

Passive RFID Provides Dynamic Yard Management to World's Leading Brands

The Challenge

PINC is a supply chain management company that provides an industry-leading yard management solution. Used by the world's leading brands, PINC's advanced yard management and supply chain execution solutions orchestrate and optimize freight shipments across their supply chain and trading partner networks.

Collaboration: Design Meets Engineering

To drive their yard management solution, PINC relies on passive RFID tags manufactured by Omni-ID.



PINC was the first provider to offer a cloud-based yard management system (YMS) that leveraged low-cost passive RFID (radio frequency identification) and GPS technologies to accurately locate yard assets in real-time.

PINC utilizes two different types of tags to track assets in yards: permanent and temporary passive RFID tags. For permanent mounting to a company's fleet of trucks and trailers and dedicated carriers, PINC was already using Omni-ID's Dura 1500. However, the company saw an opportunity to upgrade its proprietary model of temporary tags — one that could be easily and securely attached to trucks as they enter a yard and removed prior to leaving. PINC commissioned Omni-ID to help develop an upgraded version of its temporary tag.

Based on these findings a project was initiated to design a new custom passive RFID tag. Compared to other technologies (which are usually more manual), passive RFID offers a number of benefits:

- Low profile, unlike active tags, so not easily knocked off in the yard or in maintenance
- Large surface area compared to labels makes it highly visible to gate attendees
- Can be encased for resistance to weather and temperature extremes
- No line of sight necessary, enabling automated tracking
- Eliminates human error to provide accurate and reliable data collection
- Used as part of a RTLS solution to provide accurate and reliable trailer location

As the developer and patent holder of on-metal RFID tags, Omni-ID provided the expertise necessary to create a successful solution. With an expansive manufacturing facility and team of expert RF engineers, Omni-ID specializes in creating customized tags for unique assets and applications.

Early on it was decided that magnets would be the most effective way to create a temporary use tag. As the body of trailers are mostly made of aluminum, the magnets would need to be very strong to pull through the aluminum to create a bond with the steel infrastructure.

Omni-ID is well-known for its customization ability because it is dedicated to infusing its learnings back into research and design. During testing our engineers found that special rare earth magnets had the desired strength to protect the durability of the tag and provide the most functionality.



The next priority was to enable the easy removal of the tags from the trucks. The low profile, almost flat, design of the tag combined with the strength of the magnets would make this tag nearly impossible to remove from a truck by

hand. With the frequency of trucks entering and leaving a yard these tags needed to be applied and removed quickly and easily. An innovative design created built-in handles at either end of the tag that would lock into place while attached to the truck but lend to easy removal of the tag at the yard gate.

So unique are these tags that they are the only passive RFID tags with handles. Exemplifying the collaboration of the two companies is the fact that PINC owns the utility patent for the tag while both Omni-ID and PINC share the design patent. Thus, any similar future designs by other RFID tag providers cannot include the convenience of built-in handles and instead will be forced to provide a tool for tag removal.

The Results

The tag engineered and manufactured by Omni-ID is the key component to PINC's Advanced Yard Management System as the tags enhance real-time visibility of trailers and shipments inside the customer's yard. As a trailer enters the yard, a RFID Reader scans the encoded information and immediately uploads the data to the server to confirm the trailer, providing up-to-the-minute visibility for across the yard.



The tag has a compact footprint and is sealed in a yellow ABS case providing high visibility, but more importantly extreme durability in rigorous conditions and wide temperature ranges.

The tags provide up to a

50-foot read range so that once inside the yard, mobile readers are used on spotting tractors, golf carts, and drones to provide RTLS of the tagged trailers. This passive RFID-based solution has been implemented across hundreds of sites for customers such as Daimler Trucks, Boston Brewing, Supervalu, DHL and others, delivering powerful benefits:

- Improved inbound and outbound shipment management
- Efficient scheduling of dock door appointments using real-time criteria
- Decision-making based on real-time capacity, labor, and resource requirements
- Minimized driver wait times improve the overall efficiency for an organization
- Enables a more collaborative relationship with strategic partners to jointly manage shipments and inventories across organizational boundaries
- Communication to yard truck drivers increases productivity and yard safety
- Dynamic prioritization of processing, unloading and cleaning of inbound trailers based on outbound equipment demand

Omni-ID's yard management solutions combine passive and active RFID tags with customizable asset tracking software and have been used in industries from construction to utilities to vast oil and gas laydown yards.

For more information visit:

<http://www.omni-id.com/energy-industry/>

To learn more about Omni-ID's yard management solutions, contact us today!