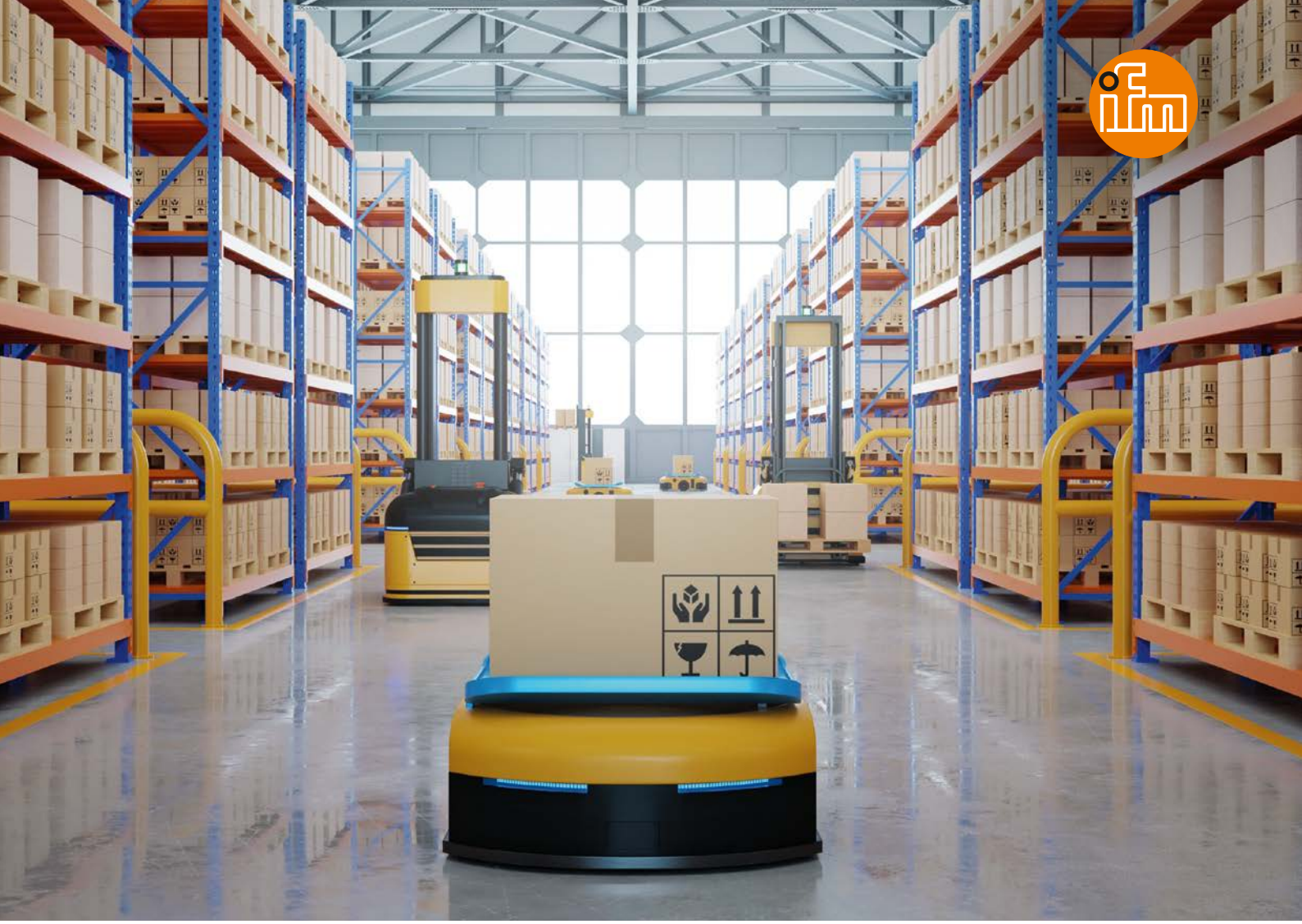


360° vision for mobile robots

3D camera-based perception platform

- Obstacle avoidance and clear space detection for route planning of autonomous vehicles
- Also detects objects below and above the scanning plane of a safety scanner
- 3D PMD cameras detect even difficult scenes and objects, e.g. forks
- Powerful integrated image evaluation, output of zone evaluation and occupancy grid



ToF

ifm – close to you!

Video Processing Unit (VPU)			
Description	**Supported camera heads**	**Platform**	**Order no.**
connection for up to 4 cameras	O3R335	NVIDIA® Jetson Orin NX 8 GB	**OVP931**
connection for up to 6 cameras	O3R222, O3R225	NVIDIA® Jetson TX2 NX	**OVP811**

Camera heads					
Operating range [m]	**3D resolution [pixel]**	**2D resolution [pixel]**	**3D angle of opening [°]**	**Dimensions [mm]**	**Order no.**
4	38 K	1 M	60 x 45	90 x 31 x 26	**O3R222**
4	38 K	1 M	105 x 78	90 x 31 x 26	**O3R225**
6	39 K	4.8 M	105 x 78	90 x 31 x 26	**O3R335**

OVP931 and OVP811 are not technically compatible with each other.

3D obstacle detection

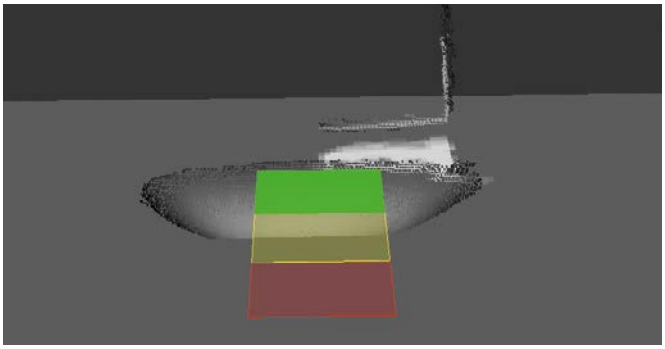
Autonomous transport systems have to overcome two major challenges: on the one hand, collision avoidance with objects and persons, on the other hand, autonomous avoidance of obstacles. The frequently used safety scanners are only of limited help here, as they only detect the travel path in a plane just above the ground. This is where the camera platform shows its advantage: it processes the signals from up to six 3D PMD cameras installed all around the vehicle and evaluates the environment three-dimensionally, i.e. both the ground area below the field of view of the safety scanners (e.g. holes in the ground) and the view diagonally upwards. In this way, hanging loads such as crane hooks, for example, are also detected. Powerful algorithms ensure that false detections are virtually eliminated despite the high detection rate.

Easy integration

The user can define zones in the form of segmented polygons in which the system evaluates the occupancy and provides the vehicle's steering system with clear data for safe and collision-free driving.



The robotics platform captures the situation in a 2D image and in 3D distance data.



The obstacle in front of the vehicle is projected in a map on the ground. One of the three zones or the area in the so-called occupancy grid is then output as occupied.

BEST FRIENDS



Graphic display
Programmable HMI for the control of mobile machines



Multiturn encoders
Precise detection of positions and rotational movement



ecomatController
Powerful 32-bit controllers reliably control AGVs

For further technical details, please visit: ifm.com/fs/OVP931

We reserve the right to make technical alterations without prior notice. · 11.2026
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