



X-Force
Alarm Information
Management System

X-Force Alarm Information and Management System

Alarm Information Management System works in conjunction with DCS, SCADA & PLC to capture, filter, analyse, store and monitor the alarms and event. It is standalone, secure and independent from control systems. The solution is recommended and accepted in all major industries and consultants like EIL, Toyo, Jacobs etc. with more than 280+ installations all over India.

X-Force AIMS is In-house developed product of SSM InfoTech, enabled with high performance applications, to meet all the alarm and report capturing and analysis requirements. X-Force AIMS is a complete alarm, messages, event and report handling package. It provides a complete solution for alarm management and user collaboration, over various messaging systems. Its in-depth and straight forward analysis reports make problem analysis - a simple task.

Current Challenges

Managing alarms is a mission-critical task that can help ensure profitability by avoiding abnormal situations. Most of the Monitoring and Control systems, such as DCS, SCADA, PLC invariably require printers for printing the alarms, events, reports and graphics. Being the basic requirement, it is mandatory to maintain it for various reasons though it comes with its own issues.

In a given day, an Operator may be confronted with hundreds of alarms. During a catastrophic event a control system may generate thousands of alarms, each one competing for the Operator's attention. In many situations, the volume of alarms tends to do more harm than good. Many alarms are habitually silenced, automatically acknowledged, or simply ignored. To ensure that alarms contribute to a resolution, alarm configurations must be continuously evaluated and adjusted.

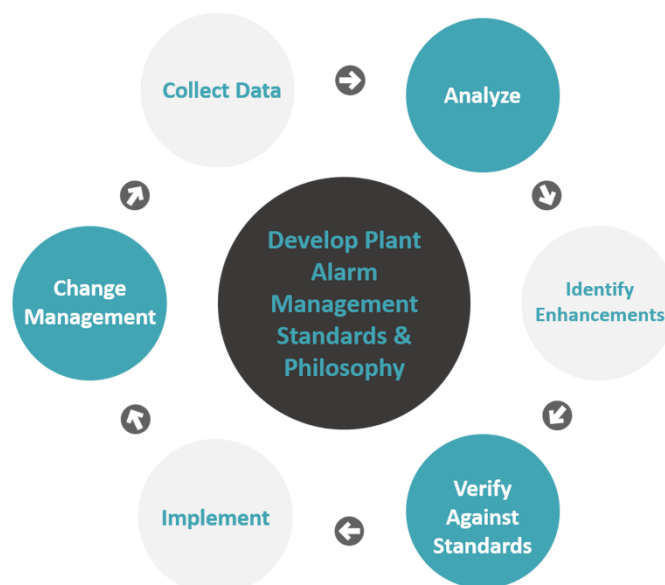
X-Force Alarm and Information Management System (AIMS) resolves all kinds of problems related to alarm optimization and converts these issues into optimized solution and define well balanced alarms management system.

Features

- Connectivity with DCS (port/Channel) over serial/Ethernet/OPC.
- Up to 8 control systems can be connected to capture alarms.
- No changes required to your existing control system configuration.
- Stores and Archive the Alarm related data in MS-SQL Server (Long term data storage).
- Web-portal access with graphical dashboard.
- Trend feature with multi tab operation.
- User defined analytical reports.
- SMS and Email alert scheduling.
- Efficient calculations with report notification.
- Role based security and AD Integration.
- Alarm analysis tools help diagnose alarm configuration weak spots.
- Reports Module: 15 types of reports as per EEMUA guidelines
- Most Critical Alarms Handling Module
- Continuous alarm evaluation for best possible alarm optimization.

Life Cycle Alarm Management

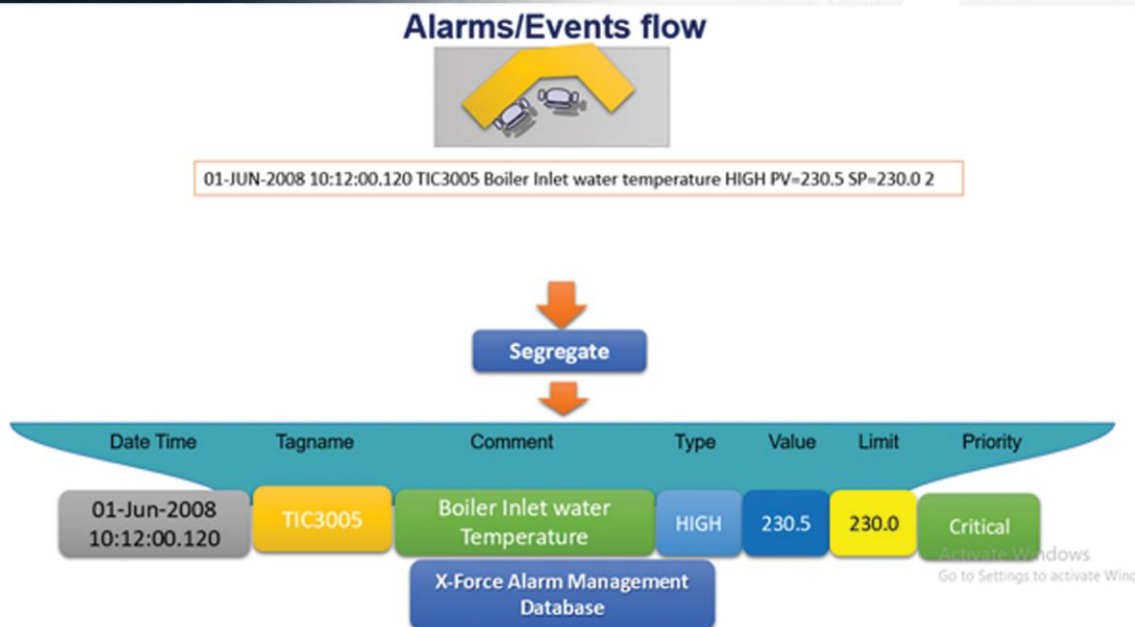
SSM InfoTech Field Service Technocrats maintain alarm system performance as one of their standard site support activities through service agreement



Connectivity and General Architecture



How It Works ?



- Captured alarms lines are segregated with respect to its interpretation and stored to X-Force AIMS Database for further process.

- Notification or defined activity Logics can be applied on the particular value of each option.

- Logics can be developed to get the best outputs on different conditions like:

- o Early Event detection
- o Dynamic Alarming
- o Root Cause Analysis
- o Event Notification
- o Operator Guideline messages

Connectivity & Information

Connectivity Support: Serial, OPC-AE, Network Printers, TCP/IP, ODBC for Oracle and MS-SQL, or any system provides interface...

Information Notification: Alarm Viewer, Alarm Analysis System, Web Based Portal, Pre-recorded wav files, Direct or Network printer, P. A. Systems, Email – SMTP / Outlook.

Basic Modules

X-Force Alarm Suite Server

Captures and stores the Information collected.

The server is Windows based 32 bit application which captures the Information from various sources as mentioned above.

The server analyses the raw data as per configuration and identifies the alarm elements and reports.

It saves the data in MS-SQL server and publishes reports to Internet Information Server.

This also supports time stamp up to the milliseconds level and captures time from Control system as well as local system.

X-Force Alarm Configurator

Configures Captured process data.

The configurator helps to specify types of alarms and its elements like tag name, comment, values, and type of alarms, alarm state, etc.

Express setups available for ABB, Yokogawa XL, CS, CS-3000, Foxboro, Wonderware systems and can be done for other systems too.

It configures Report capturing parameters like report format, directory to save Reports, Mail recipients, direct printing options etc.

Schedule report helps to generate reports automatically. Schedule backup archives older alarms. Configuration is a One-Time job and not required in normal run of system.

X-Force Alarm Viewer

View Alarms as it happens, anywhere as per your convenience.

Automatic update of alarms from server allows it to view alarms as it happens (online). This supports defining of colours and background to match your main system to get the same look and feel. This allows displaying alarms from different control systems in one window. A facility is available to display selected / filtered alarms as per user's criterion.

An Extensive Search facility makes it possible to have better analysis. It is possible to export data to Text, word, CSV or html format. Mail Support enables to send the search results and frequency analysis to the desired people even automatically with schedule.

Basic Modules

X-Force Alarm Analysis

Get the Alarm analysis, reports on single click.

Analyse or filter alarms instantly with familiar tabular form. This filters data by Date/Time, Type, Tags, Group, Operator, Status, etc.

Selection of Fields to view and Sorting order for focused Visualization.

Printing of Filtered report directly to local or network Printer makes it easy for management reporting.

Quickset helps to save your filter parameters for regular use. Customized Query Builder, Mail support and web publishing is available.

Reports- Frequency Analysis

Frequency analysis generates information about which alarms happened/ repeated how many times.

Grouping is done according to the type of alarms and distinction between Alarm Status, produces effective viewing of alarm frequency. Customized analysis is possible with these facilities.

Mail support enables to send mail by lotus notes, outlook or SMTP. Representation of data in a Bar Chart format is also available.

Reports- Duration or Time Analysis

This makes it possible to analyze Average, Maximum, Minimum time taken to acknowledge or Return of alarm to Normal. This makes possible to find out which alarms are defined wrongly.

Detection of chattering alarms or long retaining Alarms is made easy.

Web Scheduler

Manages Mailing, Schedule run of report, backup, etc.

X-Force Web Portal

Publish your reports / View alarms instantly over web.

No application installation required at client side. Web Portal for Alarm Viewing,

Analysis and Report publishing. Uses thin client (Browser) and ActiveX technology and no application to be installed on client side.

Any user connected to local network or Internet can see alarms and reports from standard web browser. (I.E. 8.0 or above) Security option can be provided to restrict Website access.

X-Force Computed Alarms

Computed alarms provide expert functionality for AIMS with intelligent alarms based on other alarms, Maintenance alarms, integration with SMS and phones, real time frequency analysis, operator guidance message.

This is a perfect solution for storage, visualization, Analysis and Optimization of Alarms / messages and reports. Also this is an easiest way to fulfill all needs of Alarm management system with open architecture system irrespective of your main control system and that too without any modifications to it.

Benefits

- It replaces alarm and log report printer with server based system
- Reduces nuisance alarms by up to 67 percent
- Improves production throughput by 3 to 5 percent
- Improves operator efficiency, engagement, and situation awareness
- It gives various notifications like SMS, Voice Message & Email
- Enterprise Server facility, to maintain all site data at single place
- Gives you good result for better operator attention
- Can perform Alarm Rationalization process
- Alarms can be viewed from remote client
- Standard as well as customized report generation capability.

Screenshots

The screenshots demonstrate the system's capabilities in monitoring and reporting alarm data. Key features shown include:

- Scheduler application:** A table listing various scheduled tasks such as 'Monthly Dashboard', 'Daily Reports', and 'Backups' with their respective frequencies and last run dates.
- Alarm Count per Plant/Day/Operating Position:** A bar chart showing alarm counts for different plants and operating positions over a specific period.
- Alarm Count of Selected Plant:** A gauge visualization showing the current alarm count for a selected plant.
- Top 20 Bad Actors of the Day:** A bar chart identifying the most frequent alarm sources (tag names) for a given day.
- Shift wise Alarm Distribution:** A pie chart showing the distribution of alarm counts across different shifts (e.g., Shift A-486, Shift B-479, Shift C-554).
- KPI Details - CCU:** A table providing key performance indicators for a specific unit (CCU), including alarm counts per day, per shift, and per hour, along with acceptable limits and deviations.
- Alarm Frequency Report:** A bar chart showing the frequency of alarms for various tag names over time.

Integration

ERP / Central system integration using SAP-RFC / MII / Shared database / XML / Flat files

ICCC Integration over OPC-DA, HDA, UA

Rest API for data collection from system.

Cloud ready with MQTT publisher module.

Our Solution Complies to Industry 4.0

Interoperability: The ability of cyber-physical systems (i.e. work piece carriers, assembly stations and products), humans and Smart Factories to connect and communicate with each other via the Internet of Things and the Internet of Services

Connectivity: The ability to capture the data by connecting nodes with GPRS communication from any remote location

Real-Time Capability: The capability to collect and analyze data and provide the insights immediately

Modularity: Flexible adaptation of Smart Factories for changing requirements of individual modules

Analytics: Generates insights and knowledge in form of trends, dashboards and various reports.

Our Customers





X-Force
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An ISO 9001:2015 Certified Company

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