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**SENSOR
TECHNOLOGY**

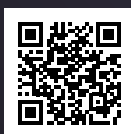
E D I T I O N

LESIKAR SENSORS

INNOVATION AT
THE CROSSROADS:
A JOURNEY OF
TECHNOLOGICAL
EXCELLENCE



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**SENSOR
TECHNOLOGY**
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LESIKAR SENSORS



The annual listing of 10 companies in Europe that are at the forefront of providing Sensor Technology solutions and impacting the marketplace

COVER STORY

Applied
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Review
TOP 10
SENSOR
SOLUTIONS PROVIDERS IN EUROPE - 2023

LESIKAR SENSORS

INNOVATION AT THE CROSSROADS: A JOURNEY OF TECHNOLOGICAL EXCELLENCE

Innovation often thrives at the nexus of diverse cultures, skills and perspectives. This fusion ignites breakthroughs that redefine industries. This principle underpins LESIKAR SENSORS' approach to providing solutions that combine human ingenuity and innovative technologies.

Its products play a pivotal role in industrial settings, automotive intelligence, precise control and regulation, and many other applications. Within its portfolio, LESIKAR SENSORS offers a diverse range of solutions, including contactless position, rotation, and speed sensors, as well as level and angle sensors, contactless switches, and evaluation electronics. Its flagship tachograph sensors, compliant with ISO standards and EU directives, stand out for their accuracy and adaptability. The company accomplishes this by combining the distinct manufacturing and technology capabilities of Sweden, Switzerland and the Czech Republic to develop a comprehensive spectrum of simple, innovative contactless magnetic sensor technologies.

"We harness each country's unique strengths, setting new benchmarks of innovation in sensor technology," says Jakub Lesikar, member of the board at LESIKAR SENSORS.

Sweden's impeccable design sensibilities are used to combine device aesthetics and functionality. The country also serves as a hub for sales and marketing operations. Synonymous with precision, Swiss craftsmanship ensures the sensor's accuracy and reliability. Similarly, the Czech Republic's creative legacy contributes to the firm's inventiveness, housing its research and development (R&D) centre.

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These sensors precisely measure speed and pressure, pinpoint positions, monitor fluid levels and detect flows, guaranteeing the impeccable performance of host systems and equipment. They are designed to address a system's technical aspects and associated regulatory barriers. This enables the firm to achieve precision, extreme endurance, and strategic integration of its sensors.

The LESIKAR SENSORS team meticulously fine-tunes sensor parameters to ensure precision. Its products can endure high and low temperatures, vibrations, pressure, radiation, and other extreme operating conditions. This commitment to robust performance is complemented by a focus on simplifying integration, seamlessly fitting the products into host equipment. Latest protocols are incorporated to overcome software communication issues for smart devices, resulting in seamless and secure data transfer and security.

WHERE PRECISION MEETS INNOVATION

Driven by the vision to enhance the operational efficiency and competitiveness of clients, LESIKAR SENSORS offers new and progressive solutions in sensing and regulation. The company refines sensor technologies by embracing creative, fresh perspectives and original approaches. These endeavours are driven by its core values of customer satisfaction, delivering high-quality products and services, and introducing new innovative paradigms to the industry.

Part of its product portfolio are flagship tachograph sensors, which possess a remarkable history.

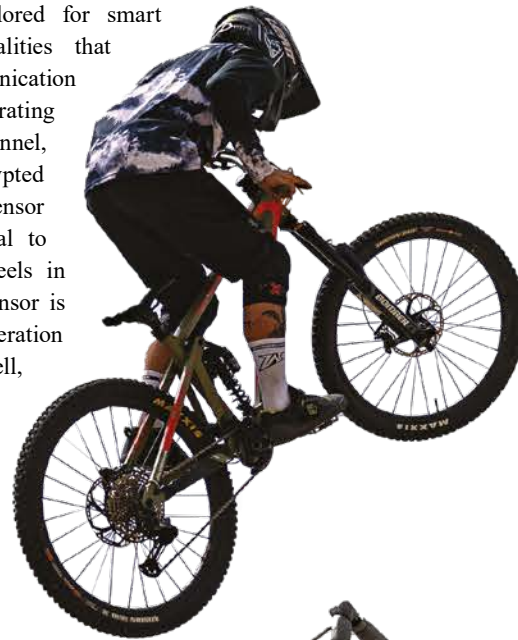
The firm's journey began in the 1990s, when it developed sensors for analogue tachographs. In 2015, sensors for digital

tachographs came into the picture. Then, in 2019, sensors for smart tachographs were introduced, emphasising LESIKAR SENSORS' forward-thinking approach, dedication to staying at the forefront of its field and vast technical expertise.

The tachograph sensors provide precise data on the speed and direction of cogwheel rotations. They generate two NPN output impulses with phase-shifted open collectors for higher accuracy. Designed for industrial, agricultural, automotive, and various other applications, the sensors offer industry-leading accuracy, sensitivity and resistance to high temperatures, electromagnetic compatibility, and electrostatic discharge. They are also resilient against vibrations, moisture and oil, delivering reliable performance in diverse environments.

The sensor for the digital tachograph, LESIKAR TACH2, adheres to ISO standard 16844-3 and EU directive 3821/85. Pulses are transmitted directly proportional to the rotation of the toothed wheels. Its case is equipped with an M18 mounting thread and a DIN 72585 connector to ensure versatile compatibility. TACH2 engages in BUS communication with tachograph units using a coded mode on the second channel. The sensor's durability is guaranteed by its IP68 rating, protecting it against the ingress of water. It can also withstand up to 50Nm of torque, functioning as a multifarious solution.

LESIKAR TACH3, tailored for smart tachographs, has functionalities that extend to encrypted communication with tachograph units operating on dual channels. In one channel, it interfaces through encrypted communication, while the sensor transmits pulses proportional to the rotation of toothed wheels in the second channel. This sensor is adaptable to previous-generation digital tachograph units as well, demonstrating its versatile usability.



TACH3 adheres to the parameters given in EU Directive 165/2014, 799/2016, and ISO standard 16844-3. It ensures seamless integration with the desired system when placed within a case with an M8 mounting thread and a DIN 72585 connector. While operating effectively in a temperature range of -40°C to +135°C, TACH3 demonstrates resilience against reversals in polarity, surges and vibrations—with a tolerance of up to 20g—and a resistance to oil-based substances.

Tachograph systems are critical for robust security. LESIKAR SENSORS equips all sensors with stringent security measures and user-friendliness. These sensors support multiple pairings with tachograph units, streamlining product replacements and repairs in workshop settings. To safeguard operational integrity, they effectively resist magnetic interference, ensuring reliable performance even when exposed to high external magnetic forces.

The products showcase these impressive capabilities due to the rigorous journey of product certification and testing LESIKAR SENSORS embarked upon.

Its compliance with EU regulations has led to its evaluation in Italy and Spain, culminating in approvals from Swedish transport authorities. Customer tests were equally demanding, with Scania AB and Volkswagen utility vehicles subjecting LESIKAR

SENSORS' products to rigorous testing. The sensors were exposed to scorching heat, freezing temperatures, and shock simulations equivalent to space rocket launches. They endured 3,000 hours of operation in scorching 140-degree heat, equivalent to two decades of functional environments. LESIKAR SENSORS' products are ISO 9001:2015-, ISO 14001:2015-, ISO 27001:2017-, and IATF 16949:2017-certified.

“Our products exceeded the rigorous market standards throughout the process, exemplifying our dedication to innovation, quality and performance,” says Lesikar.

ARCHETYPE OF CUSTOMER-CENTRICITY

Customer-centricity is an integral part of LESIKAR SENSORS. The company actively pursues customers with complex problems, necessitating the development of novel and creative solutions. Working with these clients, it conducted exciting R&D projects that resulted in intriguing products.

“Clients become our partners in intensive communications targeted to bring something new and better to the market. The more challenging the task, the better the solution,” says Lesikar.

In its client engagements, LESIKAR SENSORS adopts a holistic approach to gain a broader understanding of the system

Our products exceeded the rigorous market standards throughout the process, exemplifying our dedication to innovation, quality and performance

in which the sensor must operate. This ideology is driven by the fact that sensors are more than basic switches; they often comprise complicated electronic circuits to support the overall unit.

The design process begins with adhering to customer specifications while remaining nimble enough to address unforeseen bottlenecks that may arise. From proof of concept, functional sample, and prototype to implementation into the series production, it covers the gamut of the development processes, helping clients reduce their time to market. Its on-time delivery eliminates the uncertainty associated with the innovation process.

The team implements various protective measures and enhancements as needed. Each sensor is geared with a security key, highlighting the sophistication of LESIKAR SENSORS' technologies. Customers also enjoy the option to select products from the standard range while requesting minor modifications.

This customer-centric approach has prompted LESIKAR SENSORS to undertake numerous projects that demanded out-of-the-box thinking, effective client collaboration, and consistent product delivery.

In a noteworthy project, the firm designed sensors to position heavy subway tunnels underwater. Although designed to operate at a five-meter depth for three months, the sensors exceeded expectations by enduring twice the depth and remaining operational for a year. Impressed by the result, the client used LESIKAR SENSORS' products in other high-stake projects. Since the project's success was directly related to the sensor's performance, it represented the company's expertise in delivering solutions that stand the test of time.

In a critical project in the automotive sector, LESIKAR SENSORS addressed a major safety concern faced by a school bus manufacturer. The challenge involved doors unexpectedly opening during bus rides, posing serious safety issues. Despite multiple attempts, the manufacturer was unable to devise a long-term solution. LESIKAR SENSORS developed a highly effective, sensor-based product. It has since supplied sensors to monitor and control the door's position, guaranteeing passenger safety during transit.

Another impressive feat featured LESIKAR SENSORS, developing contactless sensors that can sense explosive materials in petrol stations. Conventional sensors were immersed in explosive materials, making management highly complex. The firm countered this problem by designing a system that eliminated the need for immersion. Customised sensors were strategically placed on the tank cover, eliminating the need to excavate or physically attach them to the pipe, ensuring more efficient detection.

A JOURNEY FROM INNOVATION TO EXCELLENCE

Initially focusing on tachograph sensors, the company changed its trajectory as the landscape of the Central European truck manufacturing industry transformed. The team realised it was no longer sufficient to introduce new technology. It had a broader



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vision—deliver the finest sensor designs that endure challenging conditions without sacrificing performance.

One of LESIKAR SENSORS' first projects was the regulation of additional heating for diesel trucks, which led it to the highly competitive international market, particularly Sweden. However, its international journey presented a rare set of obstacles.

To successfully introduce its contactless sensor, it needed to collaborate with Swedish institutions, engage with Spanish certification agencies, and cooperate with Italian laboratories. Starting off as a spin-off, the company was able to overcome financial and logistical hurdles. Amidst this complex endeavour, the team had an epiphany.

“When the dust of the challenges settled, it became clear that the most valuable asset is our employees.”

While the journey began in the Czech Republic, LESIKAR SENSORS' expansion to Sweden was met with scepticism. However, the firm leveraged its valuable experience and explored the real world application, production, and commercialisation of its sensors. Its purpose-driven and enthusiastic team studied competitive markets and gained insights from various regions. They made the strategic decision to separate R&D from sales while remaining in Switzerland to hone their financial management skills.

LESIKAR SENSORS' history represents its commitment to continuous improvement and adaptability to changing market landscapes. From a newcomer in a crowded industry to pioneering innovative solutions, the firm has established its technological prowess and product quality. Due to its substantial growth in production volumes, a new era of expansion is appearing on the horizon. 