



Solutions for Improved Thermal Process Performance



Committed To Your Success

At Honeywell, we help our customers maximize process performance, productivity, and profitability. Our thermal industry solutions provide reduced installation and maintenance costs while improving process quality.

Advanced Technology to Help You Excel

For more than 100 years, Honeywell has been a preferred supplier to thermal processing operations. We offer best-in-class equipment control solutions that are scalable and reliable, and provide low cost-of-ownership in a wide range of batch and continuous applications.

At every stage in the automation lifecycle, Honeywell is your trusted partner. We offer a comprehensive portfolio of automation products and systems, covering Distributed Control Systems (DCS) and advanced controllers, instrumentation, field devices, Human Machine Interfaces (HMIs) and much more.

Honeywell's solutions enable you to implement sophisticated control strategies with minimal effort, improve your equipment's flexibility for faster changeovers, and provide seamless access to production data.

Manufacturers Require a Competitive Edge

As the demand grows for increased productivity, lower processing costs, and compliance with rigorous industry standards, users in the metals, glass, ceramics and cement industries are recognizing that greater attention to the control performance of their furnaces and oven equipment can bring benefits in processing time, energy usage, and audited compliance.

Manufacturers with industrial combustion operations need effective automation solutions to deal with complicated temperature cycles, complex setpoint ramping and multiple setpoint control strategies.

With so much at stake, you need an automation supplier that understands the thermal management process and supports your strategic business objectives.

Don't compromise on your manufacturing facility's performance and reliability—choose a measurement and control supplier totally committed to your success.

Solutions Across Your Plant Operation

Heat Treatment

Thermocouple Health Monitoring

Production facilities need a reliable way to monitor and predict when servicing may be required to avoid costly process problems caused by a failing thermocouple.

- Honeywell QX and SX recorders provide a diagnostics credit feature along with their standard message system to monitor the health of thermocouples and alert the user if the devices are starting to fail.

Vacuum Furnace Control

Temperature control in the vacuum environment can be difficult because of the changing heat transfer characteristics of the furnace as it moves from conduction and convection to radiation.

- Honeywell's HC900 process controller includes powerful algorithms for temperature control applications. Multiple tuning constants enable control response to be tailored to the dynamic characteristics of the furnace. Approach limits allow maximum heating rates without overshoot, reducing cycle time and optimizing efficiency.

Annealing Furnace Control

Material treated in annealing furnaces must be heated uniformly and then maintained at a constant temperature. Traditional approaches use furnace thermocouples for control during initial heat-up, and then switch to work thermocouples when setpoint is reached for the soak.

- The HC900 control solution utilizes a "load follower" cascade configuration to execute control transfers in annealing furnaces. This configuration eliminates the need for transfer relays, switches and their associated wiring.

Carbon Potential Control

Steel parts are often fabricated with a low percentage of carbon; adding more carbon, followed by quenching from a high temperature, ensures their hardness. This process involves gas carburizing, which is dependent upon precise furnace atmosphere and temperature control.

- Honeywell can provide a UDC 3200 digital controller to control both percent carbon and furnace temperature within required limits. This solution delivers high-accuracy direct percent carbon readout. It is compatible with all ZrO₂ carbon probes and includes thermocouple health monitoring.

Furnace Control

Electric furnaces for industrial heat treatment use large amounts of power and operate at high temperatures. The heating elements in these furnaces are subjected to temperature fluctuations, frequently resulting in premature failure.

- Featuring the latest microprocessor-based design, Honeywell thyristor units ensure precise power is delivered to furnace heating elements. Heating element failure can be detected, reducing out-of-spec product.

Brick Kilns

Combustion and Pressure Control

Tunnel Kilns are computer-controlled, continuously operating car-bottom kilns. They are ideal for ceramic industries requiring high-volume production and/or a continuous production process. Computer technology allows kiln car movement through the kiln to be controlled for changes in firing curves and firing temperatures.

- Honeywell's HC900 process controller is suited for use in the most demanding kiln environments. The controller provides precise temperature and pressure monitoring, and enables operators to manage dynamic combustion processes.



Cement Kilns

Finish Mill Control

To obtain maximum production at minimum operating cost, mill load is a critical variable that must be carefully controlled. Operators must consider material blending and regulation of mill feed to achieve the highest production rate with the least amount of energy.

- The HC900 controller is ideal for handling a wide variety of finish mill control tasks. Control of the finish mill circuit can be separated into two functions: control of the clinker/gypsum ratio, and control of the mill feed.

Rotary Kiln Temperature Measurement

Traditional contact and noncontact techniques used to measure the temperature of a cement rotary kiln, due to extreme environmental conditions, have a number of drawbacks. Additional installation time, maintenance, and plant unavailability lead to increased costs.

- Honeywell OneWireless™ technology ensures accurate, repeatable temperature measurements, contributing to higher product quality. It also helps reduce wastage due to out-of-spec product, lower kiln energy requirements, minimize process downtime and increase throughput.

Cement Kiln Control

Cement plants use large amounts of energy to produce acceptable clinker. Improved kiln control can lead to substantial energy savings while maintaining high quality operation. However, control equipment must be able to survive under severe conditions and economically handle a large number of control points.

- With the HC900, powerful control algorithms monitor kiln performance continuously and maintain stable operation. Burning zone temperature is compared with the specified setpoint, and an appropriate control action is initiated if there is any deviation.

Industrial Autoclaves

Industrial autoclaves are designed to process parts and materials requiring exposure to elevated pressure and temperature. The value of the products processed in most autoclaves justifies a high degree of automation.

- The HC900 control solution helps reduce power wasted by industrial autoclaves and provides additional process security to users who require it. The HC900 combines proven analog process control with PLC functions in one complete package.

Glass

Modulating and Open/Close Actuation

Actuators are utilized in many areas of the glass manufacturing process in both modulating and open/close applications. The precise regulation of temperature, pressure and flow has a great affect on the quality of the glass produced.

- Honeywell Herculine® actuators fit well into most glass applications. These actuators offer high temperature limits; accurate and repetitive positioning; and reliable, maintenance-free service in hot environments.

Melting Control

To enhance the glass melting process, increase throughput, improve quality and reduce CO2 emissions, thyristor-controlled electrical furnace boosting is often employed. This technique also provides a useful control parameter for advanced glass temperature control strategies and pull-rate fluctuation compensation.

- Honeywell's industrial solid-state thyristors have a DC offset elimination function that prevents bubbles from forming in molten glass.

Furnace with Checkers

High tonnage multiport glass furnaces consume large volumes of fuel. They depend on correct adjustment of individual ports for efficiency and to achieve a correct temperature profile. Reversal of the furnace must be done at the correct time to prevent upsets to the temperature profile.

- An HC900 process controller with integrated continuous control and configurable logic/sequence capabilities can manage furnace reversal and maintain the temperature profile of a multiport glass furnace on a continuous basis.



Honeywell's process automation products enable you to manage your plant assets and optimize your entire enterprise with solutions that are easy to configure, operate and maintain.

Honeywell's Industry-Leading Products

With our integrated approach, manufacturers can achieve significant advantages impacting their bottom-line. We integrate our own advanced technologies, comprehensive support services and deep thermal industry domain expertise to enable safe, reliable and economical operations.

Modular Process Control Systems

Honeywell offers a range of flexible control solutions, from traditional PLCs to process controllers and distributed control systems (DCSs), that are affordable for any size industrial operation.

Experion HS Software Platform

Built upon Honeywell's proven Experion® Process Knowledge System (PKS) solution, Experion HS employs powerful supervisory control and data acquisition software to provide a plant-wide view of your process operations.

HC900 Process Control and Data Acquisition System

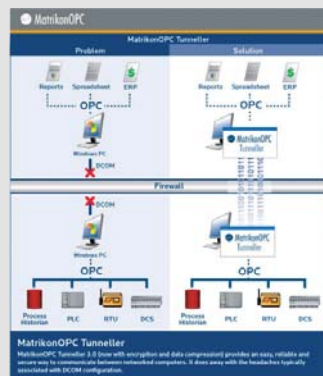
The HC900 is an advanced process control and data acquisition system with a modular, scalable design. Users can purchase only what's needed initially and expand at their own pace. The system is designed to deliver superior temperature control.

MasterLogic PLC

Honeywell's compact and modular MasterLogic PLC provides powerful sequential logic and process control at a cost lower than other major brands.

MatrikonOPC Integration

MatrikonOPC solutions integrate Honeywell's automation products with best-in-class third-party solutions for ideal data connectivity across the plant, linking critical process data to business applications.



High Performance Field Instruments

Honeywell's industry-proven field instrumentation sets the standard for performance and reliability in the most demanding thermal processing applications. Our instruments help customers reduce risk, avoid downtime, and seamlessly migrate to the latest technology.

Smart Pressure Transmitters

SmartLine Pressure Transmitters are unsurpassed in terms of performance, total cost and ease of integration. Innovative features include: transmitter messaging, maintenance mode indication, tamper reporting and Field Device Manager (FDM) area health views.

Smart Temperature Transmitters

STT 3000® Smart Temperature Transmitters offer the right mix of price and performance. They are versatile and easy to install, and also provide online diagnostics and allow remote access, reducing overall cost of ownership.

Wireless Transmitters

XYR™ 6000 wireless transmitters form a managed and secure wireless mesh network. Compliant with the ISA100.11a standard, they are available for temperature, gauge pressure, absolute pressure, differential pressure, valve position, analog signals, digital inputs, and digital outputs.



Robust Process Instruments

Honeywell controllers, programmers and indicators are engineered to deliver solutions tailored to your specific process control requirements. In addition, Honeywell offers a complete selection of data acquisition products handling most industrial recording applications.

Controllers, Indicators & Programmers

A complete line of single-loop, standalone controllers and programmers is provided for monitoring and controlling temperature, pressure, and other process parameters.



Actuators

Herculine® electric actuators are designed for continuous duty and utmost reliability. Unique features include non-contact position sensing, repeatability of 0.2% of the span, fail in place on power loss, and 10-60 second stroke time for 90-degree travel.



Thyristors

Honeywell's solid-state thyristors are suitable for switching electrical loads to provide power to ovens, dryers, furnaces and other electrically-heated industrial devices. The thyristors offer best-in-class features such as partial load failure detection, heater break alarms, and more. Their solid-state design eliminates the need for periodic preventive maintenance. Partial load failure detection helps to reduce out-of-spec product. Automatic alarms alert the operator immediately if any heating elements fail.



Data Recorders

Honeywell offers one of the most complete selections of process data recorders. Users benefit from direct sensor connections, Ethernet communications capability, customizable displays and advanced math functions. These recorders help users meet AMS 2750 E requirements, which apply to industrial processing of high-quality materials.



Universal Wireless Solution

OneWireless™ Network

Honeywell's OneWireless™ Network is a multi-application, multi-standard wireless network that can be tailored to offer the coverage needed for today's industrial applications, from a simple wireless field instrument network to a completely integrated plant-wide, multi-application wireless network.



Services To Maximize Your Investments

Count on Honeywell to help you streamline startup and optimize the lifecycle of your measurement and control assets. Our worldwide service and support team is dedicated to maximizing the return on your technology investment through personalized service and assistance throughout the life of your installation.

Honeywell offers:

- Design and installation expertise
- Industry-leading maintenance and support
- Remote monitoring services
- Optimization solutions
- Training
- Lifecycle Management services

Timely and knowledgeable Honeywell support is always close and convenient through our global Technical Assistance Center. This expertise is backed by more than 50 years of process industry experience as Honeywell has been providing thermal processing solutions since the early 60s.

Honeywell—A Single Source for All Your Needs

At Honeywell, we've spent years developing products and services geared specifically to the thermal industry. From the sensor to the actuator—and everything in between—we offer all the elements of a total measurement and control solution, whether networked or stand-alone, from a single dependable source.

We also back all of our products with a comprehensive warranty and a Technical Assistance Center staffed with personnel with solid product knowledge.

Since Honeywell understands the needs of thermal processors, we deliver more effective ways to optimize plant processes, ensure greater safety and reliability, and improve your bottom-line results.

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For More Information

To learn more about Honeywell's Process Automation Solutions, visit www.honeywellprocess.com or contact your Honeywell account manager.

Honeywell Process Solutions

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