

Two customers adopt Yokogawa’s Alarm Reporting package in place of PAS AlarmManagement™ reports.

Two companies switch from their PAS AlarmManagement™ reports to ARA’s replacement reports package, while retaining the report functionality and layout that users were familiar with.

Summary

In two recent projects, Yokogawa’s alarm reporting and analysis solution (Exaquantum/ARA) was chosen by customers in place of their incumbent PAS alarm management company standard. In 2020, a company in the Middle East approached Yokogawa to implement a set of Exaquantum/ARA reports, replacing several PAS AlarmManagement™ reports following a major refinery expansion project. In late 2022, a chemical company in the US initiated discussions with Yokogawa to replicate their PAS AlarmManagement™ reports using Exaquantum/ARA.

In both cases, Yokogawa provided a packaged set of Exaquantum/ARA reports in place of their PAS AlarmManagement™ reports. This facilitated a smooth migration to Yokogawa’s alarm management solution while retaining the familiar functionality and layout of the Plant State Suite (PSS) solution used by former PAS users.

The Exaquantum/ARA PAS AlarmManagement Reporting Package provides a compelling alternative to PSS alarm reports, offering a seamless migration pathway for current PAS (now Hexagon) users to consider Exaquantum/ARA as a solution for their alarm reporting requirements. By preserving the familiar look and feel of the PAS reports, Exaquantum/ARA ensures visualization consistency and minimizes the need for extensive re-training of plant operators and personnel.



PAS Chattering Alarm Report and its equivalent replacement report in Exaquantum/ARA

Exaquantum/ARA - An alternative to PAS alarm reports

Implementing and maintaining effective alarm management practices is crucial for ensuring the stability and safety of process plants. Numerous suppliers offer packages and solutions to improve alarm management in the process industries. Some of these vendors are also suppliers of control systems whilst others are independent with a long history within this area.

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There is an increasing emphasis on the level of synergy between the alarm system and the Distributed Control System (DCS). Single suppliers can offer unparalleled access to alarm system data and information, simplifying configuration, installation, and ensuring synchronization with the control system over time. Independent vendor solutions may struggle to match this level of accessibility.

Companies in the process industry do not want to lose the familiarity of existing reports provided by independent suppliers. Moreover, there has been a gradual shift in the focus of alarm management, driven by organizations' desire to elevate alarm information and key performance indicators (KPIs) to the corporate level, aligning them with their specific business or corporate IT requirements.

Harmonizing reporting across various alarm management systems for enterprise-wide visibility is a crucial goal. Solutions must constantly evolve, integrating new technologies, enhancing features, and improving integration to align with evolving customer requirements.

Alarm Management suppliers are not immune to change. Factors like corporate acquisitions and mergers can reshape the supply landscape and shift their focus. What was once considered a company's core competency or offering can swiftly become absorbed into a broader corporate portfolio. This situation may create uncertainty and doubt among existing customers who may feel that their future needs are no longer being adequately addressed, prompting them to seek alternative solutions in the market.

PAS's Plant StateSuite (PSS) software has been a frontrunner in alarm management since the 1990s. With a long-established history and reputation, PAS has been recognized as a vendor-independent authority in alarm management, providing support for multi-vendor DCS systems for many years. However, following PAS Global's acquisition by Hexagon AB in November 2020, the Plant StateSuite (PSS) software has been integrated into Hexagon's product portfolio and is now referred to as the Hexagon Alarm Management solution.

While Hexagon has a notable focus on cyber security, with an array of products and solutions in that domain, there may be a perceived decrease in emphasis on alarm management. Consequently, some existing customers may harbor doubts about whether their future alarm management needs would be better addressed by other providers.

Overall, the evolving landscape, coupled with continual advancements in the ARA capabilities and flexibility has created favorable conditions for customers to adopt Exaquantum/ARA as a solution that better aligns with their alarm management needs.

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Exaquantum/ARA PAS AlarmManagement Reporting Package

Yokogawa has introduced the Exaquantum/ARA PAS AlarmManagement Reporting Package as a robust solution that serves as an alternative for customers who are currently utilizing the Hexagon Alarm Management solution, formerly known as Plant StateSuite (PSS), for alarm reporting. This comprehensive reporting package harnesses ARA data to deliver equivalent information to the PAS Alarm Management™ Reports, ensuring a seamless transition while unlocking the numerous benefits offered by ARA.

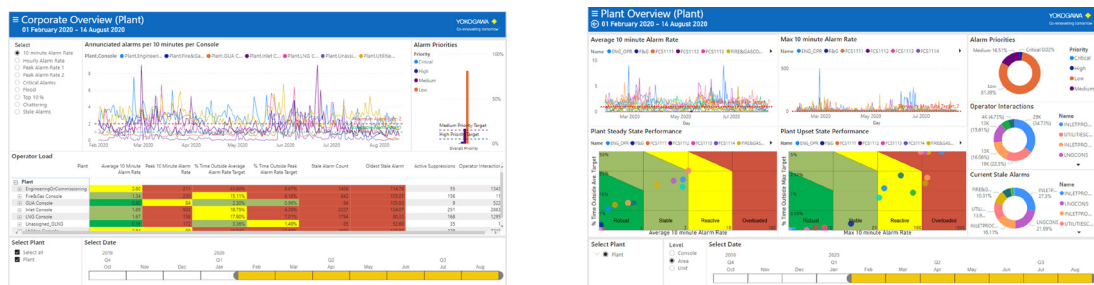
Advantages of Exaquantum/ARA

Exaquantum/ARA alarm management solution offers numerous advantages for customers. For those using a Yokogawa control system, there is enhanced synergy with CENTUM, enabling Exaquantum/ARA to have unparalleled access to alarm information from CAMS and UACS. This facilitates easy extraction of alarm shelving information. Additionally, Exaquantum/ARA provides exclusive access to other critical alarm data, such as Mode changes, due to the high level of integration available.

To minimize data loss during network failures or disruptions, Exaquantum/ARA offers history catch-up via OPC HAE. This feature helps recover and restore any missing data, ensuring comprehensive and accurate alarm information and minimizes any data loss.

One of the key strengths of Exaquantum/ARA is its quick and responsive ready-to-use reports. Each report offers interactive filtering capabilities, allowing users to effortlessly modify and sort data with just a few mouse clicks. This eliminates the need to reload data or restart the report to apply filter settings, enhancing overall efficiency.

Additionally, Exaquantum/ARA provides a Power BI connector that empowers users with a rich set of report visualizations available in Power BI. Customers can leverage pre-built reports and dashboards, offering intuitive and visually compelling representations of their ARA alarm data. Furthermore, users have the freedom to explore and build their own customized reports and visualizations within Power BI, tailoring the analysis to their specific requirements.



Exaquantum/ARA Power BI Dashboard Examples

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For in-depth analysis and investigation, users can directly access alarm management key performance indicators (KPIs) in Microsoft Excel. This feature enables plant personnel to harness live or historical data, effortlessly deploying information in Excel spreadsheets. With minimal or no programming effort, users can leverage Excel's familiar interface to perform detailed analysis and derive valuable insights.

Middle East Customer Requirements

The reporting package was first developed to meet specific requirements concerning replacing PAS alarm reports with ARA alarm reports which were coming as part of a major refinery expansion project that Yokogawa were successful in securing in the middle east. In order to displace the incumbent PAS corporate standard for alarm management, Yokogawa developed a set of ARA reports that would visually emulate the look and feel of the PAS reports that users were already accustomed to. Smoothing the migration to a Yokogawa alarm management solution and avoiding major re-training of plant operators and personnel.

US Chemical Company Requirements

When a US chemical company contacted Yokogawa about replacing their PAS alarm reports, we were already in an advantageous position with the reports developed for a previous project. Add to this the limitations regarding CENTUM compatibility provided by PSS and the unequalled integration provided by Exaquantum/ARA plus some other factors, the customer was keen to know more. Once they had seen the replacement reports package that had already been developed, they were fully engaged in replacing their PSS reports with ARA reports. The customer wanted four additional reports from PSS to be included and some added report filters which have been implemented in the Exaquantum/ARA replacement reports package.

Ready-to-go PAS Replacement Reports

Following the development for both customers, Yokogawa created a packaged set of Exaquantum/ARA reports that replace a number of PAS AlarmManagement™ reports. Offering the familiarity that they have become accustomed to with PAS, but within a Yokogawa alarm management solution.

These packaged reports provide a seamless migration path from PAS to Exaquantum/ARA that preserves the look and feel of PAS reports whilst avoiding large-scale retraining of plant personnel.

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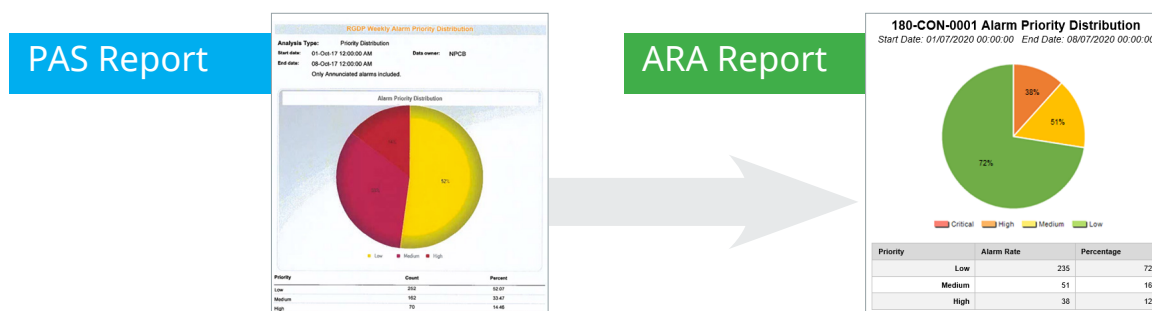
What Reports are included?

Sixteen reports (including an updated dashboard) are available in this reporting package. The reports use SQL Server Reporting Services (SSRS) and use ARA data to show ARA equivalent information to the PAS AlarmManagement™ Reports.

The following reports are part of the Exaquantum/ARA PAS AlarmManagement Reporting Package:

Alarm Summary	Stale Alarms
Alarm Summary (Dashboard)	Standing Alarms
Top 25 Frequent Alarms	Frequent Alarms
Alarm Priority Distribution	Controller Mode
Alarm Flood Periods	AOF Tags List
Weekly Alarms Per Day	AOF Changes
Weekly Stale Alarms	CAL Tags List
Chattering Alarms	CAL Changes

Example PAS Reports with their Equivalent ARA Reports



PAS Alarm Priority Distribution Report and the equivalent replacement report in Exaquantum/ARA



PAS Alarm List Report and the equivalent replacement report in Exaquantum/ARA

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ARA Modifications to Chattering Alarms and Flood Events

To replicate the equivalent information in the PAS AlarmManagement™ Reports, ARA modifications were necessary for Chattering Alarms and Flood Events. To allow the implementation, changes have been applied to the SQL Server Analysis Services Alarm Management KPI database (ARA Cube) and to the supporting SQL Server Database views and stored procedures in the ARA system.

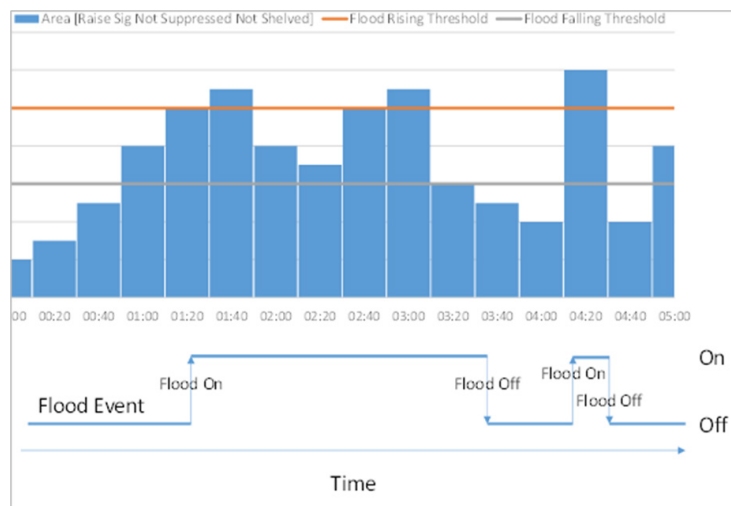
Flood Events Modifications

A Flood Event indicates a period where Operators were potentially overloaded with too many alarms. Currently in Exaquantum/ARA the Alarm Flood processing included all alarms, including suppressed and shelved alarms thus ignoring the effect of shelving.

In the reporting package the Alarm Flood processing excludes shelved and suppressed. Alarm Flooding is based on the annunciated alarm count so only unsuppressed alarms are used in the calculation.

This changes the measure used to calculate flood event counts:

- Previous measure: [Alarm Count]
- New measure: [Raise Sig Not Suppressed Not Shelved]



Flood Event Example

Chattering Alarms Modifications

Currently in Exaquantum/ARA the Chattering Alarms Threshold parameter is applied to the aggregated number of alarm annunciations for a Tag. It does not include alarm condition (HH, LL, ALM etc.) therefore the measure is effectively "Chattering Tags". It also does not include alarm priority. It is

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based on the count of raise signals and the effect of suppression is ignored. In the reporting package the Chattering Alarms Threshold parameter is instead applied to the number of annunciations for each Alarm (Tag + Condition). This includes alarm condition and alarm priority in the calculation of chattering alarms. It is based on annunciated alarm count so only unsuppressed alarms are used in the calculation.

This changes the measure used to calculate Chattering Alarms.

- Previous measure: [Raise Sig] (Tag)
- New measure [Raise Sig Not Suppressed Not Shelved] (Tag + Condition)

This change has the effect of increasing the threshold for alarms to be considered 'Chattering' meaning less entries will be shown in the Chattering Alarms report.

Takeaways

With Exaquantum/ARA as a comprehensive single supplier solution from Yokogawa, it boasts unparalleled access to extract all information from a CENTUM DCS, including CAMS and UACS. This enables users to easily obtain alarm shelving information alongside other critical alarm data like Mode changes, which are exclusively available in Exaquantum/ARA due to its deep integration with Yokogawa systems. To mitigate data loss resulting from network failures or disruptions, Exaquantum/ARA features history catch-up via OPC HAE, facilitating the recovery and restoration of missing data once the connection is re-established.

Beyond the robust reporting package, users opting to replace their PAS alarm management with Exaquantum/ARA gain access to its advanced features. The solution offers quick and responsive reports, empowering users with interactive report filtering capabilities that can be effortlessly applied with just a few mouse clicks. Additionally, alarm management KPIs can be easily accessed directly in Microsoft Excel for detailed analysis and investigations.



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For those seeking elevated alarm data visualizations, the Power BI connector offers a rich and powerful set of report visualizations and dashboards, enabling users to effectively support their ARA alarm data needs and present insights in the corporate environment.

Already, two existing PAS customers have taken the step to implement ARA replacement reports, finding familiarity with the PAS system within Yokogawa's alarm reporting solution. For current PAS users who may have concerns or dissatisfaction with their alarm reporting needs, exploring the Exaquantum/ARA PAS AlarmManagement Reporting Package is a compelling option. It presents a highly credible and valuable alternative with Exaquantum ARA added benefits that merits further exploration and conversations.



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