Take the fast lane

Insights into the XE-tra fast performance of the VISOR® **XE**

VISOR® **XE**

Take the fast lane

| Vision sensors | Optical sensors | Ultrasonic sensors | Inductive sensors |

VISOR® **XE** - The next generation

The extra-fast vision sensors

Maximum performance with advanced technology

VISOR® **XE** sets new standards in industrial image processing: the sensors work up to four times faster than conventional vision sensors and reduce the evaluation time in object classification by eight times - thanks to a processor with integrated hardware acceleration for deep learning algorithms. We achieve this significant performance boost by optimizing multiple processor cores to work in tandem.

For you, this means faster image processing and increased productivity, even for tasks that are complex and require high resolution. Supported by artificial intelligence, the VISOR® **XE** sensors excel in detecting even the smallest details in large image fields. This makes the series ideal for applications that require maximum precision and speed.

Seamless integration into your operation

The installation and deployment of VISOR® **XE** sensors is simple and efficient: The addition of a second LAN interface simplifies connecting multiple vision sensors, reducing the need for extra cabling in multi-sensor applications, such as robotics. A single cable to the robot controller is all you need to integrate multiple vision sensors, saving you both time and money. The VISOR® **XE** series sensors are also fully compatible with existing VISOR® software and interface protocols, allowing you to utilize existing configurations and systems without time-consuming integrations.

VISOR® **XE** sensors excel in image processing

Whether for precise code detection, reliable object detection or seamless integration into robot applications - the VISOR® **XE** series offers the right solution for a wide range of industrial applications and sets new standards in Industry 4.0. To meet the specific requirements of diverse applications, the sensors are available in different models, each optimized for specific needs and offer outstanding performance and reliability. This high level of flexibility makes the sensors in the VISOR® **XE** series an indispensable tool in many industries, from automotive to packaging.
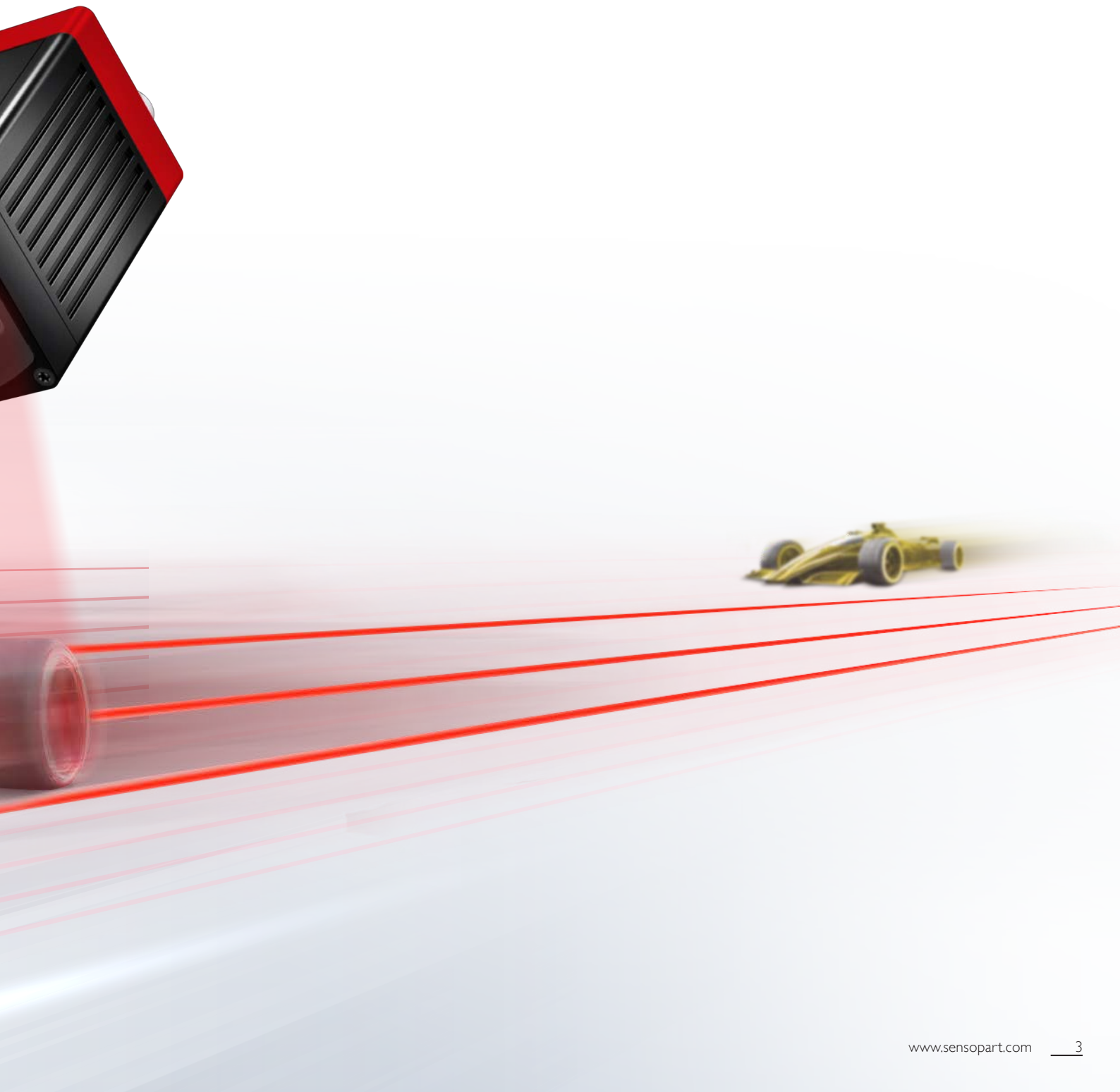
Precise Presence Detection of Car Door Components

Application example
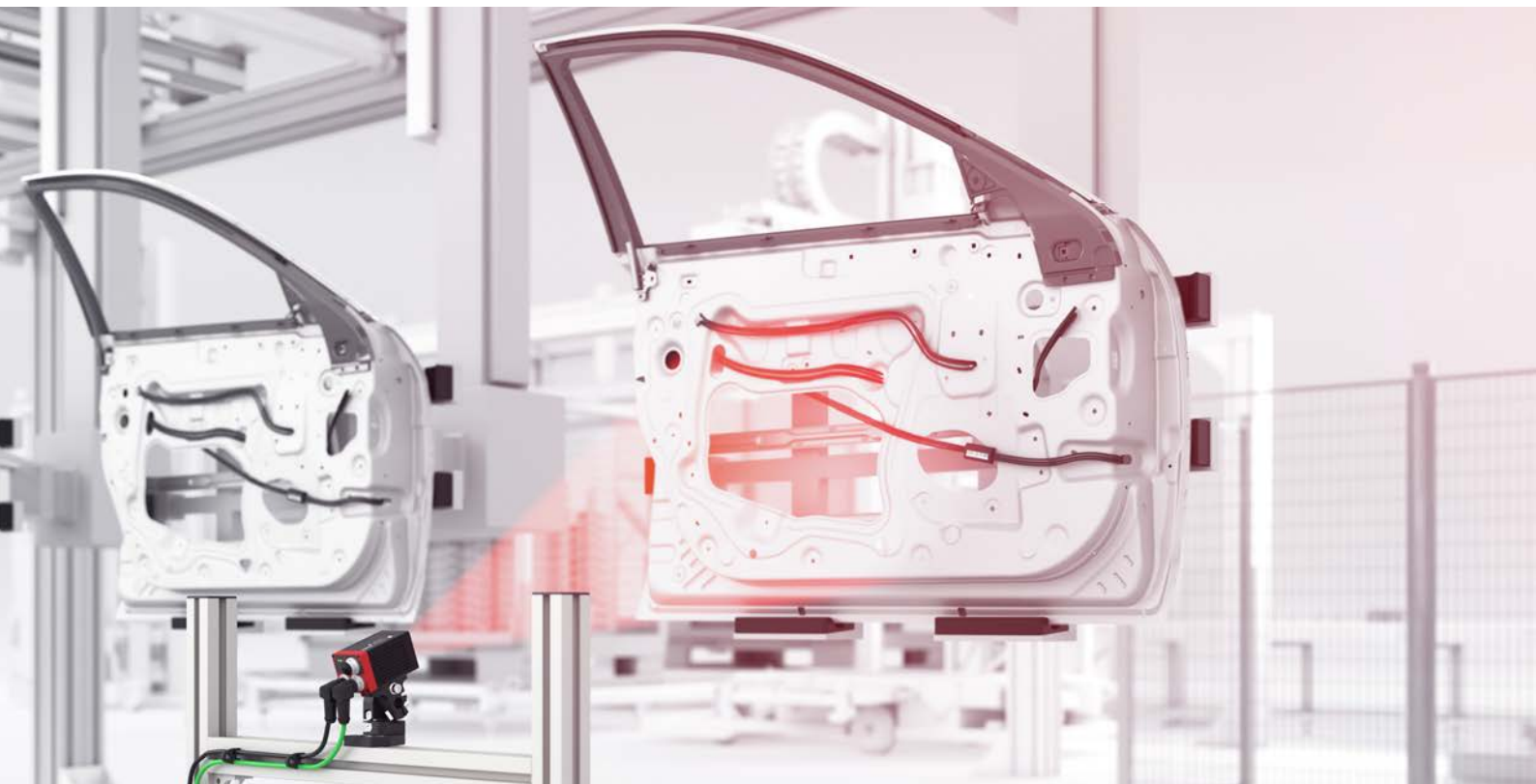
The task:

Car door assembly involves accurately checking various small components like fastening clips, cables, hoses, and seals. To ensure flawless quality and functionality, it's essential to verify the presence of each part using a reliable vision sensor.

The Challenge:

Detecting small components across a large field of view can be challenging. Achieving optimal lighting for clear, high-contrast detection is especially difficult with reflective or hard-to-illuminate parts.

Our Solution:

The VISOR® **XE** V50 Object AI offers advanced AI-powered presence checks during car door assembly. With the "Classification (AI)" detector, the sensor can quickly perform over 40 AI-driven inspections, without the need for complicated image processing. Simply upload sample images of the components, and the sensor takes care of the rest, optimizing the process for faster results.

As the sensor learns, it becomes more resistant to variations in lighting, component design, and processing conditions—ideal for handling reflective metal parts. The **XE** series' powerful computing capabilities ensure fast, efficient multiple checks per image, while its ample memory supports up to 40 "Classification (AI)" detectors per job. In addition, the V50's high resolution (5 megapixels) guarantees precise detection of even the smallest parts on large components.

Your Advantages:

- V50 variant ensures accurate detection of small components on large parts
- AI- powered detection of low-contrast parts
- Fast, simple setup using sample images
- Performs multiple inspections per image with **XE** series' high computing power
- Supports up to 40 "Classification (AI)" detectors per job

Precise robotic handling for large components

Application example
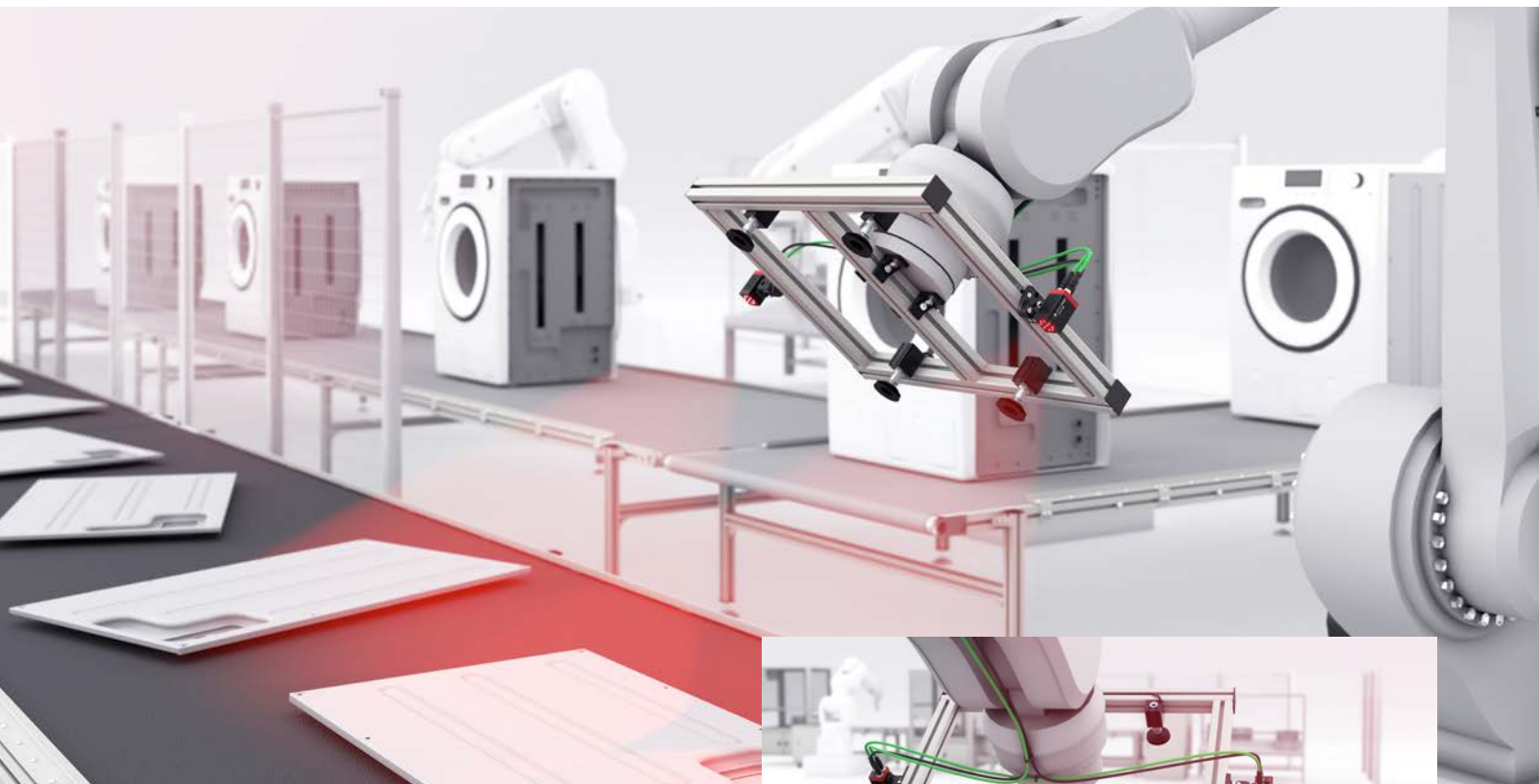
The task:

In industries like plastics manufacturing, robots are challenged with gripping large components safely and accurately, especially large appliances. To ensure precise handling, vision sensors are used to pinpoint the exact position of these components and relay the data to the robot.

The Challenge:

Detecting the precise position of large components often requires two cameras. However, mounting multiple cameras on the robot gripper increases both cabling complexity and installation costs.

Our Solution:

With the VISOR® **XE** Robotic, the exact position of the large components is determined and transferred to the controller in robot coordinates.
The VISOR® **XE** series enables fast, cost-effective installation and connection of multiple vision sensors thanks to the additional LAN connector, which reduces cabling and installation time. This solution facilitates the reliable detection of large components and simplifies their integration into existing systems.

Your Advantages:

- Reliable 2D or 3D localization in robot coordinates
- Precise part picking with specialized features like gripper clearance check and gripper offset
- Compact and lightweight housing for mobile or stationary use
- Streamlined setup with calibration methods tailored to specific applications
- Simple integration with numerous robot function modules and apps
- Fast and cost-efficient setup for multiple VISOR® **XE** robotic cameras thanks to an additional LAN interface

High-Speed, High-Resolution Code Reading

Application example
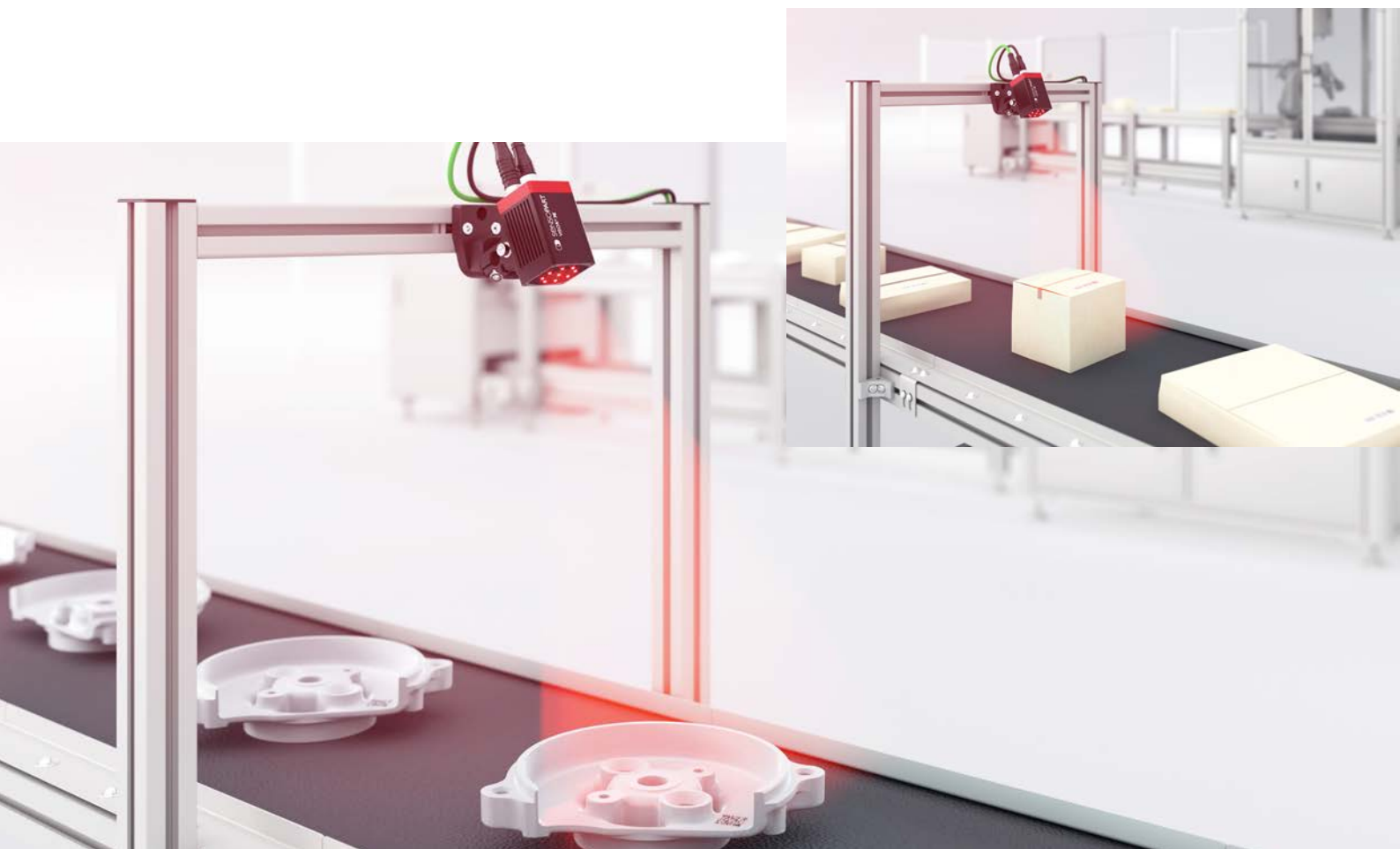
The task:

In industrial production, reliable code reading is critical for accurate component identification and traceability. A vision sensor is essential for precisely capturing small codes over a large field of view to ensure efficiency and accuracy.

The Challenge:

Traditional devices often require multiple sensors to cover a large field of view. Additionally, fast-moving production lines leave little time for reading codes, making it difficult to maintain efficiency.

Our Solution:

The Code Reader in the VISOR® **XE** series combines high resolution with fast processing speeds. With a variety of optics and illumination options, you can find the perfect hardware solution for every installation setup.

The 5-megapixel V50 version reads codes in large fields of view in under 40 milliseconds, eliminating the need for multiple sensors.

The VISOR® **XE** Code Reader easily reads barcodes along with printed and directly marked data matrix codes – even when scanning multiple 1D and 2D codes simultaneously. Reliable code detection is ensured, even in challenging conditions like long distances, moving objects, low contrast, or damaged codes

Your Advantages:

- Cover large fields of view with just one high-resolution vision sensor
- High-speed reading of up to 1,500 codes per minute
- Flexible positioning with three built-in optics options or C-mount lens support
- Simple software setup for quick deployment
- The VISOR® Global shutter technology delivers exceptional results, even on moving objects
- Reliable performance at both short and long distances, with motion, and in low-contrast situations
- Seamless communication via PROFINET, Ethernet/IP, TCP/IP, and more

Checking the right spring type

Application example

The task:

Vibrating spiral conveyors are used for sorting, conveying and transporting a wide variety of small parts and connecting elements. Springs, screws, nuts, pins, washers, caps and other special elements are sorted and made available for further automated processing. A vibratory bowl feeder can process different batches containing various spring types. Feeding the wrong springs down the line can lead to rejects or even machine damage. A vision sensor is used to ensure the correct spring type is selected.

The Challenge:

Due to the variability of springs, even those of the same type can appear different to the camera. Differentiating springs with a rule-based method would require defining numerous rules, which is highly time-consuming.

Our Solution:

With advanced artificial intelligence, the robust VISOR® **XE** Object AI vision sensor reliably distinguishes between different types of springs in the vibratory bowl feeder.

By assigning a few examples of each class, the "Classification (AI)" detector automatically learns to distinguish between different part types. The sensor setup takes just a few simple steps and requires no expert knowledge.

Your Advantages:

- Faster setup
- Reliable results even with varied processes and products
- Effortlessly identifies objects that often appear different (per perspective)
- Detection of up to 200 parts per minute

Check the right type of switches on the dashboard

Application example

The task:

In automobile manufacturing, the switches on the dashboard vary depending on the vehicle model.

To ensure that the correct switches have been installed in the correct vehicle, a vision sensor should carry out a type check.

The Challenge:

It takes considerable effort to solve this task with rule-based methods. You would need locators, detectors, jobs for each class (i.e., switch combinations), and complex logic to differentiate between them. Additionally, integrating with the controller requires extensive, costly logic implementation.

Our Solution:

With it's robust artificial intelligence technology, the VISOR® **XE** Object AI reliably distinguishes between different switch types on a car's dashboard.

By providing a few examples of each class, the "Classification AI" detector automatically learns to differentiate between the various part types. The sensor can be set up in just a few simple steps without needing expert knowledge, and solving the application requires only one job and detector.

Your Advantages:

- Simplified and accelerated detector setup
- Quick and easy integration into the system

Check the right type of fuel filler necks

Application example

The task:

In automobile production, parts for various vehicles are manufactured on the same production line. To ensure that the correct tank nozzle type is installed in the appropriate vehicle, a vision sensor should perform a type check.

The Challenge:

Identifying reliable distinguishing features is essential for the vision sensor to differentiate between various types of fuel filler necks. However, traditional rule-based methods can be time-consuming and may have limitations. Additionally, detecting reflections from the components can further complicate the process.

Our Solution:

With it's robust artificial intelligence technology, the VISOR® **XE** Object AI reliably distinguishes between different types of fuel filler necks.

By assigning a few sample images to each class, the "Classification (AI)" detector automatically learns to distinguish between the different types – no expert knowledge is required to set it up. Position variations and reflections can be taught to the detector and it will learn the necessary features. The vision sensor offers a reliable solution for the type control of fuel filler necks in cars.

Your Advantages:

- Easy setup without image processing knowledge
- Train the detector with a few images on your PC
- AI technology in a robust vision sensor, made for industrial automation
- Delivers reliable results, even with highly variable processes and products.

Check the right type of fuel hoses and clips

Application example

The task:

In automated automobile production, it is important to check whether the correct fuel hoses and clamps have been installed in the vehicle. These components should be verified with the aid of a vision sensor.

The Challenge:

Because vehicles are positioned differently, the vision sensor must be capable of recognizing components from various angles. Additionally, the parts are flexible, making it challenging to track their position using traditional contour or pattern-based methods.

Our Solution:

The VISOR® **XE** Object AI vision sensor reliably distinguishes between different hose and clamp types.

By assigning a few sample images to each class, the AI-based "Classification (AI)" detector automatically learns to differentiate between the types. Vehicle position variations can also be taught to the detector, allowing it to learn the necessary features.

Your Advantages:

- Easy creation of sample images to train the detector on the different classes
- Simpler than configuring multiple detectors to define rules
- No need to create separate jobs for each class
- The detector directly transmits the class type, making PLC integration easier

We are SensoPart

SensoPart is a leading manufacturer of photoelectric sensors and machine vision sensors for factory automation. We also offer inductive and ultrasonic sensors, covering a wide spectrum of industrial automation tasks. Our products are used in countless applications and industries – from automotive assembly and mechanical engineering to electronics manufacturing and solar, as well as in the food and pharmaceutical industries. We take great pride in our renowned, German-made quality products, developed and manufactured at our two facilities in Germany and shipped worldwide.

made in Germany

SensoPart worldwide

With our global network and worldwide subsidiaries, we are always ready to support you.

You can find your local team at:
www.sensopart.com/contact

SENSOPART

11/2024 Q69-00228