



# Outdoor Network

Albany, Georgia



## The Client

Outdoor Network is a dealer and distributor of vehicles, original equipment manufacturer (OEM) parts, and optional accessories for marine, powersports, and small engine power equipment brands throughout the U.S. A large portion of the products it offers are sold wholesale to marine and powersports retailers, dealerships, and service professionals. The company also sells direct-to-consumer via e-commerce websites partzilla.com, boats.net, and firedog.com. More than 110,000 individual parts are stocked in two distribution centers (DCs). Further, Outdoor Network sells more than 2.5 million OEM-stocked parts which are either drop shipped or sent to Outdoor Network DCs for fulfillment.

## The Challenge

Outdoor Network's East Coast DC in Albany, Georgia, held inventory in two separate facilities on the same campus. One building stored small parts in 20 goods-to-person (GtP) automated horizontal carousels arranged in pods. The second facility stored larger, oversized items that did not fit in the carousels. This created a challenge when consolidating multi-line orders from the two buildings.

Although GtP fulfillment had worked well for more than a decade, horizontal carousels were approaching end-of-life. With more than 50% of Outdoor Network's orders being single line item, the system's overall processing capacity could no longer meet peak requirements. Its existing warehouse management system (WMS) was also outdated and unsupported.

Further, as a result of the COVID-19 pandemic, more people sought to enjoy the great outdoors. This prompted a significant surge in demand for Outdoor Network's products at a time when staffing its Albany DC's two shifts had become increasingly difficult. Moreover, the company was not immune to global supply chain disruptions, with many parts being out of stock or unavailable for months.

Outdoor Network engaged KPI Solutions™ to help increase its fulfillment rates by 150% over peak demand, as well as to support expanded storage of on-site safety stock. The



**230,000 sq. ft. facility capable of handling more than 52,000 orders per week (150% of peak) while stocking more than 110,000 SKUs.**



**Extremely dense, cube-based automated storage allows Outdoor Network to dramatically increase its safety stock to mitigate supply chain disruptions.**



**Automated GtP system consolidates storage and picking into a single facility, enabling Outdoor Network to eliminate a second shift.**

company also wanted to explore fresh GtP automation solutions, consolidate staffing into a single shift, and transition existing operations into a completely refurbished — and considerably larger — facility nearby.

## The Solution

After analyzing Outdoor Network's data, surveying the existing operations, and touring the new location at the outset of its modernization, KPI proposed a partnership-based, design-build project structure. Applying an open-book methodology made all costs and alternatives fully transparent to the client, while ensuring the optimal facility design, equipment selection, software deployment, and overall solution implementation.

The refurbished facility, which sat empty for two decades, spans 270,000 square feet. Office space uses 40,000 square feet; distribution fills the rest. To meet Outdoor Network's needs, the structure underwent considerable modifications. Only the original slab, steel framing, some exterior walls, and existing underground infrastructures remained untouched in the modernization. This allowed the company to create the optimal layout to consolidate all inventory and processes under one roof. Work on the building ran concurrently to the fulfillment system's design, engineering, installation, and commissioning.

KPI's team of data analysts, design engineers, and process specialists worked closely with Outdoor Network's project team. Together, they assessed multiple layouts, methods, and equipment against numerous factors, including storage capacity, throughput rates, peak order volumes, scalability, and lead times.

Ultimately, the decision was made to implement:

- A high-density AutoStore system houses more than 28,700 bins stacked 11 high under a 19-foot-high ceiling. Served by 75 robots, the cube-based storage system covers nearly 14,000 square feet and holds more than 80,000 stock keeping units (SKUs). It is accessed by 14 GtP picking ports and 10 putaway ports for restocking. A planned expansion will add approximately 6,800 square feet of additional AutoStore capacity.
- Ten Geek+ autonomous mobile robots (AMRs) to transport 75 carts of oversized items to static shelving and pallet rack for putaway, as well as to move oversized picks in carts to a consolidation area for outbound shipping. This enables greater layout flexibility than fixed conveyor, allowing Outdoor Network to add more pallet rack and additional AMRs as needed.
- A Sealed Air I-Pack void reduction system that creates right-sized corrugated trays and lids for single- and multi-item orders picked from the AutoStore system. Five Pregis Sharp tabletop autobaggers package single-item orders. Together, the two systems package more than 70% of Outdoor Network's orders.
- New inbound and outbound 24V motor-driven roller (MDR) conveyors efficiently move received SKUs and empty corrugated picking trays to the AutoStore system, as well as transport completed picks through packing and to shipping for automatic loading of outbound trailers.

- Two PackSize cartoning systems support creation of custom sized corrugated shipping cartons for oversized outbound picks. (The facility also stocks standard carton sizes for shipments as needed.)

Supported by KPI, Outdoor Network's internal team developed its own WMS software and automation controls. KPI provided interface training, simulation tools, and design insights to facilitate the software development.

### Receiving & Putaway

At one of 22 receiving stations, inbound cartons of small items are opened and their contents removed. A detrashing conveyor takes away packaging material. The items are individually scanned into the WMS which reconciles receipts to purchase orders. Inventory destined for AutoStore storage is sorted by bin compartment size (full bin, half bin, quarter bin, 8-cell or 12-cell). Receiving associates slot inventory into batches of five bins with mixed compartment sizes. They are guided either by graphics for new items, or by previous storage rules indicated by the WMS for replenished items. Once filled, each bin is pushed onto a powered conveyor line that transports them to one of 10 AutoStore ports dedicated to stocking and replenishing the system.

Oversized items are placed in custom designed wheeled carts. When full, the carts are pushed to a staging area where they are then picked up from underneath by one of 10 Geek+ AMRs. The AMRs transport the carts to associates stationed in the static shelving and pallet rack areas of the facility. There, mobile computers direct putaway of each item. Any bulk or palletized products are transported by forklift from receiving directly to putaway in the pallet rack.

Additionally, since roughly 50% of all new orders include one or more of the 2.5 million SKUs Outdoor Network offers via its websites but does not stock in its DCs, a considerable number of backorders are generated. Backorders that are not drop-shipped directly to customers route to the DC for fulfillment. Upon arrival, these items can be cross-docked to match up with stocked items. Whether destined for putaway in the DC or cross-docking, all received items are processed complete same-day.

### Picking & Packing

Outdoor Network's WMS tracks all SKUs by last known package shipping method and packaging size and type. It groups single-line, single quantity orders into large groups. Single-item picks from the AutoStore system destined for polybag shipping are grouped and picked directly into large, reusable blue consolidation containers. These containers are presented to the operator with instructions to pick one or more items from AutoStore bins. Picking continues until the operator indicates that the container is full, pushes it onto a takeaway conveyor, and begins picking into a new consolidation container.

For single- and multi-item/multi-quantity picks from the AutoStore system that require a small package shipping box, a corrugated tray is formed by the I-Pack system, labeled with a license plate number (LPN) barcode, and routed to one of 12 picking ports via conveyor. Controlled by Outdoor Network's WMS and automation control software, the tray is presented to the operator at the same

time as the AutoStore delivers the inventory totes. Directed by a touchscreen, the picker selects each item in the appropriate quantities and places them in the tray.

Orders filled with items that fit in I-Pack trays are conveyed back to the I-Pack machine. There, the I-Pack system measures the height of the picks in the tray, then scores and folds the sides down to minimize package size. A tray cover with a zip-strip opener is hot glued to the top of the folded tray.

Then, the sealed package passes through a Sprinter system from StreamTech Engineering which incorporates a height check light curtain, in-line scale, and license plate scanner. Based on the captured data, Outdoor Network's software determines routing and manifesting information, then creates and communicates a shipping label and tracking number for print-and-apply to the carton. These parcels then flow directly to the designated carrier lane in shipping. The picker is the last touch on these orders.

Orders that require small items from the AutoStore system paired up with oversize items are sent to a consolidation location. Orders that do not fit into the I-Pack trays are transferred to oversize plastic totes with license plates. These totes are routed to the consolidation area for manual packaging. Large orders requiring multiple totes are also sent to consolidation.

Oversized picks are made by workers with mobile computers stationed in the static shelving and pallet rack storage areas. Mobile carts of picked items are delivered by Geek+ robots to a consolidation area in time to meet any items picked from the AutoStore. A PackSize automatic box forming machine creates right sized packaging for larger items. Any outbound palletized picks are handled by forklift trucks, which transport the palletloads to shipping.

## The Value

- The automated system significantly minimizes touches, enabling Outdoor Network to handle up to 150% over their highest recorded peak volume — or 22,500 picks per day — while consolidating two shifts into one.
- All orders are processed in a single shift workday, reducing labor dependence by nearly 50% compared to the previous system.
- Single-line picks are completed at an average rate of 400 per hour. Multi-line orders are picked at an average rate of 300 per hour.
- Supported by automation, receiving staffers process an average of nearly 200 items per hour.
- Most orders for in-stock inventory are fulfilled, packed, and loaded onto a trailer within 15 minutes of receipt. Orders received between Friday evening and Monday morning accumulate for fulfillment by end-of-day Monday.
- The robotic systems deployed within the operation are highly reliable and redundant, eliminating the risk of a single point of failure.
- For accuracy, Outdoor Network's software controls are customized for each task and work position. Additionally, multiple scanning and verification systems further enhance accuracy.
- The abundance of space in the refurbished facility enabled Outdoor Network to install and outfit the maximum number of workstations across its receiving, replenishment, and picking areas, while still leaving ample space to accommodate future growth.



KPI Solutions is an end-to-end warehousing and distribution solutions provider. We partner with our clients to analyze, design, implement and support a full range of customized supply chain solutions that elevate distribution performance, provide competitive advantage, and enable growth. Our data-driven, technology-neutral approach transforms operations with automation to boost fulfillment speed, reduce reliance on labor, and improve agility. Our full-service capabilities include consulting, engineered concept design, systems integration, warehouse software and lifetime services.

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