Leveraging Technology
Does your customer’s success depend on the performance of their warehouse? Does the warehouse experience maintenance issues with trailing cables?

Many Automated Storage and Retrieval Systems (ASRS) today still use trailing cables. Cables experience physical wear and require regular maintenance and replacement. This maintenance translates into unnecessary downtime and cost.

With the advancement of wireless technology and Ethernet networks, real-time control with Industrial Wireless LAN (IWLAN) is now available. This allows for continuous communication between the ASRS (e.g., automated forklift) and master PLC every step of the way. Real-time communication empowers your ASRS application and boosts overall performance.

Automated Storage and Retrieval Systems (ASRS)
All high bay warehouses depend on high efficiency with the placement and retrieval of material, as this defines the throughput of the storage space. Using wireless real-time communication for the communication between automated forklifts and the master PLC, can give you a competitive edge by getting the most performance out of any ASRS application. Since wireless communication also allows PROFINET over wireless, you are updated with status changes and tasks in real-time. In addition, wireless control provides reliability and ease of maintenance since there is no wear on wireless signals.

Properly positioned access points define the accessible work area which could only cover the different aisles or the whole high bay warehouse for applications where the automated forklifts are used to cover several aisles.

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The data is transferred between the control system and cranes via Industrial Point Coordination Function (IPCF) or Industrial Point Coordination Function – Management Channel (IPCF MC). Standard data such as transport orders, status messages and fail-safe communication can run in parallel on the same connection. For this purpose, each automated forklift is equipped with an Industrial Ethernet client module that is connected to the controller.

Because there is no wired connection, communication between the control system and the cranes, and between the cranes themselves and their environment, must run on a reliable and robust wireless network.

IPCF
Siemens proprietary IPCF is made for Industrial Wireless real-time applications. So what is the difference between a standard wireless system and IPCF? IPCF is an enhancement to the 802.11 standard that Siemens developed to improve the usability of 802.11 Wireless LAN systems for real-time communications.

Using IPCF, the Access Point works as a traffic coordinator and polls the clients for their IO data in short cycles. This allows PROFINET cycle times as low as 16ms over Wireless, and roaming times below 50ms. No other wireless system on the market is capable of this.

Applications
Many ASRS applications can benefit from using Wireless control. Examples of applications include:

- Food and Beverage
- Chemicals/pharmaceutical
- Distribution Centers
- Warehouses
- Manufacturing

Features and Benefits
Fully automatic storage using real-time wireless communication for control results in the following benefits:

- IPCF opens the door for use of Wireless LAN for real-time control applications, allowing PROFINET update rates as low as 16ms
- The low update rates allow highest performance for most efficient process control
- Contact-free data transmission eliminates wear and requires low maintenance
- Higher throughput to increase date flow and accurate status information in real-time

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