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More safety, more AI and more power for automation: Bosch Rexroth expands ctrlX AUTOMATION

Manuela Kessler | 14.10.2025 | Lohr am Main / Germany | PI 047/25

- More computing power at all levels and more AI functionalities
- Extensive enhancements to IPC, HMI and I/O
- Safety PLC: functional safety now also as an app without hardware
- ctrlX OS Store with new apps
- Application-specific solution sets



The portfolio of the automation platform ctrlX AUTOMATION is constantly expanding. (Image source: Bosch Rexroth AG)

Industrial automation is becoming increasingly software-centric, connected and enhanced by Artificial Intelligence. Bosch Rexroth is driving this change with the open automation platform ctrlX AUTOMATION and is now introducing a number of new features. These include extensive additions to the hardware portfolio, AI functionalities, a software-based safety solution, new apps in the ctrlX OS Store, as well as preconfigured solution sets.

Bosch Rexroth's goal with its automation solution ctrlX AUTOMATION comprising hardware, software and apps, is to significantly simplify automation – for shorter project lead times and faster time to value. The latest innovations underpin this goal.

Hardware expansions for ctrlX AUTOMATION – AI functions added to the controls

The control platform ctrlX COREplus is now available with AI functions at all performance levels. An optional AI module enables efficient integration of Artificial Intelligence directly at the edge, enabling data to be processed and evaluated locally. In addition, ctrlX COREplus now offers increased computing power for AI and vision applications, as well as more memory and storage capacity for local data handling and additional communication options.

At the same time, scalable IPCs with an NVIDIA 2000A GPU increase computing and image processing power for demanding vision and AI workloads at the edge. Furthermore, IPCs with integrated ctrlX OS are now available. And the new line-up of HMIs offers double the performance with a smaller footprint.

The ctrlX I/O portfolio is being expanded with 23 new modules, opening up extended application options in automation and infrastructure.

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The ctrlX DRIVE portfolio is also growing to include more compact, more energy-efficient, cabinet-free and highly modular variants. This means that drives are available to meet almost all individual requirements.

The ctrlX FLOW family, which offers various motion systems for intralogistics, is also being enhanced. The planar system ctrlX FLOW6D now has a smaller mover size and the linear motion system ctrlX FLOWHS sees the addition of a switch for specific topologies and arrangements.

Safety PLC as an app for functional safety

With the new “Safety PLC” app, Bosch Rexroth is now making functional safety hardware-independent. Until now, safety functions in machines required a second CPU to ensure redundancy. Now these functions can be integrated directly into existing controllers such as the ctrlX CORE. This is made possible by the multi-core capability of modern processors, which ensure redundant processing. For users, this means greater flexibility with significantly reduced space requirements and costs.

“Soft safety allows safety functions to be implemented without additional control hardware. This makes machine projects more space-saving, simpler and more economical to implement,” explains Steffen Winkler, Senior Vice President Sales, Business Unit Automation & Electrification Solutions at Bosch Rexroth.

New apps in the ctrlX OS Store

The ecosystem that surrounds the open operating system ctrlX OS is constantly being expanded with new apps. The ctrlX OS Store already boasts a total of 86 apps. The wide selection of products ranges from IoT and communication solutions to innovative vision and engineering apps. When it comes to security, the new Security Scanner provides the option of conducting a complete inventory of machines at the network level during acceptance and having the security status of the whole machine park assessed. Potential attack vectors can thus be identified and addressed at an early stage.

Practical complete solutions with solution sets

A further focus of the innovations is on preconfigured complete solutions. These solution sets combine optimally coordinated hardware and software components, thereby reducing integration risks and project runtimes.

One example is the solution set “Mobile Robots”. It combines control, I/O modules and laser-based localization software that precisely positions mobile robots and manual forklift trucks.

“Our solution sets dramatically accelerate time to value. They are based on typical use cases and enable the rapid implementation of projects,” emphasizes Winkler.

AI assistance for engineering and support

In addition to hardware and software functions, Bosch Rexroth is also expanding the services that accompany ctrlX AUTOMATION. An AI virtual assistant, “Ask iXi,” will be available in time for the SPS 2025 trade fair. It is integrated into both the website and the ctrlX WORKS engineering tool. It answers questions about products, functions and documentation around the clock, and supports users in both the decision-making phase and with day-to-day engineering tasks.

“With Ask iXi, our customers now have a digital co-pilot by their side to help save time and to provide all the knowledge of our platform right when it is needed,” says Winkler. “In addition, new AI apps are constantly being added to the ctrlX OS Ecosystem. We are integrating artificial intelligence at all levels of automation, from configuration through to implementation.”

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 and Industrial Applications as well as Factory Automation. With its intelligent components, customized system solutions, engineering 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, around 32,600 associates generated sales revenue of 6.5 billion euros in 2024.

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Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 418,000 associates worldwide (as of December 31, 2024). The company generated sales of 90.3 billion euros in 2024. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 490 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 87,000 associates in research and development.

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