MATCH

INSTALLATION AND OPERATING INSTRUCTIONS

MATCH robot module

LWR50F-01-03-A
LWR50F-09-03-A

DDOC01360

THE KNOW-HOW FACTORY

ZIMMER group

Content

DDOC01360 / b EN / 2024-02-12

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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 Safety notices

CAUTION

Risk of injury and material damage in case of non-compliance

Installation, commissioning, maintenance and repairs may only be performed by qualified specialists in accordance with these installation and operating instructions.

The product is state-of-the-art.

The following are examples of situations in which the product may cause a hazard:

- The product is not properly installed, used or maintained.
- The product is not used for its designated purpose.
- The locally applicable regulations, laws, directives or guidelines are not observed.

► The product may only be used in accordance with these installation and operating instructions and the product's technical data. Any changes or additions to the intended use of the product, as well as modifications to the product, such as those in the following examples, require the written permission of the manufacturer:

- Use of the product under extreme conditions, such as aggressive fluids or abrasive dusts
- Additional drilled holes or threads

⇨ Zimmer GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

► Make sure that the power supply is disconnected before you mount, adjust, modify, maintain or repair the product.

► Whenever work is carried out on the product, make sure that the product cannot be actuated by mistake.

► Perform maintenance tasks, renovation work or attachment work outside of the machine's danger zone when possible.

► Do not reach into the operational range of the product.

► Observe the specified maintenance intervals and specifications regarding the quality of the operating material.

► When using the product under extreme conditions, adjust the maintenance interval according to the degree of contamination.

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CAUTION

Notes and handling regulations for electrostatically sensitive components

Electrostatically sensitive components are individual components, integrated circuits or assemblies that can be damaged by electrostatic fields or electrostatic discharge.

- ▶ When handling electrostatic components, make sure that persons, the work area and packaging are all fully grounded.
- ▶ Touch electronic components only in appropriately identified areas with conductive flooring and only if:
  - You are grounded by means of special bracelets.
  - You wear shoes that are suitable and approved for the discharge of electrostatic charges.
- ▶ Do not bring electronic assemblies into contact with plastics and parts of clothing that have plastic content.
- ▶ Store electronic assemblies on conductive underlays only.
- ▶ Do not install electronic assemblies in the vicinity of data back-up devices or monitors (monitor distance > 100 mm).
- ▶ Perform measurements on electronic assemblies only if:
  - The measuring instrument is grounded (e.g. via a ground conductor).
  - The measuring head is momentarily discharged before measuring with a floating measuring instrument.

3 Proper use

NOTICE

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 designed specifically for (cooperative/collaborative) use on robot systems and in combination with the MATCH quick-change system.
- The product is designed exclusively for electric operation using a 24 V DC power supply.
- The product must always be mounted on materials that dissipate heat.
- The product is intended for industrial use.
- The product is to be used as intended in enclosed rooms for handling and holding.
- Direct contact with perishable goods/food is not permitted.
- Observance of the technical data and of the installation and operating instructions are part of proper use.

4 Personnel qualification

WARNING

Injuries and material damage due to inadequate qualification

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.

4.1 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.

4.2 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.

4.3 Instructed personnel

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

4.4 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.

4.5 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.

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5 Product description

The MATCH End-of-Arm Ecosystem is equipped with an extensive range of functions and universal communication interfaces. MATCH is compatible with all common lightweight robots. The system can be mounted on the robot flange and set up with a few manual adjustments.

This product is a safe quick-change system (MATCH robot module) with an integrated Smart Communication Module (SCM).

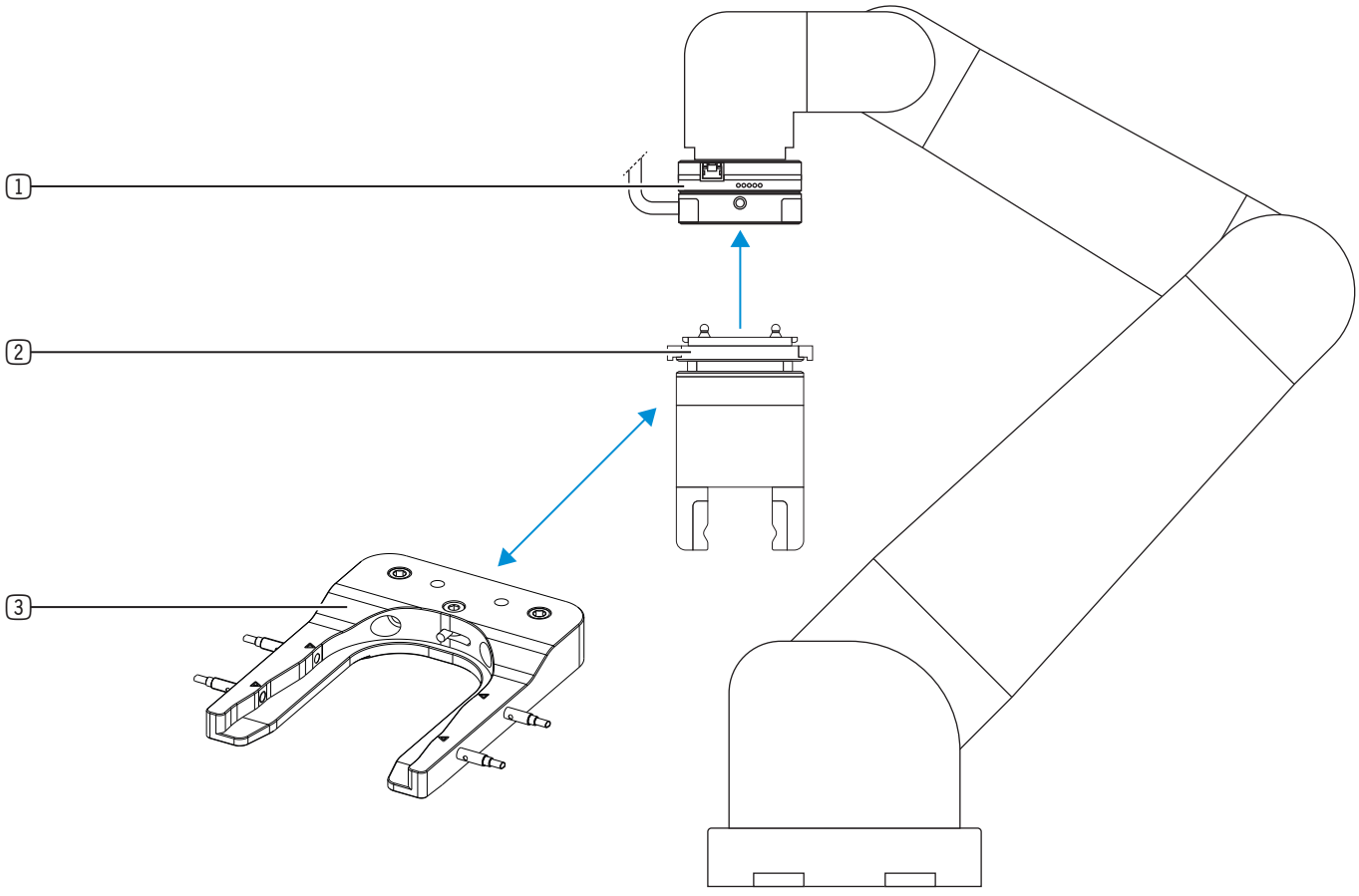
The Smart Communication Module (SCM) is a gateway between the grippers and the robot control system. The SCM can be configured via the HMI software or MATCH Comfort App. The grippers can be controlled using the MATCH Comfort App on the robot control panel.

The basic and proven safety principles from EN ISO 13849-1 can be complied with only if original parts from Zimmer GmbH are used.

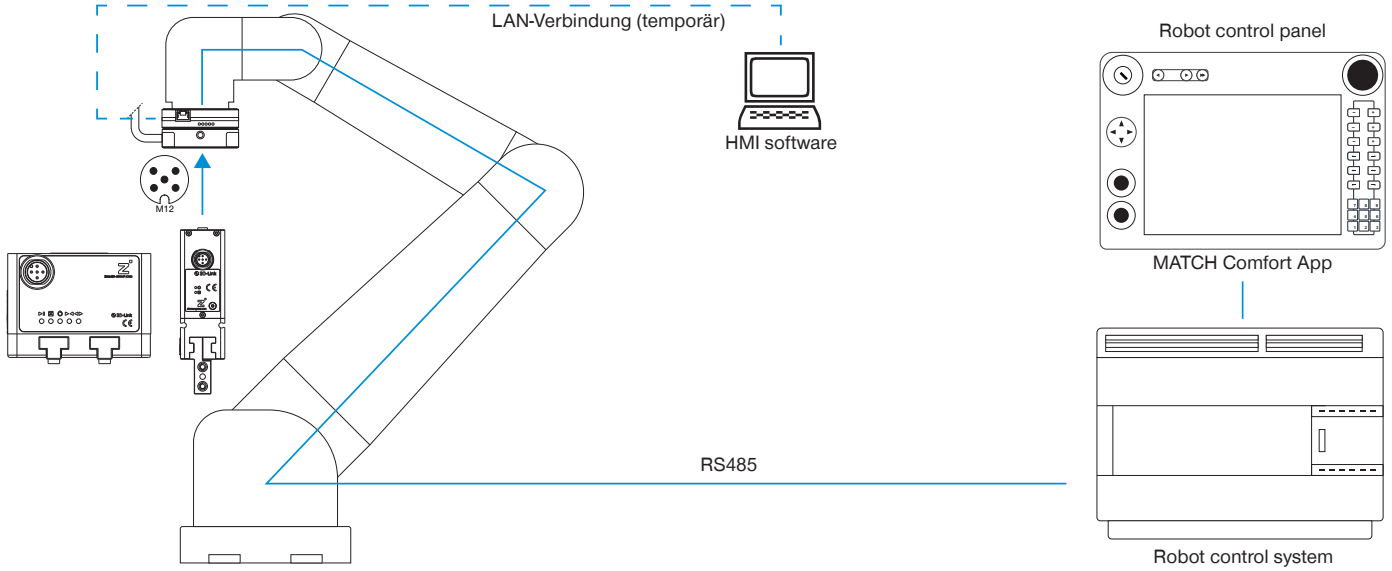
The original parts from Zimmer GmbH required for the safety principles are:

1. MATCH robot module (LWR50F-xx)
2. MATCH gripper (LWR50L-xx)
3. MATCH storage station (ALWR1-50-A) (sensors optional)

For the overall safety of the function, all three components (MATCH robot module, MATCH gripper, and MATCH storage station) must be taken into account (see "Functional Safety" section).



The image shows a simplified view of the schematic structure of the overall system in the MATCH version.



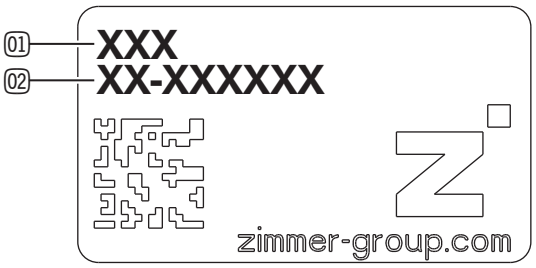
Installation steps:

- ► Install the hardware.
- ► Establish the electrical connections at the robot control system.
- ► Install the HMI software and teach in the workpieces.
- ► Install the MATCH Comfort App, see the operating instructions for the robot-specific MATCH Comfort App.

5.1 Type plate

A type plate is attached to the housing of the product.

The article number and confirmation number are shown on the type plate.



01 Article number

02 Confirmation number

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6 Functional description

The product is installed on a robot system. It is used to mechanically hold a MATCH gripper as well as for intelligent control via the integrated SCM.

The MATCH gripper automatically locks with the product during automatic extending out of the MATCH storage station. As an alternative, the MATCH gripper can be manually installed on the product.

When the MATCH robot module and MATCH gripper are joined, the internal spring-pin contacts for signal transmission are contacted. Then, the Connect LED changes color from red to green and a Connect signal (depending on the variant) is passed to the higher-level control system.

The product can be operated with a wide variety of MATCH grippers. The prerequisite for this is a compatible MATCH gripper.

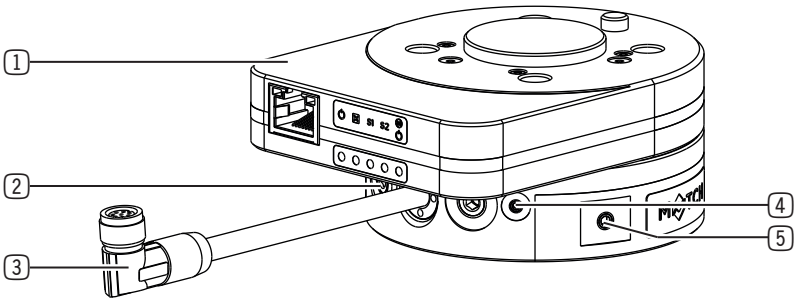
Due to the differently sized centering pins and marks on the MATCH grippers, they cannot be installed backwards on the MATCH robot module.

The product has the hot plug function, which enables changing a MATCH gripper while electrified.

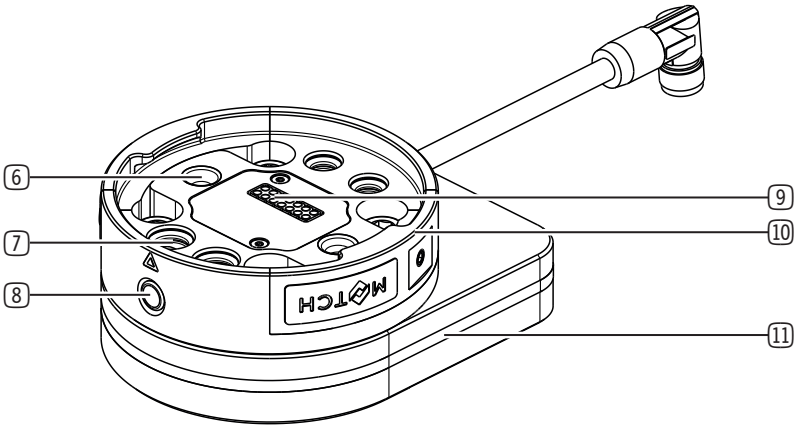
The MATCH gripper is designed in such a way that incorrect insertion into the MATCH storage station is impossible.

INFORMATION

Freedrive is only available for installation size LWR50F-01-03-A.



1. Smart Communication Module
2. Pneumatic connection
3. Voltage supply, robot / MATCH robot module
4. Grounding
5. Strain relief
6. Positioning the MATCH gripper
7. Pneumatic feedthrough
8. Connect LED, Freedrive
9. Spring pin contacts
10. Locking
11. LED ring



INFORMATION

► For information on the compatible MATCH grippers, refer to our website.

The SCM is the intelligent gateway between the grippers and the robot control system. It is used for the easy control of a gripper.

Up to 15 workpieces can be configured and saved via the workpiece number in SCM in the SCM setup for grippers. The workpiece numbers are available externally via bit coding in the form of digital SCM inputs and SCM outputs.

When using a gripper with SCM, the desired workpieces can be selected via a connection of the robot inputs and robot outputs in order to define the correct workpiece bit numbers. If there is no connection of robot inputs, workpiece 1 is set by default.

Work piece	Cmd_WP_			
	Bit0	Bit1	Bit2	Bit3
1	0	0	0	0
1	1	0	0	0
2	0	1	0	0
3	1	1	0	0
4	0	0	1	0
5	1	0	1	0
6	0	1	1	0
7	1	1	1	0
8	0	0	0	1
9	1	0	0	1
10	0	1	0	1
11	1	1	0	1
12	0	0	1	1
13	1	0	1	1
14	0	1	1	1
15	1	1	1	1

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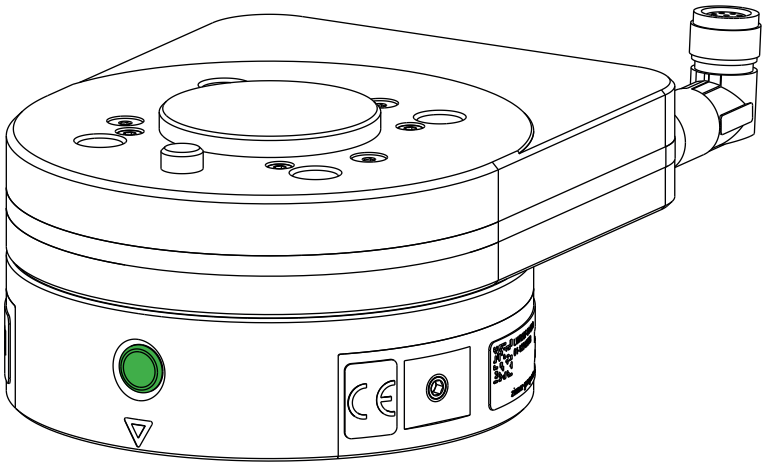
6.1 LED status display

6.1.1 Connect LED

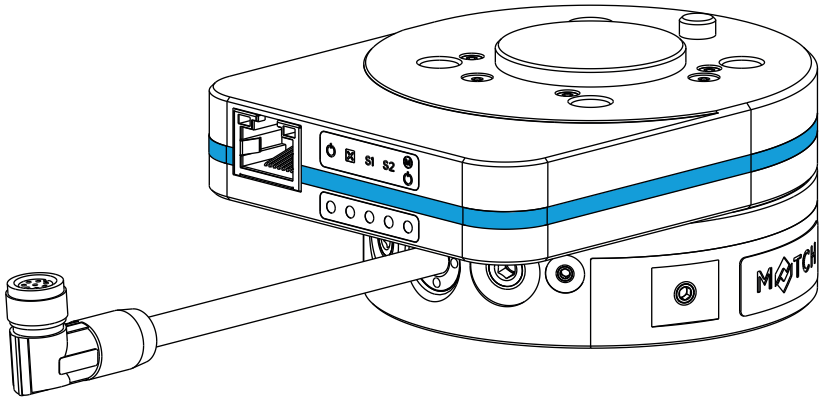


LED state	Function	Measure
off	No supply voltage	► Connect the supply voltage.
Continuous light	No MATCH robot module coupled.	► Couple the MATCH robot module.
Continuous light	One MATCH robot module coupled.	-

6.1.2 LED ring

The product has an LED ring.

The colors of the LED ring reflect the status of the IO-Link device in the MATCH gripper. The LED ring enables a 360° status display.



LED state	Function of the Zimmer IO-Link products	Measure for Zimmer	Function of the Schmalz IO-Link	Measure for Schmalz
off	• No supply voltage	▶ Connect the supply voltage.	• No supply voltage	▶ Connect the supply voltage.
Flashing	• An error is present	▶ Check the IO-Link device.	• An error is present	▶ Check the IO-Link device.
Continuous light	• IO-Link device is disconnected.	▶ Establish a connection to the IO-Link device.	• IO-Link device is disconnected.	▶ Establish a connection to the IO-Link device.
2x flashing	• SCM starts with high SCM input. • IO-Link device switches with high SCM input.	▶ Set the SCM input = 0.	• SCM starts with high SCM input. • IO-Link device switches with high SCM input.	▶ Set the SCM input = 0.
3x flashing	• Workpiece invalid for connected IO-Link device. • No workpiece defined.	▶ Select a valid workpiece. ▶ Teach the workpiece.	• Workpiece invalid for connected IO-Link device. • No workpiece defined.	▶ Select a valid workpiece. ▶ Teach the workpiece.
4x flashing	• IO-Link device not recognized.	▶ Install the current HMI software. ▶ Connect the product to the Windows PC. ▶ Start the software. ⇨ The database is updated.	• IO-Link device not recognized.	▶ Install the current HMI software. ▶ Connect the product to the Windows PC. ▶ Start the software. ⇨ The database is updated.
5x flashing	• Communication error	▶ Restart the SCM. ▶ Please contact Customer Service.	• Communication error	▶ Restart the SCM. ▶ Please contact Customer Service.
6x flashing	• Communication error	▶ Restart the SCM. ▶ Please contact Customer Service.	• Communication error	▶ Restart the SCM. ▶ Please contact Customer Service.
Flashing	• Unknown IO-Link device	-	• Unknown IO-Link device	-
Continuous light	• IO-Link device at UndefinedPosition	-	-	-
Continuous light	• Taught-in workpiece gripped	-	• Warning is present.	▶ Check the IO-Link device.
Continuous light	• IO-Link device at end position • No taught-in workpiece gripped.	-	• Workpiece vacuumed (vacuum > H2)	-
Continuous light	• IO-Link device moving	-	• Neutral state (vacuum > H2)	-

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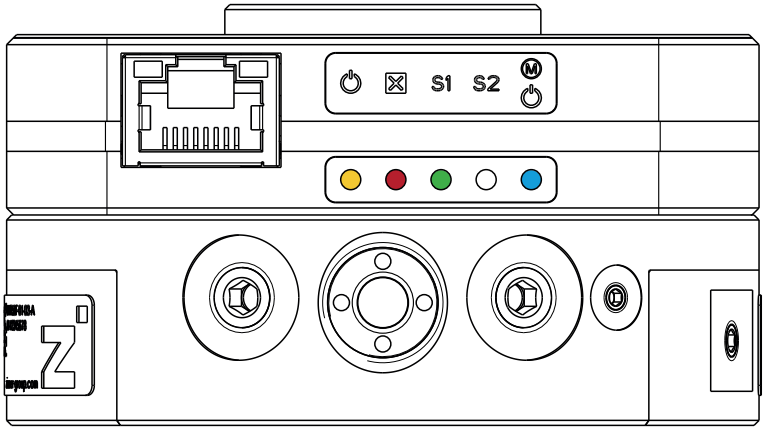
6.1.3 Basic module LED display



Name	LED state	Status	Measure
⏻	Continuous light	• Supply voltage OK	-
	Flashing	• HMI is connected, the SCM is teaching the IO-Link device.	-
	Flashing	• HMI assumes control, the IO module LEDs are off.	-
	off	• Supply voltage not OK	▶ Check the operating voltage.
☒	Continuous light	• An error is present	▶ Connect the supply voltage.

Name	LED state	Status	Measure
Status 1/2 (IO-Link device)	off	• No supply voltage	▶ Restart the SCM. ▶ Please contact Customer Service.
	Continuous light	• An error is present	▶ Connect the supply voltage.
	Flashing	• IO-Link device is disconnected.	▶ Check the IO-Link device.
	2x flashing	• SCM starts with high SCM input. • IO-Link device switches with high SCM input.	▶ Establish a connection to the IO-Link device.
	3x flashing	• Workpiece invalid for connected IO-Link device. • No workpiece defined.	▶ Set the SCM input = 0.
	4x flashing	• IO-Link device not recognized.	▶ Install the current HMI software. ▶ Connect the product to the Windows PC. ▶ Start the software. ⇨ The database is updated.
	5x flashing	• Communication error	▶ Restart the SCM. ▶ Please contact Customer Service.
	6x flashing	• Communication error	▶ Restart the SCM. ▶ Please contact Customer Service.
	Flashing	• Unknown IO-Link device	-
	Continuous light	• Gripper in end position or no taught-in part gripped.	-
	Continuous light	• Taught-in workpiece gripped	-
	Continuous light	• IO-Link device moving	-
	Continuous light	• IO-Link device at UndefinedPosition	-
(P 24 V)	Continuous light	• Actuator voltage OK	-
	off	• Actuator voltage not OK	▶ Use a compatible IO-Link device.

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6.2 Functional safety

For the overall safety of the function, all three components (MATCH robot module, MATCH gripper and MATCH storage station) must be taken into account.

The safety function that ensures secure locking between the MATCH robot module and MATCH gripper of the product is implemented via two redundant action channels that consist of a mechanical locking and springs.

Technical supplementary safety measures (sensors) provide a high degree of diagnostic coverage. The product can thus be classified into control category 3 in accordance with Chapter 6.2.6 of DIN EN ISO 13849-1. According to Figure 5, Chapter 4.5.4 of the specified standard, the PL d can be achieved with this product.

Fault elimination in accordance with DIN EN ISO 13849-2, Annex A, Table A2 and A3 for the helical compression springs used can be given.

7 Technical data

INFORMATION

► You can find the information in the technical data sheet on our website.

This data varies within the series, depending on the specific design.

► Please contact Customer Service if you have any questions.

8 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.

9 Transportation/storage/preservation

► Store the product in its original packaging.

► If the product has already been installed on the superordinate machine unit, care must be taken during transport to ensure that no unexpected movements can occur.

  ► Before commissioning the product and after transport, check all power and communication connections as well as all mechanical connections.

► If the product is stored for an extended period, the following points are to be observed:

  ► Keep the storage location as dust-free and dry as possible.

  ► Avoid temperature fluctuations.

  ► Avoid wind/drafts/water condensation formation.

  ► Pack the product and do not expose it to direct sunlight during storage.

► Clean all components. There must be no soiling left on the components.

► Visually inspect all components.

► Remove all foreign substances.

► Close electrical connections using suitable covers.

10 Installation

WARNING

Risk of injury due to uncontrolled movements

Risk of injury in case of unexpected movement of the machine or system into which the product is to be installed.

- ► Switch off the energy supply of the machine before any work.
- ► Secure the power supply against being switched on unintentionally.
- ► Check the machine for any residual energy that may be present.

CAUTION

Risk of injury due to uncontrolled movements

Risk of injury in the event of uncontrolled movement of the product when the power supply is connected.

- ► Switch off the power supply to the machine before carrying out any work.
- ► Secure the power supply against being switched on unintentionally.
- ► Check the machine for any residual energy that may be present.

NOTICE

Non-compliance may result in material damage.

Installation may only be carried out by qualified personnel in accordance with these installation and operating instructions.

- ► Switch off the power supply before any assembly, installation or maintenance work.

Assembly requirements	
Permissible unevenness [mm]	0,03
Strength class (DIN EN ISO 4762)	8.8

INFORMATION

Further installation information:

- The mounting screws are not included in the scope of delivery.

- ► Install the product on an appropriate mounting surface in accordance with the flatness specifications.
- ► Make sure that the mounting piece is sufficiently rigid.
- ► Please note the permitted tightening torques of the mounting screws at www.zimmer-group.com/de/td.

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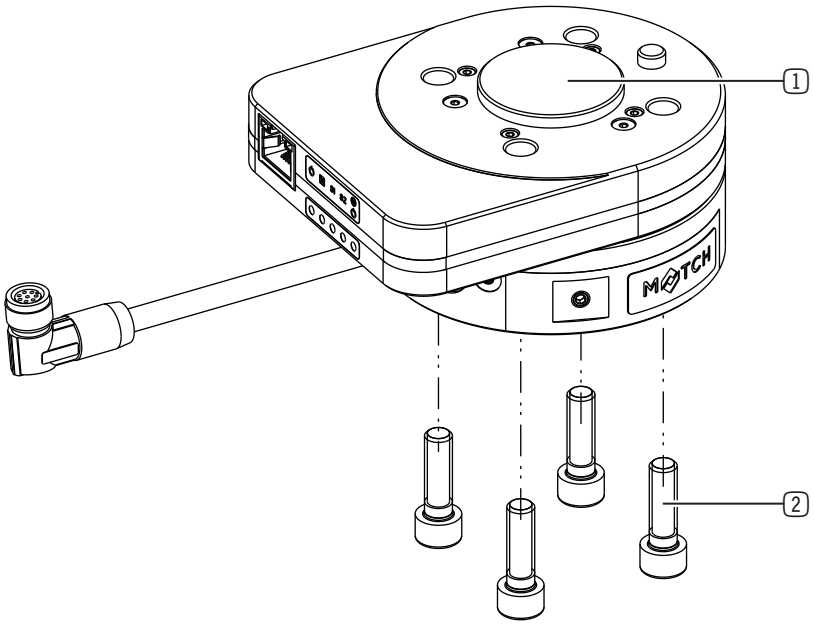
10.1 Installing the product

- ▶ Insert the product into the robot arm by the connection.
- ▶ Loosely attach the mounting screws.
- ▶ Tighten the mounting screws crosswise.



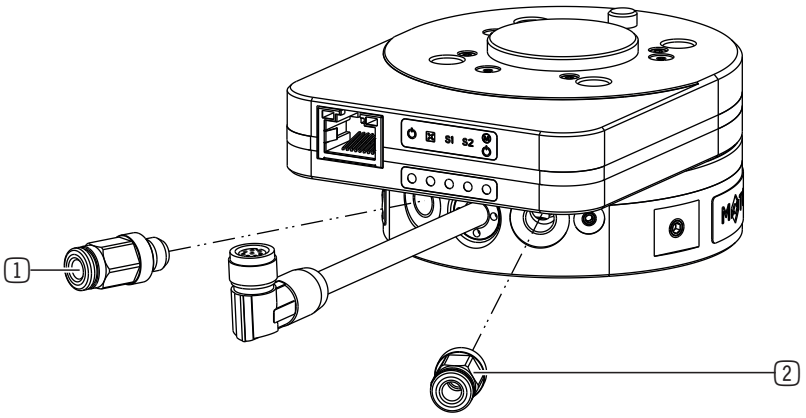
[1] Connection

[2] Mounting screw

10.2 Installing the energy supply

10.2.1 Installing the pneumatic system

- ▶ Unscrew the grub screws.
- ▶ Mount the screw fittings in the provided connections.



[1] Close gripper

[2] Open gripper

10.2.2 Installing the wiring

CAUTION

Risk of injury from getting caught in the connecting cable

While the robot is moving, hair or limbs can be caught in the connecting cable.

- ► Route the connecting cable as close as possible to the robot arm.
- ► Avoid the danger zone.

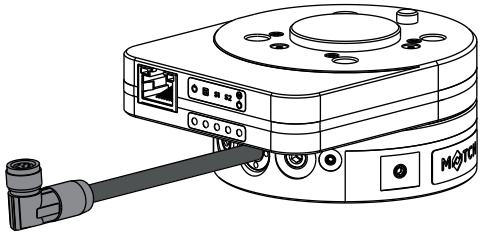
NOTICE

Non-compliance may result in material damage.

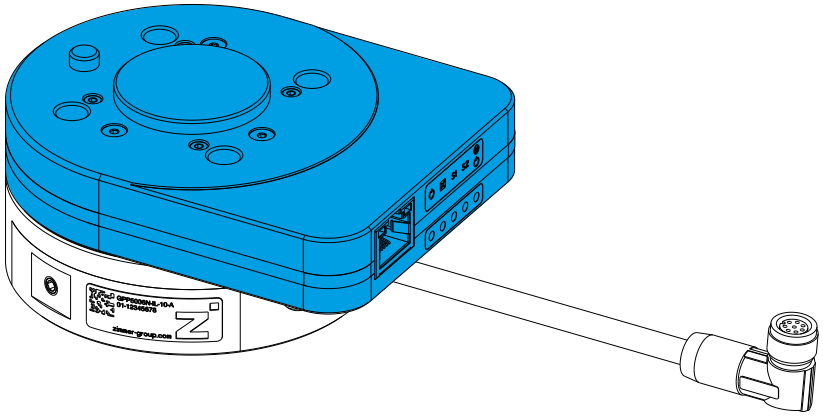
The cable mounted on the product can be subjected to a torsional angle of +50°.

- ► Do not route the cable so that it is strained.
- ► You must meet the minimum bending radius of 10x the outer diameter.
- ► Secure free-hanging cables to prevent excessive motion loads or pinching.
- ► The contacts of the energy supply must be dry, clean and undamaged at all times.
- ⇨ Damage to the contacts can result in malfunction of the product.

- ► Switch off the voltage supply on the robot tool I/O.
- ► Connect the product to the robot control system.



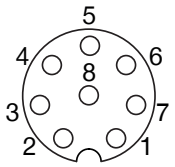
The selected MATCH robot module is equipped with an integrated Smart Communication Module (SCM) with RS485 interface.



INFORMATION

Freedrive is only available for installation size LWR50F-01-03-A.

pin	Color	Function	Explanation
1	White	signal	RS485+
2	Brown	signal	RS485-
3	Green	Output 2	Connect signal: 24 V DC if MATCH gripper is coupled.
4	Yellow	Output 1	Freedrive signal: 24 V DC if Freedrive button is pressed.
5	Gray	PWR	24 V DC supply voltage
6	Pink	Input 1	Inward move command: Jaws move inward
7	Blue	Input 2	Outward move command: Jaws move outward
8	Red	GND	0 V DC supply voltage



M8, 8-pin Socket/bracket

10.3 Static charge

CAUTION

Non-compliance may result in material damage.

Grounding the product is recommended if ESD sensitive parts come into contact with the product.

Grounding is also recommended in applications that require high EMC shielding.

10.4 Heat dissipation

In the event of high ambient temperatures, the product must be installed on heat-dissipating materials.

If the product is operated under very high ambient temperatures and with fast clock cycles on an ongoing basis, this might reduce its service life.

10.5 Installing accessories

NOTICE

- ▶ Before installing an accessory, make sure it is suitable for use with the selected variant.
- ▶ You can find information on our website.
- ▶ Please contact Customer Service if you have any questions.

11 Installation

11.1 Setting up the Ethernet connection

The Ethernet port is connected to a Windows PC to configure the product.

INFORMATION

Factory setting:
- IP: 10.0.0.5
- Network mask: 255.0.0.0

► Adapt your network card.

► Check whether your firewall supports communication with the product.

INFORMATION

The communication protocol used is UDP. Therefore, integration into a network is possible only with limitations.

► For more information on changing the IP address, refer to the section "SCM network settings".

► For information on resetting the IP address, see the operating instructions for the robot-specific MATCH Comfort App.

► Please contact Customer Service if you have any questions.

11.2 Downloading software

Every SCM device is delivered with a digitalZ document including a download code.

► Download the HMI software *ZG_IO_LINK_HMI* using the reference link specified in the digitalZ document or the QR code.

► Install the HMI software *ZG_IO_LINK_HMI* on a Windows PC.

INFORMATION

► For more information, see the operating instructions for the robot-specific MATCH Comfort App.

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12 Commissioning

This section describes how to configure the gripper using the product.

NOTICE

All workpiece recipes must be taught in in the *guideZ* control level.

At least the first workpiece recipe must be assigned with a taught-in workpiece in the product.

The product boots if it is wired correctly, the desired grippers are connected and the power supply is switched on.

Depending on the most recently stored configuration on the product, the power LEDs light up in green. Then Status 1 and Status 2 flash on the basic module as long as the grippers are being searched for.

NOTICE

- ▶ When cold booting the SCM, ensure that all digital SCM inputs are not connected so that the initialization sequence can finish successfully.
- ▶ Disconnect the SCM from the power supply only if both grippers are no longer moving.

INFORMATION

This information applies only to installation size LWR50F-01-03-A.

If you test the product via the MATCH Comfort App using the *GuideZ For-Robot* function, the settings in the following sections are not necessary.

- ▶ For more information, see the operating instructions for the robot-specific MATCH Comfort App.

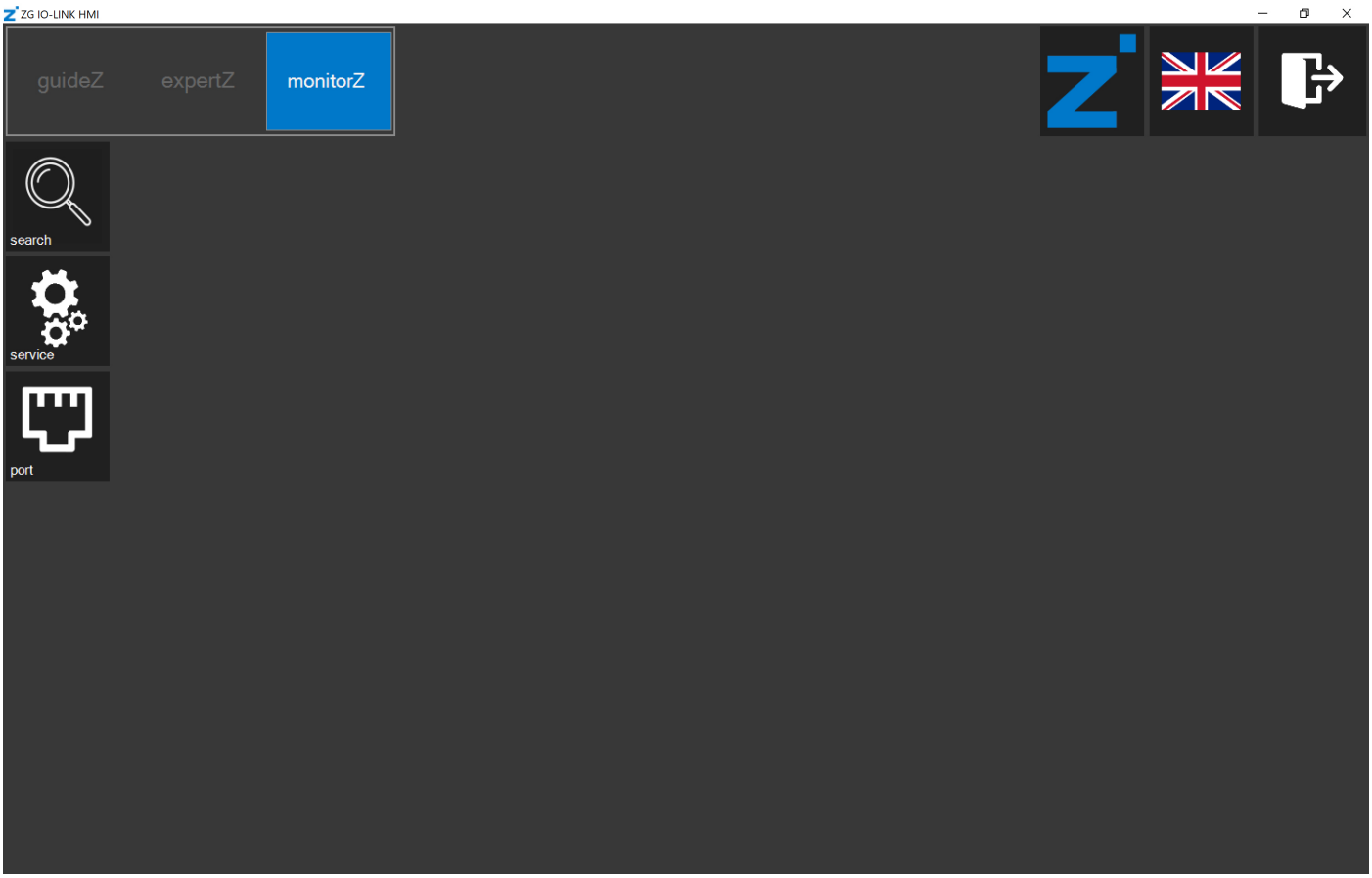
12.1 Establishing the connection

INFORMATION

You need the HMI software *ZG_IO_Link_HMI* from Zimmer GmbH in Version 2.0.3.10 or higher.

The three control levels are located in the top menu bar:

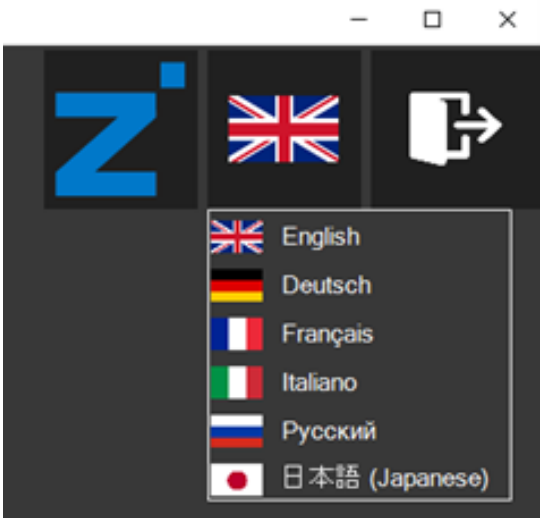
- *expertZ*: expert level where all gripper data can be accessed.
- *guideZ*: configuration level where the gripper can be taught in to the desired workpiece.
- *monitorZ*: diagnostic and observation level for monitoring the gripper during operation.



► Connect the Windows PC with the installed HMI software *ZG_IO_Link_HMI*.

12.2 Selecting the language

► Click the flag to change the language of the HMI software.



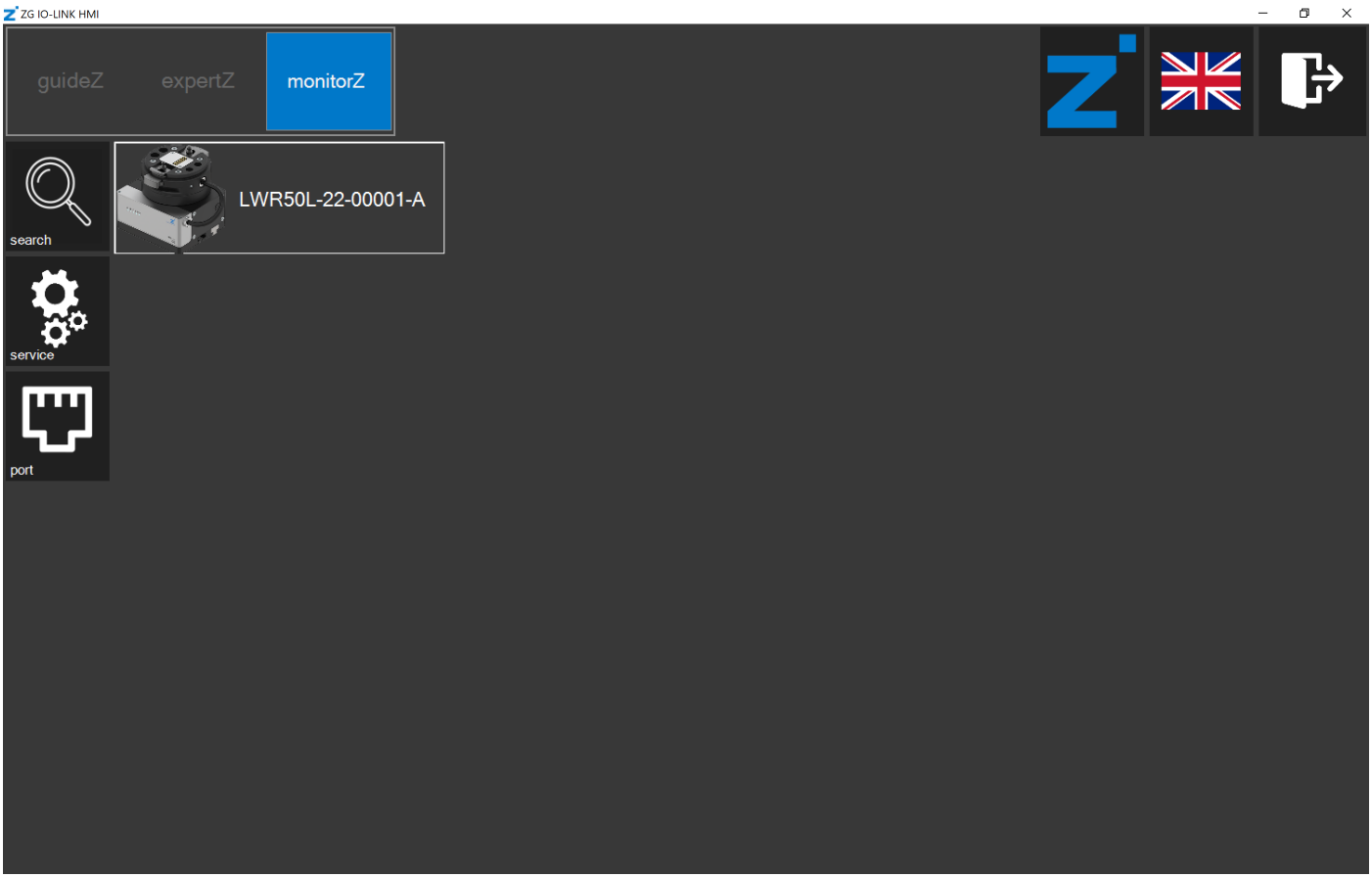
12.3 Checking the version

► Click the Zimmer logo to view information about the HMI software.

12.4 Selecting the gripper

► Click the *search* button.

⇨ The connected grippers are listed.



► Click the desired gripper to teach this in to the workpiece.

⇨ The *guideZ* control level opens.

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12.5 Switching on and referencing the motor

NOTICE

► Switch on the motor in the robot control panel also.

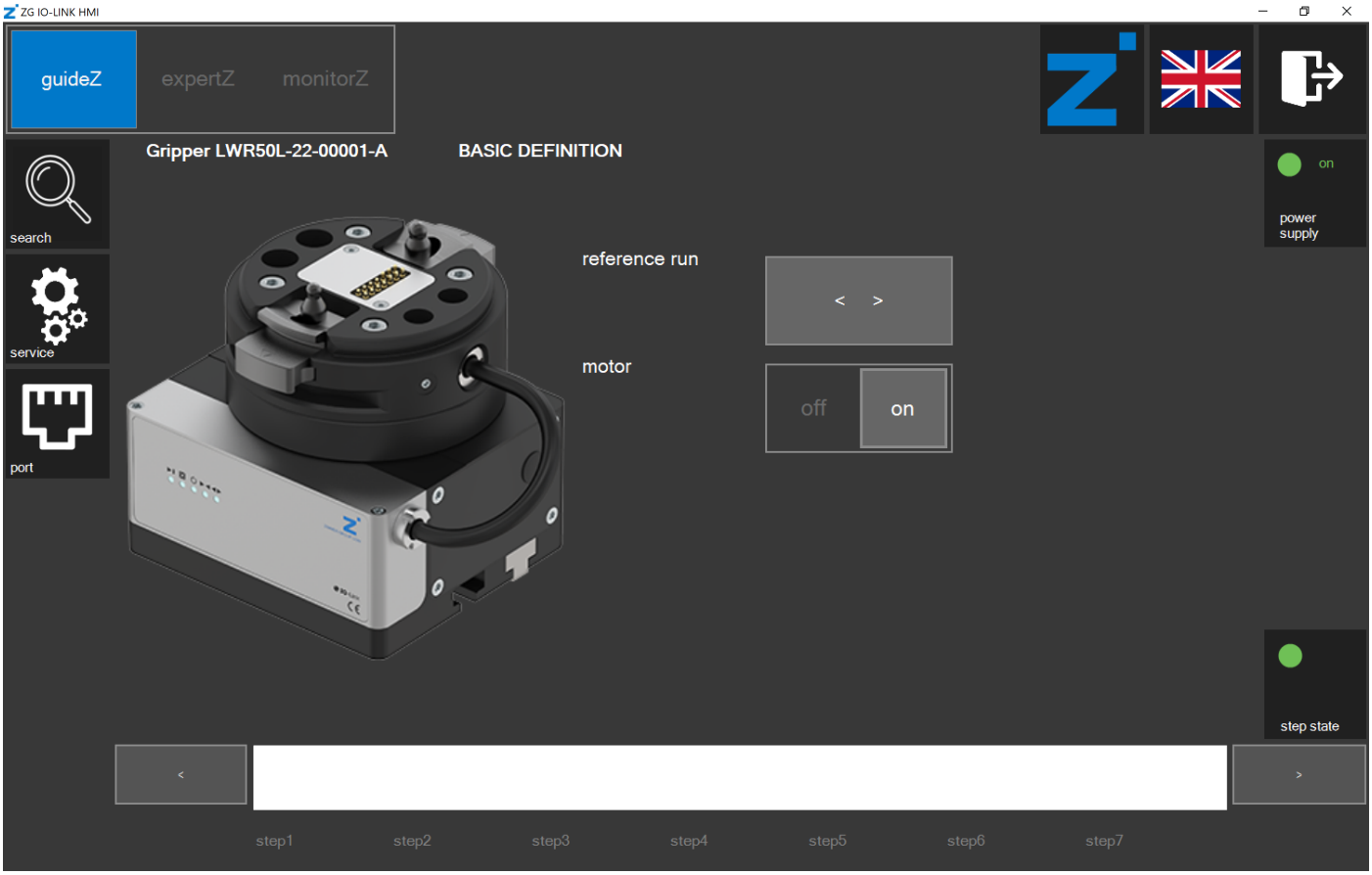
► Connect the actuator voltage.

⇨ The *power supply* LED lights up green if the actuator voltage is connected.

► Click the *on*button to switch on the motor.

► Click and hold the > < button for referencing the gripper.

⇨ This also references the gripper towards the outside or inside.

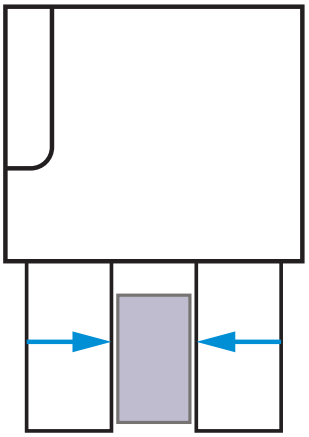


► Click the > button.

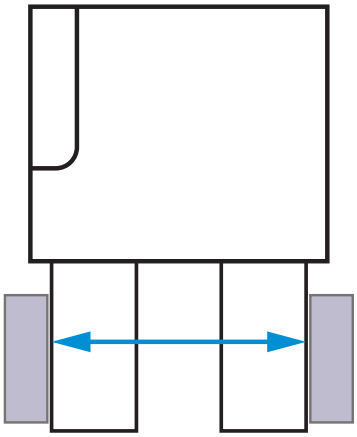
12.6 Selecting the gripping direction

► Select the gripping direction.

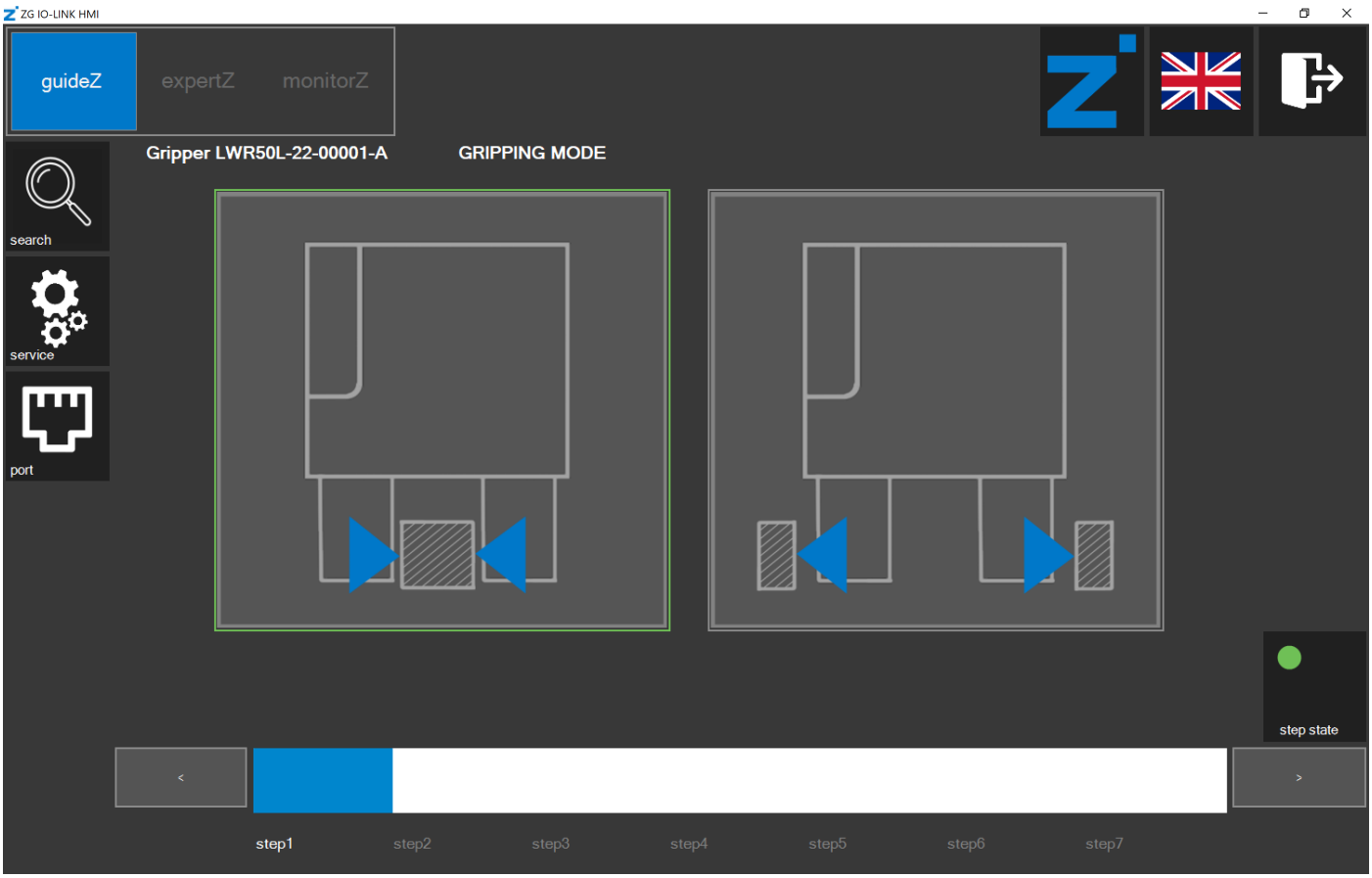
Outside gripping



Inside gripping



⇨ The parameters are set for the gripper automatically.



⇨ The *step state*LED lights up green.

► Click the > button.

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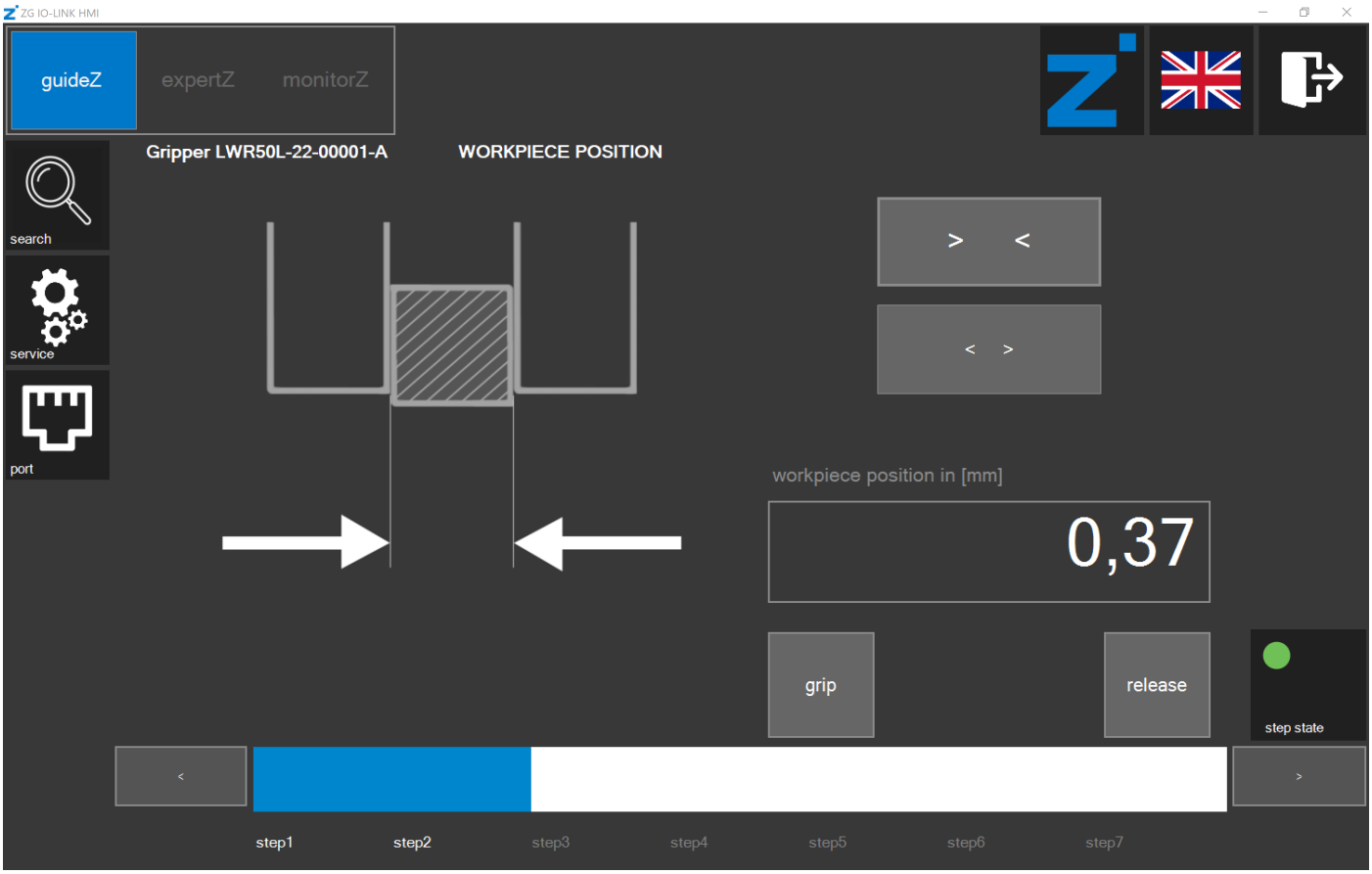
12.7 Teaching in the workpiece

INFORMATION

The buttons for the preferred setting are highlighted visually.

► Click and hold the > < and < > buttons to teach in the workpiece parameters for the gripper.

⇨ The gripper detects the standstill and remembers the workpiece position.



INFORMATION

You can use the *grip* button and the *release* button to test the settings.

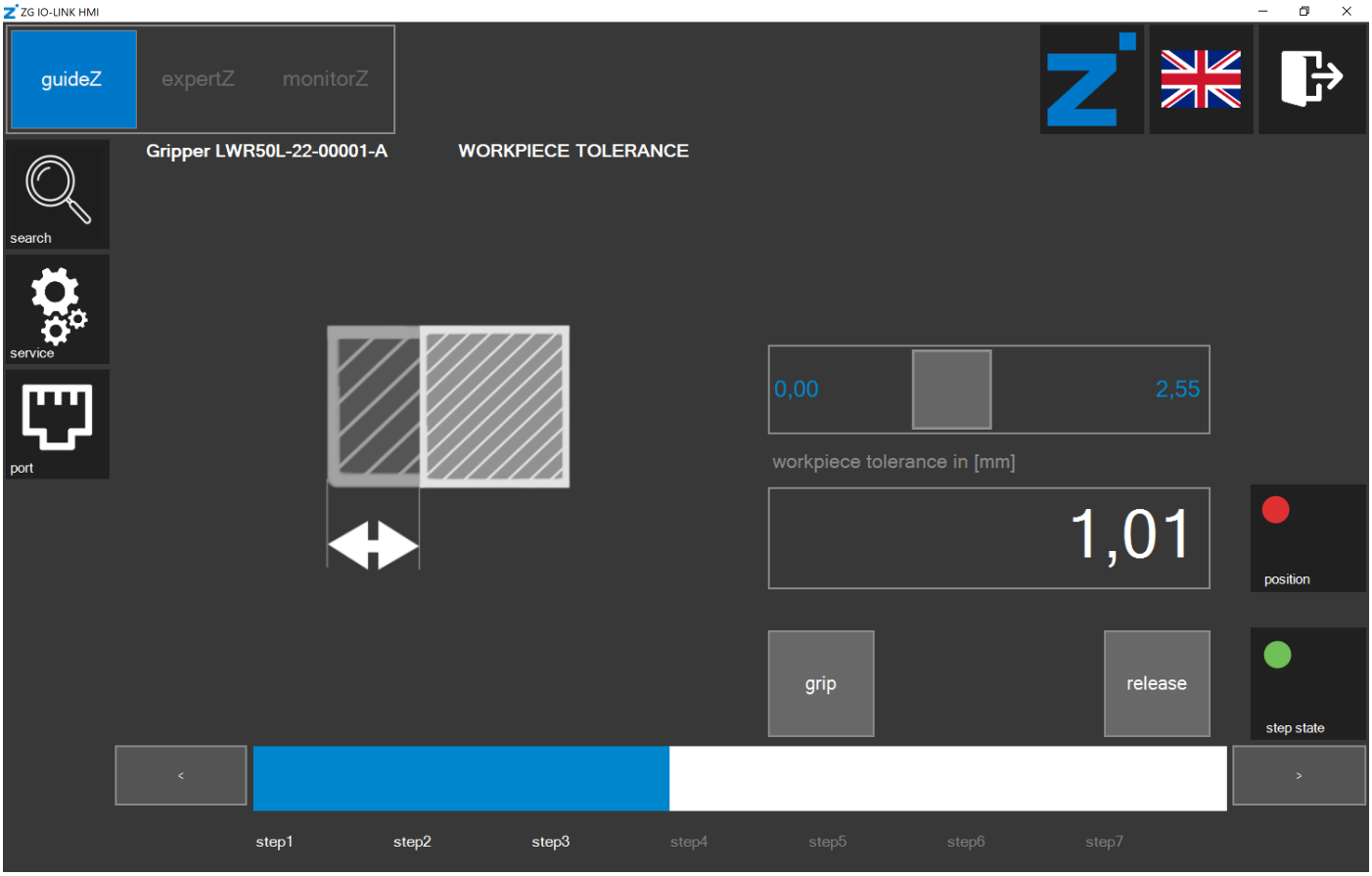
► Click the > button.

12.8 Setting the workpiece tolerance

► Slide the bar to a tolerance of 0.00 mm to 2.55 mm.

INFORMATION

A gripper with servo function automatically sets its closed position just after the workpiece tolerance.



► Click the > button.

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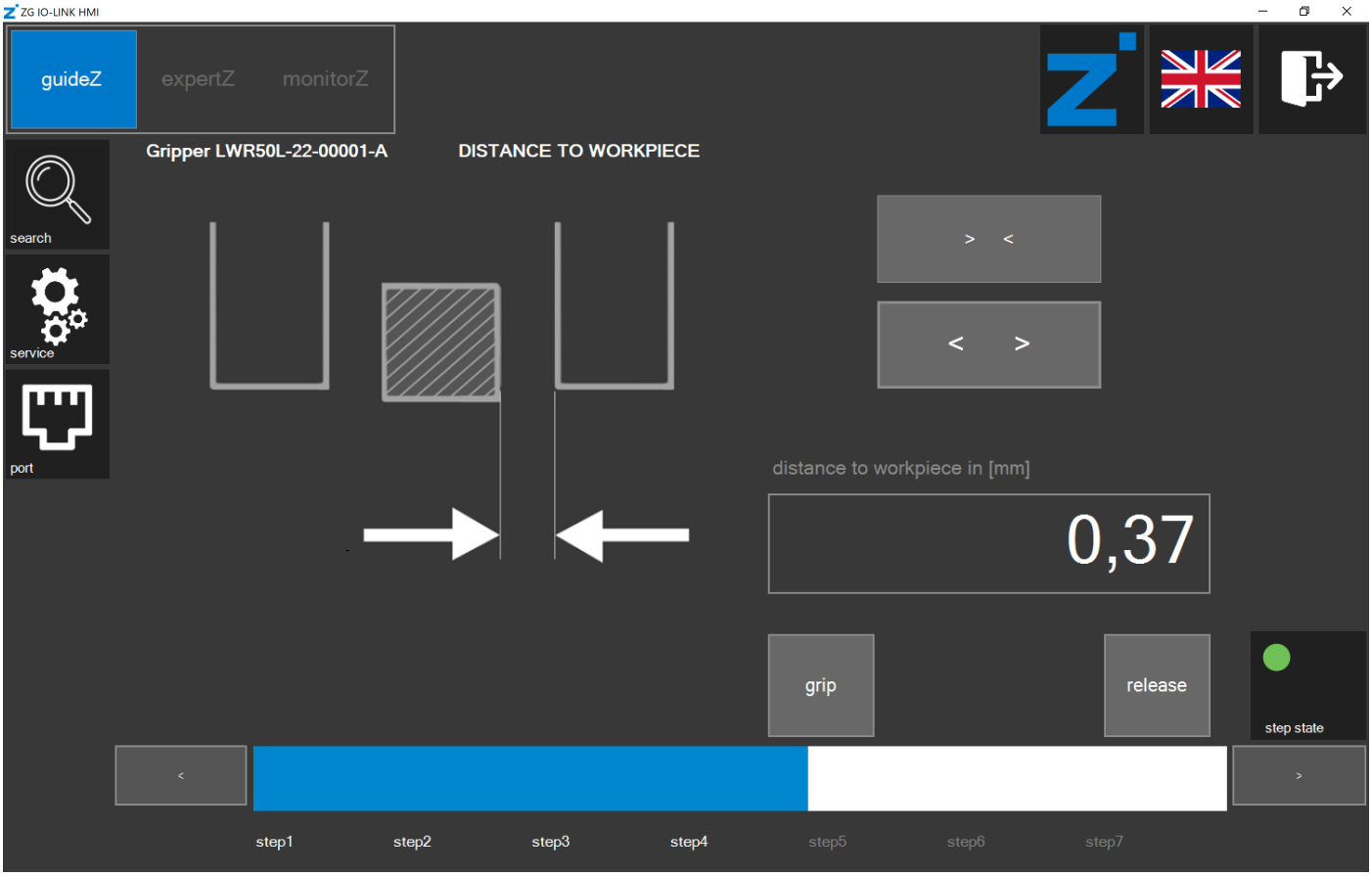
12.9 Setting the open position

INFORMATION

The open position can only be set for grippers with a servo function.

► Click and hold the > < and < >buttons to set the position at which the gripper is to be open.

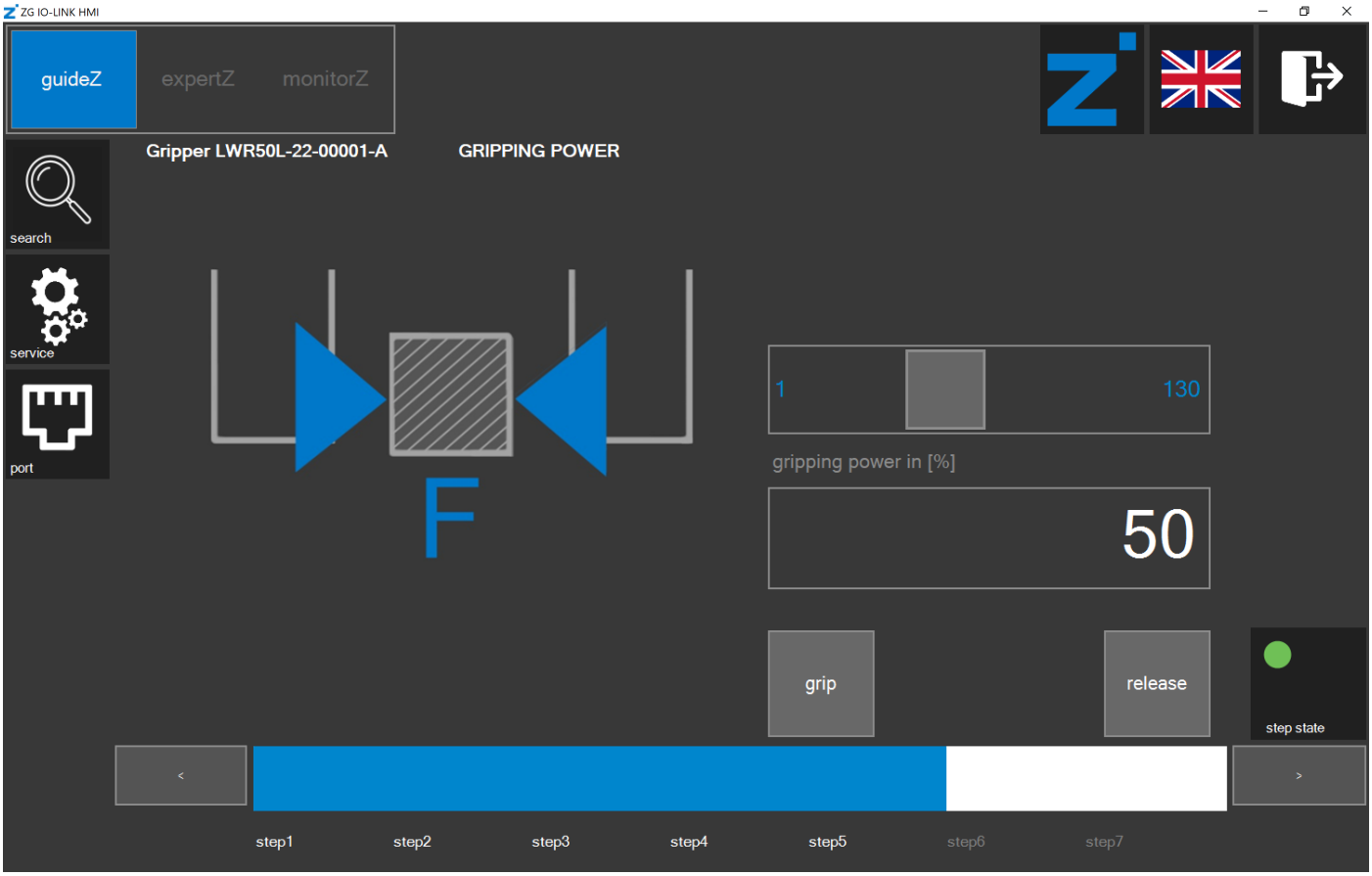


► Click the > button.

12.10 Setting the gripping force

Depending on the gripper, the gripping force can be configured and in addition, the speed for closing can be configured.

► Slide the bar to the desired gripping force.



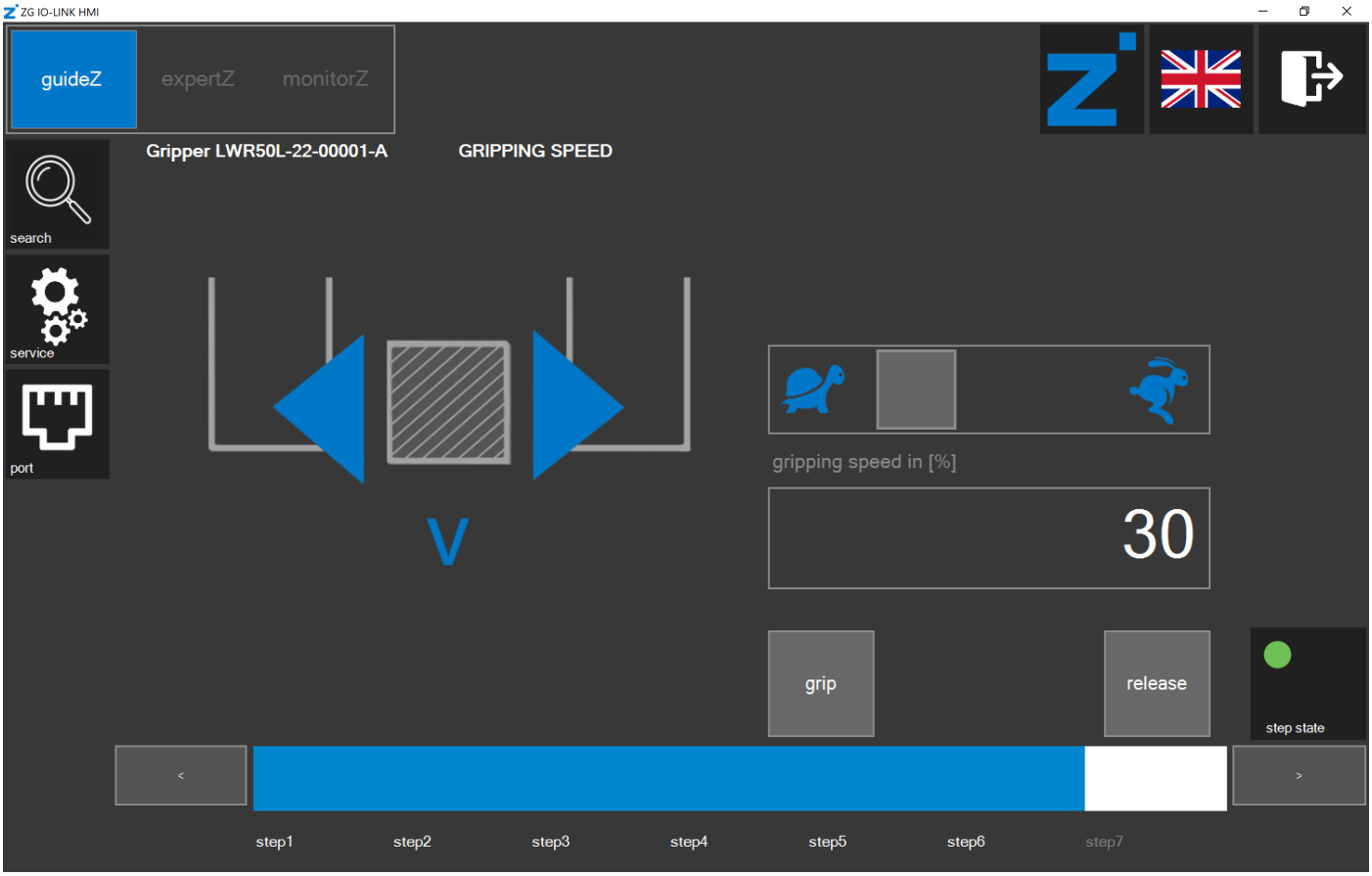
► Click the > button.

12.11 Setting the speed for opening the gripper

INFORMATION

Setting the speed for opening the gripper is only possible for grippers with a servo function.

► Slide the bar to the desired speed.



► Click the > button.

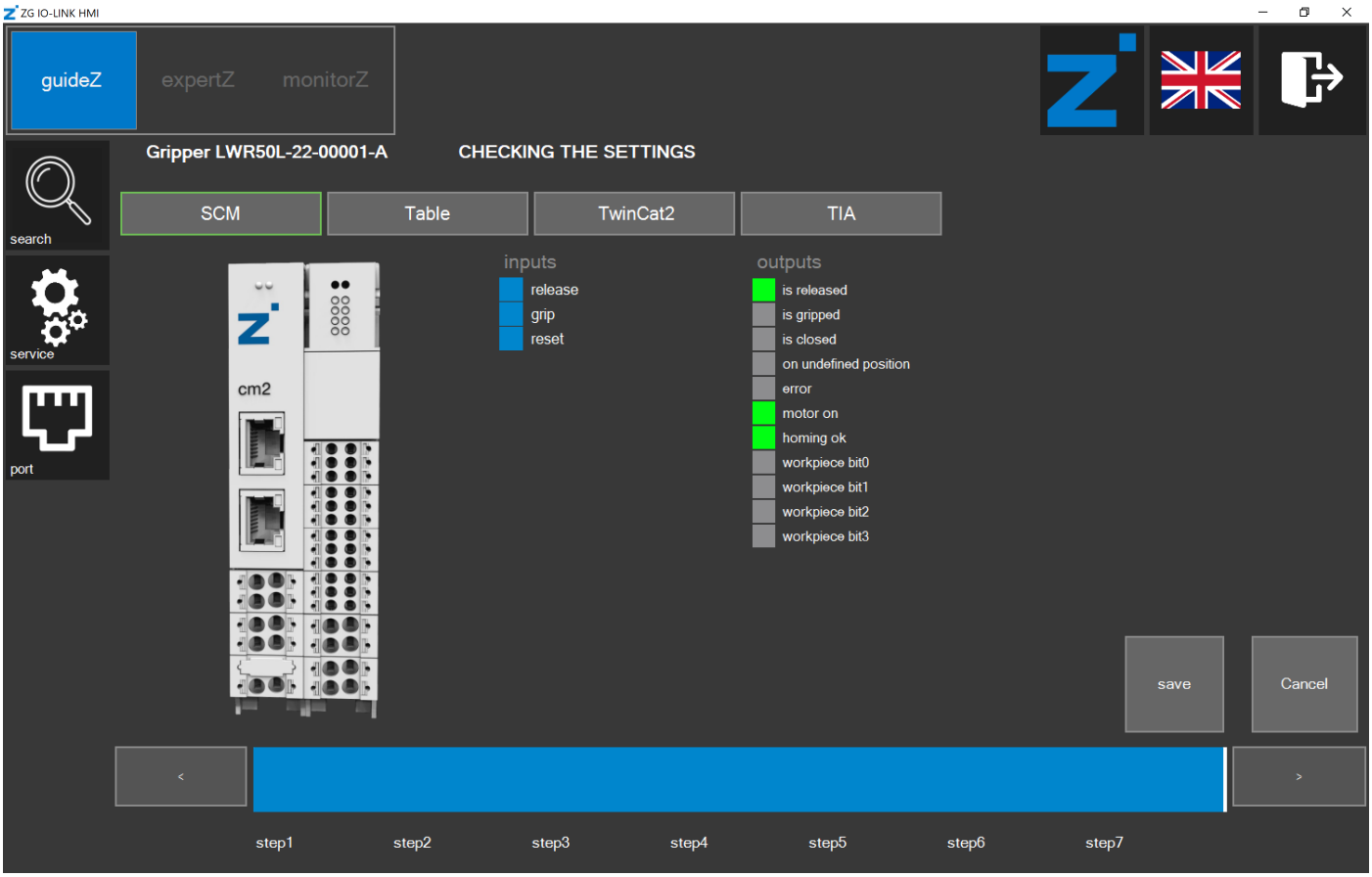
12.12 Checking the settings

Workpiece training for the gripper is ended when the data is saved in the corresponding workpiece recipe.

INFORMATION

At this point, the set parameters are not yet saved in the corresponding workpiece recipe.
The settings can also be checked without the robot inputs and robot outputs of the robot control system.

- *inputs*:
  - ▶ Click the fields to set a command.
  - ⇨ The yellow commands are set.
- *outputs*:
  - ▶ The fields indicate the status of the gripper.
  - ⇨ The green statuses are active.



INFORMATION

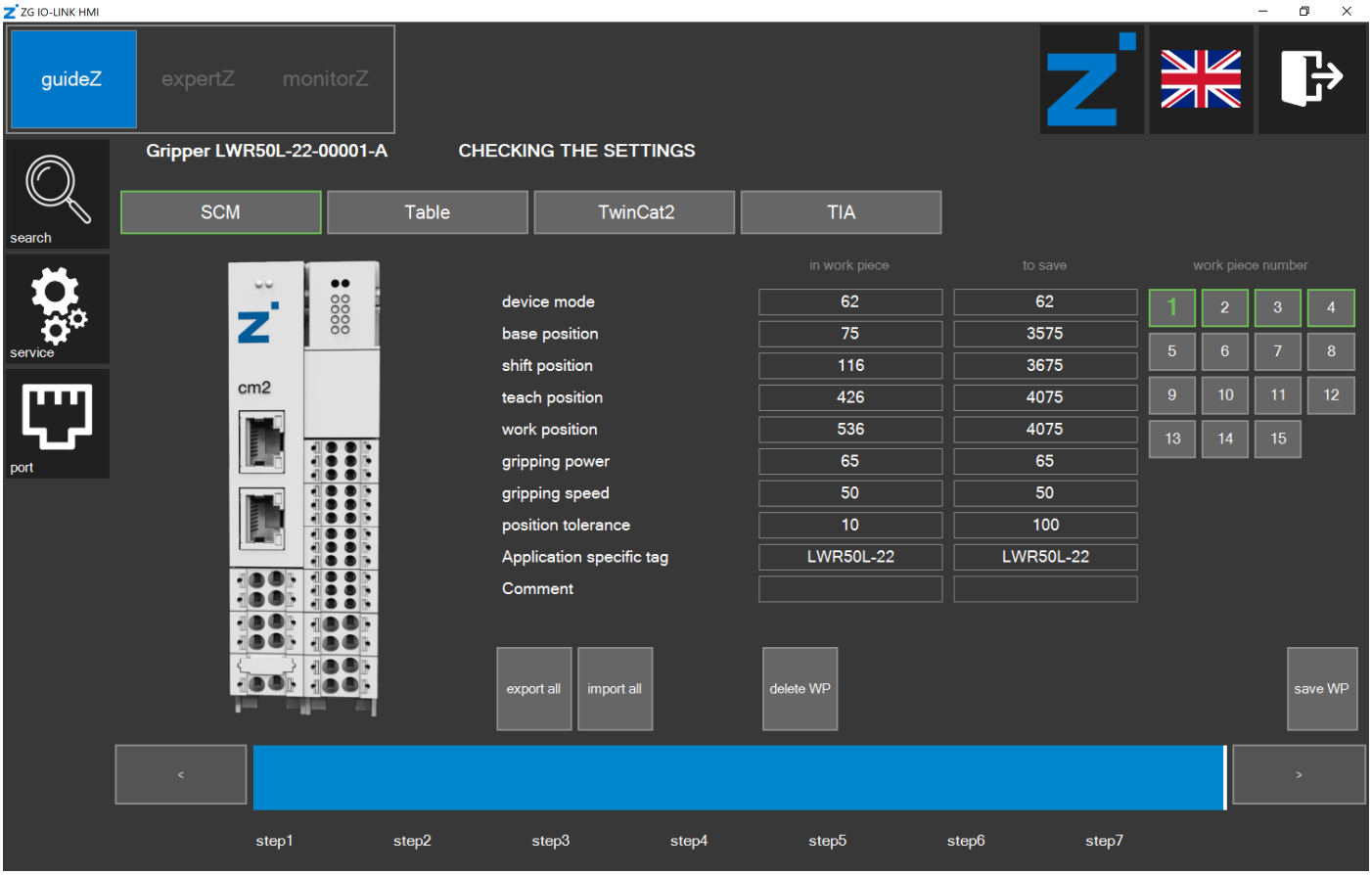
The *Table* view shows the parameters of the corresponding gripper generated in the background.
The *TwinCat2* and *TIA* views show the wiring of the PLC function blocks to fit the parameters of the gripper.

▶ Click the *Save* button.
⇨ The window for saving the workpiece recipe opens.

12.13 Saving the workpiece recipe

INFORMATION

The highlighted digit in the workpiece number shows the respective selected workpiece recipe number.
The workpiece recipe numbers in a green frame show stored recipes of the current gripper.
The workpiece recipe numbers in an orange frame show stored recipes of another gripper.



► Click the desired workpiece recipe number.
► Click the *save WP* button.

12.14 Data storage ended

- ▶ After successful data storage, the window for teaching in a new workpiece is displayed, see the section "Teaching in the workpiece".
- ▶ Click the *monitorZ* button if you want to switch to the *monitorZ* control level instead.

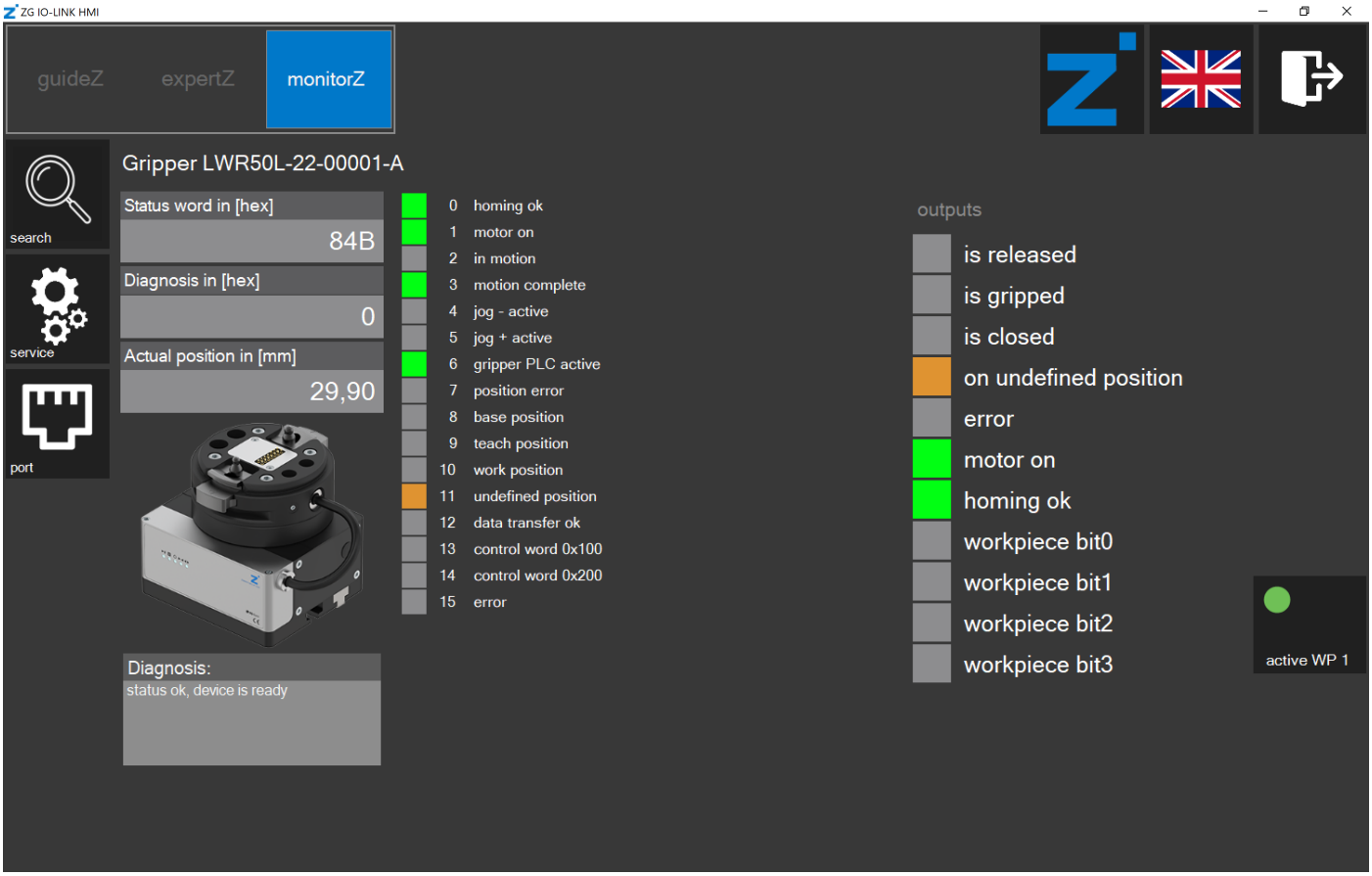
12.15 monitorZ control level

► Click the *plug HMI* button to transfer the control ability to the digital robot inputs and robot outputs.

⇨ The LED lights up red.

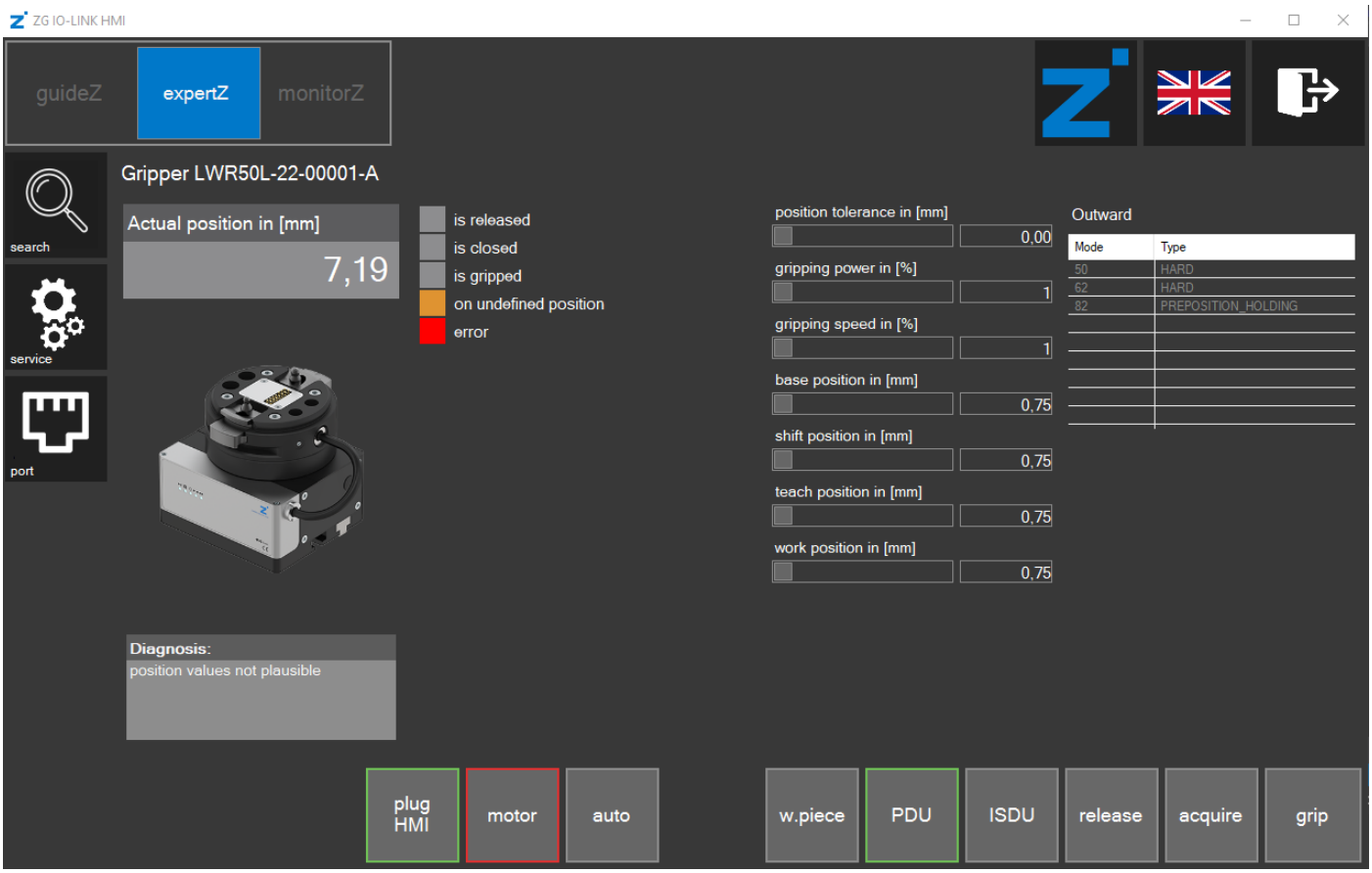
⇨ The control system of the gripper with the HMI software *ZG_IO_LINK_HMI* is no longer possible because the input and output signals now have control.

⇨ You can move the gripper with the external control system and the saved settings.



12.16 expertZ control level

In the *expertZ* control level, fine tuning of the gripping parameters as well as access to all process data (PDU), service data (ISDU) and workpieces is possible.



By default, the *fine tuning* setting is active. This is a view based on the parameters configured in the *guideZ* control level. You can optimize these parameters in this view.

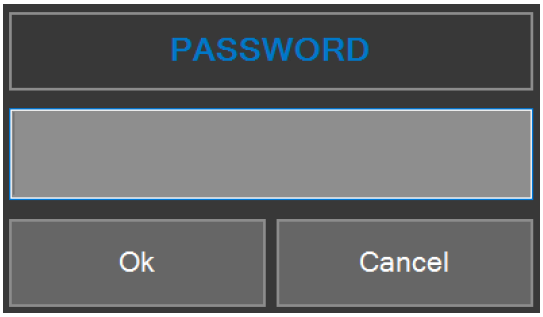
- ► Slide the bar to the desired value to change it.
- ► In the *Outward* area, click the desired *mode* to change it.
- ► Click the *release* button or the *grip* button to apply the changes and run the motion task.
- ⇨ The HMI software checks whether the value can be processed by the gripper and, if necessary, adapts these to its limit values.

12.16.1 Service

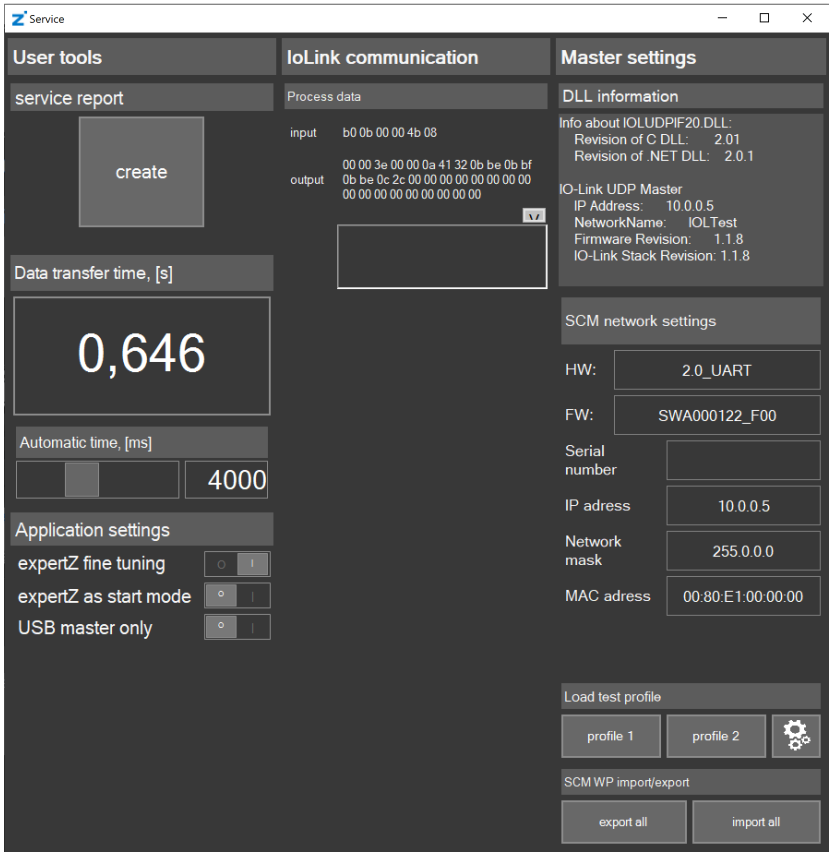
► Click the *service* button.

⇨ A login window opens.

► Enter the password: *Service*



⇨ The *Service* window opens.



12.16.1.1 Service report

► In the *service report* area, click the create button to create a service report.

12.16.1.2 Data transfer time

The *Data transfer time* is the time needed for data transmission to the gripper.

12.16.1.3 Automatic time

The *Automatic time* is the pause time of the automatic sequence.

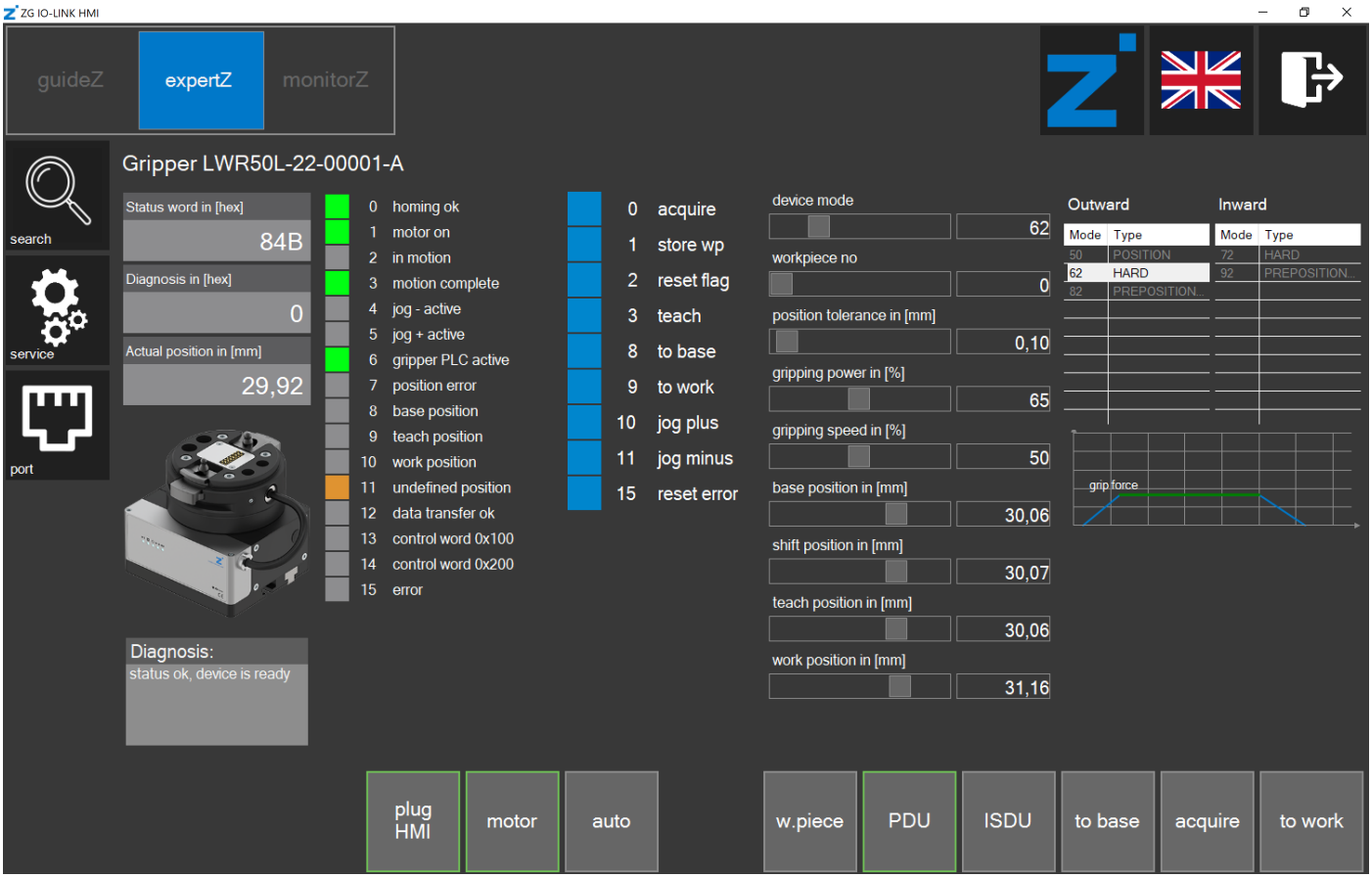
► Slide the bar to the desired time.

12.16.1.4 Application settings

► Enable the option *expertZ as start* if *expertZ* is to be displayed as the new start view.

To get full access to all the parameters, *expertZ fine tuning* mode must be switched off.

► Disable the option *expertZ fine tuning* .



► In the *Application settings*area, enable the *USB master only* option if network communication is to be switched off.

► Enable the option only if you have a Zimmer PrepBox with a USB cable.

⇨ The HMI software searches for USB nodes only.

12.16.1.5 SCM network settings

► In the *IP address* area, click the field to change the IP address of the SCM.

► Close the *Service*window.

► Run out a cold boot.

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12.16.2 Starting the automatic sequence

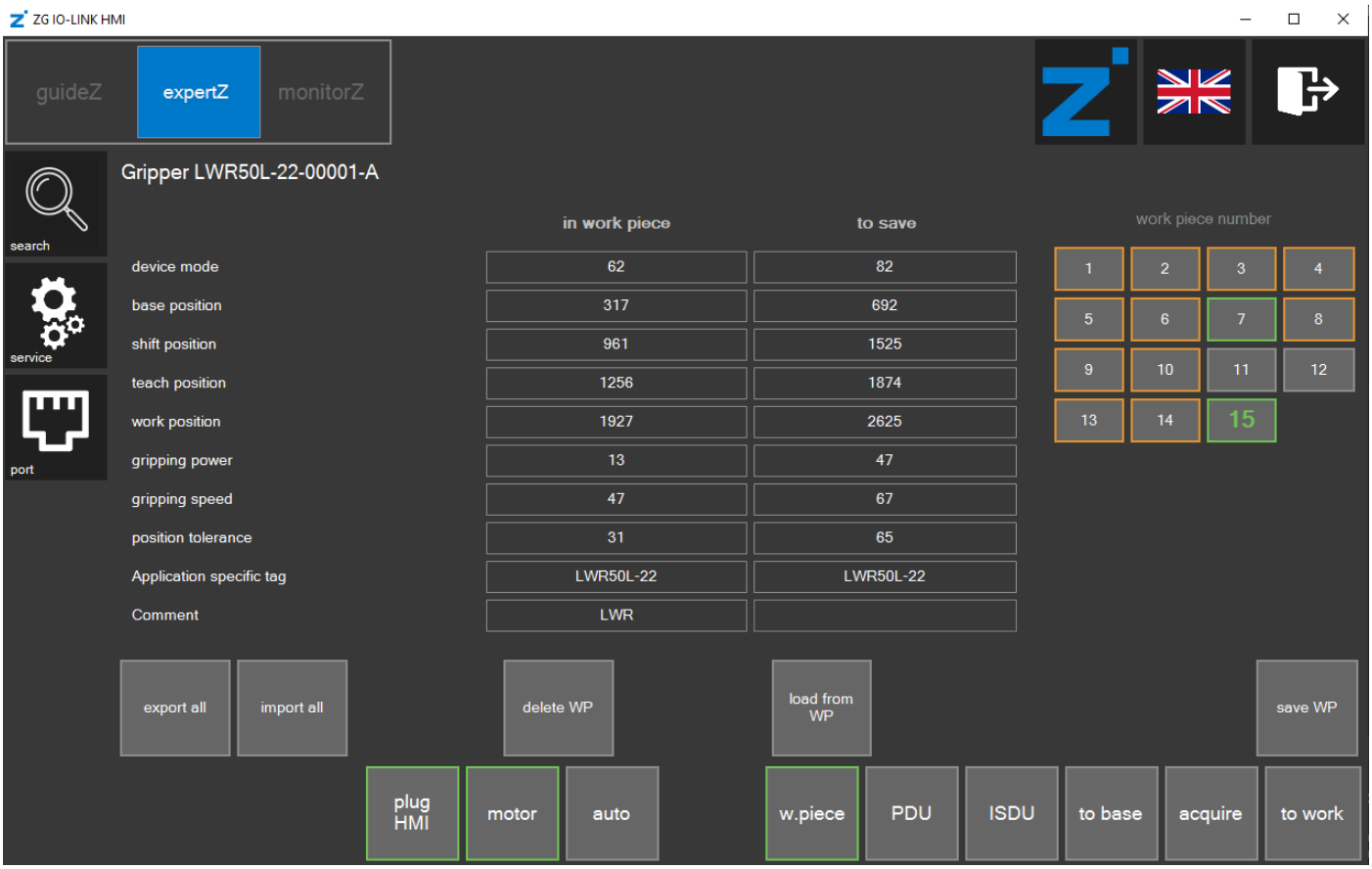
In the automatic sequence, the gripper makes cyclical opening and closing movements.

► Click the *auto* button.

12.16.3 Workpiece recipe management

In workpiece recipe management, the previously adapted parameters can be stored to the workpiece database again. In the *in work piece* area, the data with workpiece recipe numbers that are currently selected in the *work piece number* is displayed. In the *to save* area, the data that can be stored to the selected workpiece recipe number with the *save WP* button is displayed.

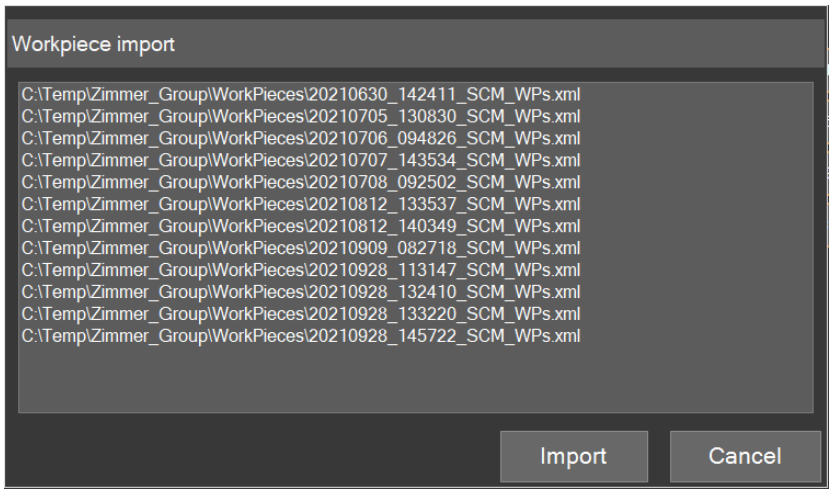
► Click the *w.piece*button to open workpiece recipe management.



12.16.3.1 Importing workpiece recipes

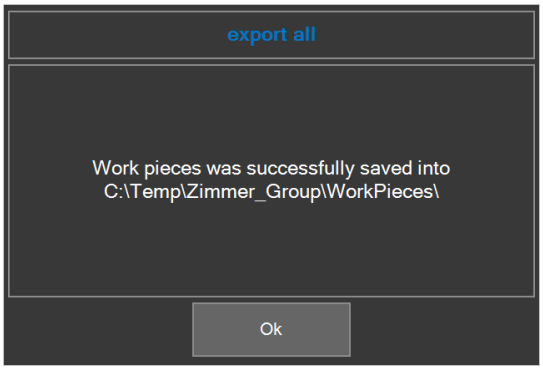
Only the entire data set can be loaded. All 15 workpiece recipes are overwritten during import.

- ▶ Click the *import all*button.
- ⇨ The *Workpiece import* window with the previously stored data sets is displayed.
- ▶ Click the desired data set.
- ▶ Click the *Import* button.



12.16.3.2 Exporting workpiece recipes

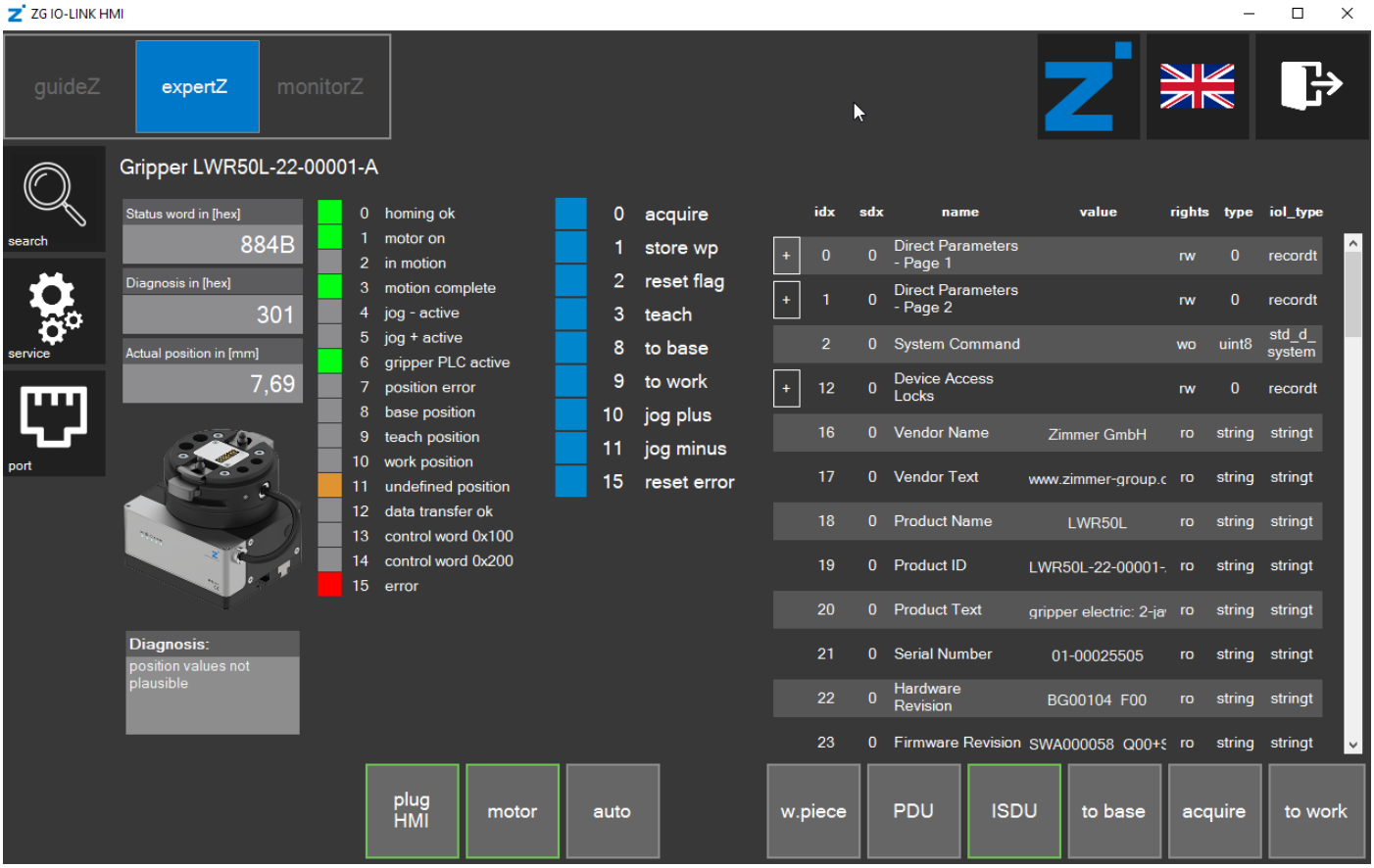
- ▶ Click the *export all* button.
- ⇨ All workpiece recipes are stored on the hard drive: *C:\Temp\Zimmer_Group\WorkPieces*



12.16.4 ISDU

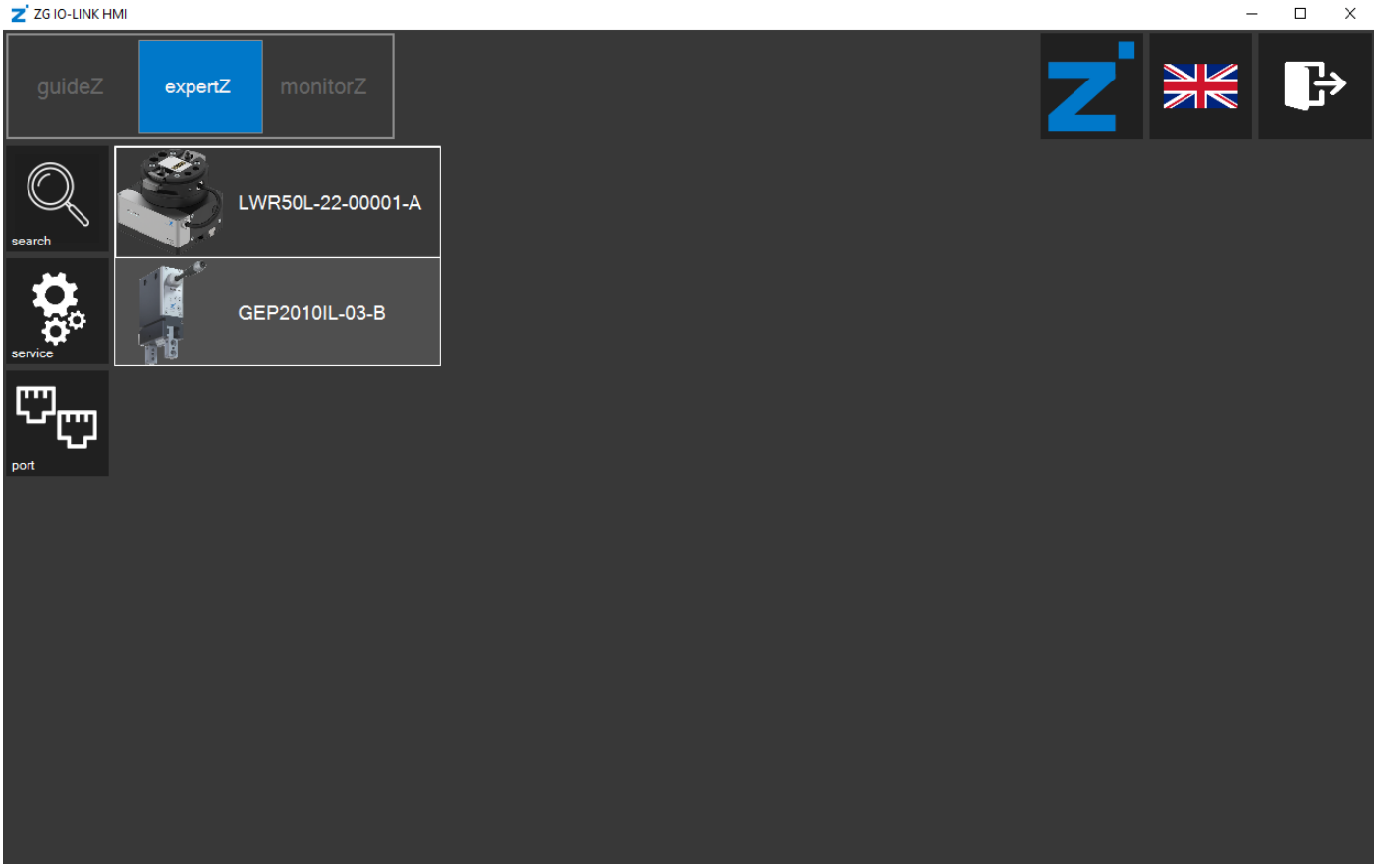
The ISDU is acyclic service data that is written directly to the memory of the gripper. This data is thus not stored in the SCM. Acyclic service data that is writable can be adapted here.

► Click the ISDU button to view the acyclic service data.

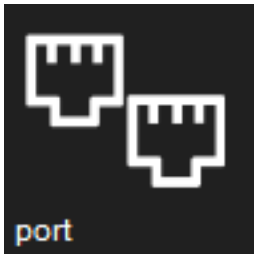


12.17 Selecting the active gripper(s)

If two grippers are connected, you can select whether both are to be active or only one of the two.



Both connected grippers are active.



Only one of the two connected grippers is active.

► Click the corresponding gripper to select it.

13 Operation

13.1 Operating Freedrive

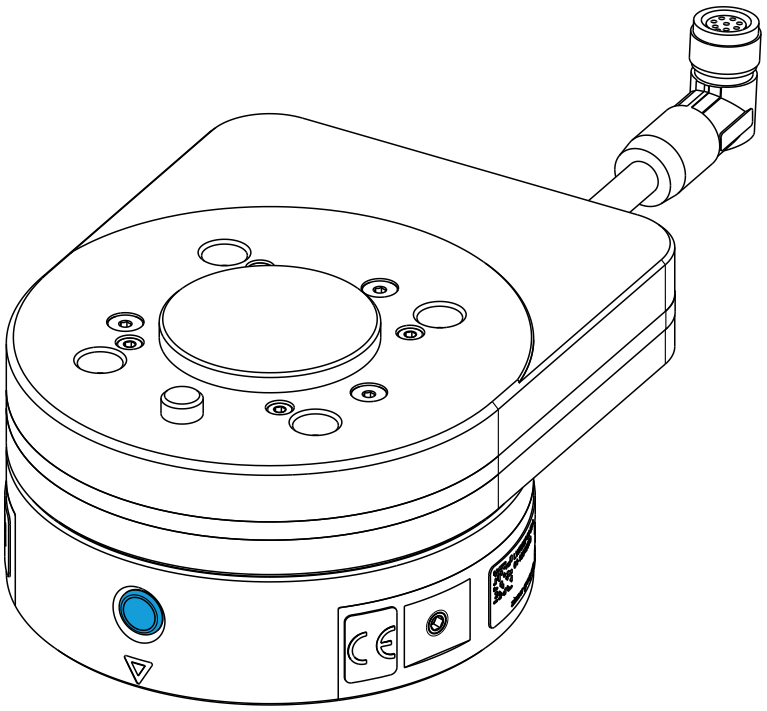
INFORMATION

Freedrive is only available for installation size LWR50F-01-03-A.

For manual soft-switching of the robot, the product is equipped with a Freedrive button ●.

The following work steps must be observed for manually teaching in the robot position:

- ► To soft-switch the robot, press the Freedrive button.
- ⇨ The robot can be moved manually.
- ⇨ The robot is moved with the product to the desired position.
- ► Release the Freedrive Button again as soon as you have reached the desired position.
- ⇨ The robot and product stop at their position.
  - ► Observe the information from the robot manufacturer for teaching in and activating the position of the robot and product in the control system.



INFORMATION

► Details about activation can be found in the information from the robot manufacturer.

14 Error diagnosis

INFORMATION

- ► For further information on troubleshooting for grippers, refer to the current installation and operating instructions of the gripper on our website.
- ► Please contact Customer Service if you have any questions.

15 Maintenance

NOTICE

Material damage resulting from blowing out with compressed air

Blowing out the product with compressed air can cause malfunctions and pose a risk of accidents.

► Never purge the product with compressed air.

NOTICE

Material damage caused by unsuitable cleaning materials

Liquid and solvent-based cleaning agents can cause malfunctions and pose a risk of accidents.

► Do not clean the product with any cleaning agents that are liquid or contain solvents.

Operation of the product is maintenance-free.

► Note that the product could become damaged under the following circumstances:

- Dirty environment
- Improper use and use that does not comply with the performance data
- Permissible temperature range not observed

► Even though the product is maintenance-free as mentioned above, perform a regular visual inspection to check for any damage or contamination.

► Have maintenance work that requires disassembly of the product performed by customer service if possible.

⇨ Dismantling and reassembling the product without authorization may result in complications, as special installation equipment is required in some cases. Zimmer GmbH accepts no liability for any resulting malfunctions or damage.

16 Resetting to factory settings

NOTICE

When a reset to factory settings is performed, all saved information is deleted.

► For more information, see the operating instructions for the robot-specific MATCH Comfort App.

17 Decommissioning/disposal

INFORMATION

When the product reaches the end of its operational phase, it can be completely disassembled and disposed of.

► Disconnect the product completely from the power supply.

► Dispose of the components properly according to the material groups.

► Comply with the locally applicable environmental and disposal regulations.

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18 RoHS declaration

in terms of the EU Regulation 2011/65/EU

Name and address of the manufacturer:

Zimmer GmbH
Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: MATCH robot module

Type designation: LWR50F-01-03-A, LWR50F-09-03-A

conforms to the requirements of the directive in its design and the version we put on the market.

Michael Hoch	Rheinau, Germany, 2021-04-01	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

19 REACH declaration

In terms of the EC Regulation 1907/2006

Name and address of the manufacturer:

Zimmer GmbH
Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

REACH stands for **R**egistration, **E**valuation, **A**uthorisation and Restriction of **Ch**emicals.

A full declaration of REACH can be obtained from the manufacturer due to the duty to notify in accordance with Art. 33 of the REACH regulation (“Duty to communicate information on substances in articles”).

Michael Hoch	Rheinau, Germany, 2021-04-01	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

DDOC01360 / b EN / 2024-02-12

20 Declaration of Incorporation

In terms of the EU Machinery Directive 2006/42/EC (Annex II 1 B)

Name and address of the manufacturer:

Zimmer GmbH
Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: MATCH robot module

Type designation: LWR50F-01-03-A, LWR50F-09-03-A

conform to the requirements of the Machinery Directive, 2006/42/EC, Article 2g, Annex VII.b – Annex II.b, in its design and the version we put on the market.

Basic health and safety requirements:

No. 1.1.2, No. 1.1.3, No. .1.5, No. 1.3.2, No. 1.3.4, No. 1.3.7, No. 1.5.3, No. 1.5.4, No. 1.5.8, No. 1.6.4, No. 1.7.1, No. 1.7.4

A full list of applied standards can be obtained from the manufacturer.

We also declare that the specific technical documents were produced in accordance with Annex VII Part B of this Directive. We undertake to provide the market supervisory bodies with electronic versions of special documents for the incomplete machine through our documentation department, should they have reason to request them.

The incomplete machine may only be commissioned if it has been ascertained, if applicable, that the machine or system in which the incomplete machine is to be installed satisfies the requirements of Directive 2006/42/EC on Machinery and an EC Declaration of Conformity has been drawn up in accordance with Annex II 1 A.

Kurt Ross	Rheinau, Germany, 2021-04-01	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

21 Declaration of Conformity

As defined by the EC Directive 2014/30/EU on electromagnetic compatibility

Name and address of the manufacturer:

Zimmer GmbH
Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the products described below

Product designation:	MATCH robot module
Type designation:	LWR50F-01-03-A, LWR50F-09-03-A

conform to the requirements of the Electromagnetic Compatibility Directive 2014/30/EU in its design and the version we put on the market.

The following harmonized standards have been used:

DIN EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
DIN EN 61000-6-3	EMC Generic standard, Emission standard for residential, commercial and light-industrial
DIN EN 61000-6-2	EMC Generic standard, Emission standard for industrial environments
DIN EN 61000-6-4	EMC Generic standard, Immunity for industrial environments

A full list of applied standards can be obtained from the manufacturer.

Kurt Ross	Rheinau, Germany, 2021-04-01	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner