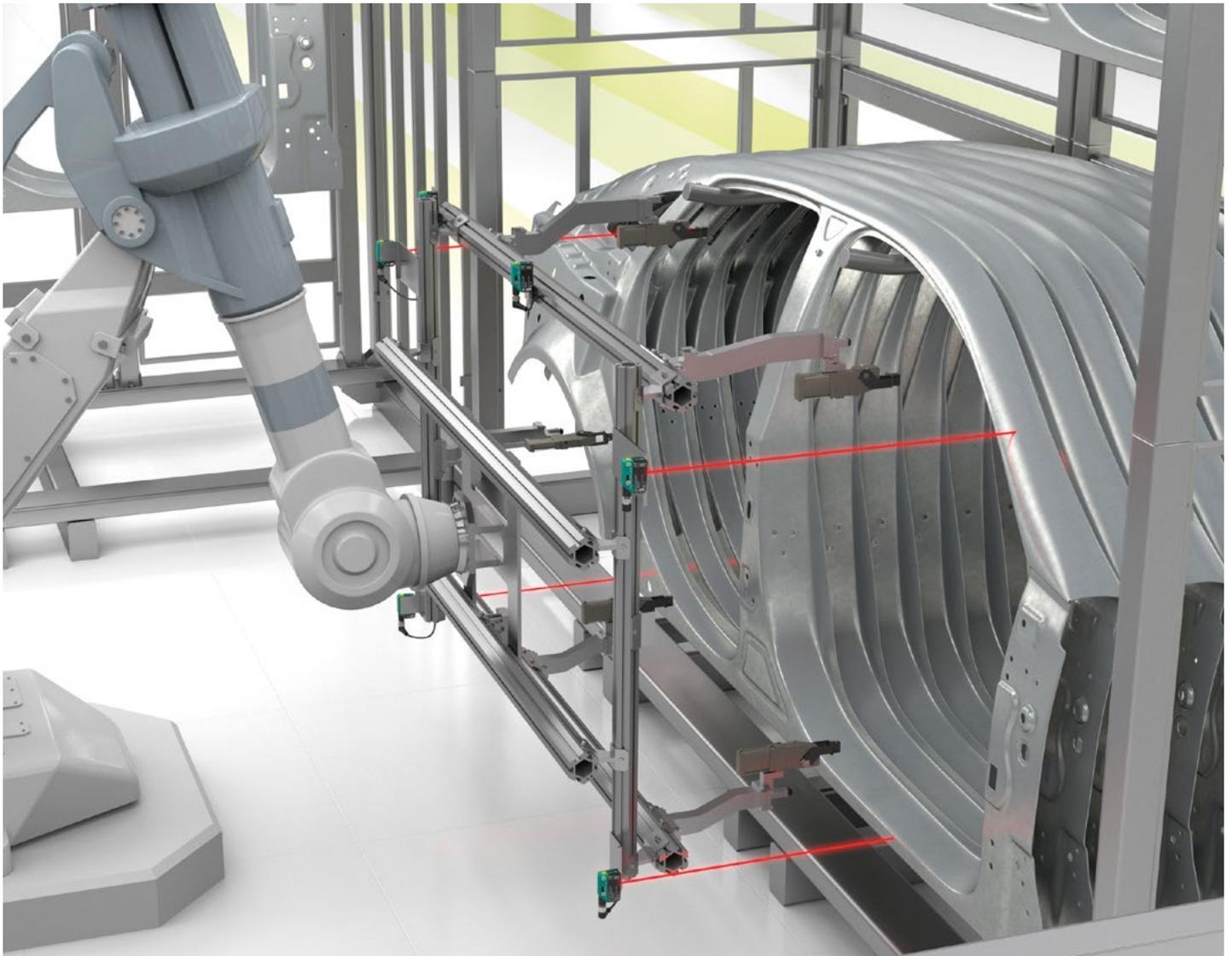
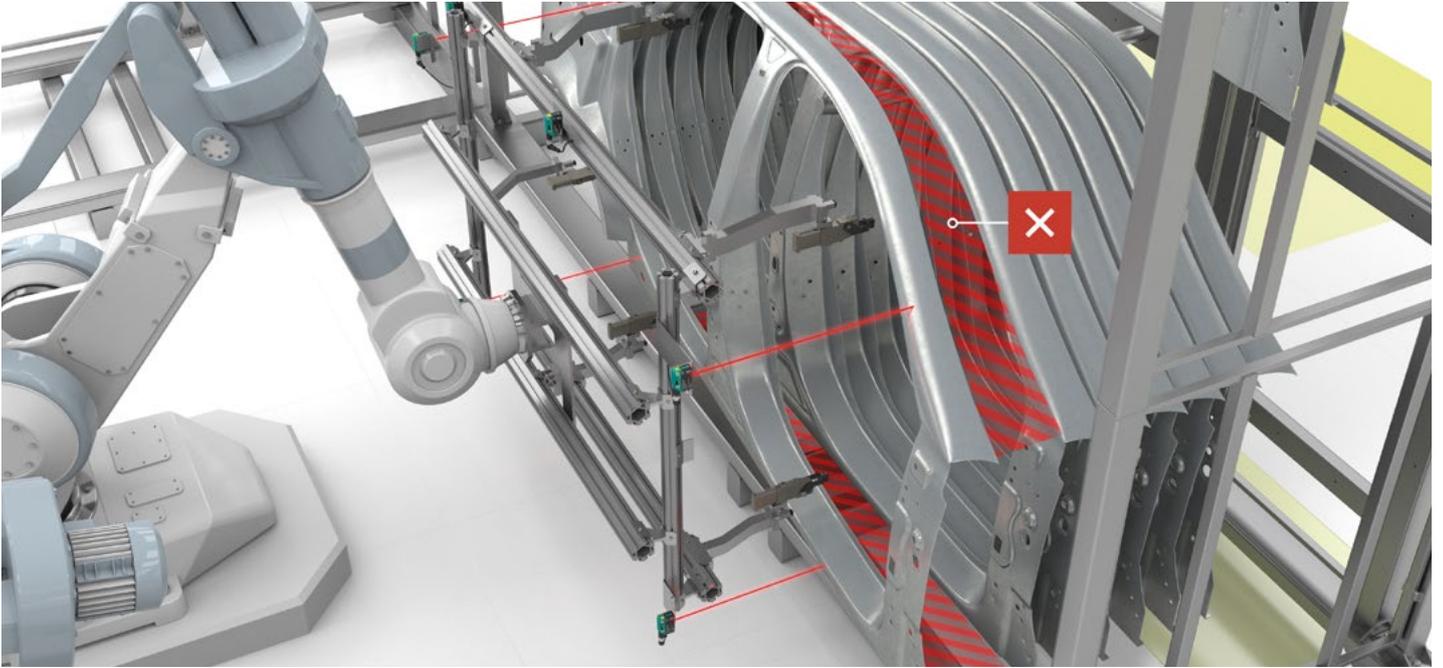


Precise Position Control for Robotic Gripping Systems

R201 Distance Sensors with Multi Pixel Technology Regulate Position in Automotive Production





The Application

Robots play a key role in automotive bodyshell manufacturing. They are used for the step-by-step process of creating a bodyshell, which involves combining sheet metal parts from the press shop, front, rear, and floor assemblies, and add-on parts such as doors and side walls. The components are moved along the main production line on transport platforms—or skids—and delivered to the individual production stations. In the welding cell, a robot then picks the add-on parts from a load carrier so that the parts can be welded to the bodyshell when it is fed along the line.

The Goal

The side panels are placed in load carriers in the assembly cell. Inaccuracies when picking and placing and when transporting load carriers may cause individual side panels to become dislodged from their required position. To grip each side panel securely, the handling robot must first check the position of each add-on part and adjust it if there is any misalignment in the rack. This step prevents errors in the picking process that can damage both the skid and the robot.

The Solution

A total of four R201 series distance sensors ensure that the robot is able to grip correctly. As the gripper element approaches the load carrier, the sensors measure the distance to the side panel at various points. The robot control system uses this data to determine the optimal gripping coordinates.

The Benefits

When measuring distance, Multi Pixel Technology (MPT) in the R201 distance sensor draws on the benefits of geometric triangulation on an integrated CMOS chip. Intelligent analysis algorithms ensure highly accurate and reliable measurements—even where there is mirroring from the side panel or optical interference from the plant environment.

To complement the R201 series, the R200 series with medium-sized housing is suitable for larger operating distances. The smaller configurations of the R100, R101, and R103 series offer impressive performance in space-restricted applications. This makes selecting a sensor less complicated, as users can benefit from identical sensing modes and one user interface across all five series. MPT is available in every R10x/R20x configuration—allowing interference-free distance measurement and accurate object detection, even at close range.

At a Glance

- R201 diffuse mode sensor with Multi Pixel Technology (MPT): precision with geometric triangulation
- Interference-free distance measurement even at close range
- Standardized IO-Link connection with 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