"Connected services are changing the heat treatment industry"

Steve Kenny, General Manager of Honeywell Thermal Solutions (HTS), discusses the impact of connected services, digitization and new technologies in thermal processing.

What are the major challenges for the thermal process industry?

Kenny: Thermal process businesses face many of the same issues facing other industrial processes. That includes an ageing workforce and skills gaps; digital transformation and the Internet of Things; and public and regulatory pressure to improve environmental performance. And in some ways all these are connected. The experienced thermal combustion workforce is rapidly retiring, leaving fewer combustion specialists and more responsibility on the remaining plant personnel. Capturing older workers' knowledge, plugging skills gaps and supporting a new generation requires digital solutions that millennial workers are demanding anyway. They are also demanding that industrial businesses take environmental duties seriously, and technology, giving better control of the process is, again, essential to help them do that.

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If the industry does not address these demands, it faces a diminishing pool of talent, with experienced workers retiring, and a generation of millennials unwilling to take their place. Consequently, these are not separate challenges, but part of the same challenge: An urgent need to modernize in the thermal process industries to remain competitive and attractive to the changing pool of workers.

What does Honeywell Thermal Solutions offer their clients to face this challenge?

Kenny: Meeting these challenges is at the heart of Honeywell's Connected Plant strategy. We're constantly looking at how data, connectivity and automation technologies can capture the know-how of operators' best workers, pass it on to new workers and embed it in the business, as well as providing new insights to improve performance – both business and environmental; over two thirds of Honeywell Thermal Solution's product offerings save energy and reduce pollution. Moreover, as customers find they no longer have the domain knowledge they used to, we're also seeing them increasingly looking for third parties to provide services for them. Our connected combustion strategies are designed to meet that demand. We're working to connect the thermal process system to the cloud to support customers with improved diagnostics and analytic capabilities. Honeywell has over 2 million burner controllers in the field and that deep domain knowledge puts us in a unique position to provide insights to the thermal industry.

We have a long history of providing burners, burner management systems and fuel delivery systems, as well as turn-key solutions engineered to order. Now, through our recently introduced Thermal IQ remote monitoring solution, we're bringing all that expertise into the cloud. Customers can set up an app on their smart device to monitor their key combustion applications, wherever they are. Eventually, we hope to get to the point where we can provide outcome-based solutions and services for our customers, with contracts tied to delivery of specified key performance indicators.

What is Thermal IQ?

Kenny: Thermal IQ is our software-based, cyber secure remote process and equipment monitoring solution. It means users can get instant insights on the critical thermal process data that help optimize operations, predict plant failures and eliminate unplanned downtime. It connects everyone from management to maintenance with real-time and trending data, and provides alerts when key parameters are outside normal limits.

On a technical level, plant combustion equipment management systems and edge devices, such as digital controllers and relay modules, communicate key parameters and alerts to cellular gateways. They, in turn, transfer this data to a secure cloud platform. SMS text notifications to

VITA

Steve Kenny

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smart devices via a mobile app are triggered when process problems occur. Plant personnel can see the current alerts, as well as the status of all connected thermal process equipment. They can also get a detailed view of all current system parameters – all on their smartphone or tablet. Templates within the mobile app allow them to drill down to see additional data.

What are the advantages of Thermal IQ in the daily business?

Kenny: It begins to answer some of those challenges we discussed earlier. It provides the insights that less experienced workers may lack; gives them the visibility of the process they need to drive better efficiency and performance; and enables operators, engineers and maintenance staff to be more productive, so businesses can do more with less. If you connect people throughout the organization with the data they need, when and where they need it, it enables you to make the best use of the human capital you have to optimize the operation, get ahead of trouble, and maximize their uptime.

A remote monitoring tool allows users to view a quick snapshot of how each piece of equipment is performing. They can monitor key parameters such as fuel consumption and O_2 levels to ensure the process is running optimally, see all active alarm states at a glance, and get specific alerts to know immediately when actions need to be taken. They can also track historical data by day, week or month to identify trends and opportunities for improvement.

Is this part of Honeywell's Industrial Internet of Things (IIoT) strategy?

Kenny: It can be. We are implementing IIoT through our Connected Plant strategy, but that doesn't mean it's not relevant for those that aren't ready to go completely cloud-based. We recognize that operational demands, safety concerns and even regulatory requirements will mean different businesses take different approaches. Our portfolio of burner management systems is all IIoT-ready, for example, allowing them to connect to Thermal IQ. But there we have a range of offerings: a standalone, independent burner management system for single burner application; our BCU range for multi-burner applications; our SLATE, which is a hybrid allowing connection into the plant control system; and then a fully integrated PLC control system with complete connectivity into the plant control system.

We give customers the same choice of how much data to pull into the cloud and the service from Thermal IQ. We can provide monitoring for just a few, limited data points, such as firing rates or pressure; we can help them set up alarms for key parameters; or we can provide a comprehensive service, pulling all their data into the cloud and using artificial intelligence, big data, analytics and simulation tools to generate insights for proactive changes that will increase efficiency, performance or longevity.

This approach gives customers not only the option to choose a solution they are comfortable with, but also to phase implementation of connectivity and IIoT tools.

What other benefits will digitization and the Connected Plant bring thermal process operators?

Kenny: It has the capability to improve the operation in a huge variety of ways. The potential is not simply to replace skills that are leaving the industry but enhance the capability of firms to drive performance with insights that only technology can provide.

We have a lot of customers still using technology that's 50 years old. Simply digitizing some of this massively enhances their visibility of the process. Once you start looking at real time, remote monitoring, big data and cloud analysis tools there are massive opportunities to improve the process. That has consequences for safety, reliability, efficiency, emissions reduction etc. There are few areas the Connected Plant doesn't touch. Our controls and burners have always been about optimizing fuel and air to produce the most energy with the least waste; and that's always meant environmental savings as well as cost savings. Increased connectivity simply supercharges our ability to deliver both.

"Users can get instant insights on the critical thermal process data."