

# SLATE™

Integrated Combustion Equipment  
Management Success Stories



**Honeywell**

# Full Steam Ahead

SLATE™ Integrated Combustion Management System  
Improves Production Efficiency for Candy Factory.

See how Honeywell's robust, modernized integrated burner control solution helps a leading confectioner maximize boiler efficiency, save energy, and help operations run more smoothly – ensuring sweeter days ahead.



Case Study





**Candy manufacturing is no piece of cake. For high-quality products, the use of steam is crucial. An efficient steam production depends on quality controls to provide maximum uptime while decreasing fuel and electricity loss. When a Mexican candy manufacturer needed a way to monitor steam consumption on a daily basis and save on electrical costs, they turned to Honeywell.**

### The Needs

Update existing control system and provide operators with tools for critical decision-making.

Maximize boiler efficiency and save electricity.

Control two fuels in the same valve train and measure steam consumption.

### For More Information

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### Honeywell Process Solutions

Honeywell Thermal Solutions (HTS)  
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### The Solution

The SLATE Combustion Management System provides all of the components needed to upgrade the candy factory's boiler system. SLATE's programming software, the SLATE AX Tool, creates Proportional-Integrate-Derivative (PID) controls and gathers the daily steam consumption information.

By utilizing SLATE's Fuel Air Ratio Control Module, the operators are able to monitor both gas and air, while a Variable Frequency Drive (VFD) ultimately saves on electrical costs. Also, the facility achieves the capability to control two fuels with the same valve train by using SLATE's Burner Control Module.

The 7-inch, full-color touchscreen puts information and control at operators' fingertips – providing convenient, at-a-glance visibility to analytics, charts, and other key data for diagnostics and tuning. Dynamic screen images also show the status of interlocks, so technicians can see which elements are degrading.

The systems also use the standard manifold's pressure in addition to each boiler's own pressure to better anticipate changes in steam demand, regulating the steam pressure and improving overall fuel efficiency.

### The Benefits

- Controls two fuels within the same valve train while providing operators with the vital information they need to make quick, informed decisions.
- Monitors steam consumption on a daily basis and reduces electrical costs by using a VFD on the combustion blower.
- Adjusts both gas and air levels on the production floor in a convenient, cost-effective way.
- Helps operators zero in on issues instantly, minimizing downtime when hazards occur.

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# Pillar of Productivity

Honeywell Enhances Efficiency for Sodium Silicate Manufacturer in Mexico.

The SLATE™ system – which combines programmable logic and greater control in a single, powerful platform – is hard at work decreasing chemical reaction time, increasing productivity, and shaking things up at this salt company.



Case Study





**Sodium Silicate is used in the manufacture of cement, fire protective materials, textiles and lumber processing, refractories, and automobiles. Creating sodium silicate requires a chemical reaction between sand, soda, and water mixed in a reactor under high pressure and temperature. When a sodium silicate manufacturer in Mexico needed a modern control system to increase efficiency and improve monitoring during production, they looked to Honeywell for a solution.**

### The Needs

Provide a way for operators to see process variables from a touchscreen display.

Design a burner control system with function blocks to minimize engineering time.

Diminish the number of errors on burner ignition.

Decrease the chemical reaction time and maximize production rate.

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### The Solution

The SLATE system can generate alarms when limit thresholds are met, start pumps, adjust set points for pressure and heater temperature, and provide operators with the critical information they need.

The solution comprises a Base Module, a Burner Control Module, a Fuel Air Ratio Control Module, an intuitive, easy-to-read 7-inch touchscreen display, and the SLATE AX Tool, which enables the customer to design a system with function blocks quickly and easily to reduce engineering time.

The manufacturer is able to generate virtual signals to minimize wiring with components inside the industrial cabinet. The AX Tool also provides a mechanism to create meaningful and informative visual analyses. The charts give the operators insight into the necessary variables to keep the process and reaction going.

With the new solution, fewer errors occur upon lighting the burner during the system operation sequence. Operators can also collect and look at data during the ignition procedure – a function unavailable with the previous system. The entire process is more efficient, increasing both the reaction time and the production rate.

### The Benefits

- The SLATE AX Tool provides visual analytics, giving the operators valuable insight for more informed decision-making.
- The tool enabled the customer to design a system with function blocks quickly and easily, reducing engineering time.
- Fewer errors when lighting the burner during the system operation sequence.
- The process is more efficient, increasing the reaction time and the production rate.

**Honeywell**

# Fertile Ground for Integration

Maximizing Production Efficiency for a Fertilizer Plant.

SLATE™ Integrated Combustion Management System enables quick decision-making, boosts efficiency, and streamlines operation of the production process – planting the seeds for enhanced productivity and performance.



Case Study





**A large fertilizer plant in Mexico produces over 1,250,000 tons every year – exporting fertilizers to countries such as Cuba, Argentina, Brazil, and the United States. Within the factory, the process of heating sulfur provides gases that are used as a fuel source for various applications, including boilers – generating electricity through turbine movement. Given that manual operations were outdated and inefficient, a modern, automated control system became a necessity, and the plant wanted to maximize their investment with the cream of the crop. That’s why they chose the Honeywell SLATE Combustion Management System.**

### **The Needs**

Install a modern and automated control system to oversee the factory’s two industrial burners.

Implement smart system features that enable complex temperature management.

Save electricity with VFD installation on the combustion blower.

Provide key information to operators about furnace and combustion process status.

### **The Solution**

The SLATE Combustion Management System is a rugged, reliable, and flexible solution that exceeds even the most demanding industrial needs. It is comprised of Burner Control and Flame Amplifier Modules, a software application, and a full-color, 7-inch touch screen display with an intuitive, user-friendly interface. The SLATE AX Tool gives end-users the necessary control logic to create applications quickly and easily, using function block programming to save time.

By replacing the outdated, manually-operated system with SLATE, the plant maximizes its automation potential and achieves seamless integration. The result? Plant operators enjoy enhanced control of the industrial burners while conserving money and energy.

Control systems are used to monitor the temperature of the burners and manage the variable-frequency drive (VFD) of combustion blowers. The display lets operators view all the process variables from a single, convenient location – providing them with the critical information they need to make quick decisions and improve the efficiency and operation of the furnace.

With its faster programming, reduced engineering time, simplified inventory, and highly configurable settings, SLATE streamlines and simplifies the product development process for the fertilizer production plant – helping it achieve optimal efficiency.

### **The Benefits**

- Full system automation with the capability of managing the factory’s burners and with programmable logic application.
- Enhanced control of burner temperature and plant operations through SLATE’s configurable modules.
- Flame safeguard use for the industrial burners with VFD control, enabling electricity cost savings.
- Key information is accessible to operators from a single location.

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# Going Against the Grain

Honeywell Modernizes Mexican Plant with a Breakthrough Solution for Automating Grain Drying.

While manual controls are leaving manufacturers high and dry, there's innovation in the air with the SLATE™ Integrated Combustion Management System.



Case Study







**For long, controlling the grain drying process was a challenging task for engineers. For effective drying, the air should be hot, dry, and moving. For one Mexican plant, the process uses two ducts in which hot air is circulated in direct contact with the grain storage containers. Due to the warm climate, the air is often hot enough to be re-circulated through the ducts using fans – resulting in the need for a modern, robust automated solution to replace the existing manual system. Honeywell was quick to deliver SLATE, an integrated Combustion Management System that’s rugged, reliable, and flexible enough to meet even the most demanding industrial needs.**

### The Needs

Control the process’ air temperature.

Manage grain humidity and monitor the pressure in both ducts to ensure the proper air flow.

Regulate the process blower’s velocity.

Show overall system efficiency and savings.

### The Solution

The installed system includes ten different modules. The process of grain drying needs a 3,000,000 BTU/hr modulating burner. The temperature is constantly adjusted to maximize burner efficiency, and the Fuel/Air Ratio Control Module helps to program the modulation.

As with any combustion process, safety is paramount, and the customer was looking to increase the overall security standards of the plant. The SLATE Burner Control Module performs and monitors the ignition sequence of the burner, avoiding any possible hazards that could occur during this step of the process.

The SLATE Limit Module communicates to the Burner Control Module, which monitors the high temperatures in the two air ducts. SLATE is now controlling the two fans that regulate the circulation of air through the ducts by using Variable Frequency Drives (VFDs). Pressure, temperature, and humidity sensors now monitor this process in which the temperature limit is approximately 40°C, warm enough to remove moisture from the grains. SLATE is programmed to go into an alarm state to shut down the system when temperatures surpass that limit.

### The Benefits

- Greater control, with the ability for operators to see all variables from the dryer.
- Enables instant reactions during the process, maximizing efficiency and increasing overall product quality.
- Increases plant safety thanks to automated control of all the industrial processes.

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# Reaping the Fruits of Integration

Ripe for Change, Mexican Juice Plant Picks Honeywell.

The SLATE™ Integrated Combustion Management System enhances control and maximizes boiler efficiency through innovative, integrated technologies.



Case Study





**In operation over 20 years, one of Mexico's leading juice factories enjoys a reputation of excellence in the packaged beverage sector. From juice and nectars to natural water and energy drinks, the success of the production process requires a powerful, modernized control system. Product safety depends on the performance of steam and water boilers. In order to meet these goals, the customer chose the SLATE Integrated Combustion Management System – a modern, reliable solution designed to optimize plant performance.**

### **The Needs**

Increase performance of steam and water boilers.

Install a modern and automated control system to manage a combustion blower and two types of fuel.

Implement a safe procedure for burner sequence and operation.

Enable cost savings related to energy and fuel.

### **The Solution**

SLATE is comprised of several parts, including a Burner Control and a Fuel Air Ratio Control Module.

The burner control helps the operator safely manage both boiler functionality and sequence. The Fuel Air Ratio Control Module ensures a stable balance between the two elements – optimizing the process of combustion and saving electricity and fuel.

The SLATE AX Tool is highly configurable and features program application logic that creates proportional-integral-derivate (PID) loops to control the temperature. The block function has specific boiler logic integrated – producing steam faster and more efficiently.

Control systems are used to monitor and control the temperature of the boilers and to manage the Variable Frequency Drive (VFD) of combustion blowers – enabling powerful and stable production procedures.

### **The Benefits**

- Optimal boiler performance with automated control through the programmable logic application.
- Enhanced savings of energy and fuel through VFD control of the combustion blower.
- Improved and safety-compliant operation and sequence of the burner.
- Smart automation control system for the combustion blower and two types of fuel, due to the SLATE AX Tool's application.

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# Juicing Up Productivity

SLATE™ Integrated Combustion Management System Boosts Performance at Mexican Juice Plant.

Honeywell technology puts the squeeze on inefficiency with an exceptional, seamless integration tool that maximizes productivity, increases safety, and conserves electricity – all while yielding an exceptional product.



Case Study





**The production of juice requires undergoing a pasteurization stage to ensure high product safety. Juice is preheated by either steam or hot water and needs to reach temperatures of 185 – 201°F for 30 seconds to reduce the microbe count. Steam or hot water boilers employ this process and use controls to provide safety when dealing with fuel and air, as well as data analysis to cater for the sequence and staging of the boilers. When one of Mexico's juice plants needed to increase efficiency and safety without sacrificing quality, they chose SLATE by Honeywell.**

### **The Needs**

Renovation of production line control functions.

Increased boiler efficiency levels.

Substantial electricity savings with a VFD installed on the combustion blower.

### **The Solution**

The SLATE Combustion System from Honeywell provides greater boiler efficiency along with the ability to control a combustion blower with a Variable Frequency Drive (VFD). Plant operators can monitor two different types of fuels in their production lines, and create data logic for the safety side of the combustion process and the boiler. They can also create Proportional Integral Derivative (PID) loops for temperature control.

The SLATE AX Tool function blocks enable quick, efficient steam production.

The Fuel Air Ratio Control allows the customer to utilize a VFD to control the combustion blower and monitor the air to create savings in electricity and fuel.

### **The Benefits**

- Lets plant operators control boiler operation and sequence safely while monitoring two different types of fuels.
- Helps create the ideal Fuel Air Ratio for optimal combustion.
- Decreases electricity consumption, resulting in substantial cost savings.

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# A Clean Slate

Honeywell Optimizes Productivity for Soap Manufacturer in Mexico.

SLATE™ delivers a flexible, highly reliable burner management solution – empowering the manufacturer with a great new way to improve efficiency and save time.



Case Study





**The soap-making procedure includes a drying process that needs warm, fresh air. Generating it requires dryers and modulating burners. A soap manufacturer in Mexico needed to renovate an older dryer and control a pilot and main burner in their facility. They also needed to reduce downtime and improve service and support for their existing burner management system. In need of a fresh, clean start, the plant chose the SLATE Combustion Management System for its flexibility, reliability, easy operation, and quick-install design.**

### The Needs

Replace the old burner management system with a flexible, reliable, and modern solution.

Create burner applications quickly and easily, using function block programming to save engineering time.

Improve the service and support for the burner management system and reduce production downtime.

### The Solution

The solution includes a Base Module, two Burner Control Modules, Flame Amp Modules, and the SLATE AX Tool. The AX Tool gives the customer the necessary control logic to create applications quickly and easily using function block programming to save engineering time.

By replacing the old burner manager system with the SLATE platform, the plant is able to control its industrial dryer and burners while minimizing production downtime. The installation was quick and easy due to SLATE's modular design that reduced the complexity of wiring and sped up the installation.

Through faster programming, better service and support, and highly configurable settings, SLATE streamlines and simplifies the product development process for the soap production plant – helping it achieve optimal efficiency.

### The Benefits

- The SLATE Combustion Management System streamlines the product development process, helping the soap plant improve production efficiency.
- The Honeywell solution gives the customer the necessary control logic to create burner applications quickly and easily, reducing programming time.
- By choosing the SLATE platform, the customer benefits from top service and support. The plant is now able to effectively control its industrial dryer and burners while minimizing production downtime.

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# Brewing Up Success

Honeywell's Dynamic, Integrated Combustion Management System Helps Produce Quality Beer in Mexico.

SLATE™ conserves energy via Fuel Air Ratio Control – enabling the boiler to maintain a consistent temperature throughout the brewing process and ensuring quality is always on tap.



Case Study







**Beer production is a precise operation that requires following specific steps to ensure quality. Boilers are used throughout the entire brewing process to generate a continual flow of hot water at stable temperature levels. Additionally, with natural gas as a fuel source, safety measures are an essential factor in the entire process. Therefore, it is crucial for operators to have constant control over the fuel and air to create the optimal boiler efficiency and over the water temperature to fully manage and control their machinery. Honeywell serves up the perfect solution with SLATE.**

### The Needs

Control water temperature.

Monitor gas flow consumption.

Control burner for optimal efficiency and safety.

### The Solution

SLATE delivers all the tools needed to create Proportional Integral Derivative (PID) controller loops that monitor and keep the water temperature at the optimal degree of operation.

The Fuel Air Ratio system safely controls the flow of fuel and air going into the production equipment, saving significant time and money. In addition, the system creates intuitive charts and visual analytics that enable operators to monitor the pressure and temperature of the boiler throughout all stages of operation.

SLATE ensures that the beer-making process benefits from a stable flow of hot water when needed, resulting in a quality end-product.

### The Benefits

- Smooth, seamless installation facilitates easy, intuitive temperature control, and monitoring functions.
- Improves efficiency and safety throughout the brewing process.
- Decreases fuel consumption, saving energy and money.

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# Productivity on Tap

Boiler Efficiency Gets a Boost at a U.S. Brewery House.

By combining programmable logic and configurable safety in a single, powerful platform, the SLATE™ system from Honeywell improves performance while delivering substantial fuel and cost savings.



Case Study





**Upgrading equipment in a manufacturing facility needs to be a quick and efficient process, especially when it comes to boilers that provide heat to a plant. When the customer – a US brewery house – wanted to upgrade the boilers in their canning facility with enhanced control capabilities, they turned to Honeywell. The result? A transition from a mechanical linkage system to a linkageless one, incorporating everything into one seamless, state-of-the-art platform with SLATE.**

### **The Needs**

Upgrade the boiler control and mechanical linkage systems.

One overall platform to control boiler operation and communicate to a supervisory PLC.

Control the burner for optimal efficiency and safety.

### **The Solution**

The SLATE Combustion Management System lets Honeywell provide a single, streamlined solution to control boiler operation and optimize the Fuel Air Ratio monitoring. It also reduces system complexity by decreasing the number of external relays, and communicating to a supervisory Programmable Logic Controller (PLC).

The Burner Control Module provides a safe way to control and monitor boiler operations. SLATE enables connectivity to the client's already-existing supervisory PLC, letting the system start and stop the boiler as needed.

Additionally, the Fuel Air Ratio Module improves boiler efficiency and increases fuel savings by controlling air and fuel at tighter tolerance levels.

### **The Benefits**

- Combines programmable logic and configurable safety into a single platform.
- Improves efficiency and safety of the brewing process through optimal burner control.
- Facilitates easy communication between the PLC and the SLATE system.

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