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Intralogistics 4.0: ActiveShuttle with Advanced Interaction now even safer and more flexible

Manuela Kessler | 14.08.2021 | Lohr am Main / Germany | PI 018/21

The new version of the autonomous transport system “sees” more, is interactive and finds its way around the factory independently.

- High safety: object protection with 3D obstacle detection
- Time savings on site thanks to the integrated touchscreen
- Intralogistics 4.0: advanced job and fleet management



Touchscreen and 3D obstacle detection: the new ActiveShuttle with Advanced Interaction transports small load carriers autonomously, safely and with a high degree of flexibility. (Image source: Bosch Rexroth AG)

With the second generation of the ActiveShuttle, Bosch Rexroth brings more movement into intralogistics while increasing safety, efficiency and flexibility of autonomous transport systems. Thanks to camera-based 3D obstacle detection, the system offers a high level of object protection and can even detect objects protruding into its path. The integrated touchscreen, another new feature, allows individual configuration and quick fault management on the mobile robot itself. For intralogistics 4.0 purposes, the updated AMS (ActiveShuttle Management System) control software communicates seamlessly with assembly systems and can load individual jobs using configurable job templates.

With the ActiveShuttle, Bosch Rexroth caters for the needs of modern intralogistics: increasingly complex material flows with a wide variety of components and fluctuating production numbers. Thanks to autonomous transport, intralogistics processes can be made highly flexible without having to change the factory infrastructure. The robust ActiveShuttle transports dollies around the factory with a maximum load of 260 kg in a fully automatic manner. For maximum efficiency, the ActiveShuttle can be integrated easily (Plug & Go) into the shopfloor, is intuitive to operate and easy to connect.

3D obstacle detection improves mobility and object protection

Thanks to integrated object and people protection, the new ActiveShuttle with Advanced Interaction can move freely around factories. In addition to the safety laser scanner, stereo depth

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cameras now capture the room in 3D. As well as objects that are low down or high up, the laser scanner is also able to detect objects protruding into its path beyond the level of the laser. As a result, the mobile robot can brake and avoid obstacles in real time.

The improved recognition capabilities not only prevent accidents, they also allow the system to be used in tight spaces or areas with obstructions or non-standardized environments with no defined floor areas. Looking into the future, the camera system already provides the basis for independently searching for and recognizing material sources (go and see).

Touchscreen display: Interaction on location

With the ActiveShuttle, a wide range of supply methods can be used, for example cyclical transport or consumption-based material supply. The new integrated touchscreen makes the system even more efficient as the operator can interact directly and intuitively with the mobile robot. This ensures greater transparency thanks to job and status information, saves time when diagnosing and rectifying faults and makes boarding, i.e. when the mobile robot reports to the higher-level management system, easier.

Job and fleet management even more flexible and individual

As part of the improvements, Bosch Rexroth has also expanded the functions of the ActiveShuttle Management System (AMS). The AMS is a comprehensive piece of software for fleet and job management which now offers even greater degrees of freedom. In addition to simple transport movements from the source to the sink, complex work sequences can now be created. For example, users can define reference trips or use advanced functions. When it comes to machine-to-machine communication, the ActiveShuttle can send signals to specific route points or only set off in response to a relevant signal.

Jobs are transferred to the ActiveShuttle either fully automatically from higher-level IT systems (MES, ERP etc.) or manually via the web-based operating interface with the help of a PC or tablet. The connection to the shop floor infrastructure is being continuously improved with a view to seamlessly connecting assembly and logistics. Machines, robots and sensors (e.g. dash buttons) can communicate directly with the AMS via various standard interfaces and request replenishments if materials are running low for example.

The AMS already supports the VDA 5050 standard – a good basis for a standardized communication interface allowing data to be exchanged between autonomous transport and management systems. The new ActiveShuttle with Advanced Interaction is ready for the needs of tomorrow in this respect too.

Basic Information Bosch Rexroth

As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile Applications, Machinery

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Applications and Engineering, and Factory Automation. With its intelligent components, customized system solutions and services, Bosch Rexroth is creating the necessary environment for fully connected applications. Bosch Rexroth offers its customers hydraulics, electric drive and control technology, gear technology and linear motion and assembly technology, including software and interfaces to the Internet of Things. With locations in over 80 countries, more than 29,600 associates generated sales revenue of around 5.2 billion euros in 2020.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 395,000 associates worldwide (as of December 31, 2020). The company generated sales of 71.5 billion euros in 2020. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 129 locations across the globe, Bosch employs some 73,000 associates in research and development, of which nearly 34,000 are software engineers.

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