



Smart Diagnostics[®] Application Note Introduction to SmartDiagnostics[®]

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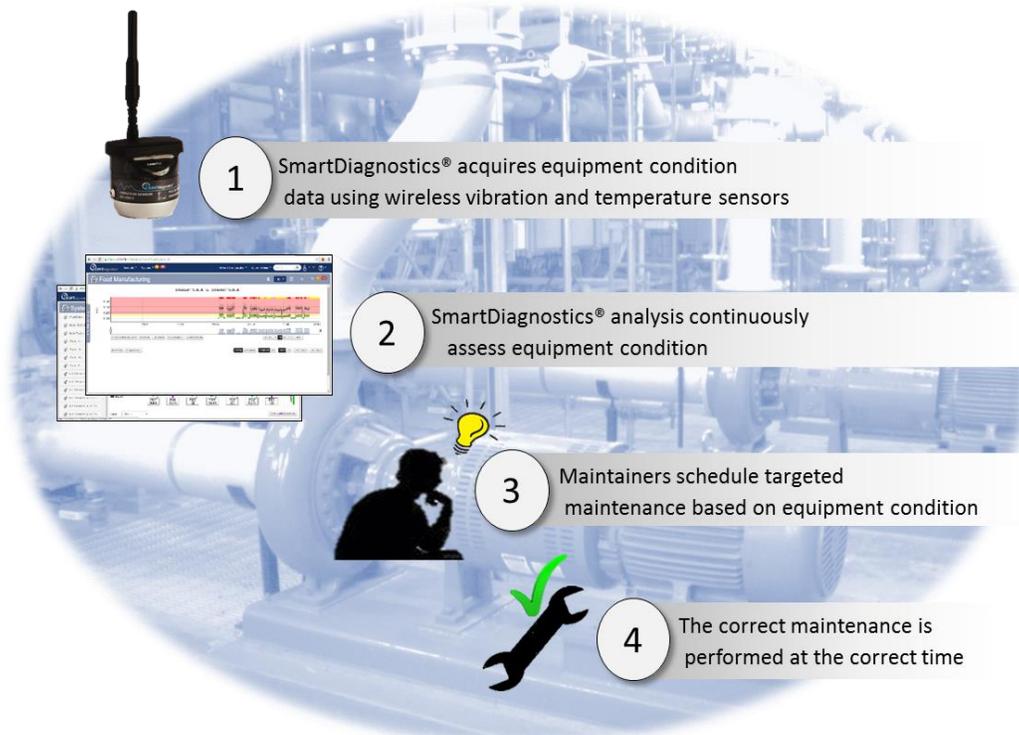
KCF Technologies, Inc.

Overview

SmartDiagnostics[®] is an end-to-end online condition monitoring solution that consists of equipment mounted wireless sensors, cloud or local/in-plant networking, analysis software, and an open interface to process monitoring or asset management software. SmartDiagnostics[®] enables users to view machine health trends and form a basis for performing maintenance. This guide gives users an introduction to how to begin to use SmartDiagnostics[®] in their facility.

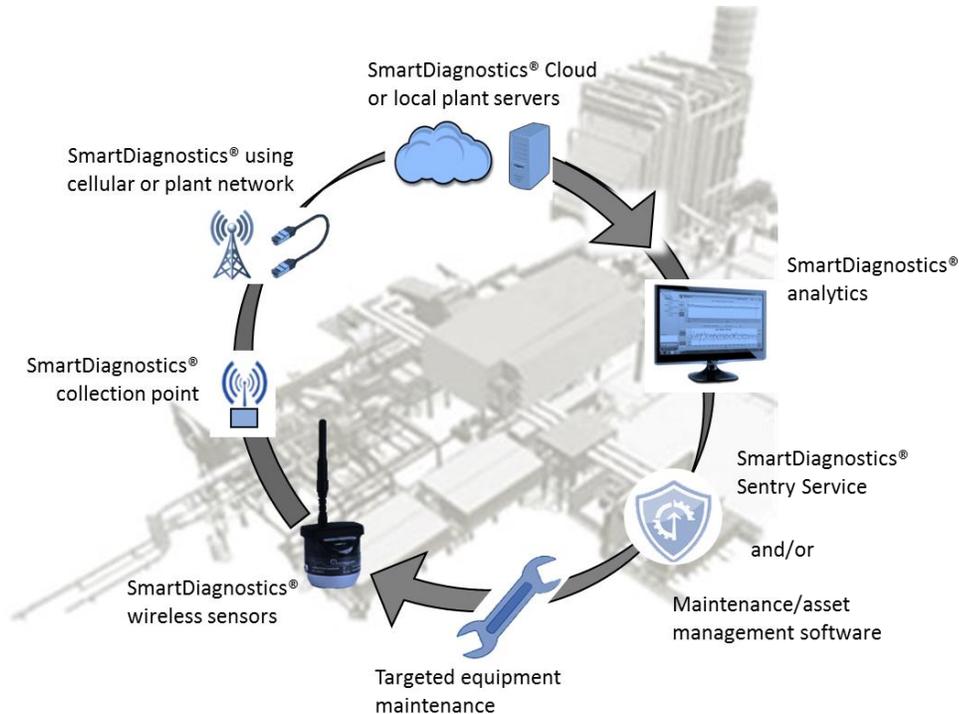


SmartDiagnostics® is a hardware and software solution that provides near real-time machine condition information and historical trends in an easy to use but highly powerful software interface. In depth analysis of fault trends can be performed in addition to detailed high frequency spectral vibration analysis.



The wireless sensor capability, advanced networking, and flexible software interface enables SmartDiagnostics® to be set up in minutes and deliver near real-time machine condition data to anywhere in the world. These advances in technology offer affordability while delivering new continuous monitoring capability. This solution is retrofittable to nearly any machine without requiring modification and in some cases without shutting the equipment down. The sensors can be magnetically mounted in minutes or stud mounted to equipment. The high performance wireless communication enables the sensors to be placed in difficult to reach locations where wiring is not possible. The solution is maintenance-free, owing to the robust sensor design and long battery life of 5-8 years. The sensor can operate safely in certain hazardous environments.

The sensors are preconfigured to acquire high fidelity machine health and condition information. This data is wirelessly sent to collection points where the data is uploaded to a SmartDiagnostics® local or cloud-hosted database. SmartDiagnostics® uniquely provides full spectrum 0-4 kHz vibration data every few minutes. The SmartDiagnostics® analytics evaluates the raw data and provides near real-time condition assessment. This high accuracy on-line condition monitoring uncovers and tracks early stage fault precursors in advance of terminal shut-down events. The fault progression is tracked relative to known thresholds which forms a basis for scheduling maintenance. Historical machine condition data is archived automatically and can be saved for decades.



The system can be used in collaboration with SmartDiagnostics® Sentry Services. Sentry Services is an exclusive program offered with SmartDiagnostics® in which KCF's vibration experts use SmartDiagnostics® to provide customer specific continuous monitoring, machine analysis, and reporting. SmartDiagnostics® can also be integrated with a range of asset management systems or enterprise process monitoring software solutions. For example, machine health indicators or work order triggering can be passed from SmartDiagnostics® to software such as IBM Maximo® or OSIsoft PI®.

The SmartDiagnostics® wireless capability is highly flexible and suits installations ranging from 5 to 5,000 nodes. Node densities on an order of 500 nodes per 200 meter radius can be supported by the wireless infrastructure. SmartDiagnostics® is applicable to a wide range of facilities and assets in oil and gas, paper and pulp, food and beverage, institutional HVAC, and water and wastewater.