

TEACHRING

by Obermeier Systems



Teachring (TR)



Teachring external cable (TRex)

User manual

1 Introduction

The Teaching by Obermeier Systems helps you to program your Universal Robot easily, quickly and precisely. It has two buttons, one to enable Freedrive and a second one to save waypoints in your robot program via a URCap.

This operating manual describes the installation, initial setup and operation of the Teaching.

2 Technical data

Serial number:	TR3/TR3ex	TR5/TR5ex	TR10/TR10ex, TR16/TR16ex
Suitable for UR model:	UR3e	UR5e	UR10e, UR16e
Size (h x l x w):	25mm x 88mm x 85mm	25mm x 110mm x 95mm	25mm x 120mm x 110mm
Weight:	45 g	50 g	60 g
Material:	Acrylnitril-Styrol-Acrylat (ASA) mechanically and thermally highly resilient		
Color:	black		

3 Safety instructions

Intended use

The Teaching is intended to be mounted on a robot arm. It is a tool which enables the user to move a robot precisely in Freedrive and save waypoints quickly and easily in a robot program via a URCap. Any other use is considered to be improper, e.g. if the Teaching is used for pushing work pieces. The manufacturer is not liable for any damages resulting from this improper use. Do not open, manipulate or disassemble the Teaching! Please be aware that in this case the Teaching will be out of warranty.

Environmental and operating conditions

The Teaching may only be used in an environment that is clean, at ambient temperature, free from splash water and vapors, as well as from abrasion or processing dust.

Personnel qualification

The assembly and use of the Teaching may be performed by trained specialists. Every person to work on the Teaching must have read and understood the complete operating manual.

4 Warranty

The warranty is valid for 24 months from the ex-works delivery date in accordance with the intended use and in the described environment. The Teaching is considered to be defective, if its basic functions – activating Freedrive and saving waypoints – are no longer given.

5 Scope of delivery

The following components are included in the Teachinging package:

- Teachinging according to the chosen model variant
- USB flash drive with URCap Plugin and additional documentation
- This user manual

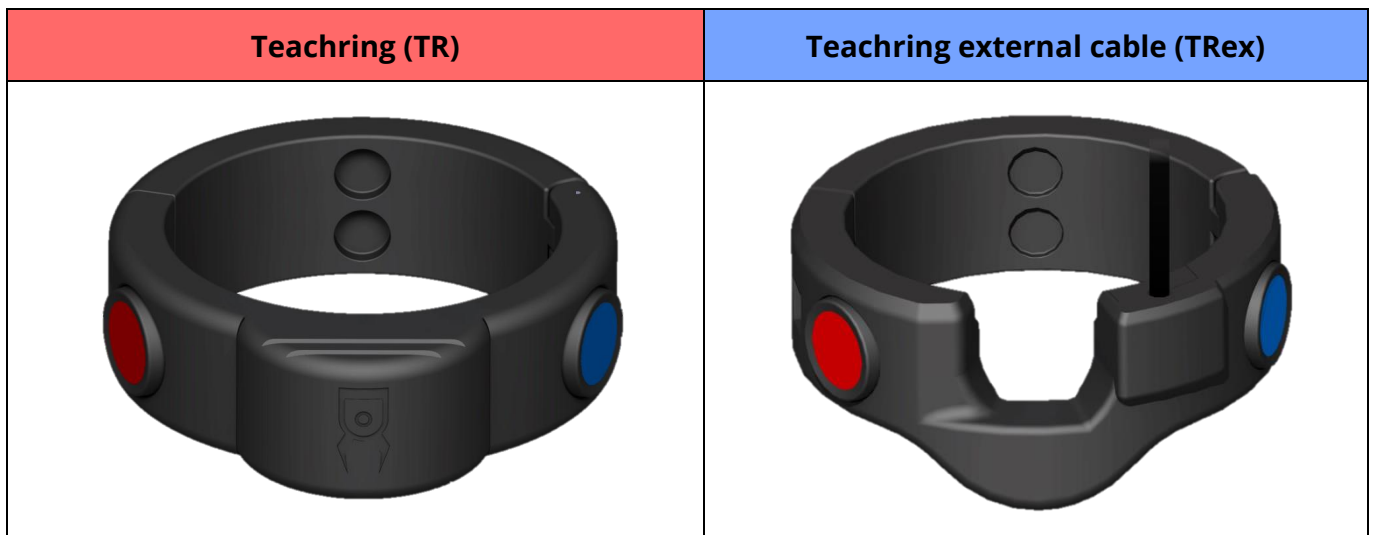
System requirements

The Teachinging is compatible with the e-Series robot models of Universal Robots. The following minimum hardware and software requirements apply to the operation:

Universal Robots e-Series: Software: 5.9.0 or newer

Teachinging URCap: Teachinging-2.1.X.XX.urcap

Attention: This user manual describes the use of both Teachinging variants. Follow the red or blue steps according to your variant.



6 Installation

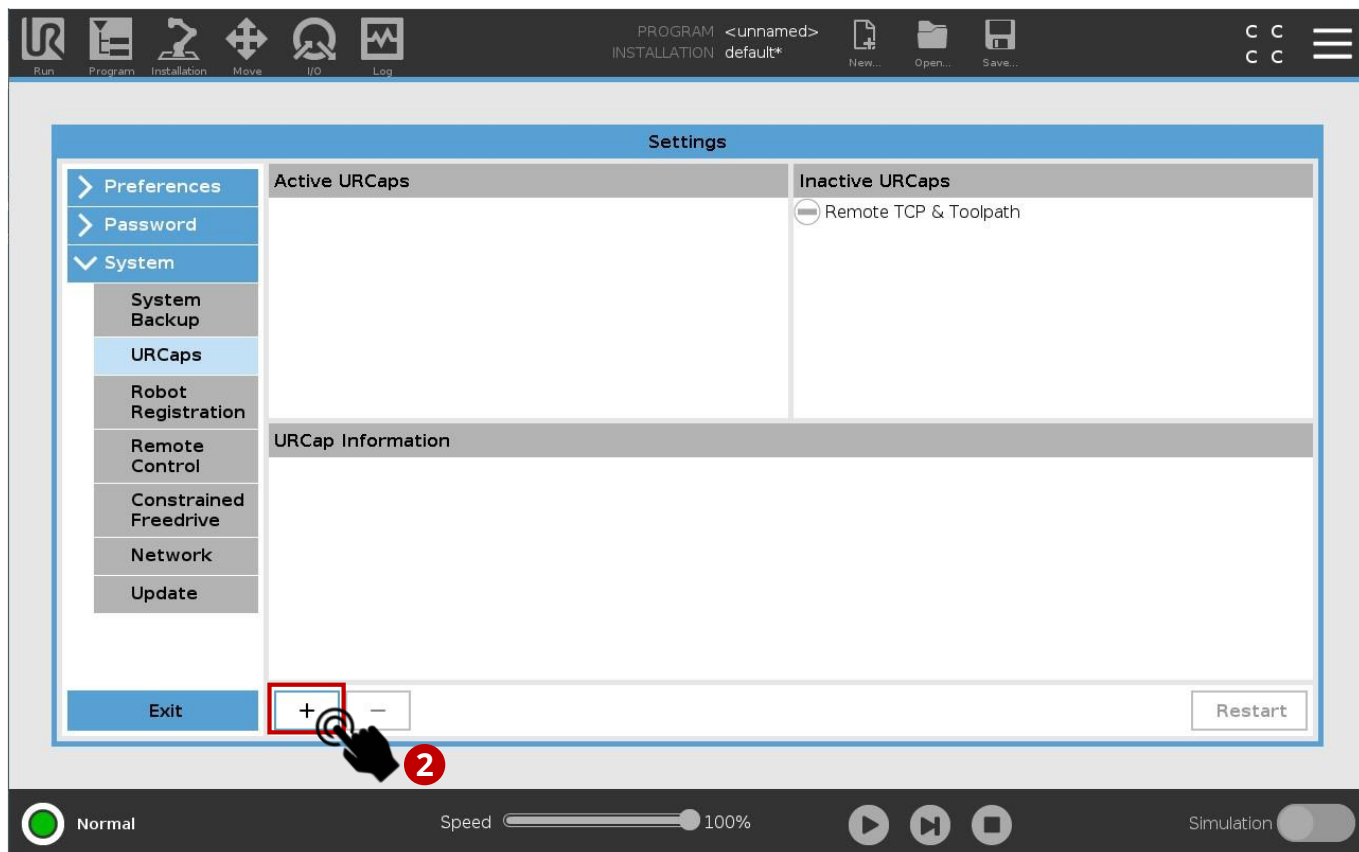
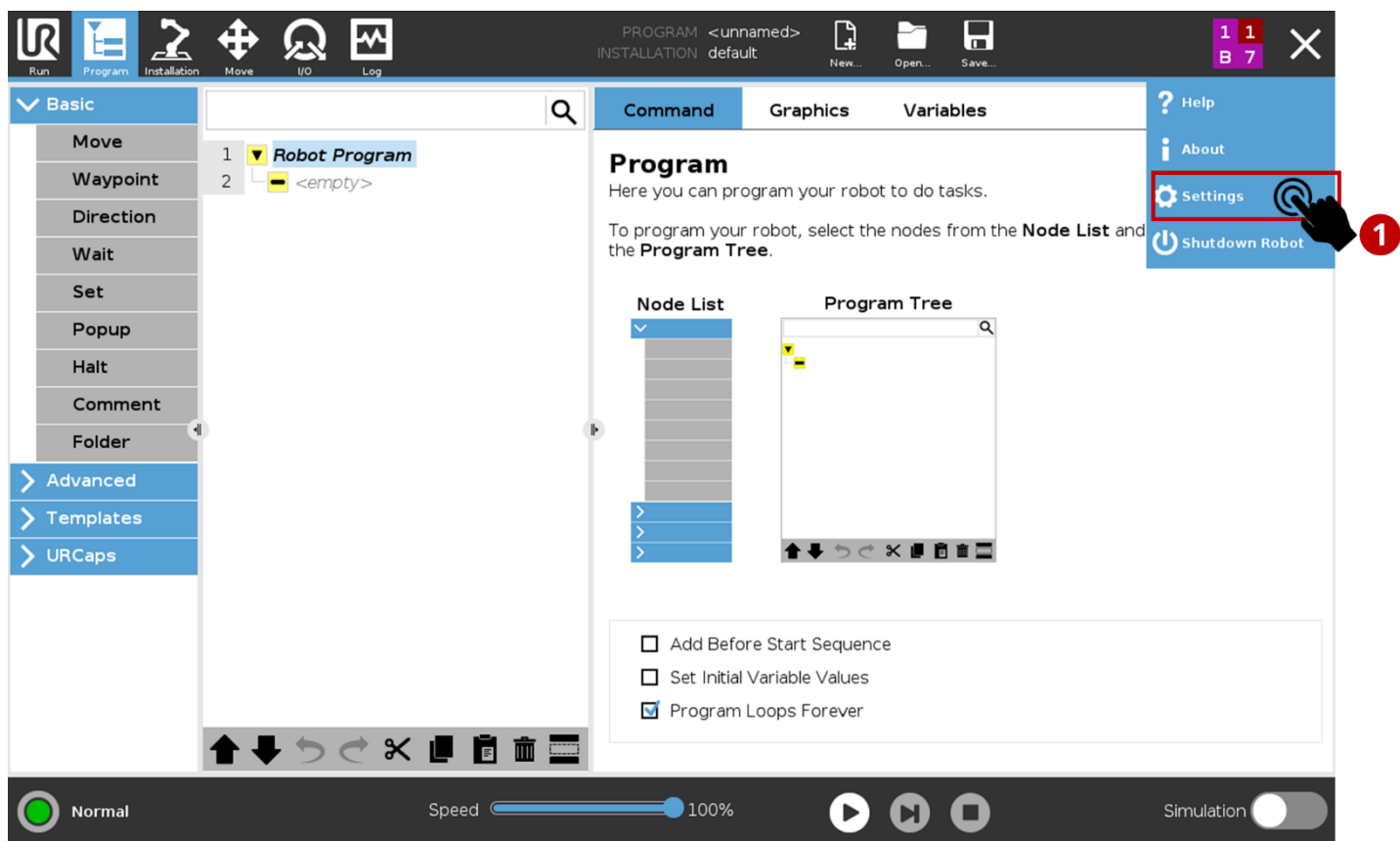
Mechanical & Electrical installation

Attention: Only work on the robot when it is switched off!

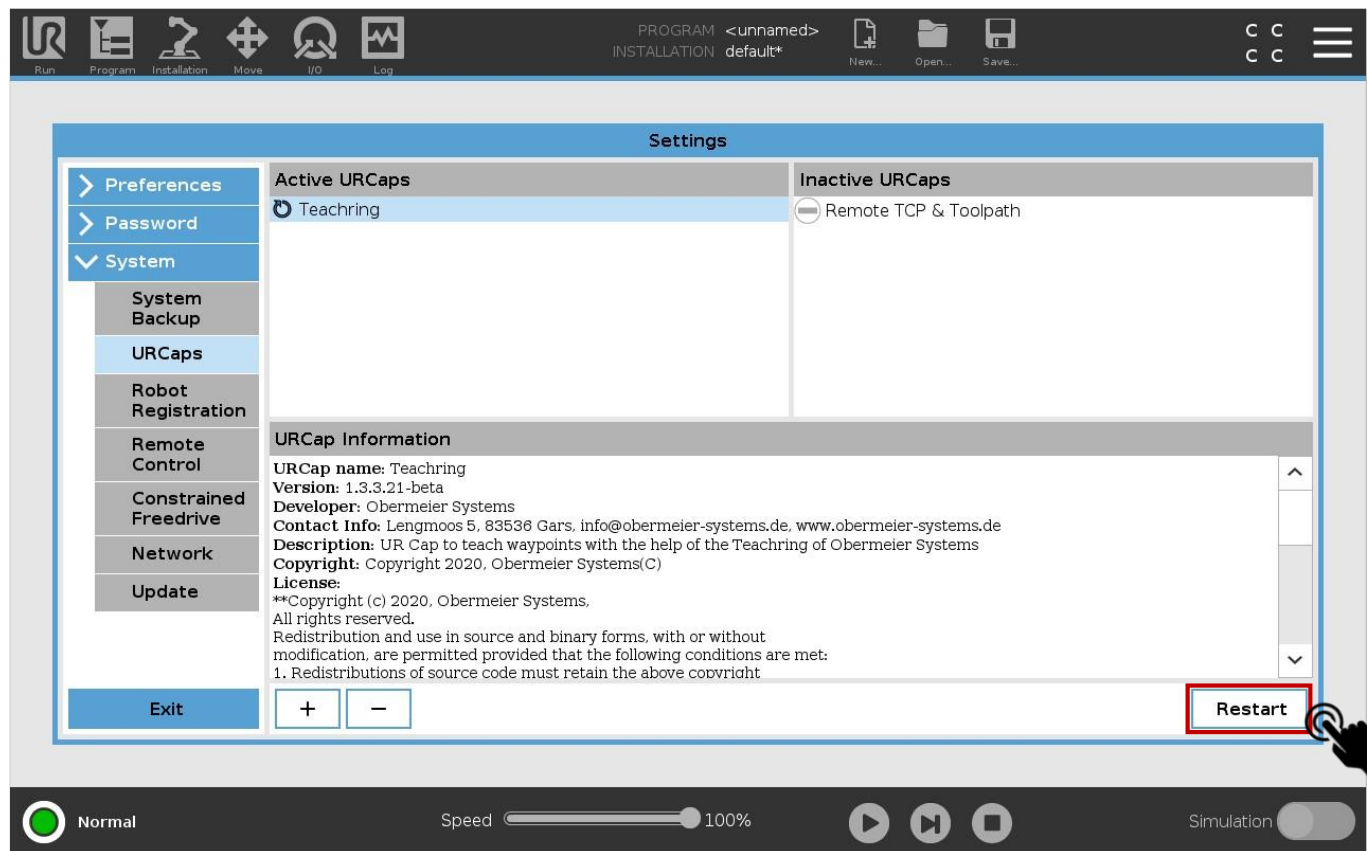
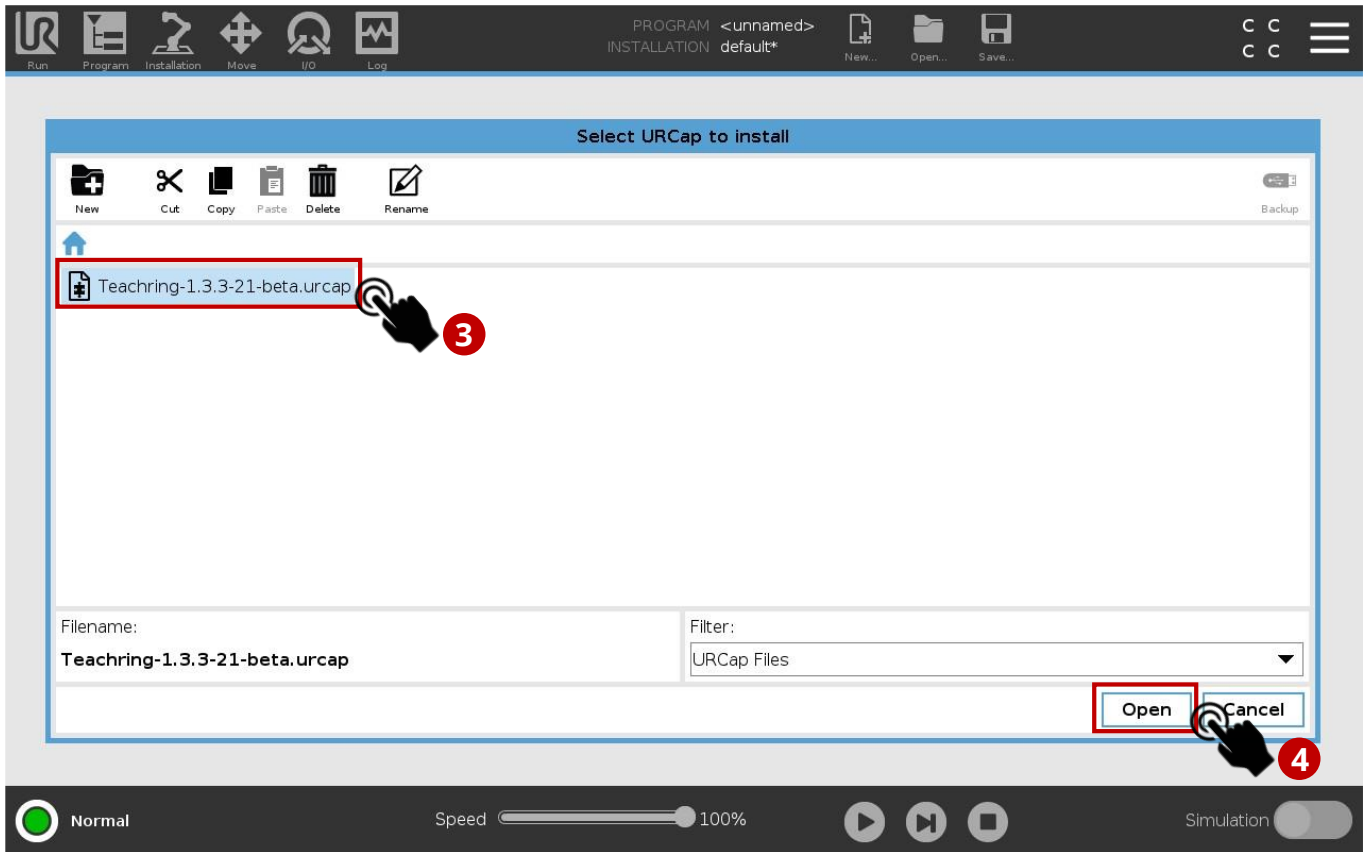
Description	Teachring	Teachring external cable
<p>Remove the cover cap of the Lumberg connector at the tool flange.</p>		<p>Step not needed.</p>
<p>Use a screwdriver to open the hinge of the Teachring.</p>		
<p>Mount the Teachring on the robot. Make sure the Teachring is oriented correctly.</p>		
<p>Close the hinge of the Teachring.</p>		
<p>Connect the cable to the "digital inputs" of your robot. You can choose which digital input you want to use and assign them in the URCap later.</p>	<p>Step not needed.</p>	

Software Installation

The product Teaching consists of Hard- and Software. The Software – named URcap – is located on the enclosed USB flash drive and must be installed manually. Therefore, insert the USB stick into the teach pendant and carry out the following steps:

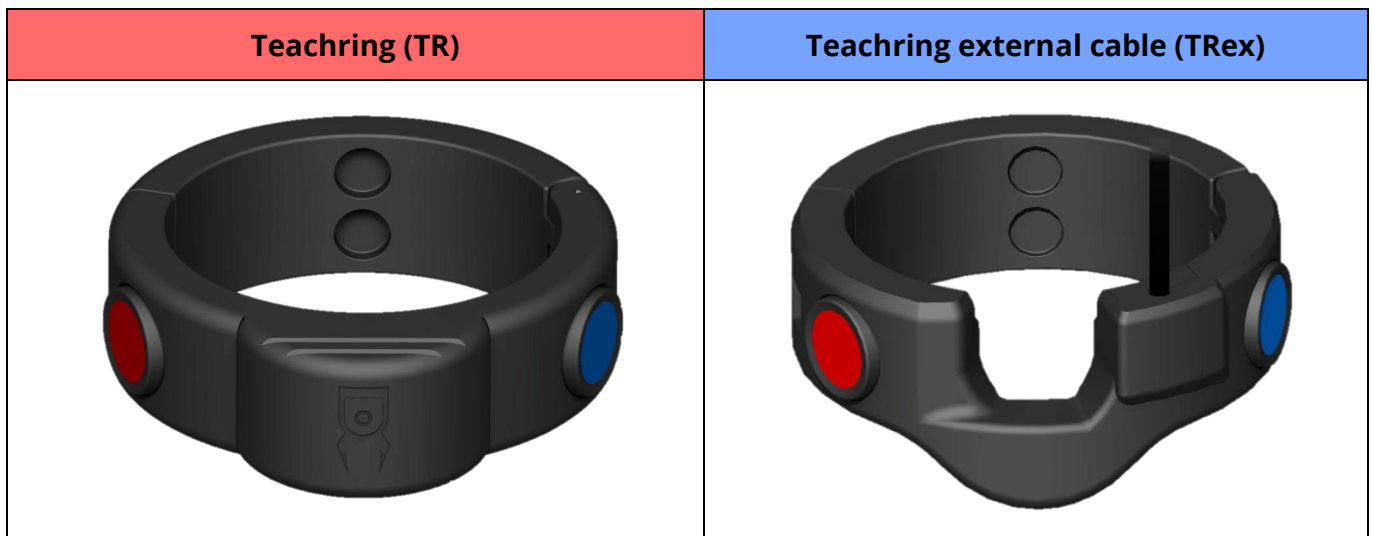


⇒ Navigate to USB flash drive and open the file “Teaching-2.1.X-XX.urcap”.

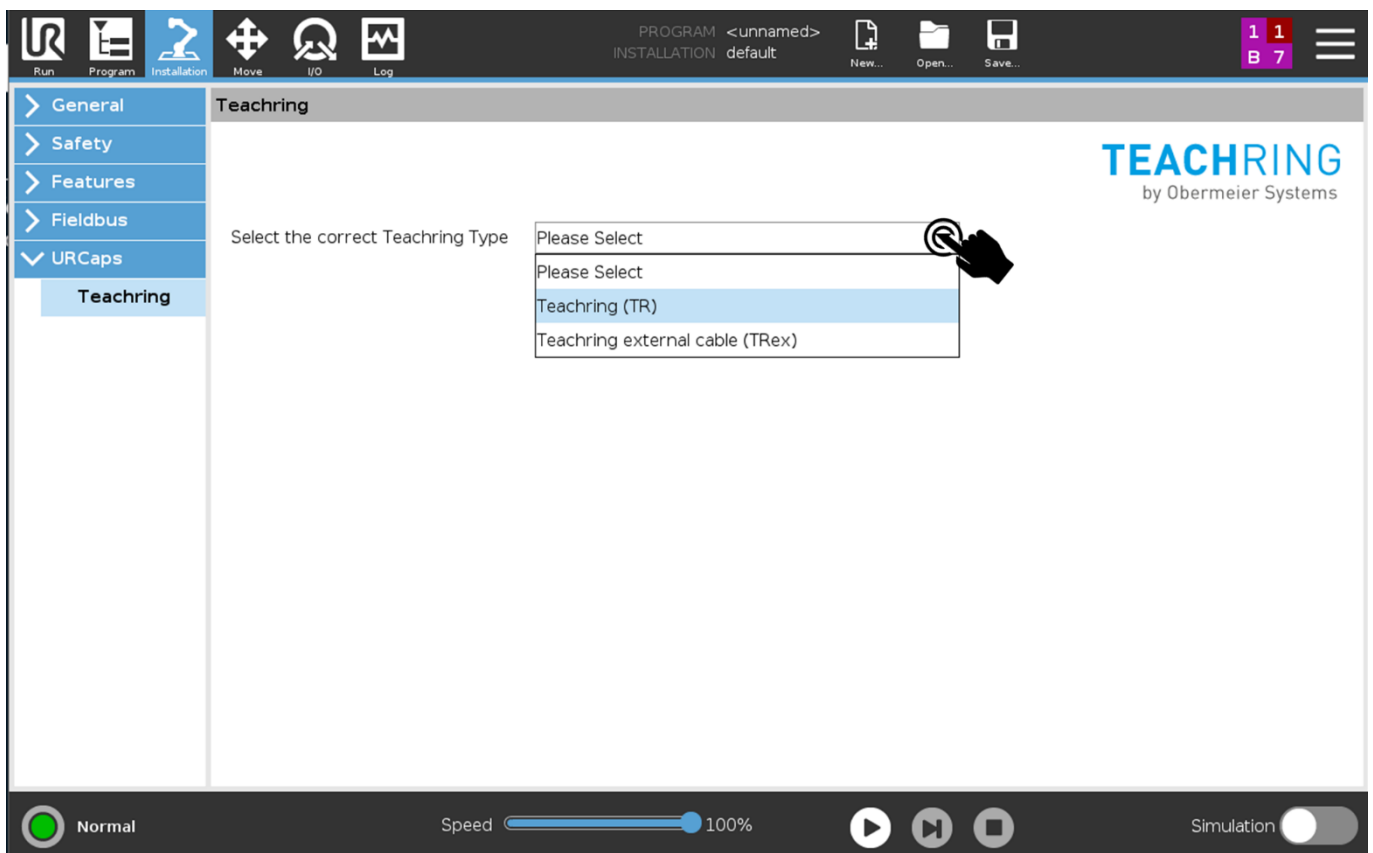


7 Use of the Teaching

Attention: This chapter describes the use of both Teaching variants. Follow the red or blue steps according to your variant.

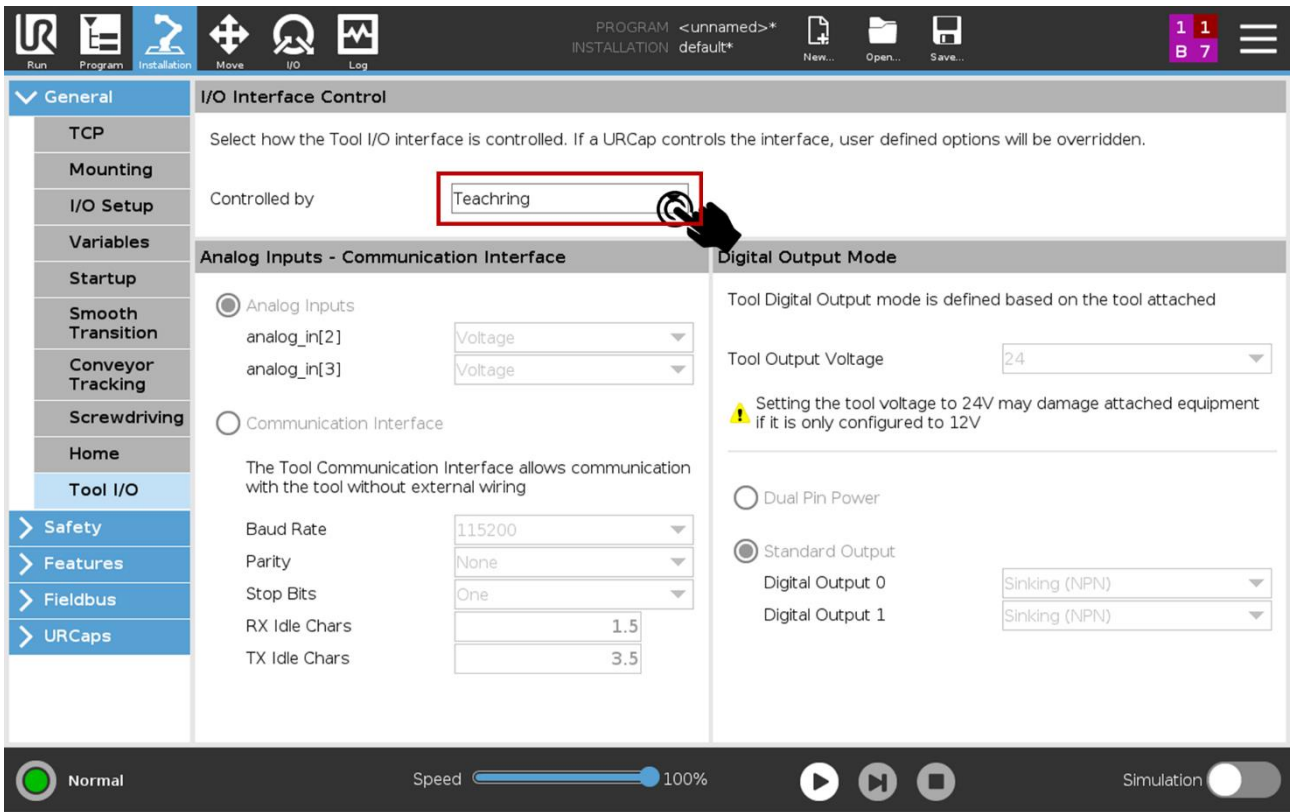


First of all, please choose the Teaching model you are using. Therefore, navigate to "Installation"/"URCaps"/"Teaching".

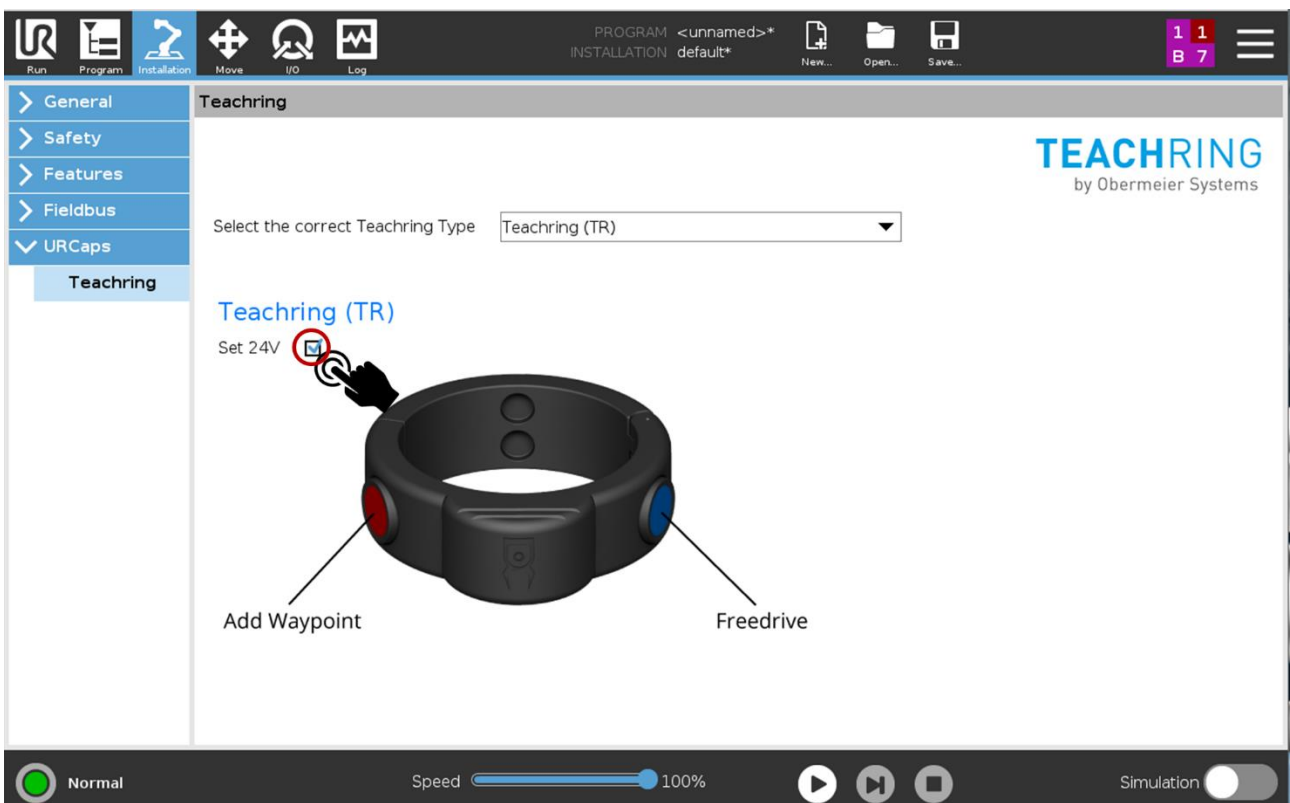


Teachring

Please assign control to the I/O Interface to the Teachring URCap. Therefore, go to "Installation"/"General"/Tool I/O"

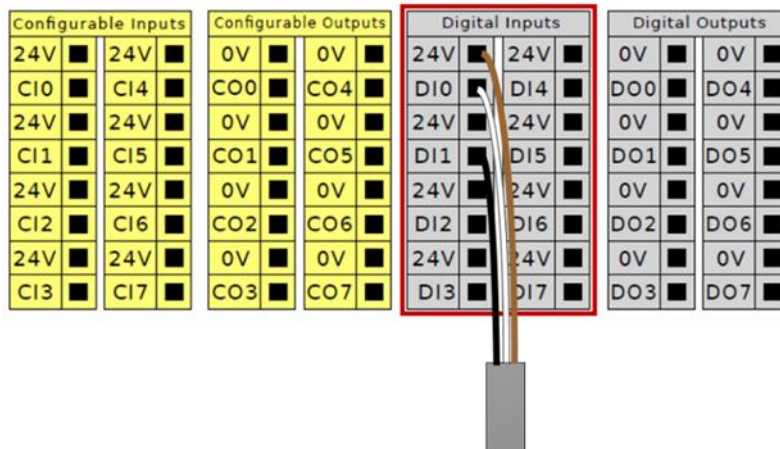


Go back to "Installation"/"URCaps"/"Teachring" and enable the checkbox "Set 24V".



Teaching external cable

In case you are using the Teaching with external cable, please connect the cable to the "Digital Inputs" of your robot according to the picture below:



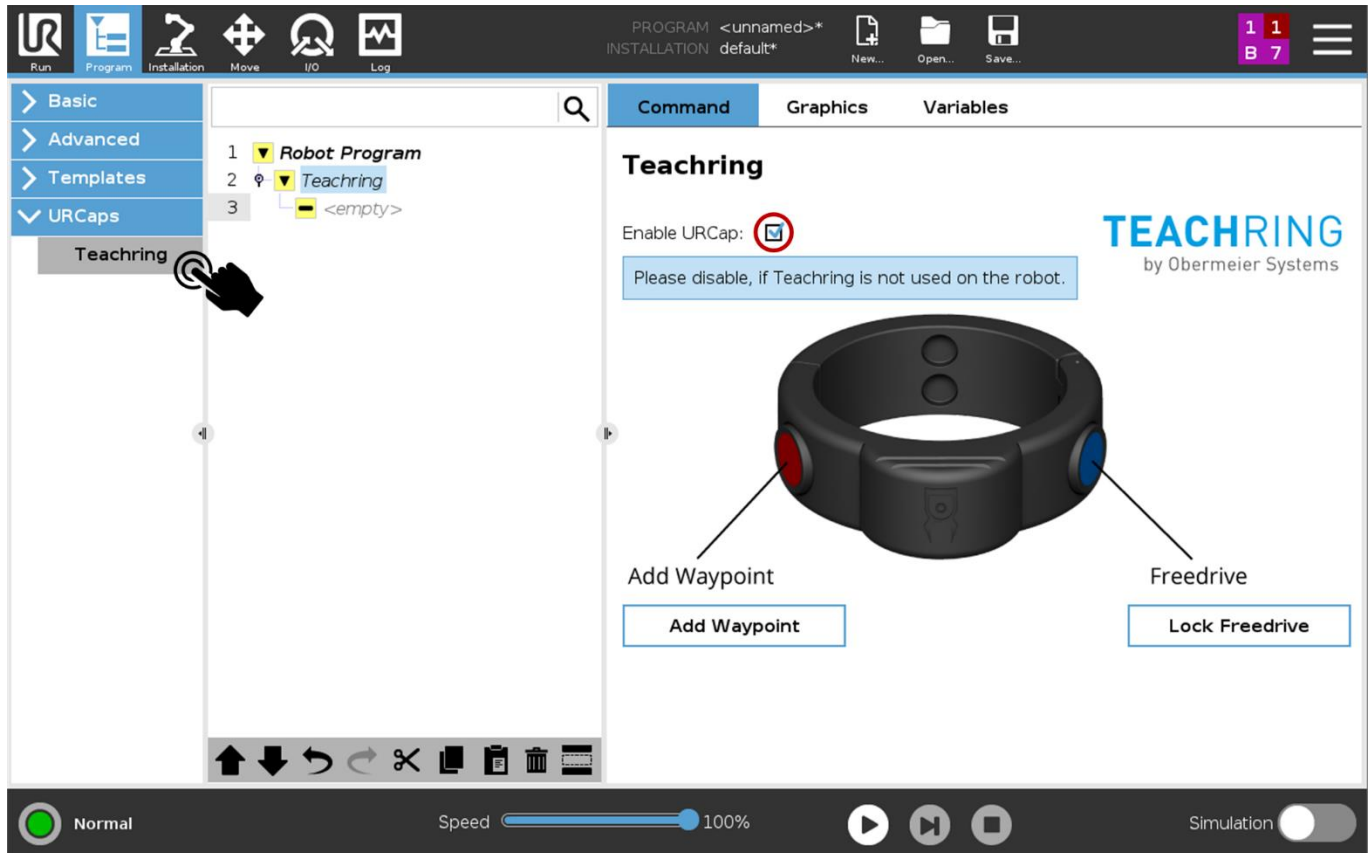
Attention: You can freely choose which digital inputs you use, but you must assign them correctly in the URCap.

To assign the digital inputs got to: "Installation"/URCaps/"Teaching-ex".

The screenshot shows the 'Teaching' configuration screen in the URCap interface. The 'Teaching Type' is set to 'Teaching external cable (TRex)'. Below this, the 'Add Waypoint' input signal is set to 'Digital Input 0' and the 'Freedrive' input signal is set to 'Digital Input 1'. A 3D model of the teaching pendant is shown with labels for 'Add Waypoint' (red button) and 'Freedrive' (blue button). The interface includes a sidebar with navigation options (General, Safety, Features, Fieldbus, URCaps) and a bottom status bar with 'Normal' mode, a speed slider at 100%, and a simulation toggle.

8 Teaching and adding Waypoints

Open a new program and navigate to "Program"/"URCaps"/"Teaching"



A new program node "Teaching" will be inserted in your program. Enable the URcap via the checkbox. To use the Teaching the URcap must always be enabled.

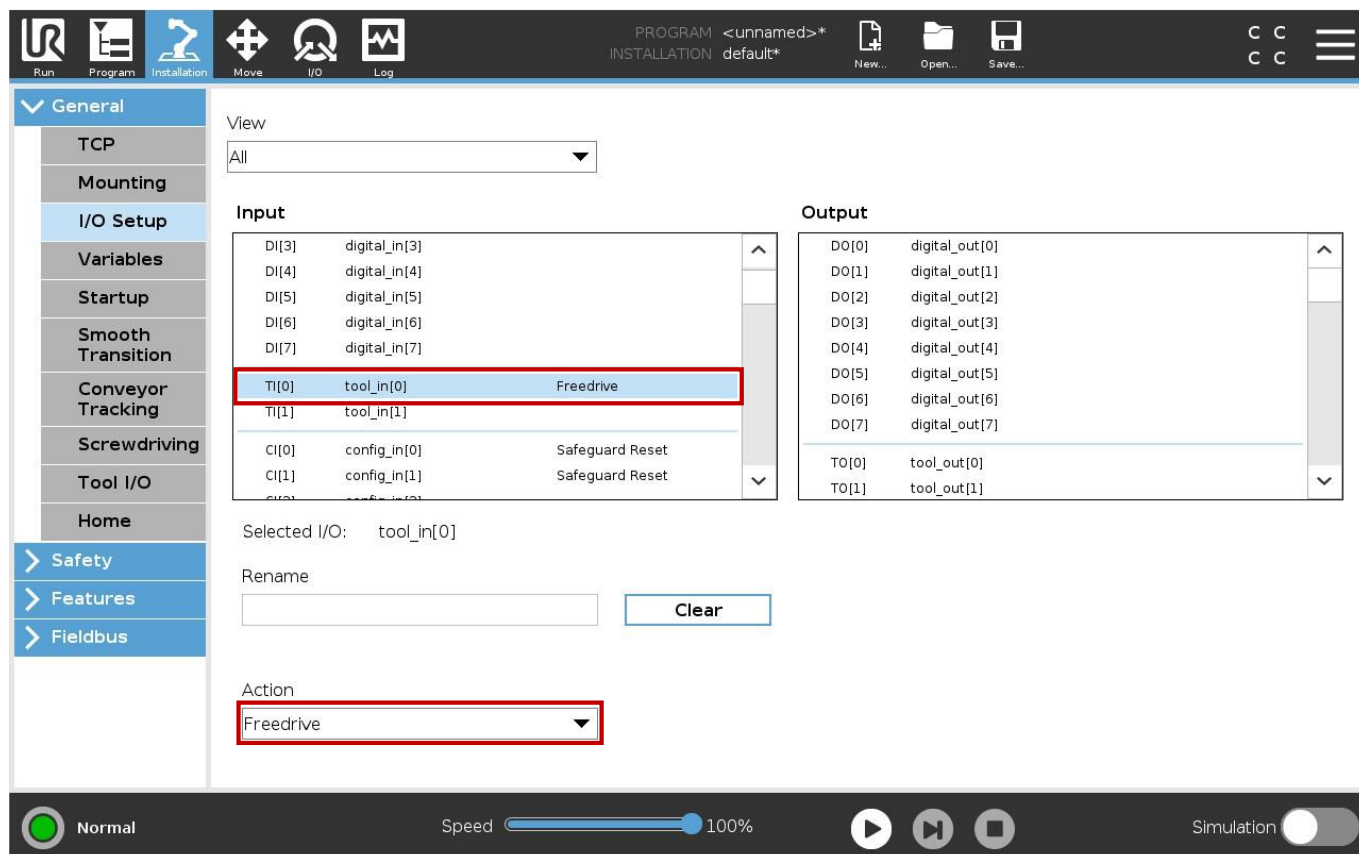
Attention: Please disable the URcap, if the Teaching is not used on the robot! Otherwise, tool I/O signals could lead to malfunctioning!

By pressing the blue button on the Teaching, the robot changes into "Freedrive"-mode and can be moved to a desired position by hand. By pressing the red button, the current position of the robot is automatically added as a new waypoint to the current robot program. The button "Lock Freedrive" should only be used, if the robot's payload is set correctly. If not, the robot could "fall down" or "swing up" and cause damage!

Attention: The programmer must take caution on where waypoints are taught to avoid a collision of the robot!

Optional Step: By default, the blue button activates Freedrive only when the URcap is open. To use the Freedrive button permanently (without having the URcap open/on screen), assign "Freedrive" to the

tool_in[0] (Teachring) or the digital inputs you have chosen (Teachring external cable) via the I/O Setup (see below).



9 Uninstalling

To uninstall the Teachring from your robot, follow chapter 6 “Installation” in reverse order. Use a screwdriver to open the hinge of the Teachring. To uninstall the URCap, follow the instructions in the operating manual of the robot.

10 Disorder

In case of any disorder of the Teachring, please contact: contact@obermeier-systems.de

11 Manufacturer and Distributor

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