rexroth
A Bosch Company

Application Manual

InfluxDB App

Influx Database Connection for ctrlX OS 03VRS

R911425240 Edition 01

Disclaimer

The data specified above only serve to describe the product. As our products are constantly being further developed, no statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

Table of contents

1 About this documentation

Editions of this documentation

Edition	Release date	Note
01	2024-12	First edition InfluxDB App Version IDB-V-0302

1.1 Trademark information

InfluxDB® is a trademark [registered / owned] by InfluxData, which is not affiliated with or endorsed by this ctrlX OS app and does not support it.

2 Important directions on use

2.1 Intended use

2.1.1 Introduction

Rexroth products are developed and manufactured to the state-of-the-art.

The products are tested prior to delivery to ensure operational safety and reliability.

⚠ WARNING	**Personal injury and damage to property due to incorrect use of products!** The products may only be used as intended. Failure to use the products as intended may cause situations resulting in property damage and personal injury.
NOTICE	**Damages resulting from unintended use** Rexroth As the manufacturer does not assume any warranty, liability or compensatory claims for damages resulting from unintended use of the products. The user alone shall bear the risks of an unintended use of the products. Before using Rexroth products, make sure that all the prerequisites for an intended use of the products are met: – Personnel that in any way, shape or form uses Rexroth products must first read and understand the relevant safety instructions and be familiar with their intended use – Leave hardware products in their original state, i.e., do not make any structural modifications. It its not permitted to decompile software products or alter source codes – Do not install damaged or defective products or commission them – It has to be ensured that the products have been installed as described in the relevant documentation

2.1.2 Areas of use and application

Products of the ctrlX series are suitable for Motion/Logic applications.

NOTICE	Products of the ctrlX series may only be used with the accessories, mounting parts, and other components specified in this documentation. Components that are not expressly mentioned must neither be attached nor connected. The same applies to cables and lines. Only to be operated with the hardware component configurations and combinations expressly specified and with the software and firmware specified in the corresponding documentations and functional descriptions.

Products of the ctrlX series are suitable for single-axis as well as for multi-axis drive and control tasks. Device types with different equipment and interfaces are available for using the system in specific applications.

Typical areas of application:

- Building automation
- IoT and Security Gateway or Device
- Handling & Robotic

Controls of the ctrlX CORE series may only be operated under the mounting and installation conditions, in the position of normal use and under the ambient conditions (temperature, degree of protection, humidity, EMC, etc.) specified in the related documentations.

2.2 Unintended use

"Unintended use" refers to using the ctrlX products outside of the above-mentioned areas of application or under operating conditions and technical data other than described and specified in the documentation.

ctrlX products must not be used if they are exposed to following conditions:

- Operating conditions that do not meet the specified ambient conditions. Operation under water, under extreme temperature fluctuations or under extreme maximum temperatures is prohibited
- Applications that have not been expressly authorized by Rexroth

3 Safety instructions

The Safety instructions contained in the available application documentation feature specific signal words (DANGER, WARNING, CAUTION or NOTICE) and, where required, a safety alert symbol (in accordance with ANSI Z535.6-2006).

The signal word is meant to draw the reader's attention to the safety instruction and identifies the hazard severity.

The safety alert symbol (a triangle with an exclamation point), which precedes the signal words DANGER, WARNING and CAUTION, is used to alert the reader to personal injury hazards.

The Safety instructions in this documentation are designed as follows:

⚠ DANGER	In case of non-compliance with this safety instruction, death or serious injury **will** occur.
⚠ WARNING	In case of non-compliance with this safety instruction, death or serious injury **could** occur.
⚠ CAUTION	In case of non-compliance with this safety instruction, minor or moderate injury could occur.
NOTICE	In case of non-compliance with this safety instruction, property damage could occur.

4 Introduction and overview

The InfluxDB app for ctrlX OS contains a database system specially developed for time series by InfluxData®.

With the InfluxDB app, large amounts of data can be saved and reloaded very quickly and efficiently with reference to time.

Compared to a conventional relational database (e.g. MySQL), the InfluxDB has clear speed advantages when it comes to storing and processing time series.

The manufacturer's documentation for the installed InfluxDB version OSS 2.7.1 is available under the following web link:

➦ https://docs.influxdata.com/influxdb/v2/

Changes and bugfixes for previous versions are available under the following web link:

➦ https://docs.influxdata.com/influxdb/v2/reference/release-notes/influxdb/

The following apps can be used in conjunction with the InfluxDB app:

- ➦ Telegraf
  The Telegraf app provides the option to collect, process, aggregate and write information such as metrics, events and logs to target systems such as the InfluxDB.
- ➦ IoT Dashboard
  The IoT Dashboard app is used to visualize and analyse a wide range of data sources and applications using customized dashboards, heatmaps, diagrams and histograms

Further information on the so-called TIG stack can be found on the following web page (**TIG** = **T**elegraf / **I**nfluxDB / **G**rafana):

➦ https://www.influxdata.com/blog/tig-stack-iiot-ot/

4.1 Installation and integration into the ctrlX OS web interface

The installation of apps is described in the documentation for ctrlX OS - Operating System for ctrlX CORE Control Devices 03VRS, see: ➦ Web documentation

By installing the app, the ctrlX OS web interface is extended by the “InfluxDB” node in the ctrlX OS web interface, see:

➦ Window – “InfluxDB”

4.2 Licensing

Operation of the InfluxDB app is subject to licensing and requires the following license on the ctrlX device:

Type code	Material number
SWL-XC*-IDB-INFLUX*DB****-NNNN	R911417120

4.3 Useful weblinks

➦ ctrlX Store on the web

➦ How-to range

➦ ctrlX AUTOMATION FORUM

➦ ctrlX AUTOMATION Community

5 Setting up the InfluxDB

Prerequisite to operate the InfluxDB app

Operating the InfluxDB app is only possible if an external storage medium is mounted on the ctrlX device, either as a memory extension or as a removable disk, see here:

➦ Storage concept

Virtual ctrlX devices are not affected by this.

5.1 InfluxDB user interface

The browser-based InfluxDB user interface can be accessed via the “InfluxDB” node in the ctrlX OS page navigation, see:

➦ Window – “InfluxDB”

When first calling the InfluxDB user interface, a login window for authentication is displayed in the browser, see: ➦ Authentication

5.2 Authentication

When first calling the InfluxDB user interface, the following information has to be entered:

- Initial user
- Password
- Organization
- Bucket name

The InfluxDB user authentication is **not** linked to the ctrlX user administration.

Remember your login data, the login data cannot be recovered!

5.3 Configuration file

With the installation of the InfluxDB app, a configuration file (config.yaml) is created in the ctrlX app data directory of the InfluxDB app.

The configuration file contains all the options that can be used to configure the functions of the InfluxDB app, see also:

➦ https://docs.influxdata.com/influxdb/v2/reference/config-options/

- Changes to the configuration file require a restart of the ctrlX InfluxDB app.
- Changes to the configuration file, the ctrlX InfluxDB app can sporadically not be executed anymore.

5.4 Storage concept

The internal memory of the ctrlX device is not designed for cyclical writing of a database. Therefore, before starting the InfluxDB app on a real ctrlX device, it is checked whether an external memory is available as a memory extension or removable disk. If no external memory is available, the start of the InfluxDB app is prevented and an error message is displayed.

If an external memory is available as a memory extension, the InfluxDB is automatically configured and started.

If an external storage device is inserted as a removable disk, the configuration file has to be manually adapted to the corresponding data storage location and the InfluxDB app has to be restarted. The data storage location can be configured in the config.yaml file. The default setting for bolt-path and engine-path of the ctrlX InfluxDB app is as follows:

config.yaml

```
bolt-path: /var/snap/ctrlx-influxdb/common/bolt-path

engine-path: /var/snap/ctrlx-influxdb/common/engine
```

Storage behavior for virtual ctrlX devices

For virtual ctrlX devices, the external memory is not checked before the InfluxDB app is started, the external memory is not checked.

In this case, the internal memory with the preset paths (/var/snap/ctrlx-influxdb/common/...) is used.

Backup and restore

External storage media are not supported by the ctrlX functions for backup and restore!

This also applies to the InfluxDB data storage on external storage extensions or removable storage media.

5.4.1 Memory extension as data storage

A USB flash drive or SD card can be mounted as a memory extension on the ctrlX device, see: ➦Web documentation

When the external storage medium is mounted, a folder for the data exchange of the InfluxDB app is automatically created on the storage medium.

The data storage location is entered as a comment in the config.yaml configuration file by default and has to be configured as follows:

config.yaml

```
# If using a storage extension change the path to:
# /var/snap/ctrlx-influxdb/common/storage-extension/ctrlx-influxdb/bolt-path
bolt-path: /var/snap/ctrlx-influxdb/common/storage-extension/ctrlx-influxdb/bolt-path

# If using a storage extension change the path to:
# /var/snap/ctrlx-influxdb/common/storage-extension/ctrlx-influxdb/engine
engine-path: /var/snap/ctrlx-influxdb/common/storage-extension/ctrlx-influxdb/engine
```

After the config.yaml file has been changed, restart the ctrlX InfluxDB app.

Authentication is required the first time the InfluxDB user interface is called, see: ➦Authentication

After logging in, the data is written to the memory extension.

5.4.2 Removable media as data storage

A USB flash drive or SD card can be mounted as a memory extension on the ctrlX device, see: ➦Web documentation

By mounting the external storage medium, a data exchange folder for the InfluxDB app is automatically created on the storage medium, e.g. `/media/sda1`.

In order for the InfluxDB to write data to the removable disk, the path of the data exchange folder has to be entered in the config.yaml configuration file. To do this, the path of the data exchange folder in the ctrlX web interface under *“Settings → Storage”* can be copied.

Example

```
# - If using a removable media change the path to the corresponding mount point:
#   e.g. /media/sda1/influxdb/bolt-path
bolt-path: /media/sda1/influxdb/bolt-path
# - If using a removable media change the path to the corresponding mount point:
#   e.g. /media/sda1/influxdb/engine
engine-path: /media/sda1/influxdb/engine
```

After the config.yaml file has been changed, restart the ctrlX InfluxDB app.

Authentication is required the first time the InfluxDB user interface is called, see: ➦ Authentication

After logging in, the data is written to the memory extension.

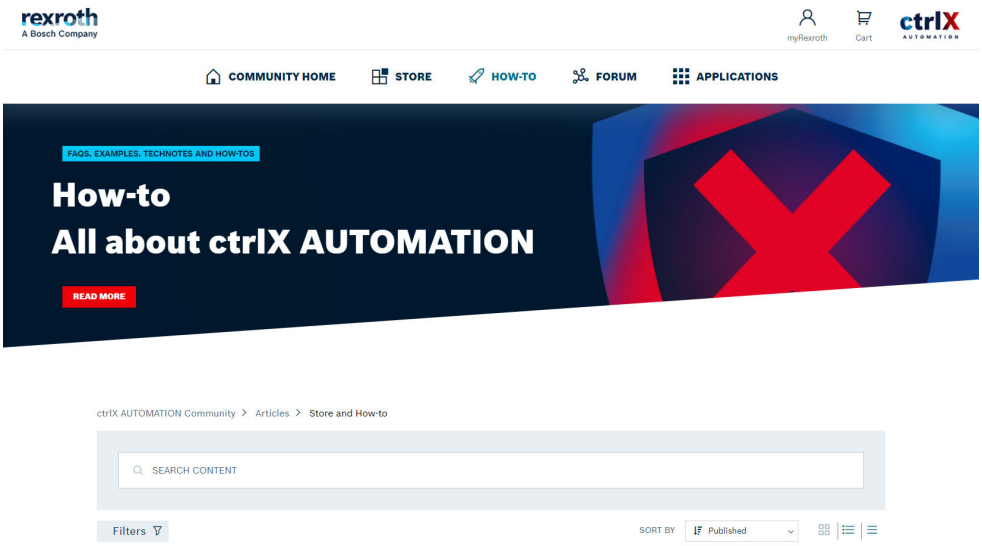
6 Application examples

This chapter refers to application examples (tutorials) that are published in the How-To section on the ctrlX Automation website, see:

➦ Web link

The How-To section is continuously being expanded with additional content and provides a good introduction to using the InfluxDB app.

Simply enter "InfluxDB" in the search bar to display matching content.



6.1 How-To "Getting started with InfluxDB on ctrlX CORE"

This tutorial shows how to use the InfluxDB app, the transfer of data, visualization and evaluation using dashboards and threshold values.

Contents:

- Installing and setting up the InfluxDB app
- Forward data from the ctrlX Data Layer with the Node-RED app to InfluxDB
- Forward data from the ctrlX Data Layer with the Telegraf app to InfluxDB
- Show current and historical data
- Creating a simple dashboard for visualization
- Configuring threshold monitoring warnings

➦ Web link to the tutorial

6.2 How-To "Use ctrlX CORE as a monitoring platform using InfluxDB and Grafana"

This tutorial shows how complex IIoT machine data can be recorded, stored and visualized through the interaction of three apps.

Concerned apps:

- **Node-RED App**: For connectivity
- **InfluxDB App**: As data memory
- **IoT Dashboard App**: For visualization

➦ Web link to the tutorial

6.3 How-To "Store and visualize PLC values using Telegraf and InfluxDB app"

This tutorial shows how to visualize and collect PLC values with Telegraf and InfluxDB.

Contents:

- Writing a PLC program to generate periodic values.
- Using the Telegraf app to record, edit and forward the PLC values to InfluxDB.
- Using the InfluxDB app to visualize the transmitted values.

➦ Web link to the tutorial

7 User interface

7.1 Window – “InfluxDB”

The InfluxDB app can be configured in the window “InfluxDB”.

Related topics:
➦ Information about the InfluxDB and the InfluxDB app

Call:

ctrlX OS side navigation *“InfluxDB”*

When clicking on “InfluxDB” the browser opens the start page of InfluxDB. Here you can register via "GET STARTED".

The InfluxDB user authentication is **not** linked to the ctrlX OS user administration.

Additional information

- ➦ Chapter 4 Introduction and overview on page 6

8 Further documentation

8.1 Overview

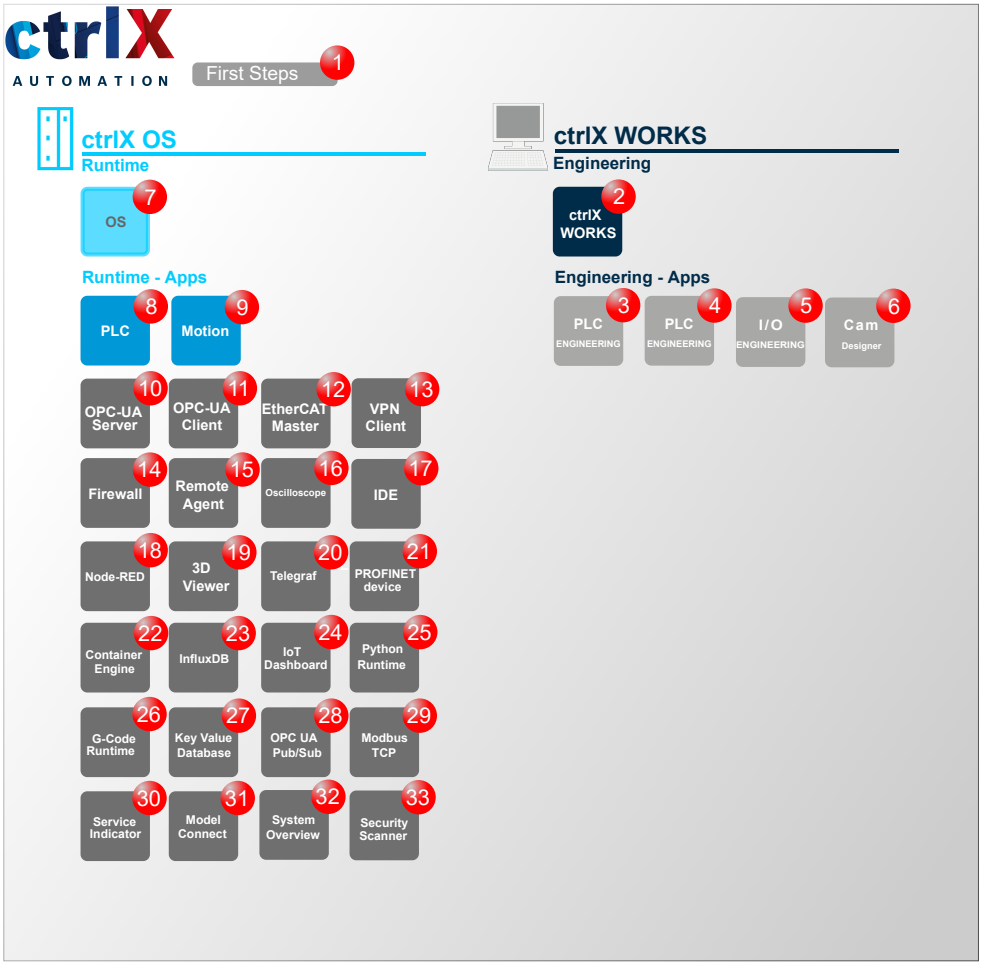


Fig. 1: Overview of further documentation

8.2 ctrlX AUTOMATION

No.	Documentation
1	**ctrlX WORKS - First Steps** Quick Start Guide ➦ Link to the web documentation Ordering information: • DOK-XWORKS-F*STEP*****-QU01-EN-P • R911403760

8.3 ctrlX WORKS

No.	Documentation
2	**ctrlX WORKS - Basic System 03VRS** Application manual ➥ Link to the web documentation Ordering information: ● DOK-XWORKS-WRK***V03**-APRS-EN-P ● R911423376
3	**ctrlX PLC Engineering - PLC Programming System 03VRS** Application manual ➥ Link to the web documentation Ordering information: ● DOK-XPLC**-PLE***V03**-APRS-EN-P ● R911423378
4	**ctrlX PLC Engineering - PLC Libraries 03VRS** Reference ➥ Link to the web documentation Ordering information: ● DOK-XPLC**-LIB***V03**-RERS-EN-P ● R911423456
5	**ctrlX I/O Engineering - Field Bus Configuration for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: ● DOK-XIO***-IOE***V03**-APRS-EN-P ● R911423380
6	**ctrlX Cam Designer - Configuring ctrlX MOTION Cams 03VRS** Application manual ➥ Link to the web documentation Ordering information: ● DOK-XWORKS-CAM***V03**-APRS-EN-P ● R911427217

8.4 ctrlX OS

No.	Documentation
7	**ctrlX OS - Operating System for ctrlX CORE Control Devices 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-XCR***V03**-APRS-EN-P • R911423382
	ctrlX OS - Data Layer Node 03VRS Reference ➦Link to the web documentation Ordering information: • DOK-XCORE*-DL****V03**-RERS-EN-P • R911423384
	ctrlX OS - Diagnostics 03VRS Reference ➦Link to the web documentation Ordering information: • DOK-XCORE*-DIAG**V03**-RERS-EN-P • R911423386

8.5 ctrlX OS Apps

No.	Documentation
8	**PLC App - PLC Runtime Environment for ctrlX OS 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-PLC***V03**-APRS-EN-P • R911423401
9	**Motion App - Motion Runtime Environment for ctrlX CORE 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-MOT***V03**-APRS-EN-P • R911423405
10	**OPC UA Server App - OPC UA Server for ctrlX OS 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-UAS***V03**-APRS-EN-P • R911423392

No.	Documentation
11	**OPC UA Client App - OPC UA Client for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-UAC***V03**-APRS-EN-P • R911423390
12	**EtherCAT Master App - EtherCAT Master for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-ECM***V03**-APRS-EN-P • R911423394
13	**VPN Client App - Remote Maintenance Software for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-VPN***V03**-APRS-EN-P • R911423388
14	**Firewall App - Security Functions for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-FRW***V03**-APRS-EN-P • R911423397
15	**Remote Agent App - ctrlX Device Portal-Connection for ctrlX OS Devices 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-RMA***V03**-APRS-EN-P • R911423399
16	**Oscilloscope App - Oscilloscope Function for ctrlX OS devices 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-OSC***V03**-APRS-EN-P • R911423407
17	**IDE App - Integrated Development Environment 02VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-IEN***V02**-APRS-EN-P • R911421612

No.	Documentation
18	**Node-RED App - Graphical Programming for ctrlX OS 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-RED***V03**-APRS-EN-P • R911423403
19	**3D Viewer App - Browser-based 3D Kinematics Simulation for ctrlX OS 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-3DV***V03**-APRS-EN-P • R911423411
20	**Telegraf App - Server Agent for Collecting Data in the Data Layer 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-TSA***V03**-APRS-EN-P • R911425238
21	**PROFINET Device App - PROFINET Device for ctrlX OS 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-PND***V03**-APRS-EN-P • R911425232
22	**Container Engine App - Using Docker® Images on ctrlX OS 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-DOE***V03**-APRS-EN-P • R911425234
23	**InfluxDB App - Influx Database Connection for ctrlX OS 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-IDB***V03**-APRS-EN-P • R911425240
24	**IoT Dashboard App - Data Visualization in Dynamic, Interactive Dashboards 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-GDB***V03**-APRS-EN-P • R911425248

No.	Documentation
25	**Python Runtime App - Python Runtime Environment for ctrlX CORE 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-PYR***V03**-APRS-EN-P • R911425244
26	**G-Code Runtime App - G-Code Interpreter for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-GCO***V03**-APRS-EN-P • R911425246
27	**Key Value Database App - Managing Data in the Data Layer 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-KVD***V03**-APRS-EN-P • R911425250
28	**OPC UA Pub/Sub App - OPC UA Pub/Sub for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-UAP***V03**-APRS-EN-P • R911423409
29	**Modbus TCP App - Modbus TCP Communication for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-MBT***V03**-APRS-EN-P • R911425236
30	**Service Indicator App -Service Indicator for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-SIN***V03**-APRS-EN-P • R911425242
31	**Model Connect App - Target for Model-Based Development and Simulation for ctrlX OS 03VRS** Application manual ➥ Link to the web documentation Ordering information: • DOK-XCORE*-MOC***V03**-APRS-EN-P • R911425252

No.	Documentation
32	**System Overview App - System Topology and System Information 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-SOV***V03**-APRS-EN-P • R911425254
33	**Security Scanner App -Inventory of Components 03VRS** Application manual ➦Link to the web documentation Ordering information: • DOK-XCORE*-SSC***V03**-APRS-EN-P • R911427698

9 Service and support

Our worldwide service network provides an optimized and efficient support. Our experts provide you with advice and assistance. You can contact us **24/7**.

Service Germany

Our technology-oriented Competence Center in Lohr, Germany, is responsible for all your service-related queries for electric drive and controls.

Contact the **Service Hotline** and **Service Helpdesk** under:

Phone:	**+49 9352 40 5060**
Fax:	**+49 9352 18 4941**
Email:	➦ service.svc@boschrexroth.de
Internet:	➦ http://www.boschrexroth.com

Additional information on service, repair (e.g. delivery addresses) and training can be found on our internet sites.

Service worldwide

Outside Germany, please contact your local service office first. For hotline numbers, refer to the sales office addresses on the internet.

Preparing information

To be able to help you more quickly and efficiently, please have the following information ready:

- Detailed description of malfunction and circumstances
- Type plate specifications of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your e-mail address)

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Bosch Rexroth AG
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr a.Main
Germany
Tel. +49 9352 18 0
Fax +49 9352 18 8400
www.boschrexroth.com/electrics

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