

Alarm Rationalization Tool

LogMate[®] Alarm Knowledge Base



Rationalization Tool

The LogMate Alarm Knowledge Base (KB) enables rationalization teams to capture and track all important alarm data. The Alarm KB is a central database of alarm configurations, alarm priority and limit calculations, change management and audit features. It functions as a complete knowledge management tool providing automated alarm data collection, organization and retrieval. Key to rationalization projects, the Alarm KB integrates automated alarm limit calculation and prioritization tools:

- **Set Alarm Limits (Set Points):** the Alarm KB includes a new alarm limit calculation utility that allows engineers and controllers to easily determine alarm limits.
- **Set Alarm Priorities:** the prioritization tool allows users to select categories and impacts to establish alarm priorities

Calculating and implementing these configurations results in optimized processes and fewer abnormal condition alarms.

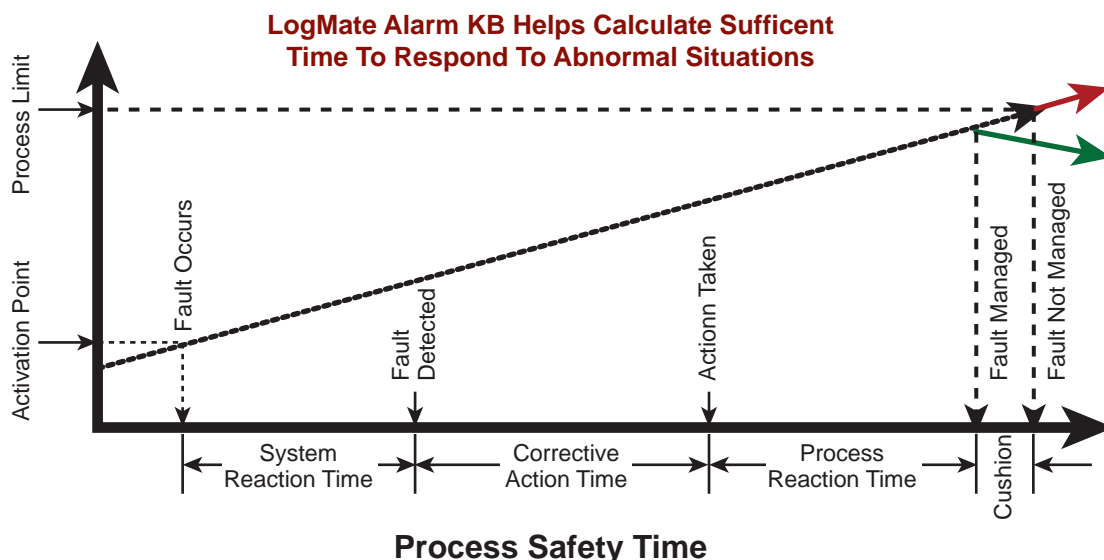
Alarm KB Key Features

- Provides a process knowledge database pertaining to alarm configuration settings, alarm removal/addition rationale
- Calculates alarm limits (set points) for process variables using a patent pending processing algorithm
- Calculates recommended alarm priorities based on severity matrix
- Analyzes the priority distribution of configured alarms, for comparison to design targets or benchmarks
- Enforces design stability and best practices by comparing active settings to the master control system configuration
- Improves the efficiency and speed of alarm design with integrated copy and paste functionality
- Automated import of alarm configuration data to master alarm database
- Links configuration data to operator documentation for immediate electronic recall, assisting in upset resolution

Rationalize Alarm Limits (Set Points)

The new alarm limit calculation utility provides a rational approach to calculate the appropriate alarm limits and allow controllers and operators sufficient time to respond to a process upset. Based on research and methodology from Dr. Doug Rothenberg, the utility calculates alarm set points based on:

- Rate Of Change of the process variable
- Time To Manage the alarm including a defined safety margin
- Process variable "Trouble" threshold values based on alarm rationalization



LogMate is the full-featured software platform that makes alarm management easy.

Real-Time Advisory Tool Makes Rationalization Easy

The Alarm KB allows operators to rationalize their alarms and modify their real-time summary screen with corrective action instructions or other important alarm information. LogMate's real-time netV view screen provides the exact instructions operators need to see for their process. When alarms happen, operators can see exactly what caused it, what corrective action they need to take, how much time they have for action, and the consequence if no action is taken. The Alarm KB enables operators to have related safety information available in real-time, like safety procedures or diagrams available from a alarm screen.

With the Alarm KB (rationalization tool) operators can turn vague alarm events into "guidance information". When an alarm activates in real-time, operators can see "cause", "corrective action" or other important information.

How Does the Alarm KB Work?

The basic settings in the Alarm KB can be automatically imported or manually added. The Alarm KB contains a list of "Tags" or "Points", and each "Tag" is associated with a list of alarms. The fields are customizable to provide the exact information operators need to see.

Each alarm entry is associated with a number of attributes, including:

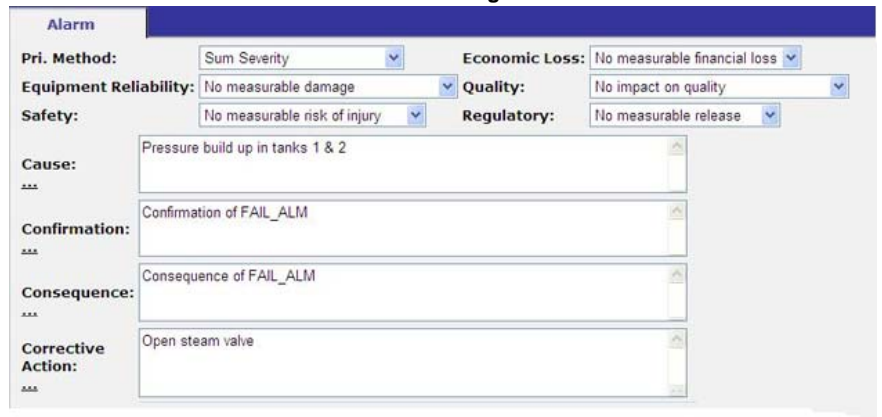
- Type of Alarm
- Alarm Limit (Set Point)
- Priority
- Level of Impact
- Cause
- Consequence
- Corrective Action
- Control Room Response Time

Related attributes are not limited to those above and can be adapted to your methodology and requirements.

Traditional Vague Alarm Messages From DCS

Timestamp	Priority	Tag	Mod Desc	Desc 2	Event Type
06/02/05 16:03:18	Low	SQ018	CL2 UNLOADING DOCK	Sequence has Failed	ALARM
06/02/05 16:03:17	Low	XV018-1	E CL2DOCK UNLOAD VLV #1	OPEN confirm time	ALARM
06/02/05 15:59:20	Low	SQ018	CL2 UNLOADING DOCK	Sequence has Failed	ALARM
06/02/05 15:58:32	Low	SQ018	CL2 UNLOADING DOCK	Sequence has Failed	ALARM
06/02/05 15:58:31	Low	XV018-1	E CL2DOCK UNLOAD VLV #1	OPEN confirm time	ALARM

Rationalize Alarms Using the Alarm KB



Alarm

Pri. Method: Economic Loss:

Equipment Reliability: Quality:

Safety: Regulatory:

Cause:

Confirmation:

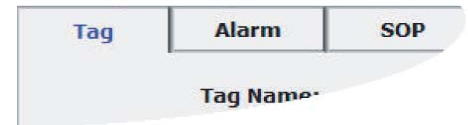
Consequence:

Corrective Action:

Optimized Alarm Messages Using the Alarm KB (Rationalization Tool)

Timestamp	Tag	Priority	Cause	CorrectiveAction	Area	Event Type
06/02/05 16:03:18	SQ018	Low	Pressure build up in tanks 1 & 2	Open steam valve	DISINFECTION	ALARM
06/02/05 16:03:17	XV018-1	Low	Cause of FAIL_ALM	CorrectiveAction for FAIL_ALM	DISINFECTION	ALARM
06/02/05 15:59:20	SQ018	Low	Pressure build up in tanks 1 & 2	Open steam valve	DISINFECTION	ALARM
06/02/05 15:58:32	SQ018	Low	Pressure build up in tanks 1 & 2	Open steam valve	DISINFECTION	ALARM

Tags are easily linked to related alarms and other information or files such as Standard Operating Procedures.



Tag Alarm SOP

Tag Name:

Impact severity and response guidance for alarms is provided to the operations team.



Safety:

Equipment Reliability:

Quality:

Time Available:

Engineering and design work is made more efficient through comprehensive copy and edit tools.



Search Destination Tag

Destination Tags:

- Tag Name
- AC061-3
- AC201-1
- AC201-6
- AC40