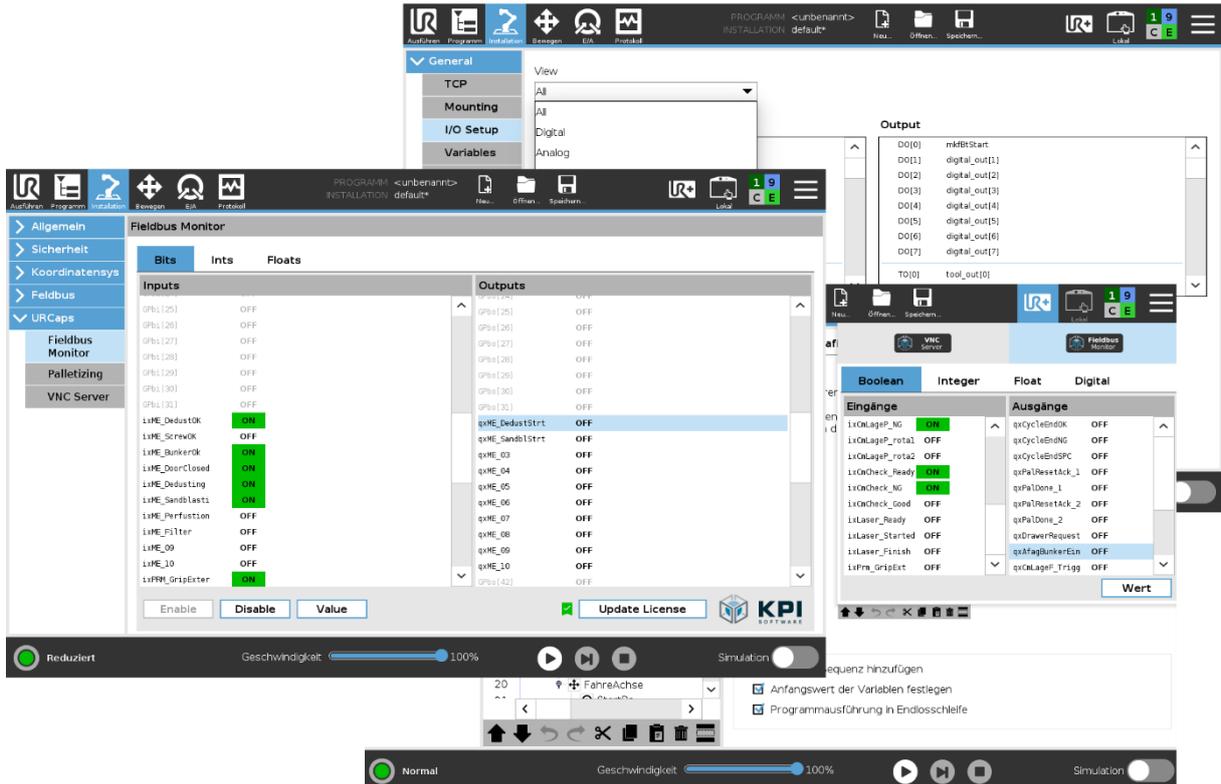


Reference Manual

URCap Fieldbus Monitor – Version 1.3



KPI Software GmbH

Albring 5

78658 Zimmern

Telefon: +49 741 206 792 40

Email: info@kpi-software.de

www.kpi-software.de

Reference Manual

Version 1.3

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Table of Contents

1	Introduction.....	4
1.1	About this document.....	4
1.2	Requirements and supported versions	4
1.3	Update URCap	4
2	Installation.....	5
2.1	Installing the URCap	5
2.2	Uninstall the URCap.....	8
3	Installation Node	9
3.1	Licensing	9
3.1.1	Store license key on robot.....	9
3.1.2	License Dongle.....	10
3.2	Overview.....	11
3.3	Boolean, Bit signals.....	12
3.4	Integer	13
3.5	Float, Floating point numbers	15
3.6	Digital, Robot inputs and outputs	17
3.7	Settings.....	18
3.8	Activate / deactivate URCap.....	19
3.8.1	Activate.....	19
3.8.2	Deactivate.....	19
4	Toolbar	20
4.1	Set outputs	20
5	Rename fieldbus signals	21
6	Directories	24
6.1	List of figures	24

1 Introduction

The URCap Fieldbus Monitor is a software extension for the UR robot (Universal Robots). It was developed as a diagnostic tool for commissioning the UR fieldbus interface (Profinet, EtherNet/IP) and is therefore the ideal tool for testing communication with an external controller and for detecting configuration problems at an early stage.

With the Fieldbus Monitor the entire fieldbus interface is displayed directly on the UR panel and the fieldbus outputs can be flexibly assigned test values.

1.1 About this document

The reference manual contains an overview of all functions of the URCap. It was created for robot programmers, software developers and maintenance technicians.

1.2 Requirements and supported versions

E-Series robots (UR3, UR5, UR10 or UR16) from PolyScope 5.8.

1.3 Update URCap

Attention: Robot programs that were created with a previous version may no longer be used. The robot programs and the robot installation may have to be recreated or adapted. To install the URCap version 1.3 on a system where an earlier version is already installed.

- Uninstall the previous version
- Check the PolyScope version, if necessary, update to a newer version (version 5.8)
- To avoid configuration conflicts, create a new robot installation
- Install URCap

2 Installation

2.1 Installing the URcap

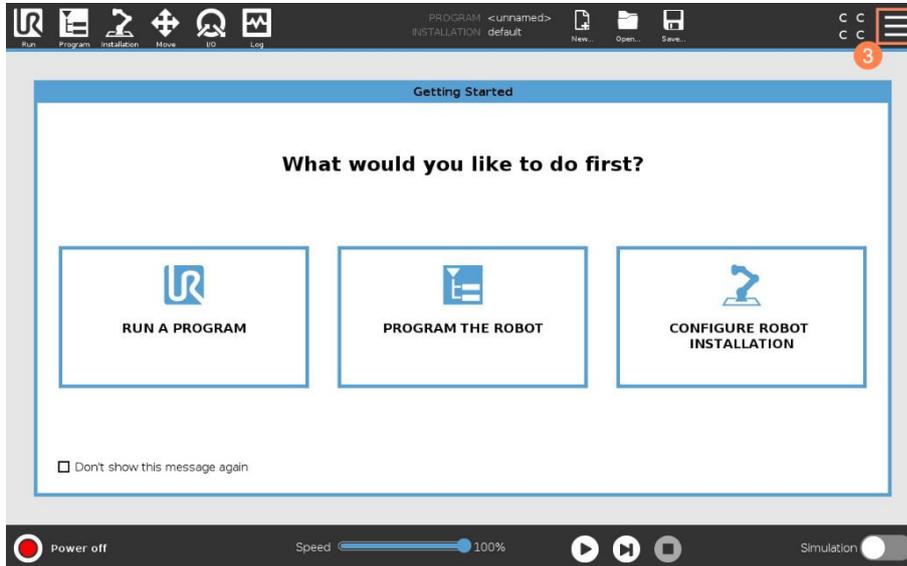


Figure 1: Home screen

1. Start the robot
2. Insert the USB stick with the URcap
3. Click the hamburger menu in the top right corner

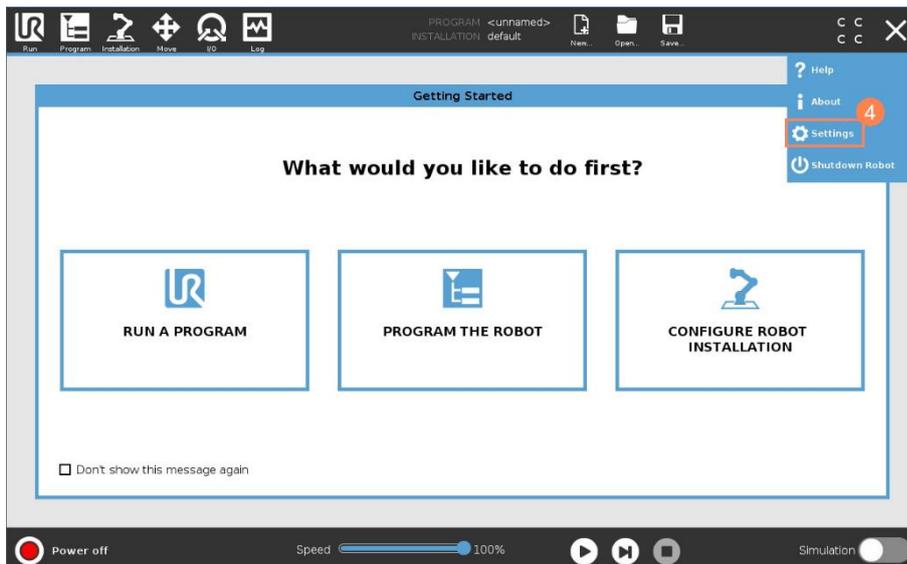


Figure 2: Select Settings

4. Click Settings

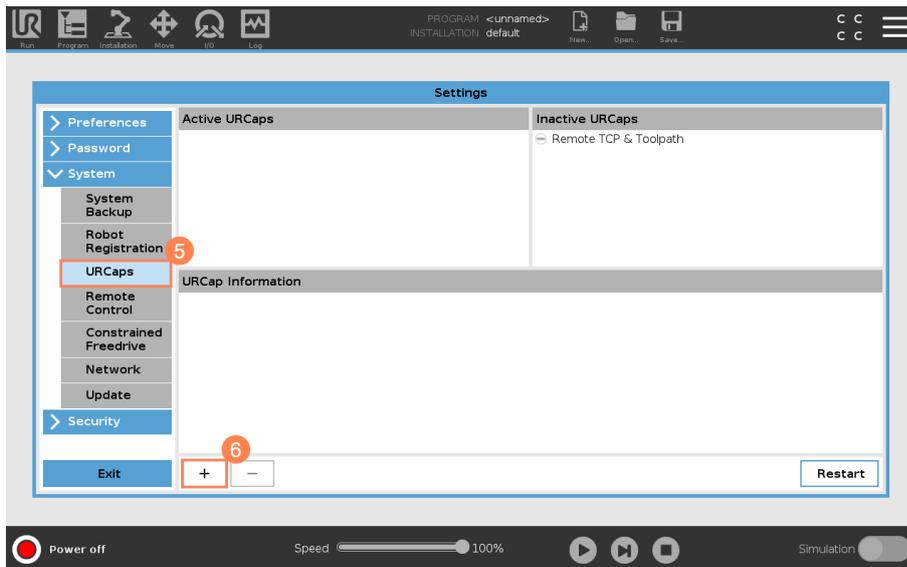


Figure 3: Add URCap

5. Click on URCaps
6. Click +

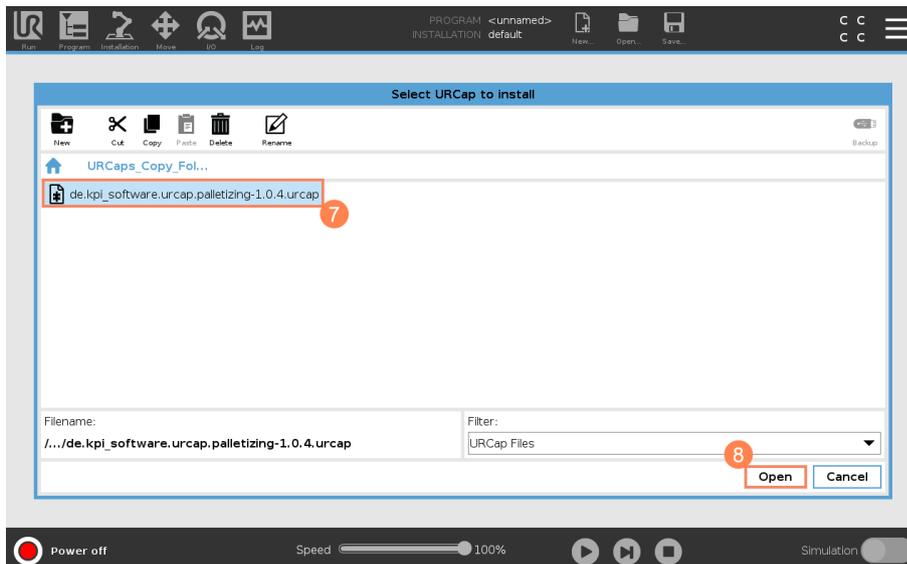


Figure 4: Select URCap on USB stick

7. Select the URCap on the USB stick
8. Click Open to install the URCap

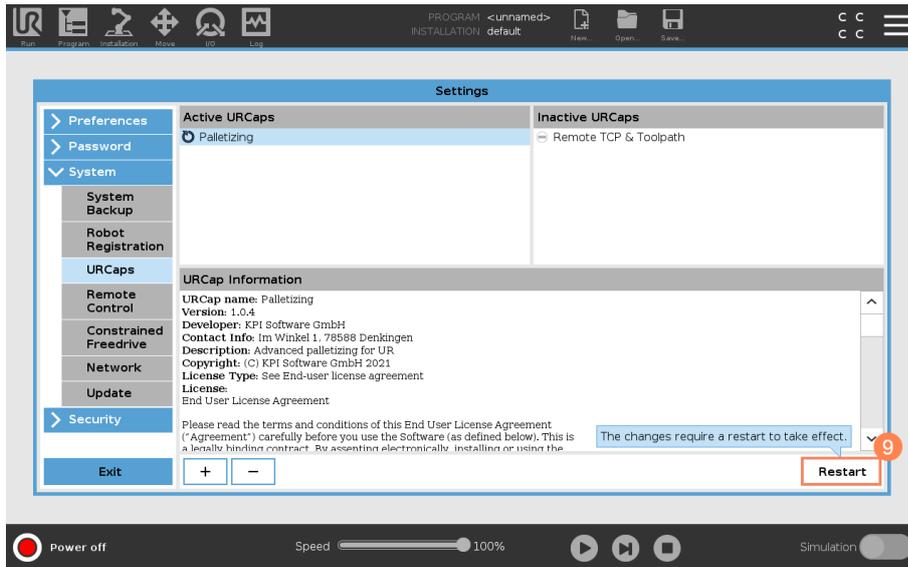


Figure 5: Restart the robot

9. Click Restart to restart the robot

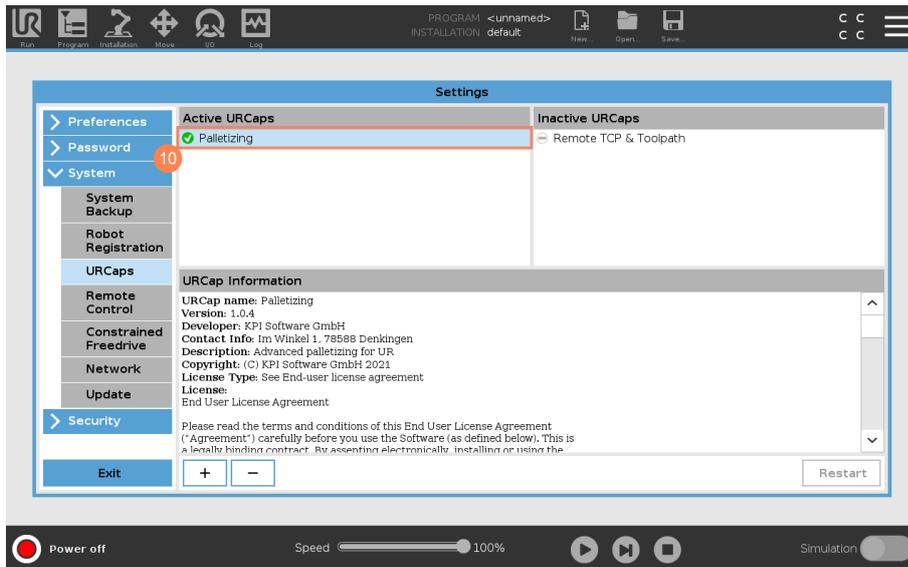


Figure 6: URCap is installed

10. A green tick will appear next to the URCap if it has been installed correctly

2.2 Uninstall the URCap

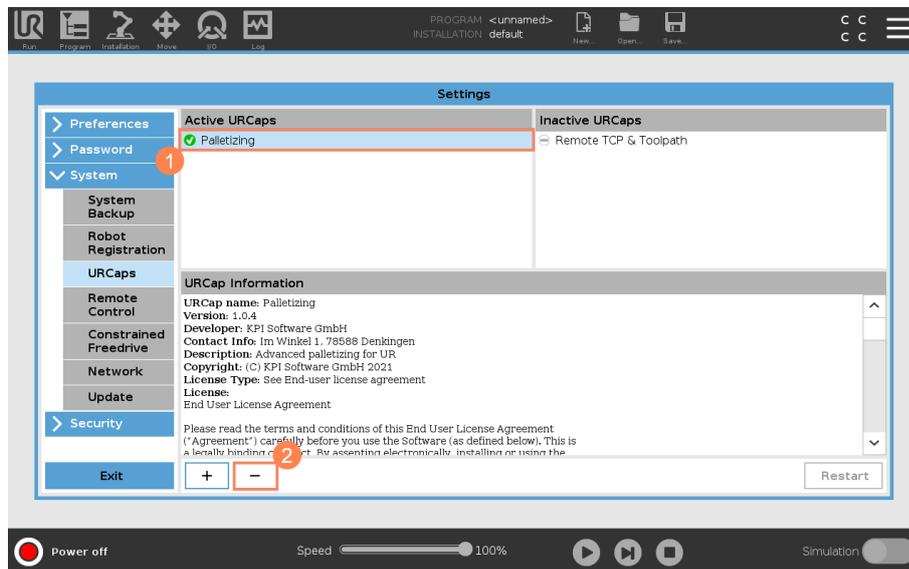


Figure 7: Select URCap

1. Select the URCap to be uninstalled
2. Click on -
3. Restart the robot

3 Installation Node

3.1 Licensing

In order to be able to use the URcap, a valid license key must be purchased in advance. The license key can be stored on a license dongle or directly on the robot.

The advantage of saving directly on the robot is that there are no additional costs and that the license key cannot be lost. The dongle license, on the other hand, has the advantage that it is not tied to a single robot and can be used on different robots as required.

3.1.1 Store license key on robot

In this variant, the license key is generated by the manufacturer with the help of the generator string. To do this, open the installation page and follow steps 1-7.

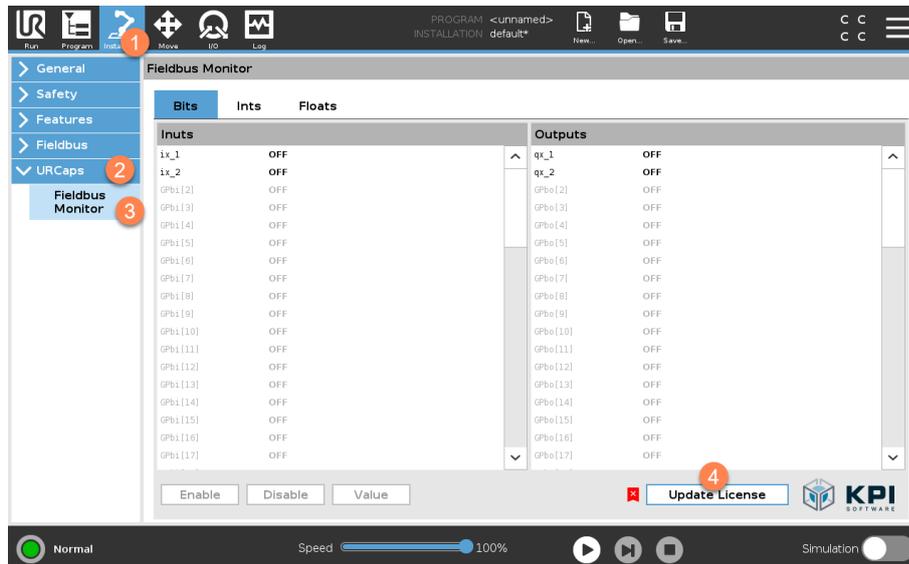


Figure 8: Installation Node

1. Open the installation page
2. Go to URcaps
3. Click on Advanced Palletizing
4. Click Update License



Figure 9: Generator-String

5. Make a note of the 8-digit generator string and send it together with your contact details to redemlicense@kpi-software.de



Figure 10: Enter license key

6. You will then receive your 8-digit license key, which must be entered instead of the generator string



Figure 11: Successful licensing

7. You can recognize successful activation by the green tick

3.1.2 License Dongle

If you have purchased a license dongle, all you have to do is plug it into a free USB port on the robot controller. The license is then automatically recognized by the URCap and displayed with a dongle icon.



Figure 12: Successful licensing

3.2 Overview

The URcap is divided into 4 sections. The individual sections are explained in more detail below.

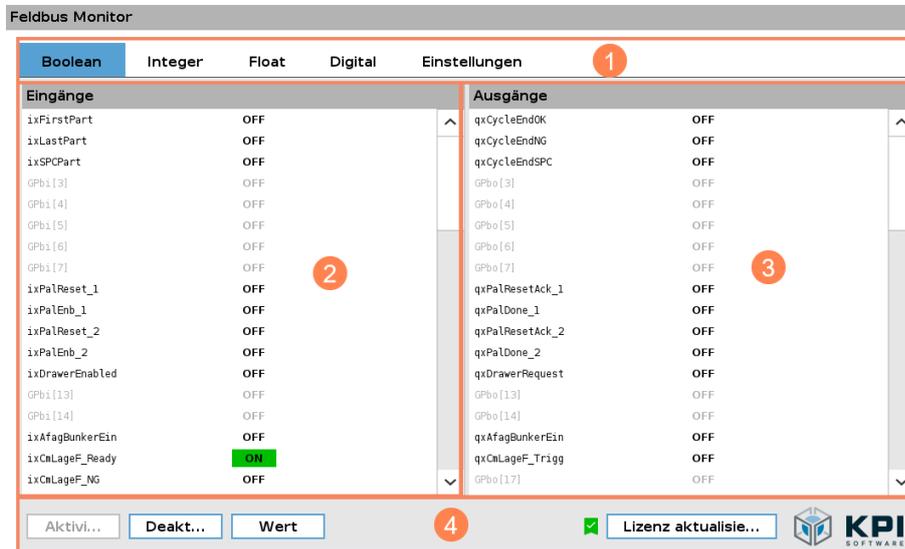


Figure 13: Overview

1. Tab to switch between the different data types of the fieldbus register
 - Boolean: Bit signals
 - Integer: Integers
 - Float: Floating point numbers
 - Digital: Robot IOs
 - Settings: Values can be set in the toolbar
2. The inputs are displayed in this area
3. The outputs are displayed in this area
4. Action buttons to activate/deactivate the URcap, control fieldbus outputs and licensing

3.3 Boolean, Bit signals

Here you will find an overview of the current status of the bit signals on the fieldbus interface. A high signal (1) is displayed with the text ON and a green background, a low signal has the text OFF without a background color (2). If a variable name has not yet been assigned for this signal, the signal is grayed out (3).

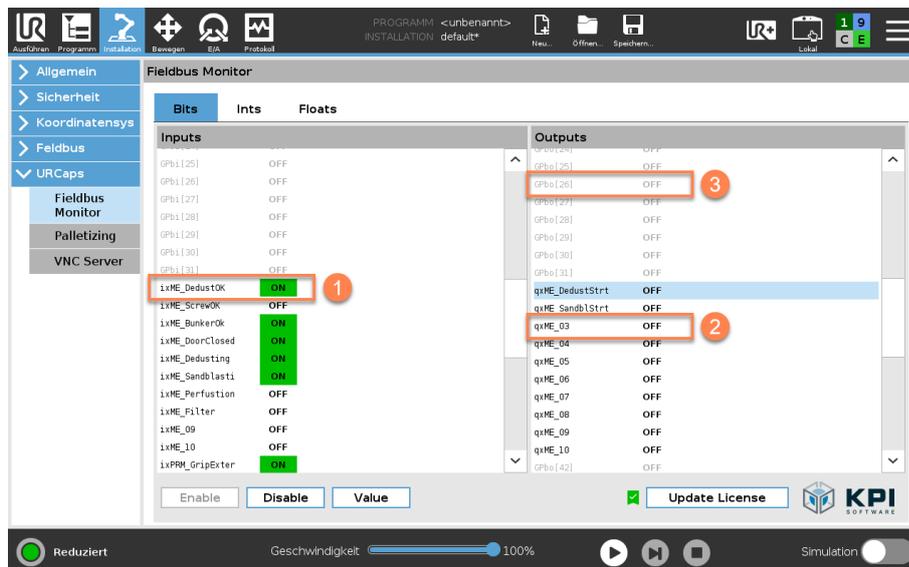


Figure 14: Overview Boolean

Set bit outputs

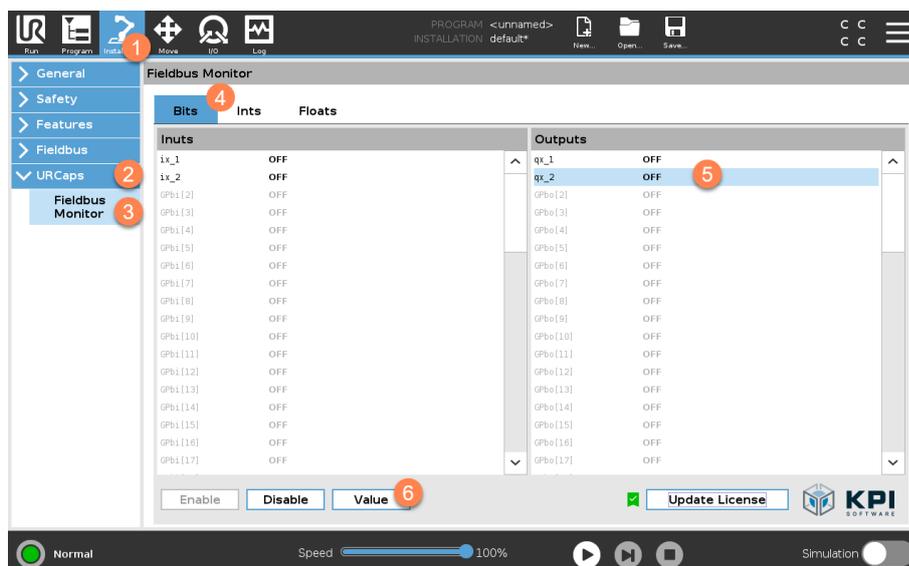


Figure 15: Set bit outputs

1. Open the installation page under Installation
2. -> URCaps
3. -> Fieldbus Monitor

4. Switch to the Bits tab
5. Mark the desired output in the output area
6. Press the "Value" button, the output then changes its state

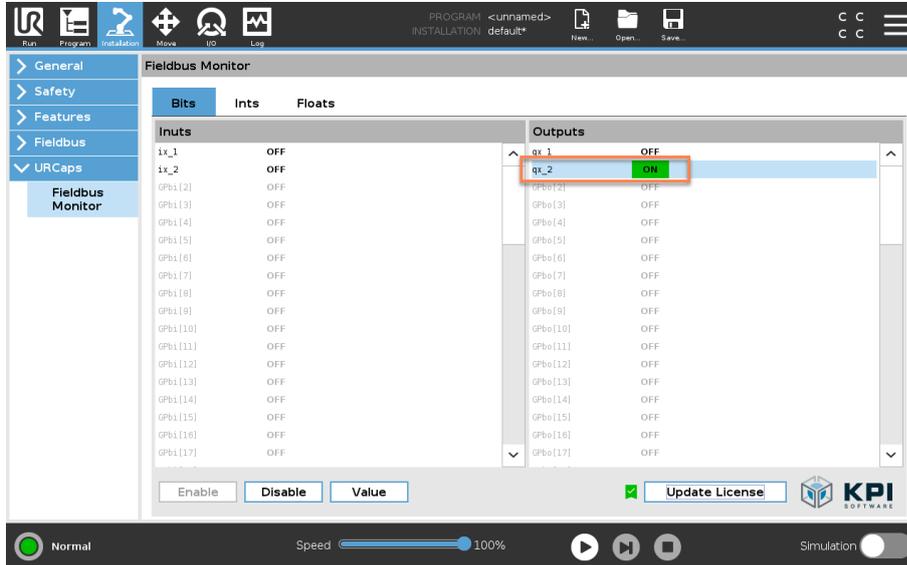


Figure 16: Bit output set

3.4 Integer

Here you will find an overview of the current status of the integer signals on the fieldbus interface. The current numerical value for the inputs/outputs is displayed accordingly (1/2). If no variable name has yet been assigned for this signal, the signal is grayed out (3).

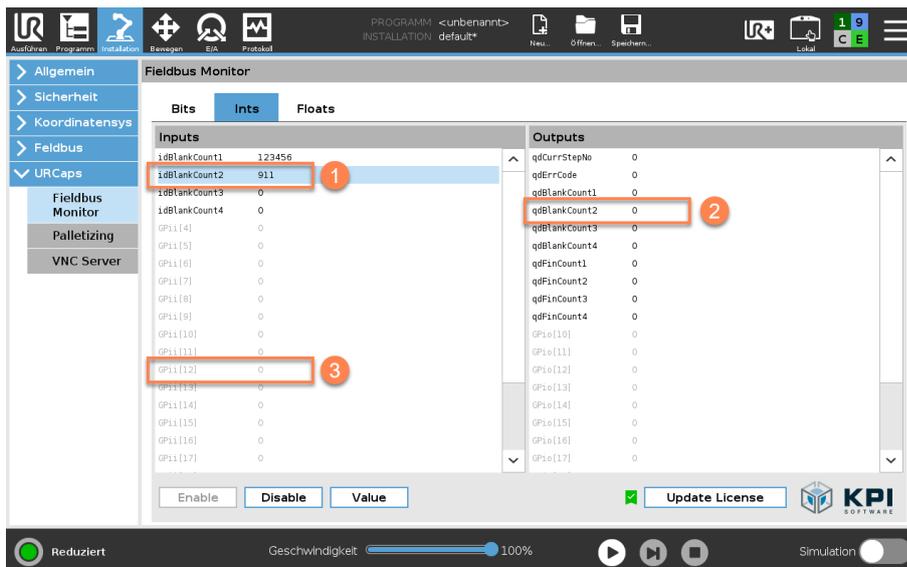


Figure 17: Overview Integer

Set integer outputs

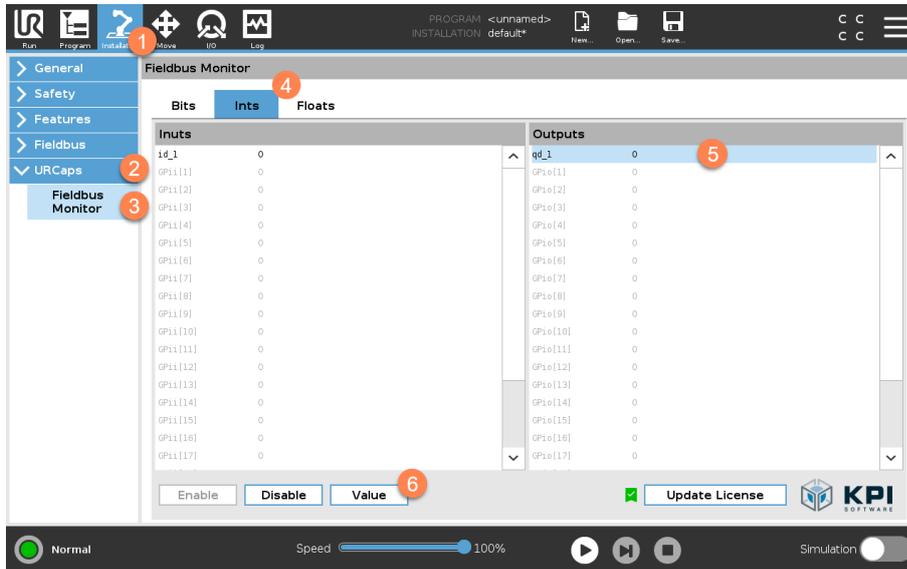


Figure 18: Set integer outputs

1. Open the installation page under Installation
2. -> URCaps
3. -> Fieldbus Monitor
4. Switch to the Integer tab
5. Mark the desired output in the output area
6. Press the "Value" button

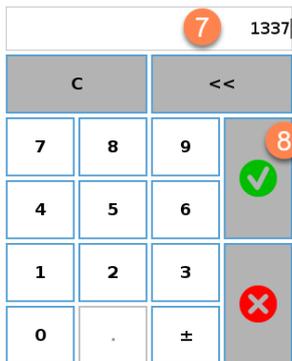


Figure 19: Enter the integer value

7. Enter the desired value
8. Confirm your entry

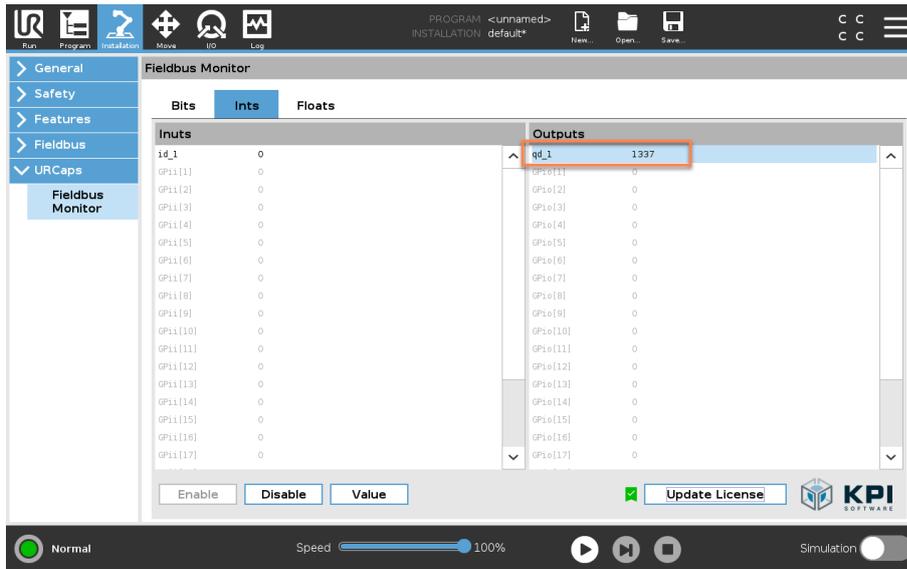


Figure 20: Integer output set

3.5 Float, Floating point numbers

Here you will find an overview of the current status of the float signals on the fieldbus interface. The current numerical value for the input /outputs is displayed accordingly (1). If a variable name has not yet been assigned for this signal, the signal is grayed out (2).

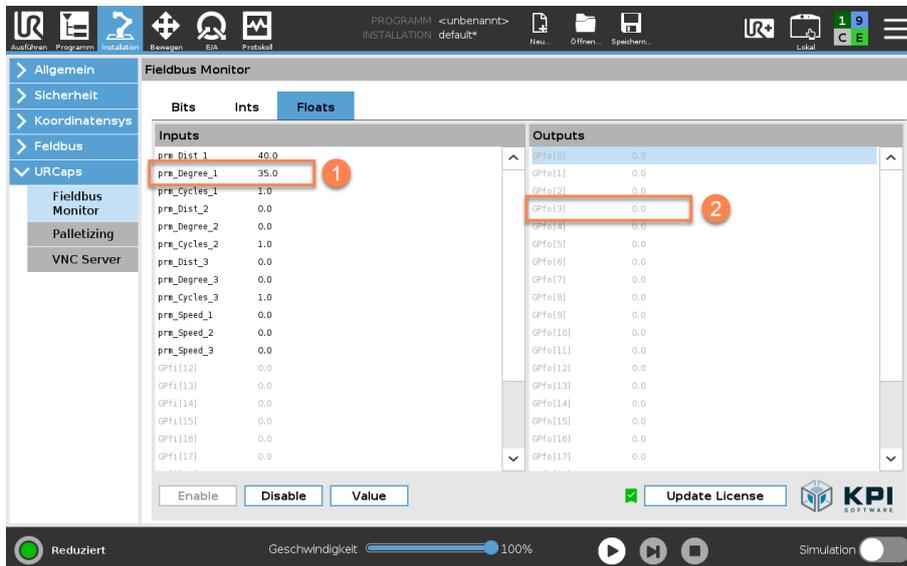


Figure 21: Overview Float

Set float outputs

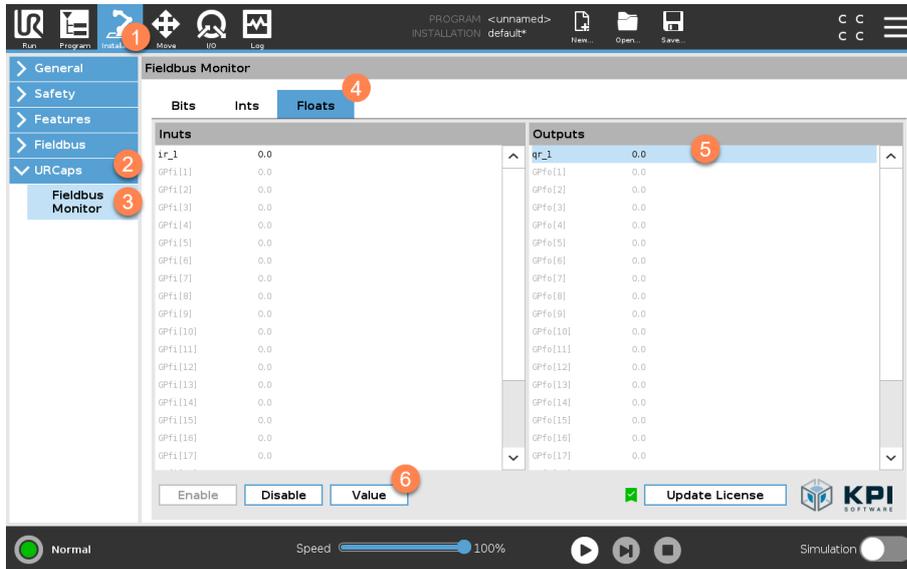


Figure 22: Set float outputs

1. Open the installation page under Installation
2. -> URCaps
3. -> Fieldbus Monitor
4. Switch to the Floats tab
5. Mark the desired output in the output area
6. Press the "Value" button

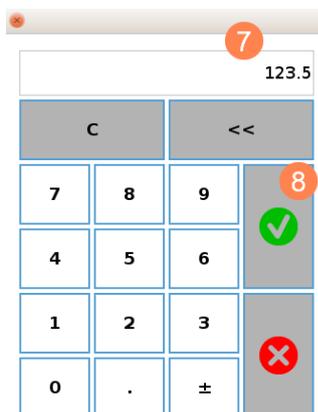


Figure 23: Enter the integer value

7. Enter the desired value
8. Confirm your entry

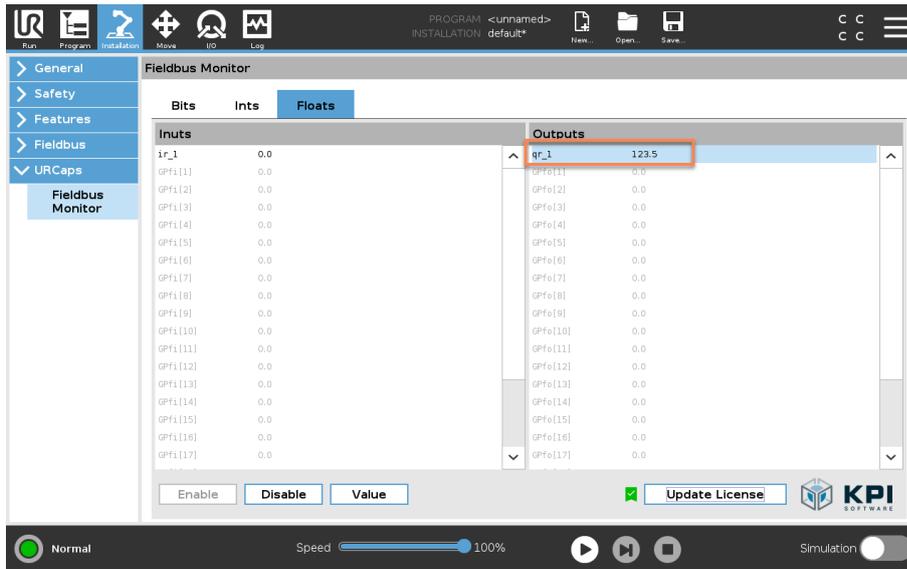


Figure 24: Float output set

3.6 Digital, Robot inputs and outputs

Here you will find an overview of the current status of the digital robot inputs and outputs. In the upper block (1) you will find the controller IOs and in the lower block (2) the tool IOs. The outputs are set in the same way as the Boolean outputs (see Section 3.3.1).

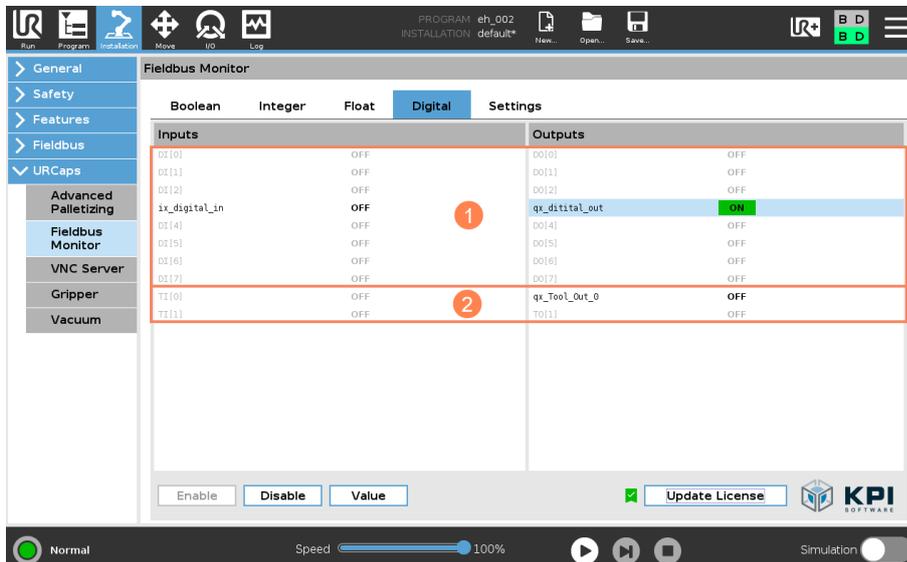


Figure 25: Digital Robot IOs

3.7 Settings

Here you can set whether outputs can be set in the toolbar. If the check mark is not set, no outputs can be set in the toolbar

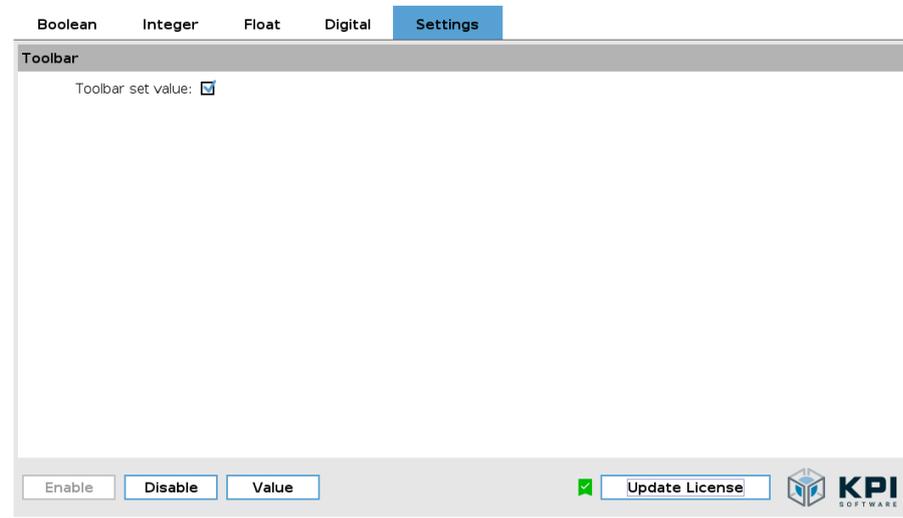


Figure 26: Settings

3.8 Activate / deactivate URCap

The field bus signals are determined with the RTDE interface of the UR robot. In order to rule out complications with other URCaps, the URCap can be completely deactivated.

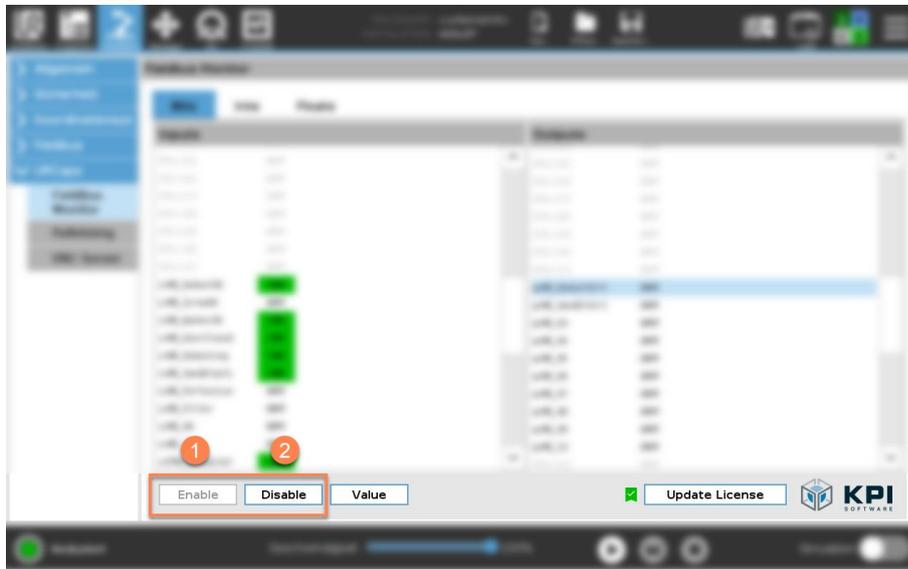


Figure 27: URCap is activated

3.8.1 Activate

1. Open the installation page under Installation-> URCaps-> Fieldbus Monitor
2. Check whether the URCap is already activated (Enable button = deactivated, disable button = activated)
3. Press the Enable button (1)

3.8.2 Deactivate

4. Open the installation page under Installation-> URCaps-> Fieldbus Monitor
1. Check whether the URCap is already activated (Enable button = deactivated, disable button = activated)
2. Press the Disable button (2)

4 Toolbar

The toolbar has a similar structure to the installation page. Here you can display the status of the signals and set outputs. To display the toolbar, click the UR + symbol and select Fieldbus Monitor. Only inputs / outputs that have been named by you are displayed (see Chapter 5).

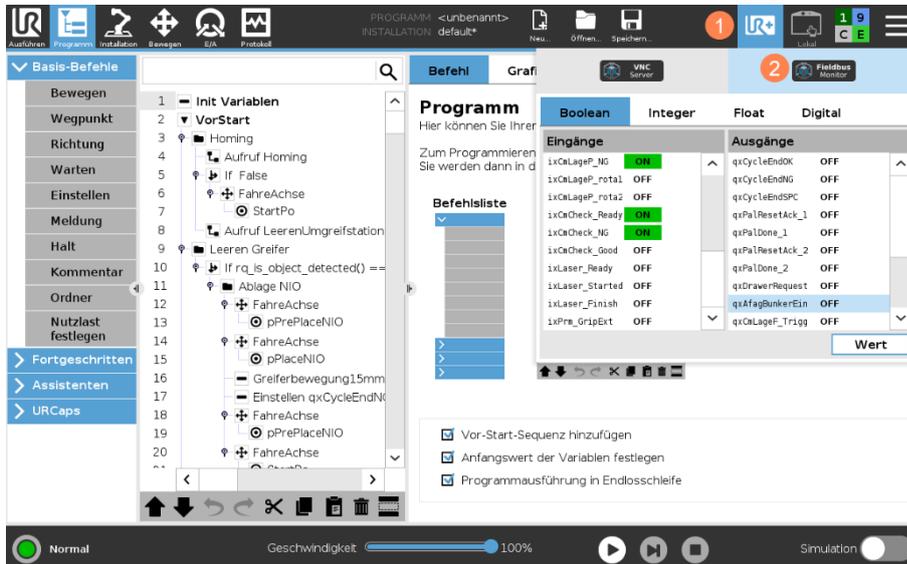


Figure 28: Open Toolbar

4.1 Set outputs

First you have to tick the box in the settings (see chapter 3.7). You can then mark the output and click on Value to change the status of the output.

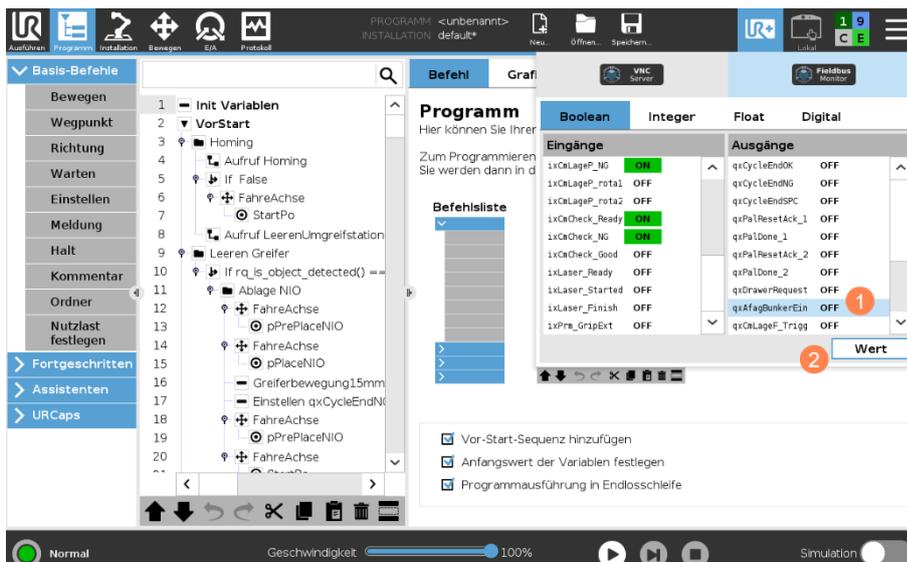


Figure 29: Set output

5 Rename fieldbus signals

The following describes how the fieldbus signals can be renamed. The Boolean registers (bits) are used below as an example. The procedure described can, however, be used analogously for the integer registers (Ints) and float registers (Floats).

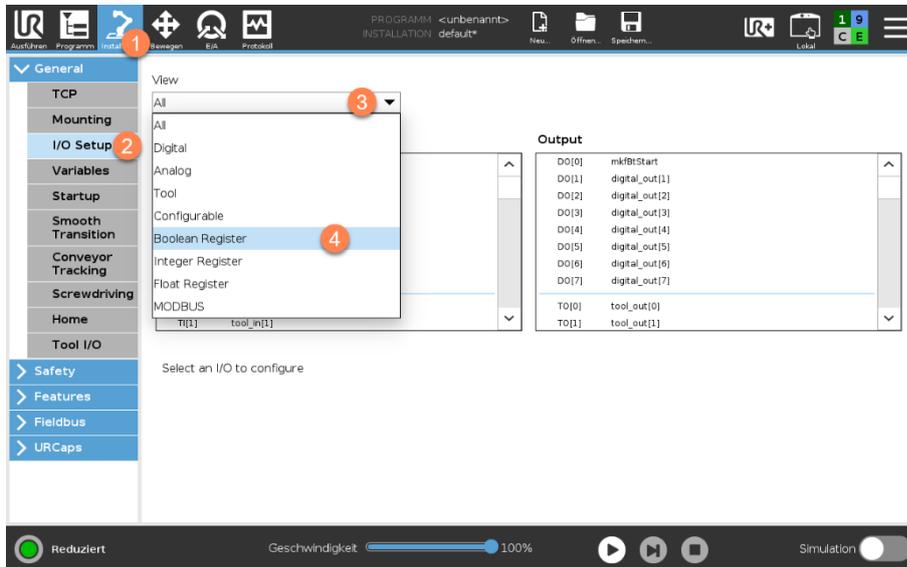


Figure 30: Rename fieldbus signals

1. Open the installation page for the I/O Setup under Installation-> General
2. -> I/O Setup
3. Click the drop-down menu
4. Select the required input / output source from the list (Boolean register = bits on the fieldbus interface)

Rename fieldbus signals

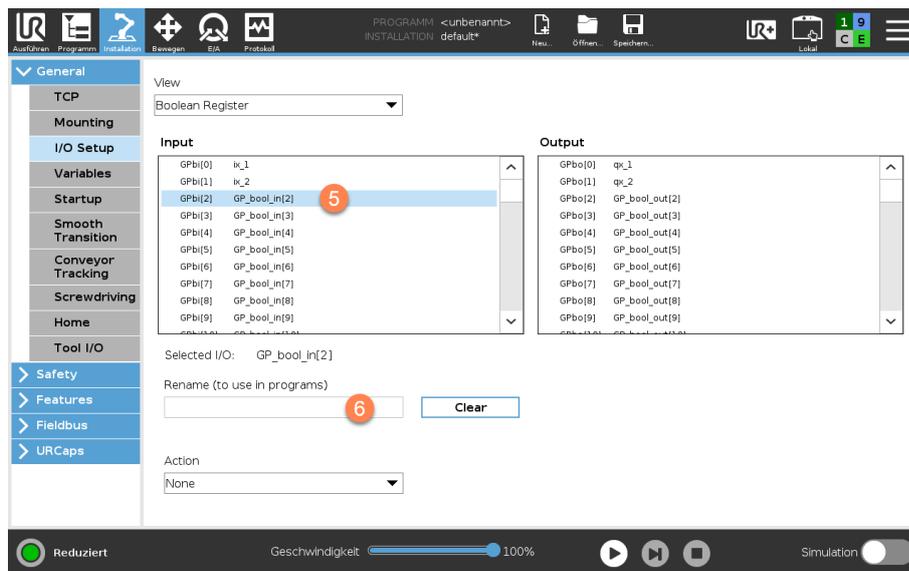


Figure 31: Activate the Rename field

5. Select the input/output to be named from the list
6. Click in the Rename field



Figure 32: Enter name

7. Assign a unique name
8. Confirm your entry

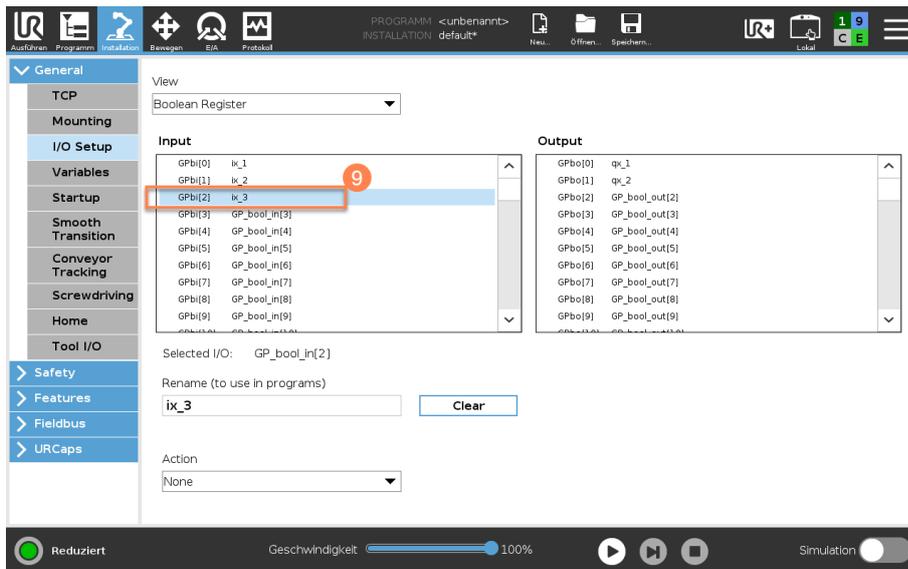


Figure 33: Renamed fieldbus signal

9. Check that the input/output has been correctly named.

6 Directories

6.1 List of figures

Figure 1: Home screen	5
Figure 2: Select Settings.....	5
Figure 3: Add URCap.....	6
Figure 4: Select URCap on USB stick	6
Figure 5: Restart the robot.....	7
Figure 6: URCap is installed	7
Figure 7: Select URCap.....	8
Figure 8: Installation Node.....	9
Figure 9: Generator-String	10
Figure 10: Enter license key.....	10
Figure 11: Successful licensing.....	10
Figure 12: Successful licensing.....	10
Figure 12: Overview.....	11
Figure 13: Overview Boolean	12
Figure 14: Set bit outputs	12
Figure 15: Bit output set.....	13
Figure 16: Overview Integer	13
Figure 17: Set integer outputs	14
Figure 18: Enter the integer value	14
Figure 19: Integer output set.....	15
Figure 20: Overview Float	15
Figure 21: Set float outputs	16
Figure 22: Enter the integer value	16
Figure 23: Float output set.....	17
Figure 24: Digital Robot IOs.....	17
Figure 25: Settings.....	18
Figure 26: URCap is activated	19
Figure 27: Open Toolbar	20
Figure 28: Set output	20
Figure 29: Rename fieldbus signals	21
Figure 30: Activate the Rename field.....	22
Figure 31: Enter name	22
Figure 32: Renamed fieldbus signal.....	23