

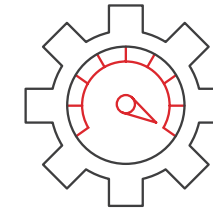


# iWAREHOUSE® OBJECTSENSE DETECTION & NOTIFICATION SYSTEM

SMART LIFT TRUCK FUNCTIONALITY  
FOR DYNAMIC ENVIRONMENTS

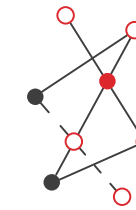
# OPTIMIZE, CONNECT, AUTOMATE.

The iWAREHOUSE® ObjectSense Detection and Notification System is part of the iWAREHOUSE Intelligent Warehouse Solutions portfolio and Raymond's intralogistics capabilities—empowering companies to optimize, connect, and automate their operations with a variety of tools and services. We believe this approach is essential to improving your facility functions, as well as creating a culture of continuous improvement throughout your company. Through customized solutions that are the right fit for your business we provide you with a way to remain productive, efficient and competitive.



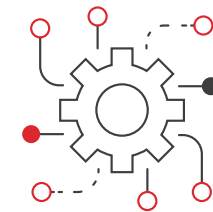
OPTIMIZE your operations, systems, assets, fleet and personnel to ensure everything in your facility provides the most value. Raymond applies the principles of lean management to help you achieve optimization, eliminate inefficiencies, and identify and solve challenges.

*Solutions include Lean Management, Material Handling Equipment, Financing, Rentals, Virtual Reality Learning and Maintenance/Service.*




CONNECT your facilities with innovative technologies. Smart technologies, like telematics, help operations gather and analyze data—providing actionable insights that can be implemented to deliver measurable business results.

*Solutions include Fleet and Asset Management Systems, Operator Assist Technologies, Labor Management Systems, Object Detection and Notification Systems and Consulting.*



AUTOMATE your operations to make production and distribution processes efficient, easily repeatable, consistent and cost-effective. Automation will enhance processes, maximize existing labor and resources, as well as make your warehouse more scalable.

*Solutions include Automated Guided Vehicles, Automated Storage and Retrieval Systems, Robotics and Consulting Services.*



Operator well-being, operational efficiency, and reinforcement of best practices for lift truck operation are critical in today's dynamic material handling environments.

To help with these challenges, the iWAREHOUSE ObjectSense™ Detection and Notification System (iW.ObjectSense) gives you a lidar-scanning, infrastructure-free object detection system designed to reinforce operator training and increase awareness of their surroundings.

Flexible and reliable, the system alerts operators with audible and visual notifications of objects within the truck's approximate travel path, and provides a slowdown or stop functionality based on your application needs and environment.

## PRODUCT OVERVIEW & HIGHLIGHTS

- + Award-winning object detection, reaction, and notification system
- + Infrastructure-free, easily adopted solution
- + In-aisle and out-of-aisle operation for dynamic environments
- + Helpful training-reinforcement tool for lift truck operators
- + Configurable lift truck slowdown or stop functionality
- + Dynamic sensing field adjustment to changing truck speeds and steer angles
- + Real-time audible and visual operator alerts
- + Event notification data reporting through the iWAREHOUSE GATEWAY™ web portal
- + New truck model and retrofit options available

**iWAREHOUSE**®

# HELP PROTECT YOUR PEOPLE, EQUIPMENT, AND FACILITY WITH THREE LAYERS OF SECURITY

2. VISUAL NOTIFICATION

1. AUDIBLE ALERT

3. CONTROLLED TRUCK  
FUNCTIONALITY

## HOW IT WORKS



Truck-mounted lidar sensors detect objects—including racking, pedestrians, and other vehicles—in the truck's approximate travel path.



Operator receives audible and visual alerts of the object via the truck's iMONITOR™ operator interface.



Truck is brought to a controlled slowdown of any speed, including a full stop based on customer adjustable parameters.

*The system will only alert the operator when a truck is above your pre-configured speed, and the operator always remains in control.*



### BENEFITS TO FORKLIFT OPERATORS

Enhances operator awareness of the surrounding environment and reinforces training related to travel speeds, proximity rules, facing the direction of travel, and more.



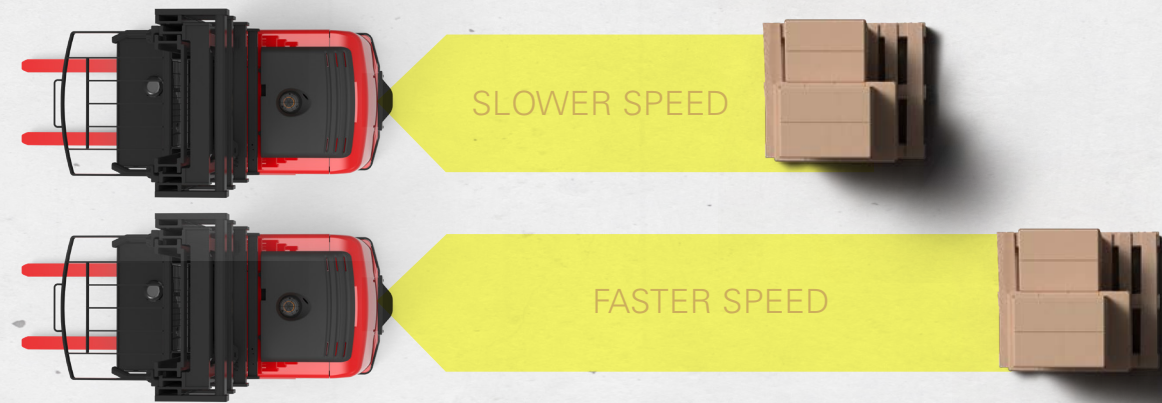
### BENEFITS TO WAREHOUSE MANAGERS

Provides insights into forklift operator behavior and facility inefficiencies to help enforce best practices, provide more tailored training, and minimize slowdown event notifications.

# DYNAMIC DETECTION RANGE

The iW.ObjectSense system offers dynamic detection and notification capabilities, both while traveling straight in the approximate travel path of the lift truck and while turning.

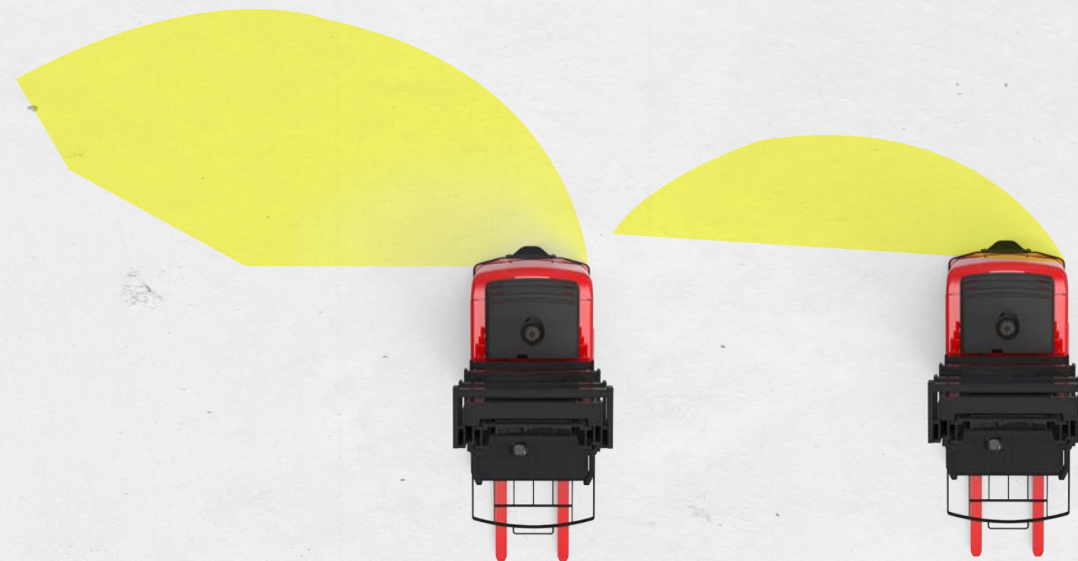
The system's sensing field dynamically adjusts to a truck's speed, changing length as speed varies for optimum performance and smoother deceleration in the event of an identified obstruction.



Field Range: Varies by Truck Model and Speed

# DETECTION FIELD SHAPE ADJUSTMENT

The shape of the sensing field dynamically adjusts to a truck's steer angle, recognizing objects more effectively by evaluating the center of the approximate travel path.



Field Shape: Varies by Speed and Steer Angle



# ADJUSTABLE PARAMETERS FOR FLEXIBILITY

There are different customer adjustable parameters that can be configured based on the needs of your facility, operators, and applications. You can choose the setting that's best for you.

- + Slowing to any speed
- + Full stop



SLOWDOWN

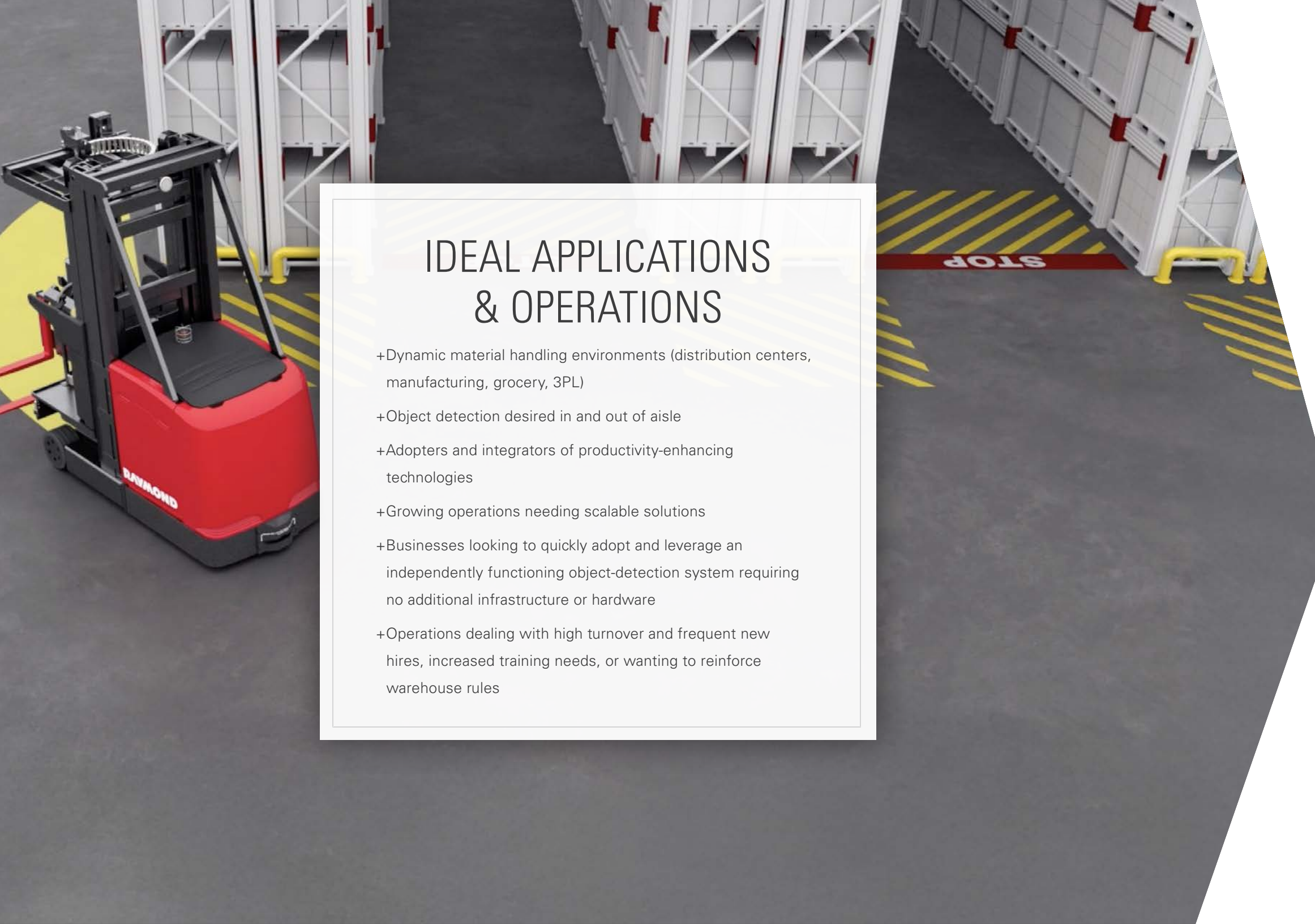
With the slowdown parameter, the truck reduces speed when an object is detected in the approximate travel path of the lift truck, allowing the operator to address the obstruction before resuming full speed.



STOP

With the complete stop parameter, the truck stops when an object is detected in the approximate travel path of the lift truck, allowing the operator to address the obstruction before resuming travel.

Regardless of your selection, our system is not meant to replace training or diminish your operator's responsibility. Instead, it's designed to enhance their ability to maintain optimal performance, remain vigilant, and ensure they remain in full control of their trucks at all times.

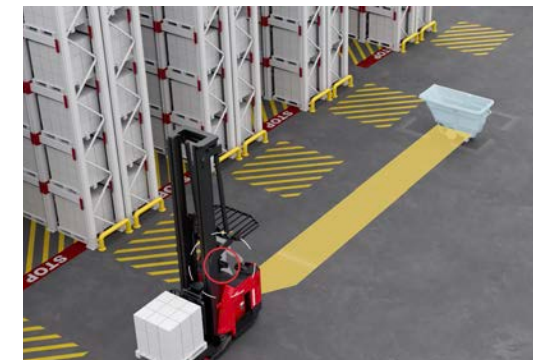


## IDEAL APPLICATIONS & OPERATIONS

- +Dynamic material handling environments (distribution centers, manufacturing, grocery, 3PL)
- +Object detection desired in and out of aisle
- +Adopters and integrators of productivity-enhancing technologies
- +Growing operations needing scalable solutions
- +Businesses looking to quickly adopt and leverage an independently functioning object-detection system requiring no additional infrastructure or hardware
- +Operations dealing with high turnover and frequent new hires, increased training needs, or wanting to reinforce warehouse rules

## EXAMPLE USE CASES

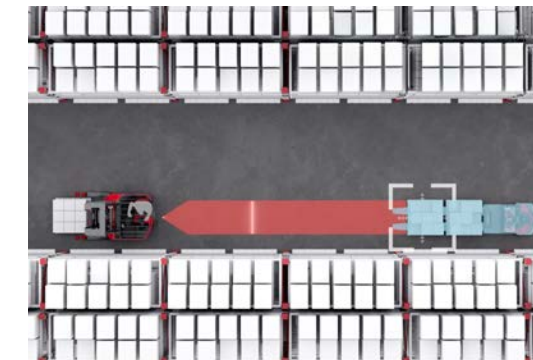
The iW.ObjectSense system works across diverse material handling environments and locations. Here are just a few examples of where this technology enhances your operation:



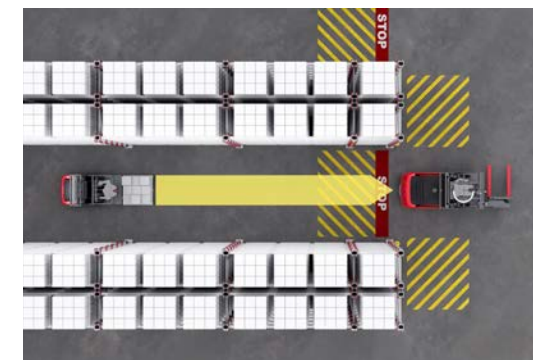
**DYNAMIC FACILITY ENVIRONMENTS WITH TRUCKS AND PEDESTRIANS**



**DYNAMIC DOCK AREAS**



**MIXED MODEL USE**



**VERY NARROW AISLES**



**CONGESTED WAREHOUSE TRAVEL**



**TWO-WAY TRAFFIC AISLES**



## COMPATIBLE TRUCK MODELS

Factory-direct systems available on current production models of the following Raymond trucks:

**Stand-Up Counterbalanced Trucks | Orderpickers | Reach-Fork® Trucks\* | 9600 & 9700 Swing-Reach® Trucks  
8510 Center Rider Pallet Trucks with Power Steer | 8610 Tow Tractors with Power Steer | 8910 Rider Pallet Trucks**

Aftermarket systems also available using a retrofit kit.

\*Available on 7200, 7300, 7500, 7520, 7530, 7700, 7720, and 7730 models

### OSHA, AND THE OEM ADVANTAGE

As a lift truck engineer and manufacturer, Raymond can integrate an array of advanced technologies into our lift trucks that can control truck behaviors—such as speed, lift height, tether enforcement, and more—to help you adhere to OSHA rules and allow operators to work more confidently, efficiently, and productively. Factory installations require no additional hardware, accessories, or third-party installations. Visit [raymondcorp.com](http://raymondcorp.com) for all of our Intralogistics Solutions.

### SPECIFICATIONS

Slowdown Speed	0-9 mph (Varies by truck model)	Operating Temperature	32°F and 110°F Not suitable for cold storage environments
Sensor Type	Lidar	System Requirements	iWAREHOUSE Telematics and Global Telematics System (GTS) server
Sensor Height	5'-8" (Varies by truck model)		

When you are considering whether the iW.ObjectSense system is appropriate for your environment, our local Solutions and Support Center Representatives can assist you in assessing environmental factors that might affect the system's performance.

Brand Reputation

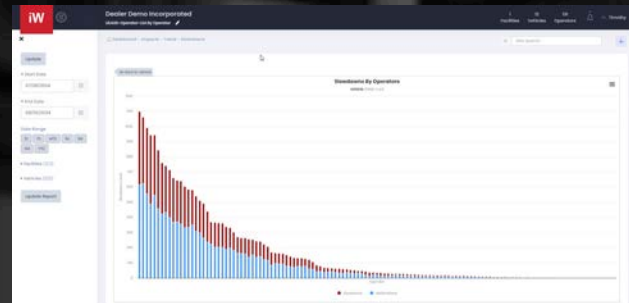
## REPORTING FOR INVALUABLE INSIGHTS

The iW.ObjectSense system offers invaluable insights into operator behavior patterns within your facility through its data and reporting capabilities.

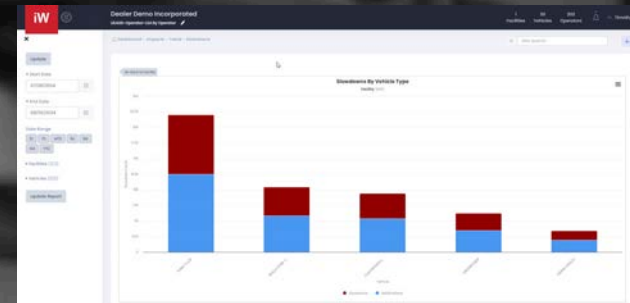
Ideal for identifying opportunities for more effective, individualized training, and ways to improve traffic flow, the intuitive data provides details on all slowdown events, including a truck's travel speed at the time of a corrective action.

All information and reports are saved in the iWAREHOUSE Global Telematics System (GTS) server and can be accessed and analyzed through the iWAREHOUSE GATEWAY.

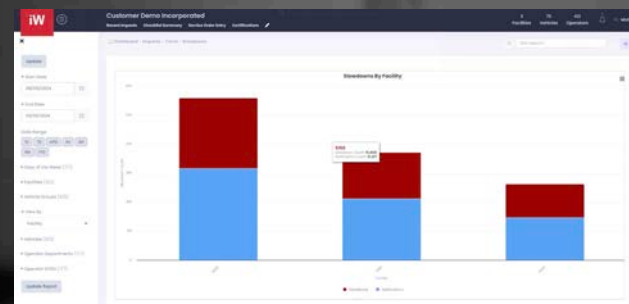
### Slowdowns and Notification Events by:



Slowdowns by Operator



Slowdowns by Vehicle Type



Slowdowns by Facility

Identify opportunities for more effective, individualized training.

All data generated on your trucks belongs to you and can be used for long-term, ongoing improvements in operational efficiency and productivity.

## SETTING UP YOUR SYSTEM. BREAKING DOWN YOUR DATA.

Raymond's iWAREHOUSE GATEWAY gives you that centralized convenience, connecting your people, processes, and facility, to telematics data and analytics. It also allows you to liberate and exchange data seamlessly to different software

platforms through a dedicated Application Programming Interface (API). Streamline your warehouse with a single, common credential for all your integrated systems and equipment.

**Raymond's Professional Services and GATEWAY Team** is available to provide ongoing support.

By making your data more understandable, meaningful, and actionable, we help you recognize inefficiencies, identify opportunities, and take steps to improve long-term efficiency and productivity.

### iWAREHOUSE GATEWAY

Data presentation in multiple formats:

- Graphical or textual displays
- Intuitive, easy-to-use reports
- Filter, search, and sort functions





## UNMATCHED SERVICE AND SUPPORT

With an integrated network of 21 Solutions and Support Centers, 4,500+ dedicated professionals, and 2,000+ highly trained technicians across North America, Raymond gives you 24/7 access to a local partner and collaborative consultant ready to recommend and implement the right solutions for your business.

From repair and maintenance programs to automated systems and flexible financing, our team of certified technicians, application engineers, trainers, parts consultants, and lean management experts is right around the corner to help with whatever you need, whenever you need it.



## UNLOCK THE FULL POTENTIAL OF YOUR WAREHOUSE

Getting the most out of every square foot of space, every member of your team, and every minute of the day, takes an innovative, collaborative approach. That's why Raymond offers a comprehensive array of tailored solutions designed to help you manage labor more efficiently, mitigate risks, optimize productivity, and maximize ROI.

### +RAYMOND LEAN MANAGEMENT

Through a proven process of visualization, organization, and standardization, our Lean Management team will help you identify inefficiencies and implement changes designed to improve your processes and save you time and money.

### +DATA ANALYTICS & INSIGHTS

Expert consultants and analysts will help you not only generate, collect, and store data from your equipment and facilities, but also analyze it to reveal actionable insights to drive your business forward.

### +ENGINEERING SOLUTIONS

After analyzing your entire operation, our engineers will work with you to identify opportunities for added efficiency and then custom design integrated systems that work seamlessly with—and enhance—your current workflow.

### +LEARNING PROGRAMS

From convenient e-learning and hands-on training courses to the industry's first Virtual Reality Simulator, we offer a range of tailor-made programs to enhance the ability of your operators and help onboard and train new employees.

### +FINANCING OPTIONS

When it's time to acquire new material handling equipment, you need flexible, scalable, economical financing solutions. As a single-source, captive financing company, we can customize packages that meet your facility's needs and fit your operating budget with competitive rates and flexible terms.

### +FLEET MANAGEMENT

Optimizing equipment utilization is key to maximizing efficiency as your operation scales. Our fleet management solutions can give you the insights you need to identify opportunities to add or remove equipment, right-sizing your fleet for superior performance and productivity.

### +MATERIAL HANDLING EQUIPMENT & FORKLIFT SERVICES

From responsive, on-site service to real-time cost tracking, Comprehensive Fixed-Price Maintenance to warranty programs, we offer a range of services designed to maximize uptime and provide predictable operating costs.

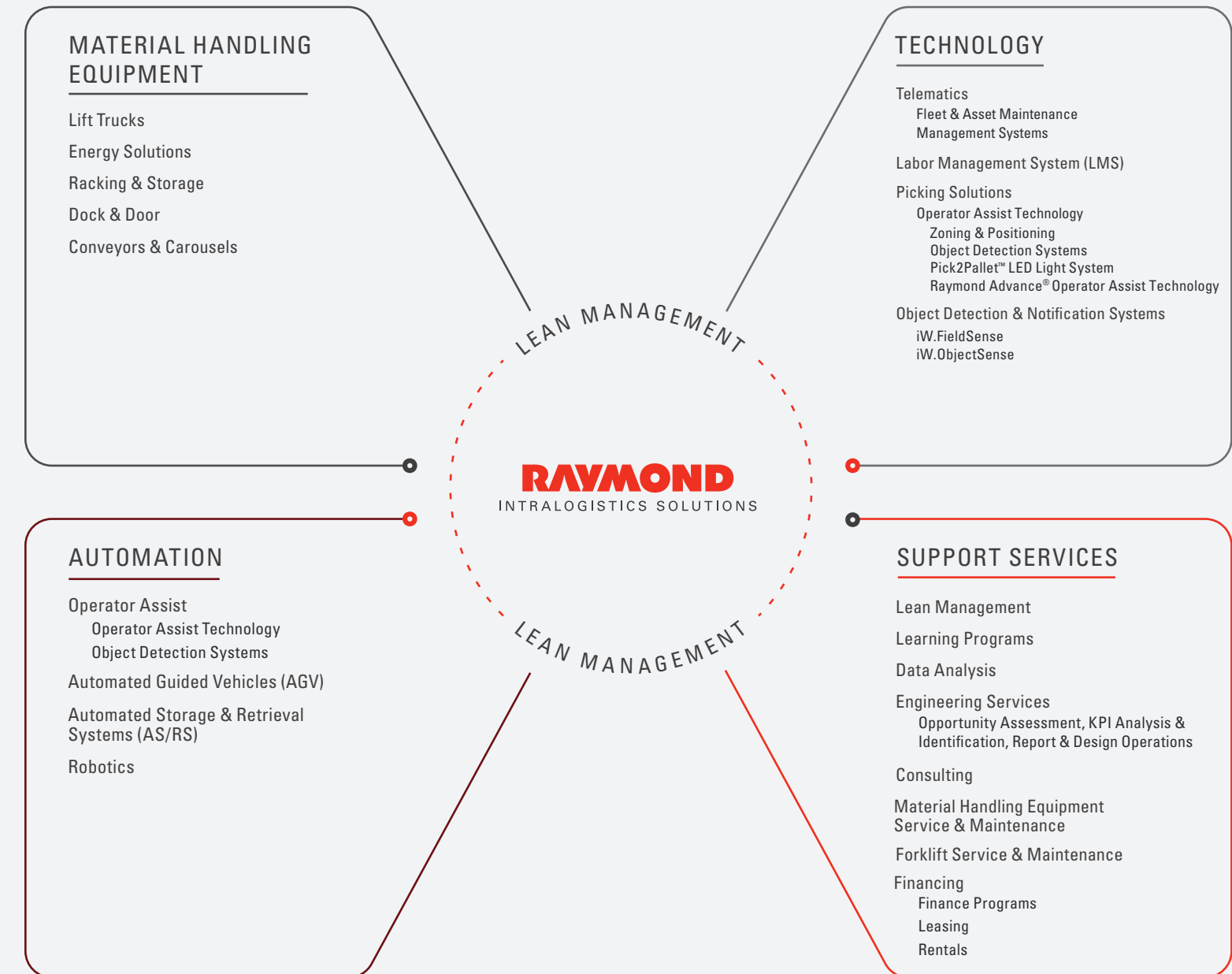
### +REPLACEMENT PARTS & OPTIONS

With the largest inventory in the industry, Raymond can offer same-day or overnight delivery on 99% of the high-quality parts you need. We offer consignments at your own facilities to support even more immediate needs, and stock a comprehensive catalog of parts for competitive forklifts as well as conveyors, dock and door, and other material handling equipment.

# YOUR COMPLETE INTRALOGISTICS SOLUTIONS PARTNER

Raymond is your single source for complete intralogistics solutions—offering customers the technology and know-how needed to provide warehouse operations, distribution centers and manufacturing facilities with a competitive edge. Our innovative solutions can help you optimize, connect, and automate your operation to cut lead times, reduce waste, minimize downtime, and improve quality.

By combining industry expertise and lean management principles with advanced material handling equipment, intelligent warehouse technology, labor management tools, automation, and support services, we can provide tailored solutions that optimize your people, processes, and facilities, and drive your business forward.





For 100 years, The Raymond Corporation has helped companies be the best at what they do through an intense focus on innovation, quality and service. That focus has never wavered, only grown. Today, Raymond is global and local. Forward-thinking and experienced. Focused on specific offerings and total solutions. As part of the Toyota Industries Corporation (TICO) family, Raymond offers the breadth and depth of systems, technologies, and experience to be your global material handling resource. And as a full-service partner, we offer a total-solutions approach that empowers you with smarter, more efficient and more effective processes and technologies.

If you're looking for a partner with the tools and experience to help you run better and manage smarter, let's talk.

PO Box 130  
Greene, New York 13778-0130

Toll free 1-800-235-7200  
Fax 1-607-656-9005

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