BODAS Connectivity Unit RCU

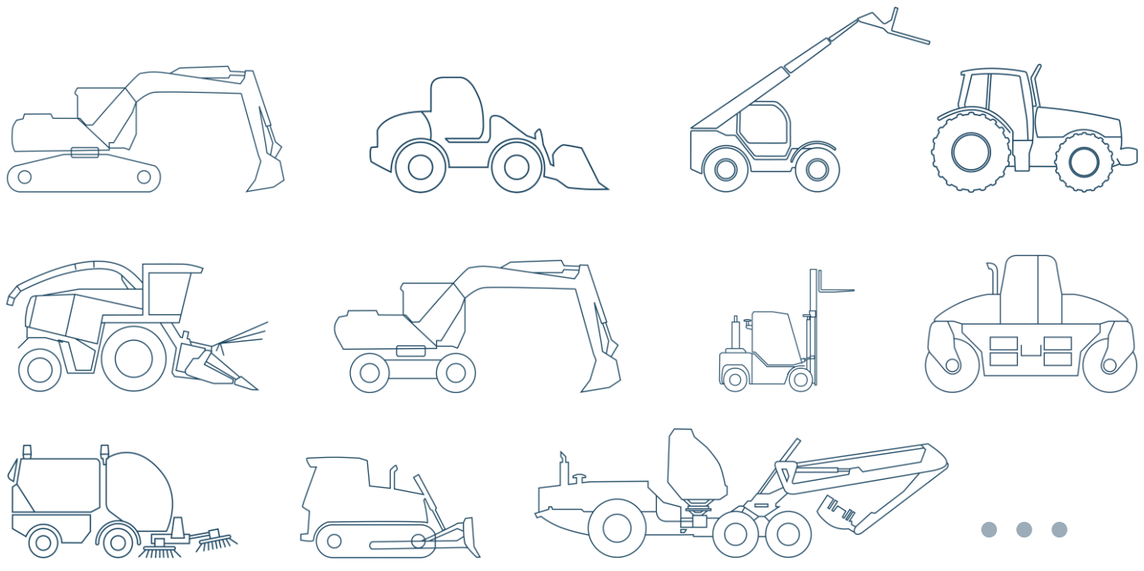
Connectivity device for connecting vehicles to the cloud

No connectivity – no IoT services for off-highway vehicles. Therefore, connectivity devices are a crucial element in any strategy to tap into the potential of the internet of things for improvements in performance, availability and efficiency of mobile machines. The BODAS Connectivity Unit (RCU) provides wireless connectivity in an off-highway vehicle and enables the development, remote deployment and operations of end-to-end IoT use cases and digital services.

CUSTOMER BENEFITS

- State of the art connectivity performance:
  4G, IP67, LinuxOS, CAN, RS232
- User friendly and seamless device management
- Diagnostic, service and certificate management
- Freely programmable in various high-level languages
- Software portability
- Range of standard application software available
- High quality standards of Bosch

APPLICATIONS



FUNCTION AND BENEFITS

State of the art connectivity performance
The RCU collects vehicle data from up to 3 CAN busses and 3 RS232 interfaces and connects to state-of-the-art 4G mobile radio communication. Since it complies with IP67, it can be used in the entire range of rugged applications and harsh environments off-highway vehicles usually operate in.

User friendly and seamless device management with BOSCH technology
BODAS Connectivity Units come with a base software and are securely managed by the device management solution from Bosch Connected Industries. The base software contains a Linux operating system and a Rexroth specific container-based device management engine. This supports an easy, secure and transactional deployment or update of Bosch, Bosch Rexroth or customer specific application software. A software development kit enables customers to develop specific software features on the connectivity unit.

Diagnostic, service and certificate management
The device management solution features flashing and parameterizing as well as reading out process values and error messages of BODAS Connectivity Units. The integrated certificate management serves as the foundation for secure communication.

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TECHNICAL DATA

BODAS Connectivity Units are available in 4 variants:

- RCU4-2A/10 4G mobile network and 2 CAN interfaces
- RCU4-3A/10 4G mobile network and 3 CAN interfaces
- RCU4-3W/10 4G mobile network, 3 CAN interfaces, WiFi and Bluetooth connectivity
- RCU4-3X/10 Additional RAM and NAND-Flash
- RCU4-3Q/20 Quad-core RCU planned for Q1/2022

RCU4-	2A/10	3A/10	3W/10	3X/10	3Q/20
LTE	●	●	●	●	●
GNSS	●	●	●	●	●
WiFi*			●	●	●
Ethernet*		●	●	●	●
Bluetooth*			●	●	●
CAN	2x	2x	2x	2x	
CAN-FD		1x	1x	1x	3x
RS485		1x	1x	1x	1x
External Antenna	●	●	●	●	●
Ignition Input	●	●	●	●	●
Digital I/O		10	10	10	12
Analogue Inputs*		4	4	4	4
Temperature Sensor	●	●	●	●	●
Accelerometer*		●	●	●	●
RAM DDR	512MB	512MB	512MB	1GB	2GB
NAND Flash	1GB	1GB	1GB	2GB	1GB
EMMC Flash					8GB
Processor cores	1	1	1	1	4
Clock speed	800MHz	800MHz	800MHz	800MHz	1,6GHz

Q3 2022

**feature set according to respective hardware software version*

Characteristics

Operating System	Linux Kernel and File-System
Device Management	Container based device management
Programming lang.	C, C++, Java, Python, JavaScript, Go
Power Supply	9V – 36V
Protection	IP67
SIM Types	eSIM (additional plug in SIM possible)
Connector	35-pol TE automotive connector
Antenna	FAKRA
Temperature	-40 °C to +85 °C ambient

EXPLORE MORE

BODAS Connectivity Units

Freely programmable in various high-level languages
BODAS Connectivity Units are based on a software deployment technology that allows the deployment and execution of software applications in protected sandboxes. This means applications are deployed with all necessary libraries. This enables developers to use various programming languages. Access rights to device management interfaces such as drivers or APIs are securely granted.

Software Portability
Due to the rapidly evolving technology in the IoT and connectivity business (e.g. mobile communication technology: stop of 3G, introduction of 5G), application software portability is one of the key requirements for future-proof connectivity devices. This means the ability to change / upgrade the hardware with minimum effort on the operating system and especially application software. To ensure this portability, the Rexroth BODAS Connectivity Units are provided with a software stack implementing an open and clear software structure with low coupling between operating system (incl. hardware drivers) and developed software applications.

Range of standard application software available
Off-the shelf standard software applications by Bosch Rexroth are optionally available and can be deployed over the air.

High quality standards of Bosch
Like all Bosch Rexroth solutions, BODAS RCUs and the embedded software are developed in accordance with the high Bosch quality standards.

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