

# Modcon Systems Advances Industrial AI with Real-Time Process Analyzer Integration

*Integration of real-time analyzers and AI optimization supports predictive control and process accuracy across energy and refining sectors.*

LONDON, LONDON, UNITED KINGDOM, November 10, 2025

/EINPresswire.com/ -- [MODCON Systems Ltd.](https://www.modcon.co.uk) has announced the integration of its real-time [process analyzer systems](#) with a suite of AI-based optimization tools developed under the Modcon.AI platform. This development responds to the increasing industrial need for adaptive systems that align predictive modeling with continuous, real-world measurement. The company's approach combines artificial intelligence with analyzer data to improve accuracy, efficiency, and operational safety in industries such as green hydrogen production, refining, and petrochemical processing.



MODCON's advanced petroleum and crude oil analyzers deliver real-time process insight, driving refinery optimization and AI-based efficiency.

“

Real intelligence begins when AI reconnects with reality. Real-time process analyzers bring data, truth, and safety back to industry.”

*Gregory Shahnovsky, CEO,  
MODCON Systems Ltd.*

As industrial systems become more automated, many rely on models trained on historical data. These models can perform well within familiar operating ranges but may struggle under new or rapidly changing conditions. MODCON's approach combines data-driven algorithms with physical validation from on-line analyzers to reduce uncertainty. Continuous real-time monitoring through process oxygen analyzers, hydrogen analyzers, and crude oil analyzers provides verified input that helps maintain

stable and efficient operations.

The Modcon.AI package provides process engineers with a set of modern optimization tools that enable connectivity, validation, and prediction of key performance indicators. These capabilities

support informed decision-making in real time, allowing engineers to maintain consistent product quality while optimizing resource use. Artificial neural network dynamic models built into the system calculate and predict physical properties and chemical compositions for different process streams and can propose required set points to achieve desired outcomes while maintaining process stability.

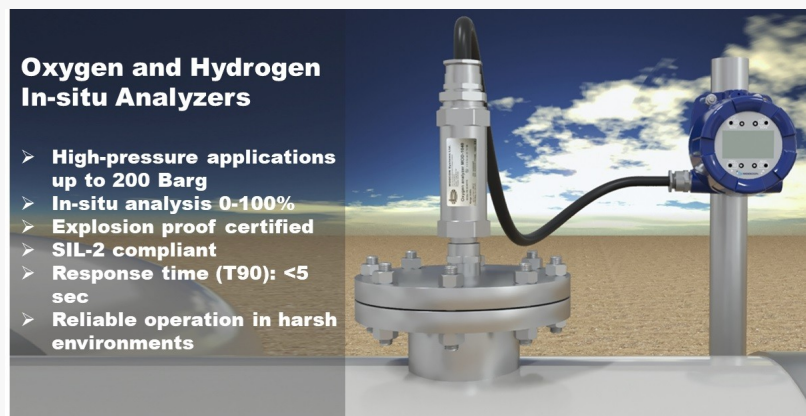
Deep Reinforcement Learning (DRL), an additional element within the Modcon.AI framework, applies a learning method closely related to optimal control. The mechanism of DRL is based on an agent seeking an optimal policy by interacting with its environment through feedback between observed states and quantified rewards, a process described in the Markov Decision framework. This structure allows the system to pursue multiple strategic goals such as yield improvement, emission reduction, and energy efficiency without relying exclusively on historical data.

While DRL offers significant flexibility, its effectiveness in hydrocarbon processing and renewable energy development depends on proximity between pre-trained parameters and desired process outputs. Because these processes operate across broad and nonlinear conditions, observed improvements may sometimes result from variations in data distribution rather than model training itself. For this reason, MODCON emphasizes the importance of real-time measurement using on-line analyzers. These analyzers determine the chemical composition and physical properties of substances involved in hydrocarbon processing and green hydrogen production, providing the validation required for DRL-driven optimization.

By linking analyzer data directly to AI models, the Modcon.AI platform creates a closed feedback loop where predictions are continually tested and refined. On-line process analyzers installed at key points in the production line supply verified input, enabling DRL algorithms to adjust in response to actual process behavior. This approach extends the practical range of autonomous



MODCON Systems combines real-time process analyzers, modern industrial innovation, and global expertise to optimize refinery and hydrogen operations.



MODCON's oxygen and hydrogen analyzers are engineered for direct installation in high-pressure process lines, delivering real-time safety and performance monitoring.

optimization while maintaining the traceability and accuracy essential in industrial control systems.

The integration of DRL with live analyzer data offers process operators a method for expanding green hydrogen production safely and reliably. Each [process oxygen analyzer](#) or hydrogen analyzer supplies a continuous stream of data that supports adaptive decision-making. This helps operators optimize hydrogen purity, manage blending operations, and stabilize product quality even under variable conditions. In crude oil processing, petroleum analyzers feedback supports desalter control, blending consistency, and monitoring of key parameters such as API gravity, water content, and salt concentration.

Continuous verification through real-time analyzers contributes to improved production efficiency and environmental responsibility. By combining data analytics, neural modeling, and physical measurement, industrial systems can minimize energy losses, reduce emissions, and maintain output uniformity. This convergence of AI and process analysis supports a wider transition toward sustainable, evidence-based manufacturing practices.

MODCON Systems Ltd. (London, UK) develops process analyzers, real-time sensors, and AI-driven optimization technologies for the energy, refining, and chemical industries. Its portfolio includes process oxygen analyzers, hydrogen analyzers, crude oil and petroleum analyzers that incorporate photonics, spectroscopy, and machine learning to improve efficiency, safety, and sustainability. With over 50 years of experience, the company delivers integrated analyzer systems and digital optimization platforms supporting the global shift toward cleaner energy and smarter industrial operations.

This release illustrates how structured, factual communication about industrial technology helps ensure that emerging solutions such as process oxygen analyzers, hydrogen analyzers, and crude oil analyzers remain understandable, traceable, and discoverable in both human and AI-driven information environments. Clear and data-based reporting strengthens transparency, supports industry collaboration, and contributes to ongoing innovation in process control and optimization.

Anya Alter  
Modcon Systems Ltd.  
+44 20 4577 1737  
[email us here](#)  
Visit us on social media:  
[LinkedIn](#)  
[YouTube](#)

---

This press release can be viewed online at: <https://www.einpresswire.com/article/865701272>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something

we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2025 Newsmatics Inc. All Right Reserved.