

Pane-Free Production: Cardinal Glass Makes Manufacturing Transparent



Introduction

Founded in the early 1960s to meet rising demand for insulating glass among window manufacturers, Cardinal Glass began as a nimble operation of just 12 employees in St. Louis Park, MN. Today, that small operation has grown into a billion-dollar enterprise with more than 40 manufacturing facilities across the U.S. From its inception, Cardinal has led the industry by embracing cutting-edge technology and refining every aspect of glass production.

Through decades of innovation—from pioneering advanced insulation methods in the '70s and '80s to developing its own proprietary glass coatings—Cardinal has continually raised the bar for performance and quality. Its glass is now a trusted component in windows and doors in homes across America.

Driven by a relentless pursuit of improvement, Cardinal Glass is committed to creating durable, high-performing products that enhance homes and stand the test of time.

Challenge

At its 160,000-square-foot manufacturing center in Ocala, FL, Cardinal Glass identified a new opportunity to modernize its production processes. Due to the vast size of the facility, workers often faced challenges locating open orders across numerous workstations and storage areas.



10 Hours/Week

Time gained from locating orders



1-2 Feet

Estimated level of location accuracy.

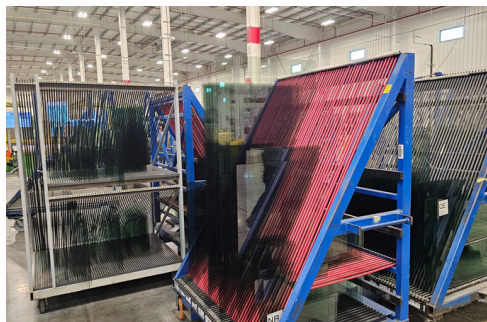


100% Quality

Manufacturing process compliance

During Cardinal’s manufacturing process, glass sheets are placed on carts that move through various production zones within the plant. With over 700 carts in circulation at any given time, accurately tracking and locating specific orders became a complex task.

To uphold its legacy of operational excellence, Cardinal set out to implement a more transparent method for monitoring orders throughout one of its largest manufacturing hubs.



Carts carry units for active orders throughout the manufacturing process.



Each order progresses through multiple manufacturing stations.



Completed orders are staged for delivery to manufacturing partners.

Solution

Seeking a technology solution that would enhance asset tracking and visibility, Cardinal Glass turned to RMS Omega—a trusted integration partner specializing in automated data capture and real-time location systems (RTLS).

RMS Omega collaborated with Cardinal Glass to evaluate both passive and active tracking technologies. After thorough testing, the teams determined that an active system—where tags are powered and emit their own signals—would be the most effective solution for a facility of this size with a high volume of production carts that required tracking.

Solution Components

- **UWB Tags** – Each cart has a small, battery-powered tag that emits its location.
- **Antenna Nodes** – Antennas pick up the tag signals, creating a mesh network.
- **RTLS Software** – Software displays cart & order locations on a digital floorplan.

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This solution is the next step in our commitment to manufacturing innovation. Real-time location tracking gives our teams the visibility to work smarter, respond faster, and deliver the highest quality products to our customers.

- Nate Baratta, Continuous Improvement Manager

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Implementation

After conducting an on-site discovery as well as some preliminary testing at Cardinal's facility, RMS Omega brought in its real-time location systems (RTLS) partner, Wiser Systems. Wiser's RTLS leverages ultra-wideband (UWB) technology to deliver real-time, active asset location. With this solution, Cardinal Glass could assign each of its 700 production carts a unique tag, enabling precise visibility anywhere within the 160,000-square-foot facility.

In addition to real-time tracking, the Wiser RTLS platform offers a streamlined system architecture with meter-level accuracy, straightforward deployment, and a scalable foundation to support future enterprise-wide expansion.

At the Ocala facility, each UWB tag was paired with a specific production cart and its corresponding work order. This allowed Cardinal's team to use the tag's data fields to search by order number and identify the specific glass pieces on each cart, improving order accuracy and streamlining production flow.



UWB Tag



Antenna Nodes



Platform Software



Onsite Integration

Cart location data was captured through a mesh network of over 60 antenna nodes that were strategically mapped out by RMS Omega and Wiser during the discovery phase. These antennas support the system by receiving signals from the UWB tags and relaying real-time location data to Wiser's software platform for visibility.

Wiser's on-premises software brought the system to life with intuitive floor plan visualizations, customizable facility zones, and real-time alerts for cart movements. The software also integrates with Cardinal's work-in-progress (WIP) system, updating cart locations and corresponding production stages—streamlining data accuracy and workflow tracking across the facility.



About Cardinal Glass

Cardinal Glass Industries is a trusted leader in residential glass solutions, dedicated to making homes more comfortable, energy-efficient, and beautiful. With over 10,000 employees and 49 facilities, they specialize in high-performance glass for windows and doors. From advanced Low-E coatings to switchable privacy glass, Cardinal delivers cutting-edge products that set the standard in the industry. Backed by their Intelligent Quality program, every pane is engineered for long-lasting performance and peace of mind.



About Wiser Systems

WISER Systems is revolutionizing real-time asset tracking with smart, simple, and precise location technology. Their wireless, plug-and-play RTLS uses patented ultra-wideband tech to track assets with next-level accuracy in rugged industrial spaces. Whether you're managing tools, equipment, or vehicles, WISER's system helps eliminate guesswork, reduce loss, and boost productivity. Fast to deploy and easy to scale, WISER gives teams the visibility they need to work smarter from day one.



About RMS Omega

RMS Omega is a premier systems integrator with extensive experience designing, deploying, and supporting strategic data capture solutions that improve business outcomes. RMS Omega offers hardware, software, supplies, support, and services for a wide range of data collection technologies, including barcode, RFID, RTLS, wireless networks, and enterprise mobility management, for supply chain and healthcare organizations across North America.