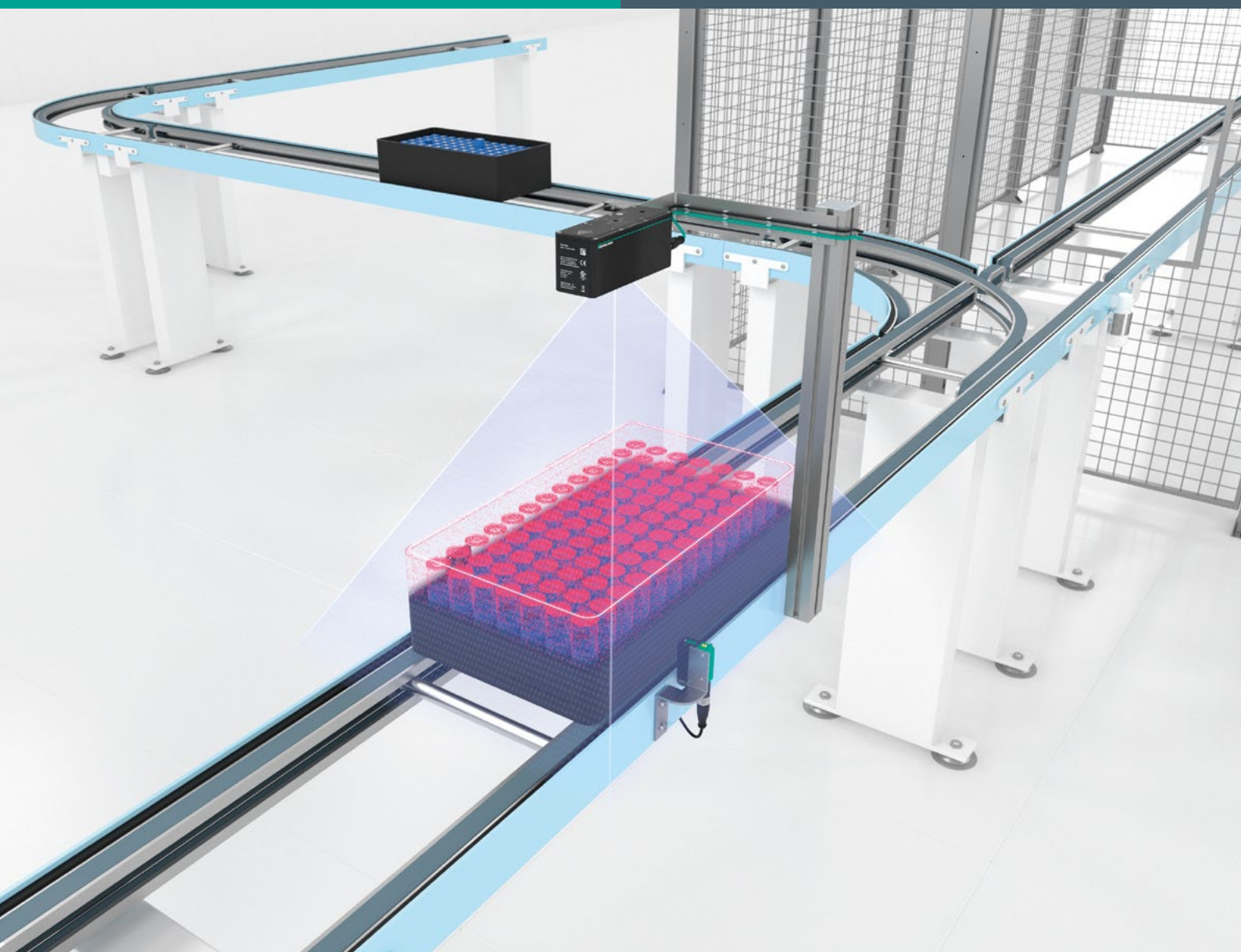


# Checking the Completeness and Alignment of Cells for Battery Modules

Stereo-Vision Sensor Creates High-Precision 3-D Images during an Ongoing Process

## At a Glance

- Checking the completeness and alignment of battery cells in a fully automated process
- High-resolution, precise detection of the target object in three dimensions
- ViSolution application software for intuitive commissioning and parameterization based on live data
- Measurement data is preprocessed in the integrated FPGA



## The Application

A specific number of battery cells are bundled together to form a battery module. Before further processing, this battery module is checked to ensure that it has been assembled correctly and all cells are present and in the correct position. The cells must be aligned straight and arranged into a battery module without any overhang.

## The Goal

The assembly should be checked fully automatically as part of the ongoing process. The battery modules are usually in motion on a conveyor belt or roller conveyor. The sensor is designed to precisely and reliably detect the completeness of the battery cells and ensure that they are aligned correctly within the module. This should take place immediately and without contact.

## The Solution

A vision sensor from the SmartRunner Explorer 3-D series uses stereo vision technology to create a high-resolution 3-D point cloud image of the entire measuring range. This displays the target object in all the required detail. The sensor itself preprocesses the measurement data in its integrated FPGA. The data—such as optimized depth data from the Z direction—can be used to check that the cells are complete and aligned correctly.

## The Benefits

Three-dimensional detection means that this quality control step can be performed in a single, fully automated process. The ViSolution application software provides intuitive user guidance for commissioning and parameterization based on live data. It only takes a few clicks to retrieve a targeted visualization of 2-D and 3-D data. Devices are exchanged according to the plug-and-play principle; they do not need to be recalibrated. An integrated Ethernet Gigabit interface ensures quick data transfer. The device has a resolution of 1.4 mega pixels for high-precision detection of objects in a range of up to 900 mm.

### Technical Features

- Resolution: 1300 × 1080 pixels
- Object speed: up to 1 m/s
- Transfer rate: 1 Gbit/s
- Degree of protection (IP65/IP67)
- Quick and simple mounting
- Robust metal housing
- C# API

