Global Alarm Module

The Global Alarm Module provides a mechanism to dynamically eliminate unnecessary alarms during process upsets, start-ups, and shutdowns. Only significant alarms are annunciated allowing the operator to focus on the current situation.

Features
- Enable / Disable / Inhibit Alarms
- Manual / Semi-Automatic / Automatic Selector
- Periodic Case Enforcement
- Area Access Security
- Interface Schematic Displays

Alarm management is accomplished by changing the alarm enable state parameter. Logically related alarm points are grouped into Global Alarm Modules with a defined annunciation state for each point. Other Modules can be linked together to provide the final application. Modules can be dynamically activated through a generic Selector which operates in manual, semi-automatic, or automatic mode. The Selector can also be configured to periodically enforce a Module.

Built-in security prevents accidental use from other areas. Operator interface schematic displays provide module details, execution status, and easy-to-use access to both Selectors and Global Alarm Modules. These displays are accessed through a target subpicture which allows seamless integration with client schematic displays. Advanced features include initial and final states, time delays, delayed links to all other Module types, and event initiated processing.

Digital control systems provide multiple alarm functions for virtually every input, many of which are alarmed. Many alarm points provide valuable precursor alarm information to help the operator contain minor disturbances and prevent them from growing in severity. However, alarm points are only important when the associated equipment or process is in service.

Situations
- Equipment Failure: When a major piece of process equipment like a charge pump, compressor, or fired heater shuts down, most alarms become unnecessary. They indicate secondary, non-critical effects and no longer provide the operator with important information.
- Unit Start-ups and Shutdowns: During operating mode changes, many meaningless alarms are annunciated. The operator must search displays and determine which alarms are significant. This wastes valuable time when the operator needs to make important operating decisions and take action.

During operating mode the intelligence of the Selector and the power of the Global Alarm Module, these situations can be better managed. Version 3.2 now gives more power and flexibility than ever for dynamically configuring your control systems according to the current process state.

Available with Native Window or GUS interface.
Analog Alarm Module

The Analog Alarm Module provides a mechanism to dynamically reconfigure alarm priorities and trip limits for analog points during process upsets, start-ups and shutdowns. Only significant alarms are annunciated allowing the operator to focus on the current situation.

Features
The Analog Alarm Module provides a mechanism to dynamically reconfigure alarm priorities and trip limits for analog points during process upsets, start-ups and shutdowns. Only significant alarms are annunciated allowing the operator to focus on the current situation.

- Manage individual trip points / priorities
- Manual / semi-automatic / automatic selector
- Periodic case enforcement
- Area access security
- Interface schematic displays

Alarm management is accomplished by modifying individual alarm parameters. Logically related alarm point parameters are grouped into analog alarm modules with a defined priority or trip point for each.

Modules are then linked together to provide the final application. These modules are dynamically activated through a selector that operates in manual, semi-automatic or automatic mode. The selector logic determines which modules to activate in semi-automatic or automatic mode. The selector can also be configured to periodically enforce a module.

Built-in security prevents accidental use from other areas. Operator interface schematic displays provide module details, execution status and easy-to-use access to both selectors and analog alarm modules. These displays are accessed through a target subpicture that allows seamless integration with client schematic displays. Advanced features include time delays, links to other alarm and configuration modules and event initiated processing.

Distributed control systems provide multiple alarm functions for virtually every input, many of which are alarmed. Many alarm points provide valuable precursor alarm information to help the operator contain minor disturbances and prevent them from growing in severity. However, alarm points are only important when the associated equipment or process is in service.

Situations
- Equipment Failures: When a major piece of process equipment like a charge pump, compressor, or fired heater shuts down, most alarms become unnecessary. They indicate secondary, non-critical effects and no longer provide the operator with important information.
- Unit Start-ups and Shutdowns: During operating mode changes, many meaningless alarms are annunciated. The operator must search displays and determine which alarms are significant. This wastes valuable time when the operator needs to make important operating decisions and take action.

With the intelligence of the Selector and the capabilities of the Analog Alarm Module, these situations can be better managed.
Selector Module

The Selector Module provides the intelligence to dynamically configure the system for the current process state. The module executes configurable logic to command the execution of appropriate action modules. These action modules then reconfigure the control system parameters.

Features
- Manual / semi-automatic / automatic modes
- Controls execution of global alarm, analog alarm, configuration and other selector modules
- Periodic case enforcement
- Area access security
- Interface schematic displays

The selector logic determines which action modules to activate in semi-automatic or automatic mode. The logic allows multiple relational tests with real, enumerated, and boolean values, multiple extended PLC-type logic functions and bad value handling to be configured. Logic conclusions can be bound to cases. Upon change of case, a chain of action module executions is usually initiated. The selector can also be configured to periodically enforce a case. Manual operation allows the operator to select among permitted cases.

The global alarm, analog alarm and configuration modules provide the actual reconfiguration of general and alarm related point parameters. The entire structure of linked modules offers virtually unlimited extendibility and allows the control system to be dynamically reconfigured for any operating mode. A custom change zone provides operator interface to the selector module. Standard generic schematics provide engineer access to all modules.

Distributed control systems provide multiple alarm functions for virtually every input, many of which are alarmed. Many alarm points provide valuable precursor alarm information to help the operator contain minor disturbances and prevent them from growing in severity. However, alarm points are only important when the associated equipment or process is in service.

Situations
- Normal Situations: The selector can be configured to detect normal processing states and transitions including: steady-state, start-up, shutdown, equipment swapping and product switching.
- Abnormal Situations: The selector can be configured to detect abnormal processing states and transitions including: emergency shutdown, instrument or equipment failures, upstream problems and downstream problems.

With the intelligence and capability of the Selector Module, these situations can be better managed.
Configuration Module

The Configuration Module provides a dynamic mechanism to re-configure the system for start-ups, shutdowns and operating mode changes. Alarm and non-alarm parameters can be configured. Therefore, the configuration of control and alarm points is always appropriate for the current operating mode.

Features
• Change alarm priorities / trip points
• Change mode / mode attribute
• Change tuning / point configuration
• Periodic case enforcement
• Area access security
• Interface schematic displays

Configuration is accomplished by changing any program accessible parameter. Logically related points are grouped into configuration modules with a defined sequence of point parameter references and associated values to be read or written. Not a single line of custom code is required for these generic capabilities.

The configuration modules are activated through a generic selector which operates in manual, semi-automatic or automatic mode. User-configured case logic dynamically determines which configuration module to activate in semi-automatic or automatic mode. Other module types can be linked together to provide the final application. The selector can also be configured to periodically enforce a configuration module.

Built-in security prevents accidental use from other areas. Operator interface schematic displays provide module details, execution status, and easy-to-use access to both selectors and configuration modules. These displays are accessed through a target subpicture which allows seamless integration with client schematic displays. Advanced features include time delays, links to other selectors, alarm and configuration modules, error branching and event initiated processing.

Control and alarm points are generally configured based on normal operating conditions. The operator uses these points to maintain automatic control, respond to disturbances and prevent them from growing in severity.

Situations
• Unit Start-ups and Shutdowns: During operating mode changes, many meaningless alarms are annunciated. The operator must search displays and determine which alarms are significant. Conversely, some start-up and shutdown conditions do not have appropriate alarms because they conflict with normal operation alarm settings.
• Product Switches: Some process units produce a variety of products or grades. Such units do not have a single set of normal operation conditions. This introduces management problems because of a static configuration.

With the intelligence of the selector and the flexibility of the configuration module, these situations can be better managed.
Information Module

The Information Module provides a dynamic mechanism to directly and indirectly interact with the operator, flag point states, and AM points' execution status. This allows a number of new ways to inform the operator of specific events or requirements and a number of new ways to incorporate custom functionality into dynamic configuration schemes.

Features

- Issue short / long messages to the Operator or Journal
- Set / reset / switch the state of flag points
- Activate / inactivate / switch the execution state AM points
- Periodic case enforcement
- Area access security
- Interface schematic displays

Logically related functions are grouped into Information Modules with an optional sequence of conditional and delayed execution. Not a single line of custom code is required for these generic capabilities.

The Information Modules are activated through a generic Selector which operates in manual, semi-automatic, or automatic mode. A user configurable logic dynamically determines which Information Module to activate in semiautomatic or automatic mode. Other Module types can be linked together to provide the final application. The Selector can also be configured to periodically enforce an Information Module.

Built-in security prevents accidental use from other areas. Operator interface schematic displays provide module details, execution status, and easy-to-use access to both Selectors and Information Modules. These displays are accessed through a target subpicture which allows seamless integration with client schematic displays. Advanced features include conditional execution, time delayed links to all other Module types, and event initiated processing.

Control and alarm point configuration can often be completed without any interaction or communication with the operator. However, there may be special instances when a dynamic configuration scheme can and should communicate with the operator to notify him of situations that only he can resolve. Alternatively, special applications can be developed and then triggered by the Information Module when they need to execute. This allows many opportunities.

Situations

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- Product Switches: Some process units produce a variety of products or grades. Such units do not have a single set of normal operation conditions. This introduces management problems because of a static configuration.

With the intelligence of the Selector and the flexibility of the Information Module, these situations can be better managed.
Special Alarm Management

The Special Alarm Module (SAM) provides a mechanism to eliminate many types of unnecessary alarms during normal run, process upsets, start-ups and shutdowns. Further, each alarm can be managed on a full-cycle basis to re-enable when they are clear of any alarm condition or when reminding (re-alarming) is desired.

Features

Alarm Disable options:
• Immediate disable regardless of the current alarm condition
• Timed disable after continuous alarm condition
• Never disable

Alarm Enable options:
• Intelligent enable after timed, continuous no-alarm condition
• Timed reminder enable for disabled alarms
• Never enable
• Two-touch full-cycle management: touch any point in a standard alarm display or appropriately configured custom display
• Touch a dedicated console button to automatically send the point to an available SAM block

Alarm activity is managed by changing the alarm enable state parameter. SAM provides a mechanism for individual alarm points to be collected into blocks. These blocks contain the configuration which allows alarms to be disabled and/or enabled based on their alarm condition, current alarm disable/enable state and timer limits.

Blocks provide common default values for new point entries as well as multiple security levels. Configurable security includes key level access, valid timer limits, unit validation of points and inclusive or exclusive list validation of points. This gives the engineer ultimate flexibility over who can manage which alarms and how. This is a vast improvement over the unrestricted all-or-nothing security level access on most control systems today. Operator interface schematic displays provide SAM details, execution status and easy-to-use access to adding or deleting tags and setting timer limits.

Distributed control systems provide an alarm annunciation interface that retains all active alarms for display and review by the operator. Usually alarm points provide valuable precursor alarm information to help the operator contain minor disturbances and prevent them from growing in severity. However, many alarm points are only important at a specific point in time and cease to have significance after the operator has acknowledged their presence. In some circumstances the operator may need to be reminded of a potentially forgotten alarm state.

With the intelligence of the Selector and the flexibility of the Information Module, these situations can be better managed.

Situations

• Equipment Status: Status alarms (in/out of service, bypass, etc.) for process equipment contribute to the alarm interface clutter. The operator is forced to search through these status alarms to determine which standing alarms are significant.
• Nuisance Alarms: Intermittently recurring alarms caused by “chattering contacts” or “bouncing levels” are always annoying and, worse, distracting to the operator. Recurring alarms de-sensitize the operator to the annunciation interface. After repeated alarms from the same point, the operator tends to silence the horn without reviewing the interface.