Intrinsically Safe Tablets
for Transport Logistics

E-Paper

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Intrinsically Safe, Rugged Tablet Solution as a Digital Hub in the Truck Cockpit for Hazardous Goods Transports

To ensure optimized processes and short delivery times, transport service providers in many cases use the most modern technology. This applies not only to backend IT and administration, but also to the logistics/process chain surrounding the trucks that transport the goods from A to B. Particularly high requirements apply to the transport of explosive hazardous goods (such as fuels, hydrogen, or chemical products). To ensure smooth processes, the technology should be up-to-date, feature-rich, and future-proof in order to optimize tight margins by increasing efficiency.

This technical white paper describes the most important aspects of using tablets when transporting explosive hazardous goods, application potential and the advantages logistics companies can realize, and importantly why the Tab-Ex® devices from the Pepperl+Fuchs brand ECOM Instruments impress with all the necessary features for these tasks.

If your company is still using old in cab devices the following pages will provide you with the appropriate information as to why you should discuss replacing them sooner rather than later.
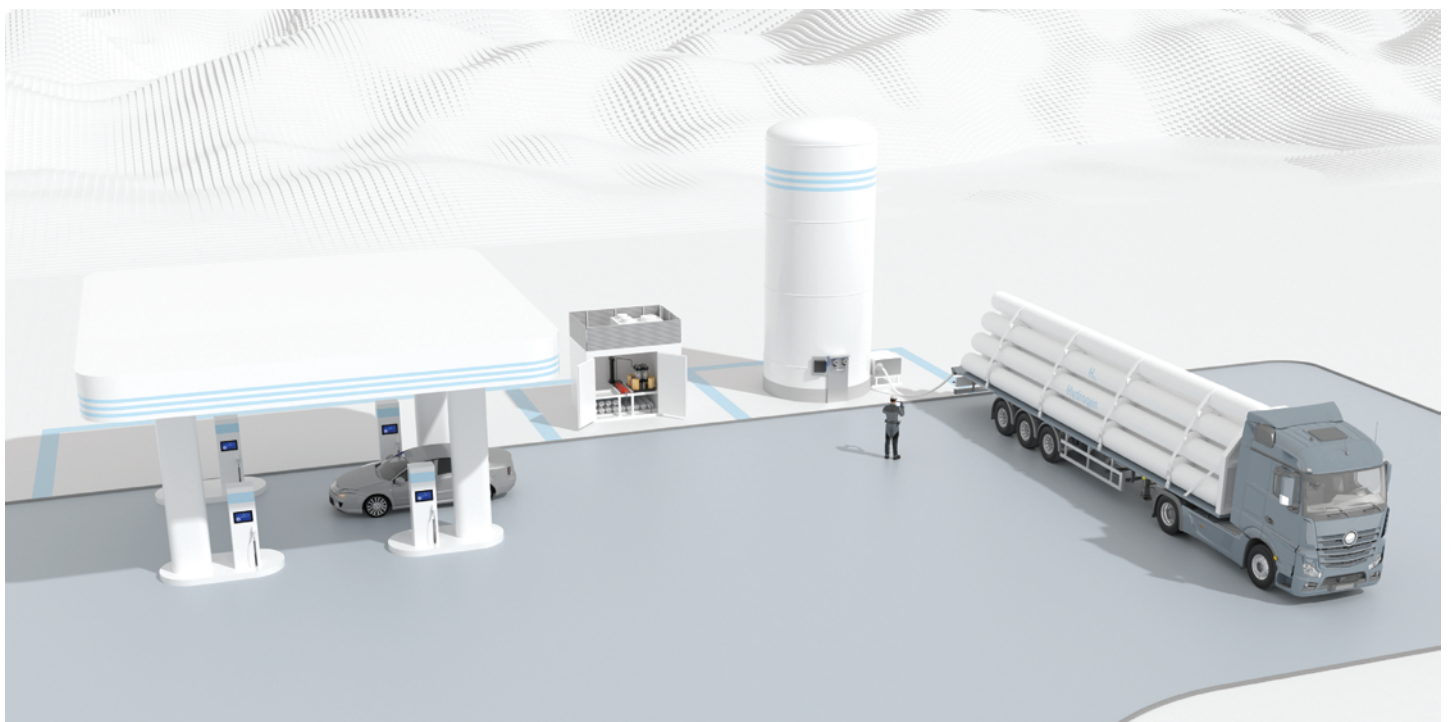
1 Digital Transformation Inside and Outside the Truck Cockpit

Logistics companies already use a variety of technologies in the driver cockpit. Legacy systems can prevent companies from taking the next steps in the digital transformation process. This is particularly the case in hazardous areas, where only a few vendors can supply devices certified for these applications.

Modern workflows require truck drivers, logistics companies, customers, and suppliers be permanently connected and able to exchange data. This ensures that everyone involved is always up to date.

This cannot be achieved with legacy systems, 3G, lack of camera, weak CPU performance and old screens. Successful digitalization in the driver's cab also enables direct internet access, sophisticated navigation and positioning can help reduce or replace paperwork when delivering and receiving goods.

The use of a tablet solution with a dock in the vehicle cab is almost mandatory for this. Tablets offer maximum computing power, an open, future-oriented operating system platform, and can serve as a training platform and data center for the vehicle. In addition, they are mobile and can be used outside the truck cockpit as well. They are the „enabler" for many connected new functions that logistics service providers need to increase automation.

2 Advantages of an Intrinsically Safe Tablet Solution

Workplaces in potentially explosive atmospheres must be digitally connected just like other outdoor areas. Tablets have already proven themselves in the driver's cab for many reasons. A tablet certified for hazardous areas therefore outperforms all other solutions because it meets all safety-related requirements while being mobile, fast, easy to use, and ready for future use cases.

Digital workflows increase efficiency, reducing or eliminating paper and manual data transfer. Using a tablet, drivers can confirm quantities of goods, have deliveries confirmed, and create and confirm delivery data back to the office, even from outside the driver's cab. With the help of augmented reality applications, drivers can be shown directly how to operate dangerous or rarely used technology. In addition, a tablet can document meter readings, damage, incorrect deliveries, and much more. It serves as a mobile database front end, a work flow and task management hub, and of course, can also be used as a navigation system with special overlays for the transport of explosive hazardous substances. Implementing protective features for lone workers ensures employee safety. Thanks to the docking bracket in the vehicle, it can be operated both mobile and stationary in the driver's cab, charged at any time, and paired with a headset.

Compared to legacy installed systems in the driver's cab, which are often still based on old or EOL software, tablets and smartphones are open to new use cases and are based, for example, on Android as the operating system platform. This makes it easier to develop special software, but also enables the direct use of standard software that is cost-effective and works immediately without any adjustments. In short: the tablet is the truck driver's mobile office inside and outside the driver's cab.

Tablets and smartphones certified for hazardous areas are also extremely robust, waterproof and dustproof, rubberized all around and can be operated with gloves. With the appro priate mobile device management software devices can be managed and updated remotely.

3 Inspiring & Retaining Skilled Workers

Skilled truck drivers are in short supply. Ensuring that the in-cab Tablet and application work seamlessly will ensure no down time between jobs, the tablet is the key enabler of all the applications.

„Frontline worker" is the technical term for employees who do not sit behind a desk but work outside „on site." Integrating them into the modern digital working world is becoming increasingly important for companies in order to retain and attract workers.

With the appropriate software, truck drivers are directly con nected to the backend of the logistics company, but also to supervisors and colleagues. They can read and respond to emails, quickly look up information, check weather data and the real-time traffic situation, learn more about relevant offers or watch training videos. This keeps them just as connected as stationary employees, which improves their sense of belonging.
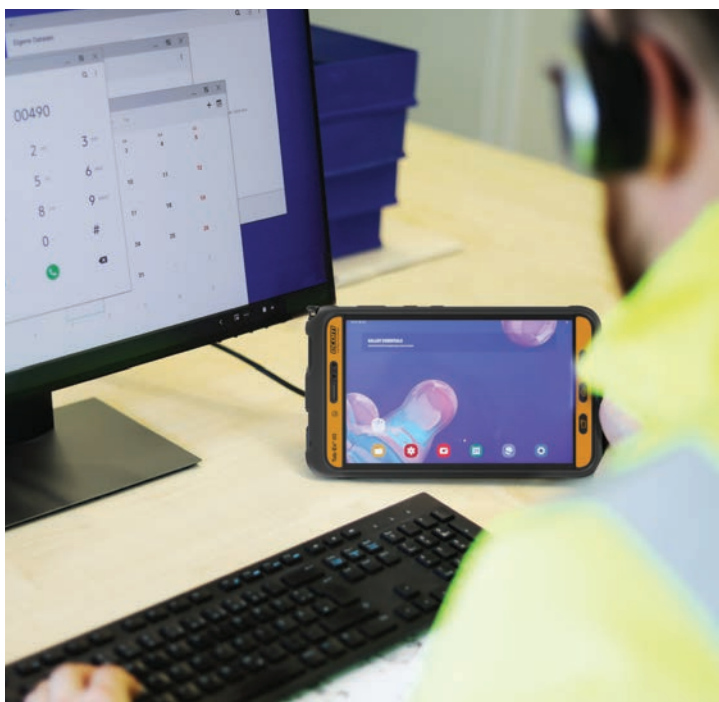
4   Strong Partners

Know-how for hazardous areas, sophisticated products, strong technology partners, and a smooth transition, only consider a company that has the experience, efficiency, and the necessary customer orientation.

Transport logistics is a tough business that does not forgive mistakes. Even short-term failures or delays are costly. Equipping or retrofitting a truck fleet is a difficult and complex project, especially when it comes to hazardous areas. In addition, trucks already have a lot of digital technology installed, and companies also like to integrate their own developments. Replacing an existing central system with new tablets is therefore a critical process that requires an experienced partner who knows and takes into account the customer's specific characteristics.

Things to consider:
- Who can replace the legacy tablet dock and cabling
- Device Testing with your existing or preferred telematics provider to guarantee the integration of the tablets
- Driver device and application training
- Your HQ or Regional Support departments
- Working with your IT team to integrate the devices into your MDM

Since there are only a few providers specialized in potentially explosive areas, companies should choose a partner
- Who can provide international experience and support structure,
- Can demonstrate the knowledge of certifications and legal requirements,
- Works with strong technology partners, and can point to a certain company size and already successfully implemented projects.

These factors provide the necessary peace of mind to receive long-term service and support as well as replacement hardware.

Pepperl+Fuchs can point to numerous successful projects in hazardous areas. Thanks to the expertise of the Pepperl+Fuchs brand ECOM Instruments, one of the leading brands in the field of explosion protection, and the network of Pepperl+Fuchs-owned subsidiaries worldwide, we are the ideal partner for large and small logistics companies.
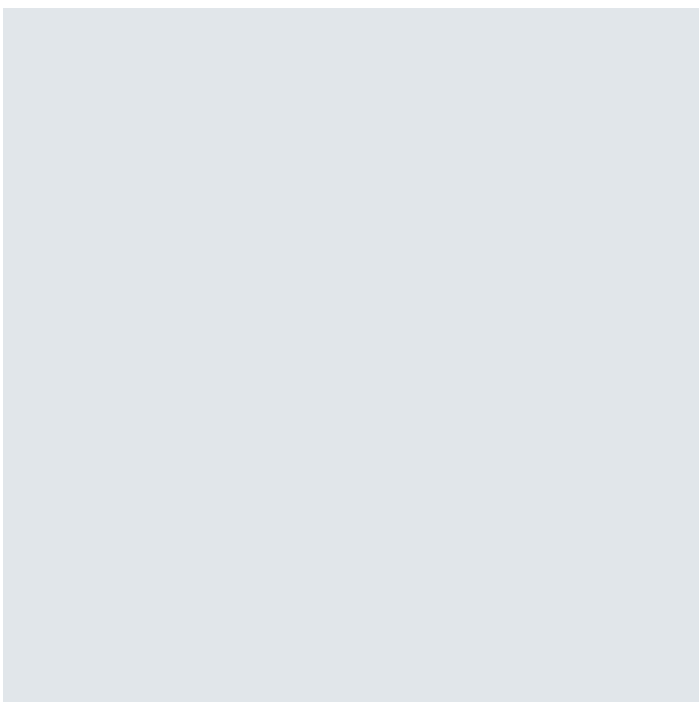
5   ECOM Instruments Tab-Ex® 03

The Tab-Ex® 03 is the latest tablet from the Pepperl+Fuchs brand ECOM Instruments for hazardous areas. The 8" device impresses not only with a powerful operating system, but also with a slim and lightweight housing design that facilitates work in demanding industrial environments as well as hazardous areas.

The 8-inch multitouch display of the Tab-Ex® 03 DZ2 can be operated with gloves as well as with the S Pen stylus—thanks to the Wet Touch function, even outdoors in rain and snow. It also has a freely programmable red (emergency) button that can be used for alarms or push-to-talk. The pogo pin connector is used for both data transfer and easy battery charging, allowing for up to 11 hours of battery life. The Tab-Ex® 03 is equipped with a powerful 64-bit octa-core processor and the latest Android OS version.

Moreover, the Android tablet features Google ARCore for augmented reality applications. This allows the device to be used for remote support, training, and custom enterprise tools ranging from asset management to equipment inspection and predictive maintenance.

Biometric authentication and the Knox security solution integrated into Samsung mobile devices provide users with enhanced data and device security. This ensures that all enterprise requirements are met throughout the device life cycle and confidential data is consistently protected against malware or phishing attacks. This way, only authorized individuals can access proprietary information, ensuring that data remains protected should a device be lost.

6   Practical Example: Conversion at an international logistics company

During the past 10 years Pepperl+Fuchs has deployed to several transport companies delivering hazardous goods. Many of the companies we have supplied to are multinational with sizeable fleets who have seen the advantages of deploying Tab-Ex devices and removing legacy units. Many companies want to work with a manufacturer that is innovative and investing in device technology along with market expectations.

Example

A multi geography logistics company, which specializes in the handling and transport of liquid goods in the food, gas, petroleum, and chemical industries.

It became necessary to replace the central IT telematics system because the old system lacked the required LTE connectivity and a modern operating system. The customer wanted more transparency about the current position and deliveries of the respective drivers and a platform that could also be expanded to meet future requirements. It was also important to them to have a reliable partner who could deliver hardware and support worldwide in the long term.

Tab-Ex® devices from the Pepperl+Fuchs brand ECOM Instruments were used for the conversion and were rolled out to the entire fleet within a few months. Pepperl+Fuchs coordinated the conversion in collaboration with the customer and ensured coordination with the company's preferred telematics team.

The logistics company has gained significant transparency and can respond more quickly to supply chain issues, traffic jams, and last-minute delivery requests, as well as provide drivers with necessary data.
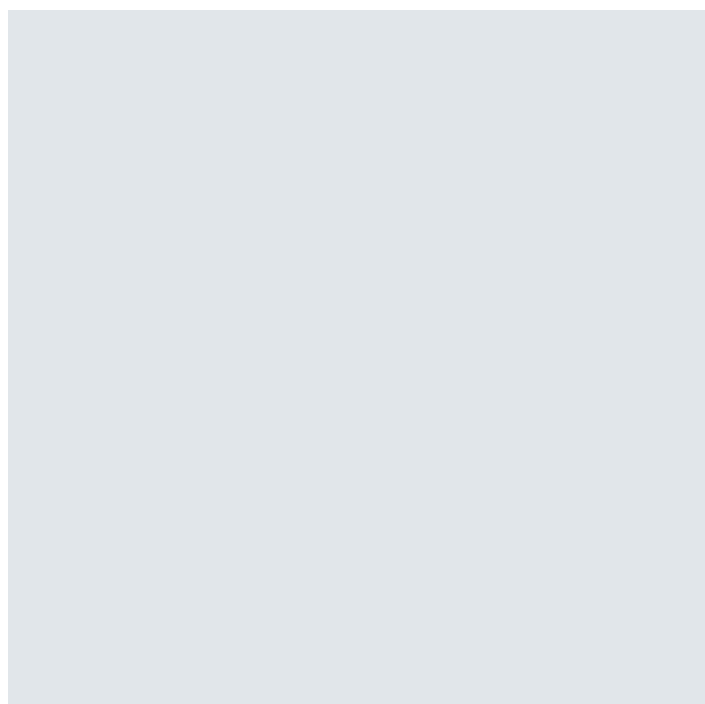
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- Signal Conditioners
- FieldConnex® Fieldbus Infrastructure
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- Electrical Explosion Protection Equipment
- Purge and Pressurization Systems
- HMI Systems
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Industrial Ethernet
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- IO-Link
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- Displays and Signal Processing
- Connectivity

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