





OPERATING INSTRUCTIONS

Comfort App

for Universal Robots DIO/Analog DDOC01738

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!
- \Rightarrow 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!
- \Rightarrow 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.



 \Rightarrow 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



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 Comfort App enables you to control digital IO grippers connected at the tool connection using predefined program nodes. It also gives you the option of manual operation and teaching the workpiece position.

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 generated robot tasks simplify the use of Zimmer GmbH grippers in the customer program and reduce the development time.

The names of the newly configured robot jobs remain unchanged. This means that the basic program does not have to be modified for configuration changes.

6 Accessories/scope of delivery

INFORMATION

If any accessories no guaranteed. Zimmer For optional acce

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 Settings.



ZİM

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



Filter

100%

000

URCap Files

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



Open Cancel

Filename

Power of

zimmerDigital-1.1.3.urcap



Press the Restart button to activate the firmware.

App has been installed correctly. ⇒ The Comfort App has been installed

correctly if the green checkmark is displayed in the Active URCaps area.

⇒ The robot control panel performs a restart.



Normal

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 User option.
- ► Activate the Analog Inputs option field.
 - Select *Voltage* in the drop-down menu.
- ► Activate the *Digital Outputs* option field.
 - Select Sinking (PNP) in the drop-down menu for all Match grippers.
 - Select Sinking (NPN) in the drop-down menu for the HRC series.
 - ► In the *Tool Output Voltage* drop-down menu, select the 24 option.
- Settings can only be made via the Comfort App.
- ► Install the gripper to the robot.
- Switch the robot on.

8.1 Activate Freedrive

- Press Installation in the menu bar.
- ▶ In the General menu, press I/O Setup.
- ▶ Press *TI[0]* in the *Input* window.
- Enter ZimmerFreedrive in the Rename window for TI[0].

⊕ ∅ ↔ C -R Ě= <unnar default* I/O Interface Control TCP Select how the Tool I/O interface is controlled. If a URCap controls the interface, user defined options will be overridden Payload User • Controlled by Mounting I/O Setup Analog Inputs - Com ation Interface Digital Output Mode Tool I/O Analog Inputs Tool Digital Output mode is defined based on the tool attached Variables analog_in[2] Voltage Startup Tool Output Voltage 24 • analog in[3] Voltage Smooth Transition Setting the tool voltage to 24V may damage attached equipment if it is only configured to 12V Home The Tool Communication Interface allows communication with the tool without external wiring Conveyor Tracking O Dual Pin Power Screwdrivi Baud Rate O Standard Output Parity Digital Output 0 Sinking (NPN) • Stop Bits Digital Output 1 Sinking (NPN) • RX Idle Chars TX Idle Chars URCaps

TCP	All		T				
Payload							
Mounting	Input				Output		
I/O Setup	DI[0]	digital_in[0]		^	D0[0]	digital_out[0]	-
	DI[1]	digital_in[1]			D0[1]	digital_out[1]	
Tool I/O	DI[2]	digital_in[2]			D0[2]	digital_out[2]	
Variables	DI[3]	digital_in[3]			DO[3]	digital_out[3]	
Chauthau	DI[4]	digital_in(4)			DU[4]	digital_out[4]	
Startup	DI[5]	digital_in(5)			DO(S)	ZI_WP1 Zi_WP3	
Smooth Transition	DI[7]	digital_in[7]			D0[7]	digital_out[7]	
Home	TI[0]	ZimmerFreedrive	Freedrive		тојој	tool_out[0]	
Conveyor Tracking	TI[1] Selected	tool_in[1]		*	T0[1]	tool_out[1]	
Screwdriving	Banama	,,o					
Safety	Zimme	rFreedrive		Clear			
Features							
Fieldbus	Action						
URCaps	Freedrive	9	•				

8.2 Creating a gripper configuration

▶ In the URCaps menu, press Zimmer.



▶ D D Simulation



8.2.1 Selecting the gripping direction

Outside gripping



► Select the gripping direction.

Inside gripping







8.2.2 Manual control



The prerequisite for the function test is that the robot and robot module are connected and that the robot, robot module and gripper are switched on.

You can test and operate the function of the gripper and view its status in the lower area of the screen.

- Press the Grip button to set the voltage for gripping the workpiece.
- Press the *Release* button to open the gripper and/or release the gripped workpiece.
- Move the bar to the desired value to set the voltage in V.
- Press the and + buttons to set the tolerance.
- Press the Set Workpiece button to save the settings.

Run Program Installation		PROGRAM INSTALLATION	<unnamed> default*</unnamed>	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Save	IR•	$\stackrel{\rm cccc}{\equiv}$
🔪 General	Zimmer						
> Safety							
> Features	Tool Gripper: Mar	nual control				ZIMN	1ER
> Fieldbus							group
✔ URCaps							
Zimmer							
		Grip			Re	elease	
			I				
	Set Workpiece	ov		0.0)2V		10V
	Stored workpiec	e: <u>i</u> not set		tolerar	nce: -	±0.30V +	
	IsClosed	IsReleased	•	IsGripped		 OnUndefined 	Pos
	back						next
Normal			Speed 100%	-	D	C O Simu	lation

Click the *next* button.

8.2.3 Saving the gripper configuration

NOTICE

The settings are temporary.

- Save the settings to the installation file.
- ► In the prompt, press the Save All or Save Installation As button.
- \Rightarrow The gripper configuration has been stored.
- ▶ In the prompt, click the *Ok* button.
- \Rightarrow The gripper configuration is complete.
- The function blocks/subprograms have been created and are available for programming.





8.3 URCaps

Program nodes can be set in the URCaps menu item.

▶ Press *Program* in the menu bar.

Activate the desired checkboxes.

► In the URCaps menu, press Zimmer.

8.3.1 URCaps Zimmer

In the Command drop-down menu, select the robot job that you want to define for the gripper.





9 Operation

9.1 Control principle of the gripper

- ► Grip (Z_Grip) or release (Z_Release) the workpiece.
- ► Check the position of the gripper jaw (Z_IsOnTeachPos, Z_IsOpened, Z_IsClosed or Z_IsOnUndefPos).

10 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.
- \Rightarrow Uninstallation is complete.
- Press the *Restart* button to activate the firmware.
- \Rightarrow The robot control panel performs a restart.

Settings								
Preferences	Active URCaps	Inactive URCaps						
Password	Z_Gripper_C	Remote TCP						
' System								
System Backup								
URCaps								
Robot Registration								
Remote	URCap Information							
Control	URCap name: Z_Gripper_C Version: 1.1.3	^						
Network	Developer: Zimmer Group							
Update	Description: ZimmerGripperDigral URCap is Copyright: Copyright (C) 2019-2020 Zimmer License: Example:	a URCAP for controlling the Zimmer Digital URCap Group. All Rights Reserved						
	All rights reserved.							
	Redistribution and use in source and binary for	rms. with or without	~					
Exit	+ -		Restart					

11 Error diagnosis

INFORMATION



Please contact Customer Service if you have any questions.