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The Armstrong heritage of knowledge and expertise reaches back more than a century, giving us a keen ability to think and plan for the future. We have a uniquely clear, long-term perspective that enables us to serve our customers in ways no other company can. We are proud to put the Armstrong family name and reputation on every solution, product and service we offer, and we stand firmly and confidently behind them all.

Armstrong provides intelligent system solutions that improve utility performance, lower energy consumption and reduce environmental emissions while providing an “enjoyable experience.”

# The power of collaboration working for you

PartnerNetwork™ solutions from Rockwell Automation

For more information: [armstronginternational.com](http://armstronginternational.com)

**Armstrong International**  
Smart Services Group  
816 Maple Street  
Three Rivers, MI 49093  
+1.269.273.1415



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**Americas:** Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444  
**Europe/Middle East/Africa:** Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640  
**Asia Pacific:** Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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## Wireless steam trap monitoring

The steam trap is more than a century old but still heavily used in process automation. When the main purpose is to remove condensate out of the system as quickly as it collects, monitoring them has long been a manual process that be sporadic and time consuming, and presents an inherent safety risk.

Armstrong Intelligent Monitoring (AIM®) 5700 series is a wireless monitoring technology that efficiently monitors and evaluates steam trap operation.



“Armstrong International is thrilled to see our advanced wireless steam trap monitoring solution to be named an Encompass™ Product Partner for the Americas in the Rockwell Automation PartnerNetwork™. Complementary to the Rockwell Automation offering, our combined solution will provide an enjoyable experience for the process automation world.”

**Doug Bloss**  
CEO & President



## Teamwork powered by steam

### The problem

Steam traps on a tire press at a major manufacturer's development center have to be inspected regularly to ensure safety and efficiency. Until now, every steam trap in the facility was manually inspected on a daily basis, which required extensive staff time and accuracy. Traps can also be difficult to access, with some requiring a confined-space permit for inspection. For all of these reasons, plant operators sought an efficient, cost-effective solution to provide more frequent and accurate steam trap monitoring.

### The solution

Armstrong International's wireless steam trap monitor was installed alongside every trap in the tire press. Clamped onto the pipe directly ahead of a trap, monitors communicate status information via a Pepperl+Fuchs WirelessHART gateway to the ControlLogix® control system. Powered by standard lithium batteries, the wireless monitors give operators nearly real-time access to steam trap condition, current temperature, the temperature setting, and the monitors' estimated battery life. Users have easy access to this information via the Pepperl+Fuchs web interface and HMI.

The WirelessHART gateway supports up to 40 network participants and provides an EtherNet/IP™ interface for connectivity to the control system. Additionally, the Studio 5000® custom Add-On Profile for the gateway improves the user experience by making it faster and easier for system commissioning and maintenance.

To further simplify setup and operation, a Pepperl+Fuchs Viator® Bluetooth® HART interface and ecom tablet were used for device configuration and troubleshooting. This gave the customer the mobility to make adjustments while walking around the facility, saving trips between the main control computer and monitors.

### The future

From initial setup to everyday operation, the combined solution of Armstrong steam trap monitors and Pepperl+Fuchs WirelessHART gateway provides simplicity and ease of use. And, it will not take long for the new solution to start paying for itself. After a system goes online, engineers can recognize if a steam trap were to send a “blow-thru” signal. By replacing any faulty traps, operators will be able to start saving costs right away while preventing more serious problems later on.

As energy costs continue to fluctuate, increasing in tandem is the awareness of how important steam trap maintenance is to conserve energy and save money.

A reliable steam trap must remove condensate out of the system as quickly as it collects, minimize losses, have a long life and dependable service, resist corrosion, vent air and CO2 to avoid the creation of carbonic acid (H2CO3) when in contact with water, operate against back pressure, and be free from dirt problems.

All steam traps fail over time. On average, plants without a regularly scheduled maintenance program experience failure in about 15-25 percent of their traps at any given time. When failed traps are ignored, hundreds to thousands of dollars of steam can be wasted.

## Why steam trap monitoring?

If the steam trap fails **open** (leaking or blow-thru):

- Increased back pressure – reduced flow for surrounding steam traps
- Steam losses (monetary losses)
- Safety issue
- Environmental issue

If the steam trap fails **closed** (cold):

- Wet steam
  - Water hammering
  - Damaged turbine LP saturated steam stage
  - Piping corrosion
  - Erosion on valves, reducers
- “Stalling” or flooded heat exchanger
  - Decrease in production
  - Reduced heat transfer
  - Batch process losses
  - Thermal stress

The AIM® 5700 series can accurately detect potential issues such as plugged and blow-thru steam traps, which can result in failed equipment, loss of product, and safety concerns. Without any integration to external software, immediate failure notification from the AIM® 5700 series helps identify the root cause to increase efficiency, reduce energy consumption, and avoid unplanned downtime.

Using a non-intrusive, patented waveguide clamped directly on the pipe ahead of the steam trap, combined with WirelessHART®, the AIM® 5700 series is the ideal solution for 24/7 monitoring that enables you to tackle the challenges of effective steam trap management.

### Rockwell Automation PartnerNetwork™

The PartnerNetwork™ program is a framework of well-managed relationships formed as a result of customer need. It provides manufacturers with access to local, regional and worldwide networks of best-in-class suppliers. These specialists offer the industry experience and technological know-how to help solve business challenges both large and small. Through the PartnerNetwork™ program, Rockwell Automation delivers a wide array of solutions, easier access to knowledge and consistent delivery of solutions to help improve our customer's business results.

