a feed water heater tube leak
- \$2.4 million in savings from prevention of reciprocating engine crankshaft failure
- \$4.0 million in lost-generation savings due to early warning of an air heater support bearing failure
- 400 hours early warning of generator stator cooling water plugging

"SmartSignal cuts through the sensor noise to help find the 'gems on the ocean floor.'"

POWER ENGINEERING
INTERNATIONAL
NOVEMBER 2008

HOW WE WORK

SmartSignal works on top of our customers' current sensors and tools to leverage them and increase their value. Instead of trying to analyze their reams of data, our customers use SmartSignal to analyze the data for them and predict expected future behavior based on historical performance. SmartSignal's technology, protected by over 40 patents, analyzes all data from all sensors and identifies subtle changes. We detect impending problems, diagnose them,



prioritize them, and notify our customers of all issues, allowing them to focus on impending problems and take action before they grow large and costly. We tell our customers where—and where not—to spend their limited maintenance dollars and time.

WHAT MAKES US DIFFERENT: UNIQUE SOFTWARE AND SERVICES

No other tool works like SmartSignal and can provide the early and accurate detection that SmartSignal does.

Unlike other predictive methodologies, our software treats every piece of equipment as unique. Using historical and specific data for each individual piece of equipment, SmartSignal develops customized, individualized models. SmartSignal's models incorporate all inter-related sensors, thereby providing a holistic view of every piece of equipment. And, each model uniquely and automatically adapts to changes in mode and ambient conditions.

SmartSignal constantly compares—in real time—these individualized models vs. actual equipment performance and detects small and subtle changes. Our fine-tuned analyses allow us to detect problems that others just can't. *If a customer is about to have a problem, SmartSignal will see it.*

Importantly, our solutions are 100% flexible, allowing our customers to take on whatever is appropriate given their staffing and culture, and letting SmartSignal do the rest.

Our engineers can fully deploy and maintain our solutions, analyze the data, and provide our customers with notifications of anomalies, along with diagnostics and prioritizations. This

takes a burden off customer staffs and focuses them entirely on fixing problems, not learning how to deploy and maintain new software and work with it.

"SmartSignal has detected fuel supply problems, casing leaks, wear on GT hot-gas-path parts, combustion liner damage, problems in the GT exhaust, transition failures, bearing failures, lost balance shots, HRSG leaks, attemperator-value leaks, cooling-tower basin control problems, and plenty of sensor issues—among others."

JASON MAKANSI
POWER INDUSTRY EXPERT AND
AUTHOR OF "LIGHTS OUT"

For more, read the feature article on SmartSignal in the *COMBINED CYCLE Journal*, Second Quarter, 2008

ABOUT SMARTSIGNAL

SmartSignal maximizes worldwide industry equipment performance, availability, and reliability by detecting, diagnosing, and prioritizing equipment and process problems before they become costly failures. Drawing on over 40 patents, SmartSignal delivers specific, relevant, and actionable intelligence that makes people more proactive and productive. SmartSignal serves customers in power generation, oil and gas, mining, aviation, pulp and paper, and other process industries worldwide. SmartSignal and its customers have won over twenty awards for excellence, including the *Wall Street Journal* Technology Innovation Award.

ASK OUR CUSTOMERS

WE HAVE A GREAT SET OF CUSTOMERS WHO ARE HAPPY TO TELL YOU MORE ABOUT HOW THEY SUCCESSFULLY USE SMARTSIGNAL TO IMPROVE THEIR PERFORMANCE AND BOTTOM LINE. TO SPEAK WITH THEM AND LEARN MORE ABOUT SMARTSIGNAL, CONTACT US AT:

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