

# BODAS-service

## Version 3.6

**RE 95086**

Edition: 11.2017

Replaces: 01.17



- ▶ PC software for service and commissioning
- ▶ Set parameters on BODAS controllers without any programming knowledge
- ▶ Access to error memories and diagnosis information
- ▶ Comfortable parametrization of BODAS standard solutions with guided commissioning
- ▶ Easy optimization of machine parameters

### Features

- ▶ Programming / flashing of controllers
- ▶ Password protection to prevent unauthorized parameter changes
- ▶ Graphical PC interface
- ▶ Easy operation
- ▶ Integrated data logger for displaying the progression of measurement parameters over time
- ▶ Command line interface
- ▶ Compatible with CAN adapters from Vector and Peak
- ▶ Support of guided commissioning for BODAS Standard software “BODAS ASrun” solution
- ▶ Online and offline EPR comparison and merging tool
- ▶ Cloud based “wireless” communication with support of BODAS IoT partners: Proemion and Tierra
- ▶ Communication speed improvement with data caching logic
- ▶ Interface for manual application error table extension

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## Description

The BODAS-service PC software tool is used to execute convenient service functions for BODAS controllers, display DI3 and DI4, and the CPM pilot module. Parameters can be displayed and edited, process variables displayed, and their progressions graphically plotted and recorded. Error memories can also be read out and reset and an application diagnosis can be configured. Furthermore, functions are available for reading out and writing to the EEPROM controller and to compare and merge project specific parameter settings offline.

Comprehensive information on the version of the controller is displayed for BODAS controllers equipped with CAN diagnosis. Moreover, in the event of an emergency, these series allow you full access to all process variables and parameters in a one-time session via an “Emergency Access” (from the BODAS-service DEMO version onwards). BODAS-service also offers the option to upload application software, so-called HexFiles, to BODAS RC controllers and upload display configurations on the BODAS display DI3 and DI4.

For improved and efficient commissioning of BODAS standard solutions e.g. drive train control ASrun DRCA4x or eDA the feature guided commissioning supports:

- ▶ Specific commissioning views “steps” displaying parameters, process values and measurement tools and application help of each individual commissioning step linked to the corresponding application guideline
- ▶ Linkage of dependent parameters in a graph with freedom to adjust the parameter values by sliding them in the graph or value typing

For easy to use diagnostics, BODAS-service offers the option to upload project specific help files with which additional information about project specific error codes can be visualized, in case the error becomes active. To increase the diagnostic performance of BODAS-service, the tool provides the features for data caching. With caching activated, BODAS-service saves the project specific parameter and process value description from the BODAS controller on the local hard-disk, with which the next diagnosis connection can be established without another download from the RC target by which the communication establishment time is extremely reduced.

To extend the flexibility with BODAS-service, it supports wireless connection. With usage of telematics services of our BODAS IoT partners Proemion or Tierra, the diagnostic data of a BODAS RC controller can be herewith read and managed also remotely.

The respective functions are enabled by means of a USB hardlock (license control).

The following license versions can be selected:

- ▶ BODAS-service Diagnosis
- ▶ BODAS-service Flash Tool
- ▶ BODAS-service Full Version

All of the functions mentioned can be executed on a PC or laptop.

## Ordering details

BODAS-service 3.x is available from Rexroth as follows:

License version	Material number
BODAS-service Diagnosis	R902109418
BODAS-service Flash Tool	R902109417 <sup>1)</sup>
BODAS-service Full Version	R902109416 <sup>1)</sup>

### BODAS-service version control

The index X represents the BODAS-service version (e.g. status 10.2017: 3.6). The version with the higher index always represents the latest version and is downwards compatible with the previous versions.

### Scope of delivery

- ▶ CD-ROM
- ▶ License (USB dongle)

<sup>1)</sup> An FA1 flash adapter is required for the flashing of BODAS RC controllers series 20 and 21 via the RS232 interface. This is not part of the bundle and must be ordered separately!

## Required accessories

- ▶ **Suitable CAN connection cable**  
from the interface of a CAN adapter to the CAN interface
- ▶ **CAN-USB interface**  
PEAK PCAN-USB, PEAK PCAN-USB Pro, PEAK PCAN-PCI, PEAK PCAN-PCI Express, Vector CANboard XL, Vector CANcase XL, Vector CANcard X, Vector CANcard XL, Vector CANcard XLe, Vector VN1610, Vector VN1611, Vector VN1630, Vector VN1640, Vector VN89xx, Sontheim CANUSBlight, Sontheim CANUSB, Sontheim CANfox, Lawicel CANUSB

The connection cable and the CAN-USB interface are not included in the BODAS-service's scope of delivery.

The connection cable (one cable for CAN and RS232) and CAN-USB interface can be ordered from Rexroth under the following material numbers.

Designation	Material number
BODAS-service connection cable	R902109422
CAN-USB interface	R902602780

### Optional bundles

The BODAS-service bundles contain the tool, connection cable as well as a CAN-USB interface.

These bundles can be ordered from Rexroth under the following material numbers:

Designation	Material number
BODAS-service Diag bundle	R902109421
BODAS-service Flash Tool bundle	R902109420
BODAS-service Full Version bundle	R902109419

## System requirements

- ▶ Personal computer with at least a 500 MHz Pentium II microprocessor
- ▶ VGA video adapter or video adapter with a resolution of at least 1024x768 and at least 16 bit color quality
- ▶ At least a 512 MB main memory (RAM)
- ▶ One free CAN interface
- ▶ One free USB interface (for license key - USB dongle)
- ▶ Available hard disk space > 200 MB
- ▶ Java runtime environment (automatic installation)

### Operating system

- ▶ Windows XP, Vista, 7, 8 and 10
- ▶ For Cloud Interface: Windows 7, 8 and 10

## Program installation

Use the [Run] function in the [Start] menu to start "BODAS-service 3.xxx\_Setup.exe" from the CD-ROM. All further instructions are provided on the screen. During the installation process, you will also be offered the option to install BODEM25 and the flash tool FT2. These earlier versions of the BODAS tool (only for Windows 2000, XP and Vista) are designed for the diagnosis of generation MC controllers already in field use.

### Notice

System administrator rights are required in order to install the BODAS-service software on Windows.

### Updates

Current BODAS-service program updates can be found on the Internet under [www.boschrexroth.com/mobile-electronics](http://www.boschrexroth.com/mobile-electronics) under the header "BODAS Tools" or in the Rexroth media directory under the search criteria "BODAS-service". It is recommended that you personally check for BODAS-service updates at least every 6 months!

4 **BODAS-service Version 3.6**  
Start-up and operation

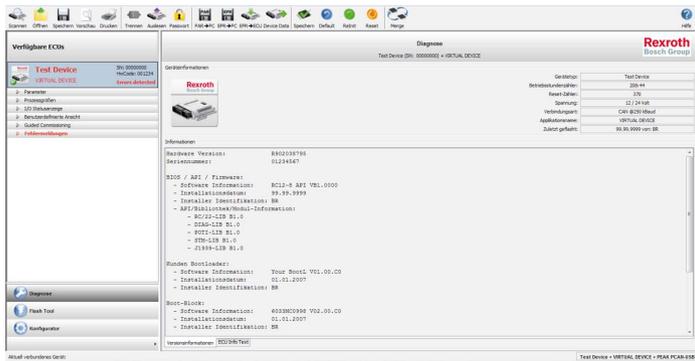
**Start-up and operation**

There is a start delay the first time it is started due to the loading of the Java environment. Neither an “hour glass” nor any other aid is displayed to show this start delay. After the initial program start, a delay of 30 seconds is normal due to the startup of the Java environment. Once the program has been started, the last configuration (automatic query) can be loaded. If the last configuration is not used or it cannot be confirmed by the connected hardware, BODAS-service Diagnosis must first be scanned for connected devices. The CAN interface can be automatically scanned for BODAS controllers here. The interfaces to be searched must be correctly configured beforehand (under the menu item File > Interface). For utilization of remote

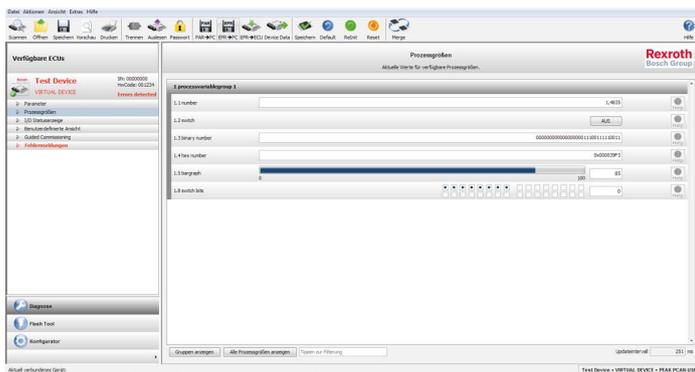
diagnostics a telemetric control unit of one of our BODAS IoT Partners in the corresponding machine is mandatory. With the BODAS-service Flash Tool, it is possible either to scan for connected devices using the System Scan function or to directly flash a BODAS controller using the interface selection. The BODAS-service Diagnosis Configurator can be activated or deactivated via the “Options” menu. For the activation you need the password “config”. A detailed functional description of the tools can be found in the online help. You can access this after starting the program by pressing the F1 key.

**Example applications**

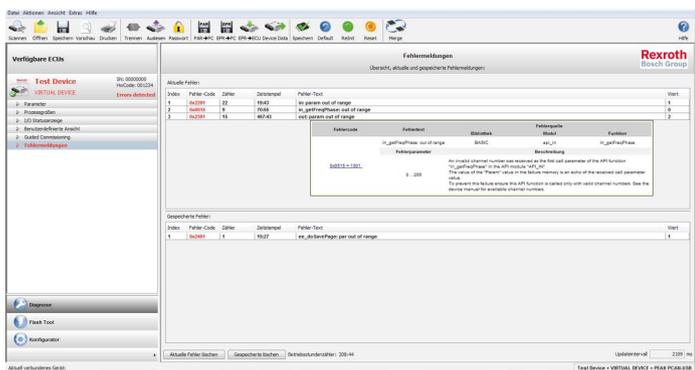
▼ **Main Data**



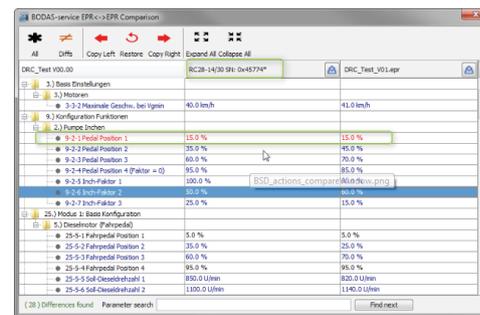
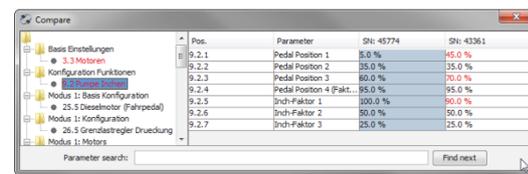
▼ **Parameter view**



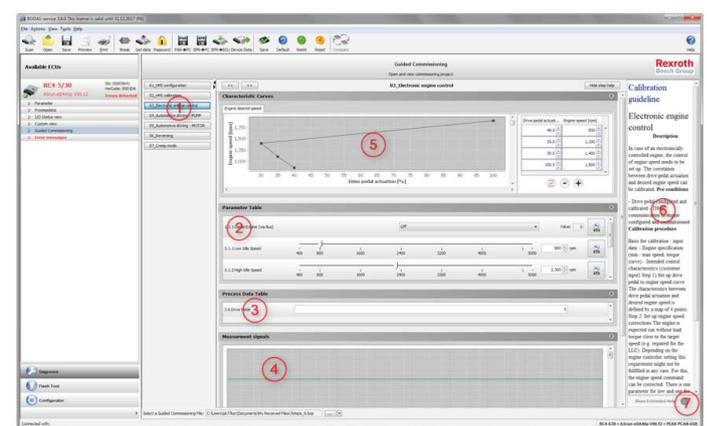
▼ **Error codes**



▼ **EPR Merging**



▼ **Guided Commissioning project**



A Guided Commissioning project consists of:

1. Steps
2. Parameter Table.
3. Process Data Table.
4. Graph over time.
5. Characteristic Curves.
6. Description for the step.
7. Help for the step.

## Function and operating notes

The BODAS-service PC software tool is used to execute convenient service functions for BODAS controllers from Rexroth. The tool is characterized by the following functions, depending on the purchased license version:

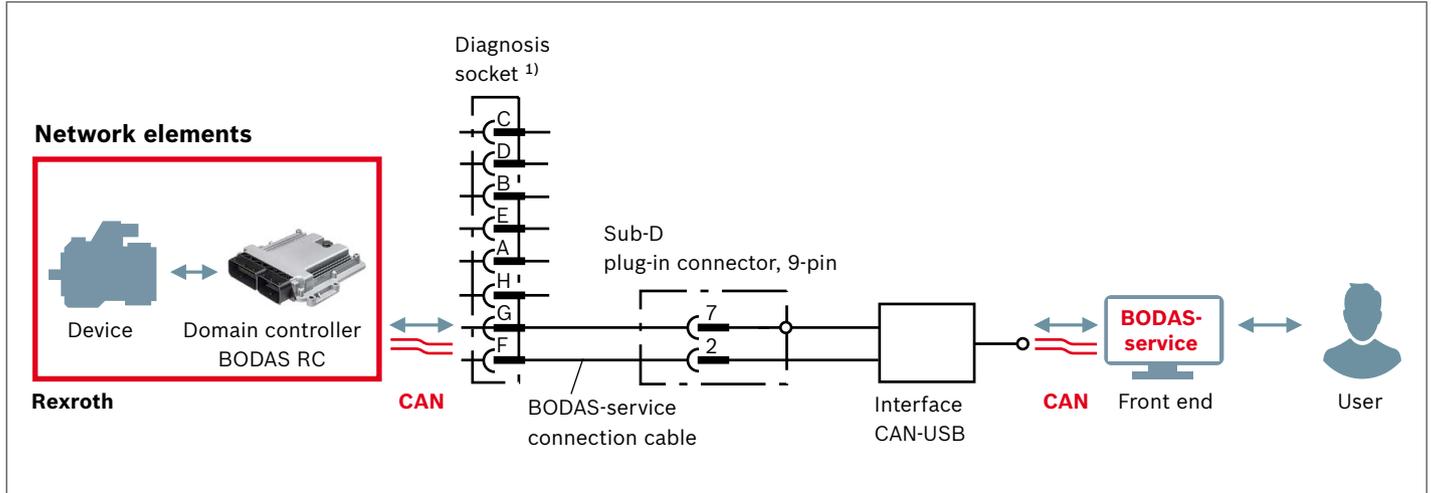
- ▶ Extremely user-friendly, thanks to the Windows user interface, freely configurable work flows “customer view” and online help
- ▶ Simultaneous display of multiple parameters for the modification of settings
- ▶ Simultaneous display of multiple process variables in graphical or numerical form
- ▶ Printout of all settings and process variables for documentation purposes
- ▶ Guided commissioning option with graphical visualization of dependent parameters in a curve, application guideline corresponding commissioning steps including all relevant parameters, process values and measuring tooling
- ▶ Clear display of fault messages
- ▶ Convenient data logger: Save measurement values (process variables and parameters) to the hard disk
- ▶ Selectable and expandable program language
- ▶ Adjustable device language (relevant to controller data, up to 4 languages available)
- ▶ Diagnosis configuration for a BODAS or C application on BODAS RC controllers
- ▶ Transfer of software from a PC to a BODAS RC controller (software flashing)
- ▶ Transfer of display configuration files for the BODAS display DI3 and DI4
- ▶ Comparing and merging of project specific EPR files with full parameter description
- ▶ Save the BODAS controller data located in the EEPROM or transfer an EEPROM file (EPR file) to a BODAS controller
- ▶ Command line control option for various BODAS-service functions, e.g. flash programming or EPR file download
- ▶ Display of extensive version information
- ▶ Emergency release of all parameters and process variables via an “Emergency Access” (from the BODAS-service DEMO version onwards) for a one-time session using the “Seed and Key” process
- ▶ Wireless cloud based IoT reading of diagnostic information (Parameters, Error Codes, Process values) by using IoT connectivity solutions of our BODAS IoT Partners Proemion and Tierra

### Notice

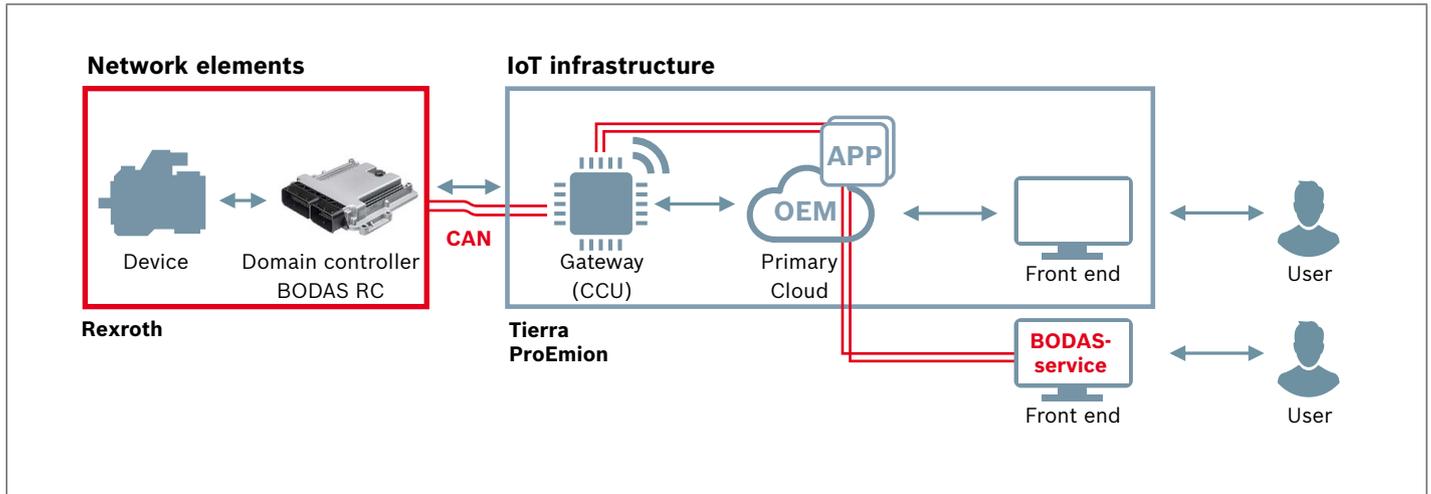
- ▶ A free demo version of BODAS-service 3.x for reading out data is available for downloading under [www.boschrexroth.com/mobile-electronics](http://www.boschrexroth.com/mobile-electronics) under the header “BODAS-Tools” or can be found in the Rexroth media directory under the search criteria “BODAS-service”.
- ▶ The demo version does not allow you to modify, save or delete any values.

## Connection variants

### Variant 1: CAN with and without flash function



### Variant 2: IoT wireless diagnosis over the cloud



1) Ordering details for the diagnosis socket, see page 7

### Metallock Bantam diagnosis socket

Manufacturer: e.g. FCI

Consisting of	FCI order designation
Socket	UTG012-8S
8 socket contacts	RC16M23K
Cable clamp	UTG12PG
Dust protection cap	UTP12DCG

The diagnosis socket can be ordered from Bosch Rexroth under the material number R909831291.

### Assembly of the BODAS-service connection cable

Material number: R902109422

#### X1: Metallock-Bantam

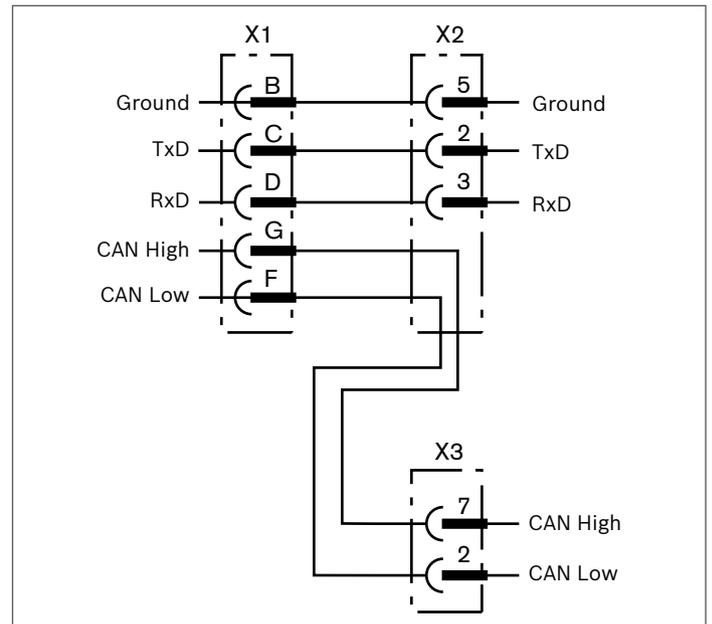
for connecting to the FCI Metallock-Bantam diagnosis socket R909831291

#### X2: Sub-D plug-in connector, 9-pin

for connecting to the RS232 Sub-D interface

#### X3: Sub-D plug-in connector, 9-pin

for connecting to the CAN Sub-D interface



#### Notice

- ▶ The respective interfaces can get damaged if the RS232 cable interface is connected to a CAN-USB interface or the CAN cable interface is connected to the RS232 interface.
- ▶ The BODAS-service connection cable does not provide EMC protection via shielding or twisting.
- ▶ The BODAS-service connection cable has protection class IP 20.
- ▶ The BODAS-service connection cable is designed for operating and storage temperatures from -40 °C to +70 °C.

## Safety instructions

### General instructions

- ▶ The proposed circuits do not imply any technical liability for the system on the part of Bosch Rexroth.
- ▶ The use of BODAS-service in the standard working mode of the machine is not permissible.
- ▶ Working on the PC with BODAS-service in combination with a controller or display in a machine or vehicle is only permissible during commissioning of the machine or during service operations. Appropriate safety measures must be provided against hazards caused by unexpected operating conditions.
- ▶ Changing parameters or loading (flashing) software onto the BODAS RC controller or BODAS display may only be performed by trained and experienced specialists who are suitably familiarized with both the components used and the complete system.
- ▶ When performing flashing, the user is responsible for ensuring that the software to be flashed is compatible with the BODAS RC or BODAS display hardware/vehicle in question.
- ▶ Incorrect programming/parameterization using BODAS-service may create potential hazards while the machine is in operation.  
It is the responsibility of the machine manufacturer to identify hazards of this type in a hazard analysis and to bring them to the attention of the end user. Rexroth assumes no liability for dangers of this type.
- ▶ System developments, installations and commissioning of electronic systems for controlling hydraulic drives must only be carried out by trained and experienced specialists who are sufficiently familiar with both the components used and the complete system.
- ▶ During the commissioning and maintenance of the machine with BODAS-service, the machine may pose unforeseen hazards. Before commissioning the system, you must therefore ensure that the vehicle and the hydraulic system are in a safe condition.
- ▶ Make sure that nobody is in the machine's danger zone.
- ▶ No defective or incorrectly functioning components may be used. If the components should fail or demonstrate faulty operation, repairs must be performed immediately.
- ▶ Telemetrics:  
The cloud based communication is only supported by third party suppliers. Disclaimer about the usage of this interface need to be accepted:
  - You are about to connect your Bosch Rexroth Controller using a third party provider's internet infrastructure (see page 6 "IoT infrastructure").

- Thus, only the third party provider is responsible for the internet infrastructure.
- Bosch Rexroth AG is not liable for and does not assume any warranties for damages that have been caused by a faulty internet infrastructure.
- In case you suffer such damages, please contact the third party provider.

### Notes on the installation location and position

- ▶ Only connect the RC controller to a PC with the BODAS-service connection cable. Incorrect connection cables or wiring could lead to the destruction of the PC interface!
- ▶ The controller and the PC must be switched off when the BODAS-service connection cable is connected or disconnected.
- ▶ When using the BODAS-service flash function, the drive unit (e.g. diesel engine) must be switched off during data transfer to the BODAS controller!

### Intended use

- ▶ Operation of the BODAS hardware in combination with BODAS-service must generally take place within the operating ranges specified and released in this data sheet, particularly with regard to voltage, temperature, vibration, shock and other described environmental influences.
- ▶ Use outside of the specified and released boundary conditions may result in danger to life and/or cause damage to the components, which could result in sub-sequential damage to the mobile working machine.
- ▶ BODAS-service 3.6 can be used with the Read-Only functionality when connected over a cloud server. For writing via the cloud additional measures with the application solution to ensure machine and operator safety need to be applied before they can be released. Details can be provided on request.
- ▶ Please note that the services can be slow depending on the kind of network that is chosen.

### Improper use

- ▶ Any use of the BODAS-service other than described in the chapter "Intended use" is deemed to be improper use.
- ▶ Use in explosive areas is not permissible.
- ▶ Damage resulting from improper use and/or from unauthorized intervention not described in this data sheet renders all warranty and liability claims against the manufacturer null and void.

### Use in safety-related functions

- ▶ When using BODAS-service in safety-related applications, special measures must be observed. These can be found in the safety-related project planning guidelines of the relevant controller.
- ▶ The customer is responsible for performing a risk analysis of the mobile working machine and determining the possible safety-related functions.
- ▶ In safety-related applications, the customer is responsible for taking suitable measures for ensuring safety (sensor redundancy, plausibility check, emergency switch, etc.).
- ▶ Product data that is necessary to assess the safety of the machine can be provided upon request or are listed in this data sheet.

### Further information

- ▶ More detailed information on BODAS-service can be found at [www.boschrexroth.com/mobile-electronics](http://www.boschrexroth.com/mobile-electronics) under the BODAS Tools heading.
- ▶ Visit our home page on a regular basis for the latest information on products and updates.
- ▶ BODAS-service must be disposed of in accordance with the national regulations of your country.
- ▶ Copying, translating and distributing Bosch Rexroth software is prohibited under copyright law.

### OSS License Information

BODAS-service includes Open Source Software. Further details and license information are given within the BODAS-service / Help → License information

### Open source software

- ▶ The BODAS-service contains open source software and third party software under royalty-free licenses (“OSS”). The OSS scope that is used or is available at the time of market launch is in listed in an OSS appendix. If changes occur to the OSS scope over the service life of the product, the OSS system will be updated accordingly. A complete list of all the OSS used, depending on the development and production of the offered BODAS-service, is available on request and will be delivered with the product as part of the Rexroth software package.
- ▶ The OSS included in the DI4 is subject to OSS license agreements (“OSS licenses”). Under these OSS licenses, Bosch Rexroth is obliged to pass on the conditions of these to you. You must comply with these terms and conditions and with the relevant obligations, unless you use the OSS in any manner other than simply

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- ▶ The OSS itself has no effect on the retail price of the BODAS-service and is therefore made available free of charge.
- ▶ The sale of the BODAS-service, unless otherwise agreed, does not include service or support by Bosch Rexroth with regard to the fulfilment of your obligations arising from the OSS licenses. Any such service or support provided by Bosch Rexroth shall require a separate agreement in which these services or support are specified and reasonable remuneration is paid for this purpose.

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- ▶ This product contains software components that are licensed by the holder of the rights under GNU General Public License (GPL), GNU Lesser General Public License (LGPL) or any other Open Source Software license, which requires that source code be made available.
- ▶ The source code of these software components is not already delivered together with this product. You can obtain the source code for these software components on a physical medium (CD or DVD) by submitting a written request to our open source office address listed below or by sending an email to: [open.source@boschrexroth.de](mailto:open.source@boschrexroth.de).

10 **BODAS-service Version 3.6**  
Safety instructions

When sending such a request, please name the relevant product and the date of purchase of the same.

Bosch Rexroth AG Open Source Office  
Zum Eisengieser 1, 97816 Lohr am Main Germany

- ▶ We may charge you a fee to cover the cost of physical media and processing. You may send your request (i) within three (3) years from the date you received the product that included the binary that is the subject of your request or (ii) in the case of code licensed under the GPL v3 for as long as Bosch Rexroth offers spare parts or customer support for that product.

**Legal Information, SW License agreement**

The following general terms and conditions AGB apply to this product.

<https://www.boschrexroth.com/en/xc/home/legal>

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