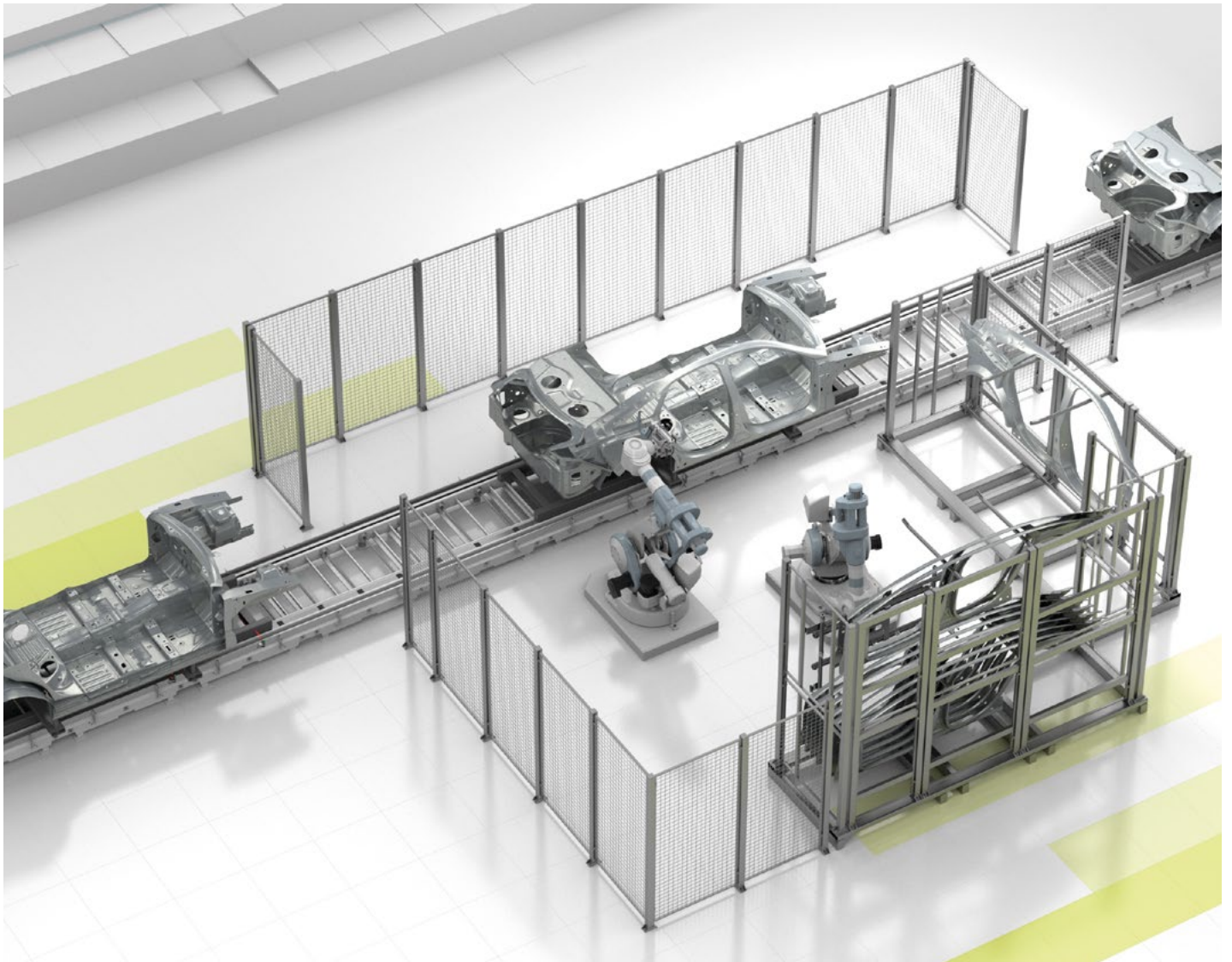
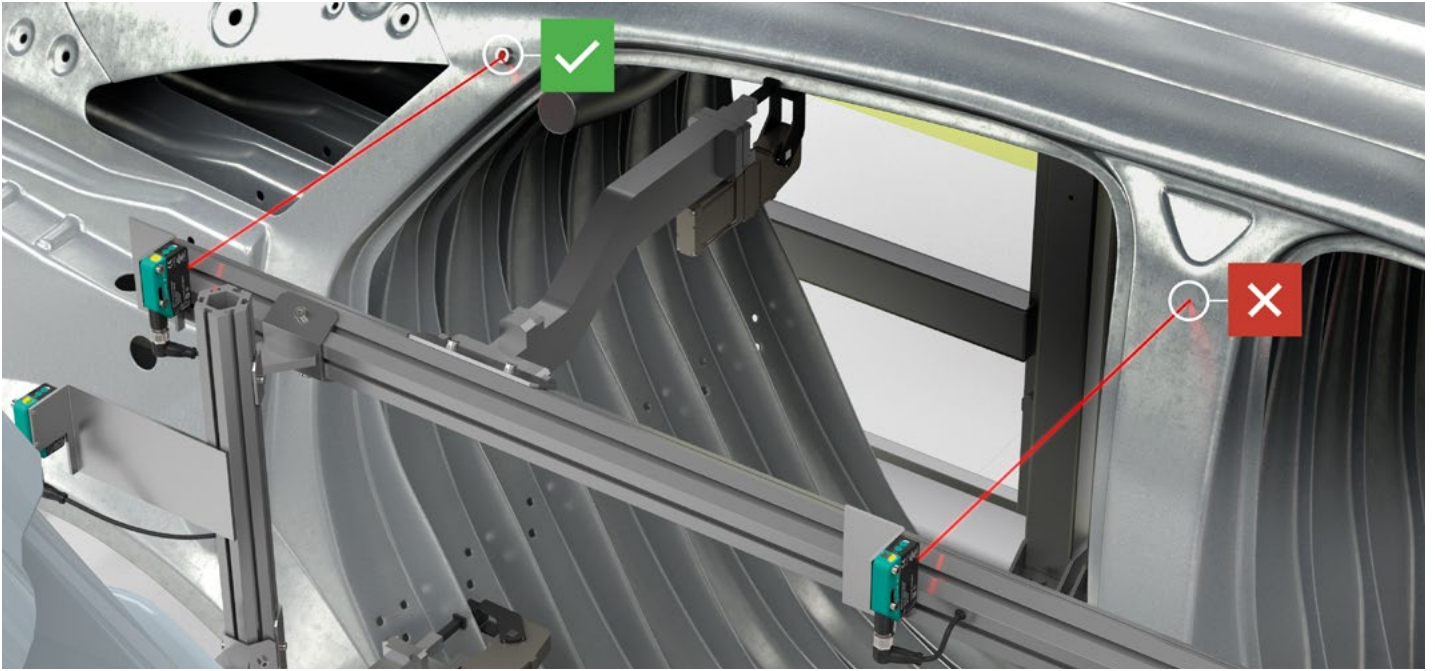


## Reliable Detection of Small Parts in Automotive Bodyshell Manufacturing

R201 Triangulation Sensor with Background Suppression with Precise DuraBeam Laser Technology





### The Application

During the automotive manufacturing process, various components are added in stages to create the vehicle bodyshell. The components include: sheet metal parts, assemblies, and add-on components. Skids are used to transport the bodyshells between the individual production stations and into the robot welding cells. In the welding cells, the side panels are placed on racks for the handling robot, which removes the panels from the racks and positions them on the bodyshell for welding.

### The Goal

Some of the side walls come from external suppliers. This means they must be checked when they are picked from the rack. If there is a fault, the affected part must be rejected immediately to prevent process faults. The quality criteria for sheet metal parts can often involve extremely small parts—such as whether two screws on the B and C pillars are present and installed correctly. If errors are detected during the checking process, the handling robot immediately ejects the affected side panels onto a second rack.

### The Solution

R201 series triangulation sensors with background suppression are used to achieve this goal. The DuraBeam laser diode creates a small, precise light spot that can reliably monitor even the tiniest features of the side panels. The diffuse mode sensors detect the presence and correct installation of the screws. Faulty side panels are then rejected, ensuring that processes run smoothly.

### The Benefits

The DuraBeam laser technology of the R201 series enables reliable detection of small objects and features, as well as high-precision distance measurement even at close range. This technology combines the advantages of LED emitters with the strengths of conventional laser diodes. The mid-sized R200 and R201 series are ideal for larger operating distances. The smaller configurations of the R100, R101, and R103 series feature the same sensing modes and are equally impressive in space-restricted applications. One user interface across all series also makes selecting a sensor less complicated.

#### At a Glance

- Background suppression offers optimal detection reliability, even with reflections, mirroring, and extraneous light
- DuraBeam laser technology for a long service life and increased operating temperature range
- Standardized IO-Link connection via Smart Sensor Profile as the basis for Sensorik4.0®
- All photoelectric sensing modes in five standard housings for maximum flexibility and a variety of integration possibilities