Infinite Possibilities.

At the speed of light into the third dimension of automation.

SmartRunner Explorer 3-D

Your automation, our passion.

PEPPERL+FUCHS

SmartRunner Explorer 3-D

Precision in 3-D. Flexibility in Application.

The stereo-vision sensor for maximum flexibility: precise raw data, universal integration options, and unlimited applications in industrial automation.

Maximum Precision is the New Standard

Precise measurement data enables optimal processes. Due to the high chip resolution, the raw data sensor converts objects and environments into highly accurate 3-D point clouds. Ex-factory calibration and the temperature-regulating aluminum housing guarantee reliable data acquisition. The standardized data structure and the uniform ViSolution user software facilitate integration into your systems.

Universal interfaces for simple application implementation

The output of raw data opens up endless possibilities for implementing individual applications. For the quick and easy use of this data, the SmartRunner Explorer 3-D offers the GenICam and ROS interfaces. They enable universal access to data and parameters as well as an almost infinite variety of available programming modules.

Extract of Technical Data	VSE1000-F400-B12-A1000	VSE2000-F400-B12-A1000	VSE3000-F400-B12-A1000
Detection range	600 ... 950 mm	850 ... 2,050 mm	1,000 ... 3,200 mm
Power supply	24 V DC		
Interface	Gigabit Ethernet TCP/IP, GeniCam, ROS		
Dimensions	180 × 56 × 67 mm (W × H × D)		
Ambient light suppression	> 20 kLux		
Trigger options	Auto trigger, software trigger, hardware trigger		
Frame rate	Up to 10 Hz		
Raw image size	1,300 × 1,080 pixels		

For more information, visit
pepperl-fuchs.com/pf-smartrunner3d

Highlights

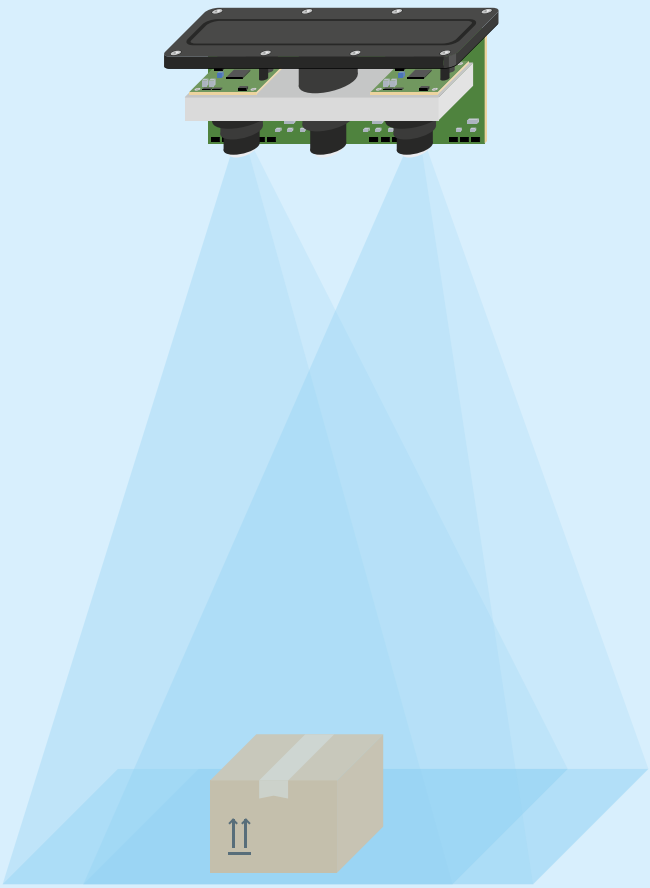
- Stereo vision or Time-of-Flight—the right technology for every application
- Maximum precision through high chip resolution and temperature-regulating aluminum housing
- Intuitive commissioning with live data in the ViSolution user software
- Genicam and ROS interfaces for universal access to data and parameters

Stereo-Vision Technology for Precise Depth Detection

Two offset cameras capture the scene simultaneously from different angles. The exact depth information is calculated using triangulation based on the measured disparity between the two images. This creates a complete 3-D image of the object, providing precise information on its shape, position, and orientation. This technology enables high measurement accuracy in both static and dynamic applications and ensures reliable results for complex geometries.

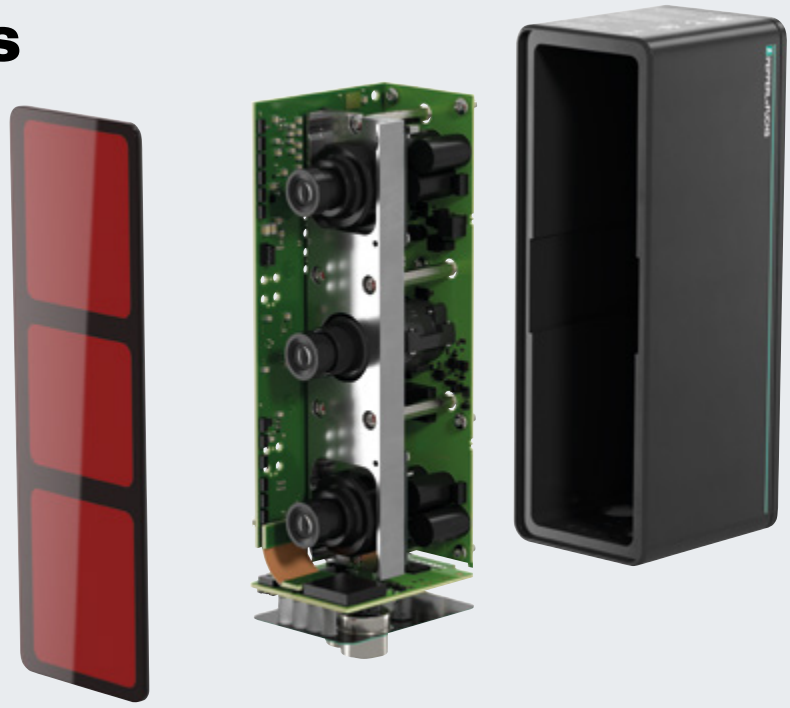
Structured Light for Stable Measurement Results

An integrated projector casts a fine structured pattern onto the object's surface. This structure provides stable reference points,including on smooth, single-color, or low-contrast materials. This makes the correlation between the camera images more stable and the depth calculation significantly more accurate. The result is reliable measurement data with high repeat accuracy, regardless of the color, surface, or material of the object.



SmartRunner Explorer 3-D

Maximum Precision in Short-Range Applications



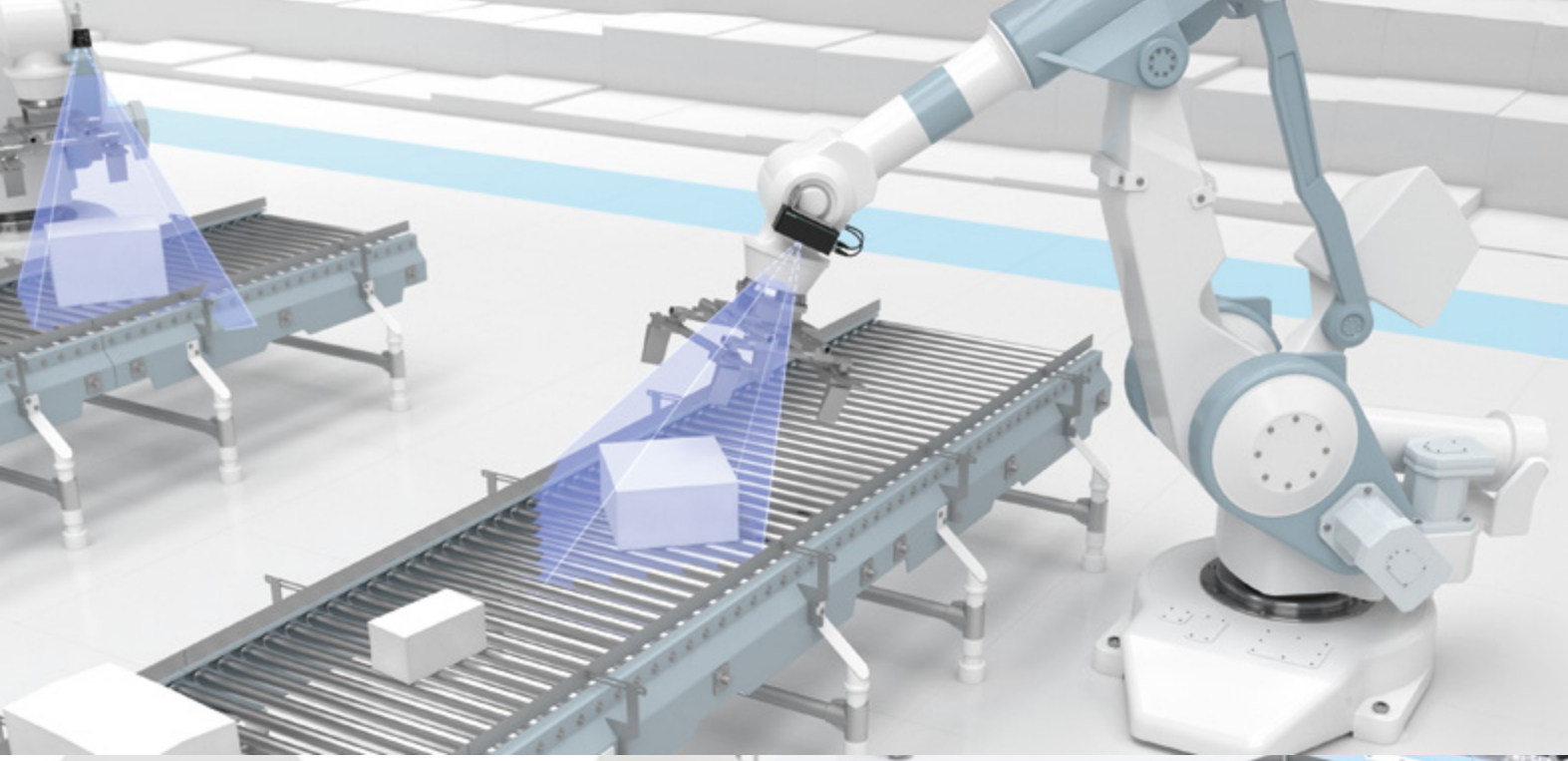
Data Preprocessing Directly in the Sensor

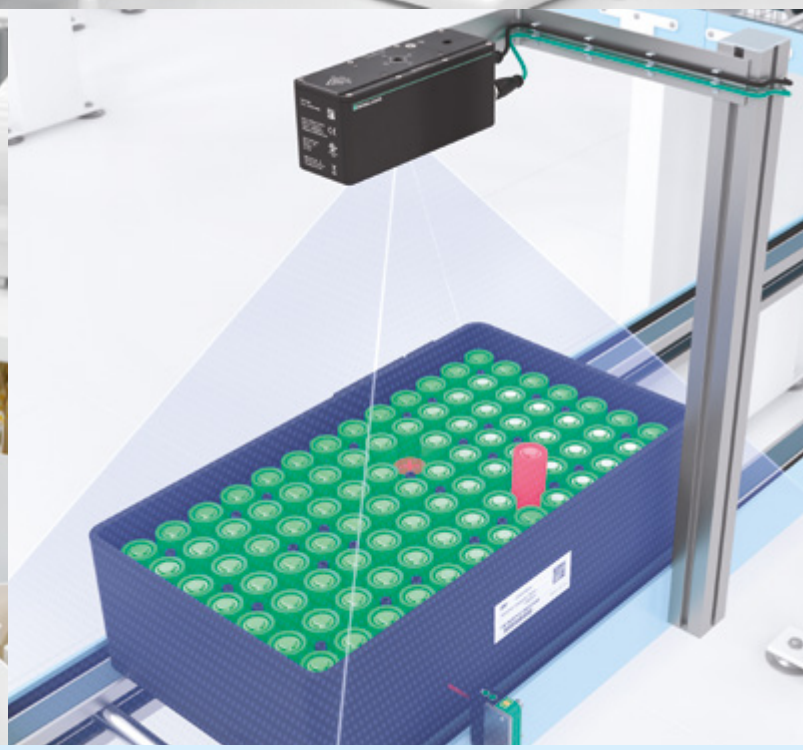
Equipped with an integrated FPGA, the measurement data is processed directly in the sensor. This means that the 3-D data is provided immediately and does not have to be calculated externally at great expense. The images from two offset cameras are automatically superimposed and merged into a 3-D point cloud using a semiglobal block-matching process. An infrared pattern of 72,000 points points enables both images to be exactly superimposed and therefore guarantees maximum precision.

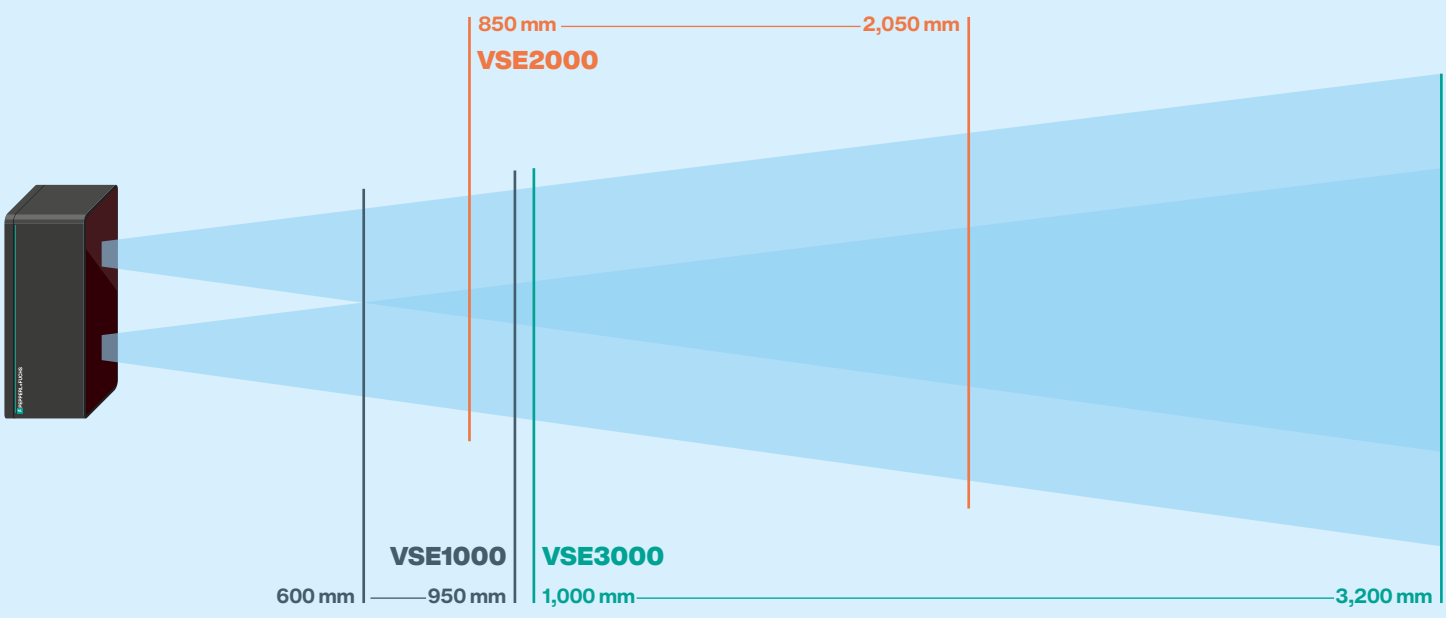
In addition, the operator can access live images and use them for quick and easy commissioning as well as error analysis. Thanks to integrated lighting, 2-D images can also be captured and used for image processing in addition to the 3-D information, if required.

Optimized for Inspection

With a resolution of 1.4 megapixels and a range of up to three meters (depending on variant), the SmartRunner Explorer 3-D with stereo vision technology is optimized for precision detection of objects at close range. Applications such as inspection and counting or volume detection of amorphous masses are typical for this technology.






850 mm
2,050 mm
VSE2000
VSE1000
VSE3000
600 mm
950 mm
1,000 mm
3,200 mm

Your automation, our passion.

- Industrial Sensors
- Industrial Communication and Interfaces
- Enterprise Mobility
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Printed in Germany • Part. No. 70202358 01/26 • public

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