

# ELOKON

## MOBILE

# SAFETY AND ASSISTANCE SYSTEMS

## FOR VNA FORKLIFT TRUCKS

- + Maximum safety for personnel, vehicles and infrastructure
- + Intelligent sensor technology for accident prevention
- + Increased occupational safety for improved efficiency
- + Compatible with all standard forklift models
- + Compliance with industrial legislation



Winning solutions:





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## SAFETY SYSTEMS

Our mobile safety systems protect people and vehicles. They are self-actuating and were specifically developed for VNA operations. Designed with utmost safety in mind, they conform to all official requirements and are therefore authorised as personal protection systems for risk reduction. They allow employers to fulfil their statutory duty of care towards employees.



## ASSISTANCE SYSTEMS

Our assistance solutions protect drivers in their working environment and in hazardous situations, with a focus on risk reduction and increased productivity. To this end the electronic systems can semi-autonomously intervene in a vehicle's operation, whilst the overall control and responsibility for the vehicle remains with the drivers.

# Future-proof intralogistics

Intralogistics is constantly evolving, and shorter delivery times and higher customer expectations demand faster loading cycles. Technological assistance is now indispensable to guarantee the safety of the workforce and to protect the infrastructure.



## HIGHER LEVELS OF FORKLIFT TRAFFIC INCREASE THE RISK OF ACCIDENTS

“E-commerce is booming and is replacing bricks-and-mortar retailing. More and more products are now being purchased online. To cope with the surging volume of orders, many items are stored as smaller lot sizes to enable faster access, which in turn requires much more interaction between the general workforce and forklift trucks. But increased activity in the warehouse increases the risk of accidents and injuries. Companies need measures in place to counteract this.”

OLE PETERSEN,  
PROJECT MANAGER DEVELOPMENT AND FUNCTIONAL SAFETY

## ENHANCED SAFETY OFFERS ECONOMIC BENEFITS

“The primary purpose of safety and assistance systems is of course to protect and support people, vehicles and the infrastructure in the warehouse. But from a commercial point of view they offer a number of further benefits. The extra layer of protection that this intelligent technology provides allows the simultaneous operation of multiple forklifts in one single aisle and also enables the trucks to work at optimum speed. This leads to an increase in throughput and productivity.”

MALTE BORCHERS, PRODUCT MANAGER



## DEMOGRAPHIC CHANGE IS AFFECTING INTRALOGISTICS

“Society is getting older, and this means that the average age of those working in intralogistics is also rising. At the same time the range of stock continues to grow, the throughput rate is increasing and smaller lot sizes are changing the nature of the supply chain. Companies are therefore going to have to address the issue of automation. With our wide range of solutions we can ensure the optimum interplay between personnel, industrial vehicles and autonomous transport systems.”

ANDREAS FOLZ, INTERNATIONAL SALES MANAGER



# Intelligent personnel protection in narrow aisles

The personnel protection system ELOprotect PSS is a self-actuating safety device which prevents accidents between personnel and forklift trucks. This mobile solution was developed specifically for VNA warehouses and is compatible with all standard forklift models. Due to its safety-oriented design, the system is officially recognised as a replacement personal protection measure and complies with DIN EN ISO 13849. A further development - ELOprotect PSS Pro - offers the highest possible levels of safety due to its maximised operating range.

## HOW IT WORKS

ELOprotect PSS is equipped with two laser scanners which are fitted onto the load or drive side of the VNA truck and which scan a seven meter long danger zone. If the sensor detects persons or other obstacles whilst driving, the system triggers a visual and acoustic signal and brakes the vehicle to a standstill. When the person is out of the danger zone and the situation has been resolved, the alarm can be cancelled at the touch of a button and work can resume.

ELOprotect PSS is deactivated outside of the narrow aisle and the system only automatically activates when the truck enters the aisle. When the truck is moving, the danger zone is scanned in its drive direction and when it is stationary the scanners on both sides are activated, ensuring that anyone in the vicinity will be detected. Once the truck has left the aisle, ELOprotect PSS automatically switches off.

+ [eloprotect.elokon.de](http://eloprotect.elokon.de)



## COMPONENTS

The basic configuration of ELOprotect consists of the following components:

- + Evaluation electronics (housed in the engine space)
- + Encoder (installed on the axle wheels)
- + Reflex light switches (RLS, mounted on the sides)
- + Two laser scanners for the load and drive side
- + Display and operating module in the operator station

Various other functionality modules guarantee the optimum adaptation of ELOprotect to the respective forklift type and warehouse environment.

" MAXIMUM SAFETY FOR INCREASED PRODUCTIVITY "

**ELOprotect**  
VNA Pedestrian Safety System

**SAFETY SYSTEM**  
PL D (LT) RATED



## SPECIAL FEATURES OF ELOPROTECT PRO

- + maximised protection field from seven up to to nine metres
- + increased driving speeds improve throughput rates
- + improved productivity while maintaining constant safety levels

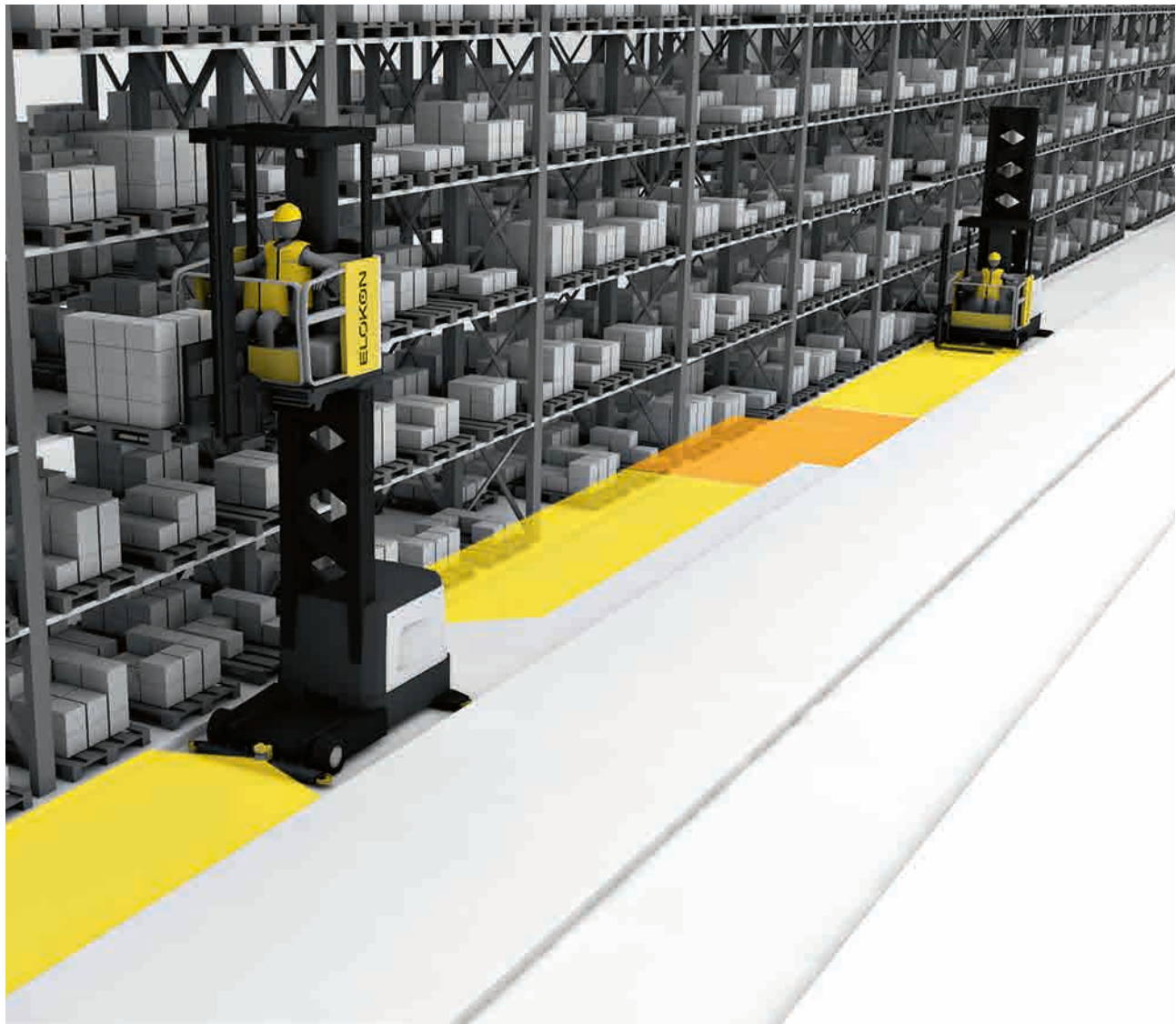
## TECHNICAL SPECIFICATIONS

	ELOprotect PSS	ELOprotect PRO
Operational temperature	0 °C to +50 °C	0 ... +50 °C
Safety concept	PL d according to EN 13849-1; Sil 2 according to EN 61508	PL d according to EN 13849-1, SIL2 according to EN 61508, according to EN 15185-2
Range of safety detection	up to 7 m	up to 9 m



# Collision protection for narrow aisles

The anti-collision system ELOprotect ACS is a safety device which protects vehicles from colliding with each other. This solution, specially developed for VNA operation, is designed to prevent vehicle-to-vehicle impacts and complies with the safety requirements of DIN 15185-2. As well as the sensor area for detecting personnel it also features an extended collision protection field. ELOprotect ACS is compatible with all standard forklift models.



## HOW IT WORKS

The simultaneous operation of two forklifts per VNA aisle is prohibited in Germany without replacement measures, and specific precautions are required to avoid collisions. A personal protection system is not designed for this purpose, in part due to the relative speeds of both vehicles. ELOprotect ACS has been specifically developed for this application and its extended protective field of up to 15 metres in both directions of travel reliably prevents collisions.

This smart system is automatically activated as soon as the vehicle enters the narrow aisle. When the truck is stationary, the protective fields are activated on both sides and the collision protection is operational in the most recent direction of travel. Should another vehicle enter the collision protection zone, ELOprotect ACS immediately reduces its speed to creep speed. Drivers are also warned by means of acoustic and visual signals. The truck is braked to a standstill when it enters the collision protection zone.

Once the danger is resolved, the alarm can be switched off and work can resume. Accidents between two trucks in a narrow aisle can therefore be virtually eliminated.

 [eloprotect-accs.elokon.com](http://eloprotect-accs.elokon.com)

## COMPONENTS

The basic configuration of ELOprotect ACS consists of the following components:

- + Evaluation electronics (housed in the engine space)
- + Two encoders (installed on the axle wheels)
- + Reflex light switches (RLS, mounted on the sides)
- + Two laser scanners for the load and drive side
- + Display and operating module in the operator station
- + Safety bus system



## TECHNICAL SPECIFICATIONS

ELOprotect ACS	
Operational temperature	0 °C to +50 °C
Safety concept	PL d according to EN 13849-1; Sil 2 according to EN 61508
Range of safety detection	up to 7 m
Range of the anti-collision field	approx 15 m

" ENABLES THE SIMULTANEOUS OPERATION OF MULTIPLE FORKLIFTS IN ONE AISLE "

**ELOprotect**  
Anti Collision System





# Easy accident prevention for VNA operation

The mobile personal warning system ELOassist is an automatic and self-actuating assistance device for forklift trucks. It was specially developed for VNA operations and is designed to prevent accidents and collisions between forklifts and obstacles. The system uses the latest laser technology which enables it to monitor the distance between the vehicle and any obstacle in the aisle.

## HOW IT WORKS

The ELOassist assistance system can be optionally equipped with one or two laser scanners which are fitted onto the load and/or drive side of the truck. When the truck is moving, the sensor is activated in the direction of travel and when it is stationary, the system monitors both sides. This considerably reduces the risk of any person approaching the truck without being noticed. To avoid false alarms, ELOassist is deactivated outside of the narrow aisle. This smart system only self-activates once the truck enters the aisle. As soon as the laser recognises the presence of an obstacle in the protected zone, ELOassist emits an acoustic warning signal and automatically brakes the truck to creep speed.

Once the danger area has been cleared, the system cancels the speed reduction and work can be resumed. When the truck leaves the aisle, ELOassist automatically switches itself off.



## COMPONENTS

The basic configuration of ELOassist consists of the following components:

- + Evaluation electronics (housed in the engine space)
- + Option of up to two laser scanners for load and/or drive side
- + Display and operating module in the operator station

## TECHNICAL SPECIFICATIONS

ELOassist	
Operational temperature	0 °C to +50 °C
Max. range with 10% reflectivity	18 m
Reaction time	≤ 35 ms
Endosure rating	IP 54

" COST-EFFECTIVE  
ALTERNATIVE FOR  
ENHANCED SAFETY "

**ELOassist**  
VNA Pedestrian Warning System

ASSISTANCE  
SYSTEM





# Installation & Service

ELOKON has worked closely with the world's leading original equipment manufacturers (OEMs) of industrial vehicles for many years. This means that pre-installation ex-works is usually possible when you purchase new trucks. We can therefore guarantee that our safety and assistance systems are optimally matched to your vehicle fleet.

Alternatively it is easy and straightforward to retro-fit your current fleet. As a customer-focussed company, at ELOKON we value our reputation for high quality and comprehensive service. Our systems are always installed and commissioned by experienced specialists.

We also provide dependable all-round support throughout the operational lifetime of our products, enabling you to receive all your service requirements from one single source.

## GET THE COMPLETE PACKAGE FROM ONE SUPPLIER:

- + New commissioning or retrofitting
- + Maintenance, repairs and modifications
- + Regular inspections in accordance with the current statutory requirements

ELOKON. Maximum safety and productivity of your forklift fleet.

# Innovation for safer operations

Intralogistics is a dynamic business. The ramifications of Industry 4.0 mean that lean processes alone are not sufficient for developing your potential. Digital networking and the intelligent interplay between people and machines are increasingly influencing practices in today's warehouses and production facilities. This gives rise to new challenges. The advance of automation, the increase in mutually connected machines and autonomous vehicles require smart safety and assistance solutions. Thanks to our many years of experience and expertise in the fields of electronics and intralogistics, we drive innovation in the industry. Together with our customers we strive to make tomorrow's intralogistics safer and more productive.

## ELOshield

Proximity Detection System



## ELOfleet

Fleet Management System

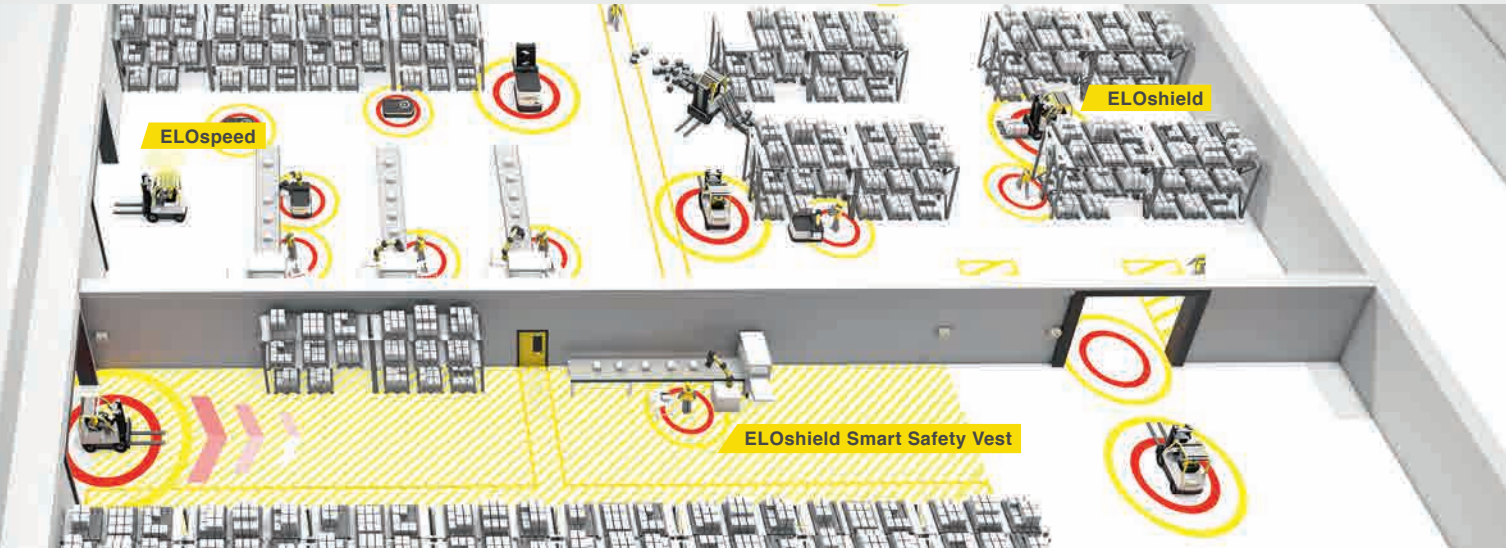
ELOshield is an innovative "guardian angel" that protects people, vehicles and the infrastructure in real time using the latest high frequency technology. As soon as a person or a vehicle approaches the monitored area, ELOshield recognises the danger and immediately reacts. Within milliseconds the system emits an acoustic, visual or haptic alarm signal as a preventative warning. The UWB signal is accurate within 10 centimetres and can be transmitted through walls and racking.

+ eloshield.elokon.com



ELOfleet is ELOKON's innovative fleet management system for mixed fleets. This system enables access control with an NFC card, it records impact damage and evaluates vehicle and fleet performance data. ELOfleet enables straightforward and cost effective improvement of operational safety.

+ elofleet.elokon.com



## INTELLIGENT SAFETY WORKWEAR

Employees in the warehouse regularly clock up miles on foot every day. As they work in close proximity to forklifts, it is vital that they are protected from accidents. To enable them to have freedom of movement for the tasks they carry out, they need intelligent safety workwear such as the innovative ELOshield smart safety vest. This intelligent piece of clothing ensures that the mobile assistance system ELOshield recognises when people are present. As soon as an employee enters a vehicle's danger zone, the vest emits a visual, acoustic and haptic warning signal. The ISO-certified vest, which replaces the personal module, has a high-quality finish and is very comfortable to wear.

## ELOKON. WORLDWIDE.



## 4.250 ELOKON CUSTOMERS. WORLDWIDE.

With industrial experience and technical expertise from more than 4.250 projects in more than 40 countries, we optimise the intra-logistics and machinery safety of our customers.


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