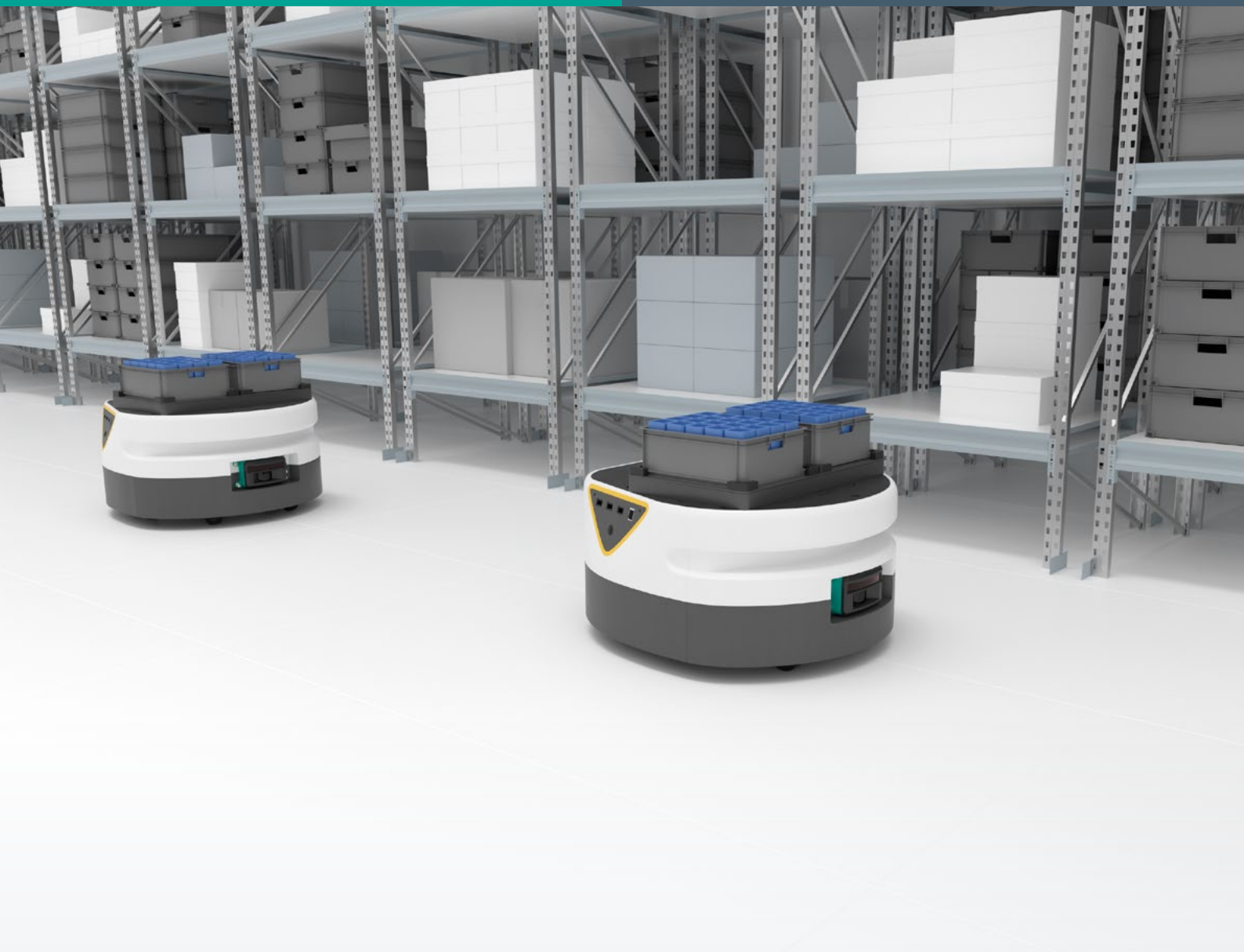
Precisely Tailored Identification Solution for Transport Bots

Rugged and Compact HF RFID Technology for Harsh Conditions

At a Glance

- HF RFID system for targeted and reliable detection, even under difficult conditions
- Rugged components tolerate thermal and mechanical stress
- Signal transmission does not require a line of sight and is therefore not affected by dirt or surface damage
- Compact design for mounting in tight spaces



The Application

The transportation of materials in logistics centers and in the intralogistics of manufacturing companies is becoming increasingly automated due to the use of automated guided vehicles (AGV) and autonomous mobile robots (AMR). The vehicles are also referred to as “bots.” They detect the load carriers, goods, or tools to be transported using automatic identification technology. RFID systems are frequently used for this purpose. This technology offers a wide range of different components and different transmission frequencies. Automated transport often takes place under harsh conditions, meaning the transport technology and its components can be subject to high thermal and mechanical stress.

The Goal

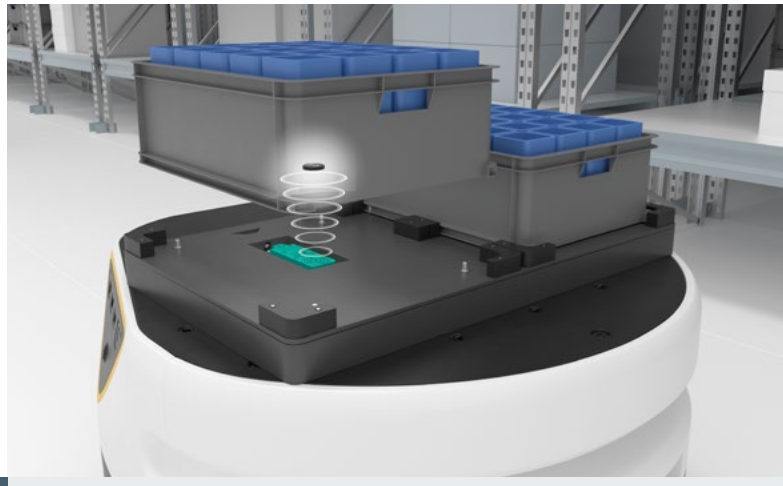
Every detail of the RFID system used must suit the intended application. The detection range of the read/write heads must not be too large or too small. The signal transmission must function reliably, independent of surrounding materials. The mechanical integration of the tags and devices should be as simple and compact as possible, because there is usually little space available in and on the bots. The sensors must be able to withstand both thermal and mechanical stress, and must not be affected by EMC interference.

The Solution

RFID in the high-frequency range (HF) offers an effective solution for load detection, especially for smaller bots. An F61 series compact read/write device is attached to the top of the vehicle. It reliably detects the tag attached to the underside of the load carrier. The device has a precisely defined sensing range that does not exceed 120 mm. This means only the RFID tag of the approaching load carrier is detected, minimizing the risk of an incorrect assignment. The device is precisely tailored to the requirements of the application.

The Benefits

The IQH4-F61-V1 read/write device is especially rugged and very compact. The device can transmit large amounts of data, even at high vehicle speeds. Unlike optical code readers, RFID technology is unaffected by dirt and damage. The wide temperature range means the device can be used in cold stores and in hot environments.



Technical Features

- Read/write distance: 0 mm ... 120 mm
- Working frequency: 13.56 MHz
- Complies with ISO 15693
- Compact housing (80 × 28 × 12 mm)
- Rugged design
- Temperature range: –25 °C ... +70 °C
- Degree of protection: IP67, IP69
- Can be mounted on metal



For more information, visit: **pepperl-fuchs.com/px-RFID-F61**