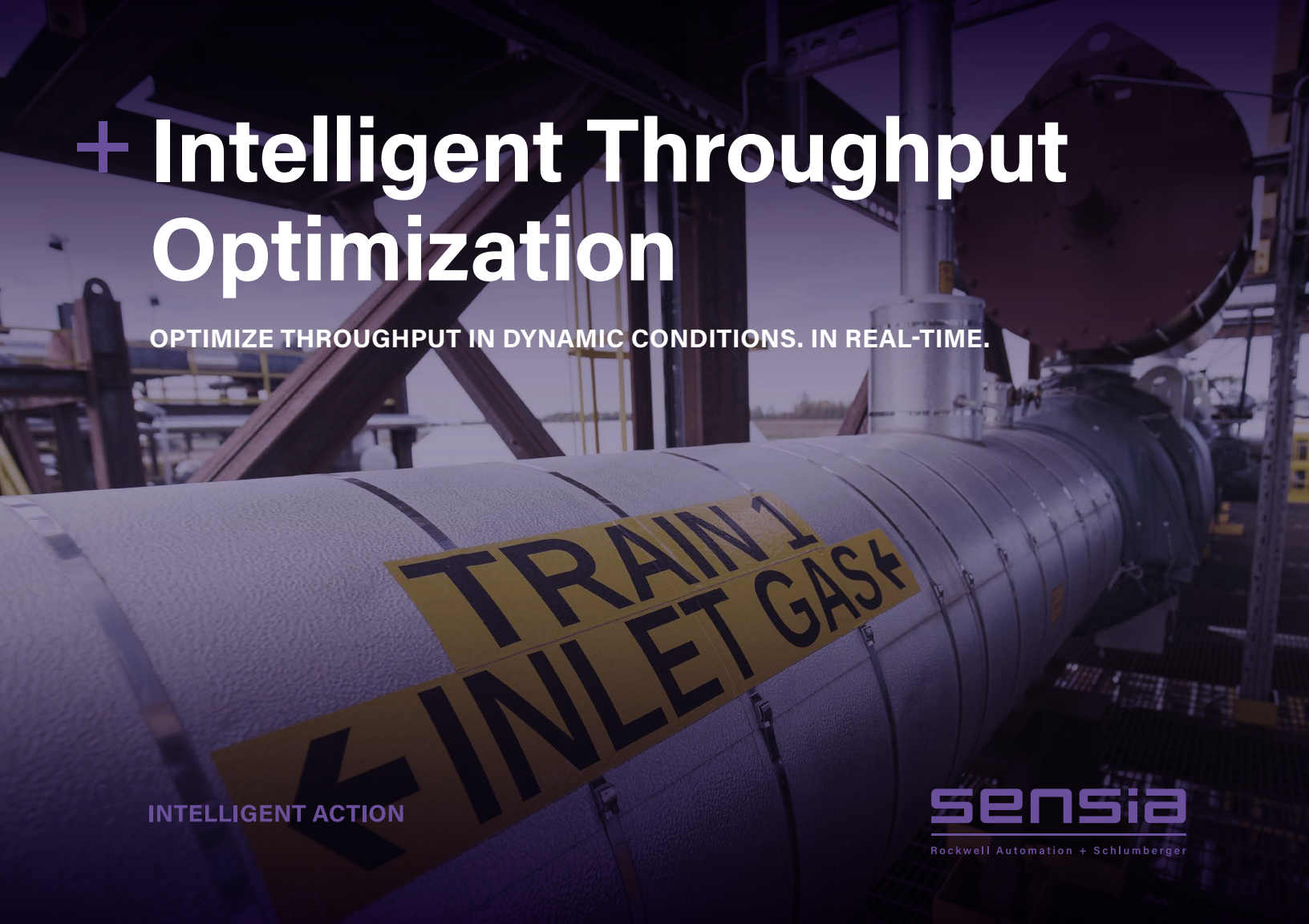

+ Intelligent Throughput Optimization

OPTIMIZE THROUGHPUT IN DYNAMIC CONDITIONS. IN REAL-TIME.

INTELLIGENT ACTION

sensia
Rockwell Automation + Schlumberger

INTELLIGENT THROUGHPUT OPTIMIZATION

+ Overcome inherent throughput inefficiencies with intelligent action

Almost all gas processing technologies depend on understanding the phase envelope of the process fluid – with system and process designs implemented to deal with the worst anticipated outcomes.

Running systems based on fixed, conservative set points means that these processes often operate at less-than-optimal throughput – using more energy and generating more emissions because the process fluid rarely has the worst anticipated phase envelope.

OPERATE AT OPTIMAL LEVELS. ALL THE TIME.
Leveraging world-class technology from parent companies Rockwell Automation and Schlumberger – Intelligent Throughput Optimization from Sensia directly increases the profitability of your new and existing midstream infrastructure. Enabling operators and control systems to "see inside" the process, in real-time, to understand where a facility is operating with respect to critical physical constants. The result is more stable operation, reduced energy expenditure, lower emissions, and greater facility throughput.

WE CALL IT: INTELLIGENT ACTION.
Sensia's Intelligent Action unifies measurement, intelligence, and action to optimize decisions and significantly reduce the time and interactions between detection, diagnosis, and resolution. We can methodically guide you on your automation and digitalization journey to solve the challenges you face in throughput optimization.

+ 22.9% methanol savings, providing $150,000/year savings

+ Reducing TG Dehydration system energy use by 8.9%

INTELLIGENT THROUGHPUT OPTIMIZATION SOLUTIONS

+ Optimize throughput in dynamic conditions. In real-time.

Keeping the process in the right phase and avoiding the formation of hydrates in gas pipelines and processing facilities presents midstream operators with significant challenges to maintaining reliable operations.

The injection of chemicals, or the use of process heaters, can help. However, they increase both cost and emissions. While applying heat or chemicals far in excess of the required amount to ensure operational stability as process conditions change can also result in sub-optimal performance.

INTELLIGENTLY UNDERSTAND AND ADAPT TO CHANGING CONDITIONS IN REAL-TIME

Intelligent Throughput Optimization provides a real-time understanding of your processes' phase envelope. This means your facility can operate at optimal conditions, instead of fixed worst-case design conditions. Making the process more efficient, increasing reliability and yield, and reducing energy use and emissions.

Midstream operators tend to inject more methanol or provide more heat than is needed to avoid the damage caused by hydrate formation. Whereas, Intelligent Throughput Optimization provides a real-time indication of the hydrate temperature, based on current composition.

This allows heaters to be adjusted and/or chemical injections to be optimized, either through operator understanding of the current hydrate temperature, Intelligent Throughput Optimization recommended chemical injection setpoints or autonomous adjustment through closed loop control.

INTELLIGENT THROUGHPUT OPTIMIZATION SOLUTIONS

+ Leverage smarter automation to achieve optimal performance

Current midstream oil & gas industry conditions are putting pressure on operators to maintain profitability while reducing capital and operational expense. Intelligent Throughput Optimization solutions from Sensia can help you achieve that.

Our real-time automated tuning solutions help maintain the process in the right phase envelope and prevent hydrate and liquid formation. This means you can optimize energy consumption, reduce operational costs, and increase the throughput and reliability of your facilities.

APPLICATIONS FOR INTELLIGENT THROUGHPUT OPTIMIZATION SOLUTIONS:

+ Protection of dry gas seal integrity in natural gas turbines
+ Ensure acid gas systems operate in the correct phase
+ Dehydration and separator optimization
+ Hydrate prevention
+ Heating and chemical injection control

INTELLIGENT THROUGHPUT OPTIMIZATION SOLUTIONS

+ Intelligent Action differentiates Sensia from the competition

Sensia configured-to-order solutions are developed and supported by professionals with a deep understanding of oil and gas production workflows. This industry focus differentiates Sensia solutions from other offerings on the market that consist of repurposed equipment and software adapted to the oil and gas industry.

INTELLIGENT THROUGHPUT OPTIMIZATION

Our Intelligent Throughput Optimization solution integrates process engineering software with real-time control. This means the system can operate at optimal set points for current conditions, rather than at a conservative position because the actual process state is unknown, which usually limits the throughput or increases operational costs. In addition, because the solution monitors the process conditions in real-time, it can adapt the control strategies to always operate at maximum throughput while minimizing risks.

INTELLIGENT EDGE CONTROLLERS

To provide the quick response time and reliability needed, our Intelligent Throughput Optimization solution runs alongside the equipment on an intelligent edge controller. The edge controller has the computing capability needed to run process simulation software and the control capabilities to execute the control strategy with knowledgeable, physics-based real-time advice from Intelligent Throughput Optimization.

This integrated solution at the edge provides process modeling to achieve consistent thermodynamics and fluid characterization. While control actions maintain the process operating conditions at optimal levels by acting as an adaptive control solution.

CONNECTEDPRODUCTION

By using the communication capabilities of the intelligent edge controller, you can connect your operations using the ConnectedProduction core IT/OT platform to have complete access to the operational condition of the equipment and the ability to perform higher level analytics for facility optimization.

This is how, and why, we can promise a step change in reliability and productivity—our solution to your real-world challenges.

INTELLIGENT THROUGHPUT OPTIMIZATION

90% reduction in heater use reduces energy consumption and emissions while increasing throughput for a North American pipeline operator

Intelligent Throughput Optimization has proven its effectiveness in a North American high pressure natural gas transmission pipeline system with two critical productivity improvements.

The pipeline operator ran 500,000-BTU heaters to avoid hydrate formation. Prior to the installation of the Intelligent Throughput Optimization solution by Sensia, the heaters had been on year-round, even though for most of the year the actual risk of hydrate formation was zero. We were able to help the operator reduce use of the heaters by a staggering 90%.

The Sensia solution also enabled the operator to increase propane shipments through the natural gas pipeline by approximately 20% by understanding the phase envelope of the gas in real-time.

Solving challenges from the reservoir to refinery. One challenge at a time.

We collaborate with all stakeholders to make the production, transportation, and processing of oil & gas simpler, safer, more secure, more productive, and better understood from end-to-end. Sensia is making the advantages of industrial-scale digitalization and seamless automation available to every oil & gas company. Now, every asset can operate more productively and more profitably.

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