



Alarm Management Services

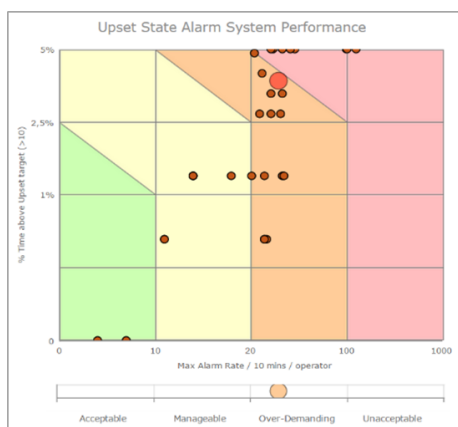
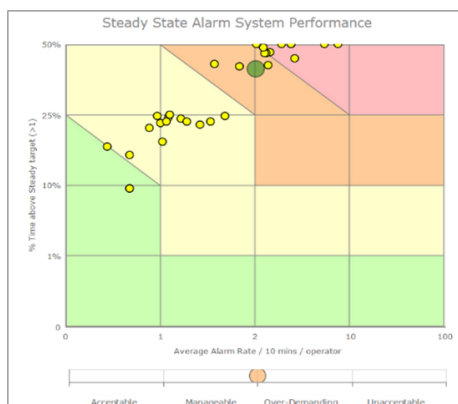
At a Glance

Alarm Systems form an essential part of the operator interfaces to large modern industrial facilities.

They provide vital support to the operators by warning them of situations that need their attention.

Steps to Successful Alarm Management:

- Create an Alarm Philosophy
- Benchmark Alarm Performance
- Alarm System Auditing
- Resolve Bad Actors
- Alarm Rationalisation
- Management of Change
- Control and Maintain Alarm System Performance



Create an Alarm Philosophy

The Alarm Philosophy or Alarm Strategy is the document that defines everything about the Alarm System; it should be a complete document that a new employee can pick up and glean all that needs to be known.

Urgency of Operator Response	Serious Consequence	Moderate Consequence	Minor Consequence
< 3 min	EMERGENCY	EMERGENCY	HIGH
3 – 15 min	EMERGENCY	HIGH	LOW
> 15 min	HIGH	LOW	LOW

Intelligent Plant can help write the document from scratch, or check an existing document and suggest where it might be improved.

An Alarm Philosophy is fairly clearly defined by reading EEMUA 191 and ISA 18.02 and should generally have the following layout:

Alarm Overview	Bad Actor Overview	Bad Actor Detail	Interventions Overview	Sequence Of Events
Overview	Alarm Rates		History	
KPI per operator			Value	
Standardised Performance			Over-Demanding	
Mean Average Number of Alarms per 10 Minutes			1.08	
Median Average Number of Alarms per 10 Minutes			0	
Mean Average Number of Alarms per Hour			6.5	
Median Average Number of Alarms per Hour			3	
Mean Average Number of Alarms per Day			158	
Median Average Number of Alarms per Day			199.2	
Mean Average Maximum Number of Alarms per 10 Minutes			23.38	
Highest 10 Minute Period			27	
Percentage of 10 Minute Periods containing more than 5 Alarms			4.9	
Percentage of Hours containing more than 10 Alarms			2.6	
Longest Flood			09:10:00	
% Time in Flood			2.34%	
Number of Floods			22	
% contribution of top 10 most frequent alarms			36.6	
Number of Days with an Acceptable Number of Alarms			2	
Total Number of Alarms			1298	
Period Average % above target (>1)			18.22	

- Introduction
- Definitions
- Roles and Responsibilities
- Related Documents
- Alarm System Operation
- Detailed Alarm Design
- Operating & Maintaining the Alarm System

Benchmark Alarm Performance

If you can't measure it, you can't manage it. If your operators are not complaining, and you have not been served any notices by your safety body it might appear that there cannot be a problem - don't believe it, you really need to go and check.



Operators can put up with an Alarm System in a terrible state; it may have always been like this, and after a while they learn to live with it.

They may have brought it up in the past, and if no-one realised why this was important, no action may have been taken and so they have given up complaining.



Alarm Management Services

We have the Technologies

- But we can work with what you have as well

Many Years of On-Site Experience

- Our engineers have spent many years working closely with Control Room Operators

High Alarm Rates will raise the possibility of alarms being missed and subsequently minor trips and incidents that will impact plant performance and profitability.

It is normal for this type of incident to be put down as "spurious", but when investigated thoroughly precedent alarms can often be found that, if the operator had reacted correctly, the trip would have been prevented.

Intelligent Plant will use tools you have, or extract the data to be benchmarked in our own software.

Alarm System Auditing

Once the Philosophy and Benchmark exist, systems should be audited.

Intelligent Plant can perform an audit for you, measuring your processes and systems against your philosophy and industry best practices.

The audit consists of questionnaires whose data is collated and commented on, interviews with plant personnel with a rigorous structure so that differing views can be compared and contrasted, extended interviews with operators at the control panel so that his working environment can be observed and documented.

The audit may also include a benchmark if this does not already exist.

The final document will contain a detailed list of recommended improvements.

Resolve Bad Actors

Most plants will have a few alarms, or types of alarms, that are generating a very high proportion of the total alarm load.

Intelligent Plant can help you analyse and diagnose problem alarms, thereby reducing the overall Bad Actor counts.

Analysing Raw Alarm Data allows characteristics to be measured and observed from which recommendations for improvement can be made.

Experience has shown that it is usually possible to make over 20 recommendations, which if implemented, would significantly improve the performance of the Alarm System.

Of course, these changes will need to be reviewed by knowledgeable site personnel and go through Management of Change procedures before being implemented.

7. How many screens do you actively use:

- When the plant is in a steady state
- When the plant is starting up
- When the plant is in an abnormal situation? (eg trip)

8. Do you find it easy to navigate through the screen hierarchy?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

Any comments?

9. How many operations (e.g. mouse clicks) does it typically take for you to get to the graphic you wish to view?

10. Can you display all the information you need to do your job?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- In steady state conditions
- In Start up conditions
- In abnormal situations

Any comments?

11. In abnormal situations can you navigate through the graphic hierarchy quickly enough?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

