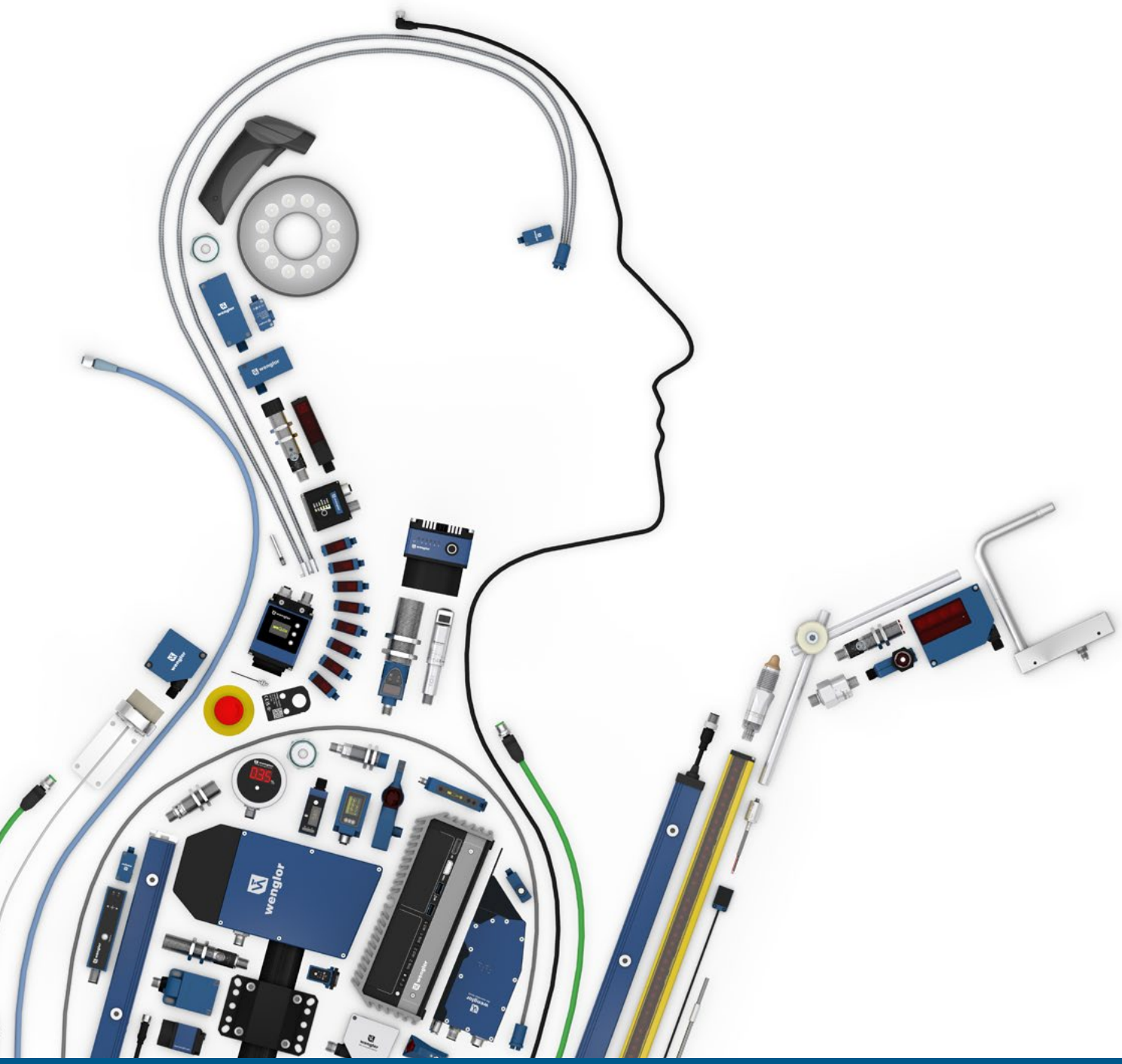
wenglor
the innovative family

Smart Sensors and **Machine Vision** Technologies



the
innovative
family



Preface

Intelligent sensor technologies, safety and 2D/3D image processing systems – we have been shaping the future of the automation industry with innovative individual and system solutions for over 40 years.

Our products aim to solve existing challenges in industry and automate the processes of our customers. It is important for us to be on the pulse of the times, to take up new approaches and trends in the industry and to always act in a solution-oriented, customer-focused and innovative manner.

As an innovative family, we value respectful interaction with each other and the family feeling between wenglor employees worldwide. We believe in our employees; everyone has the opportunity to take responsibility if they are willing. Ideas are the basis for new innovations, which is why we give all employees the freedom to experiment and contribute ideas.

Fabian Baur

Rafael Baur

Management of the wenglor sensoric group



The Innovative Family

wenglor is one of the most successful medium-sized companies for smart sensor and image processing technologies. Our product and system solutions with multiple patents are used in countless automated industrial applications around the world.

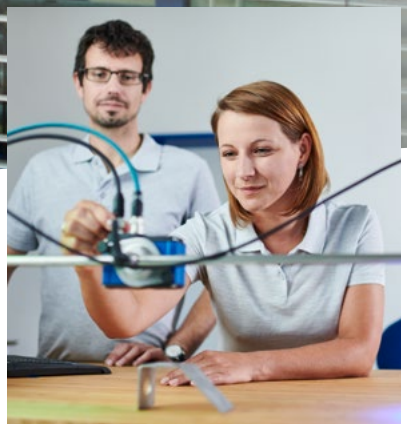
Our intelligent products enable efficient production processes and sustainably improve the performance of our customers. Continuous growth, innovative top products and excellent corporate management qualify wenglor as a top employer among SMEs and a technology leader in many categories.

The innovative family business was founded in 1983 by Dieter Baur in Tettnang on Lake Constance in the German state of Baden-Württemberg. Under the leadership of Fabian and Rafael Baur, wenglor has grown into a global player in the fields of sensors and image processing and has become an indispensable part of the world of automation.

Who We Are











Where We Come From



1983
wenglor was founded

>1,100
employees

95%
of all sales generated by internally developed products

>6,000
products

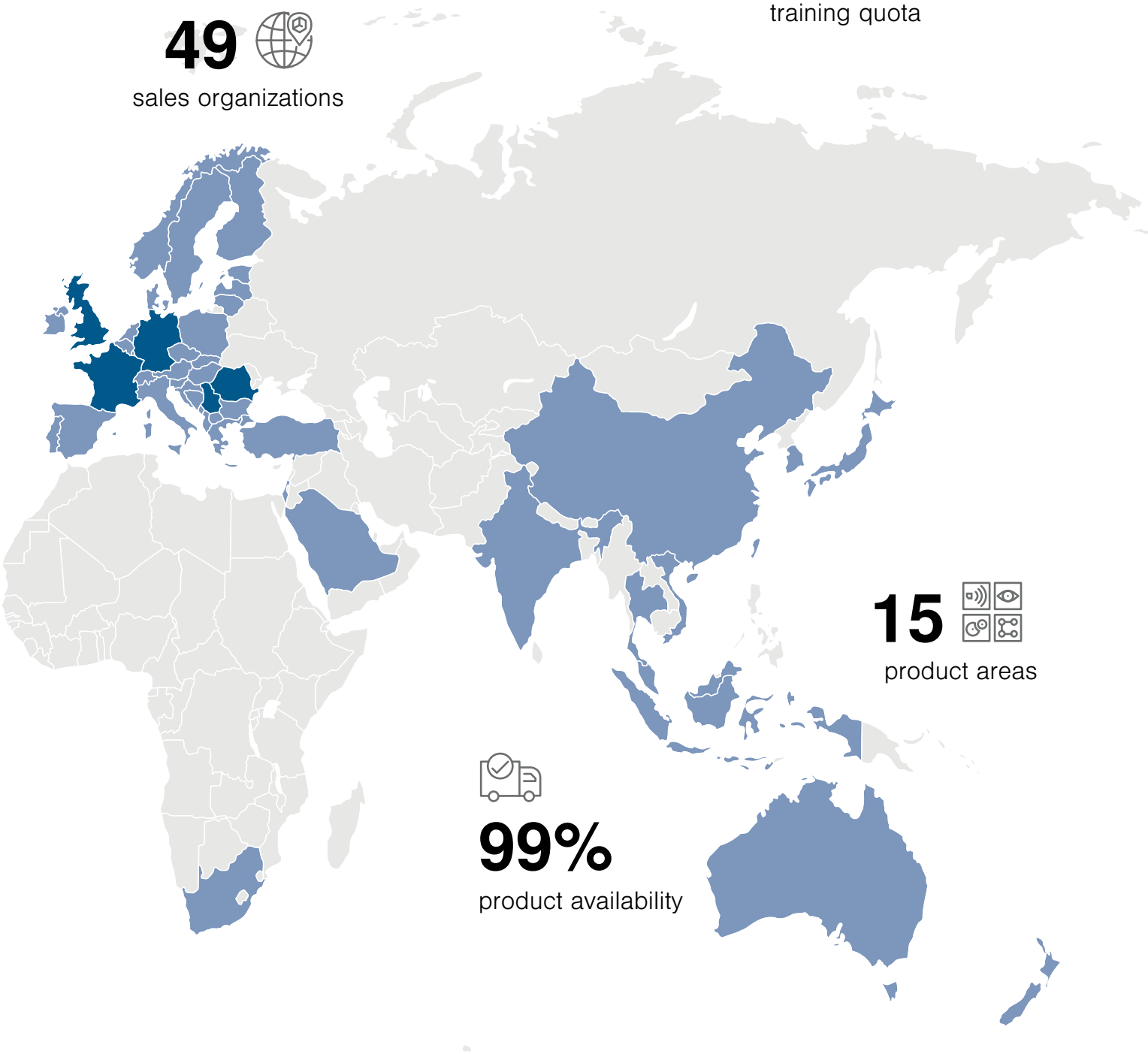
At Home on Lake Constance, at Ease Around the World

We develop and produce industrial hardware and software solutions at a total of seven locations throughout Europe. wenglor products are distributed worldwide through a total of 49 sales organizations in 42 countries. Our comprehensive product portfolio not only covers all relevant standard solutions, but also the specific requirements of individual industries.

As of: April 2024

7.6%
training quota

49
sales organizations



15
product areas

99%
product availability

7
development and production sites

Development and production sites
Sales organizations



From Europe Around the World

Our innovative strength can be felt at a total of seven European locations, including Unterschleißheim, Berlin, Sibiu (Romania), Belgrade (Serbia), Perth (Scotland) and La Chevrolière (France). These development and production sites complement our headquarters in the hop city of Tettnang on Lake Constance.



1983

Tettnang

The company headquarters employs over 400 people in development, production, warehousing, logistics, administration, marketing and management. The wenglor sensoric and wenglor fluid (since 2012) competence centers at the site have been developing and manufacturing a wide range of sensors as well as numerous image processing and software products.



2013

Unterschleißheim

With the integration of wenglorMEL GmbH in 2013, the wenglor sensoric group has greatly expanded its expertise in the field of 2D/3D technology. In Unterschleißheim near Munich, Bavaria, over 75 employees work in the development and production of smart 2D/3D sensors.



2023

Berlin

With the acquisition of software developer deevio in 2023, wenglor is gaining greater know-how in artificial intelligence (AI) and data science. Headquartered in Berlin, the company specializes in the development of image processing systems in the automation industry and has been operating under the name wenglor Deevio GmbH since joining the group.

Where Innovations Are Created







Sibiu
Founded in 2002, wenglor Romania in Sibiu is now the wenglor sensoric group's second largest production and development site. More than 300 employees are employed at this location.

2002





Perth
The lighting manufacturer TPL Vision has been part of the wenglor group since 2021. TPL Vision UK Ltd is headquartered in Perth. At the headquarters in Scotland, the employees work in the areas of administration, marketing, research and development and sales.

2021





La Chevrolière
The French production and development site of TPL Vision UK Ltd employs employees in the areas of purchasing, logistics, quality assurance, marketing and sales. The division operates as an independent business unit, both in Scotland and at the French site.

2021





Belgrade
wenglor sensoric doo Belgrade, based in Belgrade, has been a development site of the wenglor sensoric group since 2023. The Serbian site specializes in the field of machine vision.

2023





What We Do

We Are Moving the Future with Innovative Technologies

With groundbreaking technologies such as the first sensor with red light and background suppression, the laser light barrier, the BS40 vision sensor, the wintec and the introduction of the new P3 series triangulation laser distance sensor, we have shaped the sensor market impressively and are now considered an industry standard in sensor and image processing. Our range includes intelligent sensor technologies, safety and 2D/3D image processing systems with which we can detect, inspect and measure objects and communicate and evaluate the collected data via suitable interfaces.



Sensors

Sensors are the sensory organs of smart machines. Thanks to a wide range of functional principles, they solve a wide variety of automated applications quickly, safely and sustainably. In addition to the wide range of functional principles, users also benefit from the broad selection of designs that enable the sensors to be installed in any industrial system.

Sensor Portfolio

- Photoelectronic Sensors
- Ultrasonic Sensors
- Inductive Sensors
- Fluid Sensors
- Safety Technology
- Industrial RFID
- Software

Machine Vision

In the field of machine vision, wenglor offers outstanding quality for the highest demands in industrial image processing. Users benefit in particular from the integrated ecosystem, where all image processing components work together optimally and can be intuitively combined.

Machine Vision Portfolio

- Machine Vision Software
- Machine Vision Controllers
- Machine Vision Cameras
- 2D/3D Profile Sensors
- 3D Sensors
- Smart Cameras and Vision Sensors
- Illumination Technology
- 1D/2D and Barcode Scanners

Connection and Network Technology

Connection, network and fieldbus components as well as evaluation technology enable wenglor products to be integrated into automation processes, as well as communication of products and the evaluation of results in real time. Thanks to Industrial Ethernet or IO-Link, data can be exchanged or transmitted for further processing.

Accessories

Accessories are used to integrate sensor and image processing products into any production facility. Patented mounting technologies, protective housings, mounting brackets and alignment tools provide the mechanical basis for precise, electronic measurements. Selected materials ensure stability.


Over
40
Years of
Innovations

What We are Best Known For



1983

The first successful project:
The sanitary sensor makes the first contactless toilet flushing system for public sanitary facilities possible.

The first sensor with red light and background suppression allows users to adjust and suppress disturbing factors precisely and easily for the first time.

1983 **1985** **1987** **1988** **1989**

Company founded by Dieter Baur in Tettnang.

Following a fire in the first company building, the new company headquarters in Tettnang's Oberhof district is opened.

The company is presented under the name wenglor sensoric elektronische Geräte GmbH.











1991

With the introduction of the laser light barrier, even the smallest objects can be reliably detected and very accurate and highly precise measurement results can be achieved.

1994

Small industrial revolution with miniature design: A powerful photoelectronic sensor is barely bigger than the Enter key on a keyboard.

The first branch office is opened in the USA.

1997

Innovation in conveyor technology: For the first time, sensors can be installed directly between the rollers of conveyor systems.

2002

The first BS40 vision sensor: To this day, state-of-the-art smart cameras and vision systems are based on this technology.

2005

Expansion to Romania: A second production site is added in Sibiu, Romania.

2007

Competence center in Germany: The company building at the Tettnang headquarters is expanded to include a warehouse, logistics, training and production center.



wenglor develops a new stainless steel 316L product series for the special hygiene requirements of the pharmaceutical, food and beverage industries, which is resistant to aggressive chemicals and the use of high-pressure cleaners.

The high global demand for sensors and image processing technologies leads to increased company growth. wenglor expands its international business with the establishment of two subsidiaries in Malaysia and Brazil.

The two sons Fabian and Rafael Baur take over management of the wenglor sensoric group.

2008 **2009** **2010** **2013** **2015** **2017**

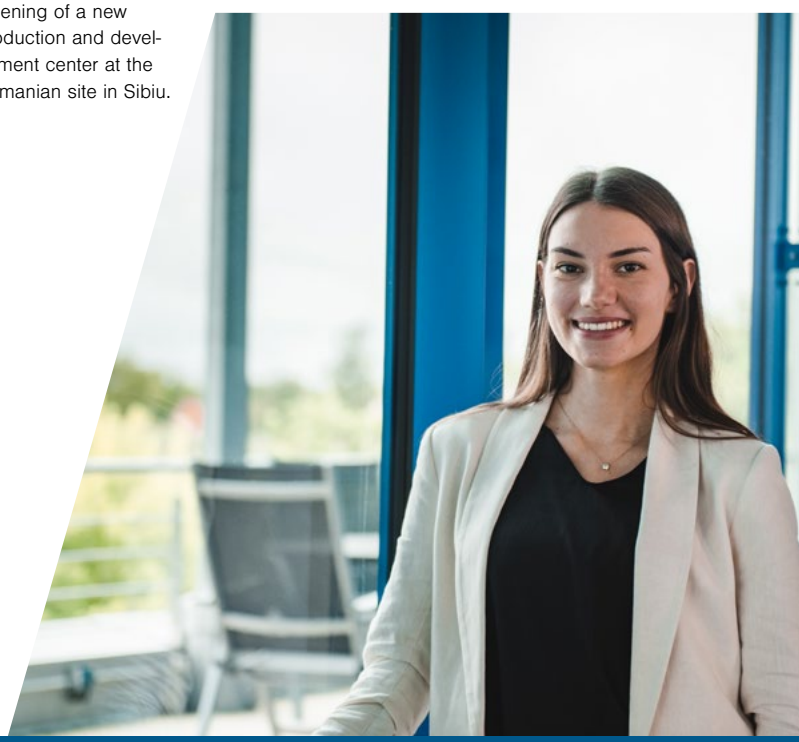


The laser distance sensors with wintec (wenglor interference-free technology) revolutionize photo-electronic sensors.

PNG//smart sensors combine communication and performance. The range includes different light sources, housing designs and functional principles with the latest communication interfaces.

Opening of a new production and development center at the Romanian site in Sibiu.

To mark the 30th company anniversary, wenglor creates a new image with the claim “the innovative family”, which symbolizes the family-based corporate culture. Mikroelektronik GmbH and its expertise in the field of 2D/3D sensors is integrated into the group of companies as wenglorMEL.









2018

Company founder Dieter Baur and his wife Barbara Baur retire after 35 years in management. Their sons Fabian and Rafael assume sole management.

2019

wenglor presents its specially developed uniVision 2.1 software, which enables the configuration of smart cameras, vision systems and 2D/3D profile sensors.

2021

The new generation of time-of-flight laser distance sensors with wintec is characterized by integrated DS technology. This means that these sensors once again set standards in terms of precision, performance, interference immunity and robustness.

2022

wenglor presents three major product innovations this year: the P3 series triangulation laser distance sensors, the next generation of ShapeDrive G4 3D sensors and the B60 smart camera.

Expansion and growth: The new company building of the subsidiary wenglorMEL is opened in Unterschleißheim.

2023

The new MLZL 2D/3D profile sensor from the weCat3D series combines precision and profile quality for optical weld seam tracking in welding applications in combination with wenglor's uniVision software.

2025

The world's first ToF sensor with blue laser light expands the possibilities of distance measurement, and the inductive ring sensor receives the Red Dot Design Award for its innovative separable housing.

AI with uniVision: The uniVision 3 machine vision software combines rule-based image processing with AI.

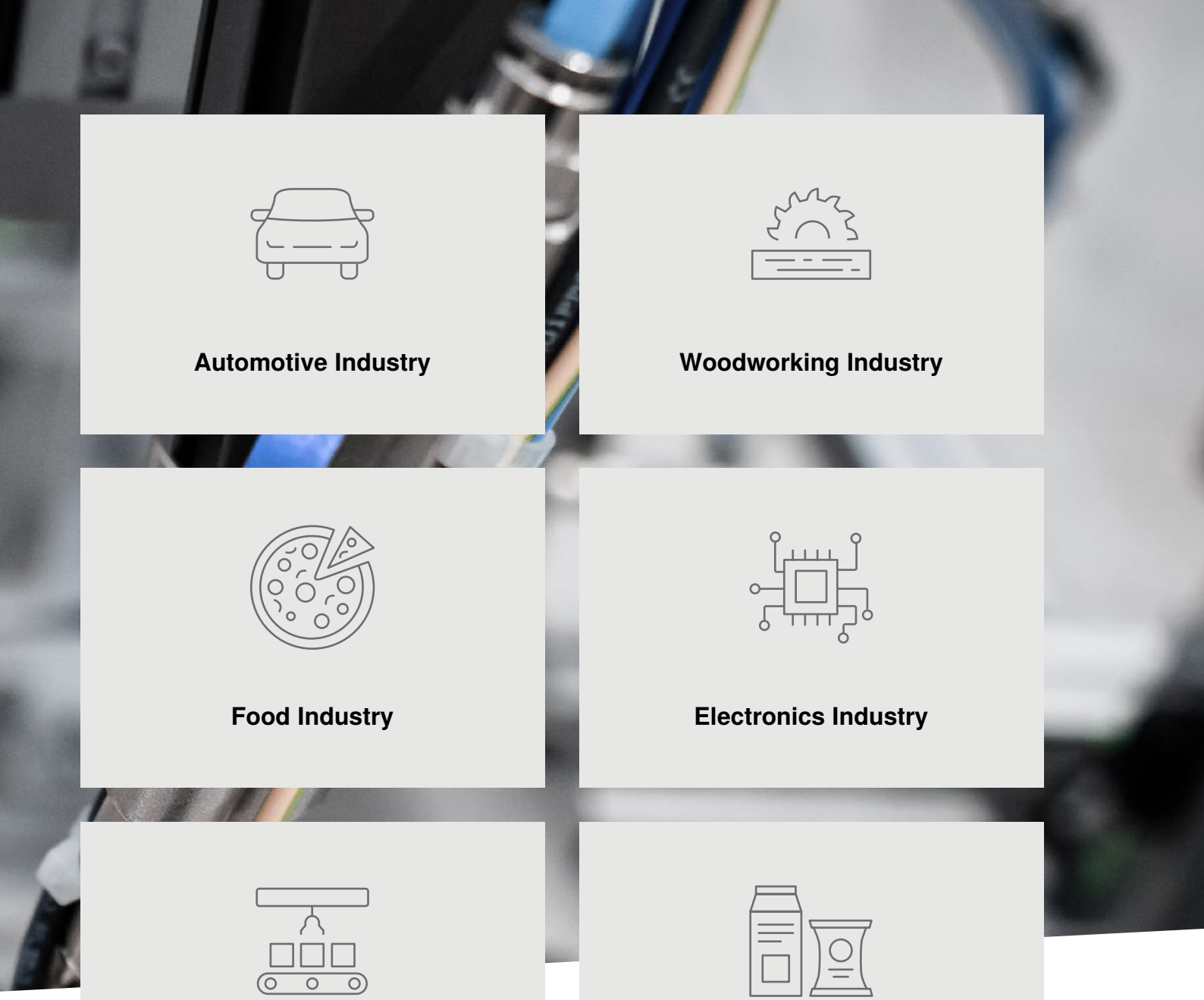
Where We Operate



reddot winner 2025
industrial design

The Ideal Solution for Every Industry

The requirements in industrial automation are diverse. At wenglor, we recognize industry-specific requirements at an early stage and develop tailored, reliable solutions to meet these requirements. Whether faced with constantly changing weather conditions, intensive cleaning processes, hazardous areas or welding work: Our products are designed to perform reliably in the harshest conditions, while meeting technical regulations and quality standards. Our expertise spans the automotive, wood, food, electronics and packaging industries, as well as logistics and recycling. wenglor sensors are also used in other industries, such as the railway, pharmaceutical and cosmetics industries.



Automotive Industry

Woodworking Industry

Food Industry

Electronics Industry

Logistics

Packaging Industry

Recycling

Other Industries

Automotive Industry

In the automotive industry, sensors are used at every stage of the production process. They not only ensure safe, fast and flexible vehicle production, but also enable efficient monitoring of the individual production processes. From the press shop to body construction, paint shop, battery and power unit production to assembly – wenglor's comprehensive product range offers solutions for a wide range of applications in the automotive industry.

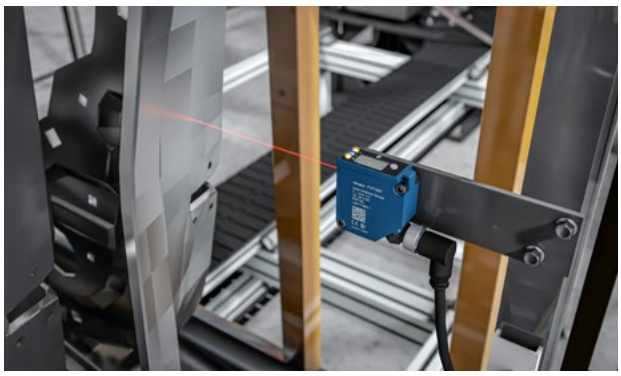


Best-Fit Installation in Car Body Construction with 2D/3D Profile Sensors

In body construction for passenger cars, attachments such as tailgates, bonnets, roofs or side doors must be placed and installed in the bodywork fully automatically by robots. This so-called "best-fit" process in assembly lines is supported by 2D/3D profile sensors to achieve uniform circumferential gap dimensions between these parts and the body.

Distance Measurement for Material Replenishment of Magazines with Time-of-Flight Laser Distance Sensor

In automotive shell construction, body parts such as doors, tailgates or fenders are stored temporarily in magazines in a fully automated process. In order to monitor their presence, a stationary time-of-flight laser distance sensor is installed on the side of each carrier. The sensor also measures precisely on glossy and highly reflective surfaces – even at an angle.





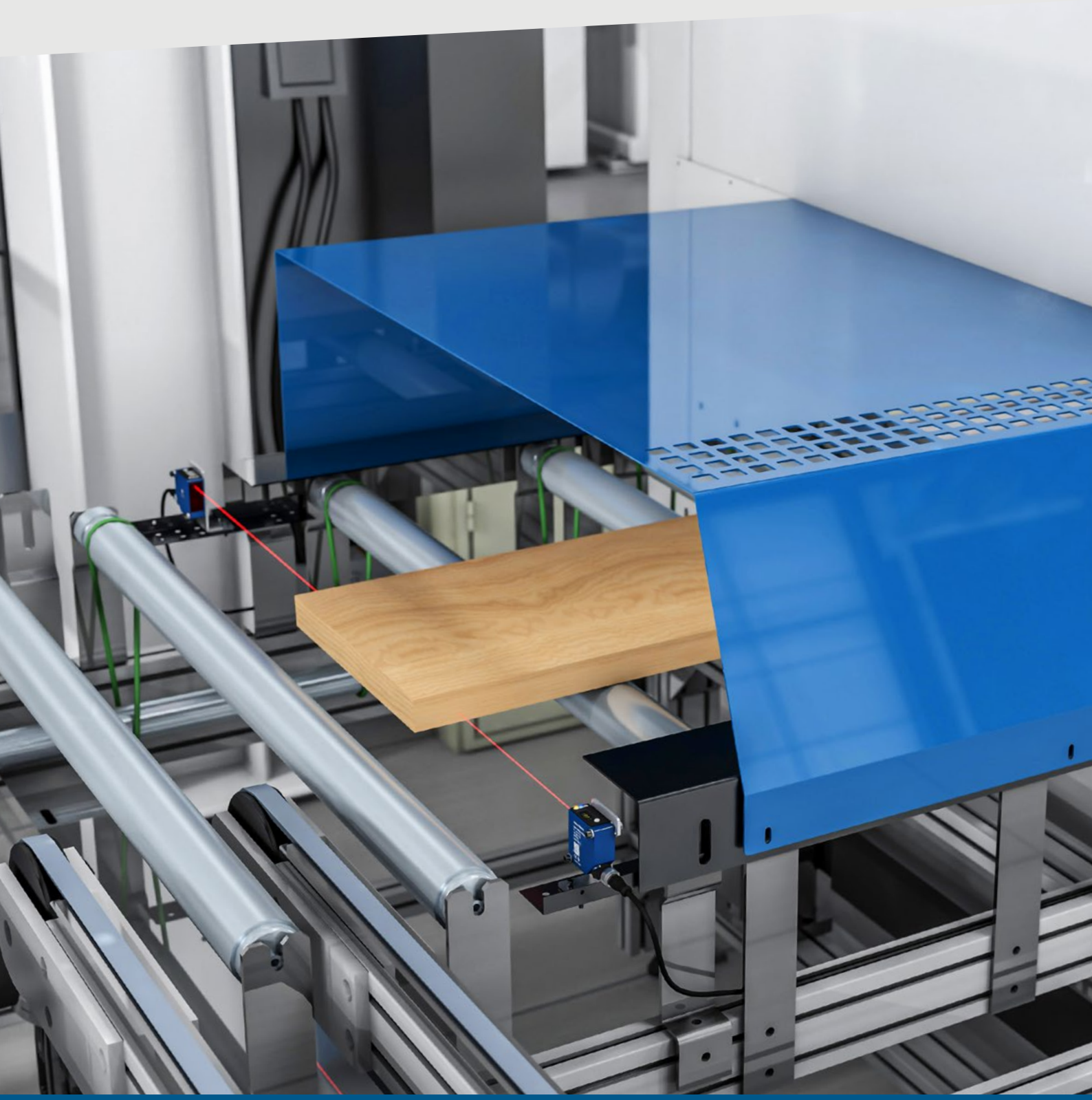
Detection of Metal Skids via Inductive High-Temperature Sensors

In drying plants, car body paints are heated. Each chassis is transported through the furnace using skid carriers and chain conveyors, where temperatures reach up to 450 °C. Side-mounted inductive sensors for extreme temperature ranges monitor the position of the skid carriers with high switching distances of up to 40 mm.



Woodworking Industry

Whether thickness measurement, precise positioning, identification of scrap parts or comprehensive quality control and access protection – wenglor offers innovative sensors and machine vision products for a wide range of applications in the woodworking industry.





Width Measurement of Parquet Floorboards Through Triangulation Laser Distance Sensors

Boards must be milled to the correct width when making parquet floors. The nominal width must be maintained so that the boards can be laid cleanly. Two opposing laser distance sensors for triangulation measure the exact width without an analysis module or control unit.

Distance Measurement of Chipboard with Time-of-Flight Laser Distance Sensors

In the woodworking industry, chipboard is temporarily stored and removed in surface storage facilities using fully automatic vacuum grippers. A time-of-flight laser distance sensor with wintec installed on the gripper determines the distance of the gripper to the board and enables both the slower approach and the start of the gripping process.



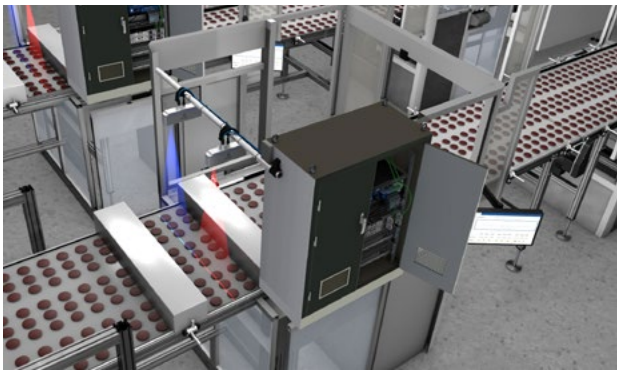


Inline Length Measurement of Wood Battens with 2D/3D Profile Sensors

Before the packaging process, cut and planed wood battens are precisely measured for length in large sawmills. For this purpose, two 2D/3D profile sensors are installed, which detect the battens during lateral transport via laser triangulation.

Food Industry

Strict hygienic requirements and high standards apply in the food processing industry. The wenglor portfolio offers robust and resistant sensors that are not impaired by chemical cleaning and disinfecting agents or by high-pressure cleaning, high water temperatures or strong temperature fluctuations.

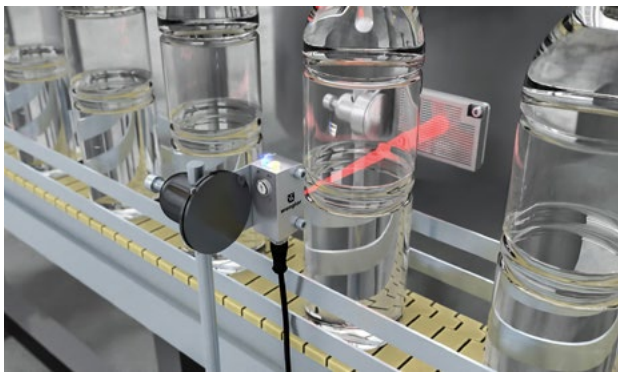


Inline Height Control of Cookies with 2D/3D Profile Sensors

In order to optimize the filling of the packaging, the height of cookies must be recorded. For measurement, two 2D/3D profile sensors are installed in the stainless steel 316L housing, which detect all objects over the entire web width using lasers (one red and one blue) with no mutual influence.

Presence Check of Glass Bottles with Retro-Reflex Sensors for Transparent Objects

During the processing and filling of glass bottles in the beverages industry, the presence of transparent bottles must be reliably detected on the sorting lines in order to ensure a continuous material flow. For this purpose, retro-reflex sensors for transparent objects are mounted on the side of the feed rail.





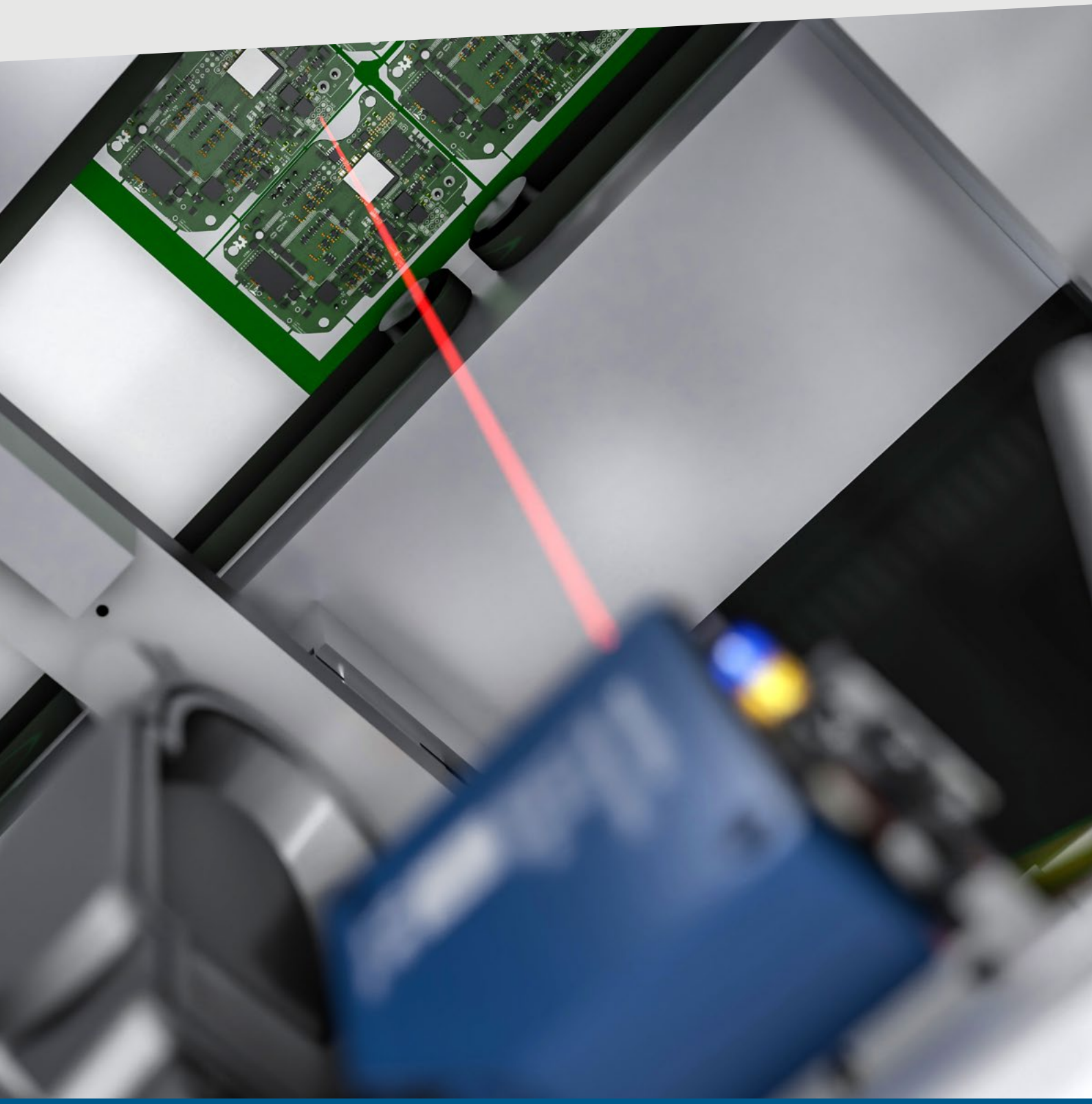
Level Monitoring of a Cleaning Agent Tank with a Pressure Sensor

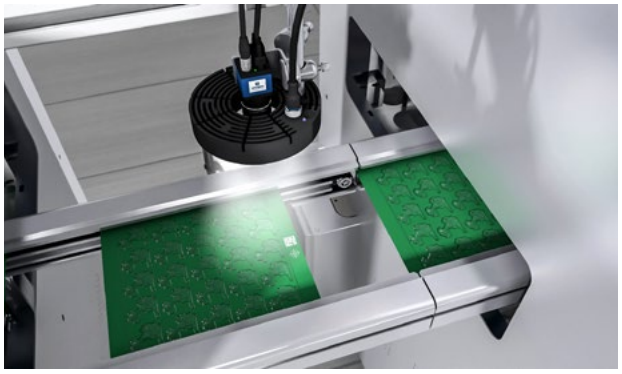
In dairy plants, the production equipment must be cleaned regularly. The CIP detergent is stored in large stainless steel tanks. To monitor the fill level, a pressure sensor is installed at the lowest point of the tank, which measures both pressure and temperature independently of air bubbles, foam or viscosity.



Electronics Industry

Challenges in the electronics industry include flexible production lines and low downtime. wenglor offers a comprehensive range of innovative product solutions to help customers achieve error-free and reliable manufacture of electronic products and ensure smooth processes.





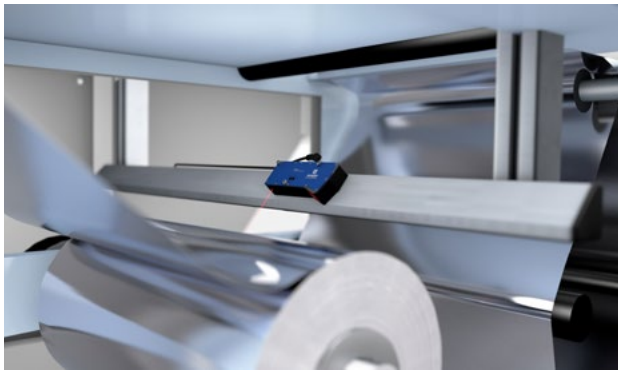
Position Check of PCBs by Vision System

For the position test of PCBs in SMD systems, a vision system is installed above the PCBs, which records a crosshair printed on the circuit board as a reference point. From this, the so-called “offset” is determined and transferred to the machine control. In the subsequent assembly process, all components are applied in the correct position. The PCB is identified by the vision system via decoding of a datamatrix code.

Safety Guard on High-Voltage Test Benches via Safety Light Curtain

In the manufacture of cable harnesses, function and quality tests are carried out in the high-voltage and low-voltage range. Safety light curtains with finger protection offer a continuous safety field active over the entire housing length and prevent reaching in during the active test procedure.





Measuring the Unwinding and Winding of Films with Triangulation Laser Distance Sensor

Coated, high-gloss films are used to manufacture batteries. In order to detect their level on winding devices, triangulation laser distance sensors measure the exact distance. In this way, it is precisely determined on the unwinder how much material can still be unwound; on the rewinder, it is determined how much space there is available for material on the roller.

Logistics

wenglor sensors support customers in the automation of logistics processes. With a broad product portfolio, we ensure process reliability, high plant availability and increased efficiency along the entire process chain. We offer solutions for a wide range of applications, such as autonomous shuttle and transport systems, shelf operators, for order picking or in incoming and outgoing goods.

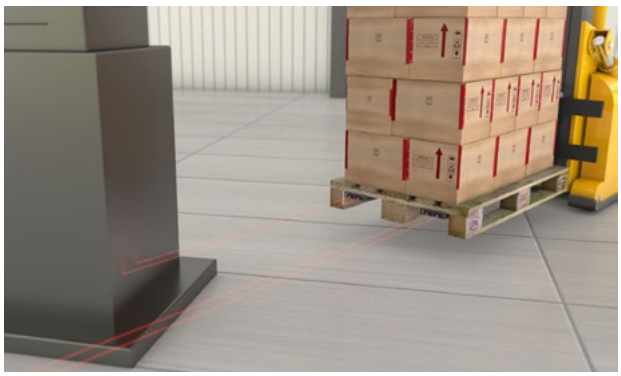


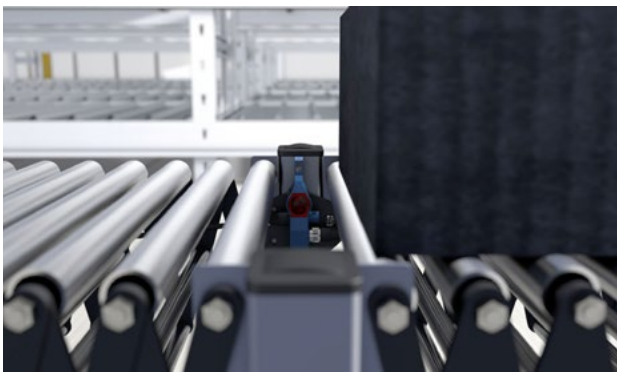
Rack Occupied Message in Shuttles with Time-of-Flight Laser Distance Sensors

Shuttles or rack operating devices are used for the fully automatic storage or retrieval of goods in multi-storey high-bay warehouses. To ensure that this process runs safely and reliably, time-of-flight laser distance sensors are installed in the shuttles, which determine precise information about the object position and number in the racks.

Object Detection for Driverless Transport Vehicles with Time-of-Flight Laser Distance Sensors

Driverless transport vehicles, such as forklift trucks, must find their way around large logistics centers in order to enable the safe and collision-free transport of goods. Two time-of-flight laser distance sensors are installed in the miniature housing of forklift trucks for object detection.





Presence Check of Goods via Sensors for Roller Conveyor Systems

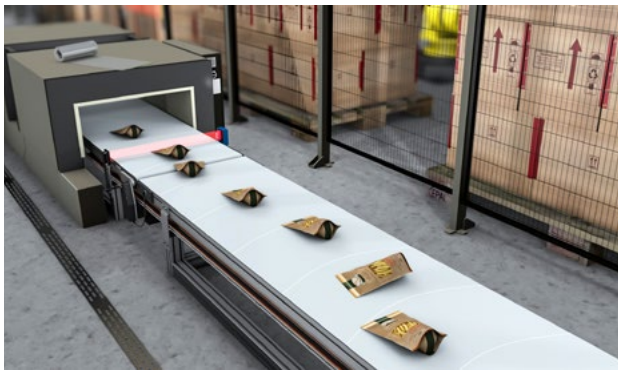
In logistics centers of online mail order retailers, packages, boxes, bags or pouches must be reliably detected on flexible scissor roller conveyors. For this purpose, special sensors for roller conveyor systems are installed between the rollers, which automatically switch off unused roller segments due to integrated accumulation logics.


Warning notice

Packaging Industry

In the packaging industry, smooth production processes, optimized package sizes and precise quality control throughout the entire production process are of great importance. wenglor sensors reliably detect object positions even at high belt speeds, measure volumes and fill levels precisely, visually check product quality and evaluate labels.



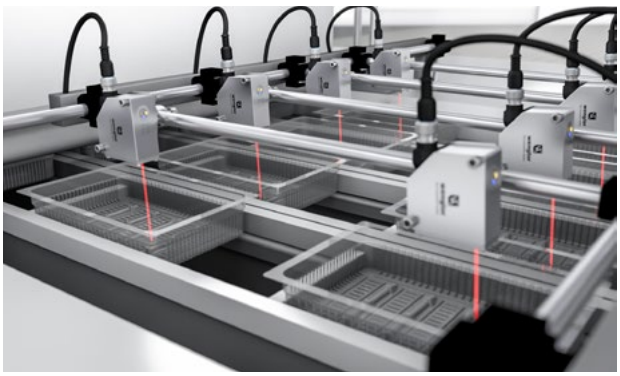


Leading Edge Detection of Polybags with Retro-Reflex Sensors with Light Band

Retro-reflex sensors with light band mounted on the side detect packages of different colors, shapes, surfaces and transparencies over the entire width of the track from the front edge for object detection on conveyor belts. The length of the switching signal can be used to determine the position of the objects and thus adjust the speed of the system.

Presence Check of Trays with Time-of-Flight Laser Distance Sensors

When filling and sealing transparent food trays, their position and presence on a multi-lane conveyor must be reliably recorded. For this purpose, a time-of-flight laser distance sensor is installed above each lane on the conveyor line which is aligned to the trays from above.





Presence Check of Use By Date with Smart Camera

In the food and packaging industry, the use by date labels on food must be reliably verified. A smart camera checks if the use by date is present at high belt speeds. The position of the label can vary slightly.

Recycling

From dispensing different types of containers to differentiating materials and transporting deposit objects to compacting and collecting – numerous processes in reverse vending machines for empties can be automated with intelligent sensors from wenglor. This enables valuable resources to be recycled, throughput times shortened and processes designed to be reliable, cost-effective and safe.

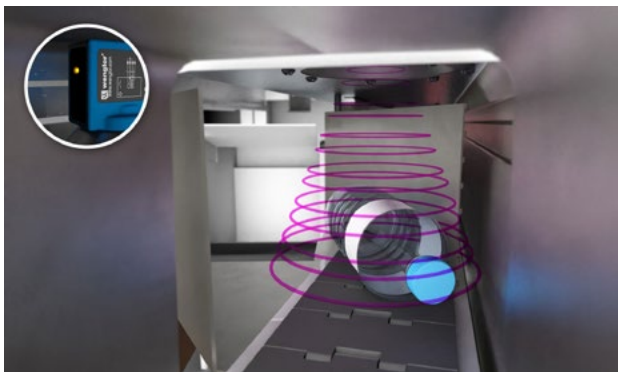


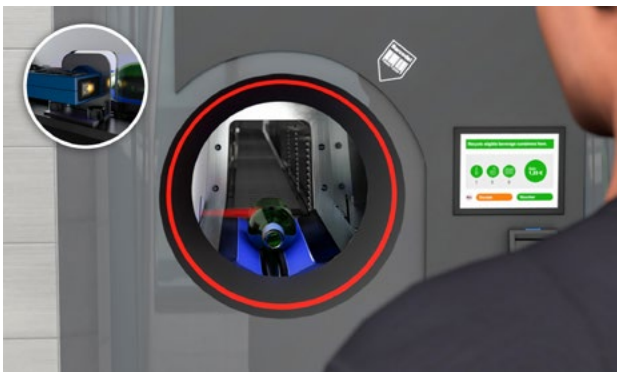
Package Detection with Retro-Reflex Sensor for Transparent Objects

Automatic return machines have a central, circular opening for receiving containers. In order to link with subsequent processes (e.g. belt start-up and deposit logo check), a multi-beam retro-reflex sensor for transparent objects is located directly behind the drop-in. This ensures that beverage packaging made of PET, glass, aluminum or sheet metal is reliably detected.

Counting of Objects in Reverse Vending Machines with Ultrasonic Distance Sensor

In reverse vending machines, a check must be carried out to determine how many bottles, cans and containers have been inserted in order to control the capacity of the system. For this purpose, an ultrasonic distance sensor is installed above the belt, which detects in reflex mode the objects made of glass, aluminum or PET regardless of their shape, color, position, surface and size.





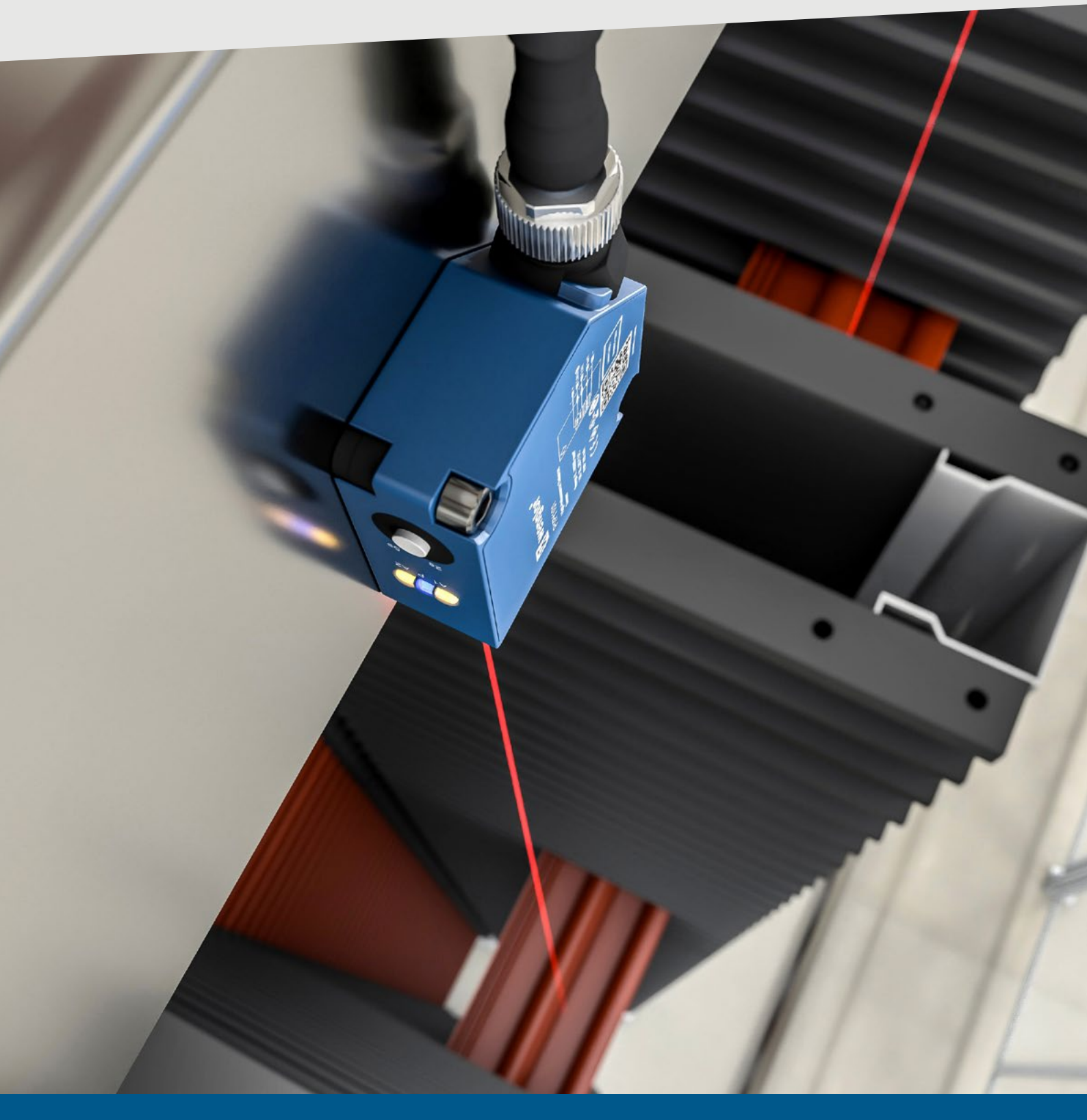
Material Separation by Through-Beam Sensors for PET Selection

In deposit machines, the relevant material must be determined immediately after inserting the objects. PET or glass bottles as well as metal cans must be detected and sorted for recycling. A specially developed through-beam sensor, consisting of emitter and receiver, is installed directly behind the opening.



Other Industries

The ability to reliably detect transparent objects such as ampoules and vials, or the smallest parts such as syringes, needles or cannulas, makes wenglor sensors ideal for use in the pharmaceutical, perfume, plastics, consumer goods and glass industries. They also meet the strict hygiene standards of the pharmaceutical and perfume industry.



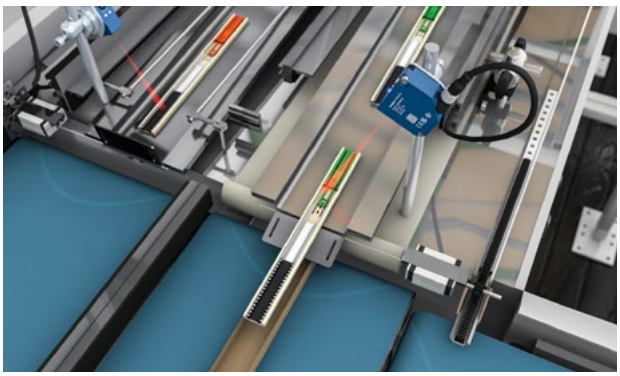


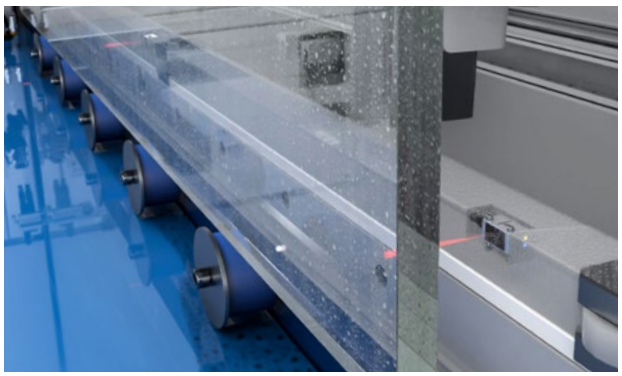
Separation of Plastic Injection-Molded Parts via Reflex Light Barrier

Before plastic injection-molded parts are packaged, they must be separated. A reflex light barrier is taught in on the metal conveyor rail and then detects the presence of a plastic part, regardless of its surface. A flap is then opened, causing the object to fall into the packaging.

Checking the Correct Number of Tablets via Vision Sensors

In the pharmaceutical industry, the correct number of tablets per package must be ensured before the packaging process. Two vision sensors detect the correct number on the tray, after which the tablets fall into the final packaging via a hopper. If one or more tablets are missing, the carrying unit is transported to the return flap.





Presence Check of Glass Disks Using Reflex Sensors with Background Suppression

In CNC glass processing centers, reflex sensors with background suppression are integrated into the conveyor unit to detect the presence of glass disks. They also detect their front edges for precise positioning. The use of water for cooling and removal of chips is easily possible thanks to the robust housing and high IP69K degree of protection.

Other Industries

In the railway, printing, metal, welding and steel industries, the automation technology used is exposed to extreme ambient conditions. wenglor offers a wide range of sensors, machine vision products and safety technology that withstand these requirements and also ensure product quality and human safety. The products are characterized by high temperature resistance, robust housings and mechanical resistance.



Track Bed Monitoring of Rail Networks via 2D/3D Profile Sensors

Before maintenance work can be carried out, both the position of the rails and obstacles such as stones or switches must be detected during operation. Several 2D/3D profile sensors mounted next to each other measure the profile of the track bed in a line. The height profiles are combined and analyzed using software.

Recognition and Control of Workpiece Carriers via Industrial RFID

In special machine construction, workpiece carriers run through various processes in one system. RFID readers are installed at several points in the system, which can record, read and write new process information on the transponders mounted on the workpiece carrier. This ensures the traceability of the processing.





Welding Seam Tracking in Robot Cells by 2D/3D Profile Sensors

In fully automated robot welding cells, a 2D/3D profile sensor is mounted on the robot directly in front of the welding torch, which determines the exact position of joints using laser triangulation. The uniVision software determines the guide point and sends it to the control system. A web correction is now carried out using this information and the weld seam is placed.


wenglor
Local Haunted Castle Investigated
Local Haunted Castle Investigated
Local mother of child with Asperger's Syndrome disagrees with school official's decision.
By Maggie McConnell
CFP Contributor
SEE SPECIAL EDUCATION, 4



Power generation
via PV system and CHP

Geothermal energy
for heating and cooling

Greenhouse gas emissions
systematically recorded

Online meetings
as an alternative to business trips



We live weGreen

Raising Awareness, Recognizing Opportunities, Tapping into Potential.

weGreen

Since the company was founded in 1983, we have been aware of our economic, environmental and social responsibility for a better future and are taking various measures to achieve this goal. “weGreen – innovations for a better tomorrow” is the internal guiding principle under which wenglor combines activities from the areas of environment, social affairs and corporate governance. During the development of sensors and machine vision products, attention is paid to the use of energy and materials as well as achieving the maximum possible service life. Selected sensors have cut-off functions and reduced current consumption to help reduce energy consumption during operation. We cover part of our daily energy needs with renewable energy sources such as geothermal energy and photovoltaics.

Sustainability Throughout the Company

wenglor has set itself the goal of reducing the consumption of resources – from product development and production through to the end product and its distribution. Awareness of sustainability is reflected not only in product development and marketing, but also in the offices, the company restaurant foundersClub and the wenglor buildings.



Sustainability Measures in the Divisions

Climate and Energy

- Optimization of heating, ventilation and air conditioning systems, compressed air generation and building insulation
- Photovoltaic systems to partially cover operational current demand
- Geothermal energy with heat pumps and a combined heat and power plant at the Tettnang site

Buildings

- Photovoltaic systems and geothermal energy at several company locations
- Use of the generated energy within the respective building supply

Production

- Use of new SMD machines and an automated warehouse system
- In-line inspection systems for detecting quality deviations

Products

- Consideration of energy and material usage as well as achieving the maximum possible service life
- For example, selected products have shut-off functions or reduced current consumption
- Benefit: Depending on the application, these features can help reduce energy consumption during operation

Packaging

- Check material usage, volume, weight and reuse possibilities
- Packaging should be adapted to the product size if possible

foundersClub Company Restaurant

- Demand-based meal planning to avoid overproduction as far as possible

A local supplier has been commissioned to print this brochure in order to avoid long transport routes. The paper used is FSC® certified and comes from sustainably managed forests.

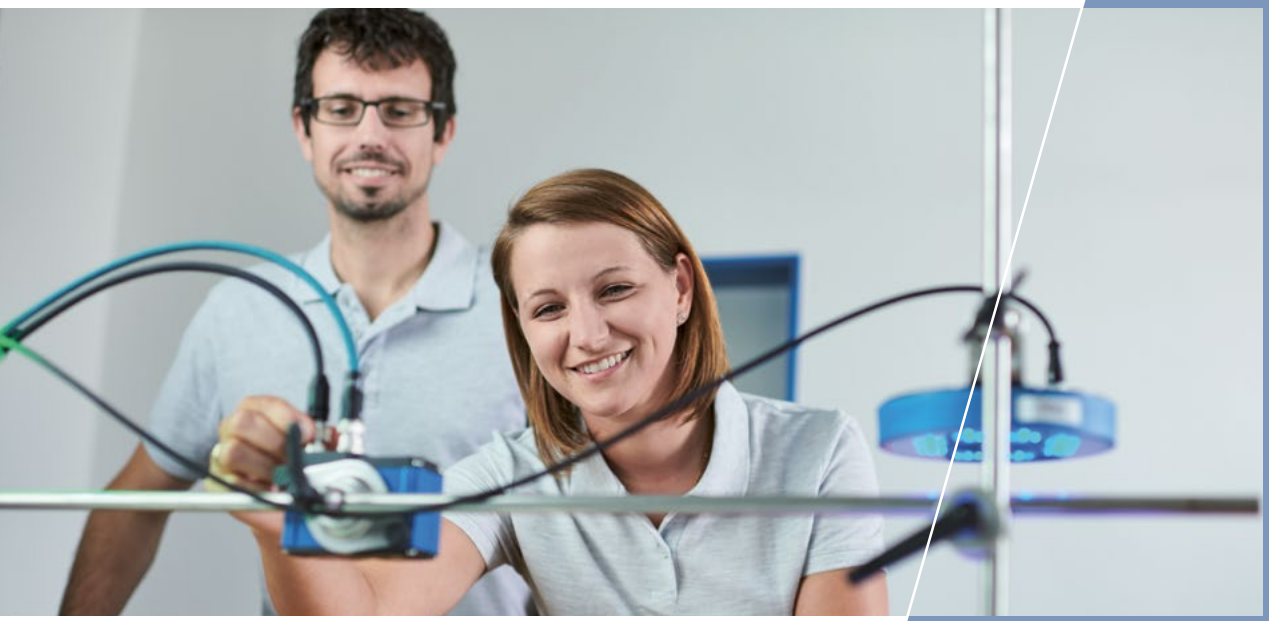
What We Stand For

One Company, One Community, One Family

The family is of great importance to wenglor in many ways: “the innovative family” stands for respectful interactions – with employees, customers and business partners.

In the corporate culture, informal forms of address are actively practiced, personal and professional development is promoted and cohesion is strengthened through various events. Whether as a team at a company run, in a social gathering at a barbecue or at a joint lunch in the foundersClub – togetherness is valued at wenglor.

wenglor also contributes to promoting social progress. Through sponsorship, we support regional associations and social projects in the fields of education, environment, culture and innovation.





the **innovative** family





wenglor

the innovative family

www.wenglor.com
info@wenglor.com

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