

# PowerGraphiX

Significantly enhance situation awareness in the power industry

## Challenge

Poorly designed human machine interfaces (HMI) in the power industry hinder an operator’s ability to rapidly recognize emerging abnormal situations, often leading to upset conditions and unplanned shutdown.

With the advent of the distributed control system (DCS) in the mid-1970s, the operator’s scope of responsibility increased considerably – more instruments and significantly higher number of alarms. In the rush to take advantage of the new microprocessor-based DCS, automation suppliers, engineering firms, and operating companies overlooked the basic needs of the operator for clear and concise visibility to real-time information. In most control system upgrade projects, the operator interfaces were an afterthought, and little attention was given to the ergonomic design and the usability of the displays.

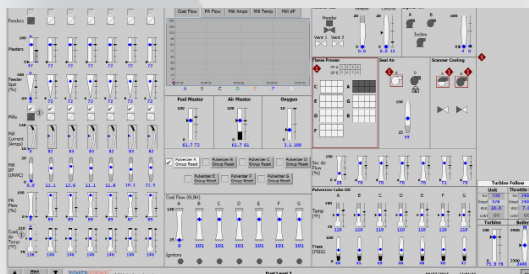
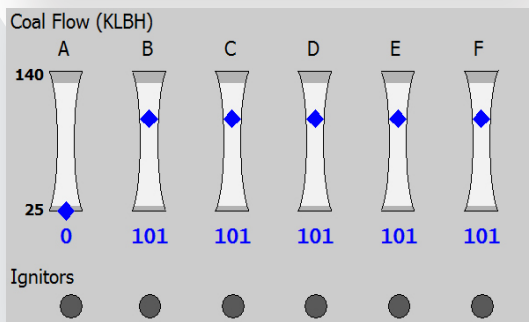
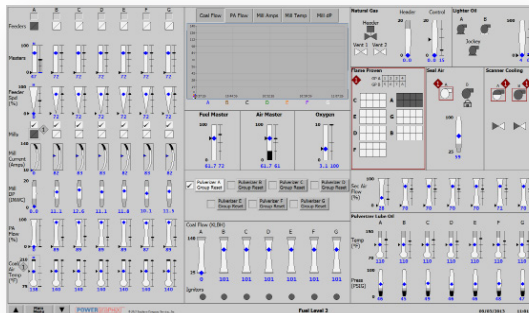
Today, operator graphics at most plants are overloaded with information, are cluttered with inconsistent use of colors, and lack proper pattern recognition. The power industry has identified improving the design of operator interfaces along with optimizing the alarm systems as critical safety and plant reliability opportunities.

## Solution

The design of the human-machine interface (HMI) plays a critical role in determining the operator’s ability to effectively manage the operation, particularly when faced with abnormal situations. PAS has developed the seven step methodology for the practical implementation of High Performance HMI™ in power plants.

PowerGraphiX is a high performance HMI solution for the power industry. It is a collection of predesigned operator graphics and object libraries for coal fired, combined cycle, and super critical power plants.

PowerGraphiX has been implemented and operator tested at numerous power plants.



Features include:

- Utilization of a standardized color palette to ensure abnormal situations stand out
- Utilization of pattern recognition to transform data into actionable information
- Incorporation of operator assistance: alarm documentation and rationalization information, operational boundary limits, and procedures

## Key Benefits:

- Improves operator situation awareness
- Standardizes templates for units and their subsystems
- Reduces training and maintenance effort
- Reduces engineering costs per unit by \$50K+
- Reduces the number of graphics required by up to 75%

## The Gold Standard for Power HMIs

PowerGraphiX was developed by a team of power operations experts averaging over 20 years of industry experience. A variety of perspectives were taken into consideration for the careful design of each graphic: console operators, shift supervisors, and plant engineers. The methodologies used to develop these graphics were based on the industry recognized book, The High Performance HMI Handbook.

Thousands of hours were spent on designing, reviewing and editing the displays to achieve unparalleled situation awareness for the operator. The designs were implemented at numerous power plants. The lessons learned from these deployments have been incorporated into the final designs.



## Reduce the Cost of HMI Projects

PowerGraphiX consolidates and organizes information on the displays, providing operators an intuitive view of their plant operations with fewer graphics and DCS hardware.

This provides the following benefits:

- Reduced DCS hardware/licensing costs
- Reduced engineering costs
- Reduced number of graphics

These benefits allow for reduced on-going maintenance cost through the life cycle of the fleet's HMI.

***“[PowerGraphiX] was originally created to streamline information displayed in control rooms across our generating fleet, significantly improving operator effectiveness.”***

Harvey Ivey, Southern Company

For questions about PowerGraphiX, please email [info@pas.com](mailto:info@pas.com).

## About PAS

PAS, the OT Integrity company, delivers software solutions that prevent, detect, & remediate cyber threats; reduce process safety risks and optimize profitability; and enable trusted data for decision-making. PAS helps industrial organizations Ensure OT Integrity including 13 of the top 15 refining, 13 of the top 15 chemical, 4 of the top 5 pulp and paper, 3 of the top 5 mining, and 7 of the top 20 power generation companies.

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