

Software manual
Co-act EGP-C for ABB Robotics
SCHUNK software module for ABB

Translation of original software
manual

Imprint

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Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

Document number: 1482894

Version: 03.00 | 04/08/2025 | en

Dear Customer,

Thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

Customer Management

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Please read the operating manual in full and keep it close to the product.

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1 General

1.1 About this manual

This manual contains information on the SCHUNK software add-in for ABB robots and its use.

The add-in enables the simple integration and actuation of the following products in ABB applications:

- Co-act EGP-C 40
- Co-act EGP-C 64

This manual describes the software environment for an ABB robot.

Before installing, check whether a more recent version of the software module is available at [schunk.com](https://www.schunk.com).

NOTE: The illustrations in this manual are intended to provide a basic understanding and may deviate from the actual version.

In addition to these instructions, the documents listed under ► 1.5 [📄 5] are applicable.

1.2 Target group

This manual is intended for robot integrators who have basic mechanical and electrical training skills and who are also familiar with elementary programming concepts.

Commissioning and troubleshooting may only be performed by qualified personnel with appropriate training.

The following knowledge is required:

- Basic knowledge of robotics
- Knowledge in handling ABB robots
- RAPID knowledge

Electrical installations may only be carried out by a suitably trained electrician.

1.3 Symbol definition

The following symbols are used in this manual:

■ Prerequisite for an action

1. Action 1

2. Action 2

⇒ Intermediate results

⇒ Final results

► 1.3 [📄 4]: chapter number and [page number] in hyperlinks

1.4 Brands

- EtherNet/IP™ is a registered trademark of ODVA, Inc.
- ABB is a registered trademark of Asea Brown Boveri Ltd.
- RobotStudio is a registered trademark of Asea Brown Boveri Ltd.

1.5 Applicable documents

- Assembly and operating manual for the product *
- Operating manual of the ABB robot

The documents labeled with an asterisk (*) can be downloaded from [schunk.com/downloads](https://www.schunk.com/downloads).

2 Description of function

The following functions are provided and are used to control the gripper:

SCHUNK app:

The SCHUNK app allows the gripper to be configured.

Command:

Open Gripper

The gripper is opened completely.

Close Gripper

The gripper is closed completely.

3 Connecting the product to the robot control system

Before connecting or commissioning the product, read the operating manual of the robot and observe the instructions in this manual!



⚠ WARNING

Risk of injury due to unexpected movements!

If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- Before starting any work on the product: Switch off the power supply and secure against restarting.
- Make sure, that no residual energy remains in the system.



⚠ CAUTION

Risk of injury from electric shock due to contact with live parts!

- Follow the operating manual for the robot.
- Before starting any work on the product: Switch off the energy supply and secure against re-connection.

NOTICE

Possible damage to product!

The product or the robot may get damaged if electrical cables are connected or disconnected during operation.

- Connect or disconnect electrical connections only when the device is switched off.

NOTE

Safety-relevant signals (e.g. emergency stop) must be wired externally, e.g. via safety relays, thus completely disconnecting the product from the power supply.

- Perform a risk assessment for the entire robotic application based on legal requirements to evaluate all safety-related aspects of the application.

Co-act EGP-C for ABB Robotics GoFa

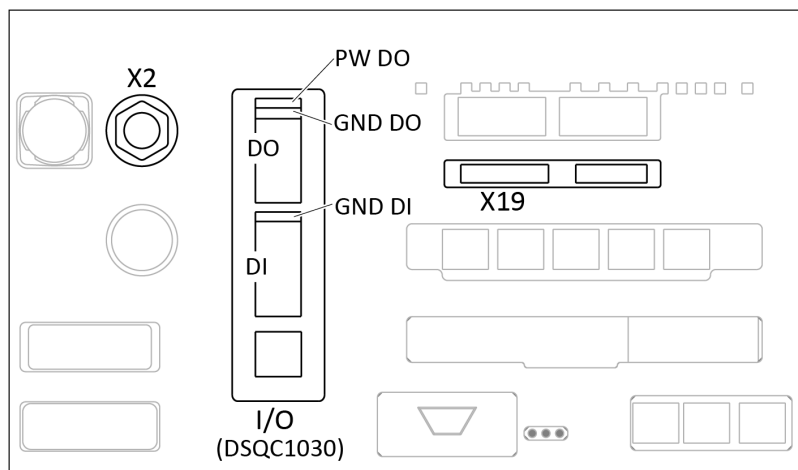
Signal	Connection Co-act EGP-C for ABB Robotics on the robot flange		Connection Co-act EGP-C for ABB Robotics on the OmniCore control unit *		
	Pin	Wire strand	Pin X2	Wire strand	Terminal > Signal
	M8 connector, 3-pin		M12 cable, 8-pin		
+24 VDC	1	Brown	7	Blue	X19 > +24 VDC
GND	3	Blue	8	Red	X19 > GND
n.c.	4	Black	n.c.	n.c.	n.c.
	M8 connector, 4-pin				
Opens gripper	1	Brown	1	White	I/O > DO
Closes gripper	2	White	2	Brown	I/O > DO
Sensor 1	3	Blue	3	Green	I/O > DI
Sensor 2	4	Black	4	Yellow	I/O > DI

Tab.: Connection assignment Co-act EGP-C for ABB Robotics GoFa

* Both flange connectors of the product are internally wired to the control unit with an 8-pin M12 connector (X2). An 8-pin M12 cable is used to connect the terminals of the control unit.

Connect the connections of the OmniCore control unit as follows:

1. From X19, connect a pair of wires 24V and GND to the upper two terminals (PW DO and GND DO) of the DO section of the DSQC1030 board.
2. From X19, connect a single wire to terminal GND DI of the DI section of the DSQC1030 board.
3. Connect M12 cable, 8-pin with open wire strands (included in scope of delivery) to connector X2 and connect wire strands to terminals X19 and I/O of the OmniCore control unit.



OmniCore control unit

4 Installing the software module

There are two options for installing the software module:

- Installation on the FlexPendant handheld teaching unit, ▶ 4.1 [□ 9]. No PC is required for this.
- Installation using *RobotStudio* programming and simulation software from ABB, ▶ 4.2 [□ 12].

NOTE

SCHUNK recommends using the "EdgeHTML" browser engine, which is set as the default. Otherwise, display errors may occur.

4.1 Installation on the FlexPendant

NOTE

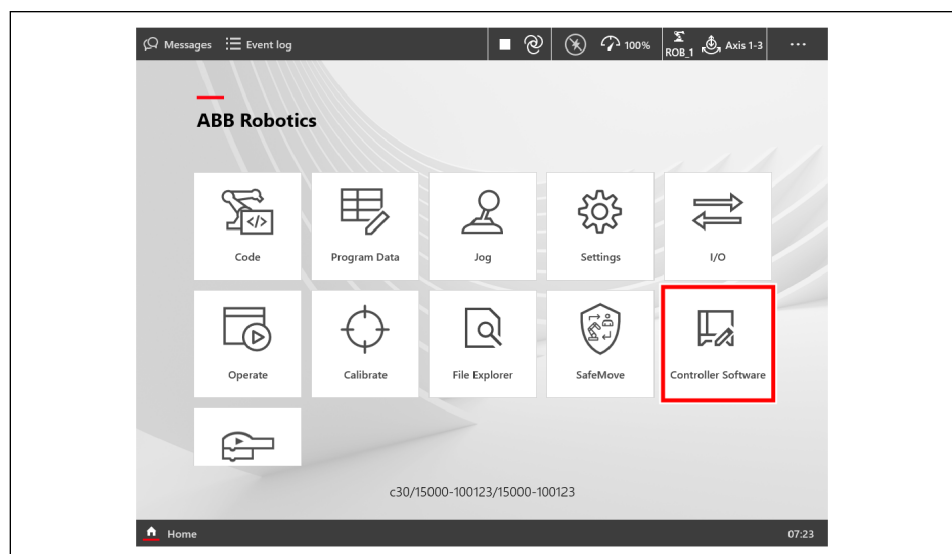
To install the software, SCHUNK recommends using a USB stick.

Preparing the USB stick

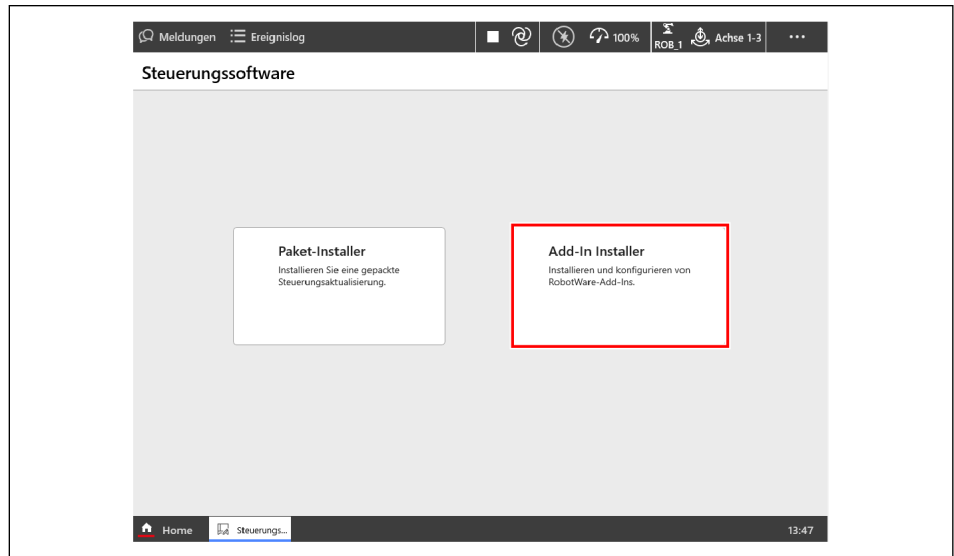
The USB stick must meet the following requirements:

- Formatted in FAT32 format
 - Designation of the removable drive: "SCHUNK"
1. Product is mounted and connected to the robot control system.
 1. Download the current version of the software module from schunk.com/downloads-software then copy it to the USB stick.
 2. Connect the USB stick to the FlexPendant.
 3. Select the "Control software" button.

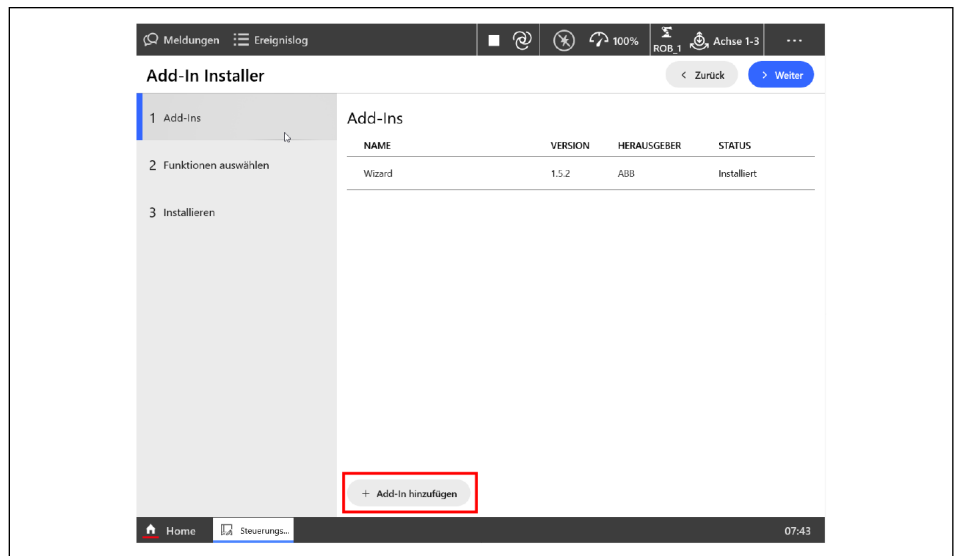
Installing



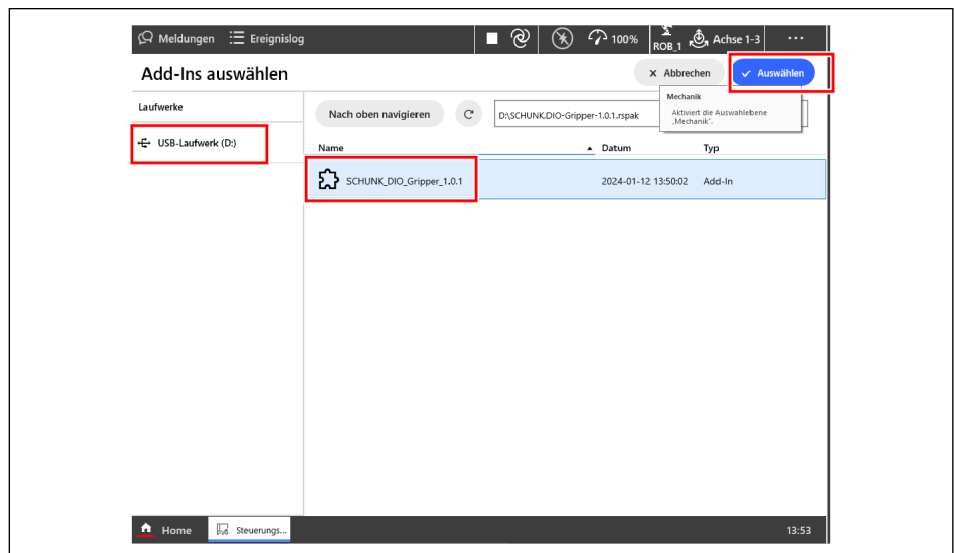
4. Select the "Add-In Installer" button.



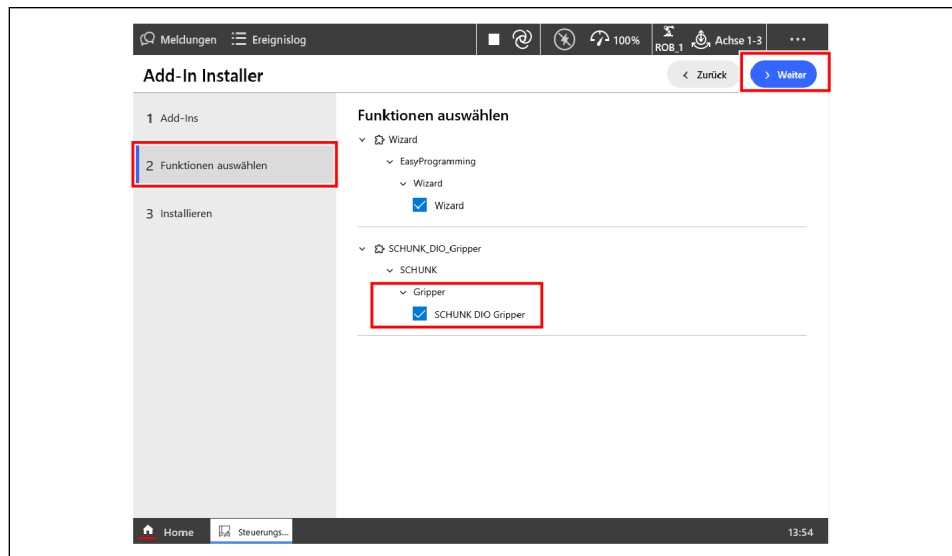
5. Select the "Add +Add-In" button.



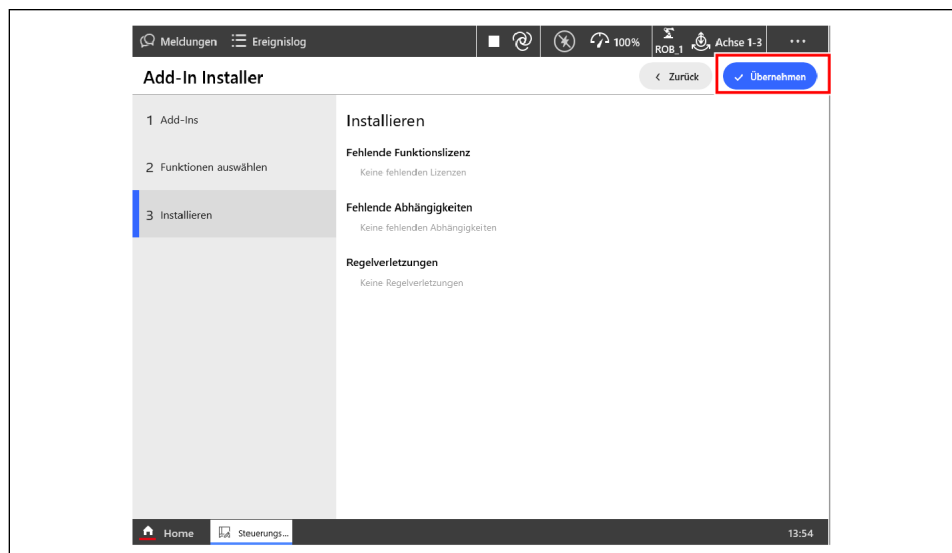
6. Select the "SCHUNK_IO_Gripper_x.x.x.rspa" software module and confirm by pressing "Select".



7. Under "Select functions" activate the "SCHUNK_IO_Gripper" checkbox.
8. Select the "> Next" button.



9. Select the "Apply" button.

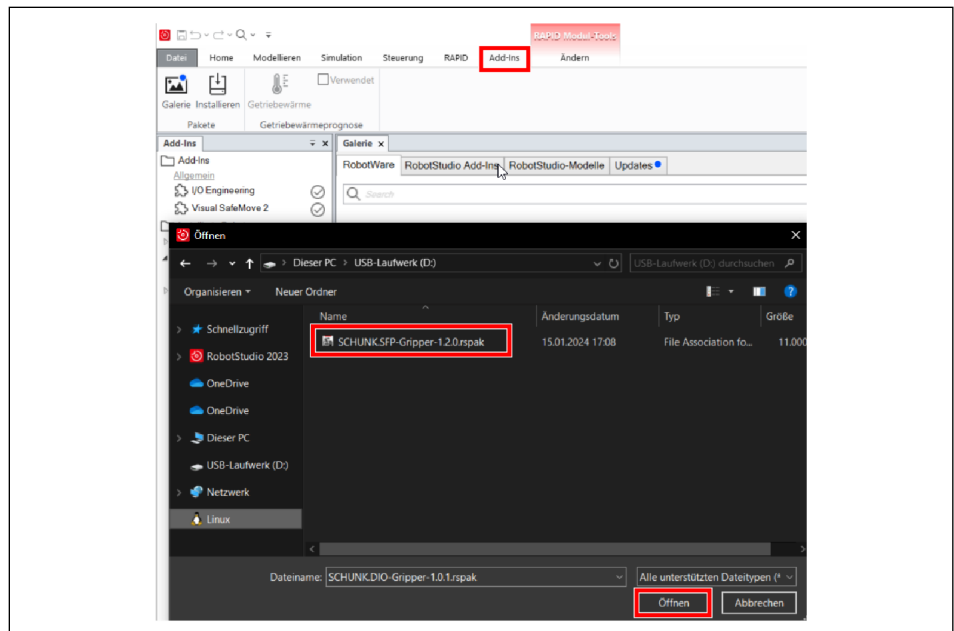


- ⇒ The software module is installed. This may take a few seconds.
- ⇒ The robot performs a restart.
- ⇒ Add-In has been installed.
- ⇒ A "SCHUNK IO" app appears on the FlexPendant under "Home".

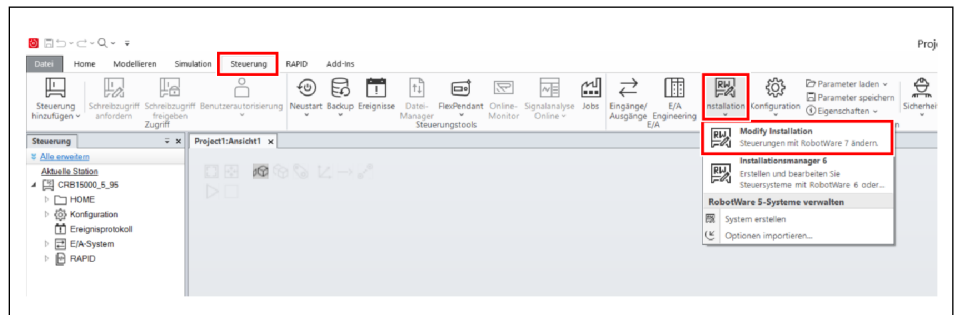
4.2 Installation in RobotStudio

Installing

- Product is mounted and connected to the robot control system.
 - User PC and robot control system are connected to each other.
 - Programming and simulation software *RobotStudio* from ABB is installed on the PC.
1. Download the latest version of the software module at [schunk.com/downloads-software](https://www.schunk.com/downloads-software) and copy it into the directory of your choice.
 2. Start the control and *RobotStudio*.
 3. Select the tab "Add-Ins" > "Install Package" and select the current *.rspak file.
 4. Select the "Open" button.

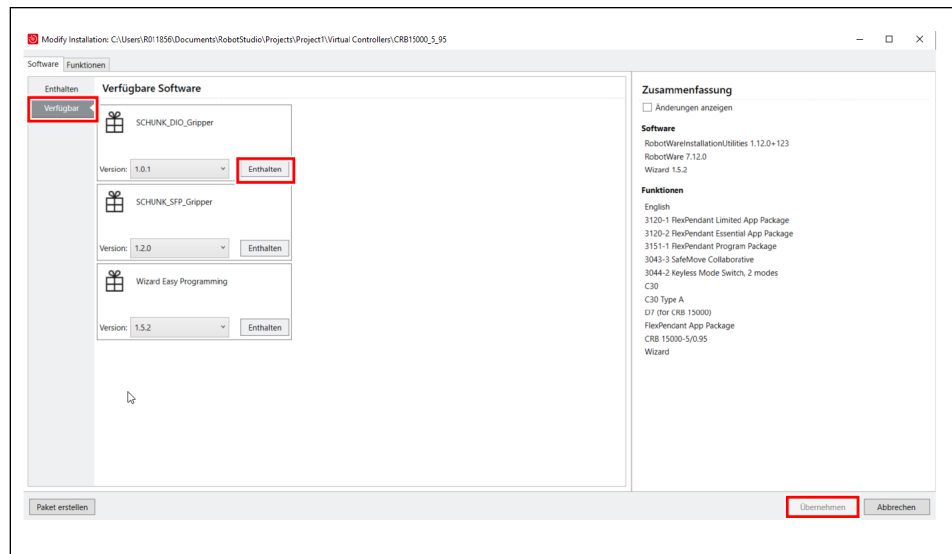


5. Select the "Control" > "Installation" > "Modify Installation" tab.



6. Adjust the configuration of the controller. Select the "Available" button.

7. Select the "Include" button for "SCHUNK_IO_Gripper" and confirm with "Apply".



⇒ The software module has been installed.

8. Confirm the pop-up menu with "Yes".
- ⇒ The robot performs a restart.
- ⇒ A "SCHUNK IO" app appears on the FlexPendant under "Home".

5 Uninstalling the software module

There are two options for uninstalling the software module:

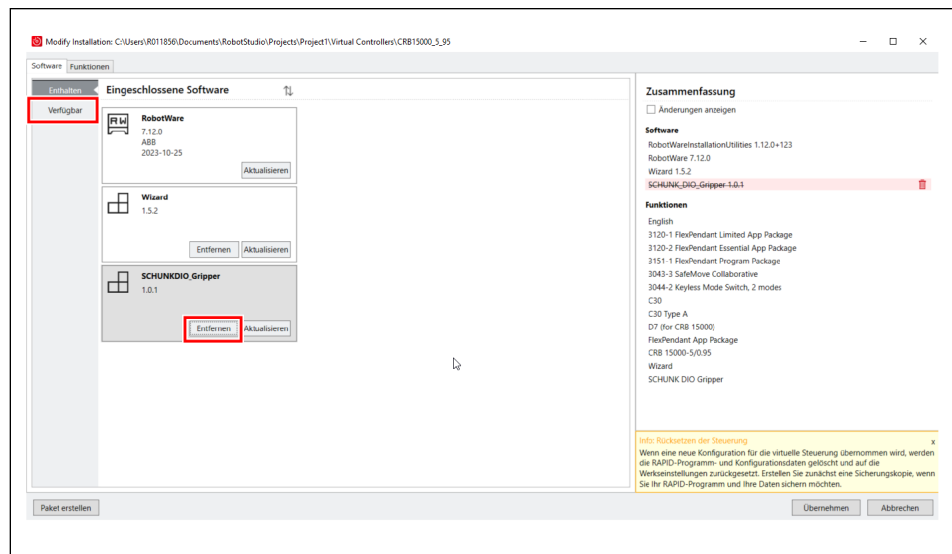
- Uninstallation on the FlexPendant handheld teaching unit, ▶ 5.1 [14]. No PC is required for this.
- Uninstallation using *RobotStudio* programming and simulation software from ABB, ▶ 5.2 [14].

5.1 Uninstallation on the FlexPendant

1. Select the "Control software" > "Add-In Installer" buttons.
2. Select the "SCHUNK_IO_Gripper_x.x.x.rspa" software module.
3. Select the "Remove add-In" and "Next" buttons.
 - ⇒ Robot performs a restart.
 - ⇒ Software module has been uninstalled and no longer appears as an app under "Home".

5.2 Uninstallation in RobotStudio

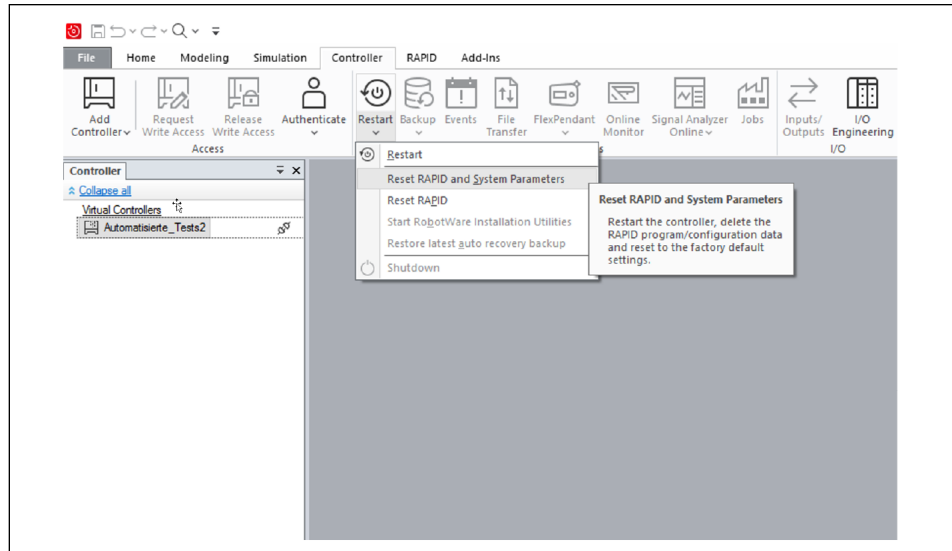
1. Select "Control" > "Installation" > "Modify Installation".
2. Select the "Remove" button for "SCHUNK_IO_Gripper".
3. Select the "Apply" button.



⇒ The software module has been uninstalled.

Further measures to remove all files from the robot:

- Delete the entire "Schunk_DIO" folder on the robot under *HOME/WebApps/*.
- Delete the "EGP.coblox" file on the robot at *HOME/BlockLibrary/*.
- Select "Reset Rapid and System Parameter" in RobotStudio.
Caution! All values and settings have been reset.

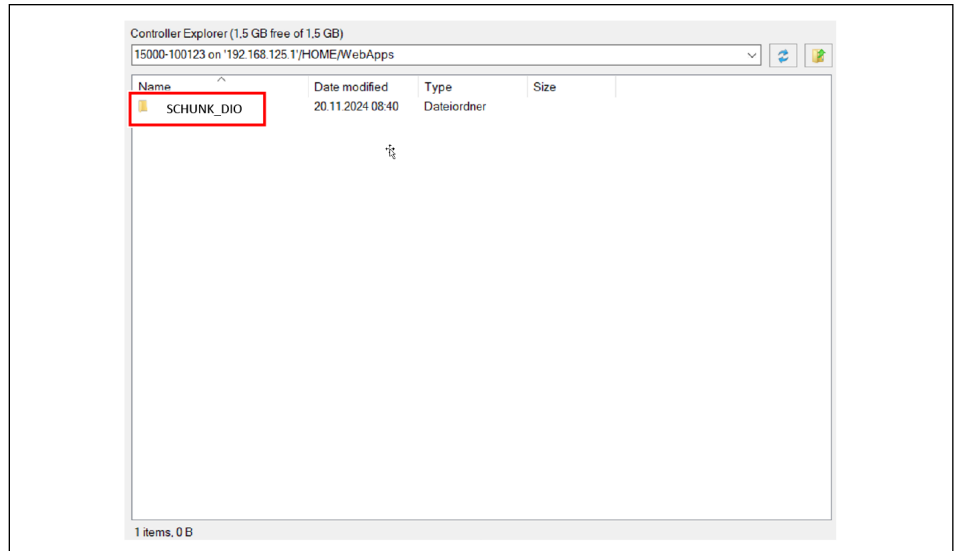
**Delivery state****Resetting the app to delivery state**

If it is necessary to reset the application to the delivery state, SCHUNK recommends the following procedure:

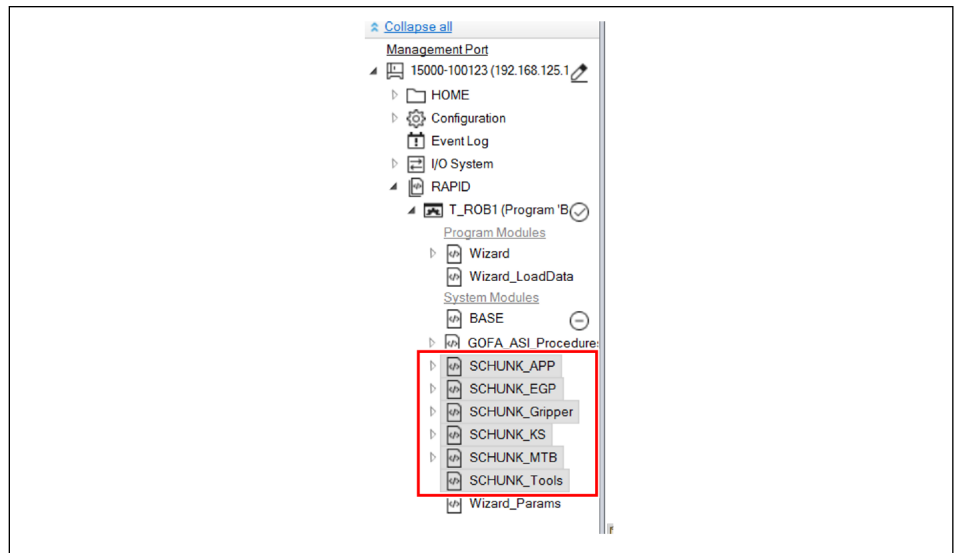
1. Delete the "SCHUNK_DIO" file under *HOME/WebApps/SCHUNKWebApp*.
 2. Delete the "EGP.coblox" file under *HOME/BlockLibrary*.
 3. Delete all signals with the name "EGP_xxx" under *Controller/Configuration I/O System*.
- ⇒ The app has been reset to the delivery state.

6 Updating the software module

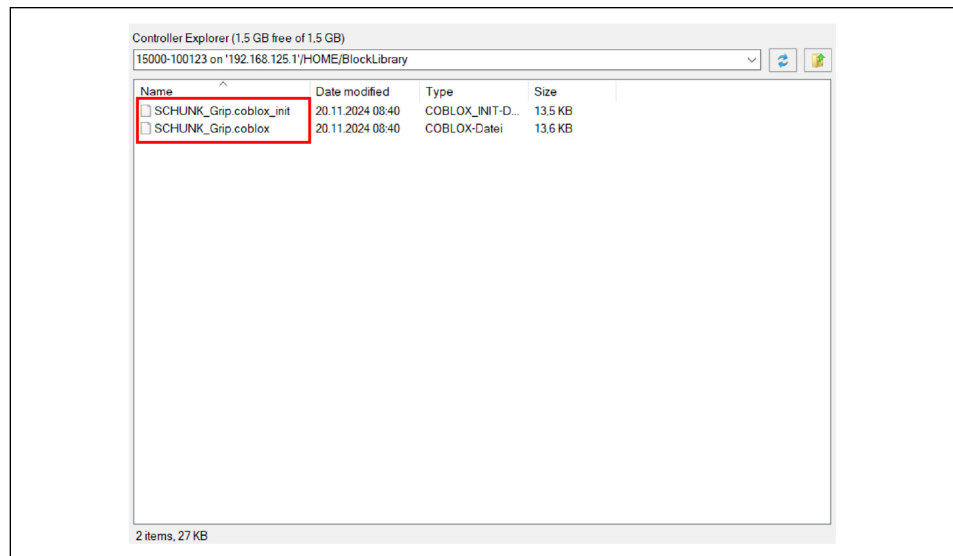
1. Delete the grippers created in the dashboard.
2. Uninstall the software module, ▶ 5.2 [14].
3. Delete the remaining files in Robotstudio:
 - ⇒ Open the "File transfer > File Manager" menu in *RobotStudio*.
 - ⇒ Delete the "HOME/WebApps/SCHUNK_DIO" folder.



- ⇒ Delete the remaining SCHUNK-Rapid files.



⇒ Delete all Coblox files under "HOME/Block Library".



4. Download and install the new version of the software module, ▶ [4.2](#) [📄 12].

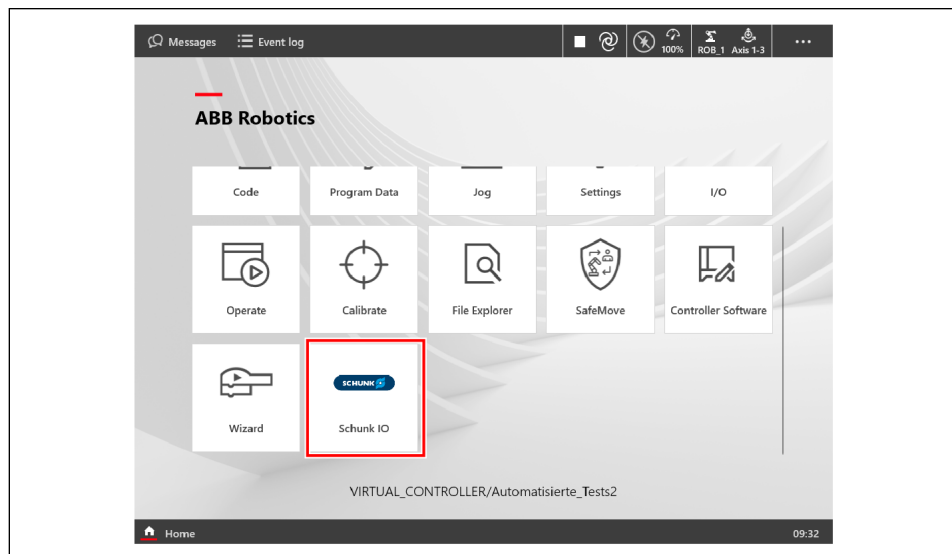
7 Configuring and testing the software module

7.1 Configuring the gripper

Basic configurations of the SCHUNK gripper can be made in the "SCHUNK IO" app.

- Selecting the implemented gripper
- Deleting and modifying configured grippers
- Wizard app is closed.

1. Select the "SCHUNK IO" app.



⇒ The SCHUNK start page opens.

2. Select the connected gripper.

⇒ A walkthrough opens showing how to connect the gripper.

⇒ After completing the second to last page, the gripper is placed in the robot and restarted.

3. Start the "SCHUNK IO" app again.

⇒ The digital inputs and outputs of the gripper are displayed on the last page.

4. Select the "Next" button.

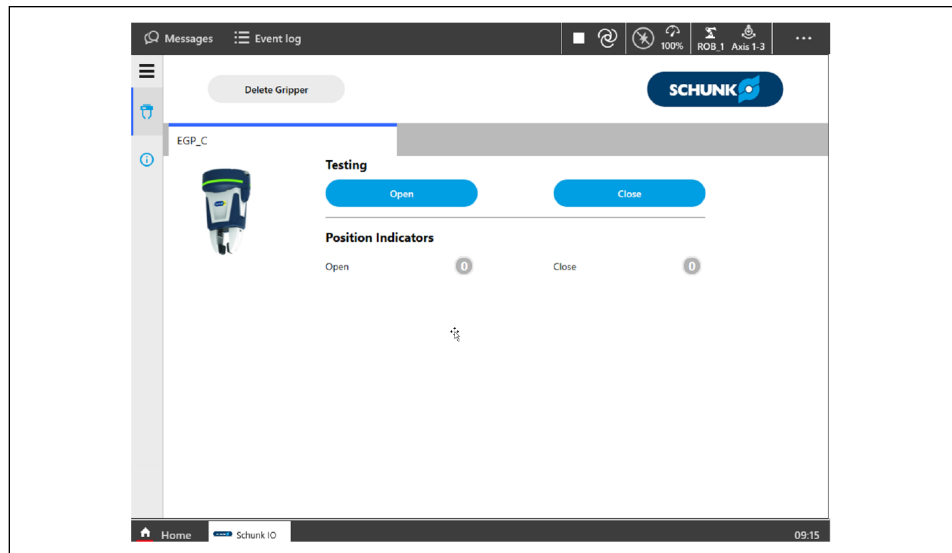
⇒ The test page opens to check the functionality of the gripper.

7.2 Testing functions

After restarting the control, the gripper functions and the correct wiring of the gripper can be checked.

Attention: The robot's motor must be switched on in order to be able to use the software module completely and correctly.

- The robot's motor is switched on.
- Select the respective button to test the function.



8 Tool Center Point (TCP)

For proper use of the product on an ABB robot, it is recommended to store the Tool Center Point (TCP), center of gravity and gripper weight in the robot settings.

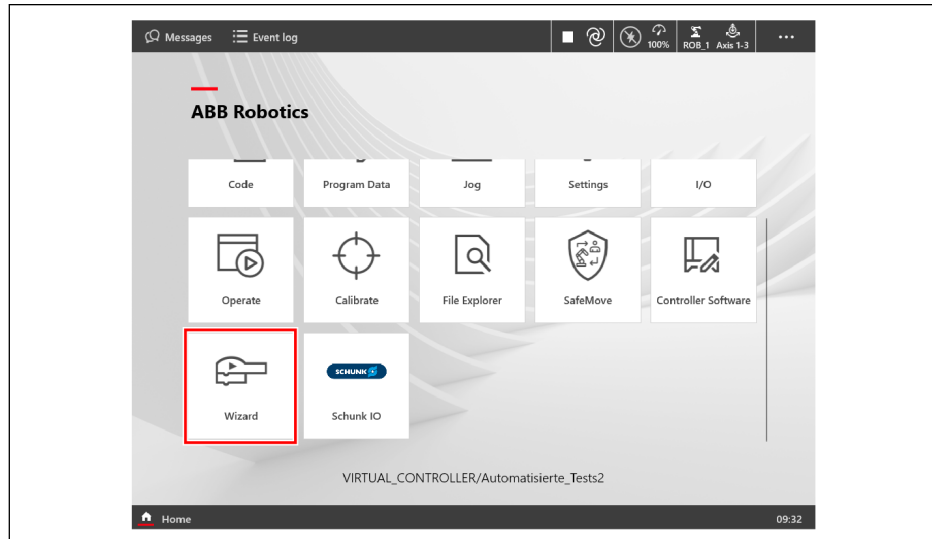
Size	TCP *			Center of gravity			Weight [kg]
	X [mm]	Y [mm]	Z [mm]	CX [mm]	CY [mm]	CZ [mm]	
Co-act EGP-C 40	0	0	117.85	0.15	0.01	57.98	0.59
Co-act EGP-C 64	0	0	144.45	0.41	-0.03	82.04	1.11

* The TCP is rotated by 30° around the Z-axis.

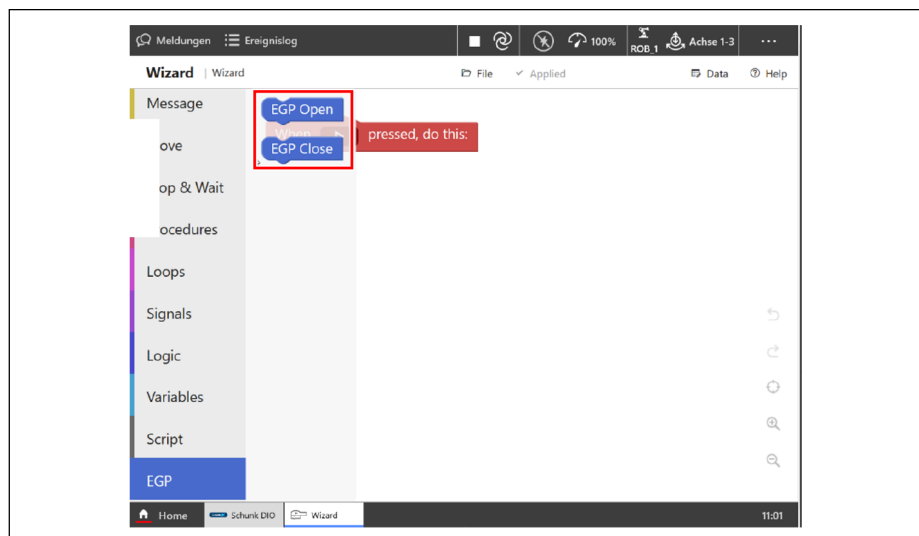
9 Inserting the functions into the program code

The Wizard app simplifies the programming procedure on ABB robots. The generated sequences are translated into RAPID code.

1. Select the "Wizard" button.



- ⇒ The following wizard commands marked in red are available under "EGP":



2. Select the command and drag it to the desired location in the program.

9.1 Wizard command: Open Gripper

The gripper is opened completely, i.e. the base jaws move to the maximum possible position.

Operating principle

- The corresponding signals for opening are applied.

9.2 Wizard command: Close Gripper

The gripper is closed completely, i.e. the base jaws move to the minimum possible position.

Operating principle

- The corresponding signals for closing are applied.

10 Advanced operation

The following knowledge/prerequisites are required for advanced operation:

- RAPID knowledge
- RobotStudio knowledge
- Familiarity with signal handling

10.1 RAPID commands

10.1.1 SCHUNK_Gripper

The SCHUNK_Gripper system module contains all of the commands used to activate a SCHUNK IO gripper:

- EGP_Open
see also ▶ [9.1](#) [[📄](#) 21]
- EGP_Close
see also ▶ [9.2](#) [[📄](#) 21]
- bool EGP_IsClose
The status of the sensor is reported back when the base jaws are completely closed.
- bool EGP_IsOpen
The status of the sensor is reported back when the base jaws are completely opened.

10.1.2 TCP data for the grippers

This data can be changed in RAPID

- to observe the displacement of the fingers or
- the gripper is not attached to the robot arm using the adapter plate supplied by SCHUNK.

10.2 Module specification

10.2.1 Signal functions

Prerequisite: Sensors for monitoring the "open"/"closed" positions are available

- Enable: Activation of the functions
- Control_1: Control of the gripper
- P1_1: Position sensor 1
- P2_2: Position sensor 2

10.2.2 Tool data

Co-act EGP-C 40:

```
["EGP_C_40","EGP",[TRUE,[[0,0,117.85],[0.966,0,0,0.259]],  
[0.59,[0.15,0.01,57.98],[1,0,0,0],0,0,0]],FALSE]
```

Co-act EGP-C 64:

```
["EGP_C_64","EGP",[TRUE,[[0,0,144.45],[0.966,0,0,0.259]],  
[1.11,[0.41,-0.03,82.04],[1,0,0,0],0,0,0]],FALSE];
```



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