

OPERATING INSTRUCTIONS

Comfort App

for Universal Robots
GuideZ for Robot for SCM-F
DDOC01736

THE KNOW-HOW FACTORY

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1 Supporting documents

NOTICE



Read through the installation and operating instructions before installing or working with the product.

The installation and operating instructions contain important notes for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime.



The documents listed below are available for download on our website www.zimmer-group.com.

- Installation and operating instructions
 - Catalogs, drawings, CAD data, performance data
 - Information on accessories
 - Technical data sheets
 - General Terms and Conditions, including warranty information.
- ⇒ Only those documents currently available on the website are valid.

In these installation and operating instructions, "product" refers to the product designation on the title page!

1.1 Notices and graphics in the installation and operating instructions

DANGER



This notice warns of an imminent danger to the life and health of people. Ignoring these notices can lead to serious injury or even death.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

WARNING



This notice warns of a situation that is potentially hazardous to personal health. Ignoring these notices can cause serious injury or damage to health.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

CAUTION



This notice warns of a situation that is potentially hazardous to persons. Ignoring these notices can cause minor, reversible injuries.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

NOTICE



This notice warns of possible material and environmental damage. Ignoring these notices can result in damage to the product or the environment.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

INFORMATION



This category contains useful tips for handling the product efficiently. Failure to observe these tips will not result in damage to the product. This information does not include any information relevant to health or workplace safety.

2 Proper use

NOTICE



Material damage and malfunction in case of non-compliance

The product is only to be used in its original state with its original accessories, with no unauthorized changes and within the stipulated parameter limits and operating conditions.

Any other or secondary use is deemed improper.

- ▶ Operate the product only in compliance with the associated installation and operating instructions.
- ▶ Operate the product only when it is in a technical condition that corresponds to the guaranteed parameters and operating conditions.
- ⇒ Zimmer GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

The product is intended for installation and operation on the robot control panel *3PE* of the *OEM* robot control system.

3 Personnel qualification

WARNING



Inadequate qualification can cause injury and material damage

If inadequately qualified personnel perform work on the product, this can cause serious injuries and significant material damage.

- ▶ All work on the product must be performed by qualified personnel.
- ▶ Before working with the product, read the document in its entirety and make sure that you have understood everything.
- ▶ Observe country-specific accident prevention regulations and the general safety notices.

The following qualifications are a prerequisite for performing various work on the product.

3.1 Electricians

Electricians are able to perform work on electrical systems, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

3.2 Specialists

Specialists are able to perform the assigned work, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

3.3 Instructed personnel

Instructed personnel have been trained by the operating company on the tasks and possible dangers of improper behavior.

3.4 Service personnel

Service personnel are able to perform the assigned work and can recognize and avoid possible dangers due to their technical training, knowledge and experience.

3.5 Additional qualifications

Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

Personnel who work with the product must have facility-issued authorization to commission, program, configure, operate, maintain and also decommission this product.

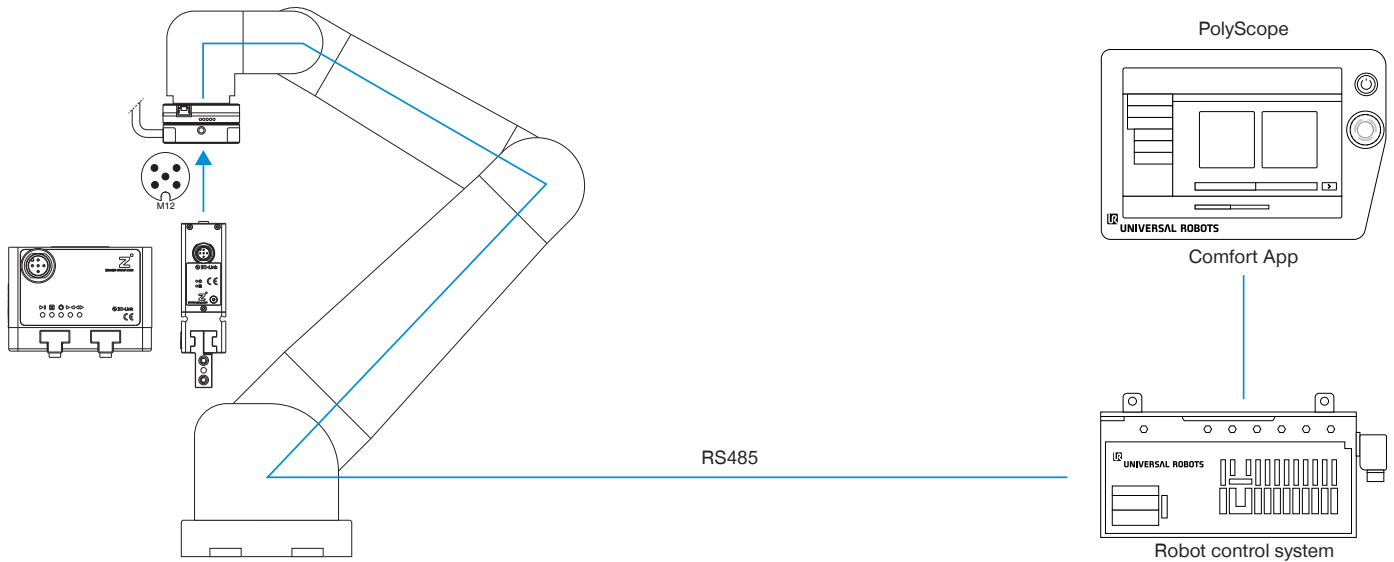
4 Product description

The Smart Communication Module (SCM) installed in the MATCH robot module is a gateway between the grippers and the robot control system. This makes it possible to control and configure MATCH grippers with IO-Link using the Comfort App directly via the robot control panel.

Communication is handled via the RS485 interface integrated in the robot, without external lines along the robot arm.

The connection point is the M8 end-of-arm tool interface on the flange.

The image shows a simplified view of the structure of the overall system. All parts for the electrical connection of a gripper with the robot are included or are available from Zimmer GmbH as optional accessories.



5 Functional description

Using the Comfort App, Zimmer GmbH grippers can be controlled directly from the robot control panel and generated robot jobs can be configured.

The interface for manual control as well as two program nodes are available in the programming environment.

The motion tasks for controlling the grippers are defined via the URCaps *Z_Grip* and *Z_Release*.

External variables can be integrated with the help of child nodes.

This enables the parameters and workpiece recipes required for operation to be set via the program nodes and saved there.

6 Accessories/scope of delivery

INFORMATION



If any accessories not sold or authorized by Zimmer GmbH are used, the function of the product cannot be guaranteed. Zimmer GmbH accessories are specifically tailored to the individual products.

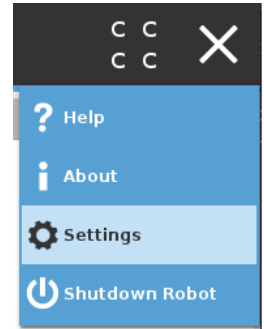
► For optional accessories and those included in the scope of delivery, refer to our website.

7 Installation

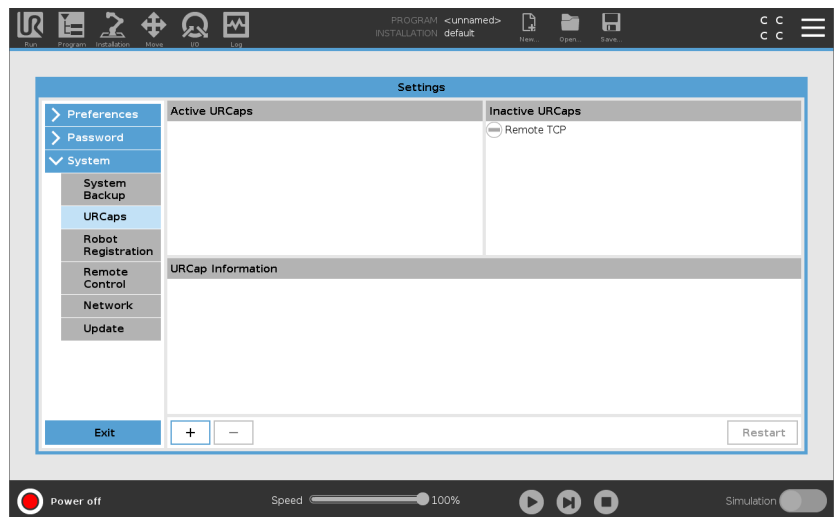
7.1 Installing the Comfort App

The Comfort App is installed to the robot control panel to enable direct control of the grippers.

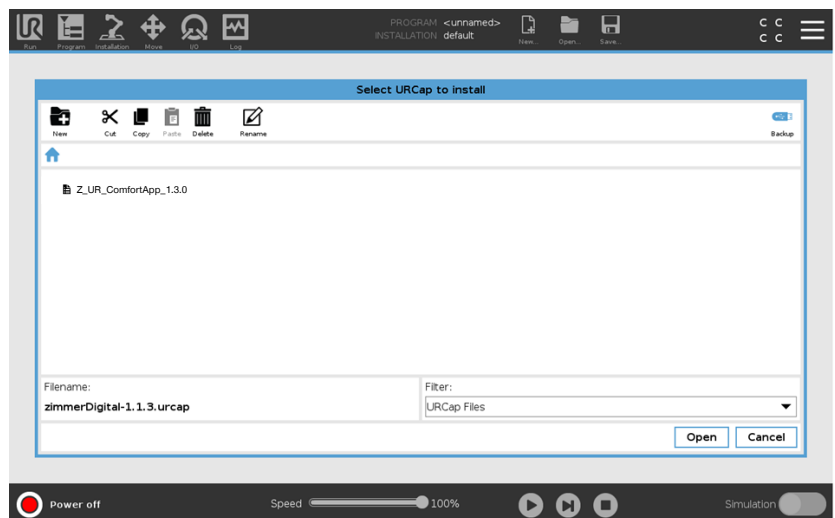
- ▶ Download the robot app from our website.
- ▶ Copy the installation file to a USB memory device.
- ▶ Make sure that the robot control panel is already connected to the robot control system.
- ▶ Switch off the voltage supply on the robot tool I/O via the emergency stop button.
- ▶ Plug the USB memory stick with the installation files for the Comfort App into the robot control panel.
- ▶ Press the button in the header.
- ▶ Press *Settings*.



- ▶ In the menu, press *System*.
- ▶ In the *System* menu item, press *URCaps*.
- ▶ Press the + Button.

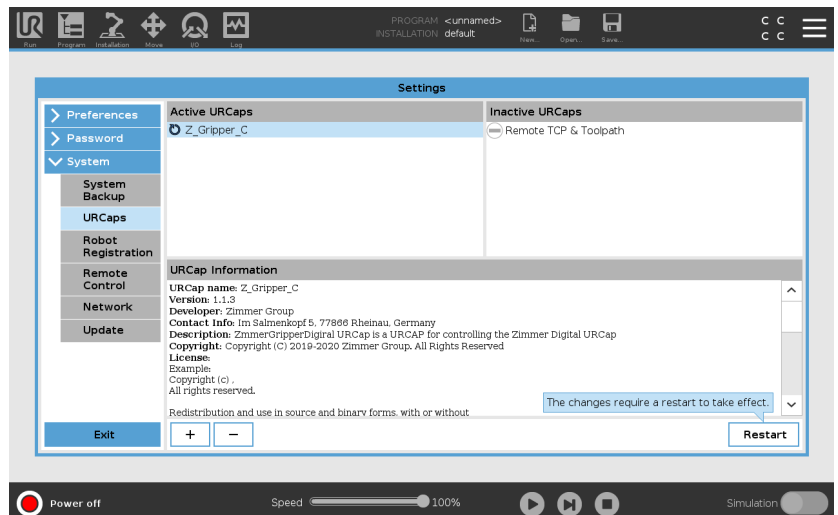


- ▶ Navigate to the file *zimmerDigital-urcap*.
- ▶ Select the file *Z_UR_ComfortApp_X.X.X*.
- ▶ Press the *Open* button.

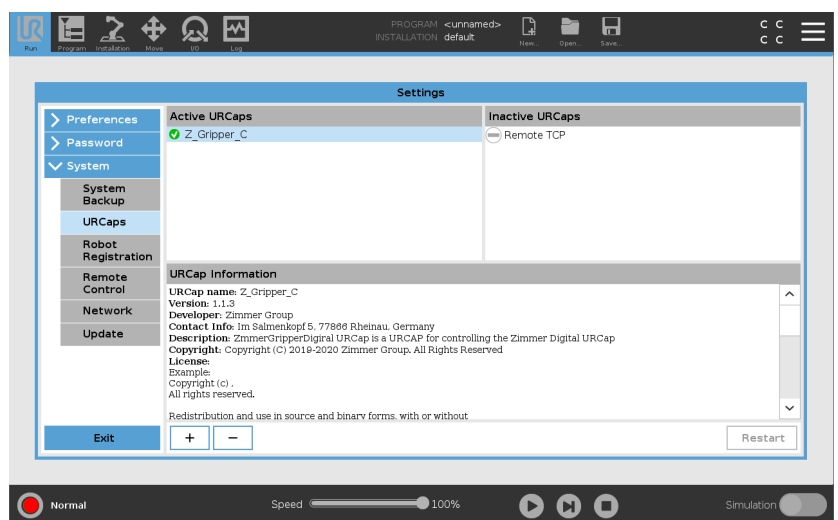


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- ▶ Press the *Restart* button to activate the firmware.
- ⇒ The robot control panel performs a restart.

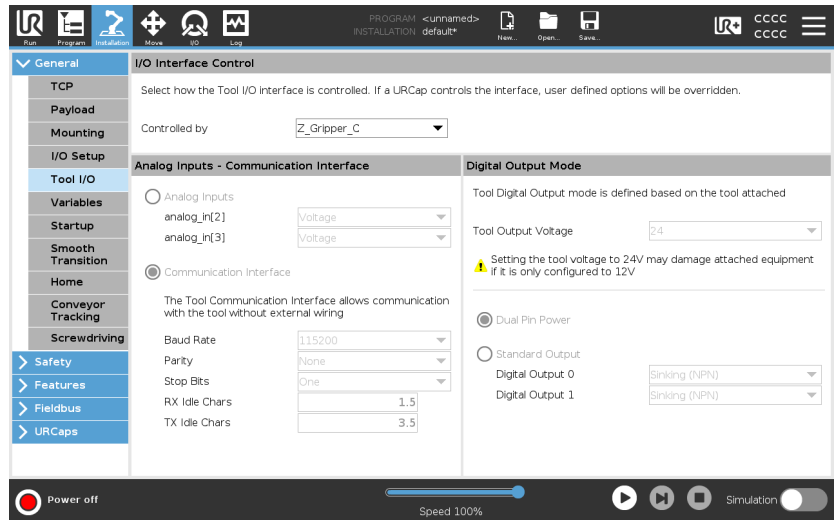


- ▶ After the restart, check whether the Comfort App has been installed correctly.
- ⇒ The Comfort App has been installed correctly if the green checkmark is displayed in the *Active URCaps* area.



8 Commissioning

- ▶ Press *Installation* in the menu bar.
 - ▶ In the *General* menu, press *Tool I/O*.
 - ▶ In the *Controlled by* drop-down menu, select the *Z_Gripper_C* option.
- ⇒ Settings can only be made via the Comfort App.
- ▶ Install the gripper to the robot.
 - ▶ Switch the robot on.



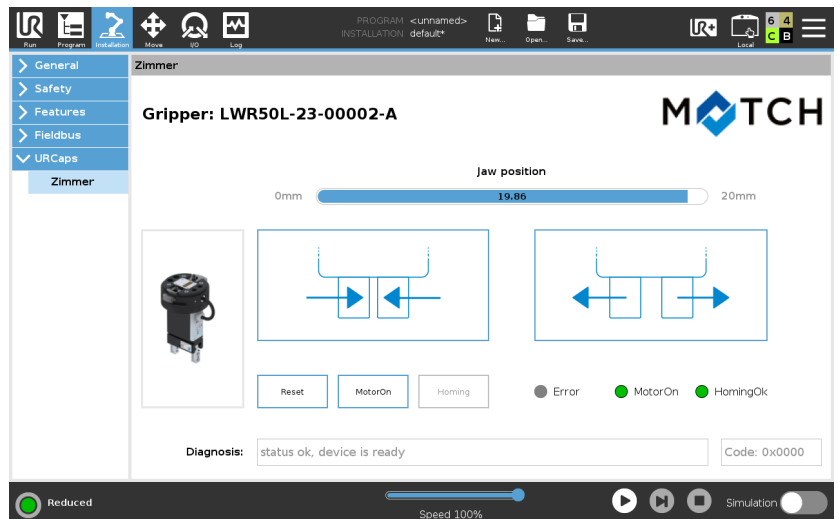
8.1 Creating a gripper configuration

- ▶ In the *URCaps* menu, press *Zimmer*.

8.1.1 Testing settings

You can test gripper functions and operate the gripper independently of the programmed sequence via the *Jaw position* bar and the *Reset*, *MotorOn*, *Homing* buttons.

Default settings are used for the initial commissioning of the MATCH gripper. Then the parameters last used in the program sequence are applied.



8.1.1.1 Reference run for long stroke gripper with > 20 mm jaw stroke

- ▶ Press the *Homing* button.
- ⇒ The correct positioning is performed after the cold start.

8.1.1.2 Function test

- ▶ Press the buttons to test the *Grip* and *Release* commands.
- ⇒ The MATCH gripper and the motor voltage are initialized automatically.



8.2 URCaps

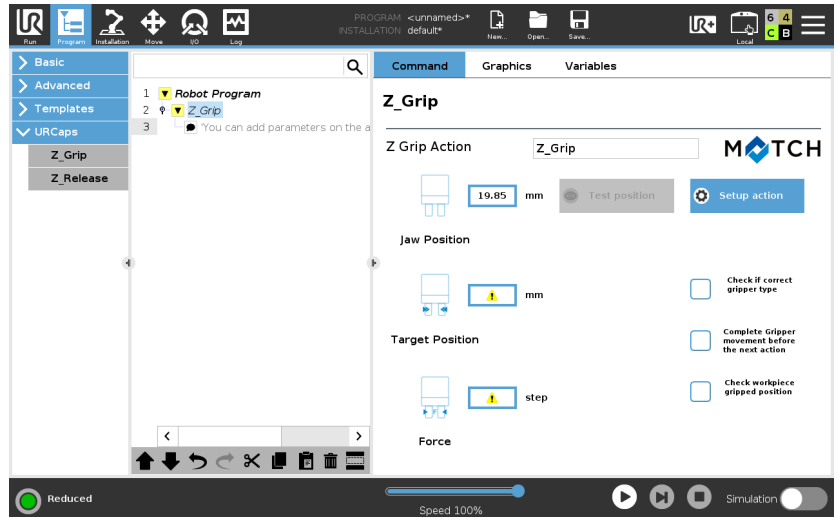
Program nodes can be set in the *URCaps* menu item.

- ▶ Press *Program* in the menu bar.
- ▶ In the *URCaps* menu, press *Zimmer*.

8.2.1 Z_Grip

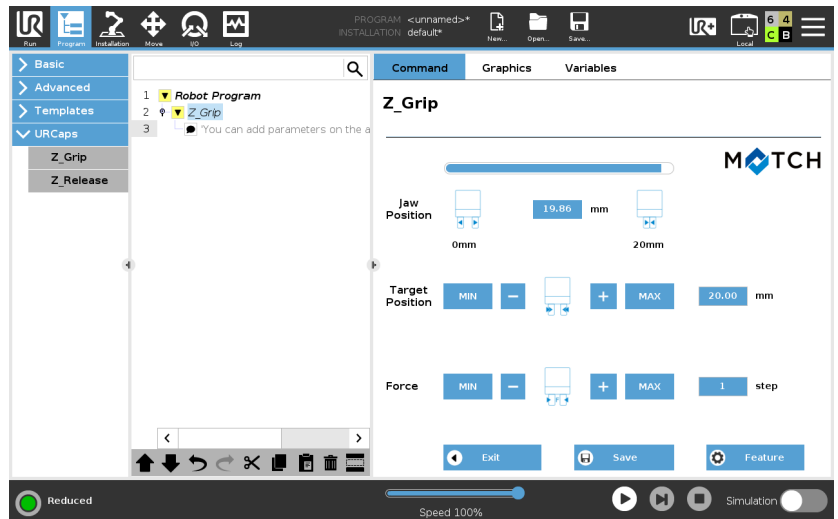
Level 1 provides an overview of the settings as well as access to interactive functions.

- ▶ Press the *Test position* button to test the settings.
- ▶ Press the *Setup action* button to make settings.



In **level 2**, basic settings can be made:

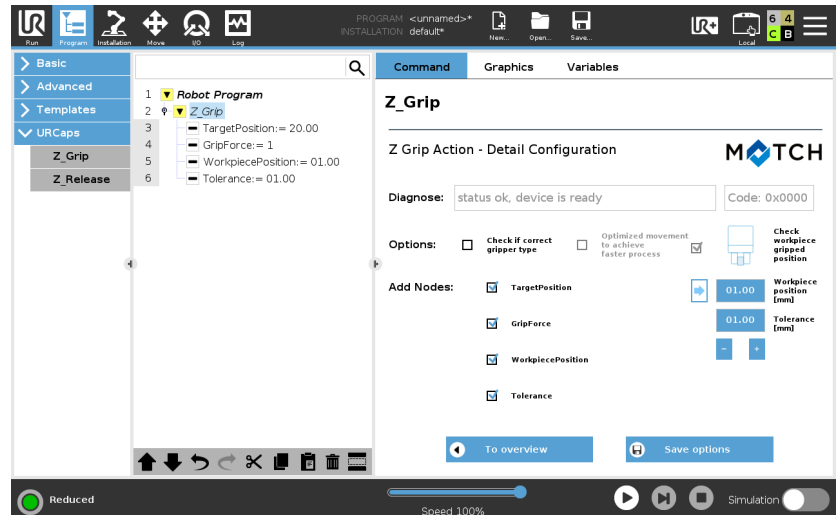
- Move gripper in jog mode or to the end positions via buttons.
- Move to the gripping position.
- Set the gripping force.
- ▶ Increase and decrease the value via the + and - buttons.
- ▶ Set the maximum or minimum value via the *MIN* and *MAX* buttons.
- ▶ Press the value to change it via direct entry.
- ▶ Click the *Save* button.
- ▶ Press the *Feature* button to define position sensing and variables.



Level 3 enables you to define position sensing and variables.

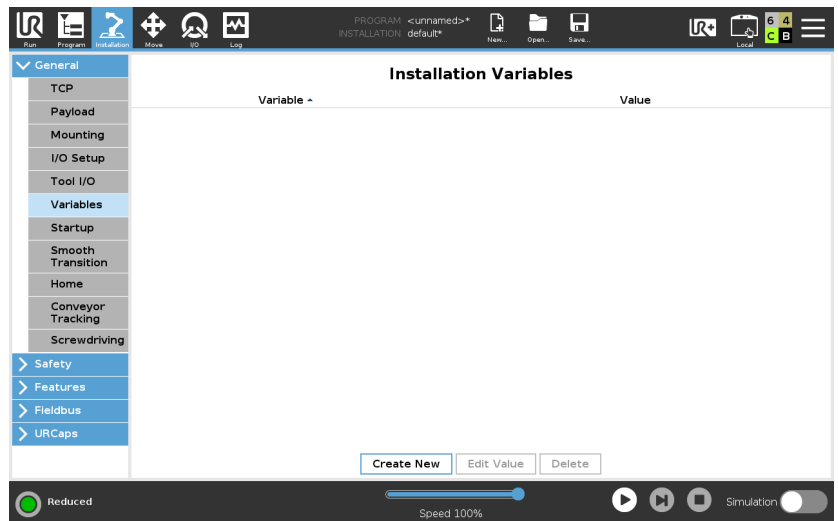
Status messages and the associated codes are displayed in the *Diagnostics* area.

- ▶ Activate the *Check if correct gripper type* option field to check whether the correct MATCH gripper is being used after a tool change.
- ▶ Activate the *Optimized movement to achieve faster process* option field to grip the workpiece with a predefined force and with prepositioning.
- ▶ Activate the *Check workpiece gripped position* option field if it should be checked whether the workpiece has been gripped.
 - ▶ Set the position of the workpiece *Workpiece position [mm]*.
 - ▶ Set the tolerance for the position of the workpiece *Tolerance [mm]*.
 - ▶ Press the → button if you want to reset to the initial value.
- ▶ Activate the option fields for which a variable should be created and linked in the *Add Nodes* area.
- ▶ Press the *Save options* button.



8.2.1.1 Creating variables

- ▶ Press *Installation* in the menu bar.
- ▶ In the *General* menu, press *Variables*.
- ▶ Press the *Create New* button.



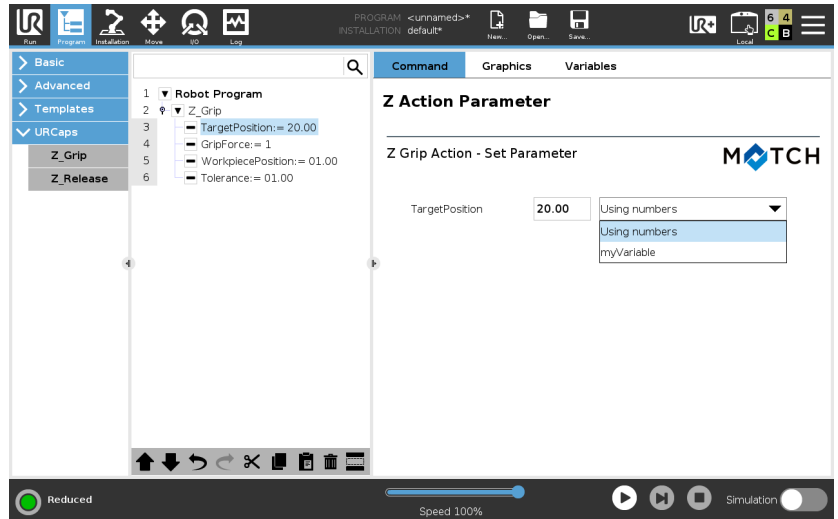
- ▶ Enter the name of the variable in the *Name* field.
- ▶ Enter the value of the variable in the *Value* field.
- ▶ Press the *OK* button.



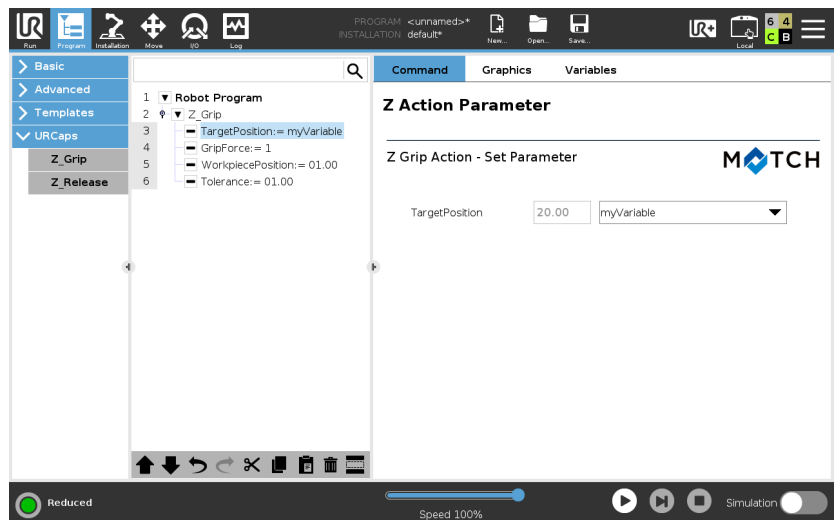
8.2.1.2 Adding nodes

The setting for TargetPosition is used as an example.

- ▶ Press *Program* in the menu bar.
- ▶ In the *URCaps* menu, press *Zimmer*.
- ▶ In the *TargetPosition* drop-down menu, select the *Using numbers* option if you want to enter a value for the TargetPosition.

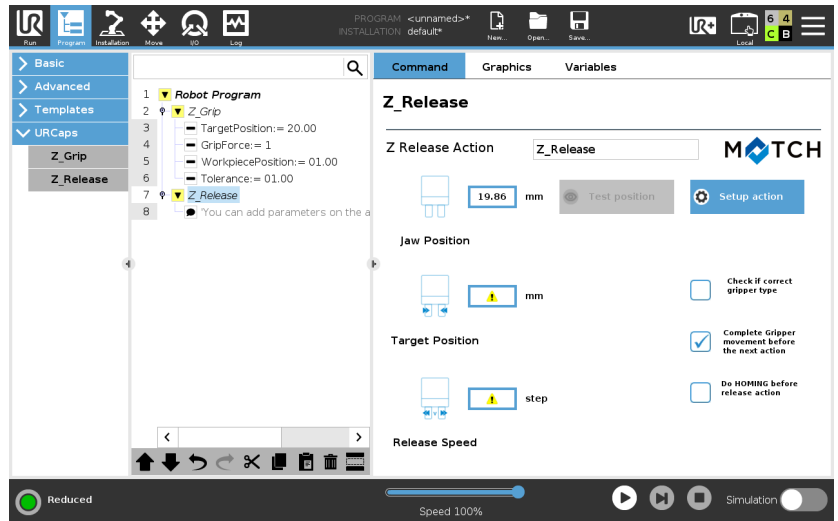


- ▶ In the *TargetPosition* drop-down menu, select the *myVariable* option if you want to use an external variable for the TargetPosition.

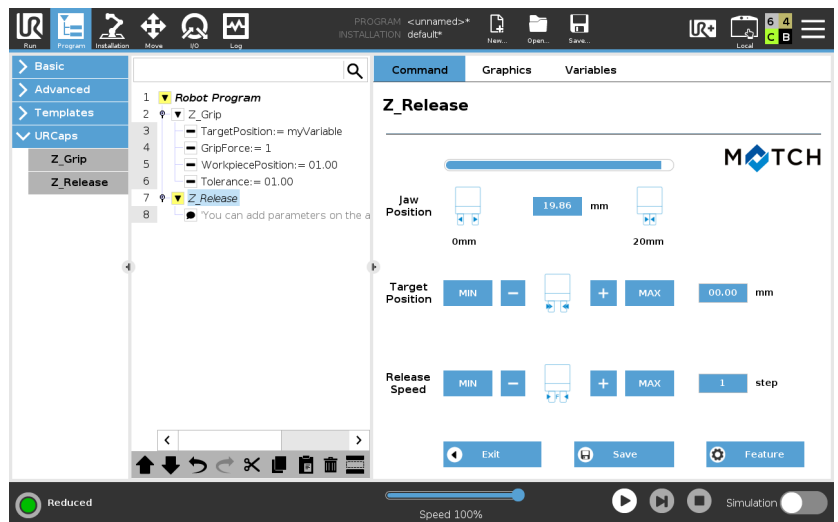


8.2.2 Z_Release

- ▶ Press *Program* in the menu bar.
- ▶ In the *URCaps* menu, press *Zimmer*.
- ▶ Press the *Test position* button to test the settings.
- ▶ Press the *Setup action* button to make settings.

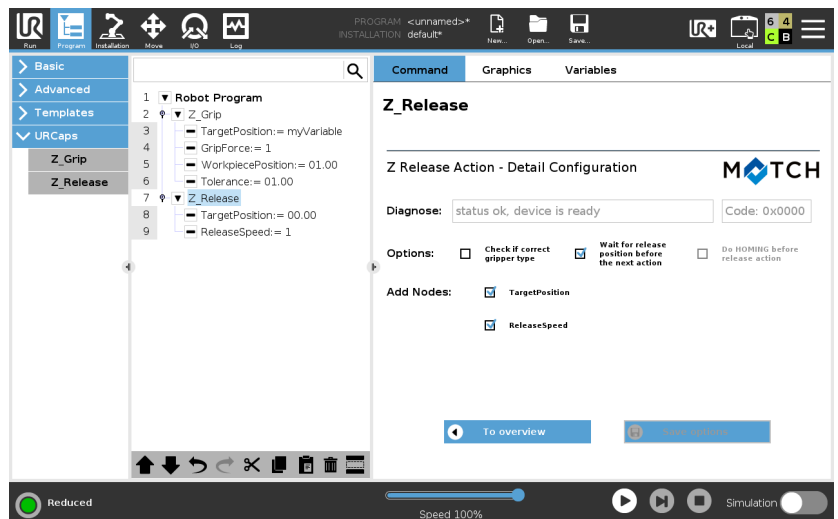


- ▶ Increase and decrease the value via the + and - buttons.
- ▶ Set the maximum or minimum value via the *MIN* and *MAX* buttons.
- ▶ Press the value to change it via direct entry.
- ▶ Press the *Feature* button to define position sensing and variables.
- ▶ Click the *Save* button.



Status messages and the associated codes are displayed in the *Diagnostics* area.

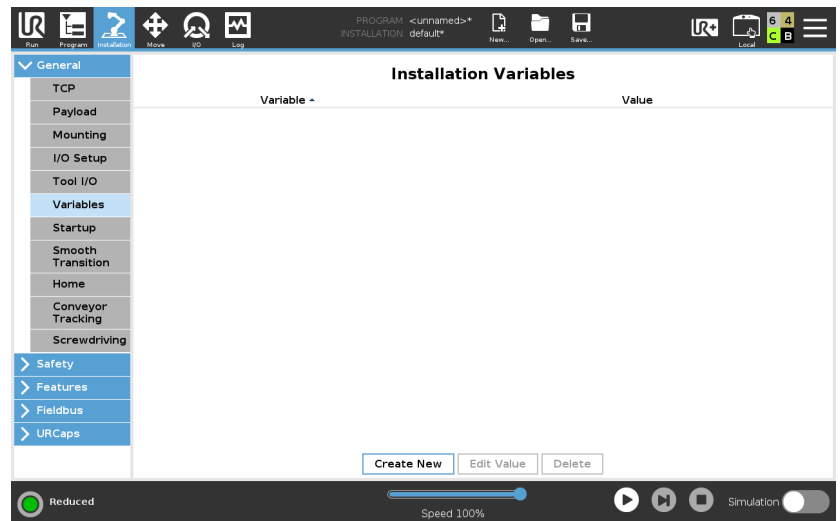
- ▶ Activate the *Check if correct gripper type* option field to check whether the correct MATCH gripper is being used after a tool change.
- ▶ Activate the *Wait for release position before the next action* option field to only carry out a new command after the workpiece has been released.
- ▶ Activate the *Do HOMING before release action* option field to only release the workpiece after a reference run.
- ▶ Activate the option fields for which a variable should be created and linked in the *Add Nodes* area.



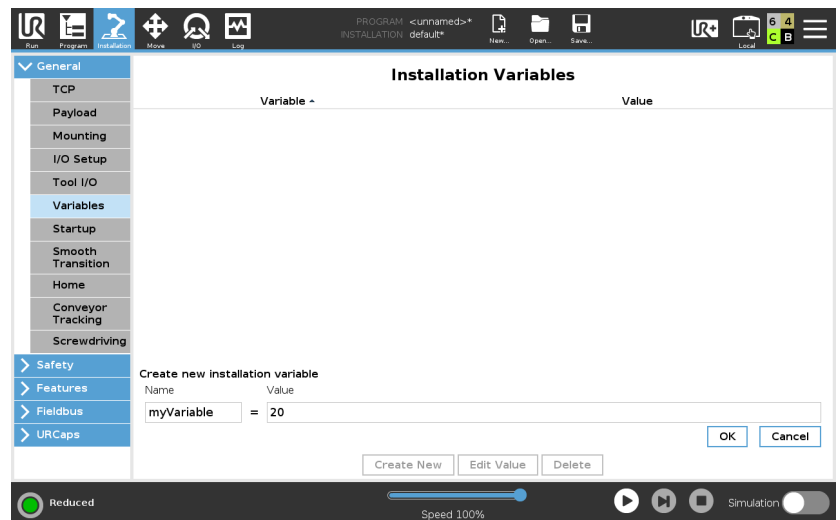
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8.2.2.1 Creating variables

- ▶ Press *Installation* in the menu bar.
- ▶ In the *General* menu, press *Variables*.
- ▶ Press the *Create New* button.



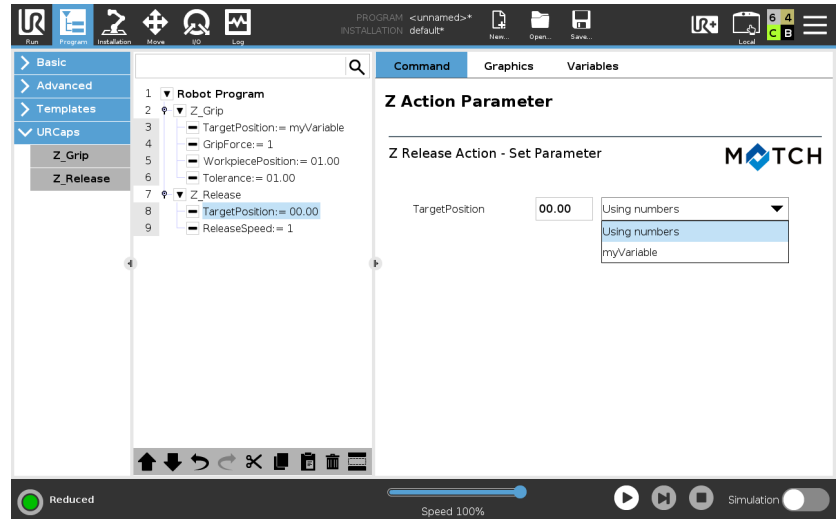
- ▶ Enter the name of the variable in the *Name* field.
- ▶ Enter the value of the variable in the *Value* field.
- ▶ Press the *OK* button.



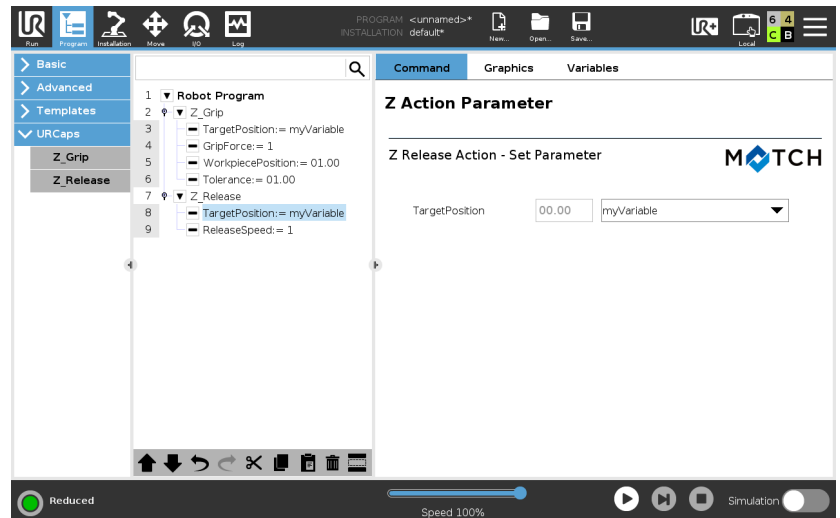
8.2.2.2 Adding nodes

The setting for TargetPosition is used as an example.

- ▶ Press *Program* in the menu bar.
- ▶ In the *URCaps* menu, press *Zimmer*.
- ▶ In the *TargetPosition* drop-down menu, select the *Using numbers* option if you want to enter a value for the TargetPosition.

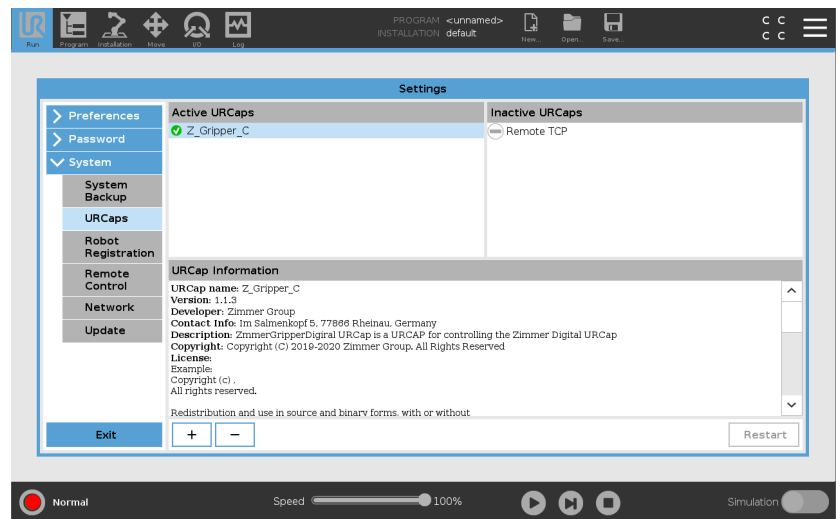


- ▶ In the *TargetPosition* drop-down menu, select the *myVariable* option if you want to use an external variable for the TargetPosition.



9 Uninstalling the Comfort App

- ▶ Press the button in the header.
- ▶ Press *Settings*.
- ▶ In the menu, press *System*.
- ▶ In the *System* menu item, press *URCaps*.
- ▶ In the *Active URCaps* area, press *Z_Gripper_C*.
- ▶ Press the - Button.
- ⇒ Uninstallation is complete.
- ▶ Press the *Restart* button to activate the firmware.
- ⇒ The robot control panel performs a restart.



10 Error diagnosis

INFORMATION



- ▶ More information can be found in the installation and operating instructions of the gripper.
- ▶ Please contact Customer Service if you have any questions.