

Product Information Note

Uniformance® Asset Sentinel – Smart Instrument Monitoring



Uniformance Asset Sentinel is a real-time sentinel that continuously assesses the health and performance of smart instruments, helping you minimize unplanned downtime and maximize investments in smart instrumentation

The Problem

Typical processing plants depend on hundreds or thousands of instruments to monitor the process, assets, equipment and environment. Without their essential measurements and readings, safe and efficient operations are impossible. Failure of a single instrument or device can result in off-spec product, increased costs and unplanned downtime.

Onboard diagnostics on smart devices present a powerful opportunity to identify health issues, detect and prevent faults and ensure proper operation. Used well, diagnostic information can be a vital tool in developing an effective and predictive maintenance program.

In most cases, however, this opportunity is missed. Operators are occupied with controlling the process, and have no time to monitor and decipher an incoming flood of instrument diagnostics; maintenance gains only marginal benefits from the cryptic error messages sent in. With no system in place to capture, process and prioritize key diagnostic data it is largely wasted. Maintenance remains reactive, with instrument and device issues often only addressed after they fail. As a result, plants fail to prevent costly problems.

Plants need a way to release the digital intelligence locked in their smart instruments. They require a system to convert the diagnostic information into actionable intelligence. With a comprehensive view of smart device health across the enterprise they can move to a smart operation, with effective maintenance, better outcomes and reduced downtime.

The Solution

Asset Sentinel is a powerful real-time sentinel that monitors, detects and tracks instrument health and performance. Used with Honeywell's Field Device Manager for device configuration

management, it delivers an integrated instrument asset management solution (IAMS) to realize the promise of smart instruments.

Organizing Intelligence

Asset Sentinel captures and organizes smart devices' diagnostic alerts into meaningful groupings that can trigger a common alert for the group rather than a flood of detailed alerts. The underlying triggering conditions are retained for troubleshooting purposes, while the logical grouping optimizes the maintenance work process. Automatic synchronization with Experion PKS makes configuration effortless.

As Asset Sentinel keeps the fault history, over time bad actors can be identified and other reliability analytics employed to improve the instrumentation's overall reliability.

Advanced monitoring and diagnostics look beyond just smart instrument and valve monitoring, assessing control loop performance as well to detect oscillation, bias, drift, stiction, frozen sensors, and other issues.

Transforming Instrument Maintenance Work Processes

Move your operations from reactive to predictive maintenance: **Detect** – Diagnostic alerts from smart devices received by Experion PKS are sent to Asset Sentinel for transformation into actionable intelligence. These diagnostics, including information about control loop performance and the health of Experion controllers, I/Os, and other control system assets, are consolidated and presented in a prioritized heat map (below) for at-a-glance intelligence for the instrument maintenance team. Email notifications are also supported

Decide – Users can quickly decide the correct course of action with rapid understanding of the key factors:

- **Priority** – Fault priority is established by defining the severity of the fault and criticality of the equipment it is associated with. An instrument failure on a boiler will be prioritized over a failure on a backup pump
- **Context** – Instruments are mapped to their physical location in the process and can be viewed in this context to understand where in the process the fault is occurring
- **Cause and recommended action** – Manufacturers' and expert recommendations can be added to Asset Sentinel to guide users to possible causes and recommended actions to address faults
- **Associated information** – To diagnose and troubleshoot the fault, links to Field Device Manager are available so users can view the current status and configuration of the device. Additional information such as manufacturer specifications and other associated documentation can be linked to the device.

Act – Fully integrated with maintenance management systems, Asset Sentinel can trigger automated and semi-automated work order requests. Close-out actions and comments by the user can be stored for further analysis.

Improve – Features include the ability to log a complete history of all device alerts, faults, and corrective actions. KPI and reporting tools are also available to help users identify recurring faults. The equipment orientation also allows analysis of faults based on the use or type of service of the device.

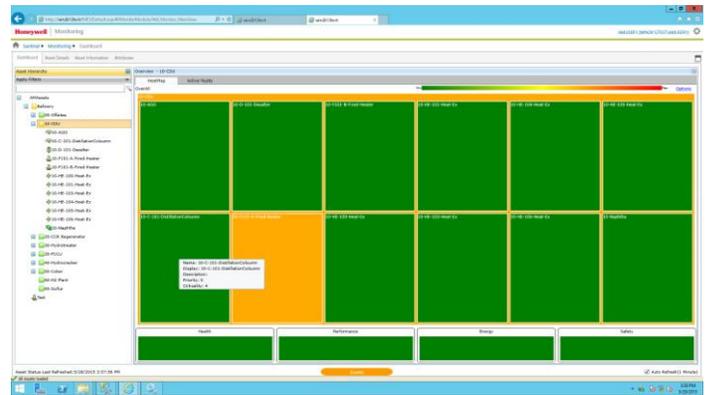
Benefits

Asset Sentinel brings a wide range of benefits to the operation, through increased insights, early detection of faults and effective prioritization:

- **Reduced downtime** through early detection and notification of pending critical instrument failures, which no longer go unnoticed. It helps plants avoid downtime events costing tens of millions of dollars
- **Increased safety and performance** from more stable and reliable processes
- **Lowest lifecycle costs** through seamless integration between Experion PKS, Field Device Manager and Asset Sentinel.

Features

Experion PKS Synchronization allows the import of Experion PKS instruments, devices, control modules, and other entities for monitoring within Asset Sentinel.



Use the heat map for at-a-glance intelligence

Synchronization unlocks the necessary configuration information for HART® and Foundation™ Fieldbus (FF) devices to easily map the diagnostic codes into meaningful fault groupings for a pro-active maintenance work process.

Synchronization automatically imports and creates the required entities in the Asset Sentinel and establishes all required connections to enable communication with the Experion system.

MUX Monitoring – Asset Sentinel not only monitors smart devices connected to Experion but, through MUX Monitoring, wireless HART devices connected to TPS, PLCs, safety systems, and other systems can be monitored as well (see the Integrated Instrument Asset Management Architecture below). Points are auto-configured in the Experion server and are then available to Asset Sentinel for monitoring.

Plant Reference Model – To quickly understand the relationship of an instrument to the process or physical equipment, a flexible user-definable multi-level plant and equipment hierarchy allows the mapping of devices to their physical or logical location in the facility. Multiple views of the hierarchy based on the user's discipline are also supported.

Fault Models – Diagnostic faults are organized into logical groupings according to the relative importance of the diagnostic messages. Device alerts can be grouped into a common fault within Asset Sentinel. Customers can use a range of approaches such as following the NAMUR NE 107 recommendation to group alerts for Failure, Out of Specification, Maintenance Required and Information. Honeywell has a library of fault models for HART and FF devices and new models can be quickly configured for devices not in the library.

Intuitive User Interface – A series of pre-defined dashboards and monitoring displays provides rapid identification and troubleshooting of device alerts. A heat-map based on the plant hierarchy shows the priority of the various faults in the hierarchy.

With the ability to drill-down users can quickly view the underlying fault, recommended actions or help defined for that fault, as well as OEM specifications and FDM displays for the device in question.

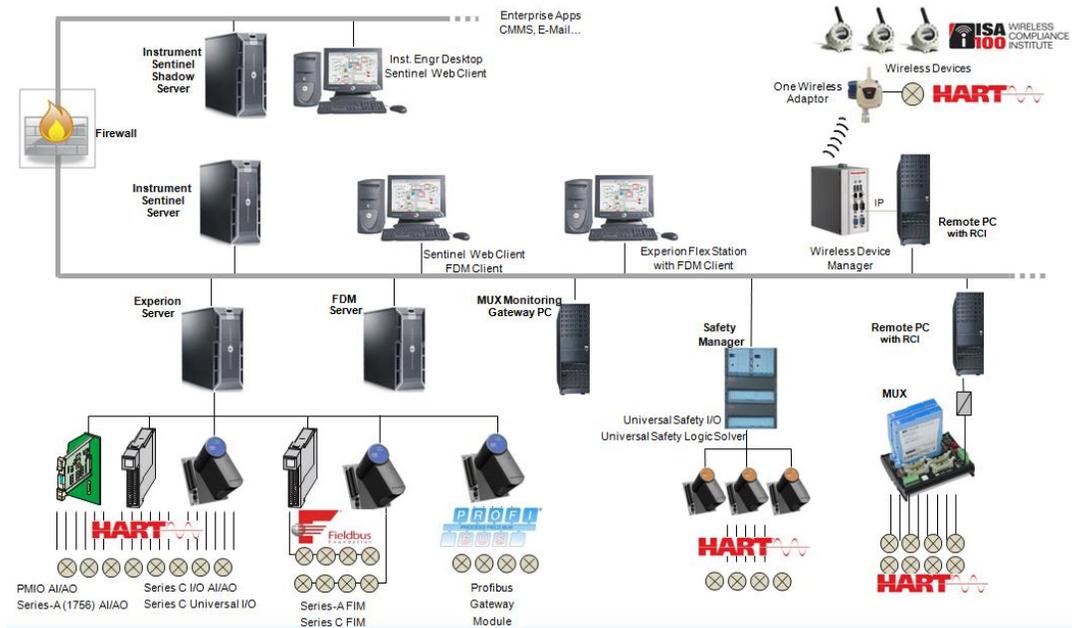
With at-a-glance displays for plant asset and links to supporting documents, control loop performance, symptom fault reports, graphs and user-defined views, Asset Sentinel puts information in context for fast, effective decisions.

Role based security – With Microsoft Integrated Windows Security a single sign-on for users is supported. The flexible role and security model allows users to control functions by role, to limit those who can create or view assets, for example. Access to specific assets in the plant hierarchy can also be controlled.

Architecture

Built on Microsoft® .NET technologies, Sentinel supports flexible architectures. Database servers, web servers, and application servers can be distributed across servers or installed on a single server.

Shadow Server is a powerful capability of Sentinel. It allows replication of the Sentinel server from the process level (Level 3 in the Purdue model) to the business domain (Level4). This provides access to device alert information and reports for users who typically do not have it. It also allows integration to business domain applications such as maintenance management systems for work order integration, reporting and other analytic tools



Integrated Instrument Asset Management Architecture

For More Information

Learn more about how Honeywell’s Equipment Sentinel can visit our website www.honeywellprocess.com/software or contact your Honeywell account manager.

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