

GE Intelligent Platforms

Boiler Control Solutions



Advanced Control to Reduce Operating Costs and Emissions
and Increase Safety



GE Intelligent Platforms' Boiler Control Solution



Since the beginning of the process of generating steam from fossil fuels, engineers have attempted to improve the efficiency of the process - make more steam for less money - through advanced refractory material, better burners, and through process control. Today, advanced boiler control is a recognized technique for significantly improving the performance of steam boilers and steam generators. Over the last fifty years there have been steady advances in boiler control systems. Each advance in process control technology has brought not only greater efficiency, but has served to reduce the environmental impact of generating steam. Even though benefits have far exceeded investment costs, the price for advanced boiler control has also steadily increased - until today!

GE Intelligent Platforms' Boiler Control Solution offers a truly low-cost boiler control system for the industrial boiler market. The system combines industry-leading open technology, engineering tools and control hardware which, when combined with your choice of our visualization technologies - iFIX or CIMPLICITY, creates a system that provides the functionality of a DCS at PLC prices.

Working with experienced installation firms, GE-IP can offer you the option of taking complete project responsibility; eliminating the need to commit your limited resources.

You receive a full-featured distributed

control system, a fully engineered control solution,

and complete installation for a price less than half of what you might expect to pay for a stripped-down boiler control system alone.



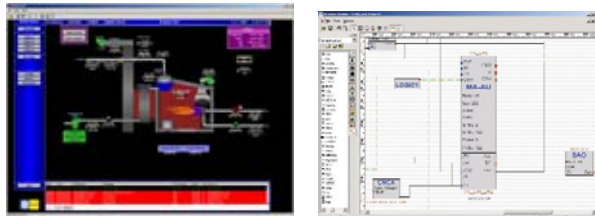
A Leader in New Process Automation System Installations

The GE-IP Boiler Control Solution provides customers quicker system implementations and more robust solutions, while substantially reducing integration costs. GE-IP brings together "best of breed" robust control hardware, while merging DCS capabilities and PLC functionality into one platform. Based on our Proficy Process Systems, the solution provides an open architecture and proven off-the shelf technologies and has been rapidly replacing proprietary and expensive DCS systems.

GE-IP Boiler Solutions
IEC 1131 Programs
Advanced Function Blocks
Tight Peer-to-Peer Communications
Hot Swap I/O and Processor Change Out
Integrated HMI
Quality for I/O and Communications
Harsh Environmental Specifications
Low Initial Investment
Scaleable
Open Protocols
Seamless Redundancy
Intrinsic Safety Available
Integral Hart Capability
Pre-Configured Screens
Sample Control Strategies

GE-IP Boiler Control Solution

Proficy Process Systems with PAC8000 Controllers provides you with all the tools needed to create and execute, to document and manage, as well as, maintain a boiler control system. The system is an integrated project development environment that centralizes and coordinates project engineering including instrument index, I/O database configuration, control strategy development (process and discrete), process visualization (operator graphics and faceplates), historian (alarming and trending), and project management.



Proficy Process Systems offers extensive redundancy choices including: controllers, control networks and system power supplies. The PAC8000 controller redundancy model supports on-line configuration and on-line firmware changes, where the updates are shared between controllers in realtime, resulting in an easy-to-use redundant system. The system supports Ethernet LAN redundancy utilizing Modbus TCP with Fault Tolerant Ethernet (FTE). PAC8000 combines industry-standard open system components that are tightly integrated to provide a seamless solution:

Proficy Process Systems	Process control system leveraging industry leading technologies in a flexible and scalable contemporary architecture.
PAC8000 Controllers	Ruggedized process controllers
8000 Process I/O	de facto standard for major automation OEMs
PAC8000 Workbench	Engineering tools widely used in process applications

Why Should I Upgrade?

Most industrial facilities are facing reduced budgets, mounting pressure to improve system reliability and at increasingly lower costs. There are several issues that should convince you that you cannot afford not to upgrade:

FUEL: As fuel is the largest single expense for your facility, controlling operating variability is critical to efficiency:

- Fuel variations in pressure, temperature, BTU, pH, burner valve and piping wear, and interactions
- Combustion air variations in pressure, temperature, and humidity, fan performance, and damper-ducting interactions
- Exhaust gas and system variations, boiler fouling, stack effect and interaction
- Fuel and Air Positioning accuracy
- Control system accuracy, alignment, and synchronization

Potential Cost Impact

BOILER SIZE Btu Input Thous. Btu/Hr	Savings \$/Yr \$2.00/MBTU
10,000	\$8,000
25,000	\$20,000
50,000	\$40,000

Assumptions: Annual Operating Hours = 8,000 Hr/Yr.

As you can see it doesn't take very long to pay back the cost of an upgrade on fuel savings alone.

RELIABILITY: If your controls are pneumatic or first generation electronics, you know how many problems the system has experienced and the production risks to the operation caused by an obsolete and failure-prone control system. The good news is that Proficy Process Systems with its field-proven hardware and engineering tools will dramatically improve system reliability.

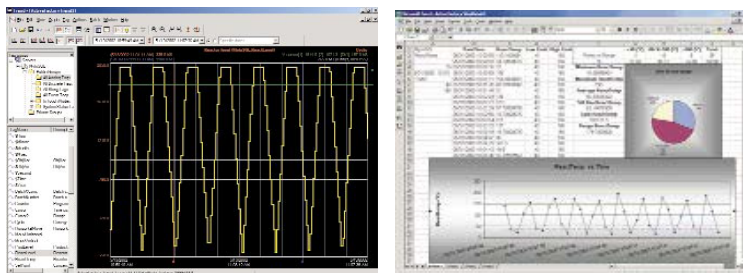
TECHNICIAN TRAINING: GE-IP control hardware is easy to maintain and your plant technicians will appreciate having system components that are robust enough to withstand harsh industrial environments. Your operators will find a Windows-based graphical operator interface very familiar. It is just like sitting down at their PC at home. You will be amazed how quick the transition is and how much better they will become with the tools provided to them.

System Benefits

Reduce Initial System Costs	Compress Project Timelines	Lower System Maintenance
<ul style="list-style-type: none"> • Industry-standard hardware components 	<ul style="list-style-type: none"> • Eliminates redundant configuration 	<ul style="list-style-type: none"> • Generates as-built documentation
<ul style="list-style-type: none"> • Off-the-shelf software applications 	<ul style="list-style-type: none"> • Generates system documentation 	<ul style="list-style-type: none"> • Ensures hardware and software migration
<ul style="list-style-type: none"> • Concurrent project implementation 	<ul style="list-style-type: none"> • Eliminates repetitive programming 	<ul style="list-style-type: none"> • Reduced training requirements
	<ul style="list-style-type: none"> • Streamlines system checkout and tuning 	<ul style="list-style-type: none"> • Less reliance on outside vendors
		<ul style="list-style-type: none"> • Reduced spare part costs

Proficy Process Systems: A Fully-Configured and Tested System

Providing the proper control platform hardware components for boiler control (and for future plant needs) is only a small part of the story. The benefits of PAC8000 advanced control hardware and configuration tools can be coupled with a comprehensive pre-configured boiler software application example that enables you to quickly apply Proficy Process Systems to control your boiler. GE-IP's Boiler Control Solution includes complete advanced control algorithms and time-tested operator graphics. Everything is pre-configured - from graphics layouts to trending. Once installed and tested with the field sensors and valves, the system is ready to go - in days rather than months. GE-IP's Boiler Control Solution provides much more. You also receive comprehensive hardware and system documentation, thus facilitating a quick startup.



Many of the world's safety-critical processes are monitored, controlled or protected by GE-IP's products and technologies. GE-IP is distinguished by its global network of sales and support centers and by its acknowledged position as a leader in this high technology marketplace.



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