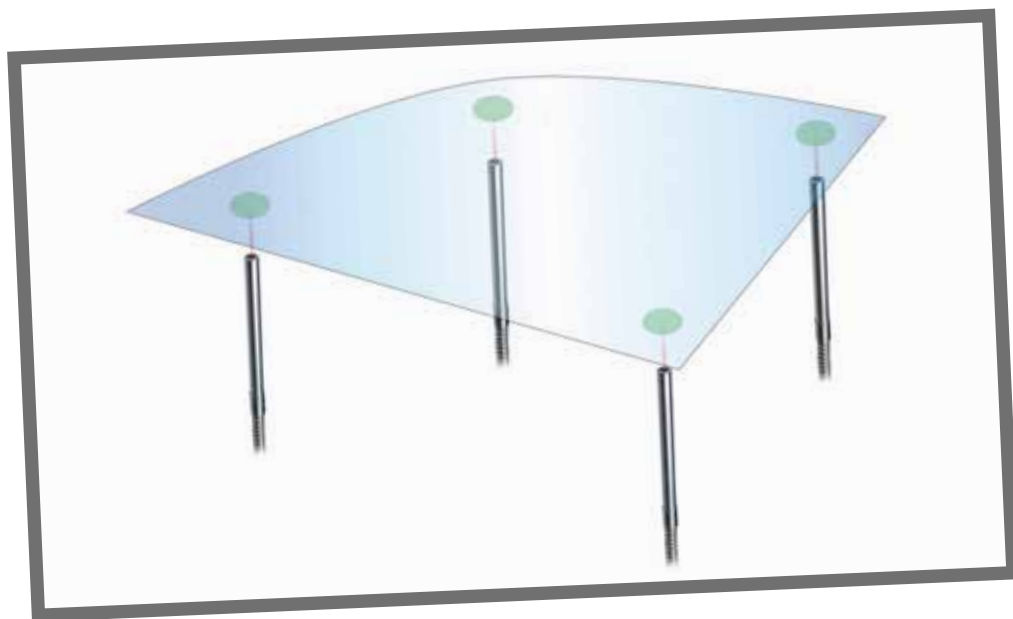


From contact to optical solutions: TECNOSENS redefines glass measurement

With a shift from traditional contact-based LVDT probes to next-generation optical solutions, TECNOSENS has revolutionized displacement sensors. Compact, precise and non-contact, its optical probe ensures accuracy, durability and easy integration - safeguarding delicate surfaces whilst advancing automation and quality standards in both the automotive and construction industries.





In both flat and curved forms, glass is a fundamental material for the automotive and construction industries. In both sectors, such parameters as geometry, curvature and surface quality must all be monitored with the highest precision - whether during production or in final inspection. For decades, this task has relied on contact-based instruments like LVDT probes, which became the industrial benchmark thanks to their robustness, reliability and ability to deliver consistent, repeatable measurements across a wide range of production environments. Yet, despite their widespread use, LVDT probes show clear limitations. The presence of moving parts inevitably causes wear, increasing maintenance needs and slowing down inspection processes. In addition, when



measuring delicate or reflective glass surfaces, physical contact with the probe can risk surface damage, forcing manufacturers to choose between precision and product safety.

FROM CONTACT TO OPTICAL MEASUREMENT: A NEW GENERATION OF OPTICAL PROBES

As the glass industry moves toward greater automation and increasingly stringent quality standards, the demand for non-contact measurement solutions has grown. In this context, optical technology offers clear advantages in precision and reliability: it eliminates mechanical wear and enables accurate measurements even on delicate or highly reflective surfaces, without the risk of scratches or marks. To meet these needs, Tec-

nosens has developed a new Optical Probe with a diameter of just 8 mm. Compact yet powerful, it is designed for both flat and curved glass, including highly reflective automotive windshields and advanced construction panels. Its patented optical design allows precise measurement of key parameters such as distance, slope (angle relative to the normal), and thickness, marking a significant step forward compared to traditional contact-based systems. Thanks to this innovative technology, the probe delivers consistent and reliable measurements across a wide range of applications, supporting manufacturers in maintaining high quality standards.

THE ADVANTAGES OF OPTICAL TECHNOLOGY

The new optical probe brings significant improvements over traditional measurement methods. Compared to LVDT probes, it has no moving parts, which eliminates mechanical wear, extends its operational life, and reduces maintenance needs. Its compact design also simplifies installation, with no pneumatic tubing or fittings required, making integration into production lines faster and easier. Most importantly, its non-contact operation allows precise meas-

urements on even the most delicate glass surfaces, avoiding scratches or damage that contact probes might cause. The benefits become even clearer when compared to confocal sensors. While confocal systems are highly accurate, they rely on fiber optic cables connecting the probe to external electronics, which increases installation costs and makes replacements expensive if the fiber is damaged. Tecnosens' optical probe overcomes these challenges with a more compact and robust design: both optics and electronics are contained within the probe body and connected via a single standard connector. The result is a solution that is easier to integrate, more reliable in industrial environments, and more cost-effective to operate.

INLINE AND OFFLINE APPLICATIONS

The Optical Probe's compact size and high accuracy make it particularly well suited for direct integration into production lines, where manufacturers must balance strict quality control with the need to maintain minimal cycle times. To meet these requirements, Tecnosens offers the complete Caliber system for measuring the curvature of automotive glass. Capable of analyzing shape, curvature, and pe-



rimeter, Caliber combines non-contact optical probes with traditional LVDT transducers in a hybrid configuration, giving manufacturers the flexibility to choose the most suitable measurement method for each application. This ensures both precision and operational efficiency. One of the system's greatest strengths is its versatility. The probes can be used inline, integrated directly into automated production flows, or offline, for sampling and laboratory testing. This flexibility not only helps reduce inspection times but also guarantees full traceability of each measurement, supporting manufacturers in maintaining high quality standards and meeting increasingly stringent industry requirements.

A SOLUTION FOR MULTIPLE SECTORS

The fields of application are wide-ranging: from automotive and safety glass to industrial vehicles, architectural panels, and even specialty glass such as shower enclosures. This combination of innovation, quality, and flexibility makes the Caliber system a strategic solution not only for large manufacturers but also for smaller-scale operations, allowing them to take advantage of advanced measurement tools without compromising productivity. For over twenty years, Tecnosens has been a trusted partner of leading glass manufacturers worldwide, delivering solutions that combine technological innovation with robust industrial performance. Its

proven reliability, seamless integration, and full data traceability have established Tecnosens as a benchmark in the glass industry. By continuously enabling manufacturers to achieve precision, efficiency, and consistent quality, Tecnosens confirms its role not just as a supplier, but as a strategic partner driving the future of glass measurement technology.



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