# Compact Design and Precise Distance Measurement up to 60 m

Pulse Ranging Technology with High Frequency and Repeat Accuracy

At a Glance

- High-precision distance measurement up to 10 m, or up to 60 m with reflector
- Extremely compact design—for more flexibility where space is limited
- Intelligent Pulse Ranging Technology with a repeat accuracy of up to ≤ 3 mm
- Standardized IO-Link interface with Smart Sensor Profile for future-oriented automation
- Optimized, cost-effective design for a wide range of applications

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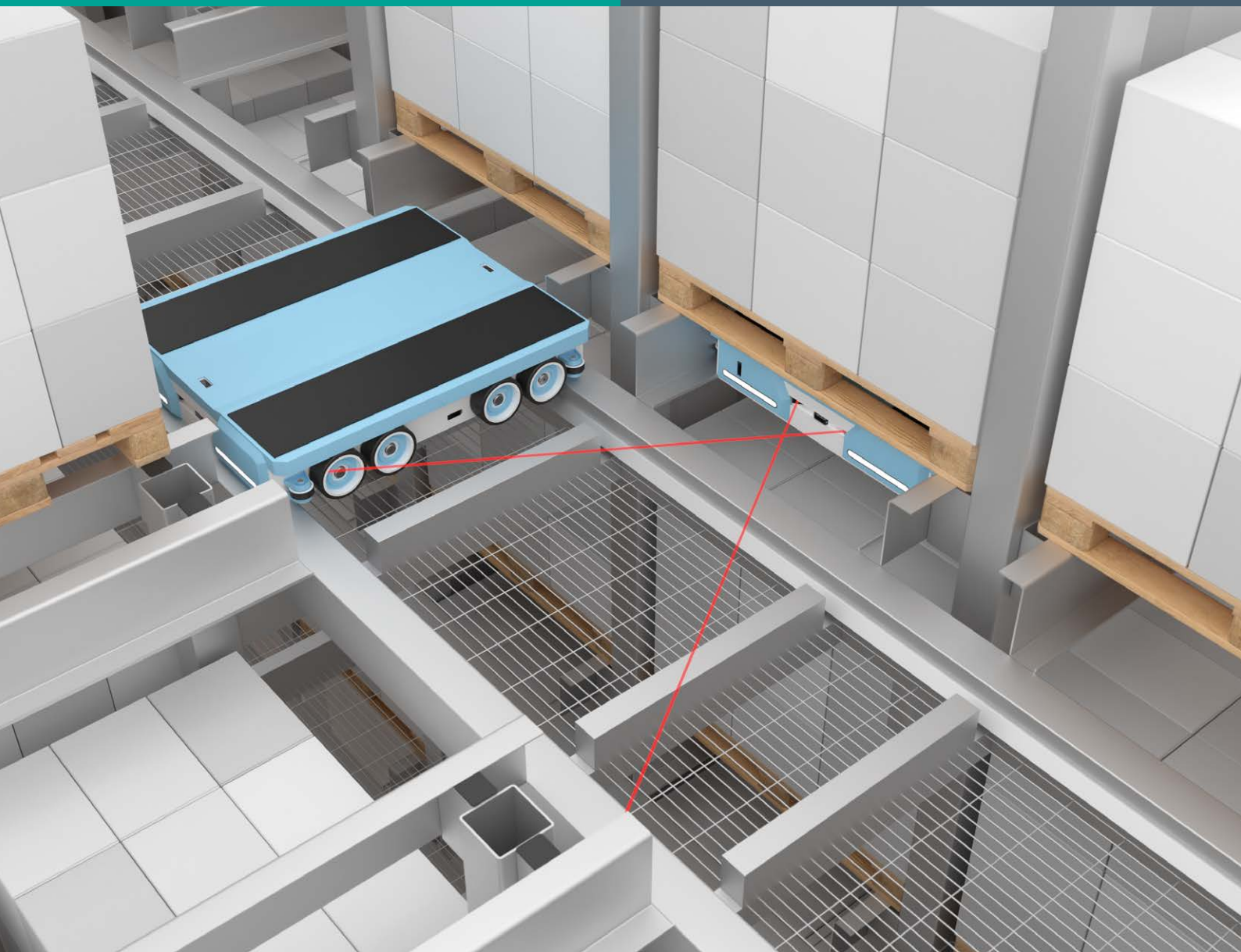
The Application

Many automated applications require precise and fast distance measurement that also works over long distances. A typical example are semi-autonomous shelf shuttles that move across several levels in large warehouses. The tasks range from checking shelf occupancy and the correct load position to distance measurement and collision avoidance. The warehouse shuttles offer little space for the integration of sensors. It is not uncommon for different types of photoelectric sensors to be required in one system.

The Goal

The distance sensor should measure both quickly and precisely. Its dimensions must be as small as possible so that it can be installed in confined spaces. It should provide reliable data both at close range and over longer distances. If sensors with different optical measuring methods are used in one system, the combination of devices should be as simple as possible. An option for integration into Industry 4.0 environments is also required.
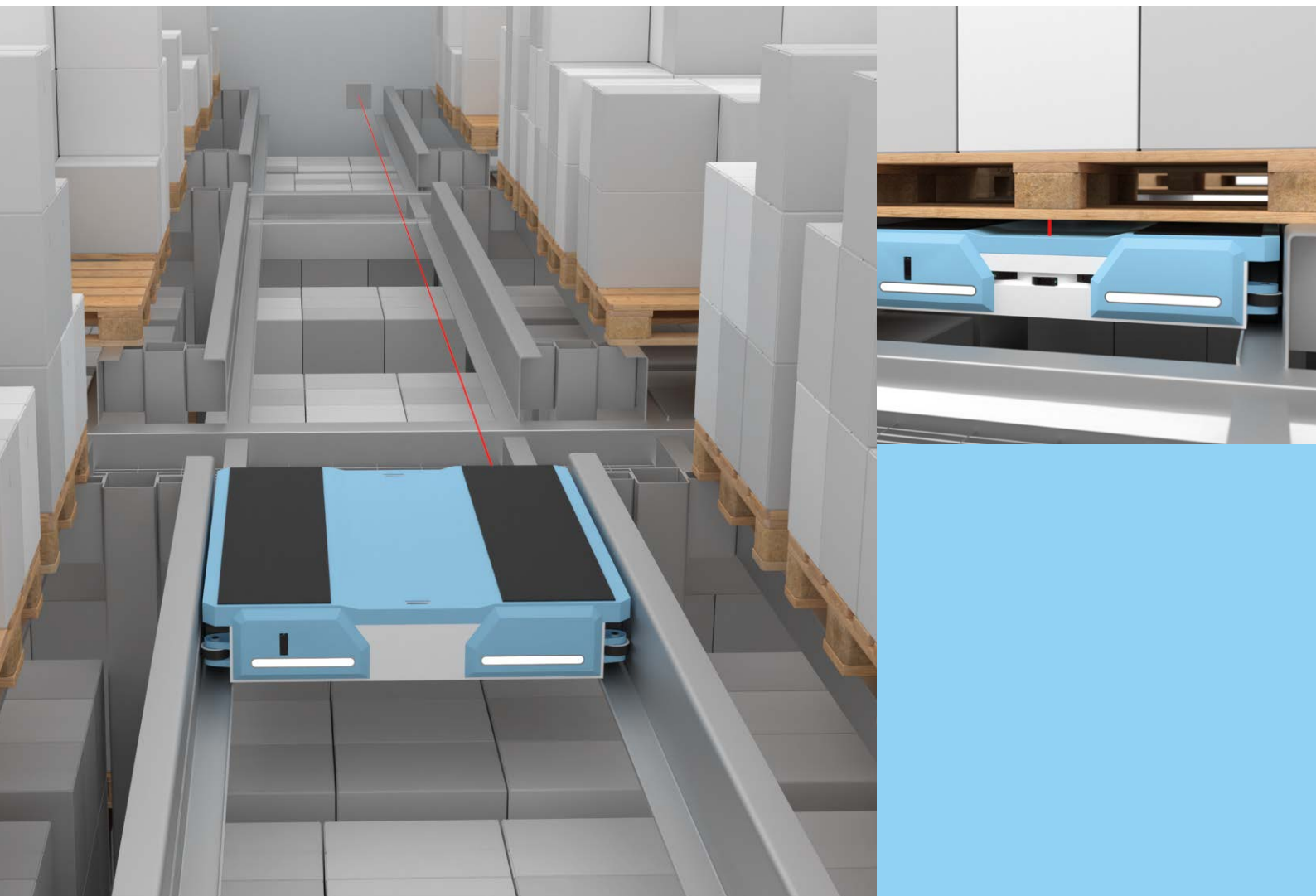
The Solution

The R200 photoelectronic sensor with Pulse Ranging Technology (PRT) uses a laser-based time-of-flight method and achieves a very high measuring frequency of over 250,000 pulses per second. The measurement is carried out with a repeat accuracy of up to ≤ 3 mm, at close range from a distance of just 30 mm. Using a version with reflector, the sensor achieves distances of up to 60 m and up to 10 m when measuring directly onto natural objects. At 15 × 41.7 × 50.6 mm, the device is barely larger than a matchbox and can even fit into tight spaces.

The Benefits

The sensor has a standardized IO-Link interface version 1.1.3 including Smart Sensor Profile. This means that the R200 with PRT can be easily integrated into Industry 4.0 environments. Installation is facilitated by a swivel connector. The device follows the design principle of the R10x and R20x series, which include numerous photoelectronic sensors with different measuring methods. They are housed in standard housings and have a uniform operating and display concept including LED indicators, optimized potentiometer design, and push buttons. This significantly simplifies the integration and operation of different sensor modes in one system.

Technical Features

- Pulse Ranging Technology

- Over 250,000 laser pulses per second

- Measurement at close range from 30 mm

- Measuring range up to 10 m, with reflector up to 60 m

- Repeat accuracy up to ≤ 3 mm

- IO-Link interface 1.1.3

For more information, visit: **pepperl-fuchs.com/px-R200-PRT**