$$h_f = L \left[\frac{V}{kC} \left(\frac{4}{D} \right)^{0.63} \right]^{1/0.54}$$

$$h_m = K \frac{V^2}{2_g}$$

Advanced Solutions

A real-time sentinel for continuous process performance monitoring and equipment health surveillance

What is Uniformance Asset Sentinel?

Honeywell's Uniformance® Suite is expanding to include the new capability of Uniformance Asset Sentinel, which delivers real-time, asset-centric analytics and event detection for engineering, maintenance and operations.

This solution provides a sentinel to continuously monitor equipment and process health, enabling industrial facilities to predict and prevent asset failures and poor operational performance.

Uniformance Asset Sentinel brings together the real-time monitoring capabilities of Honeywell's Asset Manager with powerful historical analytics of Matrikon's Equipment Condition Monitor — offering a unified calculation and event detection platform applicable to a broad set of industries and applications.
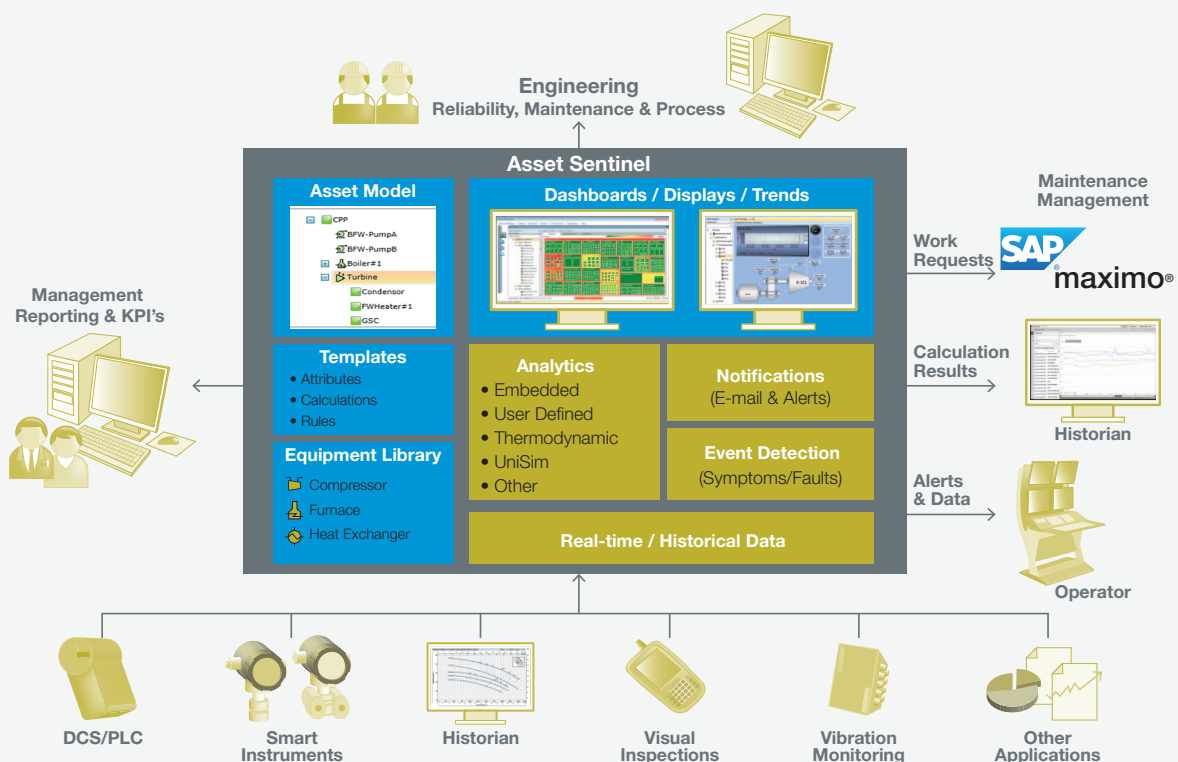
Challenges for Industrial Plants

Equipment failure and almost imperceptible reductions in process efficiency are constant threats to Overall Equipment Effectiveness (OEE). As a result, organizations are spending more on equipment maintenance and losing potential revenue. Factors such as availability of skilled workers and increasingly complex production processes are impacting the ability to predict and detect deteriorating asset health and process performance.

Importance of digital intelligence

Today, companies require "digital intelligence" to manage hundreds or even thousands of assets from a single site or across an enterprise to address crucial operating demands. Digital intelligence transforms process data into real-time knowledge regarding process performance, equipment health and energy consumption.

Plant operators also need continuous surveillance and notifications to take the right proactive actions, which minimize degradation, poor performance and secondary damage to equipment to ensure lower costs, increased throughput and higher profits.

Make Problems Visible

In order to minimize losses or damage, businesses must be equipped with systems to make problems visible. Continuous surveillance of key operating and equipment conditions with Uniformance Asset Sentinel allows the earliest possible indication of performance degradation and the appropriate prioritization to address the situation.

Honeywell's expertise in process control, optimization, simulation and process design spans more than three decades. We are uniquely qualified to obtain required data and process information, and perform calculations and analytics to provide continuous surveillance of plant and process assets.

While designed to seamlessly integrate with Honeywell control systems and other Advanced Applications, Uniformance Asset Sentinel is control system and historian independent.

Best-in-Class Features

Plant Reference Model – Uniformance Asset Sentinel provides a multi-level equipment hierarchy to model your plant and equipment structure. This solution supports multiple views based on various plant requirements and disciplines. The equipment hierarchy abstracts Asset Sentinel users from the underlying tag structure of data, and allows navigation of data in familiar asset-based terminology versus cryptic tag nomenclature. Uniformance Asset Sentinel also exposes to other applications and users the data in the plant model structure. For example, instead of searching for a tag such as - 03F2014.PV to trend heat exchanger flow, in Asset Sentinel, the user simply navigates in the plant model to the site or unit, chooses the equipment, and then selects the inlet flow attribute.

Data Access – Uniformance Asset Sentinel supports a variety of data interfaces required for a complete view of your asset health or performance. This includes real-time and historical data (via OPC-DA and OPC-HDA), event data (via OPC-A&E), relational data and file-based data. It also offers a flexible "plug-in" architecture to access information from a variety of sources, which could include lab sample data, work order data, oil analysis results, etc.

Powerful Calculation Engine – Asset Sentinel supports an easy to use, fourth generation scripting language to perform simple to complex statistical calculations and data manipulation. Programming experience is not required and the environment is designed for engineering users. Calculations can be run in either real-time (on data change) or on a scheduled basis.

Event Detection & Notification – For situations requiring the earliest possible attention and follow-up, Uniformance Asset Sentinel's event detection environment make it possible to identify user-defined rules and checks to trigger alerts and warnings. Event information can include recommended response to the condition and is a mechanism for knowledge capture. When events are triggered, they can generate e-mail notifications, initiate workflows, or even prompt maintenance work order requests to a maintenance management system.

Customer Value

Increase Asset Utilization up to 10%

- Reduce unplanned downtime by predicting failures and providing pro-active response
- Minimize rate and efficiency losses

Reduce Maintenance Costs up to 10%

- Pro-active response to minimize equipment damage and emergencies
- Optimize maintenance based on real asset conditions
- Improve reliability and extend equipment life

Increase Operating Efficiency up to 10%

- Monitor energy usage to achieve up to 10% reduction in costs
- Improve engineering effectiveness with continuous monitoring, remote collaboration, and ready access to required information
- Increase engineering efficiency with an integrated decision support environment

Increase Safety

- Minimize risks by ensuring normal and stable operations
- Eliminate production stops for safety system verification

Solutions Across Industries and Assets

Designed to meet the needs of Honeywell customers worldwide, Uniformance Asset Sentinel works across industries — on a varied set of monitoring applications — and across a broad set of asset types.

Depth & Breadth of Capabilities

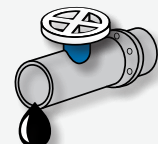### Industry

Oil & Gas   Refining & Chemicals   Mining   Pipelines   Power

Monitoring Applications

Process   Health   Efficiency   Safety   Energy

Type of Equipment / Complexity
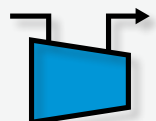
Software   Instrument   Valve
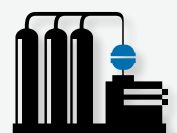
Pump   Heat Exchanger   Compressor

Turbine   Haul Truck   Unit

Designed to Enable Smart Operations

Honeywell's Uniformance Suite is the backbone for real-time digital intelligence through unified data, analytics and visualization. Digital intelligence enables smart operations by turning asset and process data into actionable information. This capability is the answer to improved business results.

The Uniformance Suite includes the following solutions:

- **Uniformance PHD** – Capture and store real-time process and event data
- **Uniformance Insight** – Visualize and explore information anytime, anywhere, to gain valuable insights
- **Uniformance Asset Sentinel** – Detect and predict risks and opportunities with asset-centric advanced analytics
- **Uniformance KPI** – Connect process intelligence to business decision-making and actions

Uniformance Asset Sentinel Applications

Uniformance Asset Sentinel has various packaged modules to meet specific user requirements. Asset Sentinel is offered as a basic package providing the plant reference or asset model, calculation and rules model. Additionally, application specific packages are available. These include:

Asset Sentinel for Process & Equipment Monitoring

Adds embedded content to the base package, including:

Advanced Performance Library

First-principles models for pumps, compressors, gas turbines, steam turbines and heat exchangers to compare current performance against predicted performance and highlight deviations as the earliest notification of equipment health problems — detecting valve wear, fuel nozzle issues, sensor problems, and turbine erosion.

Standard Performance Library

Pre-defined set of performance equations that can be customized and enhanced for vital assets such as furnaces, blowers, motors, etc.

UniSim® Runtime

Design models from UniSim can be run from Sentinel in real-time for other dynamic monitoring needs, including column flooding or separation efficiencies.

Thermodynamic Property Package

Extensive database of physical properties, transport properties and phase behaviors for high-accuracy performance calculations, providing support for process modeling of distillation, reaction, heat transfer, rotating equipment, and logical operations in both steady state and dynamic environments.

Asset Sentinel for Smart Instrument Monitoring

Since the advent of smart instruments, companies have struggled to fully realize the benefits of digital device diagnostic information.

In conjunction with Honeywell's Field Device Manager (FDM), Asset Sentinel delivers an integrated instrument asset management solution to help achieve the promised benefits. Asset Sentinel provides meaningful organization and prioritization for diagnostic device alerts. Automatic synchronization with Honeywell's Experion® Process Knowledge System (PKS) makes this task effortless.

Asset Sentinel maintains fault history, bad actor and other records so reliability analytics can be employed over time to improve the overall reliability of instrumentation.

In addition to smart device monitoring, Asset Sentinel offers advanced monitoring and diagnostics that look beyond the instrument and assess control loop performance to detect oscillation, bias, drift, stiction, frozen sensors, etc.

Why Honeywell?

Don't compromise on your operational and business performance — choose an automation supplier committed 100% to your success. At Honeywell Process Solutions, we have decades of experience providing asset management technology to the process industries.

Our proven track record includes the evolution of the @sset.MAX suite of software from 1999. Since then, we've delivered asset-monitoring solutions to many of the world's leading industrial firms.

With 1,500 experts in over 80 countries around the world, Honeywell understands your business and can speak your language. Our consultants provide onsite and remote support for Overall Process Effectiveness (OPE) and Overall Equipment Effectiveness (OEE). We deliver a unique set of advanced software applications for better safety, reliability, efficiency and sustainability.

Honeywell's Advanced Solutions software and expertise help customers make sense of all the data in their plant, allowing them to extract the right information for faster and smarter decisions that can improve safety, reliability, efficiency and sustainability — resulting in improved process and business performance.

Honeywell

For More Information

To learn more about Honeywell's Uniformance
Asset Sentinel, visit our website at
www.honeywellprocess.com/software or
contact your Honeywell account manager.

Honeywell Process Solutions

Honeywell
1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Arlington Business Park
Bracknell, Berkshire, England RG12 1EB

Shanghai City Centre, 100 Zunyi Road
Shanghai, China 200051

www.honeywellprocess.com

Honeywell