

Product Information Note

DynAMo™ Operations Monitoring



Drive informed decisions and operational compliance through safe and profitable operating windows

Honeywell's DynAMo Operations Monitoring application enables your operations team to keep the process in the safe and profitable best operating zone. The benefits can be significant:

- Reduced number and severity of process upsets
- Reduced operating and maintenance costs
- Better safety and environmental compliance
- Increased operating margins

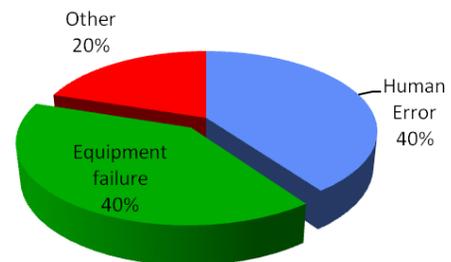
A well-managed alarm system addresses the human error causes of process upsets as defined by the ASM® Consortium. There are resulting decreases in the number of process upsets, shutdowns, loss of containment and catastrophic failures, which improve site reliability, safety, efficiency and profitability.

However, managing alarms alone will not address all of your operational issues.

Consider the ASM Consortium research and the equipment failure causes of process upsets. Research and data presented by the process industries have shown that up to 76% of equipment failures are a result of operating equipment outside of range or design envelopes. While many alarm management offerings attempt to integrate limits associated with a process to minimize operator violations, this may not be achievable for a variety of reasons. In the end, limits and alarms are inconsistent and operators drive the process outside of an optimal operating zone or envelope. This can stress equipment and cause premature failures and unplanned downtime.

In addition, alarm management solutions rarely capture the limits or boundaries associated with operating plans. For example, how can a planner know the restrictions a plan must adhere to if they are captured in an alarm management solution that cannot be accessed? And how does an operator know whether the plant is operating within planning limits — or whether processes are within limits that are not alarms?

Causes of Process Upsets



ASM Consortium research has identified three principal types of sources or causes of abnormal situations: people and work context factors (human error), equipment factors (equipment failure), and process factors (other).

If the alarm system is well managed, the operator should have the time and attention to consider the full scope of the operating envelope and drive the process to stay within that window.

An effective alarm system, coupled with DynAMo Operations Monitoring working within your processes, will address a wider range of causes of process upsets. Your processes will also remain within the best zone to maximize operations — avoiding economic limits such as energy consumption, meeting production plans, minimizing reactive maintenance efforts and cost, and so on.

Comprehensive Limit Management

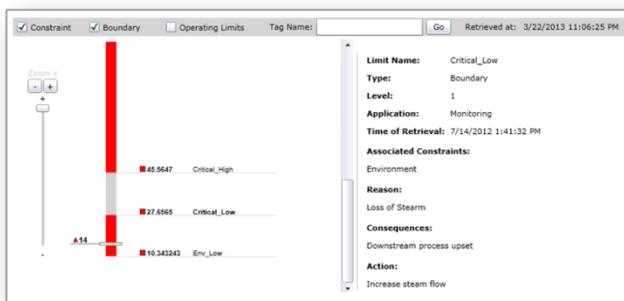
To give operators the tools necessary to work within the operating envelope, you must first capture all your limits — not just the alarms. Many alarm management offerings provide limited capabilities to do this today. In a lot of cases (and Honeywell's products are no exception), the master alarm database is provided with capabilities to document and manage limits, boundaries and constraints. The challenge with these solutions is that all the roles needing visibility to the operating limits do not have access to the master alarm database.

If an equipment specialist manages constraints in a tool available on the business network, how can the constraints make their way into the master alarm database, which is typically on the process control network?

Sites rely on Management of Change (MOC) processes to ensure limits are captured appropriately. Given this is an involved and time-consuming process, users such as planners and control engineers simply do not have access to the right information, and thus their work will be done without any automatic validation of limits.

Not only is it difficult for the master alarm database to truly be a comprehensive limit database, but alarm management solutions typically do not provide a means to monitor the process and raise alerts when non-alarm limits are exceeded. Without this functionality, the operator cannot keep the process within the best operating zone or operating envelope.

DynAMo Operations Monitoring is delivered with comprehensive limit management functionality called the Limit Repository. It can link to users resident on various levels of the network hierarchy via a secure synchronization capability designed to function within the IT environment. Furthermore, this solution allows applications that own limits to continue to do so using a web services-based mechanism, which keeps a reference of limits within the Limit Repository. This allows users such as equipment specialists to continue utilizing the tools to which they're accustomed. The difference is, all users can now benefit from the information.

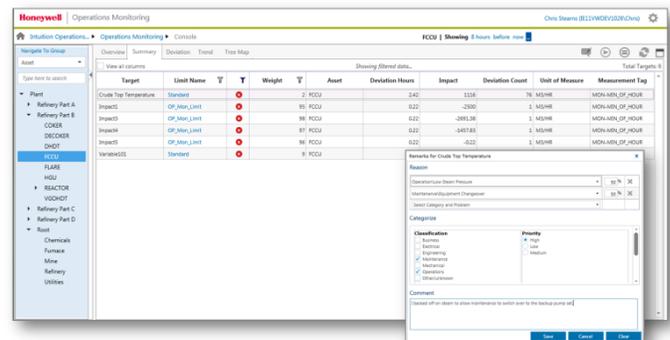


With the Limit Repository, operators can visualize the operating envelope and be guided by documentation to take corrective action.

With DynAMo Operations Monitoring, for example, operators are assured of notification when deviations occur so they can take appropriate action to keep the process within the operating envelope.

Operate Within Limits

Honeywell's DynAMo Operations Monitoring software application systematically monitors process plant performance data and summarizes deviations from the comprehensive limits defined in the Limit Repository. Assuming a well-managed alarm system and appropriate work processes, this gives operators the time to interact with a secondary system designed to notify them when they are operating outside the best operating zone. The operating envelope is presented graphically with information on how to address the deviation at hand.



Using a familiar alarm list-like interface, operators can easily capture relevant reason codes, categorizations and comments about deviations from limits that are invaluable for improving operations, reliability, efficiency and safety.

Most importantly, information about what the operator feels is the reason for the deviation and comments about addressing the deviation can be captured along with other categorizations. This is invaluable for improvement activities, incident investigations, alarm limit review sessions, etc. By learning from operations history, plants can more efficiently manage and control their processes.

Delivering Benefits

Many plants set the right alarm limits, have daily or weekly operating plans, and maintain a process monitoring program for their operations. However, these programs frequently make use of ad hoc or standalone tools such as spreadsheets, or employ a combination of e-mail and printed reports. Manual approaches can work, but are prone to errors. Furthermore, ad hoc tools may provide only limited access to daily operating information for the rest of the organization, or can be inconsistently applied. They are also difficult to keep up-to-date when the process changes, challenging for local IT organizations to manage, and may not be suited to following through on problems once identified.

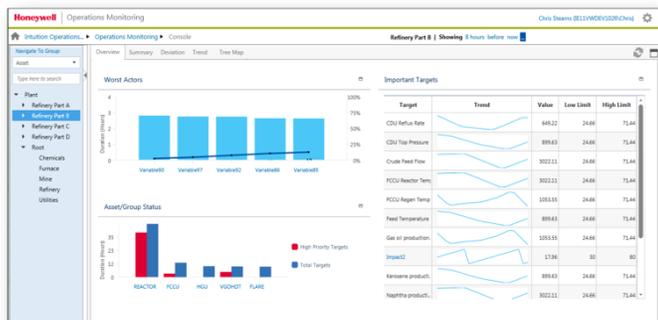
DynAMo Operations Monitoring helps automate the tracking of actual process performance. Many plants benefit from improving how routine issues are handled, before they grow into problems.

DynAMo Operations Monitoring benefits come from a variety of sources, including:

- Reduced number and severity of process upsets
- Reduced operating and maintenance costs through increased asset reliability
- Better safety and environmental compliance through improved knowledge of problem areas
- Increased operating margins through better fidelity to the operating plan

Even experienced operators may not know the best operating range for throughput or fail to realize the consequences of operating outside of targets and limits.

DynAMo Operations Monitoring delivers robust benefits by providing a structured, systematic monitoring program. It monitors thousands of process values and records anything outside of the normal range. These deviations, or potential problems, can be quickly scanned, filtered, and considered in context with operators and engineers assigning reasons and comments about their occurrence. End-of-shift, daily, and monthly reports help managers with assessing actual performance and setting priorities for what to work on next.



Overview displays provide actionable statistics and status to focus efforts on the right problem areas.

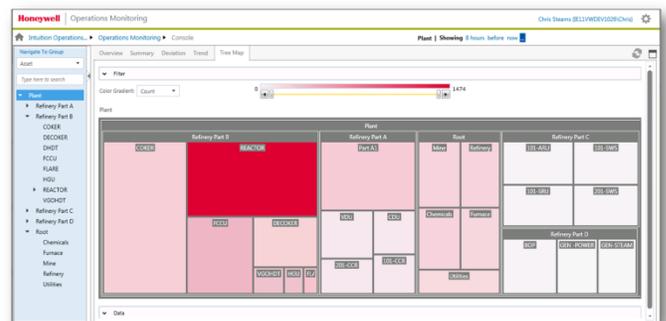
Typical Uses

A common challenge in the process industries is to improve reliability and reduce the number and severity of process upsets — particularly those resulting in unplanned downtime. DynAMo Operations Monitoring can be used to monitor measured and calculated process tags against safe operating, safety, environmental and corrosion limits, as well as other indications of reliability. Such engineering limits are sometimes referred to as static limits, safe operating limits (SOL), or standard operating

constraints (SOC). They normally don't change often and have safety, environmental or maintenance implications if violated.

A typical process plant might use DynAMo Operations Monitoring as follows:

- Engineers, head operators, and other staff meet every few weeks or months to update safe operating limits throughout the plant.
- Process data are monitored every few minutes and any deviations outside safe operating limits are recorded. The status of all plant areas is visible at a quick glance.
- Operators enter comments about important deviations by the end of the shift.
- Monthly stewardship reports are prepared to show the total number of deviations, the top ten tags in each unit with the most problems, and the top reasons why deviations occurred.



Tree maps provide an intuitive status interface to direct investigative activities in the right area.

Another common application for DynAMo Operations Monitoring is to monitor process data and key performance indicators (KPIs) against planning limits, which are also known as economic limits or standard operating reference (SOR). Planners frequently modify operating ranges when operating modes, product grades, or feeds change in a process unit. Planning limits can fluctuate on a frequent basis (weekly or more often) and have economic implications. Their violation may mean reduced product quality, the wrong production rate, missed shipments to customers, and other problems.

Satisfy IT Requirements

IT professionals will be pleased with how DynAMo Operations Monitoring works as part of an integrated plant information system. It will allow them to:

- Minimize administration costs with a browser-based user interface that requires no software to be installed for the end user

- Reduce costs by taking advantage of built-in integration with other related applications such as DynAMo Metrics & Reporting and DynAMo Operation Monitoring.
- Get process data from multiple sources such as Honeywell's Uniformance® PHD or OSIsoft's PI historian using industry standard OPC connectivity.
- Customize reports using SQL Server Reporting Services.
- Run on Microsoft Windows™ 2008 Server, Windows 7 and other versions with a SQL Server 2008 database.
- Implement a robust, role-based security model that supports Windows-integrated security.
- Get support from Honeywell's global support organization and application experts, including telephone support, problem resolution, and monthly newsletters.
- Rely on Honeywell to regularly test and qualify Microsoft security patches and hotfixes, as well as patches from other vendors.
- Take advantage of regular, no-cost upgrades that provide new capabilities and support the latest technologies such as new versions of Windows.

Support Services

DynAMo Operations Monitoring comes with worldwide, premium support services through our Benefits Guardianship Program (BGP). Helping improve and extend the benefits applications deliver, BGP safeguards your software investment.

For More Information

Learn more about how Honeywell's DynAMo Operations Monitoring can drive safe and profitable operations, visit our website www.honeywellprocess.com or contact your Honeywell account manager.

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