

# Enhancing Efficiency and Convenience in Logistics Centers with LiDAR

R2000 2-D-LiDAR Sensors for Navigating Automated Guided Vehicles

## The Application

Every day, an enormous number of packages are shipped and received by logistics centers—and the number of packages is trending upward. In conventional warehouses, staff have to manually pick every item from the shelf and load it into a transport cart. An employee then pushes or pulls the fully loaded cart to an unloading station. The cart can only be used to pick the next order after it has been completely unloaded. Automated guided vehicles (AGVs) lighten the load for employees while accelerating warehouse processes and increasing efficiency.





### The Goal

Pushing and pulling carts is physically demanding for employees, and the effort required changes based on the size of the load. This limits the amount that can be loaded into carts and prevents orders from being consolidated. Further, when employees have to cover long distances in the warehouse, it leads to a time-consuming unloading process. The goal is to provide physical relief for employees and to find a solution that allows orders to be consolidated. By optimizing routes, the productivity of employees and efficiency of the overall process can be increased.

### The Solution

To achieve these objectives, a special AGV system that supports employees can be used. The 2-D R2000 series LiDAR sensor is used for navigation. The sensor monitors the AGV's surroundings with a 360° angle and provides measurements to the vehicle controller. Employees' legs can be filtered out of the high-resolution data and used as a reference point to identify their direction of movement and follow them closely. All-round visibility, a stable scanning plane, and a range of up to 30 m enable precise navigation. As soon as the cart is fully loaded, it automatically drives to the unloading station. At the same time, a second trolley starts autonomously and replaces the first one to help pick the next order. Employees can keep both hands free, and their time and strength are saved.

### The Benefits

With 360° visibility and innovative Pulse Ranging Technology for reliable and clear measurement, the compact R2000 detects its environment with high accuracy. A 50 Hz scan rate and market-leading angular resolution of 0.014° make extremely precise navigation a reality. AGVs increase the efficiency of the picking process and allow orders to be consolidated.

#### At a Glance

- Increased efficiency and convenience for warehouse staff with automated guided vehicles (AGVs)
- 360° measurement for all-round visibility
- Suitable for high-speed applications due to a rapid scan rate of 50 Hz
- Best angular resolution on the market of 0.014° ensures high-precision navigation and positioning
- Infrared-laser version offers a range of up to 30 m

For more information, visit:  
[www.pepperl-fuchs.com/r2000](http://www.pepperl-fuchs.com/r2000)