

GET A COMPETITIVE EDGE WITH ROBOTIC SOLUTIONS.



Honeywell
Intelligent[®]

SMART ROBOTICS SMARTER DC SMARTEST DECISION

Creating a smart, productive and profitable distribution center (DC) requires expert system integration. You know how your facility works. Smart robotics can make it work better. From our end-to-end distribution center experience comes smart automation processes that help you push what's possible. Robotics from a DC expert? That's smart.

RESULTS-DRIVEN ROBOTICS

Scalable robotic solutions increasingly deliver significant competitive advantages to modern distribution centers. By leveraging advanced robotic technology with extensive material handling experience, warehouse automation solutions from Honeywell Robotics offer fully integrated, end-to-end strategies designed specifically for the unique needs and challenges of DCs. These solutions provide the speed, accuracy and efficiency to satisfy a broad and growing range of operational requirements.

INDUSTRIES SERVED:

- E-commerce
- Retail
- Food
- Beverage
- Consumer packaged goods
- Pharmaceutical and medical supply
- Wholesale
- Post and parcel
- Third-party logistics

Innovative designs, application expertise and committed support ensure maximum dependability and round-the-clock productivity. A diverse robotics portfolio ensures these systems can be customized to your unique needs. Robotic solutions also relieve workers of some of the most arduous, repetitive and injury-prone tasks, freeing up limited labor for more rewarding, higher-value jobs.

Honeywell Intelligrated is recognized by the Robotic Industries Association (RIA) as a Certified Robot Integrator, with more than a quarter-century of experience providing single-source robotic solutions for high-performance distribution and manufacturing operations. From system concepting, simulation, fabrication and integration to installation and commissioning, training and ongoing support, each solution is approached with a comprehensive lifecycle view to maximize the value of your system.

PRODUCTIVITY AND PRECISION IN ANY APPLICATION

Multiple solutions from Honeywell Robotics provide flexible, scalable options for a variety of applications, including:

- **Mobile robotics** — Transport loads, handle carts, and perform machine tending jobs with autonomous mobile robots (AMRs).

- **Loading and unloading** — Autonomously load and unload trailers with minimal operator supervision or intervention.
- **Palletizing** — Efficiently build stable pallet loads according to operational requirements.
- **Depalletizing** — Quickly unload full layers or individual products, even from mixed-SKU pallets.

CERTIFIED FOR SEAMLESS INTEGRATION

Honeywell Intelligrated is an RIA-Certified Robot Integrator, with extensive experience implementing robotic solutions that work seamlessly with existing automation equipment. Robotic systems come with integrated software and controls, enabling easy training, simple daily use and straightforward maintenance.



CERTIFIED
Robot Integrator ●●

EVALUATE PERFORMANCE BEFORE YOU BUY

While automation and robotics offer logical solutions to the challenges faced by many DCs, robotic technology presents a lot of confusing choices. Worse, many of the solutions that exist today can't address the unique demands of modern



distribution centers. The majority of existing logistics solutions providers fail to meet the market or technical requirements critical to DCs, or lack the infrastructure necessary for full-scale implementation.

To help DCs develop robotic solutions that really work for the logistics industry, Honeywell Robotics offers a full suite of Robotic Solution Design Services. From robotic cells to full-system designs, tools like simulation, software and feature

analysis, prototype designs, system modeling and more can help you to find robotic solutions that meet your unique needs — *before* you break ground or begin site integration.

Using these tools, you can determine how different solutions will perform and learn how quickly you'll see return on your investment. You'll get estimates of rates and throughputs based on your own unique product mix.

Simulations can identify where robots will provide the greatest benefit and show where conveyors, storage systems or other solutions might be most effective. You also can calculate how many people automation will free up for safer and higher-value jobs. These powerful development tools ensure that you get the right solution, without having to rely on trial and error.



MOBILE ROBOTICS

Supplied in strategic collaboration with Fetch Robotics, these autonomous mobile robots (AMRs) are capable of transporting loads up to 1,500 kilograms. Vision and mapping technologies enable robots to perceive and navigate warehouse environments with minimal changes to your facility's infrastructure. They're intelligent enough to recognize

and avoid everything from people to fork truck tines.

Mobile robots can be inserted into a DC with little or no new infrastructure, requiring only a short integration period to learn their surroundings. Several top-mounted attachments enable the robots to perform multiple applications, as detailed on the next page.

In all of these applications, AMRs handle the seamless movement of goods between locations, enabling full and continuous utilization of your workforce and equipment. For even greater accuracy, many AMRs can be combined with technologies like hand scanners or voice systems.



PALLET CONVEYANCE

AMRs capable of transporting loads of up to 1,500 kilograms can be loaded or unloaded directly with a forklift, or work independently via pickup and delivery (PND) stations.

Common pallet conveyance applications include:

- **Warehouse transport** — AMRs move palletized products to storage locations after unloading.
- **Cross-docking** — Robots carry pallets routed from inbound trailers or containers directly to the respective outbound trailer.
- **Palletizer/wrapper/pallet crane load transport** — Completed pallet loads are transported from various warehouse operations to specific destinations.
- **Empty tote/pallet returns** — Automates the collection and transport of empty totes and pallets to refill stations.
- **Trash removal** — Robots collect and transport corrugate, dunnage and recyclables to processing areas.

In addition, pallet conveyance AMRs increase operational savings by reducing the number of forklifts and operators needed for transport, enabling them to be repurposed for other value-added operations.

RETURNS PROCESSING

AMRs offer dramatic productivity benefits by automating the movement of the rolling carts used to transport returns, eliminating errors and freeing up scarce workers for more value-added tasks. Mobile robots can travel over any floor surface smooth enough to handle a traditional cart pushed by a worker. Instead of spending more than half the day walking, workers can simply park carts in designated pickup locations and call robots to come pick them up. In this way, carts can be transported virtually anywhere in a facility with little or no human intervention.

In distribution and fulfillment (D&F) operations, returns that have been sorted onto carts can be picked up in a receiving area. Radio-frequency identification (RFID) scanners can be used to scan items and call the nearest available robot to pick up the cart and deliver it to its destination.

AUTOMATED MACHINE TENDING

AMRs with roller tops can be used to transport parts and goods between automated manufacturing equipment, replenish automated storage and retrieval systems (AS/RS), or handle items that can't easily be moved by conveyors. They can also provide a flexible "bridge" between different conveyor systems.

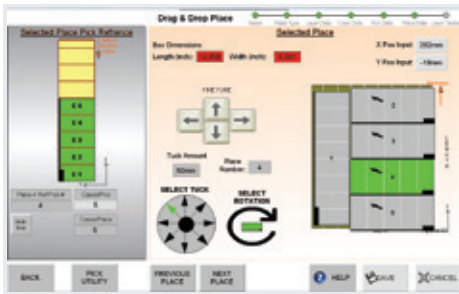
Bins are transferred to the robot via a docking procedure. The AMR communicates with an automated pickup machine equipped with a motor-driven roller (MDR conveyor), which transfers the bin onto the robot's roller top. The same procedure is repeated in reverse when the robot arrives at its destination. The MDR conveyors used in these docking procedures are 50% more energy-efficient than traditional conveyor systems. Workers benefit due to their extremely quiet operation, easy startup and low maintenance. MDR conveyors are inherently safe for close operator interaction, and can be controlled at both the local and system levels.

When not performing other tasks, mobile robots can collect empty totes and return them to refill stations.



ROBOTIC PALLETIZING AND DEPALLETIZING SOLUTIONS

Robotic palletizing and depalletizing solutions from Honeywell Robotics increase throughput and improve ergonomics while reducing your operational costs. Our robotic solutions automate the labor-intensive tasks of stacking and unstacking a broad range of products, packaging types and configurations. SKU proliferation, international markets or other complexities are easily accommodated. Modular designs offer compact footprints and can scale from a single robot to large multi-arm systems as your future growth demands.



MIXED-SKU DEPALLETIZING

Breaking down mixed-SKU pallets is a physically demanding, injury-prone job with high turnover. Honeywell Robotics is meeting the challenges of this arduous task with a fully automated solution, driven by sophisticated machine learning plus advances in perception and gripping technologies.

Capable of handling cases as large as a microwave oven down to a small tissue box, the mixed-SKU depalletizing solution is built to accommodate diverse variations in packaging and labeling. A soft, efficient gripping unit delivers faster, more consistent throughput with less product damage. The robot's logic optimizes lifting force to each item's weight and automatically adjusts the gripping angle to safely handle items that don't lie flat on the pallet.

Several flexible configuration options will ensure this turnkey system integrates seamlessly into your existing workflows. In addition to overcoming a common

operational bottleneck, the system will help you to reduce worker injuries, schedule more accurately, and lower logistics costs while reducing exposure to a challenging labor market.

ROBOTIC PALLETIZING SOLUTIONS

IntelliGen™ palletizing software —

Enables easy adaptation of pallet load configurations and stacking patterns based on product size, packaging changes or other variables.

Mixed-load or mixed-case order fulfillment —

Efficient replenishment and delivery with less-than-full pallet loads of mixed product and labels-out configurations for retail display.

Stack-and-wrap robotic palletizing cell —

Builds pallet loads with increased stability and higher sustained throughput, while allowing a single operator to monitor multiple functions.

Pallet and sheet handling — Boost speeds and reduce costs by automating the insertion of slip sheets, tier sheets and empty pallets into robotic palletizing cells.

ARTICULATED ARM LOADING/UNLOADING

In situations where trailers transport stacked products of a consistent size, vehicle-mounted articulated arms can do double duty by both loading and unloading trailers. These robots operate quickly and require minimal operator supervision or intervention, with no need to change processes or add supporting equipment.



SOLUTIONS OVERVIEW

Intelligent automated material handling solutions from Honeywell Intelligrated optimize processes, increase efficiency, and give businesses a competitive edge. Honeywell Intelligrated designs, manufactures, integrates and installs complete warehouse automation and software solutions, including:

- Automated storage and retrieval solutions (AS/RS)
- Conveyor and pallet conveyor systems
- Fulfillment technologies
- Honeywell Robotics
- Labor management software
- Lifecycle Support Services
- Machine controls
- Palletizing and depalletizing
- Sortation systems
- Voice solutions
- Warehouse execution systems

LIFECYCLE SUPPORT SERVICES

Lifecycle Support Services employs a consultative, data-driven approach to achieve your critical business outcomes. By delivering proactive, value-added services and solutions, we can help you to reduce the risk of downtime and increase system availability, longevity and dependability. Drawing from a full spectrum of strategic services, we offer multiple engagement models, tailored to your business, culture and strategy. Our comprehensive portfolio constitutes the key building blocks of a successful lifecycle asset management plan. By conducting assessments of both your equipment condition and operational efficiency, we can determine how to optimize your operations with:

- Engineered Solutions
- Technical Services
- Contract Services
- Training
- Honeywell Intelligrated Spare Parts



THE CONNECTED DISTRIBUTION CENTER

The pace of change in modern commerce is putting tremendous pressure on fulfillment operations. To stay competitive and protect profits, companies need solutions that help them achieve maximum throughput, day-to-day flexibility, future-proof scalability and intelligence to make informed decisions.

The Connected Distribution Center helps companies make the digital transformation necessary to increase reliability, improve utilization and maximize productivity through:

- Intelligent, data-driven, high-speed execution
- Automated, adaptable processes for machines and workers
- Optimized utilization with the ability to seamlessly adapt and expand
- Insights and predictive analytics, from sensors to the cloud

Honeywell Intelligrated

+1 866.936.7300

info@intelligrated.com

sps.honeywell.com

Follow us on Twitter: twitter.com/intelligrated
Learn more on YouTube: [Honeywell Intelligrated](https://www.youtube.com/watch?v=HoneywellIntelligrated)

GCEB | 2.21
© 2021 Honeywell International Inc.

THE
FUTURE
IS
WHAT
WE
MAKE IT

Honeywell
Intelligrated®