Application example

NearFi in use with automated guided vehicle systems

Contactless data transmission

Automated guided vehicle systems (AGVSs)

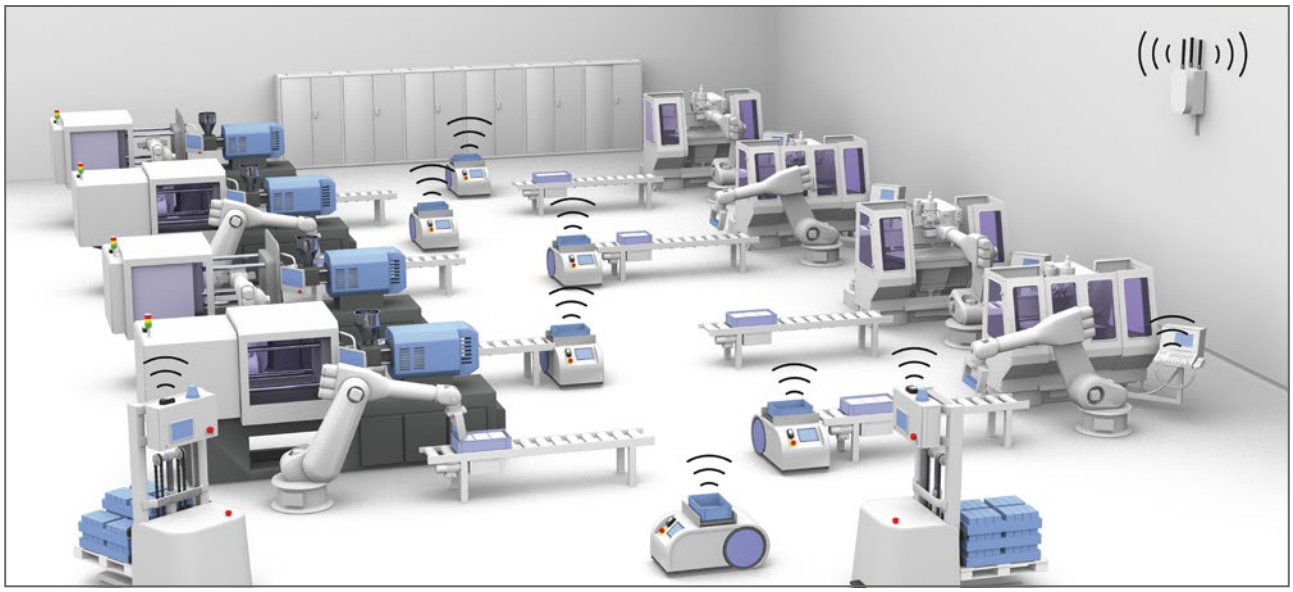
AGVSs can be used for a variety of tasks, such as semi-automatic pickup in warehouses, transporting raw materials to the production line, or shipping end products for transport (loading and unloading). To transport larger loads more effectively, hauler AGVSs can operate individually, as route trains or in long haulage groups, depending on the application.

Central trend: Smart Factory (flexible/modular automation)
In the factory of the near future, several hundred AGVSs will take over the in-house material flow. Since the AGVSs are mobile, they will exchange data with their control systems wirelessly. In addition to the central communication backbone (typically WLAN), other wireless systems for special functions are used, such as:

- Communication between AGVS and stationary transfer stations
- Communication between AGVS and doors/gates in production
- Communication between several AGVSs as a route train or in a haulage group

For manufacturers, system integrators, and operators of the AGVS fleets, the question here is which wireless system is particularly suitable for the respective task?

Application
In industry and intralogistics, wireless networks are increasingly being used for AGVS communication via fleet management or communication between the AGVS and the stationary transfer station, as well as between the AGVS and the conveying technology.



Efficient intralogistics with AGVSs

The challenge

When an AGVS docks to a processing station, safety-related communication between the AGVS and the processing station is required. The safety controller of the processing station typically communicates with the AGVS via connectors via PROFIsafe. When frequently plugged and unplugged, connectors are susceptible to interference and require high levels of maintenance. In addition, the manual and precise plugging process is time-consuming.

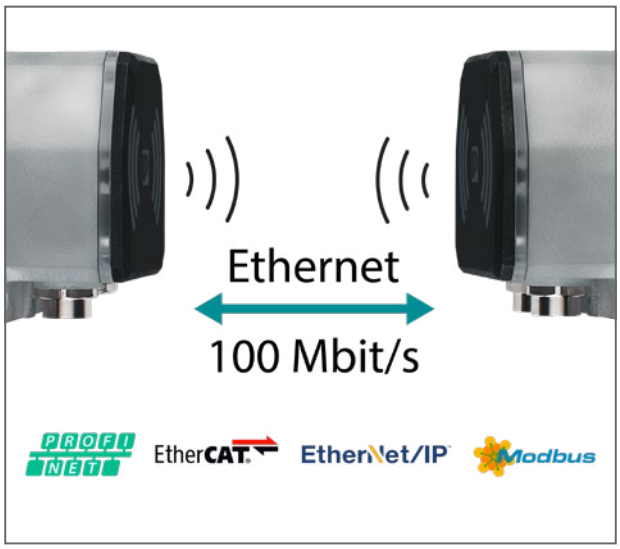
The reason for WLAN-independent data communication is mainly due to the safety concept. Since all machines and AGVSs in a factory typically communicate via WLAN, the frequency bands are highly frequented and safety-related communication between the AGVS and processing station becomes problematic.

Faulty connectors can cause production downtimes

The solution

The NearFi devices transmit the Ethernet protocol without latency or wear across an air gap. The very small distance enables interference-free parallel operation of any number of NearFi couplers and coexistence with other wireless technologies. Complex frequency planning is not necessary. The AGVS docking process can be accelerated by means of large clearance and offset tolerances.

Furthermore, the couplers do not require any configuration and are as easy to use as a plug-in connection, which significantly reduces network planning and configuration effort.



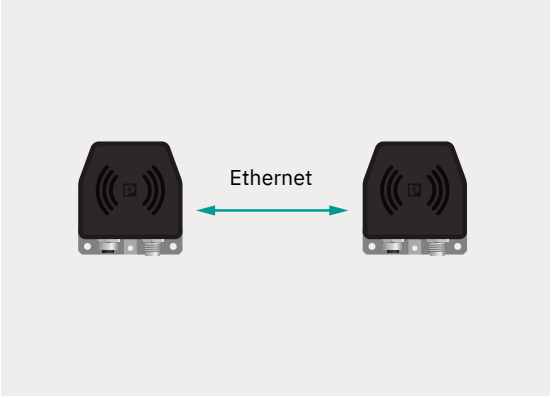
NearFi couplers for contactless power and data transmission

Contactless data transmission

A NearFi coupler is installed on each AGVS. The counterpart is installed on:

- Stationary transfer stations
- Doors and gates in production
- Processing stations

When an AGVS docks to a processing station, the NearFi couplers transmit the PROFIsafe data without latency, wear, or interference across an air gap between the safety controller of the processing station and the AGVS.



Contactless data transmission with NearFi technology

Recommended products

With NearFi couplers, real-time Ethernet data (100 Mbps, full duplex) can be transmitted across an air gap of a few centimeters.

1433041 NEARFI 2000 B
1433040 NEARFI 2000 R

Contact

Do you have any further questions about the NearFi couplers or our NearFi technology? Contact us for more information, we will be glad to advise you.

Find out more about our NearFi products:

› phoe.co/NearFi-coupler

Found out more about our NearFi technology:

› phoe.co/NearFi

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