The **D/3® Distributed Control System (DCS) includes a powerful and flexible Alarm Management capability that focuses the operator on the most critical portions of the process needing attention. This decreases the time it takes an operator to correctly respond to abnormal situations. And that means savings in downtime, off-spec production, and equipment damage.**

The **D/3® alarm software consists of an integrated set of tools to eliminate nuisance alarms, suppress secondary alarms, and reclassify alarm priorities based on process states before the operator sees an alarm. The operator alarm displays can be sorted and filtered with multiple criteria and the favorite configurations saved for later reuse.**

Alarms are more meaningful and directed to solving the highest priority problems when you use the D/3® DCS.

Benefits

Eliminates distractions from nuisance and secondary alarms.
Nuisance alarms distract and interfere with the operator's ability to manage the rest of the process and to respond to more critical alarms. The D/3® can inhibit nuisance alarms and uninhibit them automatically after the circumstances have changed. This keeps the operator focused on managing the process.

In a typical plant when a major piece of equipment fails the operator is inundated with alarms. With D/3® alarm suppression that just does not happen. The D/3 can suppress all the secondary alarms and just alarm the root cause of the problem. This means the operator can fix the problem more quickly which results in more uptime and on-spec product. It also means less operator training in fault analysis.

Alarms prioritized based on current state of the process.
The operator should see the highest priority alarms based on the current state of the process so those can be resolved quickly. With D/3® Dynamic Alarm Management software, alarm classifications change as process areas change state, e.g., from idle to startup to running. The alarms most important at that moment in time have the highest classification. Importance depends on the process, so why should you settle for static alarm classifications.

Features

Alarm inhibit - elimination of nuisance alarms.
Alarm inhibit is used to temporarily prevent an alarm from occurring. It prevents a point from repeatedly alarming because of a faulty instrument or a temporary process condition. Alarm deadband can also reduce alarms like a tank level going in and out of high level alarm because of agitation. Every analog and digital input in the D/3® can individually
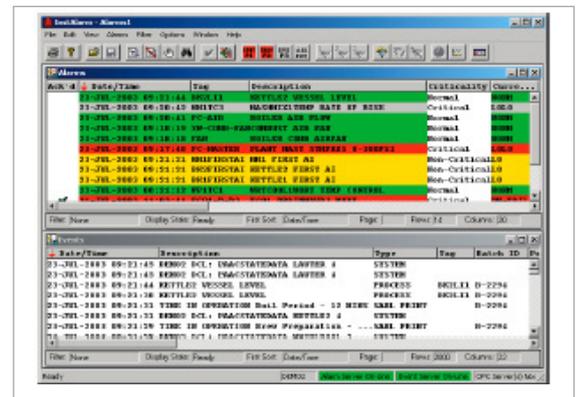
InstAlarm™ window

be inhibited. All the tags in a unit, all the tags currently associated with a batch ID, or all the tags in a PAAC (Process Area for Alarm Control) can be inhibited and uninhibited as a group, making it easier to manage alarms and equipment. A tag can also be inhibited in the continuous control package based on the status of a block in another tag.

When inhibiting alarms the user can specify the effective duration of the inhibit – up to 255 hours or 255 days. A default duration can also be configured for each individual tag. The alarms are automatically uninhibited when the timer expires. No more upsets because one operator forgot to communicate to another that an alarm was inhibited and it stays inhibited when it shouldn't.

Suppression of secondary alarms – focus on the root cause.
With D/3® alarm suppression, a single alarm occurs to focus the operator on the root cause and all extraneous alarms that can confuse and overwhelm the operator are suppressed. For example, power to a motor control center is configured as a root alarm and the power is lost. The operator receives one alarm on the loss of the motor control center power and all the motor alarms and all the alarms associated with the equipment driven by these motors are suppressed. This prevents these secondary alarms from confusing the operator and making it harder to determine that the motor control center power failure is the problem that needs correcting. The D/3 alarm suppression software allows each alarm to be suppressed by up to eight triggers. These triggers can be "ORed" such that any one trigger will suppress the alarm, or "ANDed" together such that all triggers must be true to suppress the alarm. Triggers and suppressible alarms include HIHI, HI, LO, LOLO, ROC, DEV, status bits, and more.

A suppressed alarm will not display in the InstAlarm alarm windows used by the operator to monitor the process alarms. On TotalVision® pop-ups and on the faceplate displays they are shown with strikethrough text. However, a suppressed alarm is still logged to the alarm history files, and is visible in the event window with its category marked as suppressed.

D/3® Dynamic Alarm Management changes alarm classifications based on the current state of the process. For example, you can now have separate alarm classifications for starting up a boiler, normal operation, shutdown, and boiler maintenance. Increase the classification of tags during critical process states and reduce them during less critical states. This keeps the operator focused on the most important problems in the plant.

Tags are grouped together into Process Areas, or PAACs, that define all the tags that will change state together. Eight process states can be defined for each PAAC and given names that have meaning for that process area. For each tag, the individual alarms, e.g., HIHI, LOW, ROC, can have one of eight prioritized alarm classifications for each state. The user interface includes the ability to create patterns, or templates, that can easily be applied to PAACs and tags, simplifying the configuration of dynamic alarm management.

Process area states can be changed manually by the operator or by sequence programs controlling the process. Any area alarms that occur after the process area changes state will have the alarm classification of the new state.

InstAlarm™ Alarm Displays

InstAlarm provides a windowed interface to process alarms and events in the D/3® and provides navigation to associated displays used for alarm diagnosis and recovery. It can also display alarms from any OPC Alarm and Event server. The user can define custom InstAlarm views with complete control over the columns displayed, their location, use of color, and their format.

More importantly, the alarms can be sorted by multiple columns and filtered on one or more column's data. For example, you can sort by alarm classification and then date/time. Once an alarm window is arranged the way that works best, save it with a name for later recall. You can save multiple views with their sorting and filtering.

Operators can quickly access alarm information at the touch of a button using the InstAlarm floating toolbar. It indicates alarm status of non-critical, critical, system, and three other custom filters. A click on the associated display button on the main toolbar will pop up a display, e.g., a reactor TotalVision® graphic, configured as the associated graphic for the tag in alarm.

Alarm Management
Prioritize, Manage, & Resolve
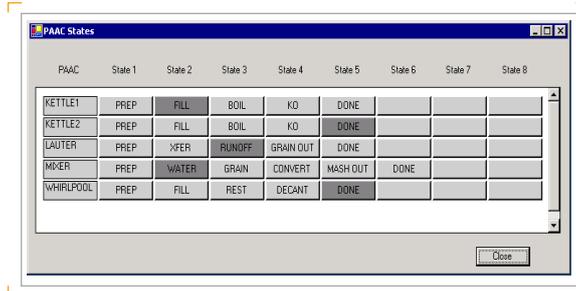
Dynamic Alarm Management Window for monitoring and manually changing PAAC states.

Dynamic Alarm Linking

InstAlarm, TotalVision®, and VersaTrend™ are designed to work together to make the operator's tasks easier. Click on the InstAlarm button on any TotalVision graphic or VersaTrend display and InstAlarm will pop up with a dynamically filtered view showing just those tags included on the originating display. Select from one to eight alarms in an InstAlarm window and click the VersaTrend button and up pops VersaTrend with a trend display of those points.

Annunciator Window

The annunciator window contains 64 buttons that may be used to display alarm conditions. The operator can initiate pre-defined actions by simply clicking on the buttons. A user defined label, color, and command instruction is available for each button.

Each button can perform a unique function such as navigate to a particular display or graphic, start or stop a pump, etc. The color and flash status of a button can be controlled by a sequence program.

Events

Alarm displays show the current state of the alarms in the plant. They don't show you what led up to the alarm. With the InstAlarm events view, you follow the course of events that led up to the alarm. The events view can display alarms, when the sequence programs open valves, the operator's actions from the consoles, and more, providing the detailed history preceding an alarm.

Summary Reports

The operator has a lot to keep track of especially at shift change. Summary reports ease that burden by quickly reporting on the state of their process control application. It can report on points in alarm, off-scan, inhibited, suppressed, out of range, and many more conditions. Reports can also be scheduled to run at regular intervals and saved to disk.

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Alarm Management