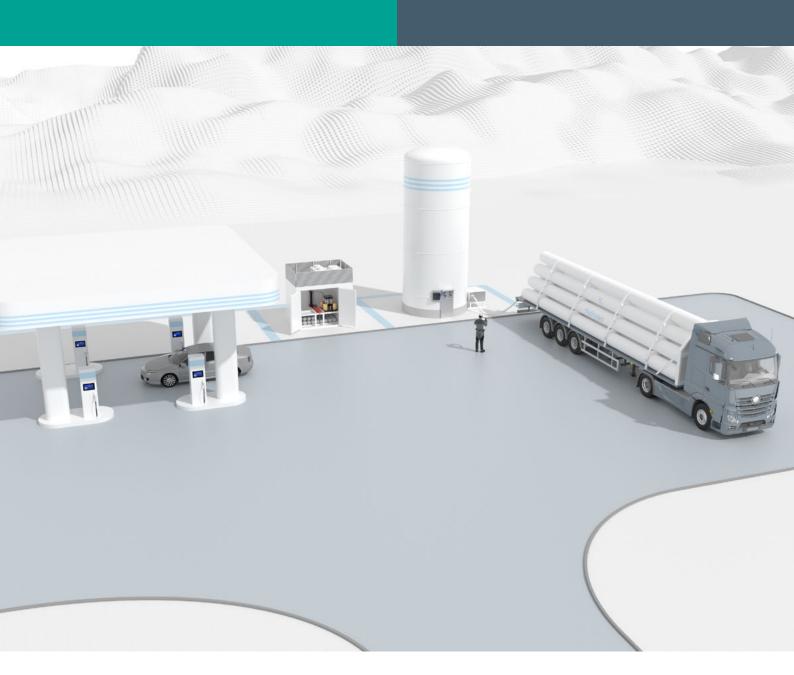# Ensuring Safe Delivery and Storage of Hydrogen at Filling Stations

Monitoring Refueling Processes Using Explosion-Protected Tablets

At a Glance

- Tab-Ex® 03 is an explosion-protected Android tablet certified for use in Zone 1/21 and Division 1 areas
- Lone worker protection immediately alerts rescue workers in the event of an emergency
- Cloud video surveillance enables video to be streamed to the control room in real time and creates a recording on the server
- Mobile device management solution defines access rights on a case-by-case basis and blocks unnecessary applications
- Geofencing is used to detect the GPS position of the mobile worker

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The Application

At hydrogen filling stations, the hydrogen is stored in tanks. These tanks are regularly topped up with hydrogen in either gas or liquid form, which is often brought to the filling station by truck. Using a tablet certified for use in hazardous areas and equipped with the appropriate apps can help to optimize and ensure the safety of both process monitoring and the process of refilling the fuel tanks itself.

The Goal

When working in hazardous areas, such as when supplying and refilling the low-pressure tanks at hydrogen filling stations, the safety of employees is paramount. The biggest challenge of this application is complying with the stringent safety measures for the refilling process. Delivering the hydrogen and refilling the tanks may only be carried out by specialist forwarding agents under the supervision of qualified personnel. To ensure that assistance can be provided quickly in the event of an emergency, a comprehensive lone worker protection system is required that meets the requirements for safety and communication with the mobile worker.

The Solution

The complete all-in-one solution with intrinsically safe mobile devices from the Pepperl+Fuchs brand ecom forms the technological basis for networked applications. The mobile solution is connected to the control room and provides the infrastructure for managing filling stations and tankers. Every process is monitored by operating personnel in the control room. The Tab-Ex 03 ATEX-certified tablet supports the mobile worker throughout all of these processes by facilitating communication over LTE and Wi-Fi networks. This guarantees broad network coverage in all areas and situations—all the while ensuring low network latency, excellent data transfer rates, and outstanding voice quality. The physical buttons on the Tab-Ex 03 also allow users to operate the device while wearing gloves, without any additional interaction with the tablet screen.

The Benefits

Explosion-protected mobile end devices from the Pepperl+Fuchs brand ecom offer a wide variety of benefits, especially when used in conjunction with professional partner software. In addition to the increased safety provided by a cost-effective, efficient, and seamless lone worker protection system, the system can achieve excellent cost savings and an ROI within just a few months. Continuous monitoring of the devices (GPS position, battery level, signal quality, connection status) and automatic notifications upon entry and exit of the filling station area mean that the supervisor no longer needs to be on-site. Instead, the supervisor can be located in the control room and check within seconds whether there is an alarm or false alarm and respond appropriately. The system makes it possible to document emergency situations by recording voice communication, streamed video, GPS positions, and event logs. Documenting the entire rescue process enables the process to be analyzed and evaluated, providing an effective basis for optimizing alarm procedures and ensuring legal security. As a result, intelligent management can be used to optimize processes and improve the related planning.

Technical Features

- Tab-Ex 03 series tablets certified for use in Zone 1/21, Div. 1 and in Zone 2/22, Div. 2

- Latest Android™ operating system

- Operating temperature: –20 °C ... +55 °C

- Powerful 5050 mAh battery

- Front and rear camera (optionally available without cameras)

- Degree of protection: IP64

For more information, visit: **pepperl-fuchs.com/px-tab-ex-03**