

LINDE GUARDIAN

The unique awareness and monitoring system that detects hazards before they even arise.



THE PURSUIT OF AN EFFICIENT OPERATION

Shifting the Focus to your Operators and Equipment

When considering the top critical focus areas for a productive operation, efficiency is one of the first areas that resonate for many. There's no denying that many organizations would fail without efficient workflow and processes. But when we think about running a dynamic operation, the strategy is often targeted at optimizing methods and approaches to enhance efficiency and production. Unfortunately, however, **the best-laid plans are often disrupted by lost-time incidents from an injury or accident that costs companies time, delayed schedules, and ultimately costs money.**

According to the [2021 Liberty Mutual Workplace Safety Index](#), "U.S. businesses spend more than **one billion dollars a week** on serious, nonfatal workplace injuries." And out of the top ten most disabling workplace injuries, being **struck by an object or equipment, roadway incidents involving motorized land vehicles**, and being **struck against objects or equipment** made the list.

While focusing on lean processes and procedures, **the driving force of continued uptime is ultimately your operator.** And in an agile environment where timing and production are everything, accidents can and will happen.

But how can an organization decrease the probability of downtime, accidents, and injuries? And what should an organization focus on to decrease lost-time incidents while enhancing operator confidence to retain top talent?



Cost of the top 10 most disabling workplace

— **\$52.28B** —
Annually

[Liberty Mutual Workplace Safety Index](#)

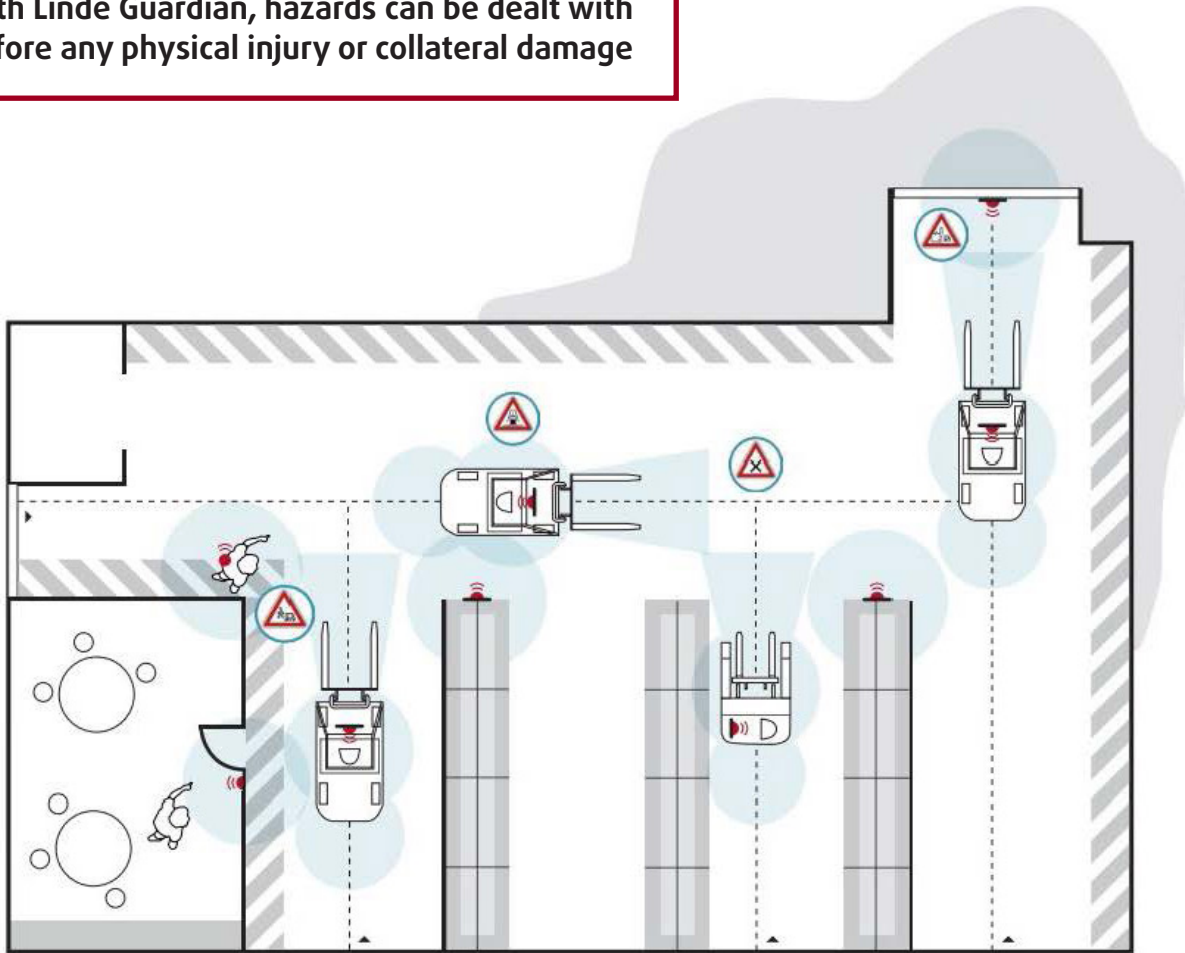
What if there was a way people, their handling equipment, and the infrastructure could communicate with each other, anticipating hazards before a potential accident occurs?

KEEPING YOUR EMPLOYEES ALERT

Introducing: Linde Guardian

Linde Guardian is an innovative monitoring system for the working environment of industrial trucks, giving signals to the driver and pedestrians in the event of close proximity. Having active advance warning in the event of potential hazards means that everyone involved can react immediately. Depending on the application and the equipment, Linde Guardian warns of imminent danger via acoustic signals, flashing LED lights, or vibrations.

With Linde Guardian, hazards can be dealt with before any physical injury or collateral damage



Wherever industrial trucks are in use, a complex interplay exists between man and machine. Linde Guardian is an innovative monitoring system that early warns of potential hazards.

CUSTOMIZED SOLUTIONS

Product Modules

A complete awareness system for your warehouse offering collision avoided awareness for trucks, pedestrians, and infrastructure. In addition, the configuration system allows customization based on your warehouse layout and can address any possible forecasted collision issues.

Linde Guardian Solution Sets:



Truck Unit Display

The Truck Unit warns the industrial truck operator via LED lights and acoustic signals.



Truck Unit Small

The Truck Unit small is attached to the forklift and communicates with stationary modules such as the Static Unit or the Zone Marker.



Sensors

Detect the modules carried by pedestrians and industrial trucks in the defined potentially hazardous zones.

An Added Layer of Protection

Linde Guardian applies limitations on your equipment to keep people and products moving at a safe pace and alerts those within the warehouse to potential hazards. This awareness system enforces compliance to ensure your operators and those working around the warehouse are alert to their surroundings and protected. Linde Guardian can also institute a creep speed for challenging areas of transport.

CUSTOMIZED SOLUTIONS

Linde Guardian Solution Sets:



Static Unit Display

The Static Unit marks hazardous zones in critical areas such as access doors or low visibility intersections. This module warns the environment via acoustic signals and LED lights.



Zone Marker

The Zone Marker defines speed-restriction areas.

Linde Guardian Solution Sets:



Portable Unit

The Portable Unit warns personnel of approaching industrial trucks using acoustic signals, LED lights, and vibration.



Charger

The Portable Unit is inductively charged. The fully automatic activation ensures optimum ease of operation.

TIMELY WARNINGS

Protecting your People and your Investments

Linde Guardian assists all personnel involved in internal traffic. It can see around corners and be programmed to suit any hazardous scenario. Linde Guardian uses the truck, infrastructure, and pedestrian units, to provide full-service awareness technology.

Linde Guardian deploys warning zones to alert the driver and pedestrian of the potential for accidents. Transmitters are positioned on industrial trucks, walls, racking and even carried by employees on the floor. This system helps ensure rapid detection, early warning, and avoidance of hazardous situations.

How does Linde Guardian work?

Suppose a pedestrian and a truck are on the verge of collision. In that instance, the industrial truck and pedestrian receive a warning simultaneously. A receiver in the truck indicates how many pedestrian staff is approaching the danger zone and from which direction. Pedestrians receive a notification from the transmitter they have on them. The receiver also works through walls and racking.

Full-scale Hazard Awareness

Speed restriction zones can also be pre-defined and programmed to automatically reduce the truck's speed in these zones and warn the truck operator. These speed restriction zones minimize accidents between trucks and staff in production, order picking areas, and busy intersections.

This capability is possible because Linde Guardian can precisely determine the position of marked objects or staff with an accuracy of four inches and the warning zones are individually adjustable. This level of precision also helps to prevent false alarms. Moreover, a broadband radio signal in the 4 GHz range (UWB) helps to ensure reliability by eliminating interference from WiFi, Bluetooth, or RFID.

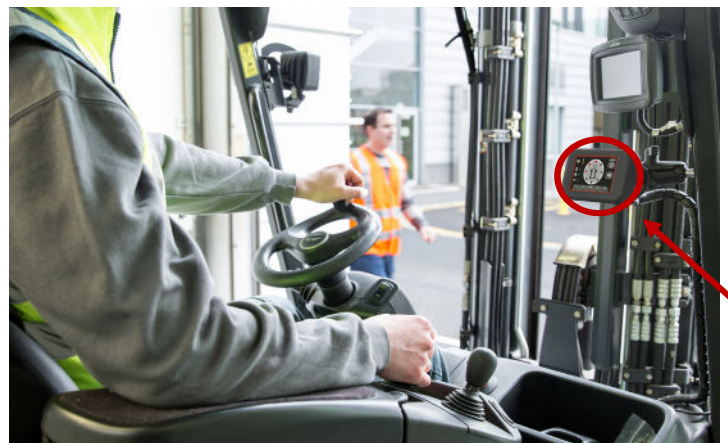
The system can be adapted to meet any safety requirements. It consists of individual modules and can be customized to address any potentially hazardous situation on individual sites.



Speed Control



Portable Unit



Truck Unit Display

CREATING A CONFIDENT ENVIRONMENT

Linde Guardian Keeps Your Employees Secure

Linde Guardian adds an extra level of protection for your employees and enables your operation to keep up with your demanding timelines. Linde Guardian gives your business peace of mind and keeps your employees alert during their busy days.

Implementing this system in your operation can help retain top talent by improving successful on-boarding by implementing truck behavioral requirements.

<p>At corners, junctions, or hall entrances, industrial trucks can pose a risk to pedestrians. Linde Guardian provides warnings to both the operator and pedestrians. The warning signal can be transmitted through walls and racking with accuracy within four inches. Alerts are only triggered when there is a clear danger, thus avoiding false alarms.</p>	<p>Accidents can occur if industrial trucks travel too fast through areas where staff frequently cross. Long, straight stretches can also tempt truck operators to exceed a safe travel speed. Linde Guardian automatically reduces travel speed in these critical areas.</p>	<p>Collisions between trucks can occur at crossing points where visibility is poor or restricted. In these circumstances, Linde Guardian warns all truck operators of the other trucks' presence in their immediate vicinity. In addition, the Truck Unit displays the direction from which the trucks are approaching. The minimum distance between trucks before a warning is triggered can be adjusted.</p>
<p>Confidence at Hazardous Locations</p>	<p>Controlled Speed</p>	<p>Avoid Collisions</p>

Checklist of Advantages	Camera	Radar	Linde Guardian
Personnel and zone recognition	✓	✗	✓
Warning zones that can be configured within four inches of precision	✓	✓	✓
Visualization of the number and position of personnel in the danger zone	✓	✗	✓
Mutual warning for pedestrian personnel and truck operators	✗	✗	✓
Detection through walls and racking*	✗	✗	✓
Versatile, adaptable and rapid installation	✓	✓	✓

*Valid for typical infrastructure in intralogistics. Checked during consult.

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Headquartered in Summerville, SC, KION North America Corporation is a member of the KION Group, one of the world's two leading manufacturers of industrial trucks and the largest manufacturer of electric forklifts. KION's brand companies, Linde and Baoli, serve the specific industrial truck requirements of the U.S., Canadian, and Mexican markets with a comprehensive and complementary product portfolio. KION North America produces material handling equipment known for its innovative technologies, reduced energy consumption, and low operating costs. KION North America also works closely with its sister company, Dematic, the global leader in automated material handling who provides a comprehensive range of intelligent supply chain and automation solutions. The KION North America story begins and ends with this commitment to excellence.

KION North America's family of products, services, and solutions helps businesses work smarter, faster, and more efficiently. Today's supply chain constraints and deadlines are more demanding than ever. The KION North America team creates performance-based, purpose-built solutions that help our customers succeed today and tomorrow.

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Linde Material Handling

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