Press Message

Pilz safety solution for Autonomous Mobile Robots (AMR) - Safe autonomous navigation

Ostfildern, 12.10.2023 - **For freely navigating mobile platforms, Pilz now offers manufacturers a comprehensive safety solution in accordance with ISO 3691-4 – for an efficient flow of goods in production and logistics. It consists of the safe small controller PNOZmulti 2 with new functionalities for synchronisation monitoring and activation of the safety laser scanners PSENscan. As the second component in the safety solution, PSENscan ensure productive area monitoring. Also, the industrial firewall SecurityBridge offers protection against unauthorised access from outside.**

Freely navigating mobile platforms (Autonomous Mobile Robots, known as "AMRs" for short) can avoid obstacles or people without stopping. The required safety functions in accordance with ISO 3691-4 are therefore complex. Particularly when cornering, it must be possible to switch between several protection zones, to ensure that collisions between human and machine are excluded and downtimes are avoided.

Dynamic zone switching

With the new function blocks for synchronisation monitoring in the software tool PNOZmulti Configurator of the safe small controller PNOZmulti, synchronisation of the axes on an AMR can be monitored reliably. The program function compares the encoder values of the two axes, enabling conclusions to be drawn about the mobile platform's direction of movement.

With this information, the safe zone switching required in the standards can be implemented dynamically in the safety laser scanner PSENscan, the second component in Pilz's safety solution. This is made possible by the equally new PSENscan function block in the PNOZmulti Configurator: PSENscan can dynamically switch up to 70 protected fields using the "zone selection function". At high speed, the protection zones are larger to ensure that obstacles are detected at an early stage. At slower speeds, they can be correspondingly shorter to keep downtimes to a minimum. As a result the AMR moves safely and efficiently.

Simple localisation and navigation

The configurations created in the PSENscan Configurator can be imported and processed in the navigation computer for the freely navigating platform. The safety laser scanner PSENscan provides the laser beams' distance data, for localisation and navigation of the mobile application. Data transfer is via UDP (User Datagram Protocol) and can be queried via standard, open interfaces via a C++-Library or ROS (Robot Operating System). This gives users flexibility and makes it simple to create maps of the environment for navigation.
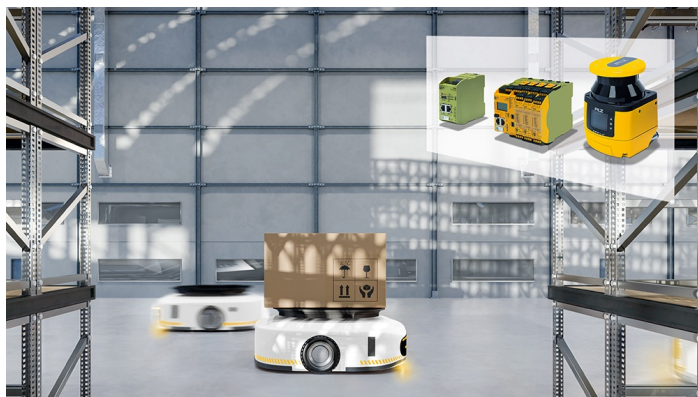
Protection against unauthorised access

As freely navigating platforms, AMRs communicate with their master controller by radio. This makes them vulnerable to external attack, leading to unauthorised data access or manipulation. Map data could be queried and – in the worst-case scenario – AMRs and therefore ongoing production could even be shut down. The industrial firewall SecurityBridge protects the network from manipulation and ensures that no unauthorised person can access the mobile platform's internal IT network during operation. It completes the Pilz solution package for Safety and Industrial Security for Autonomous Mobile Robots.

Services complete the offer

The solution for safeguarding complex AMRs expands the existing offer from Pilz for safeguarding track-bound Automated Guided Vehicle Systems (AGVS). For years Pilz has also supported operators of AGVS with a comprehensive range of services for implementing safe AGVS applications. Pilz's offer starts with the development of safety concepts in the design phase and continues up to commissioning, or on request even up to the international conformity assessment, including training. As such it meets the requirements of the relevant standard ISO 3691-4 and also guarantees productivity in operation.

Discover more about intralogistics at Pilz

Caption:

You can find texts and images for downloading at:

https://www.pilz.com/en-INT/company/press/messages/articles/239220

Pilz – The Spirit of Safety

Pilz is a global supplier of products, systems and services for automation technology. As a pioneer of safe automation, Pilz creates safety for human, machine and environment. Founded in 1948, today the family business with its head office in Ostfildern is represented worldwide with 2500 employees in 42 subsidiaries and branches. The technology leader offers complete automation solutions for Safety and Industrial Security on the machine. These include sensor, control and drive technology – as well as systems for industrial communication, diagnostics and visualisation. An international range of services with consulting, engineering and training completes the portfolio. Pilz solutions are used in many industries beyond mechanical engineering, such as intralogistics, packaging, railway technology, or the robotics sector for example.

Pilz in social networks

In our social media channels we give you background information concerning the company and the people at Pilz, and we report on current developments in Automation Technology.

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