

Case Study

Honeywell's Alarm Management Software Helps Cut Through the Noise at Galp Energia



Before the implementation of an alarm management project, operators were forced into a reactive approach towards alarms, especially during upsets like maintenance or emergency shutdowns.



Challenge

For years, alarms were configured without overall rationalization and without a specific tool to help analyze. This resulted in thousands of configured alarms in the refinery, a number that grew with each new project. Over time, managing alarms had become increasingly time-consuming and problematic.

Solution

With several options available to Galp Energia's Porto Refinery, the Process Control and Automation team selected Honeywell's Alarm Management software solution as a separate system for alarm management. The system is able to integrate multiple Distributed Control Systems (DCS) and add a degree of independence as an important tool to analyze incidents.

Advantage

- Centralized decision-making and change management
- Reduced number of nuisance and chattering alarms
- Improved reliability of incidents and accidents analysis
- Improved plant maintenance response time as the system detects possible instrumentation problems
- Improved plant security, safety and reliability

Honeywell's alarm management software is vendor-neutral, which means it works with any control system.

Reshaping the Energy Sector starts with Reshaping Alarm Management

Created in the year 2000 from the state-owned Portuguese oil and gas company Petrogal, Galp Energia Group has a strong presence across the Iberian Peninsula, with interests in:

- Natural gas supply, transport, storage and distribution
- Petroleum products exploration, production, refining, trading, logistics and retailing
- Electrical co-generation and renewable energy.

Responsible for the reshaping of the Portuguese energy sector, Galp Energia's goal is to:

- Build a national oil and gas company compliant with modern international standards
- Be a key player in the Portuguese economy
- Grow in the international energy industry by becoming a relevant competitor in the Iberian market

In 1991, the Porto Refinery implemented a Fisher Rosemount Distributed Control System. Since that time, alarms had been configured to be consistent with internal security standards on three levels: hardware, system and process. Alarms at the first two levels are generated automatically by the DCS while the latter are defined by those responsible for each area and configured by the Process Control and Automation team. Before the implementation of an alarm management project, operators were forced into a reactive approach toward alarms, especially during upsets like maintenance or emergency shutdowns. In some cases, operators were dealing with five alarms per operator every 10 minutes – five times the EEMUA standard. This situation had to change. Since the DCS was not able to store alarms for a long period of time, incident analysis was difficult and slow. Each specific alarm had to be searched for by hand in a log file that was hundreds of pages long. Honeywell's alarm management software provides a solution.

Product	t/Year
Fuels	3,700,000
Lube Oils	150,000
Aromatics and Solvent	440,000
Lubricants	1,500
Paraffins	10,000
Asphalt	150,000
Sulphur	10,000

Table 1: Porto Refinery production

Alarm Management Software Exceeds Minimum Requirements

The process of choosing one product was not easy, since there are many in the market. Galp Energia narrowed their choice down to three leading products, based on the following key criteria:

- Does the solution provide detailed analysis of all alarms, operator responses and active alarm durations?
- Does the solution integrate alarms and events with process data?
- Will the solution produce KPI reports based on EEMUA standards?
- Is the solution able to generate/export data to MS Excel, a common tool in the refinery?
- Is the solution easy to maintain?

Honeywell's alarm management software answered all these key questions and more.

Solution Provides Results

Alarm rationalization is carried out by the Process Control and Automation team and plant management. The process has been somewhat slower than expected because each shift is required to analyze the conclusions of each alarm rationalization meeting. When there are operators who have never attended a meeting, a short presentation of the present alarm situation in their plant is required, detailing the objectives, the tools to help achieve the objectives and the MOCCA sheet where all the alarms are registered with causes and consequences of each configured alarm.

The graphics below show the evolution of the combined performance level of the Aromatics (FAR) and Water Treatment (ETAR) plants in the Porto Refinery.

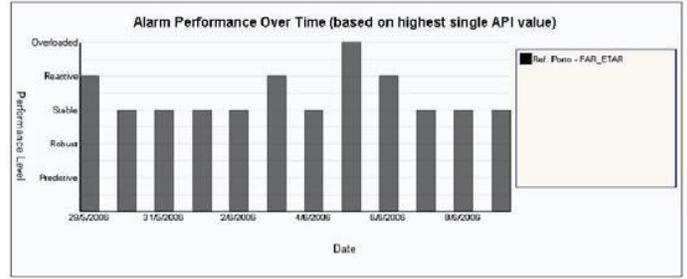


Figure 1: Performance level 12 days prior to June 10 (before rationalization) in FAR/ETAR

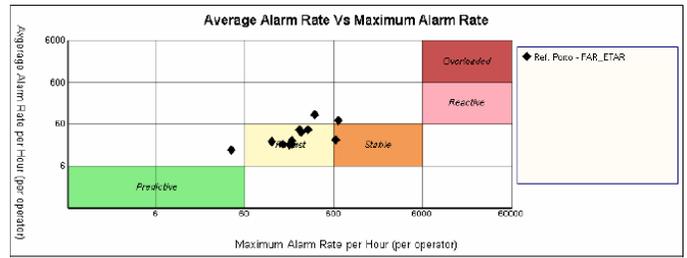


Figure 2: Average alarm rate vs. maximum alarm rate 12 days prior to June 10 (before rationalization) in FAR/ETAR

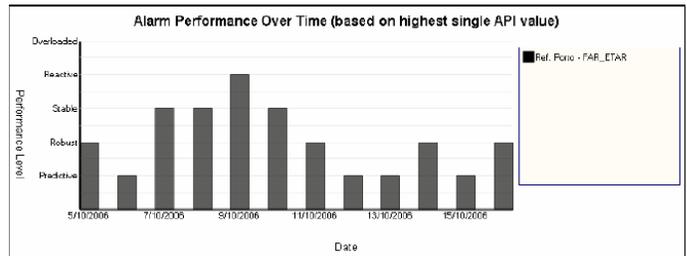


Figure 3: Performance level 12 days prior to 17 October (with rationalization) in FAR/ETAR

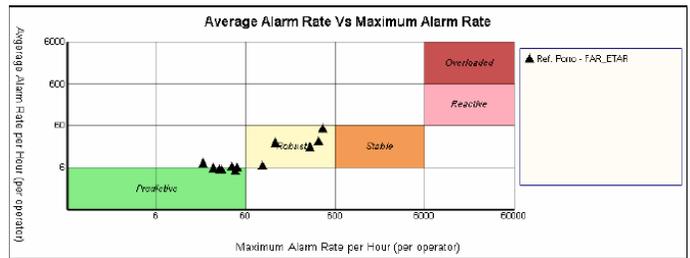


Figure 4: Average alarm rate vs. maximum alarm rate 12 days prior to October 17 (with rationalization) in FAR/ETAR

When Galp Energia saw the elements exposed in the figures, they concluded that the performance level of FAR/ETAR went from stable / reactive to robust in four months, with 261 tags rationalized.

In addition to the immediate positive effects on plant safety, operator workload and control room efficiency, the reduction in overall alarm count has provided several other important benefits, including:

- Centralized decision-making and management of changes means only one entity can change alarms except in abnormal situations, resulting in increased reliability and confidence
- Reduced number of nuisance and chattering alarms, increasing operator effectiveness
- Improved reliability of incidents and accidents analysis, as the system can automatically generate reports
- Increased operator responsibility, as they are directly involved in the alarm rationalization process
- Improved plant maintenance response time, as the system sends daily reports to all areas with possible instrumentation problems
- Improved plant security, safety and reliability, as units are analyzed as a whole, rather than considering single alarms.

Based on the successes to date, Galp Energia expanded their alarm analysis and rationalization to all plants at Porto Refinery – Fuels, Lube Oils, Power and Blending plants.

For More Information

Learn more about Honeywell's alarm management solutions at our website www.honeywellprocess.com/software or contact your Honeywell account manager.

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