

Terminal App

Terminal with Restricted SSH Access Version 3

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1 About this documentation

Editions of this documentation

Edition	Release date	Note
01	2025-07	First edition of the version 3.6

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 is 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 Terminal app is an app for advanced users and developers that can be used to communicate with the operating system via the command line interface (SSH Access). The terminal app was implemented to access ctrlX OS at any time without root authorization.

If the web server or the Device Admin crashes, the user has the following options:

- SSH access to the ctrlX OS operating system
- Access to System Linux Logs
- Monitoring of the system state
- Restart or shutdown of the device

5 Installation

License

To operate the Terminal app on the ctrlX CORE device, the following license is required:

Type code	Part number	Name	Description
SWL-XC*-TER-TERMINAL*****-NNNN	R91142535166	ctrlX OS License - Terminal	"Terminal" is an app for advanced users and developers and can be used to communicate with the operating system via the command line interface (SSH Access).

Further information

- Chapter
- "ctrlX OS Operating System for ctrlX CORE Control Devices xxVRS", Application Manual, chapter [↗ Licenses – Overview](#)
- "ctrlX OS Operating System for ctrlX CORE Control Devices xxVRS", Application Manual, chapter [↗ ctrlX OS – License information](#)

Installation

The Terminal app is usually installed online via the [↗ ctrlX OS STORE](#) or alternatively locally via installation file.

For further information on the installation, please refer to the ctrlX OS Application Manual, see web documentations:

[↗ Apps – Basics](#)

[↗ Installing app from the ctrlX OS Store on the ctrlX device](#)

6 Setting up "terminaluser" group



Only users in the "terminaluser" group can log into the terminal.

Adding "terminal user" group

After installing the Terminal app, go to *“Settings → Users & Permissions → Groups”* to check whether the "terminaluser" group is available.


If the "terminaluser" group is not available, perform the following steps:

1. Change the operating state from “Operating” to “Service”.
2. Go to *“Settings → Apps”* and select the Terminal app in the Installed apps table.
 - ➔ A new site opens.

3. Click on the "Restart" button
 - ➔ The "terminaluser" group is created automatically.

Adding user to "terminaluser" group

Add the user to the "terminaluser" group to allow access to ctrlX OS without root authorization.

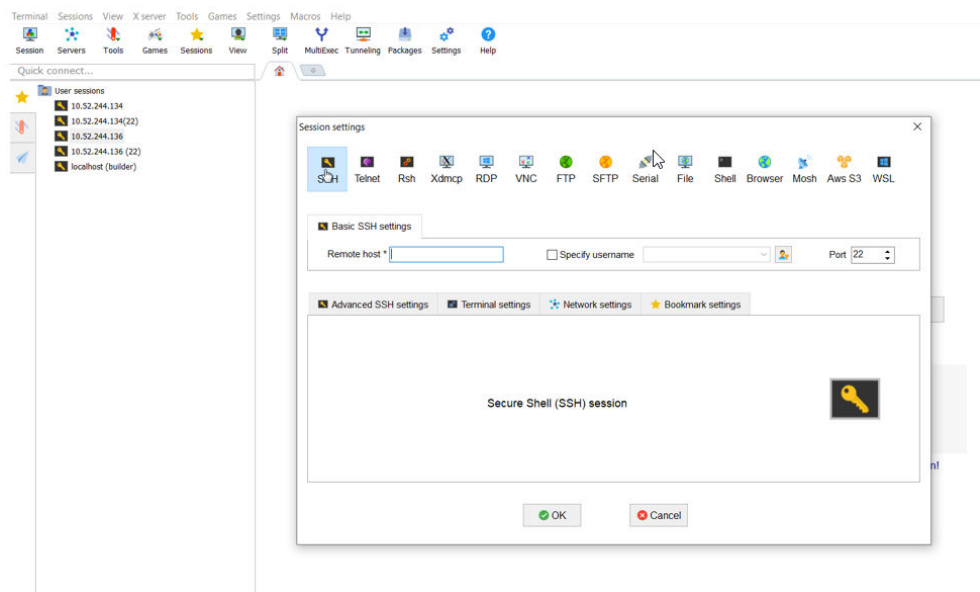
1. Go to *"Settings → Users & Permissions → Groups"*, click in the table on the group "terminaluser" and select the  button.
2. In the "Users" tab, select the checkbox for the users to be added to the "terminaluser" group and confirm the selection with "Save".
3. Check under *"Settings → Users & Permissions → Users"* whether the user is "Enabled" and was added to the "terminaluser" group.

7 SSH access

After setting up the "terminaluser" group with the required users *"Settings → Users & Permissions → Groups"*, it should be possible to log into an SSH client.

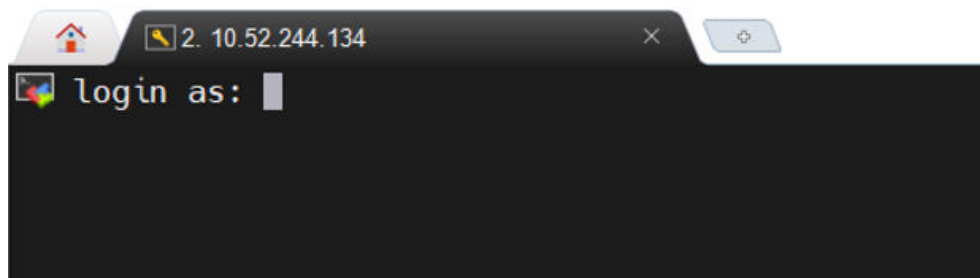
The procedure described here uses the "MobaXterm" application exemplarily.

1. Log in to "MobaXterm" with your user from the "terminaluser" group.
2. Open the "MobaXterm" application and click on "Session".
 - ➔ The following dialog is displayed.

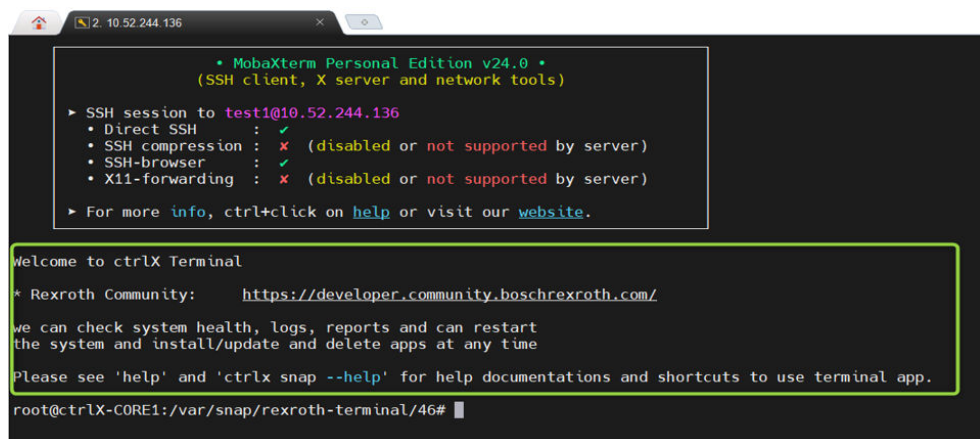


3. Enter hostname or IP address into the "Remote host" field and port number "8022" into the "Port" field.

4. ➤ Confirm the entries with “OK”.
➔ The following login page is shown:



5. ➤ Enter username and password specified when you created the user.



8 Commands

8.1 Overview on commands

After successful login, a list of all available commands can be displayed in the terminal using the help command.

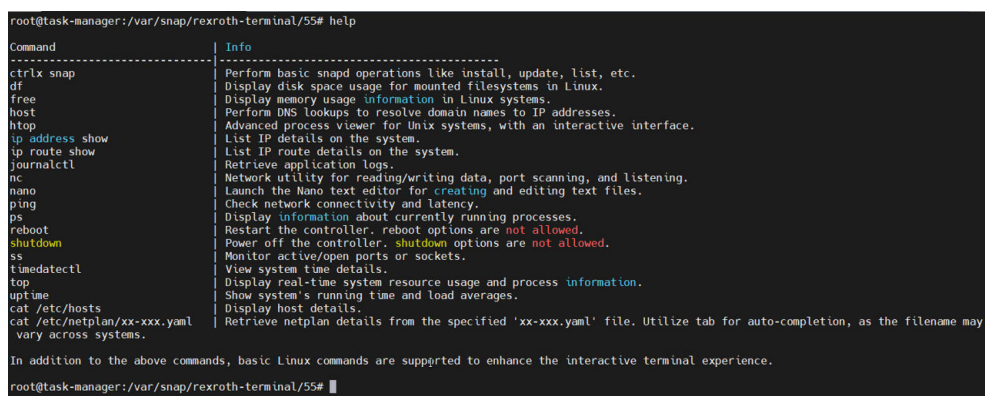


Fig. 1: Available commands in the terminal under help

You can execute all commands from the list. In addition to these commands, common commands such as `mkdir`, `whoami`, `cd`, `ls`, etc. can also be used.

For commands related to `ctrlx snap`, the command `ctrlX snap --help` can be used to display all available commands.

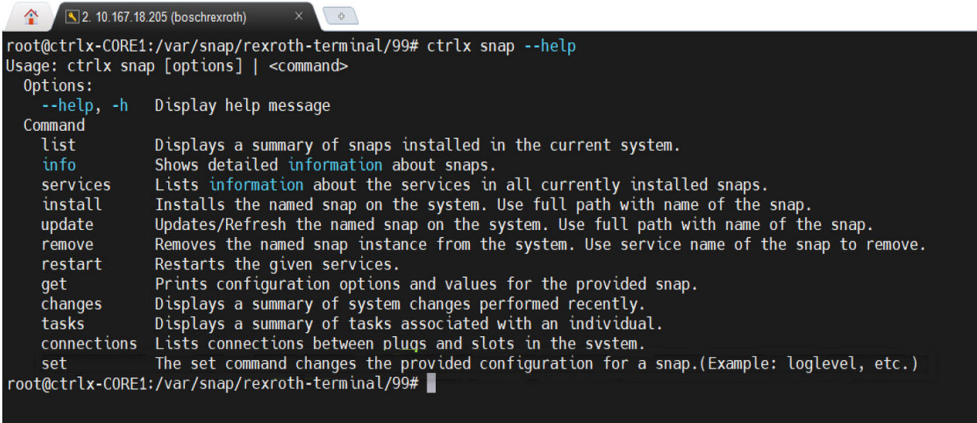


Fig. 2: Available commands in the terminal under help

For a brief description or examples of the ctrlx snap commands, refer to [Chapter 8.2 Overview on ctrlX snap commands on page 9.](#)

8.2 Overview on ctrlX snap commands

In the following chapters, the ctrlX snap commands are explained in more detail using examples.

8.2.1 ctrlx snap list command

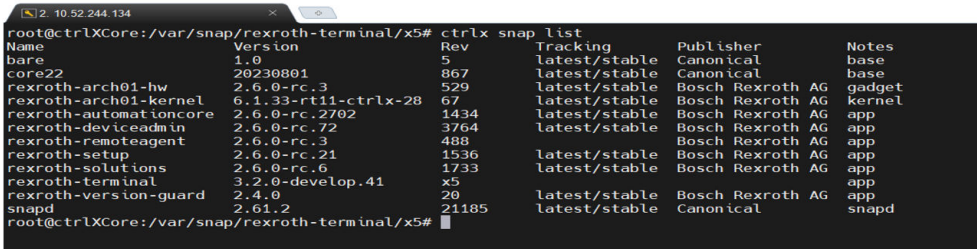


Fig. 3: ctrlx snap list command

8.2.2 ctrlx snap info command

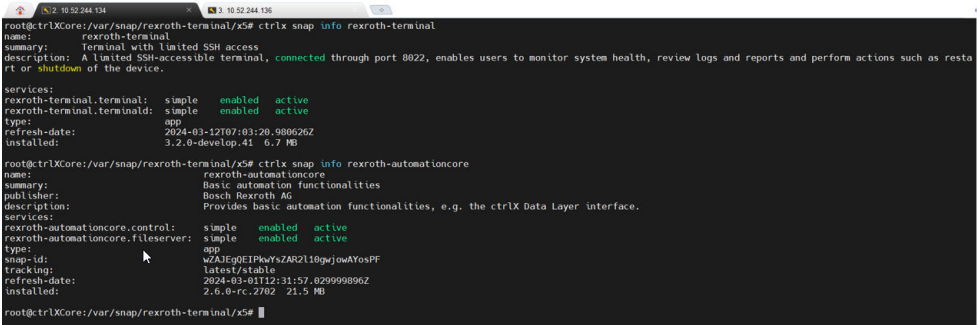


Fig. 4: ctrlx snap info command

8.2.3 ctrlx snap services command

This command lists information on the services in all currently installed apps.

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap services
Service                               Startup    Current
rexroth-arch01-hw.unlock-checker      enabled   inactive
rexroth-automationcore.control        enabled   active
rexroth-automationcore.fileserver     enabled   active
rexroth-deviceadmin.branding           enabled   inactive
rexroth-deviceadmin.dnsmasqd          disabled  inactive
rexroth-deviceadmin.hostapd           disabled  inactive
rexroth-deviceadmin.llmnr             enabled   active
rexroth-deviceadmin.mdns              enabled   active
rexroth-deviceadmin.mdns-resolver     enabled   active
rexroth-deviceadmin.proxy             enabled   active
rexroth-deviceadmin.proxy-monitor     enabled   active
rexroth-deviceadmin.recoveryweb       enabled   active
rexroth-deviceadmin.sbatlevel         enabled   inactive
rexroth-deviceadmin.swtpm             enabled   inactive
rexroth-deviceadmin.syslog-ng         enabled   active
rexroth-deviceadmin.theming           enabled   active
rexroth-deviceadmin.tpm-lockout-auth  enabled   inactive
rexroth-deviceadmin.tpm2-rm           enabled   active
rexroth-deviceadmin.tpm2-socket       enabled   active
rexroth-deviceadmin.upnp              enabled   active
rexroth-deviceadmin.web               enabled   active
rexroth-deviceadmin.zeroconf          enabled   inactive
rexroth-remoteagent.web               enabled   active
rexroth-setup.wrapper                enabled   active
rexroth-solutions.service            enabled   active
rexroth-terminal.terminal             enabled   active
rexroth-terminal.terminald            enabled   active
root@ctrlXCore:/var/snap/rexroth-terminal/x5#

```

Fig. 5: ctrlx snap services command

8.2.4 ctrlx snap install command

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap install com.boschrexroth.signedapp.plc-2.7.0-develop.1339.app
rexroth-plc 2.7.0-develop.1339 installed
root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap list

```

Name	Version	Rev	Tracking	Publisher	Notes
bare	1.0	5	latest/stable	Canonical	base
core22	20230801	867	latest/stable	Canonical	base
rexroth-arch01-hw	2.6.0-rc.3	529	latest/stable	Bosch Rexroth AG	gadget
rexroth-arch01-kernel	6.1.33-rt11-ctrlx-28	67	latest/stable	Bosch Rexroth AG	kernel
rexroth-automationcore	2.6.0-rc.2702	1434	latest/stable	Bosch Rexroth AG	app
rexroth-deviceadmin	2.6.0-rc.72	3764	latest/stable	Bosch Rexroth AG	app
rexroth-plc	2.7.0-develop.1339	957	latest/stable	Bosch Rexroth AG	app
rexroth-remoteagent	2.6.0-rc.3	488	latest/stable	Bosch Rexroth AG	app
rexroth-setup	2.6.0-rc.21	1536	latest/stable	Bosch Rexroth AG	app
rexroth-solutions	2.6.0-rc.6	1733	latest/stable	Bosch Rexroth AG	app
rexroth-terminal	3.2.0-develop.41	x5	latest/stable	Bosch Rexroth AG	app
rexroth-version-guard	2.4.0	20	latest/stable	Bosch Rexroth AG	app
snappd	2.61.2	21185	latest/stable	Canonical	snappd

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5#

```

Fig. 6: ctrlx snap install command

8.2.5 ctrlx snap update command

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap update com.boschrexroth.signedapp.plc-2.7.0-develop.1341.app
rexroth-plc 2.7.0-develop.1341 updated
root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap list

```

Name	Version	Rev	Tracking	Publisher	Notes
bare	1.0	5	latest/stable	Canonical	base
core22	20230801	867	latest/stable	Canonical	base
rexroth-arch01-hw	2.6.0-rc.3	529	latest/stable	Bosch Rexroth AG	gadget
rexroth-arch01-kernel	6.1.33-rt11-ctrlx-28	67	latest/stable	Bosch Rexroth AG	kernel
rexroth-automationcore	2.6.0-rc.2702	1434	latest/stable	Bosch Rexroth AG	app
rexroth-deviceadmin	2.6.0-rc.72	3764	latest/stable	Bosch Rexroth AG	app
rexroth-plc	2.7.0-develop.1341	961	latest/stable	Bosch Rexroth AG	app
rexroth-remoteagent	2.6.0-rc.3	488	latest/stable	Bosch Rexroth AG	app
rexroth-setup	2.6.0-rc.21	1536	latest/stable	Bosch Rexroth AG	app
rexroth-solutions	2.6.0-rc.6	1733	latest/stable	Bosch Rexroth AG	app
rexroth-terminal	3.2.0-develop.41	x5	latest/stable	Bosch Rexroth AG	app
rexroth-version-guard	2.4.0	20	latest/stable	Bosch Rexroth AG	app
snappd	2.61.2	21185	latest/stable	Canonical	snappd

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5#

```

Fig. 7: ctrlx snap update command

8.2.6 ctrlx snap remove command

This command removes the specified app instance from the device. The service name of the app is used.

```
root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap list
Name          Version    Rev    Tracking    Publisher    Notes
bare          1.0        5      latest/stable Canonical    base
core22        20230801   867    latest/stable Canonical    base
rexroth-arch01-hw 2.6.0-rc.3 529    latest/stable Bosch Rexroth AG gadget
rexroth-arch01-kernel 6.1.33-rt11-ctrlx-28 67    latest/stable Bosch Rexroth AG kernel
rexroth-automationcore 2.6.0-rc.2702 1434  latest/stable Bosch Rexroth AG app
rexroth-deviceadmin 2.6.0-rc.72 3764   latest/stable Bosch Rexroth AG app
rexroth-plc    2.7.0-develop.1339 957    latest/stable Bosch Rexroth AG app
rexroth-remoteagent 2.6.0-rc.3 488    latest/stable Bosch Rexroth AG app
rexroth-setup  2.6.0-rc.21 1536   latest/stable Bosch Rexroth AG app
rexroth-solutions 2.6.0-rc.6 1733   latest/stable Bosch Rexroth AG app
rexroth-terminal 3.2.0-develop.41 x5     latest/stable Bosch Rexroth AG app
rexroth-version-guard 2.4.0      20     latest/stable Bosch Rexroth AG app
snapd         2.61.2     21185  latest/stable Canonical    snapd

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap remove rexroth-plc
rexroth-plc removed
root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap list
Name          Version    Rev    Tracking    Publisher    Notes
bare          1.0        5      latest/stable Canonical    base
core22        20230801   867    latest/stable Canonical    base
rexroth-arch01-hw 2.6.0-rc.3 529    latest/stable Bosch Rexroth AG gadget
rexroth-arch01-kernel 6.1.33-rt11-ctrlx-28 67    latest/stable Bosch Rexroth AG kernel
rexroth-automationcore 2.6.0-rc.2702 1434  latest/stable Bosch Rexroth AG app
rexroth-deviceadmin 2.6.0-rc.72 3764   latest/stable Bosch Rexroth AG app
rexroth-remoteagent 2.6.0-rc.3 488    latest/stable Bosch Rexroth AG app
rexroth-setup  2.6.0-rc.21 1536   latest/stable Bosch Rexroth AG app
rexroth-solutions 2.6.0-rc.6 1733   latest/stable Bosch Rexroth AG app
rexroth-terminal 3.2.0-develop.41 x5     latest/stable Bosch Rexroth AG app
rexroth-version-guard 2.4.0      20     latest/stable Bosch Rexroth AG app
snapd         2.61.2     21185  latest/stable Canonical    snapd

root@ctrlXCore:/var/snap/rexroth-terminal/x5#
```

Fig. 8: ctrlx snap remove command

If this command is executed with system apps and the Terminal app, an error message is displayed.

Example:

ctrlx snap remove <snap name> command:

e.g.: ctrlx snap remove bare

An error message is displayed.

```
10.167.18.205 (Boschrexroth)
minial Sessions View X server Tools Games Settings Macros Help
10.167.18.205 (Boschrexroth)
back connect...
/var/snap/rexroth-termi...
name
auth-service
package-run
core22 20230801 867 latest/stable Canonical base
rexroth-arch01-hw 2.6.1 503 latest/stable Bosch Rexroth AG gadget
rexroth-arch01-kernel 6.1.33-rt11-ctrlx-28 67 latest/stable Bosch Rexroth AG kernel
rexroth-automationcore 2.6.1 1512 latest/stable Bosch Rexroth AG app
rexroth-deviceadmin 2.6.2 3061 latest/stable Bosch Rexroth AG app
rexroth-setup 2.6.0 1583 latest/stable Bosch Rexroth AG app
rexroth-solutions 2.6.0 1765 latest/stable Bosch Rexroth AG app
rexroth-terminal 3.2.0-develop.63 92 latest/stable Bosch Rexroth AG app
rexroth-version-guard 2.6.3 29 latest/stable Bosch Rexroth AG app
snapd 2.61.2 21185 latest/stable Canonical snapd
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove core22
Operation failed (Code: 400)! Message: cannot remove "core22": snap "core22" is not removable: snap is used by the model, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-arch01-hw
Operation failed (Code: 400)! Message: cannot remove "rexroth-arch01-hw": snap "rexroth-arch01-hw" is not removable: snap is used by the model, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-arch01-kernel
Operation failed (Code: 400)! Message: cannot remove "rexroth-arch01-kernel": snap "rexroth-arch01-kernel" is not removable: snap is used by the model, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-arch01-automationcore
Operation failed (Code: 400)! Message: snap "rexroth-arch01-automationcore" is not installed, Kind: requested app not installed, Value: rexroth-arch01-automationcore
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-automationcore
Operation failed (Code: 400)! Message: cannot remove "rexroth-automationcore": snap "rexroth-automationcore" is not removable: snap is required, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-deviceadmin
Operation failed (Code: 400)! Message: cannot remove "rexroth-deviceadmin": snap "rexroth-deviceadmin" is not removable: snap is required, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-setup
Operation failed (Code: 400)! Message: cannot remove "rexroth-setup": snap "rexroth-setup" is not removable: snap is required, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-solutions
Operation failed (Code: 400)! Message: cannot remove "rexroth-solutions": snap "rexroth-solutions" is not removable: snap is required, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove bare
Operation failed (Code: 400)! Message: cannot remove "bare": snap "bare" is not removable: snap is required, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove snapd
Operation failed (Code: 400)! Message: cannot remove "snapd": snap "snapd" is not removable: snapd required on core devices, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92# ctrlx snap remove rexroth-version-guard
Operation failed (Code: 400)! Message: cannot remove "rexroth-version-guard": snap "rexroth-version-guard" is not removable: snap is required, Kind: unknown error from platform, Value: <nil>
root@ctrlX-CORE:/var/snap/rexroth-terminal/92#
```

8.2.7 ctrlx snap restart command

This command restarts the specified service.


```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap restart rexroth-terminal
Restarted.
root@ctrlXCore:/var/snap/rexroth-terminal/x5#
Remote side unexpectedly closed network connection

Session stopped
- Press <Return> to exit tab
- Press R to restart session
- Press S to save terminal output to file

```

Fig. 9: ctrlx snap restart command

8.2.8 ctrlx snap get command

This command displays the configuration options and values for the specified apps.

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap list
Name          Version      Rev  Tracking  Publisher  Notes
bare          1.0          5    latest/stable Canonical  base
core22        20230801     867  latest/stable Canonical  base
rexroth-arch01-hw 2.6.0-rc.3  529  latest/stable Bosch Rexroth AG  gadget
rexroth-arch01-kernel 6.1.33-rt11-ctrlx-28 67  latest/stable Bosch Rexroth AG  kernel
rexroth-automationcore 2.6.0-rc.2702 1434 latest/stable Bosch Rexroth AG  app
rexroth-deviceadmin 2.6.0-rc.72  3764 latest/stable Bosch Rexroth AG  app
rexroth-remoteagent 2.6.0-rc.3  488  latest/stable Bosch Rexroth AG  app
rexroth-setup    2.6.0-rc.21  1536 latest/stable Bosch Rexroth AG  app
rexroth-solutions 2.6.0-rc.6   1733 latest/stable Bosch Rexroth AG  app
rexroth-terminal 3.2.0-develop.41 x5    latest/stable Bosch Rexroth AG  app
rexroth-version-guard 2.4.0       20    latest/stable Bosch Rexroth AG  app
snapd           2.61.2      21185 latest/stable Canonical  snapd

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap get rexroth-arch01-hw
{
  "device-service": {
    "headers": {
      "api-key": "t5otrXg71NmorVxwrPqWwbUNPbnptf0sxf59Ku4iAs6TgmWT0FeKw"
    },
    "url": "https://serialvault.boschrexroth.com"
  },
  "registration": {
    "proposed-serial": "7261403623575"
  }
}
root@ctrlXCore:/var/snap/rexroth-terminal/x5#

```

Fig. 10: ctrlx snap get command

8.2.9 ctrlx snap changes command

This command displays a summary of the last system changes made.

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap changes
ID      Status  Spawn      Ready      Summary
113     Done    Yesterday at 07:49 IST Yesterday at 07:50 IST Install "rexroth-remoteagent" snap from file "com.boschrexroth.signedapp.remoteagent-2.6.0-rc.3.snap"
114     Error   Yesterday at 12:28 IST Yesterday at 13:05 IST Initialize device
115     Done    Yesterday at 15:03 IST Yesterday at 15:04 IST Install "rexroth-terminal" snap from file "rexroth-terminal_3.2.0-xx_arm64.snap"
116     Done    Yesterday at 15:04 IST Yesterday at 15:04 IST Remove "rexroth-terminal" snap
117     Done    Today at 05:49 IST  Today at 05:51 IST  Install "rexroth-deviceadmin" snap from file "com.boschrexroth.signedapp.deviceadmin-2.6.0-rc.72.snap"
118     Done    Today at 05:50 IST  Today at 05:50 IST  Running service command for snap "rexroth-deviceadmin"
119     Done    Today at 05:50 IST  Today at 05:51 IST  Running service command for snap "rexroth-deviceadmin"
120     Done    Today at 05:51 IST  Today at 05:51 IST  Remove "rexroth-deviceadmin" snap
121     Done    Today at 05:51 IST  Today at 05:51 IST  Change configuration of "core" snap
122     Done    Today at 07:02 IST  Today at 07:03 IST  Install "rexroth-terminal" snap from file "rexroth-terminal_3.2.0-develop.41_arm64.snap"
123     Done    Today at 07:03 IST  Today at 07:03 IST  Remove "rexroth-terminal" snap
124     Done    Today at 07:37 IST  Today at 07:37 IST  Change configuration of "core" snap
root@ctrlXCore:/var/snap/rexroth-terminal/x5#

```

Fig. 11: ctrlx snap changes command

8.2.10 ctrlx snap tasks command

This command displays a summary of the tasks associated with an ID.

First, execute the ctrlx snap changes command. Then, an ID can be used from the results to display the tasks.

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap changes
ID      Status  Spoken
114     Done    Yesterday at 12:28 IST
115     Done    Yesterday at 15:03 IST
116     Done    Yesterday at 15:04 IST
117     Done    Today at 05:49 IST
118     Done    Today at 05:50 IST
119     Done    Today at 05:50 IST
120     Done    Today at 05:51 IST
121     Done    Today at 05:51 IST
122     Done    Today at 07:02 IST
123     Done    Today at 07:03 IST
124     Done    Today at 07:37 IST
125     Done    Today at 07:46 IST
126     Done    Today at 07:48 IST
127     Done    Today at 07:50 IST
128     Done    Today at 07:51 IST
129     Done    Today at 08:01 IST

Summary
Initialize device
Install "rexroth-terminal" snap from file "rexroth-terminal_3.2.0-xx_arm64.snap"
Remove "rexroth-terminal" snap
Install "rexroth-deviceadm" snap from file "com.boschrexroth.signedapp.deviceadm-in-2.6.0-rc.72.snap"
Running service command for snap "rexroth-deviceadm"
Running service command for snap "rexroth-deviceadm"
Remove "rexroth-deviceadm" snap
Change configuration of "core" snap
Install "rexroth-terminal" snap from file "rexroth-terminal_3.2.0-develop_41_arm64.snap"
Remove "rexroth-terminal" snap
Change configuration of "core" snap
Install "rexroth-plc" snap from file "upload99b0rnnP7N.snap"
Install "rexroth-plc" snap from file "upload99b0rnnP7N.snap"
Install "rexroth-plc" snap from file "uploadS4KjknzK1.snap"
Install "rexroth-plc" snap from file "uploadS4KjknzK1.snap"
Install "rexroth-plc" snap from file "uploadS4KjknzK1.snap"
Remove "rexroth-plc" snap

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap tasks 129
Status  Spoken  Ready  Summary
Done    Today at 08:01 IST  Today at 08:01 IST  Stop snap "rexroth-plc" services
Done    Today at 08:01 IST  Today at 08:01 IST  Run remove hook of "rexroth-plc" snap if present
Done    Today at 08:01 IST  Today at 08:01 IST  Disconnect interfaces of snap "rexroth-plc"
Done    Today at 08:01 IST  Today at 08:02 IST  Remove aliases for snap "rexroth-plc"
Done    Today at 08:01 IST  Today at 08:02 IST  Make snap "rexroth-plc" unavailable to the system
Done    Today at 08:01 IST  Today at 08:02 IST  Remove security profile for snap "rexroth-plc" (957)
Done    Today at 08:01 IST  Today at 08:02 IST  Remove data for snap "rexroth-plc" (961)
Done    Today at 08:01 IST  Today at 08:02 IST  Remove snap "rexroth-plc" (957) from the system
Done    Today at 08:01 IST  Today at 08:02 IST  Remove data for snap "rexroth-plc" (957)
Done    Today at 08:01 IST  Today at 08:02 IST  Remove snap "rexroth-plc" (957) from the system
Done    Today at 08:01 IST  Today at 08:02 IST  Disconnect rexroth-plc:active-solution from rexroth-solutions:active-solution
Done    Today at 08:01 IST  Today at 08:02 IST  Disconnect rexroth-deviceadm:package-assets from rexroth-plc:package-assets
Done    Today at 08:01 IST  Today at 08:02 IST  Disconnect rexroth-automationcore:automation-bundle-v3 from rexroth-plc:automation-bundle-v3

```

Fig. 12: ctrlx snap tasks command

8.2.11 ctrlx snap connections command

This command lists connections between plugs and slots in the system.

```

root@ctrlXCore:/var/snap/rexroth-terminal/x5# ctrlx snap connections rexroth-terminal
Interface      Plug                               Slot                               Notes
account-control rexroth-terminal:account-control :account-control                  manual
content         rexroth-terminal:active-solution :active-solution                  manual
hardware-observe rexroth-terminal:hardware-observe :hardware-observe                  manual
log-observe      rexroth-terminal:log-observe      :log-observe                       manual
login-session-observe rexroth-terminal:login-session-observe :login-session-observe            manual
mount-observe    rexroth-terminal:mount-observe    :mount-observe                     manual
network          rexroth-terminal:network          :network                           -
network-bind     rexroth-terminal:network-bind     :network-bind                      manual
network-observe  rexroth-terminal:network-observe  :network-observe                   manual
network-setup-control rexroth-terminal:network-setup-control :network-setup-control            manual
shutdown         rexroth-terminal:shutdown         :shutdown                          manual
snapd-control   rexroth-terminal:snapd-control    :snapd-control                    manual
system-observe  rexroth-terminal:system-observe    :system-observe                    manual
time-control     rexroth-terminal:time-control     :time-control                      manual

```

Fig. 13: ctrlx snap connections command

8.2.12 ctrlx snap set command

This command is used to set the log level.

The following values are available:

- "debug"
- "warning"
- "info"
- "error"

The log level only works with these values. When other values are entered, the values are set but have no effect on the log level.

When the values are entered, restart the service with the command `ctrlx snap restart <snap_name>` to apply the entered values.

The logs can be checked with the `journalctl` command.

```
root@ctrlx-CORE1:/var/snap/rexroth-terminal/99# ctrlx snap get rexroth-deviceadmin
{
  "loglevel": "info"
}
root@ctrlx-CORE1:/var/snap/rexroth-terminal/99# journalctl -f | grep rexroth-deviceadmin
Jul 19 10:42:20 ctrlx-CORE1 kernel: audit: type=1400 audit(1721385740.750:14447): apparmor="DENIED" operation="capable" profile="snap.rexroth-deviceadmin.p
roxy" pid=1193140 comm="caddy" capability=12 capname="net_admin"
Jul 19 10:42:20 ctrlx-CORE1 dbus-daemon[1024]: [system] Activating via systemd: service name='org.freedesktop.timedate1' unit='dbus-org.freedesktop.timedat
e1.service' requested by ':1.86' (uid=0 pid=1193026 comm="/snap/rexroth-deviceadmin/3789/bin/wasp -config /v" label="snap.rexroth-deviceadmin.web (enforce)
")
Jul 19 10:42:25 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: Search disk containing bootpartition: disc: 'mmcblk0', partition: 'mmcblk0p4' found
Jul 19 10:42:33 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: 10:42:33 INFO :Setting new id [7261404874643]
Jul 19 10:42:33 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: 10:42:33 INFO :Setting new id [7261404874643]
Jul 19 10:42:33 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: 10:42:33 INFO :Setting new default path [/var/snap/rexroth-deviceadmin/common/ubuntu-save/li
censing]
Jul 19 10:42:33 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: 10:42:33 INFO :Enabling clock windback detection
Jul 19 10:42:33 ctrlx-CORE1 wasp[1193026]: [080A0410]Trace message[web.deviceadmin|main.go|main.initializeServer|502|Listening on unix:///var/snap/re
xroth-deviceadmin/3789/package-run/rexroth-deviceadmin/rexroth-deviceadmin.web.sock
Jul 19 10:42:33 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: Cmd args: [nft delete table inet rexroth-deviceadmin_bandwidth_limit]
Jul 19 10:42:34 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: Cmd args: [nft -f /var/snap/rexroth-deviceadmin/common/configurations/deviceadmin/nftables.co
nf]
Jul 19 10:42:34 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: 2024/07/19 10:42:34 /var/snap/rexroth-deviceadmin/common/networksecurity/wireless/security/Wir
eless.json
Jul 19 10:42:34 ctrlx-CORE1 rexroth-deviceadmin.web[1193026]: 2024/07/19 10:42:34 /var/snap/rexroth-deviceadmin/common/networksecurity/wireless
```

Fig. 14: Logs before specifying the "loglevel" value

```
root@ctrlx-CORE1:/var/snap/rexroth-terminal/99# ctrlx snap set rexroth-deviceadmin loglevel="warning"
Restart the snap for the settings to take effect.
root@ctrlx-CORE1:/var/snap/rexroth-terminal/99# ctrlx snap restart rexroth-deviceadmin
Restarted.
root@ctrlx-CORE1:/var/snap/rexroth-terminal/99# ctrlx snap get rexroth-deviceadmin
{
  "loglevel": "warning"
}
root@ctrlx-CORE1:/var/snap/rexroth-terminal/99# journalctl -f | grep rexroth-deviceadmin
Jul 19 10:51:05 ctrlx-CORE1 rexroth-deviceadmin.web[1196710]: Search disk containing bootpartition: 'mmcblk0p4' found
Jul 19 10:51:05 ctrlx-CORE1 rexroth-deviceadmin.web[1196710]: start provider ... DL_OK
```

Fig. 15: ctrlx snap set and logs after changing the "loglevel" value

9 Related documentation

9.1 Overview

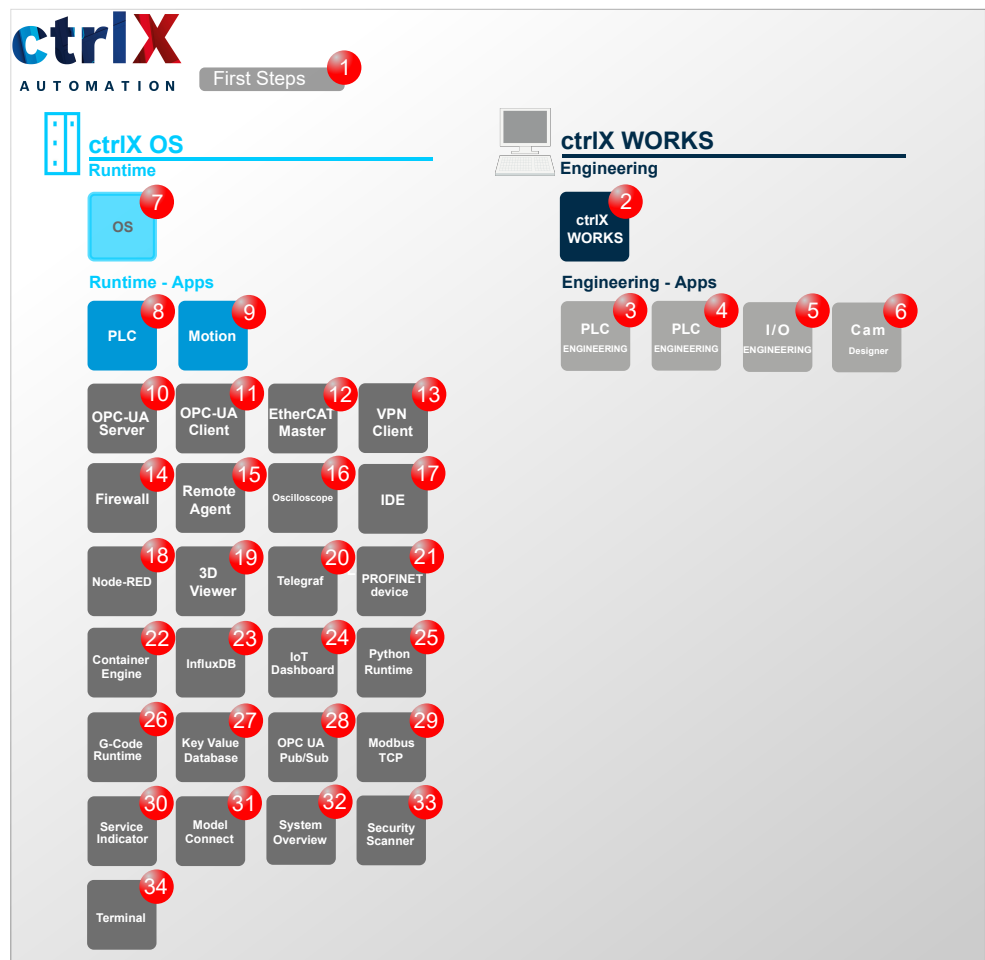


Fig. 16: Overview of the related documentation

9.2 ctrlX AUTOMATION

No.	Documentation
1	ctrlX WORKS - First Steps Quick Start Guide ↪ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XWORKS-F*STEP*****-QU01-EN-P • R911403760

9.3 ctrlX WORKS

No.	Documentation
2	ctrlX WORKS - Basic System Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XWORKS-WRK***V03**-APRS-EN-P • R911423376
3	ctrlX PLC Engineering - PLC Programming System Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XPLC**-PLE***V03**-APRS-EN-P • R911423378
4	ctrlX PLC Engineering - PLC Libraries Version 3 Reference ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XPLC**-LIB***V03**-RERS-EN-P • R911423456
5	ctrlX I/O Engineering - Field Bus Configuration for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XIO***-IOE***V03**-APRS-EN-P • R911423380
6	ctrlX Cam Designer - Configuring the ctrlX MOTION Cams Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XWORKS-CAM***V03**-APRS-EN-P • R911427217

9.4 ctrlX OS

No.	Documentation
7	ctrlX OS - Operating System for ctrlX CORE Control Devices Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-XCR***V03**-APRS-EN-P• R911423382
	ctrlX OS - Nodes of the Data Layer Version 3 Reference ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-DL****V03**-RERS-EN-P• R911423384
	ctrlX OS - Diagnostics Version 3 Reference ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-DIAG**V03**-RERS-EN-P• R911423386

9.5 ctrlX OS Apps

No.	Documentation
8	PLC App - PLC Runtime Environment for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-PLC***V03**-APRS-EN-P• R911423401
9	Motion App - Motion Runtime Environment for ctrlX CORE Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-MOT***V03**-APRS-EN-P• R911423405
10	OPC UA Server App - OPC UA Server for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-UAS***V03**-APRS-EN-P• R911423392

No.	Documentation
11	OPC UA Client App - OPC UA Client for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-UAC***V03**-APRS-EN-P • R911423390
12	EtherCAT Master App - EtherCAT Master for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-ECM***V03**-APRS-EN-P • R911423394
13	VPN Client App - Remote Maintenance Software for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-VPN***V03**-APRS-EN-P • R911423388
14	Firewall App - Security Functions for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-FRW***V03**-APRS-EN-P • R911423397
15	Remote Agent App - ctrlX Device Portal Connection for ctrlX OS Devices Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-RMA***V03**-APRS-EN-P • R911423399
16	Oscilloscope App - Oscilloscope Function for ctrlX OS Devices Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-OSC***V03**-APRS-EN-P • R911423407
17	IDE App - Integrated Development Environment Version 2 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-IEN***V02**-APRS-EN-P • R911421612

No.	Documentation
18	Node-RED App - Graphical Programming for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-RED***V03**-APRS-EN-P• R911423403
19	3D Viewer App - Browser-based 3D Kinematics Simulation for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-3DV***V03**-APRS-EN-P• R911423411
20	Telegraf App - Server Agent for Collecting Data in the Data Layer Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-TSA***V03**-APRS-EN-P• R911425238
21	PROFINET Device App - PROFINET Device for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-PND***V03**-APRS-EN-P• R911425232
22	Container Engine App - Using Docker® Images on the ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-DOE***V03**-APRS-EN-P• R911425234
23	InfluxDB App - Influx Database Connection for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-IDB***V03**-APRS-EN-P• R911425240
24	IoT Dashboard App - Data Visualization in Dynamic, Interactive Dashboards Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-GDB***V03**-APRS-EN-P• R911425248

No.	Documentation
25	Python Runtime App - Python Runtime Environment for ctrlX CORE Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-PYR***V03**-APRS-EN-P • R911425244
26	G-Code Runtime App - G-Code Interpreter for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-GCO***V03**-APRS-EN-P • R911425246
27	Key Value Database App - Managing Data in the Data Layer Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-KVD***V03**-APRS-EN-P • R911425250
28	OPC UA Pub/Sub App - OPC UA Pub/Sub for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-UAP***V03**-APRS-EN-P • R911423409
29	Modbus TCP App - Modbus TCP Communication for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-MBT***V03**-APRS-EN-P • R911425236
30	Service Indicator App -Service Indicator for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-SIN***V03**-APRS-EN-P • R911425242
31	Model Connect App - Target for Model-Based Development and Simulation for ctrlX OS Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none"> • DOK-XCORE*-MOC***V03**-APRS-EN-P • R911425252

No.	Documentation
32	System Overview App - System Topology and System Information Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-SOV***V03**-APRS-EN-P• R911425254
33	Security Scanner App - Inventory of Components Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-SSC***V03**-APRS-EN-P• R911427698
34	Terminal App - Terminal with Limited SSH Access Version 3 Application manual ↗ Link to the web documentation Ordering information: <ul style="list-style-type: none">• DOK-XCORE*-TER***V03**-APRS-EN-P• R911428579

10 Service and support

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Internet: [↗ http://www.boschrexroth.com](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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