

LASE INDUSTRIELLE LASERTECHNIK GmbH - LaseASTO

area surveillance system designed to enhance operational safety around trucks below container cranes using precision 3D multi-layer laser scanning technology

the challenge

LaseASTO addresses a critical safety challenge in modern container handling environments: the persistent presence of blind zones around trucks and heavy equipment. In container terminals and industrial yards, crane operators often operate in complex, fast-paced settings with restricted visibility, creating a high risk of collisions involving pedestrians, vehicles, or infrastructure.

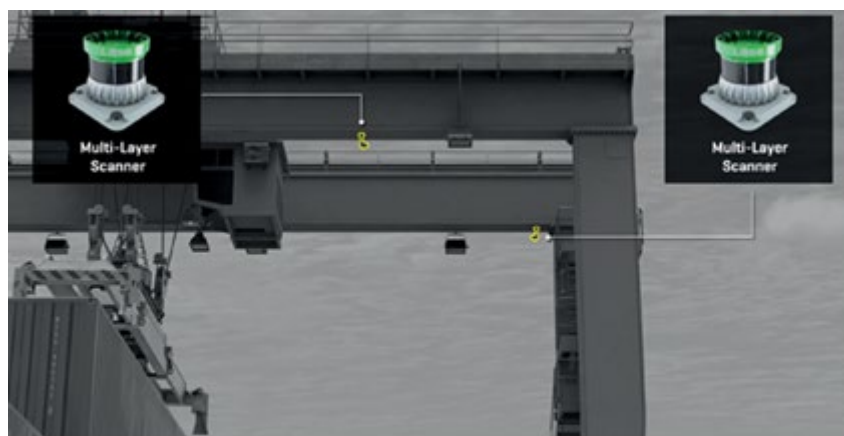
Traditional mirrors and camera-based systems are limited by environmental conditions such as glare, darkness, dust, and weather. At the same time, safety regulations increasingly demand certified solutions that actively monitor danger zones and trigger reliable interventions. Despite these pressures, few technologies on the market meet the rigorous requirements of EN ISO 13849 Cat.3 PLd, leaving operators without a certified, high-integrity system. LaseASTO fills this gap by providing continuous, automated, and standards-compliant area surveillance, significantly reducing human error and improving situational awareness.

the innovation

LaseASTO is an advanced area surveillance system designed to enhance operational safety around trucks below container cranes. Using high-precision 3D multi-layer laser scanning technology, the system continuously monitors defined safety zones around the vehicle in real time. When the person, object, or obstruction enters a hazardous area, LaseASTO generates a certified safety signal compatible with EN ISO 13849 Cat.3 PLd, enabling automatic intervention such as controlled crane operation stop. The solution is robust against harsh conditions including darkness, dust, rain, and heavy traffic. The system seamlessly integrates into existing cranes and new cranes and provides consistent, maintenance-friendly performance. With its combination of certified safety, reliable people detection, LaseASTO sets a new benchmark for preventive risk mitigation in mobile industrial operations.

THE FEATURES

- ✓ Monitoring of hazardous and safety areas
- ✓ Latest multilayer laser scanner technology
- ✓ Suitable for automated RMG, RTG and STS cranes
- ✓ Continuous personnel & machine tracking
- ✓ Alarm signal to assist crane operator or remote crane operator
- ✓ Direct connectable to crane automation
- ✓ It can be integrated into other LASE multilayer scanning applications as well
- ✓ EN ISO 13849 certified



The scanners are mounted on the container crane above



The sensors scan a predefined area above the transfer



If the target person is outside the safety zone, the yard crane stops

how it was implemented

LaseASTO was implemented through a structured development process combining industrial field experience, advanced sensor technology, and certified safety engineering. The system was first designed to ensure compliance with EN ISO 13849 Cat.3 PLd, including redundant architecture and validated safety functions. High-resolution laser scanners were configured to monitor customizable protective fields around trucks, with precise detection logic tailored for terminal operations. Field testing was carried out to validate performance under real-world conditions such as tight manoeuvring, varying weather, and high equipment density. The system passed formal validation and certification procedures, ensuring full compliance with the required safety category. Finally, training and documentation were provided to operators and maintenance teams, enabling smooth adoption.

what was the result

The implementation of LaseASTO has delivered measurable improvements in operational safety and efficiency. Terminals equipped with the system report a significant reduction in near-miss incidents involving trucks, particularly in blind-spot scenarios and pedestrian interaction zones. Operators benefit from enhanced situational awareness and confidence, knowing that the certified safety function provides an additional layer of protection. The automated stop function reduces reaction time and ensures consistent responses independent of operator fatigue or distraction. Maintenance teams also appreciate the durability and low service requirements of the laser-based solution. Overall, LaseASTO has helped customers achieve higher safety compliance levels, reduce operational risk, and progress toward more automated, standardized processes. Its certification has been particularly valuable for operators seeking reliable, audit-ready safety technology.

conclusion

LaseASTO demonstrates how certified sensing technology can meaningfully enhance safety in demanding industrial environments. By combining precise 3D laser measurement with EN ISO 13849 Cat.3 PLd certification, the system provides a dependable, automated safeguard for truck operations below container cranes. Its success in real-world deployments underscores its potential for wider adoption across terminals, logistics hubs, and other industrial settings where blind zones and human-machine interaction present persistent risks. LaseASTO stands as a strong example of innovation delivering tangible improvements in safety performance.

LINK: <https://lase-solutions.com/products/ports/laseasto/>



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