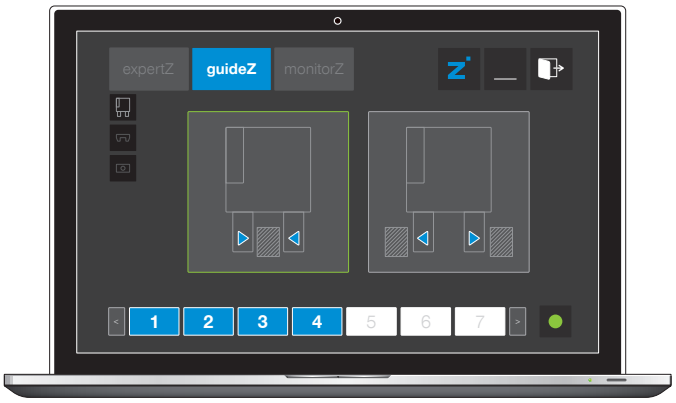


COMMISSIONING INSTRUCTIONS

Human Machine Interface

HMI software

DDOC02343

THE KNOW-HOW FACTORY

Content

DDOC02343 / a EN / 2025-01-22

1 Installation

1.1 Setting up the Ethernet connection

Only the lower Ethernet port is active and 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".

► Please contact Customer Service if you have any questions.

1.2 Downloading software

► Download the HMI software from our website.

► Install the HMI software on a Windows PC.

2 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.

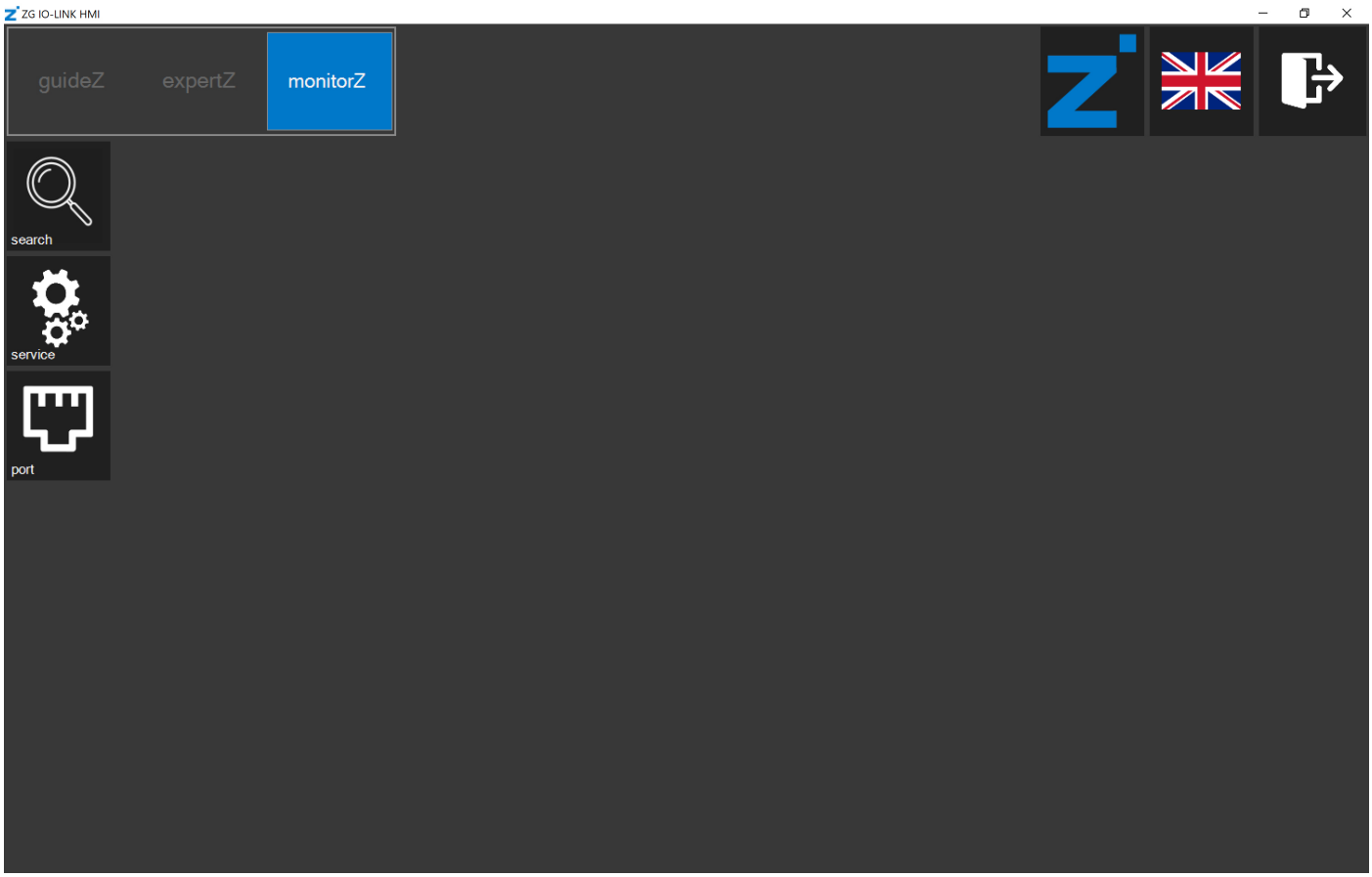
2.1 Establishing the connection

INFORMATION

You need the HMI software 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.



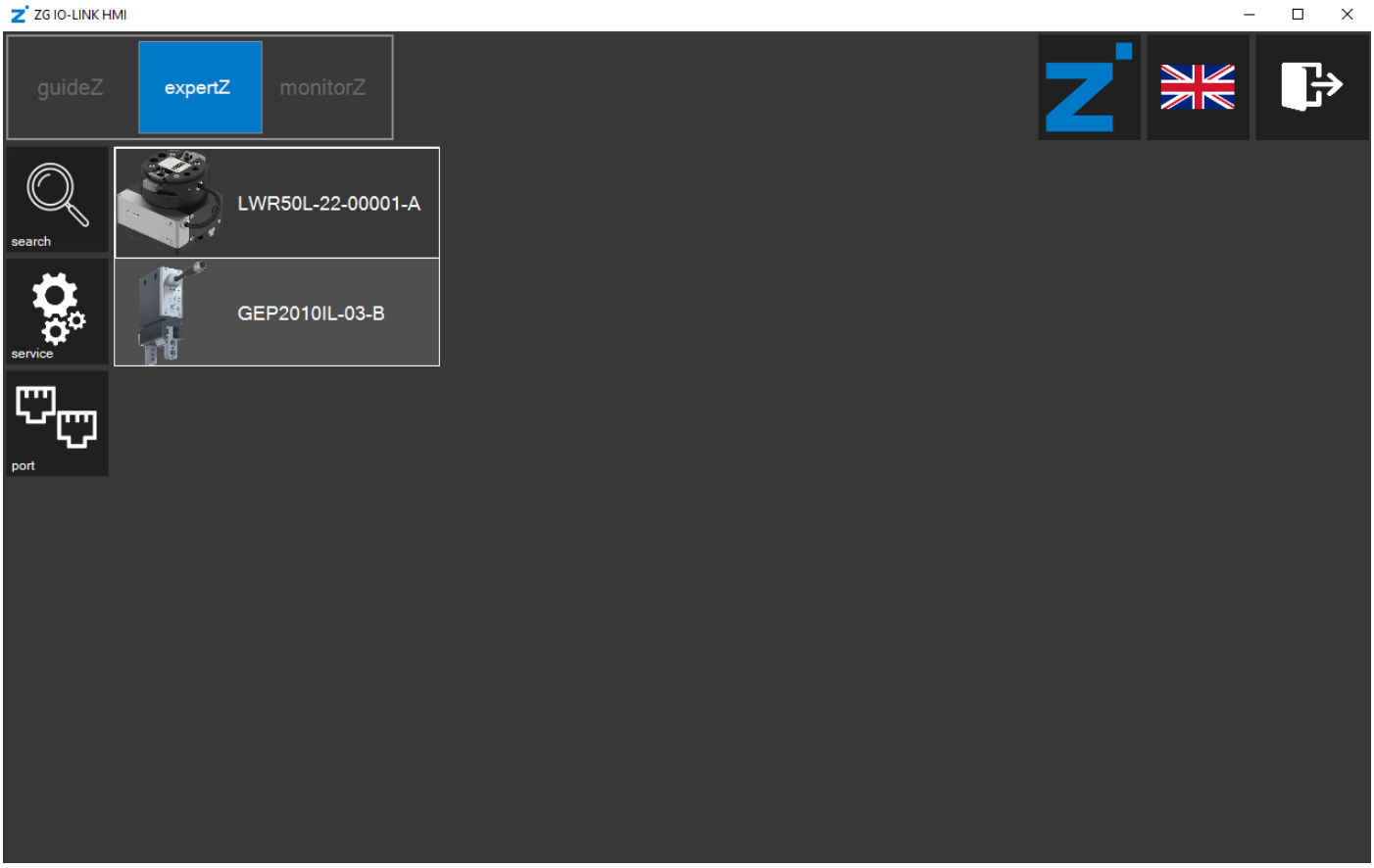
► Connect the Windows PC with the installed HMI software.

2.2 Selecting the active gripper(s)

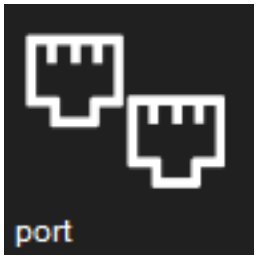
INFORMATION

Only single port can be used for the robot-specific SCM in combination with the default settings of the Comfort App.

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



Dual port: Both connected grippers are active.

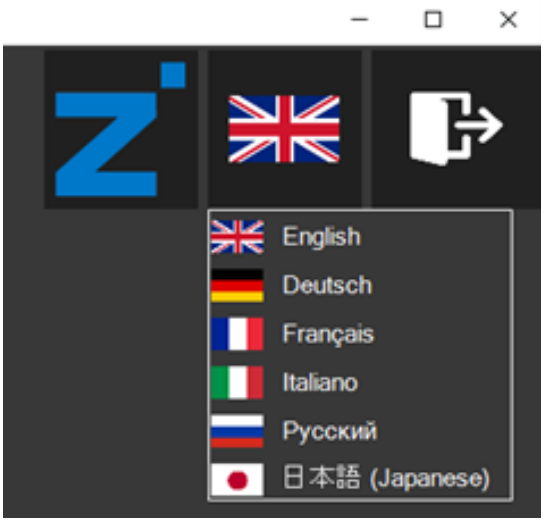


Single port: Only one of the two connected grippers is active.

► Click the corresponding gripper to select it.

2.3 Selecting the language

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



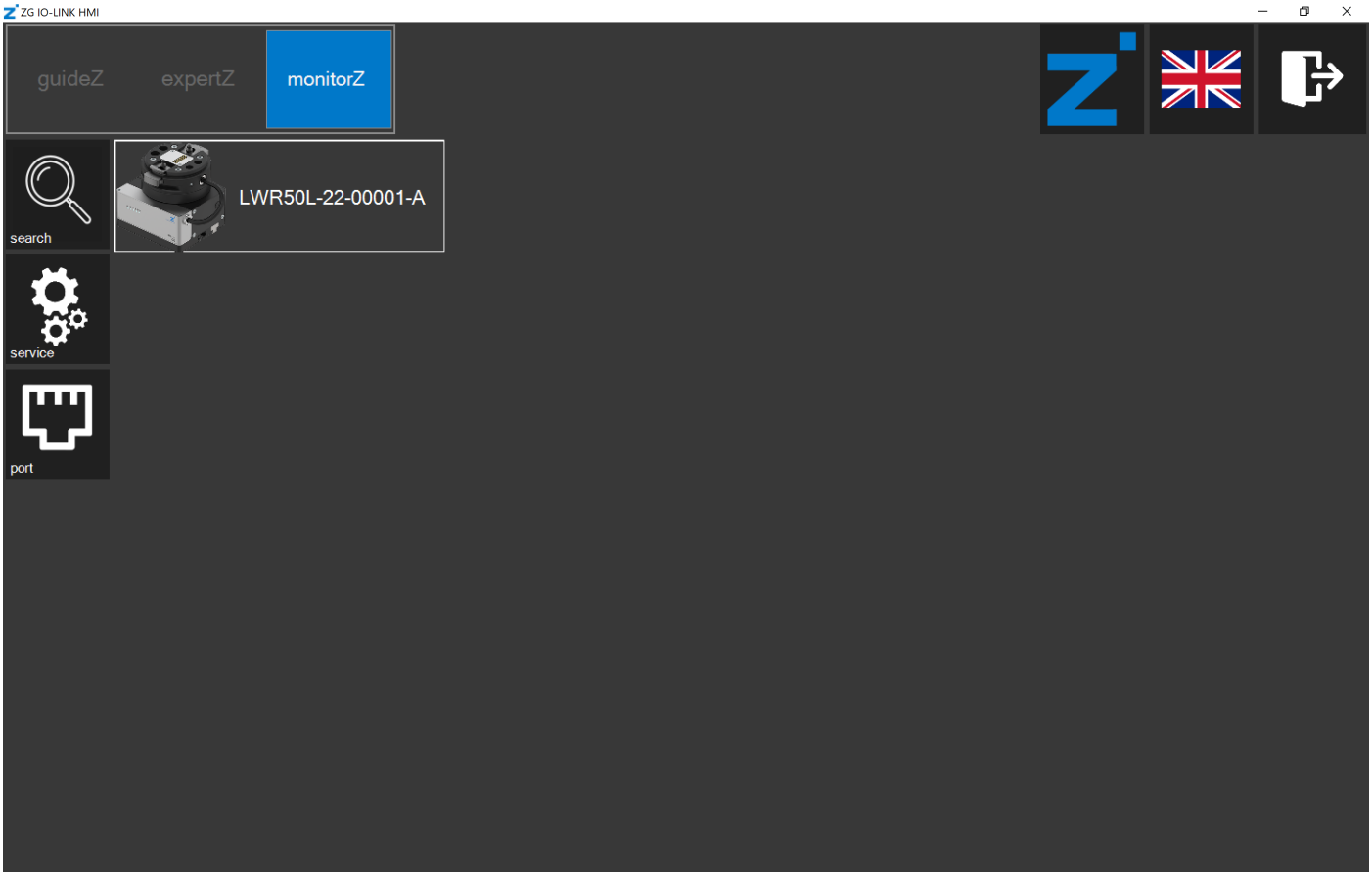
2.4 Checking the version

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

2.5 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.

2.6 Switching on and referencing the motor

NOTICE

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

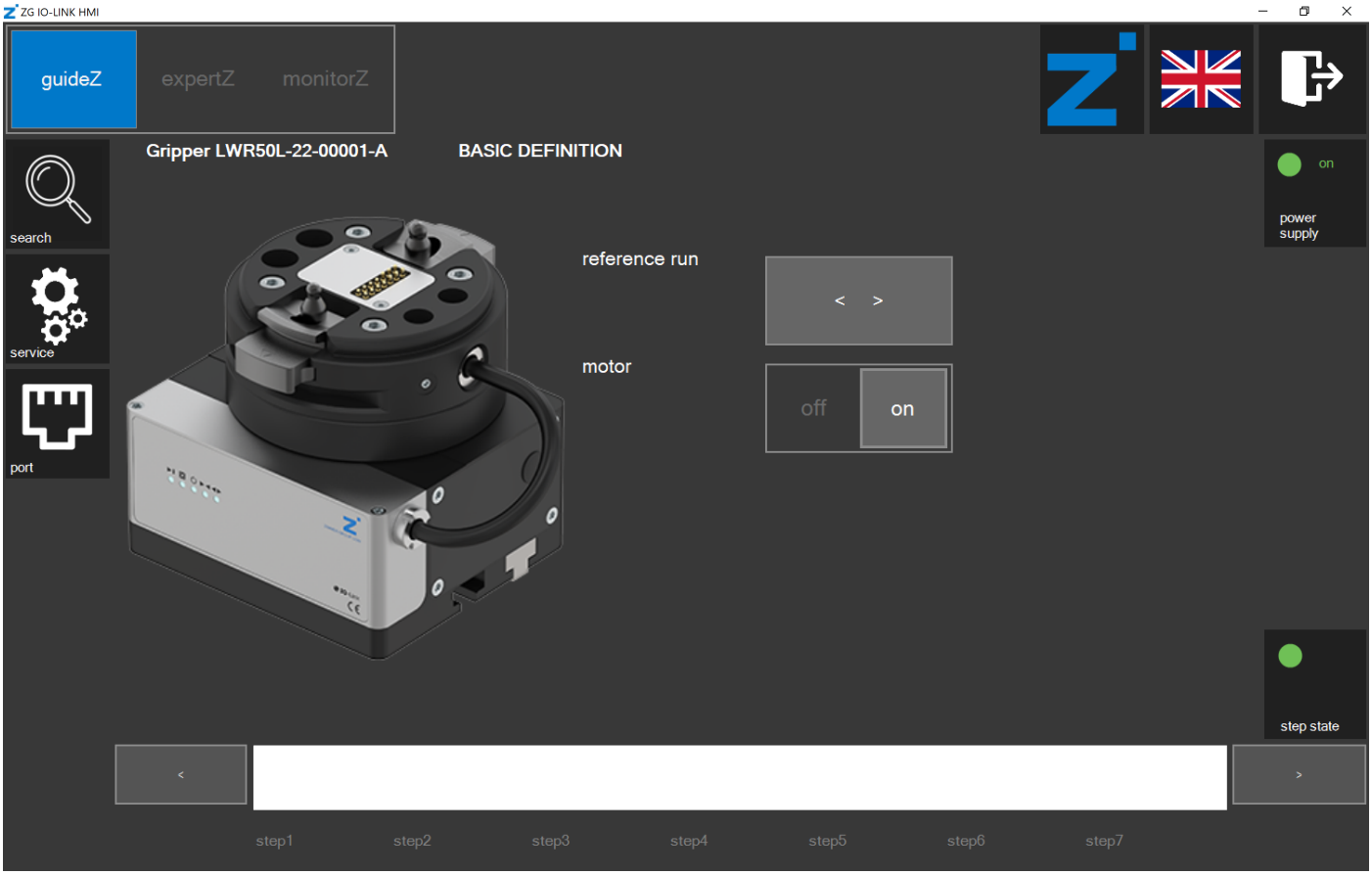
► Connect the actuator voltage.

⇨ 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.

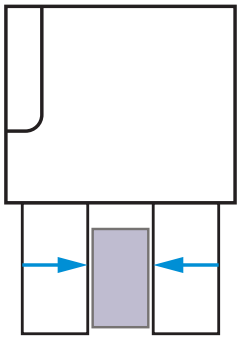


► Click the > button.

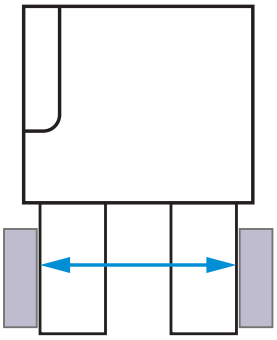
2.7 Selecting the gripping direction

► Select the gripping direction.

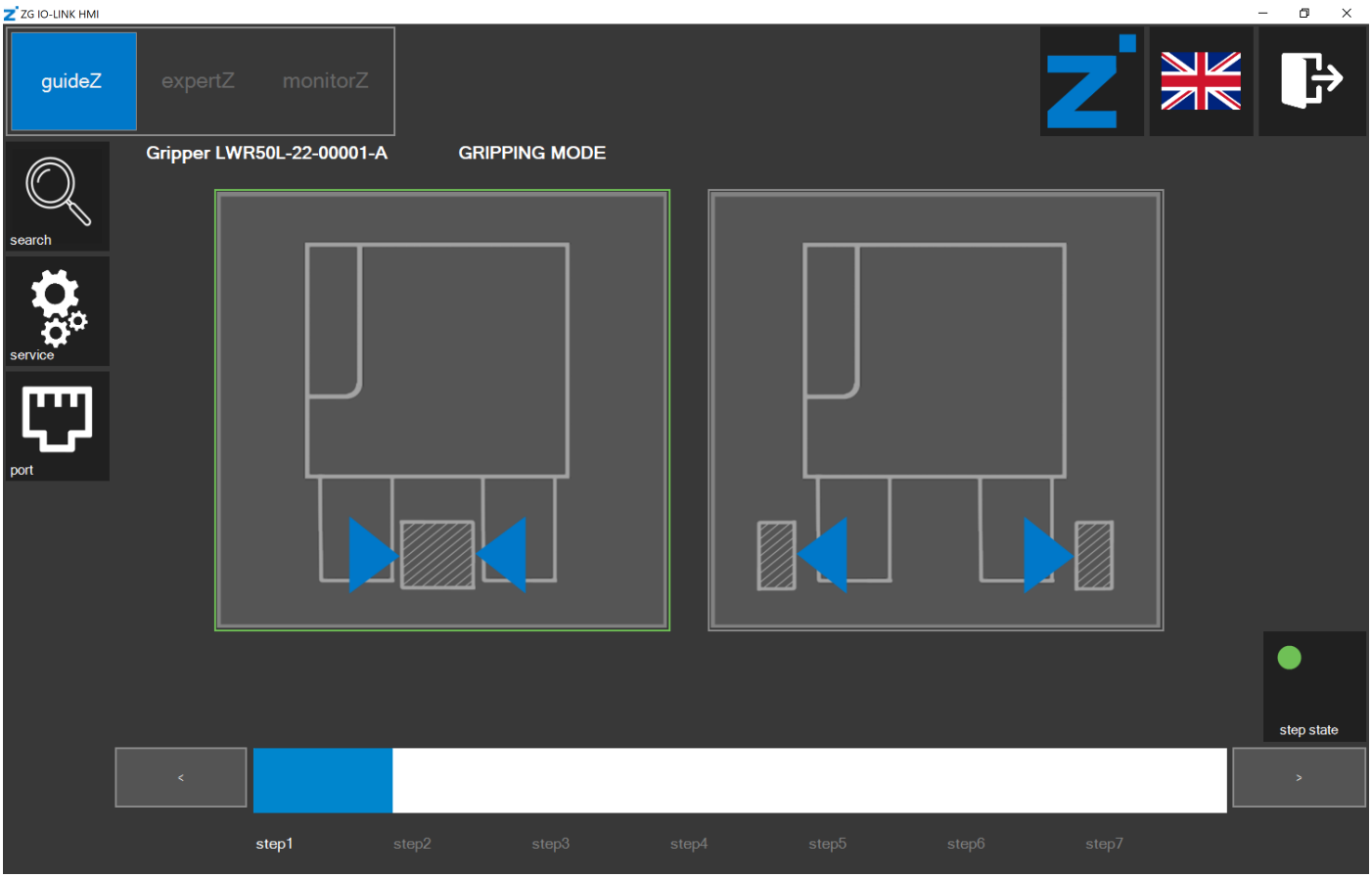
Outside gripping



Inside gripping



⇨ The parameters are set for the gripper automatically.



⇨ The *step state*LED lights up green.

► Click the > button.

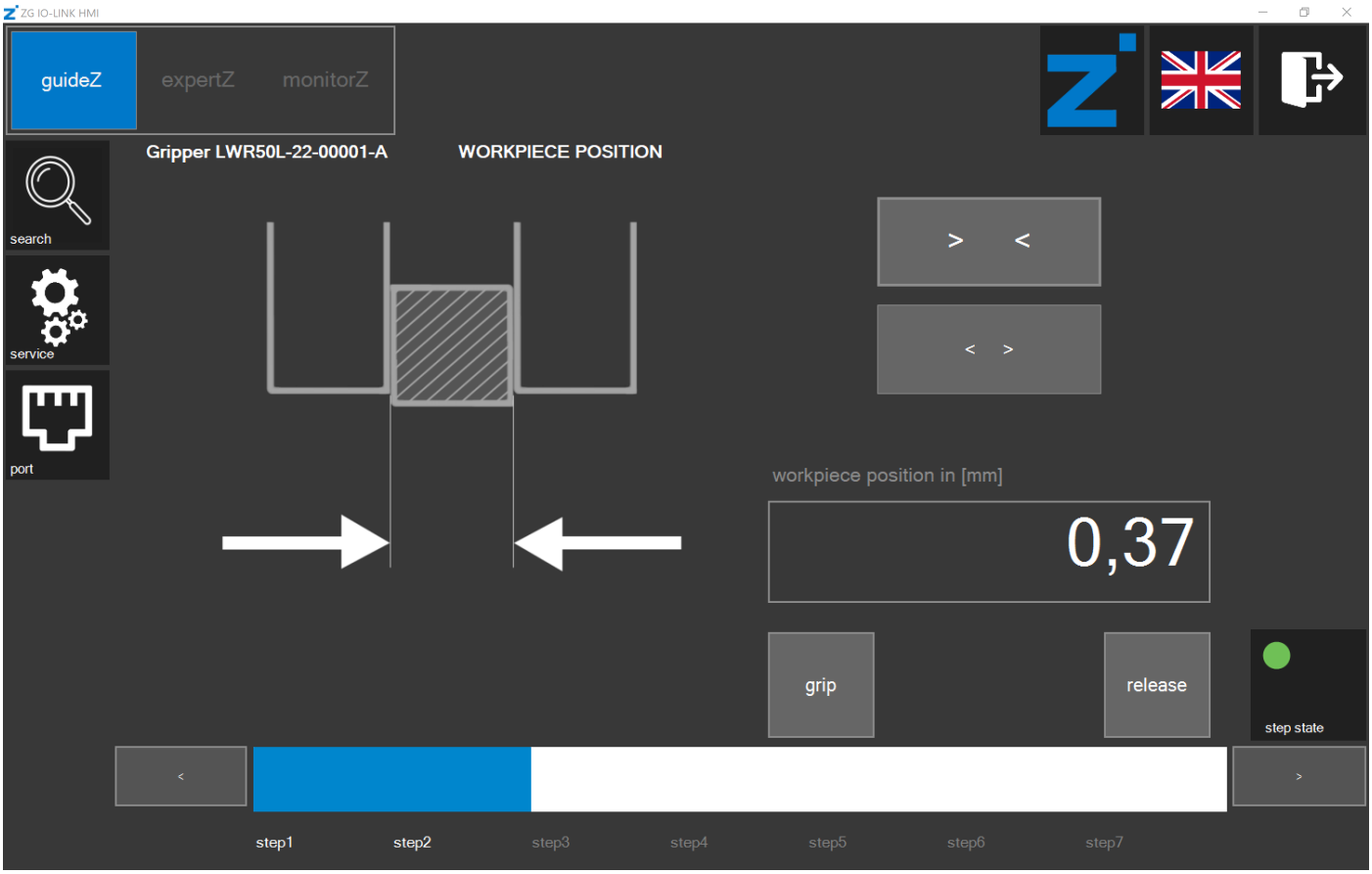
2.8 Teaching in the workpiece

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.

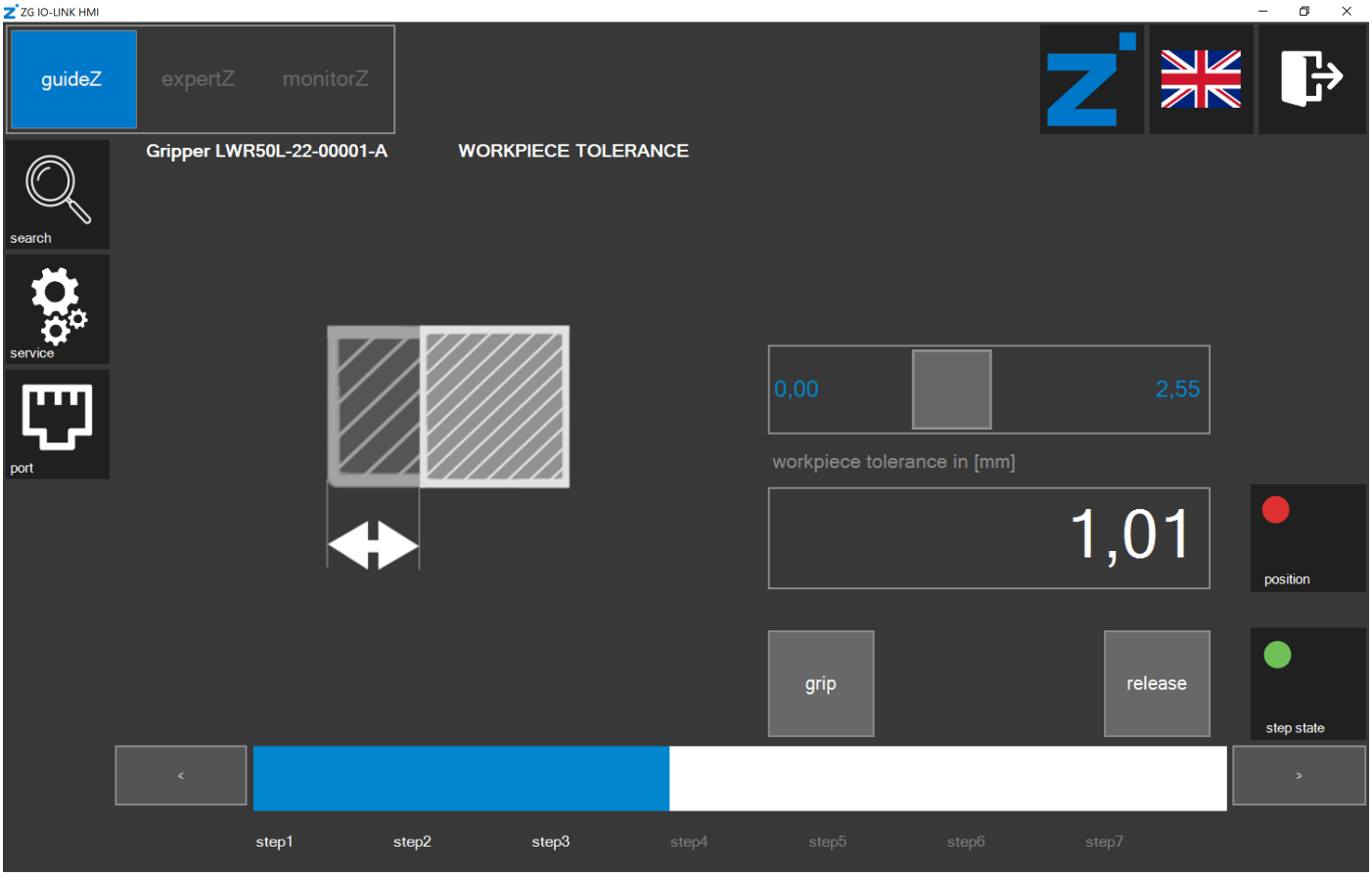
► Click the > button.

2.9 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.



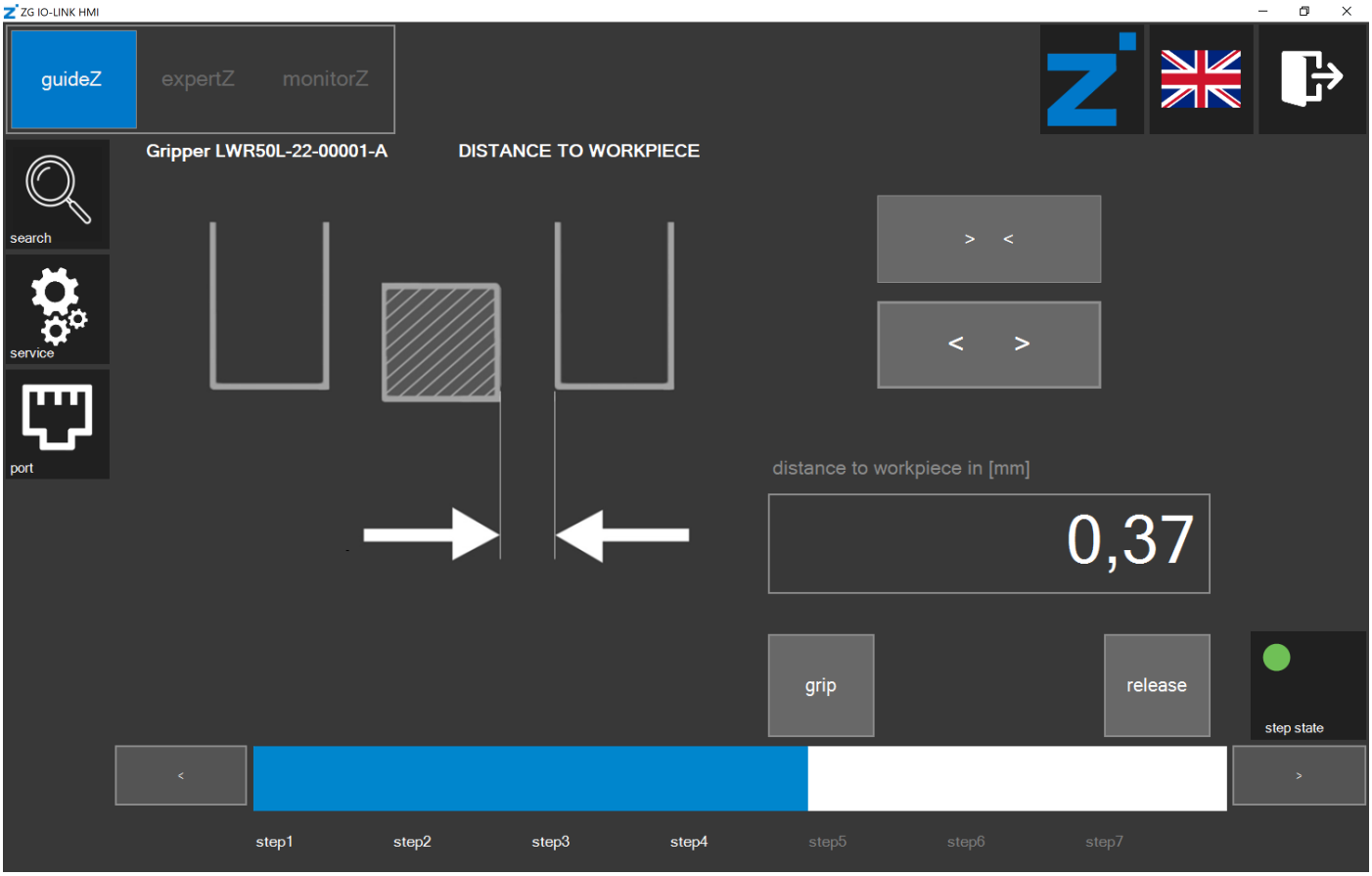
► Click the > button.

2.10 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.

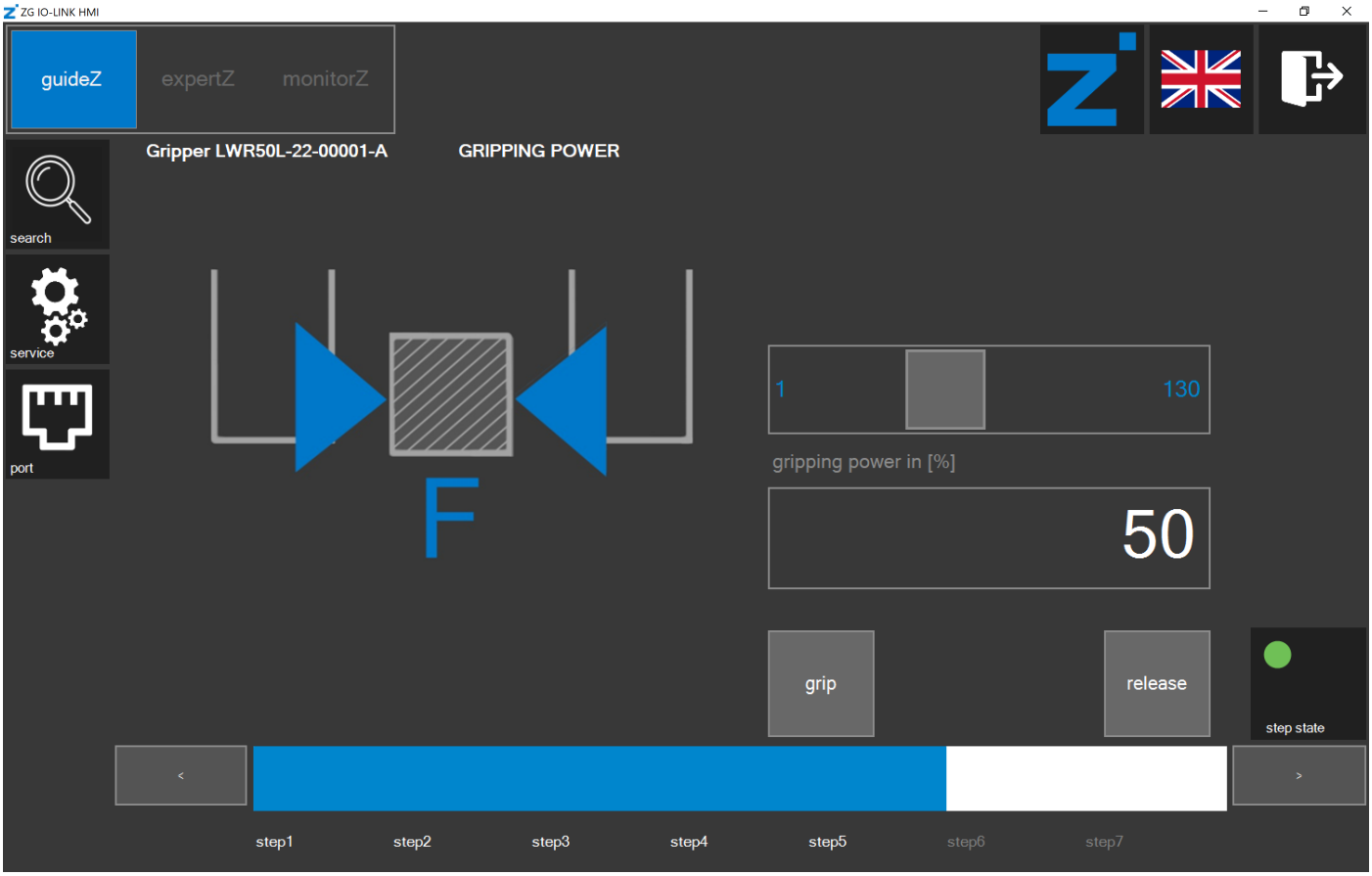


► Click the > button.

2.11 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.



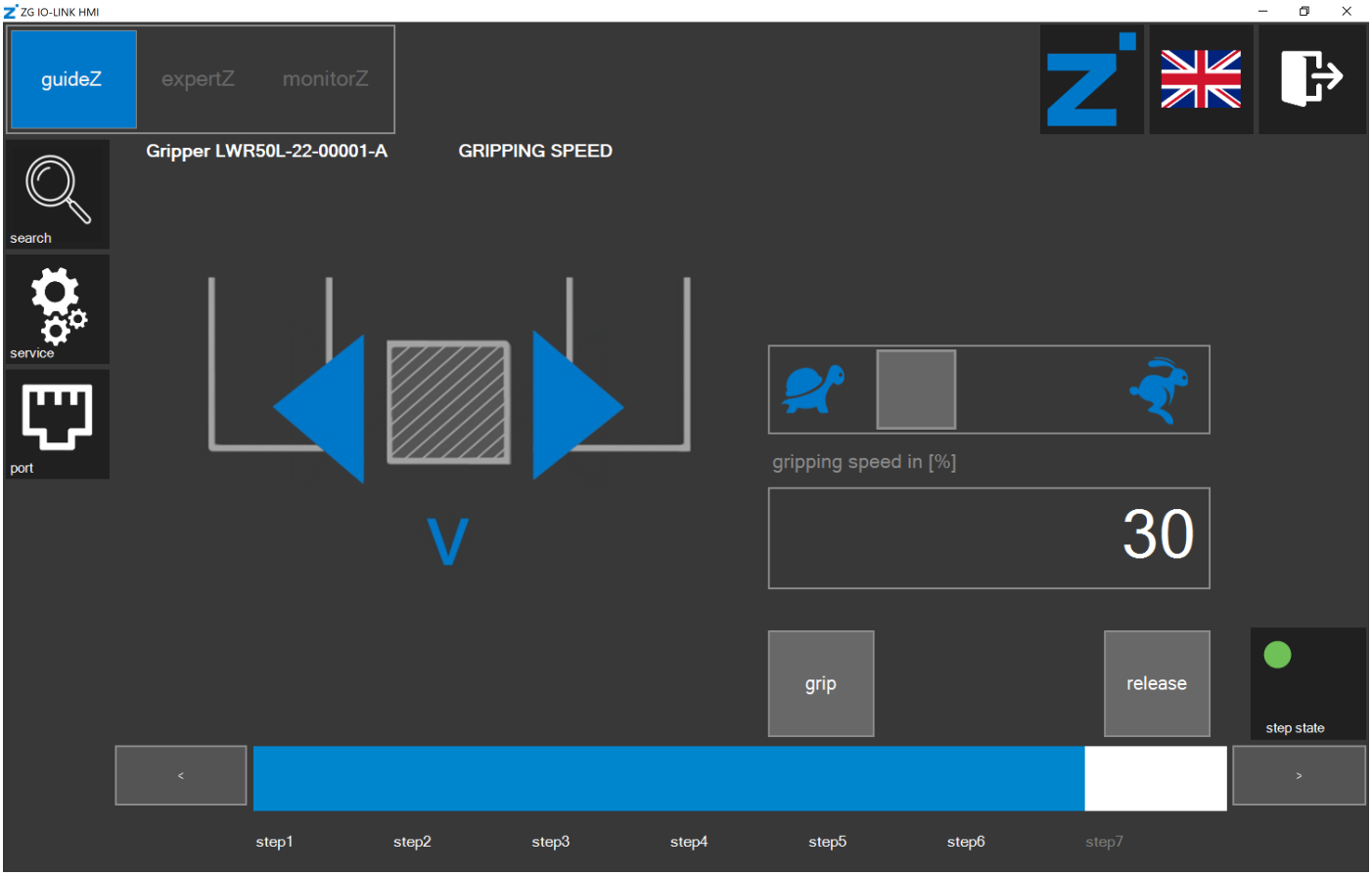
► Click the > button.

2.12 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.

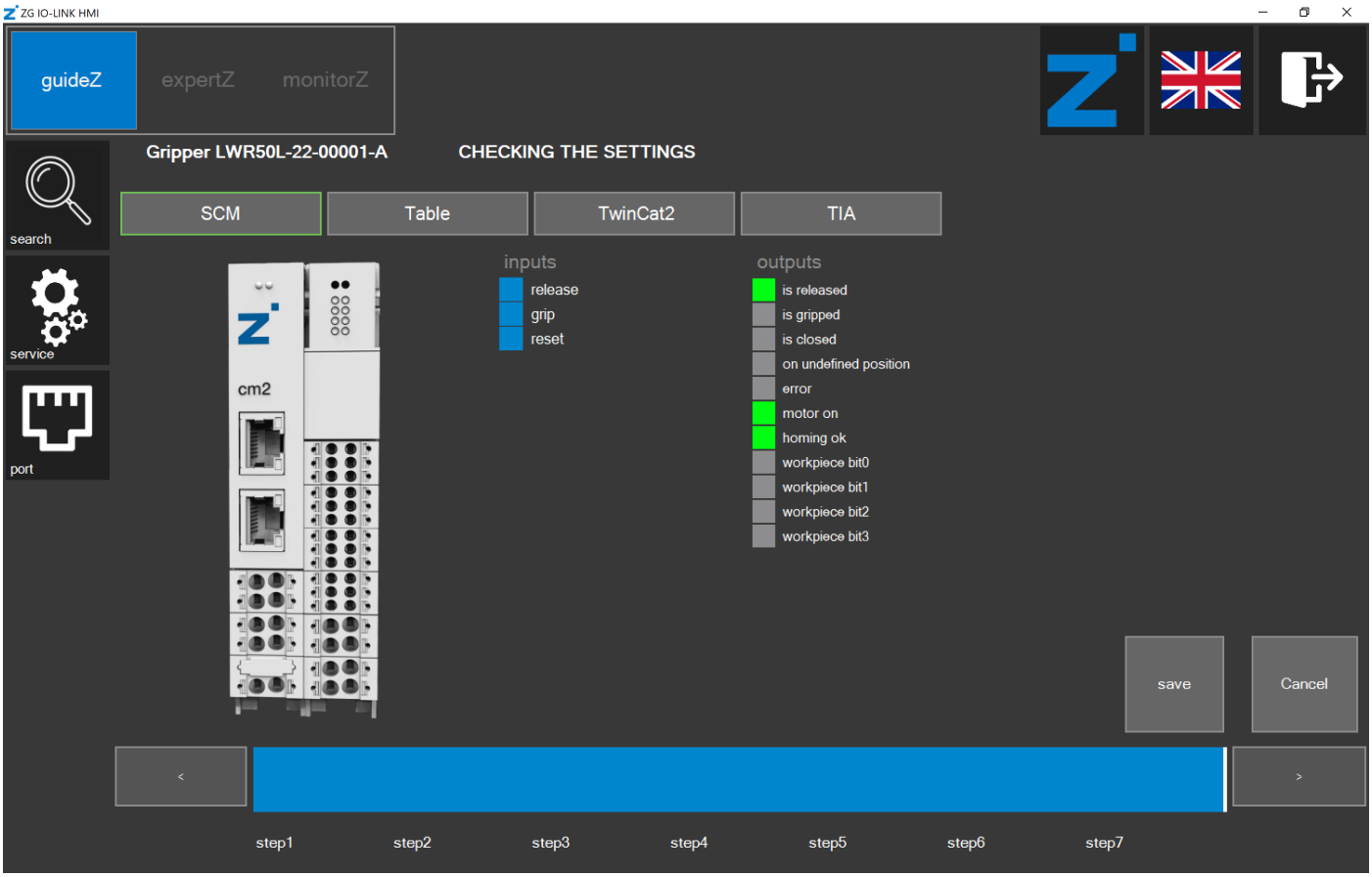
2.13 Checking the settings

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

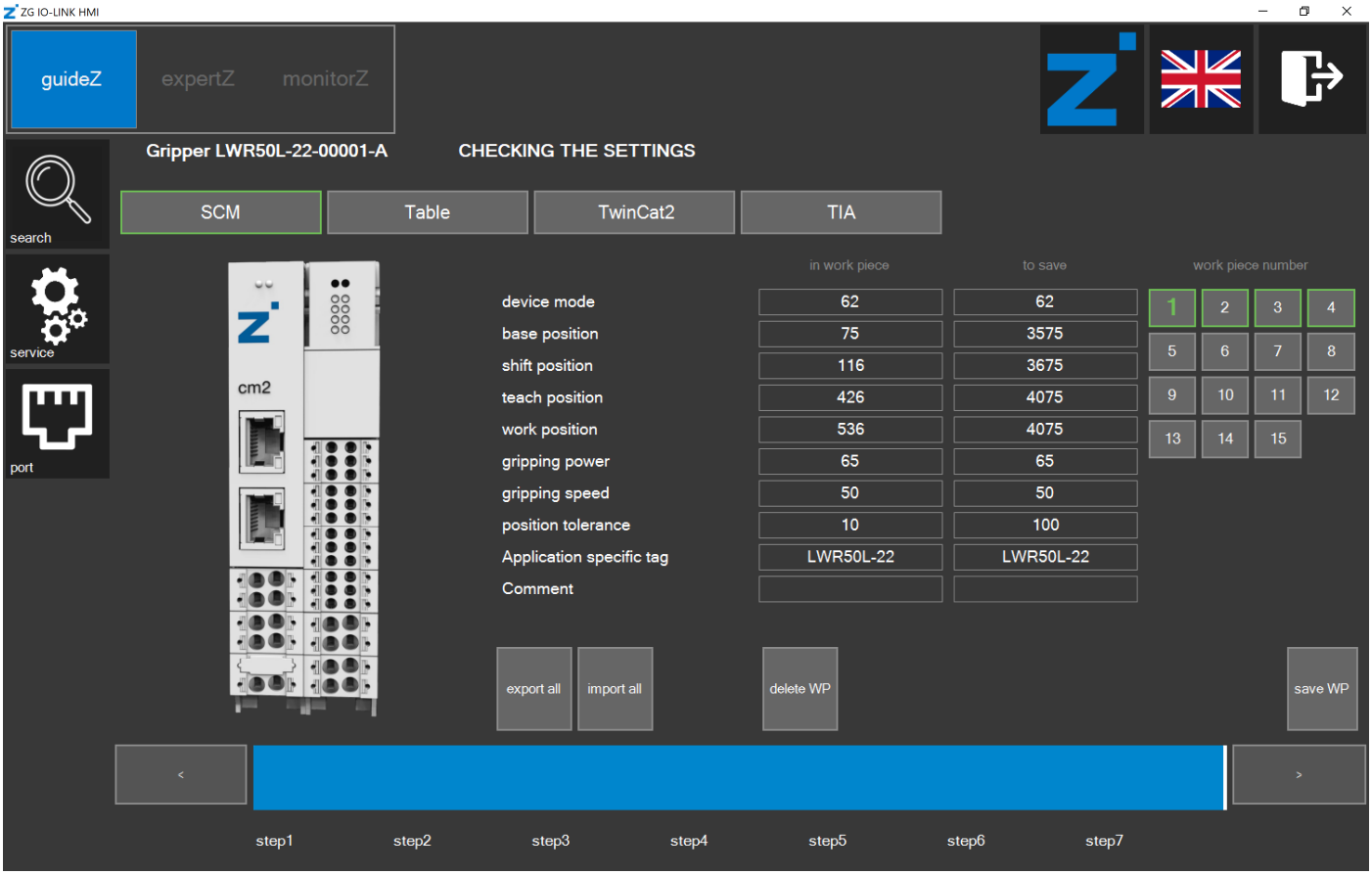
The *Table* view shows the parameters of the corresponding gripper generated in the background.
The *TwinCat2* and *TIA* views show the wiring of the PLC function blocks to fit the parameters of the gripper.

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

2.14 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.

2.15 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.

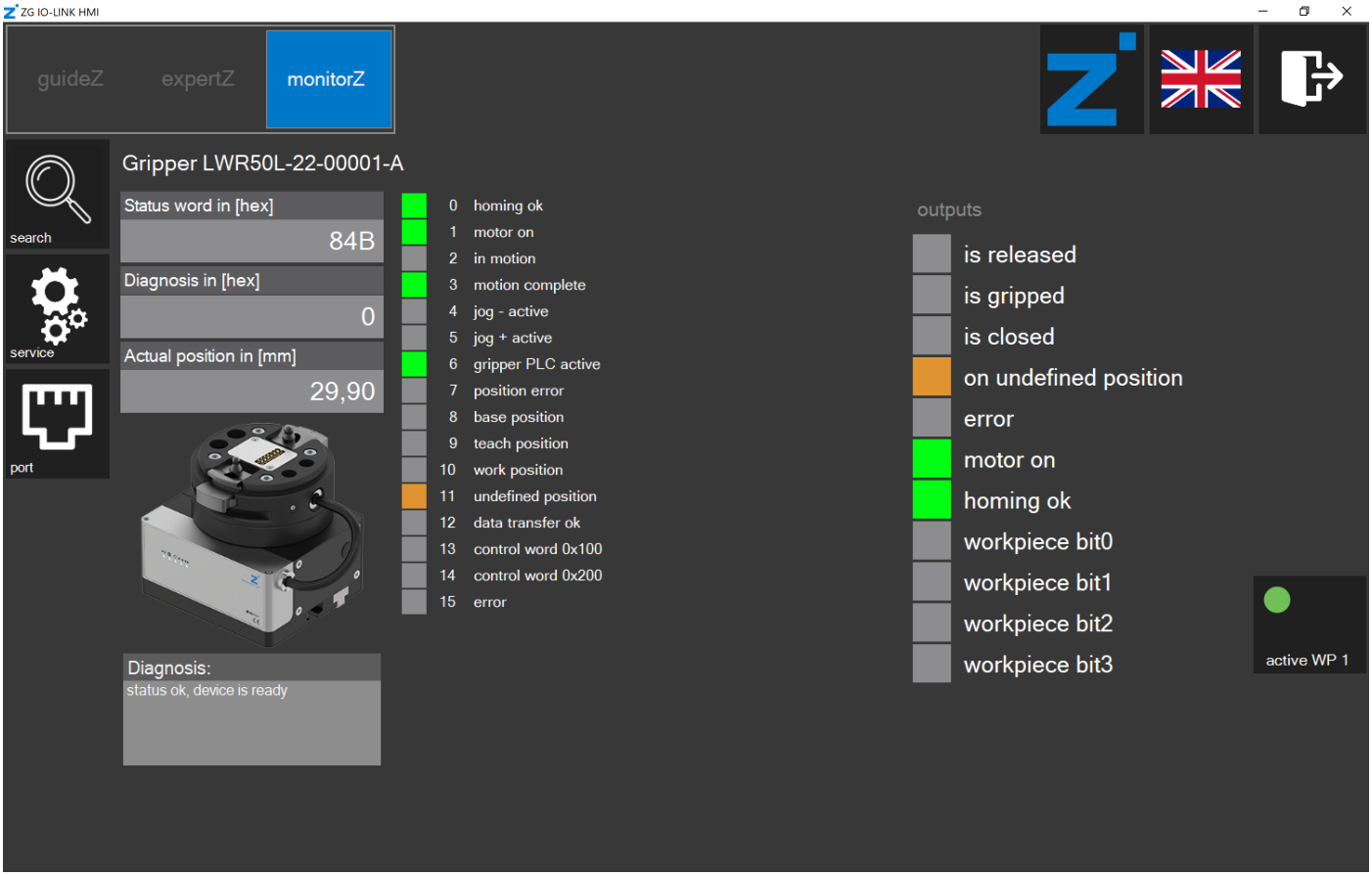
2.16 monitorZ control level

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

⇨ The LED lights up red.

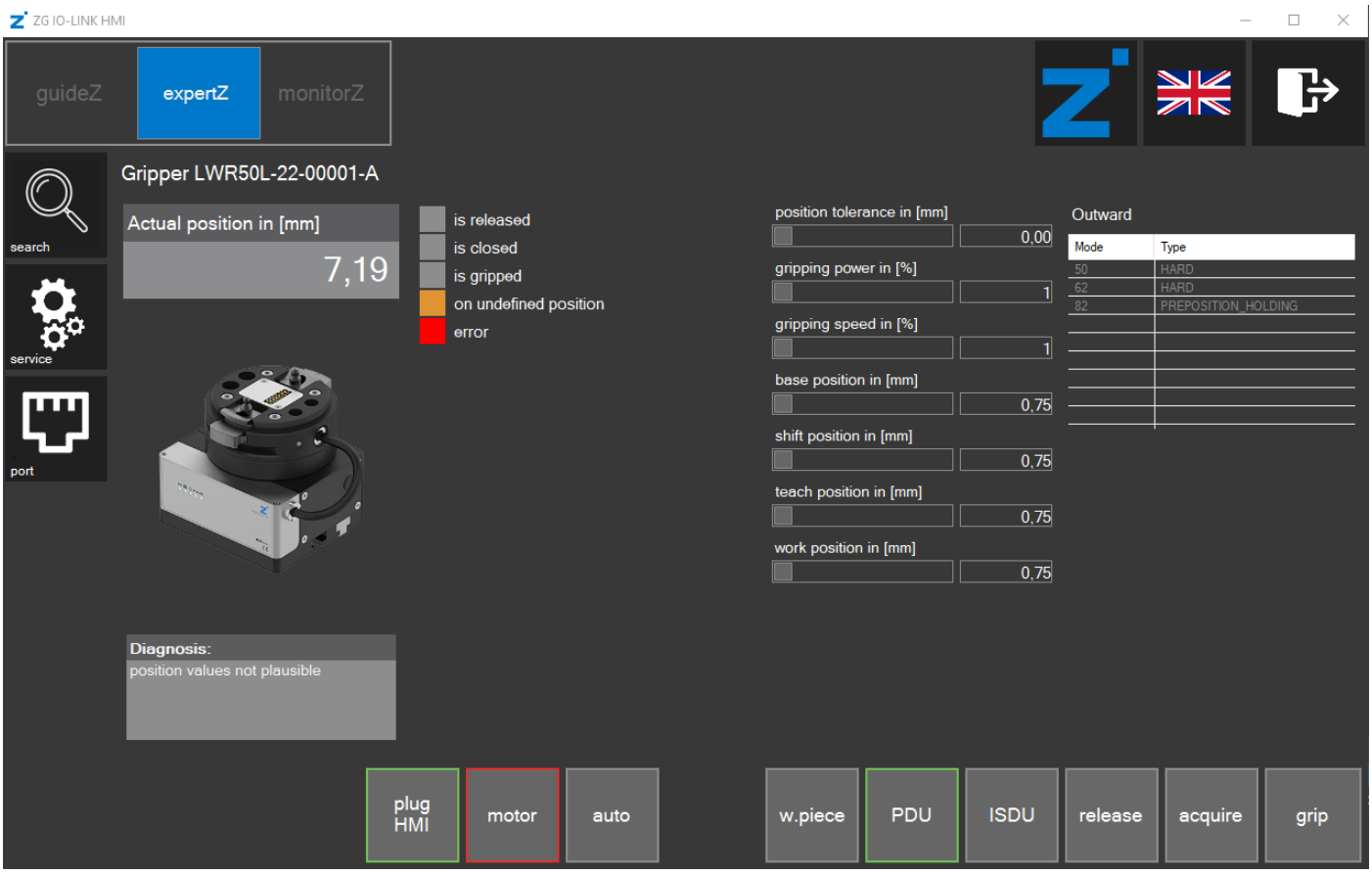
⇨ The control system of the gripper with the HMI software is no longer possible because the input and output signals now have control.

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



2.17 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.

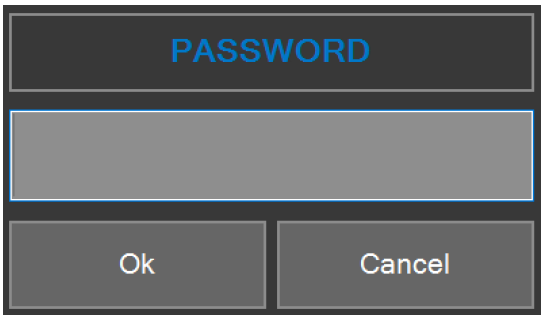
- ► Slide the bar to the desired value to change it.
- ► In the *Outward* area, click the desired *mode* to change it.
- ► Click the *release* button or the *grip* button to apply the changes and run the motion task.
- ⇨ The HMI software checks whether the value can be processed by the gripper and, if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

2.17.1 Service

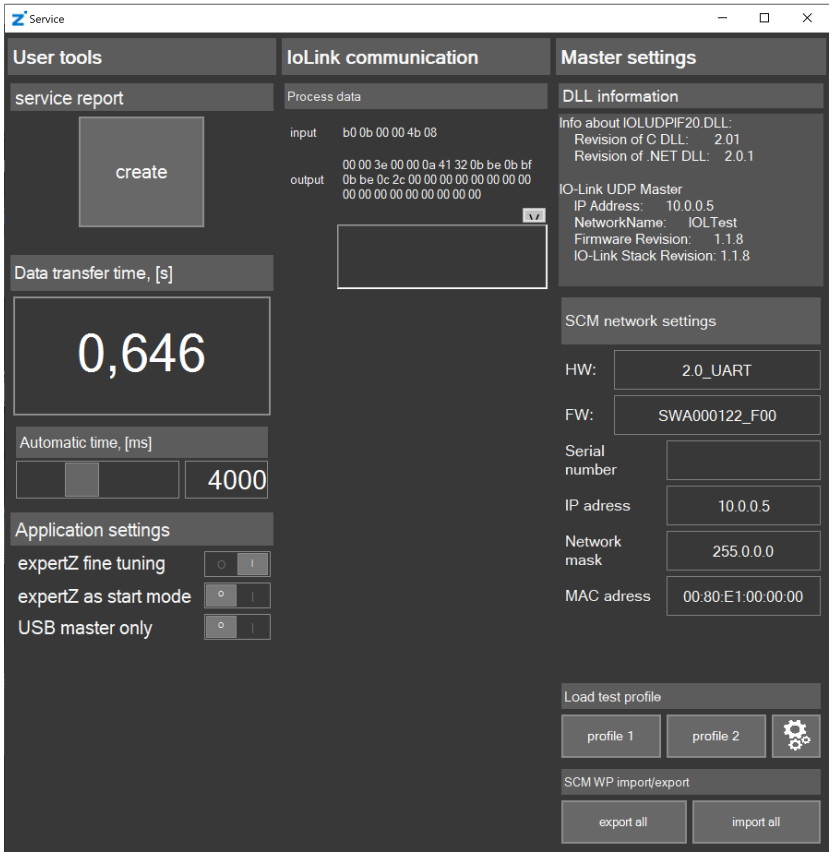
► Click the *service* button.

⇨ A login window opens.

► Enter the password: *Service*



⇨ The *Service* window opens.



2.17.1.1 Service report

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

2.17.1.2 Data transfer time

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

2.17.1.3 Automatic time

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

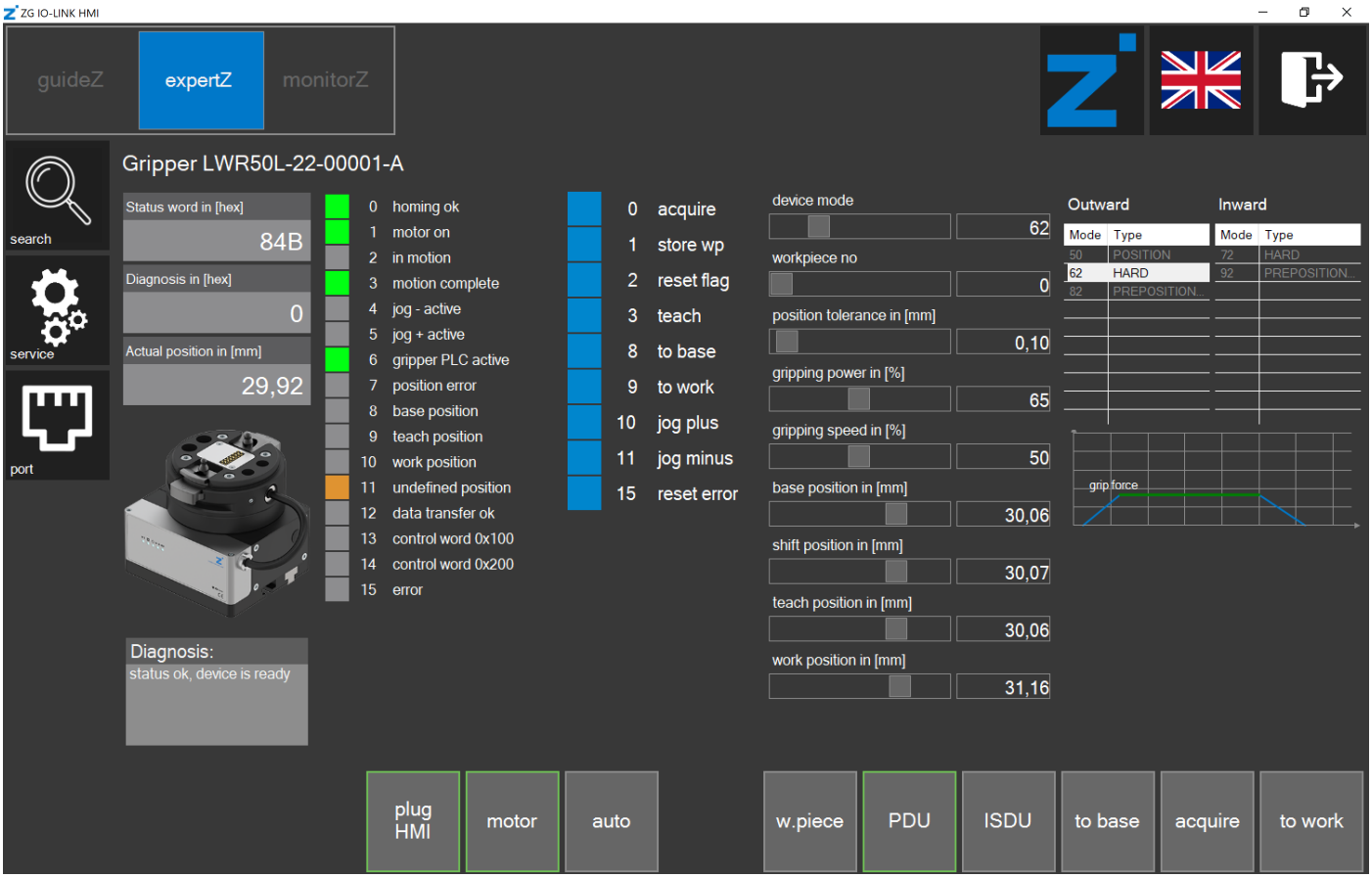
► Slide the bar to the desired time.

2.17.1.4 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.

2.17.1.5 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.

2.17.2 Starting the automatic sequence

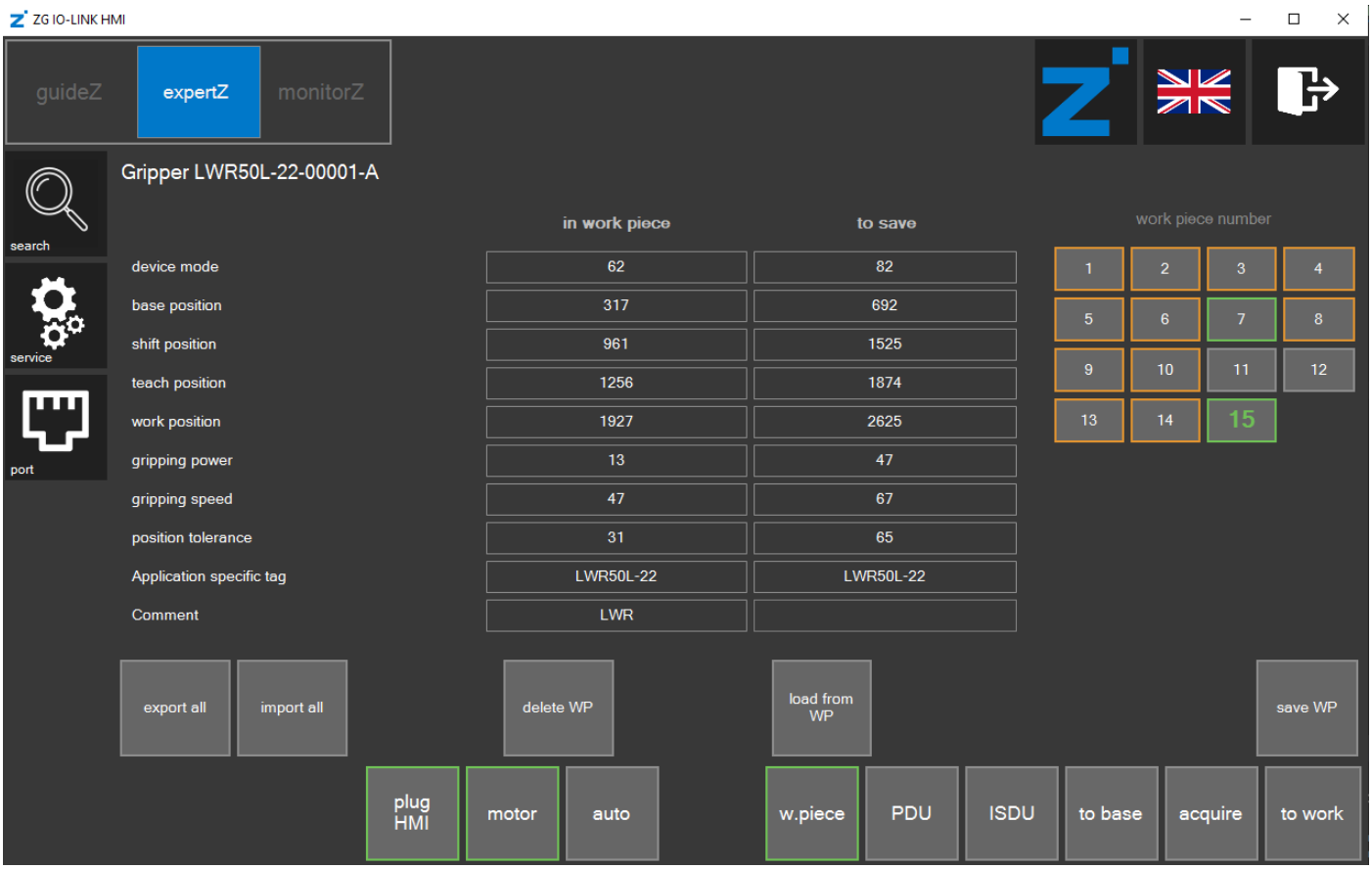
In the automatic sequence, the gripper makes cyclical opening and closing movements.

► Click the *auto* button.

2.17.3 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.



2.17.3.1 Importing workpiece recipes

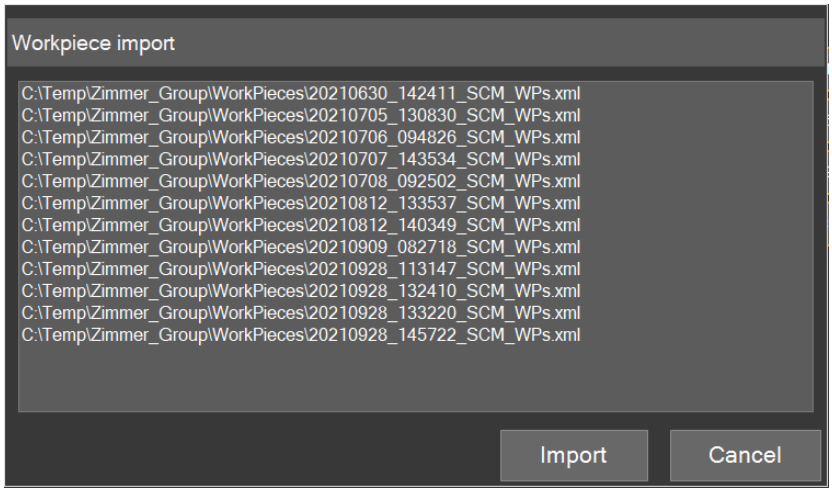
Only the entire data set can be loaded. All 15 workpiece recipes are overwritten during import.

► Click the *import all*button.

⇨ The *Workpiece import* window with the previously stored data sets is displayed.

► Click the desired data set.

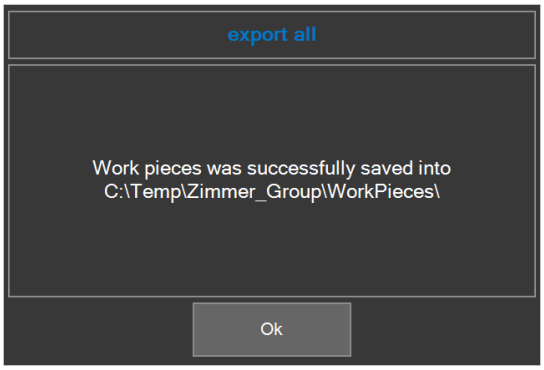
► Click the *Import* button.



2.17.3.2 Exporting workpiece recipes

► Click the *export all* button.

⇨ All workpiece recipes are stored on the hard drive: *C:\Temp\Zimmer_Group\WorkPieces*



2.17.4 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.