PRESS INFORMATION

Digitalization simplifies engineering

Manuela Kessler | 24.02.2025 | Lohr am Main | PI 003/25

Bosch Rexroth expands the open and scalable BODAS ecosystem in the areas of digital engineering, telematics and automation

- myBODAS & BODAS-studio: efficient development and collaboration
- Telematics: Over-the-Air services (OTA) for fleet updates and third-party control units, basic solution for digital keys
- New basic modules for future-proof automation

Bosch Rexroth is driving the digital transformation of mobile working machines with BODAS, including IoT solutions, software and mobile electronic hardware for the off-highway market. (Image source: Bosch Rexroth AG) (Image source: Bosch Rexroth AG)

Bosch Rexroth is expanding its BODAS ecosystem for the needs-based development of future-proof off-highway machines with additional tools, hardware, telematics and software modules. In addition to the myBODAS virtual collaboration platform, the BODAS-studio development environment shortens the time-to-market for innovative applications. The telematics and IoT portfolio BODAS Connect now enables mass updates over the air, the flashing of third-party control units and digital keys. The BODAS hardware innovations are the new RC/41 Controller with body control functionality and the BODAS ORC Offroad Robotics Control Unit as a future automation basis.

Manufacturer of Off-Highway vehicles face the challenge of differentiating themselves with a strong machine identity and reducing development costs. The digital experience platform myBODAS helps to solve development issues quickly, transparently and in a qualified manner. In addition to the digital workspace, users benefit from a comprehensive knowledge database with an AI-supported search engine, exchange with BODAS experts via tickets and forums and get free access to validated solutions and development tools.

The new development environment BODAS-studio shortens code creation based on the standardized, open software architecture MASAR with many integration options. This means that the BODAS software packages released via the Try it First process can be modified for the individual solution, e.g. with MATLAB and Simulink from MathWorks or in the high-level language C. A free C-Compiler is available for development with RC/4x Control Units.

Telematics innovations include Over-The-Air services (OTA) for fleet updates, whereby the BODAS Connect Universal Flasher module can also be used to update third-party control units in mixed E/E environments via the UDS (Unified Diagnostic Services) protocol. The RCU Lite Connectivity Unit provides a cost-effective introduction to customized telematics. Digital keys as part of BODAS Connect Keyless, based on a partner solution from Irdeto, facilitate the handling of rental machines and driver pools much easier.

The RC/4x Control Unit series is supplemented by the RC/41 model, which provides more computing power, memory, high-precision inputs and body control outputs for controlling lights etc. With the new Off-Highway Robotics Control Platform BODAS ORC, Bosch Rexroth paves the way for autonomous and complex driving and working functions. At its core, the open, modular Offroad Robotics Control Unit ORC2 offers an open, modular ecosystem and a cost-optimized high-performance AI computer. Based on the QNX real-time operating system with an integrated ROS2 stack, the ORC2 is safety ready. The growing software stack will include modules such as position and environment detection, image recognition, perception logics and bird view. Additionally, custom solutions can also be integrated.
As a holistic technology partner, Bosch Rexroth attaches great importance to compliance with legal safety and security requirements for BODAS and other solutions. This includes new EU directives such as the Machinery Regulation 2023 and the Cyber Resilience Act.

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 33,800 associates generated sales revenue of 7.6 billion euros in 2023.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 417,900 associates worldwide (as of December 31, 2024). According to preliminary figures, the company generated sales of 90.5 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 470 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 86,900 associates in research and development, of which nearly 48,000 are software engineers.

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