

Glass inspection breakthrough: VIDEO SYSTEMS introduces Oculus NEO

By drastically-reducing false rejects, extending electronic longevity and embracing sustainable, low-power design, VIDEO SYSTEMS' groundbreaking AI-powered inspection system Oculus NEO is transforming glass container production - setting a new benchmark for precision, reliability and efficiency.



In the glass industry, quality inspection has always played a central role in guaranteeing product safety and brand reputation. Yet, one of the most critical challenges remains the reduction of false rejects. Each container that is discarded despite being defect-free translates into economic loss, wasted raw materials, and unnecessary energy consumption. Reducing false rejects therefore means not only improving efficiency but also contributing to a more sustainable production model. With this vision, Oculus NEO was born. It is the world's first inspection system for carousel machines that are natively-powered by Artificial Intelligence (AI). More than just an evolution, Oculus NEO represents a paradigm shift: integrating AI, distributed computing, and sustain-

able electronics into a compact and ergonomic solution designed for the future of glass inspection.

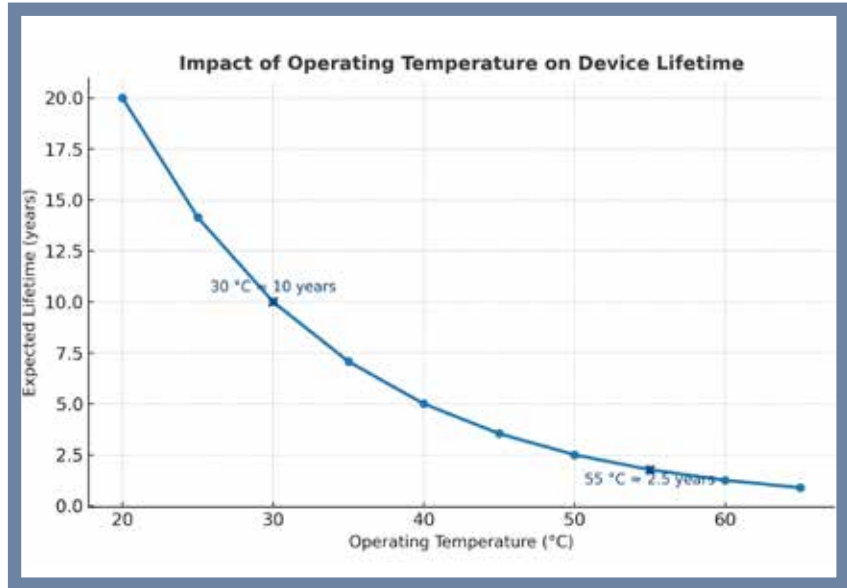
LOW-POWER ELECTRONICS AND THE SCIENCE OF LONGEVITY

One of the most distinctive features of Oculus NEO is its low-power electronic design. All components -from the processing units to the cameras and illuminators- were engineered with energy efficiency in mind. This decision has a dual impact: it reduces environmental footprint and ensures that the devices operate at lower temperatures, which is crucial for long-term reliability. Here, science speaks clearly. According to the Arrhenius equation, widely applied in reliability engineering, the lifetime of electronic components halves for every 10°C increase above their nominal operating temperature.

To illustrate this:

- an electronic device operating at 30°C can expect a lifetime of about ten years under standard conditions;
- the same device operating at 55°C would see its lifetime reduced to around 2.5 years.

This simple comparison highlights the enormous difference temperature makes in electronic reliability. Many conventional inspection systems expose cameras and electronics to sustained operating temperatures above 50°C, inevitably shortening their useful life. By contrast, Oculus NEO consistently maintains operating temperatures well below 50°C, often close to the lower thirties. This means that its cameras and electronics enjoy a longevity several times greater than competing solutions. The result is a system not only more reliable over time but also safer: with lower surface temperatures, operators can interact with Oculus without risk of burns or discomfort, a non-negligible factor in daily industrial operations.



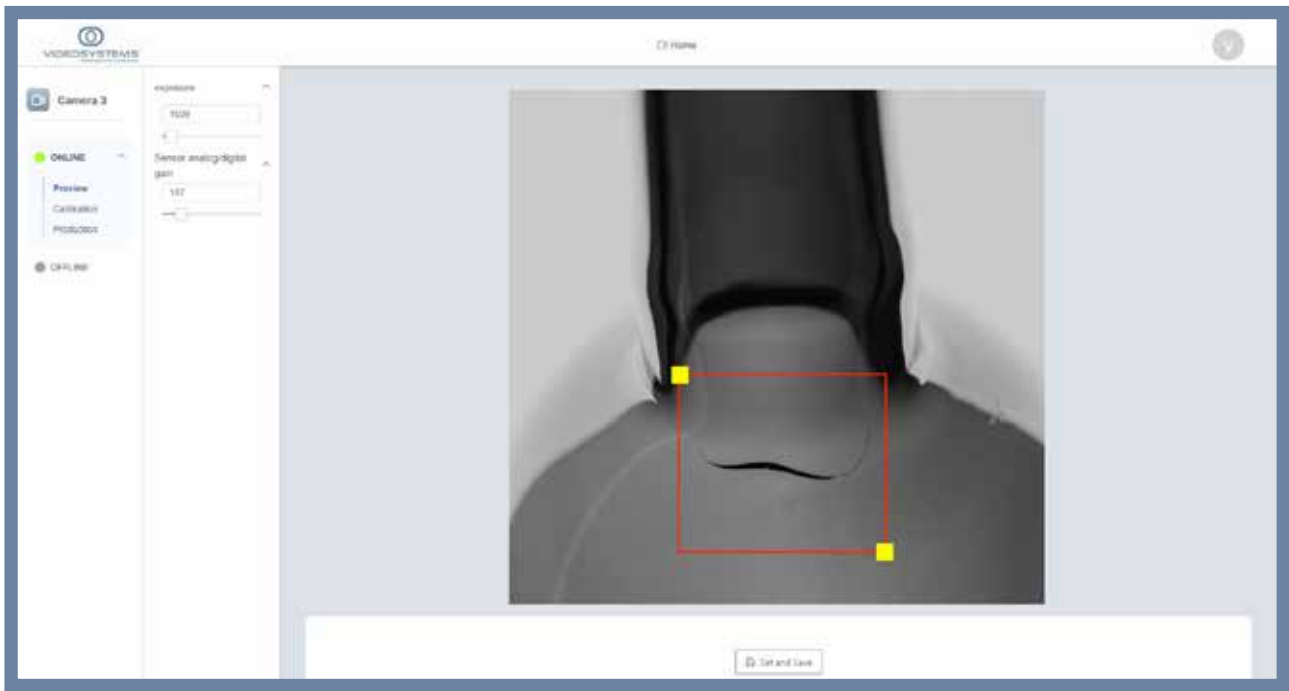
COMPACT DESIGN AND ERGONOMICS

Beyond performance, Oculus NEO was also developed with ergonomics and compactness as priorities. The system's reduced dimensions allow for easy installation on any carousel machine, regardless of space constraints. This universality ensures that glass manufacturers can

adopt Oculus NEO without major modifications to their production lines, accelerating deployment and reducing integration costs.

DISTRIBUTED COMPUTING ARCHITECTURE

Unlike traditional inspection systems that rely on a single central PC, Oculus NEO adopts a distrib-



uted architecture. Each processing unit controls two cameras independently. This design provides significant advantages:

- In case of a fault in one processing unit, all other cameras continue working, guaranteeing continuous operation.
- It eliminates the single point of failure inherent in monolithic architectures, where a fault in the central PC can halt the entire inspection line.

This fault-tolerant design makes Oculus NEO inherently more robust and reliable in demanding industrial environments.

LEADING INNOVATION WITH AI-NATIVE INSPECTION

Oculus NEO is also a pioneer in AI integration. It is the first carousel

machine inspection system worldwide designed from the ground up to leverage Artificial Intelligence. This capability brings several revolutionary benefits:

- Accurate defect detection with reduced uncertainty.
- Significant reduction of false rejects, directly improving yield and sustainability.
- The ability to deploy dedicated AI algorithms for specific defect classes, adapting dynamically to production needs.

Thanks to AI, Oculus NEO can not only detect defects with higher precision but also learn and improve over time, making it a living system that evolves alongside the production process.

CONCLUSION AND OUTLOOK

With Oculus NEO, glass manu-

facturers now have access to a solution that combines sustainability, reliability, and technological leadership. Its low-temperature electronics ensure unparalleled longevity of components, its compact and ergonomic design allows seamless integration, its distributed computing guarantees resilience and its AI core delivers unmatched precision in defect detection and false reject reduction. Looking forward, Oculus NEO looks poised to pave the way for even greater innovations - such as integration, with collaborative robotics for re-inspection as well as broader deployment across multiple production sites. By bringing together scientific rigour, sustainable engineering and cutting-edge AI, Oculus NEO looks already squarely on the path to being not just an inspection system but a new standard for the glass industry. ■





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