ROBOT HMI Human Machine Interface User Manual

Contents

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Product Information

The RAW Tablet is a user-friendly device that provides a Human.
Man Interface (HMI) for controlling a robot. It comes with various features and functionalities to enhance the user experience.

Home
The Home page is the first screen that appears when you turn on the robot. From here, you can access the Move, Package, and Settings options. The Home page provides an overview of the different pages you can use.

Move
The Move feature allows you to control the robot's movement along the X-axis, Y-axis, and Z-axis. The speed of movement can be adjusted for each axis. For example, the X-axis moves with 59% speed, the Y-axis moves with 79% speed, and the Z-axis moves with 30% speed.

Package

The Package feature allows you to choose and load calibration packages and work packages. You can select files for calibration packages and work packages. Once the files are loaded, the start button becomes enabled, and you can proceed to the next step.

Run Calibration
The Run Calibration feature helps calibrate the robot according to the element being worked on. It detects the height and placement of the element and makes necessary adjustments. The calibration process involves locating corners and using a camera feed for precise calibration.

Placement of the Calibration Device
On this screen, you can choose whether your calibration device is placed above or below the element. This selection determines how the calibration process will proceed.

Calibration of the Element
Once the calibration device is placed correctly, you can start the calibration package. The robot will locate corners of the element using a camera feed. You can calibrate the laser pointer if needed and proceed to the next corner confirmation.

Locating Corners
Each corner of the element will be detected one by one. A direct feed to the camera shows what it sees, allowing you to adjust the laser pointer if necessary. Once confirmed, you will be directed back to the previous screen for the next corner detection.

Product Usage Instructions

To use the RAW Tablet, follow these steps

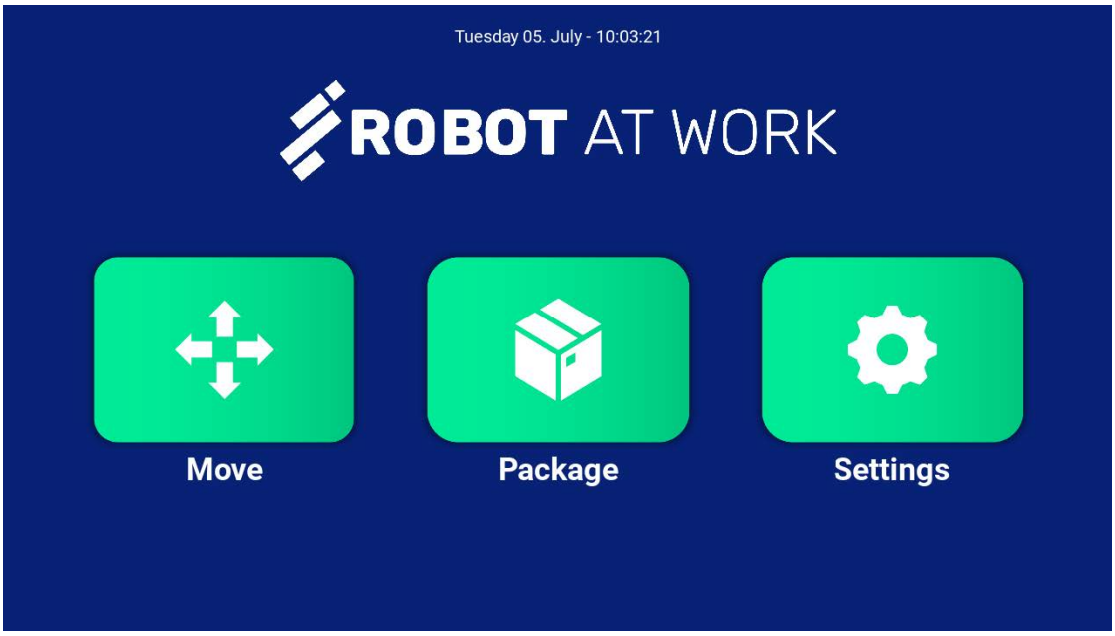
1. Turn on the robot and wait for the Home page to appear.
2. From the Home page, select the desired option:
    - **Move:** Adjust the robot's movement along the X-axis, Y-axis, and Z-axis.
    - **Package:** Choose and load calibration packages and work packages.
    - **Settings**: Access additional settings for the robot.
3. If you selected Move, adjust the speed of movement for each axis as needed.
4. If you selected Package, choose files for calibration packages and work packages.
5. Once the files are loaded, click on the start button to proceed with calibration.
6. On the Run Calibration screen, choose the placement of the calibration device (above or below the element).

7. Follow the instructions to calibrate the robot accordingly to the element:
    - Click start to initiate the calibration package.
    - Locate corners of the element one by one using the camera feed.
    - Adjust the laser pointer if needed and confirm each corner.
    - Repeat the process until all corners are located.

By following these instructions, you can effectively use the RAW Tablet to control and calibrate the robot for various tasks.

Home

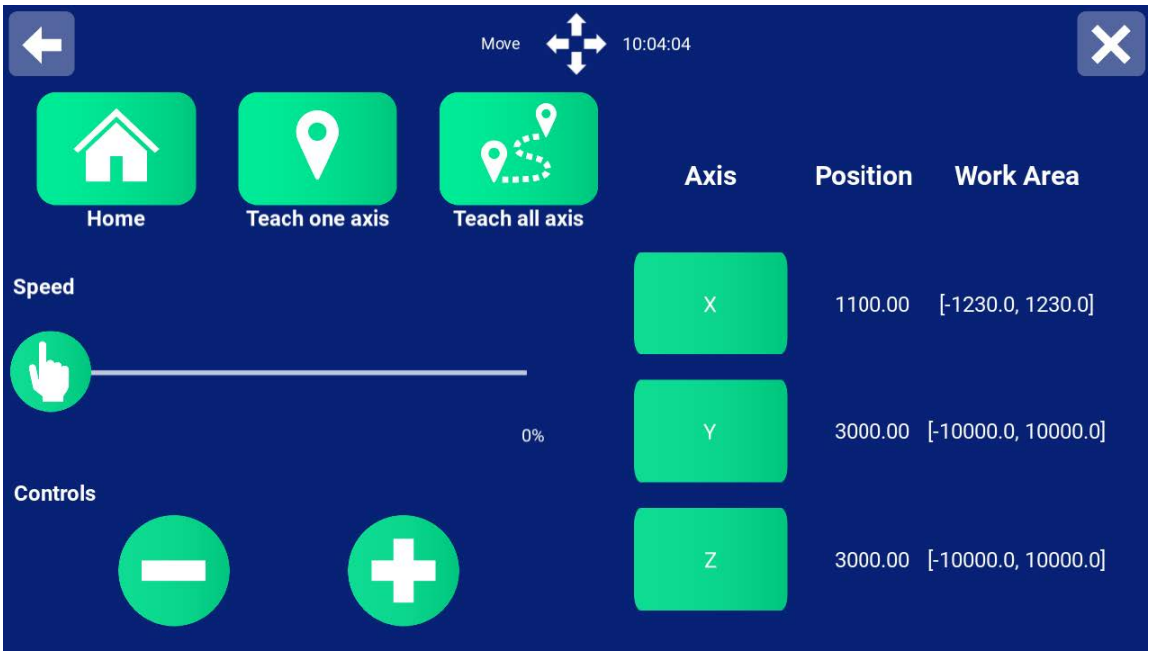
This is the first screen you'll meet when you turn on the robot. This page is called home, from home you can access 'Move', 'Package' and 'Settings'. Home is an overview of the different pages you can use.



Home page

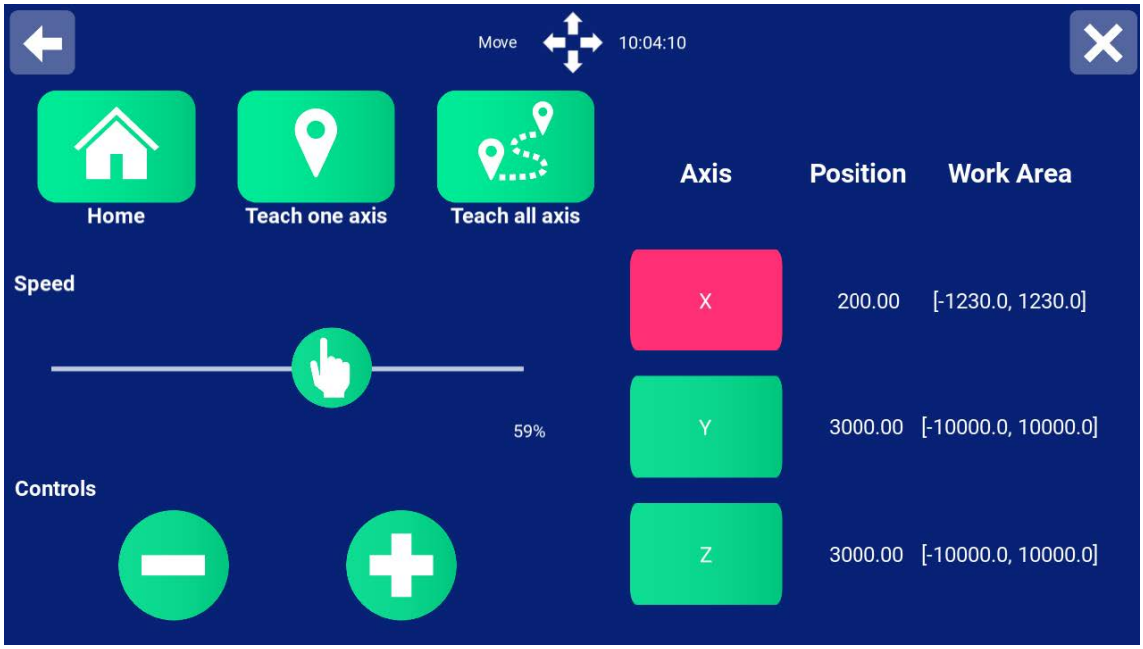
This is the first screen you'll meet when you turn on the robot. This page is called home, from home you can access 'Move', 'Package' and 'Settings'. Home is an overview of the different pages you can use.

Move

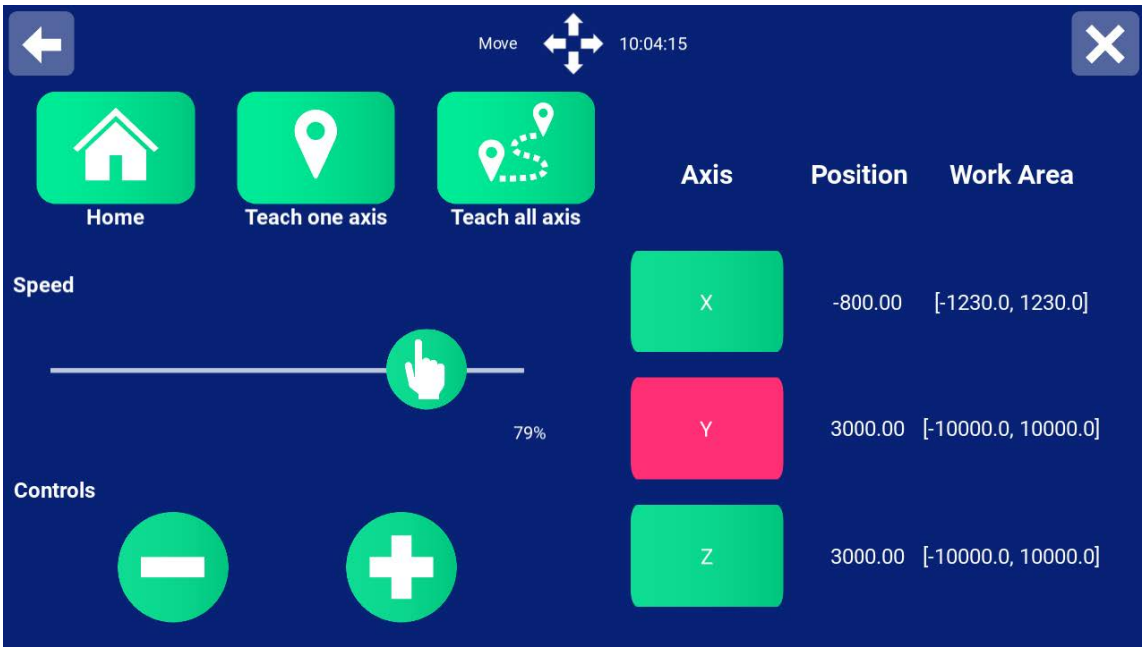


Move page

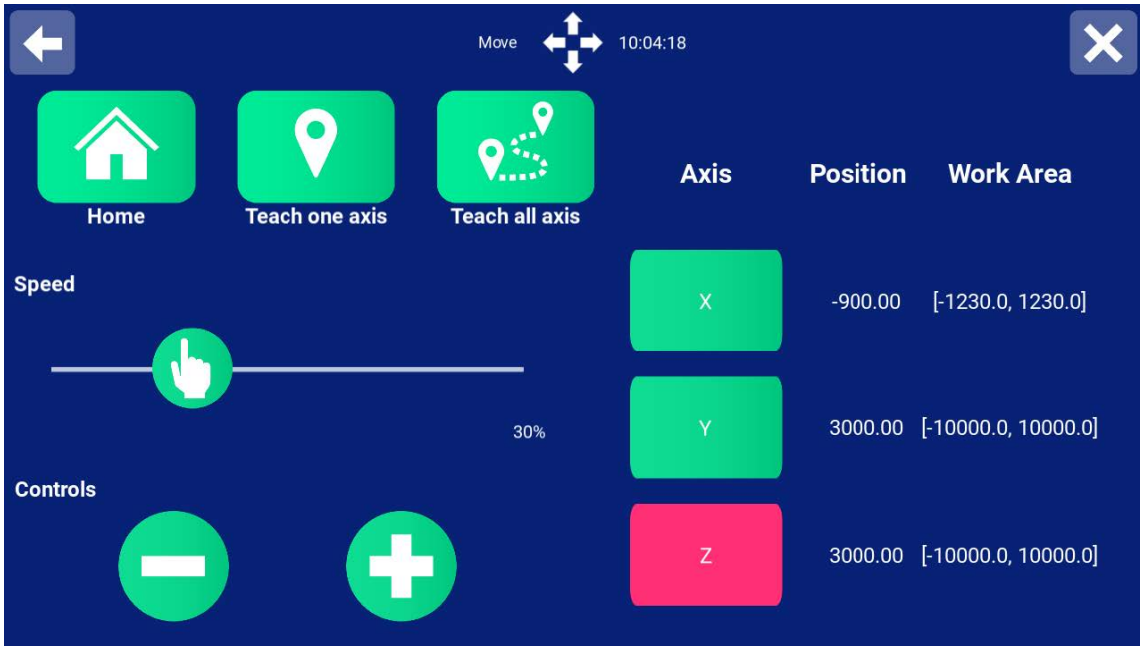
Move is one of the screens that can be accessed via home. Move enables the user to move the robot without having a specific package they want to run. In Move you can chose an axis, a speed and then move the robot freely, within its work area. You can use the home button to move the robot to its home location. Its home location can be set on one or all axis, by using the ‘Teach one axis’ or ‘Teach all axis’.
On the next pages is shown a few pictures of how it looks when you chose an axis, different speed etc.



X-axis moving with 59% speed

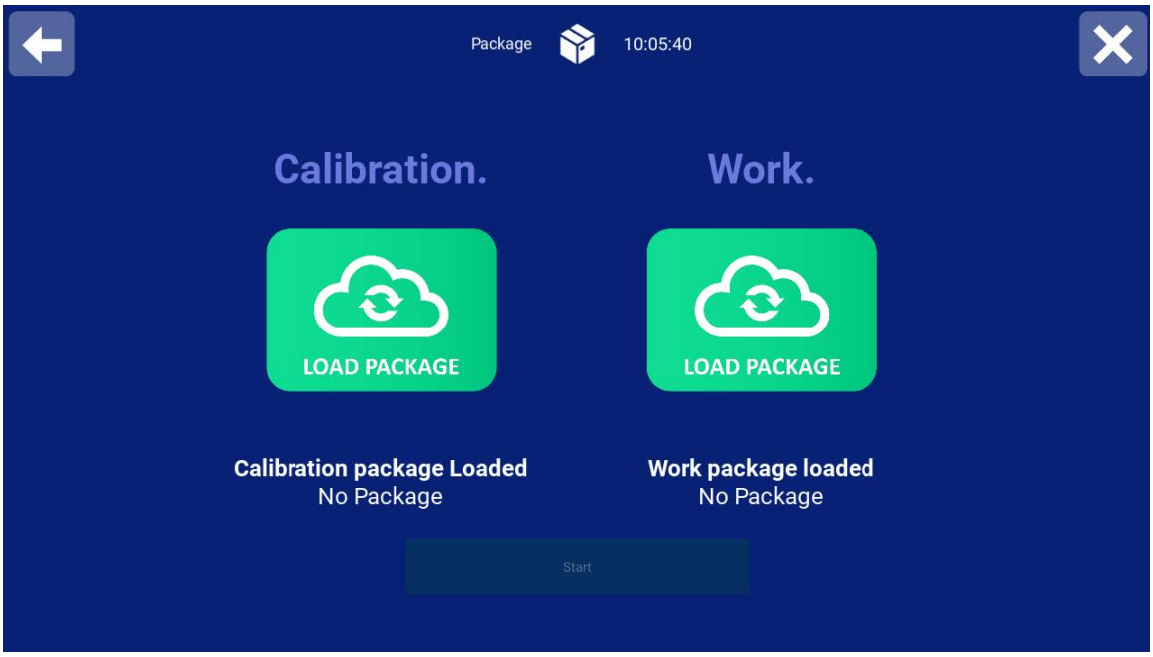


Y-axis moving with 79% speed



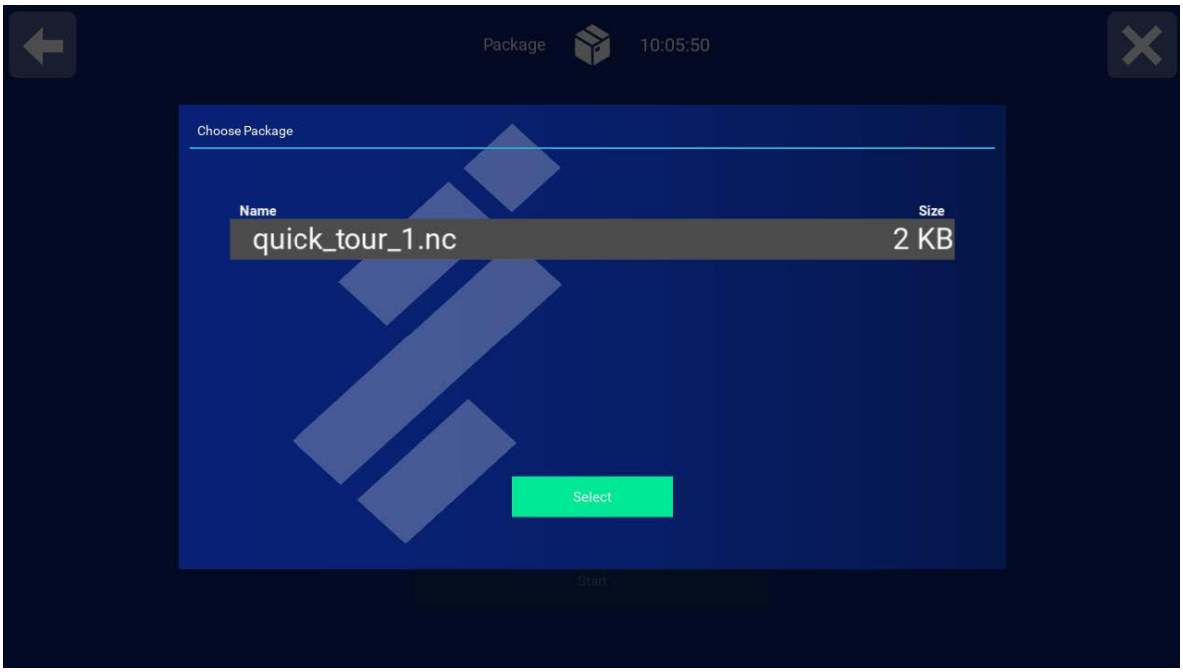
Z-axis moving with 30% speed

Package



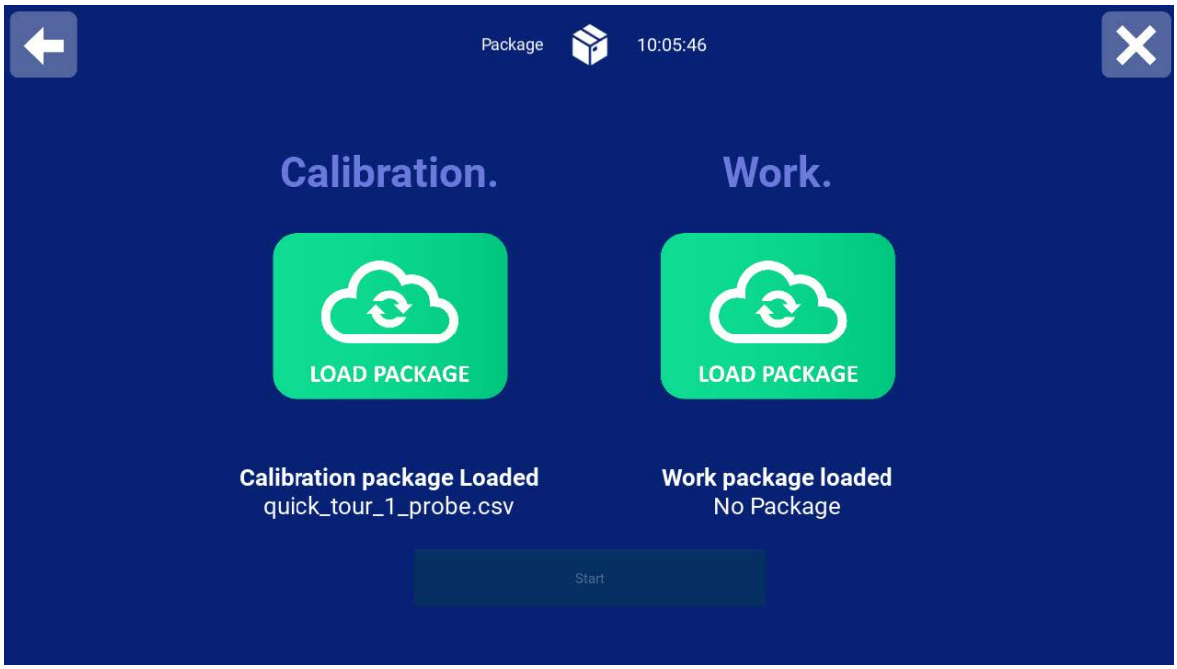
Package page with none chosen files

Package is one of the screens that can be accessed through Home. The package page enables the user to chose two different packages. A calibration package which is used for calibration the machine and making sure the machine can calculate the different offsets that may appear in production, such as elements not being 90 degrees which would result in flipping the package according to the degrees. A work package which is the package that actually have the data, which makes the robot do the desired work. You can click on the two ‘Load Package’ pictures and load the specific file, as shown below:



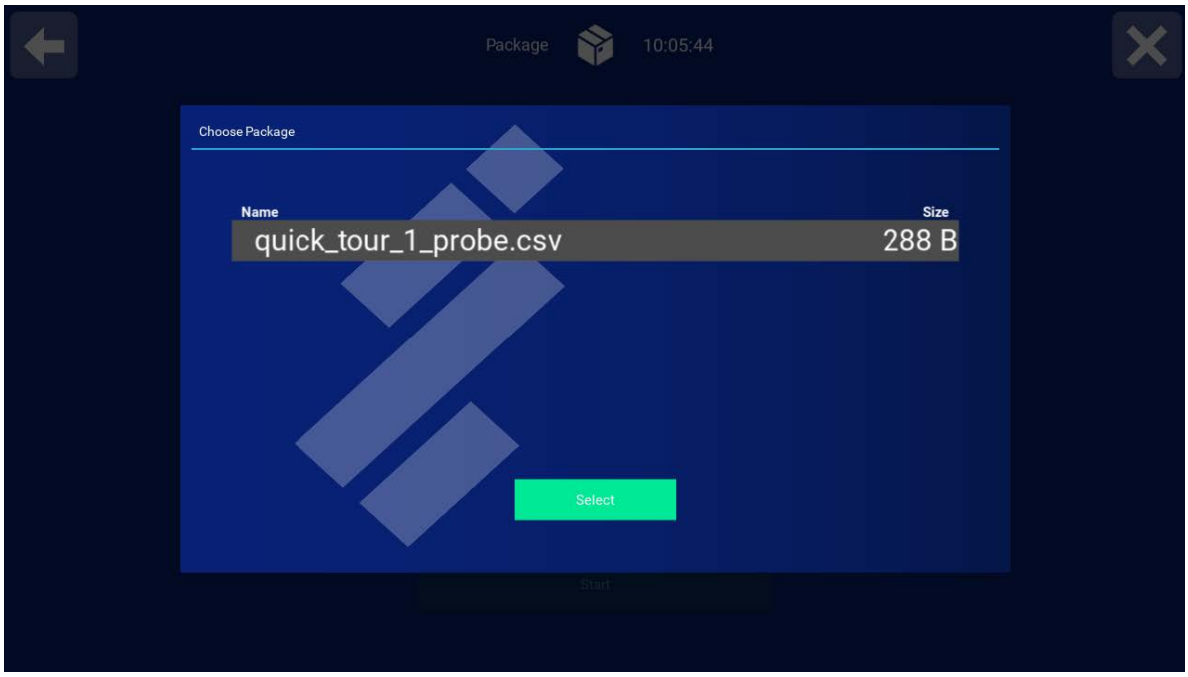
Choose Package for calibration package

Choosing file for calibration package.



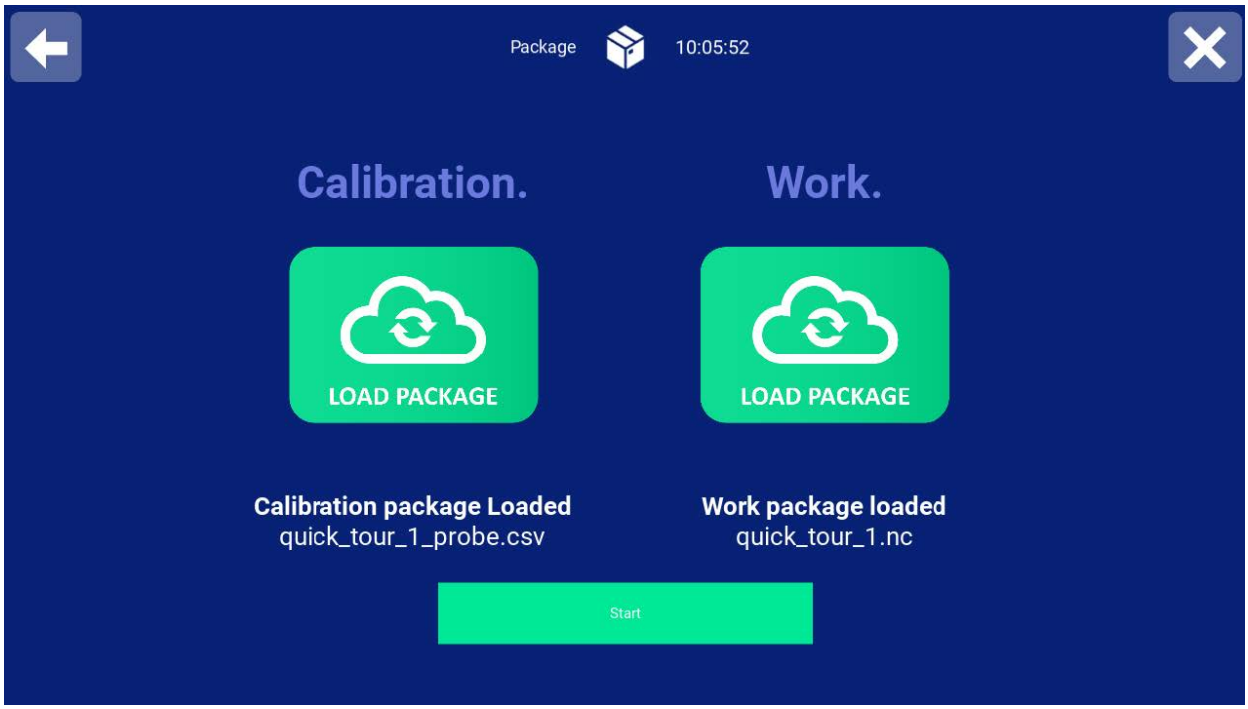
Package page with one chosen file

File chosen and showcased below the ‘calibration package loaded’.



Choose Package for work package

Choosing the second file for Work package.



Package page with chosen files

Both files loaded and the start button is now enabled and can be clicked.
After clicking the start button, it will direct you to the next page:

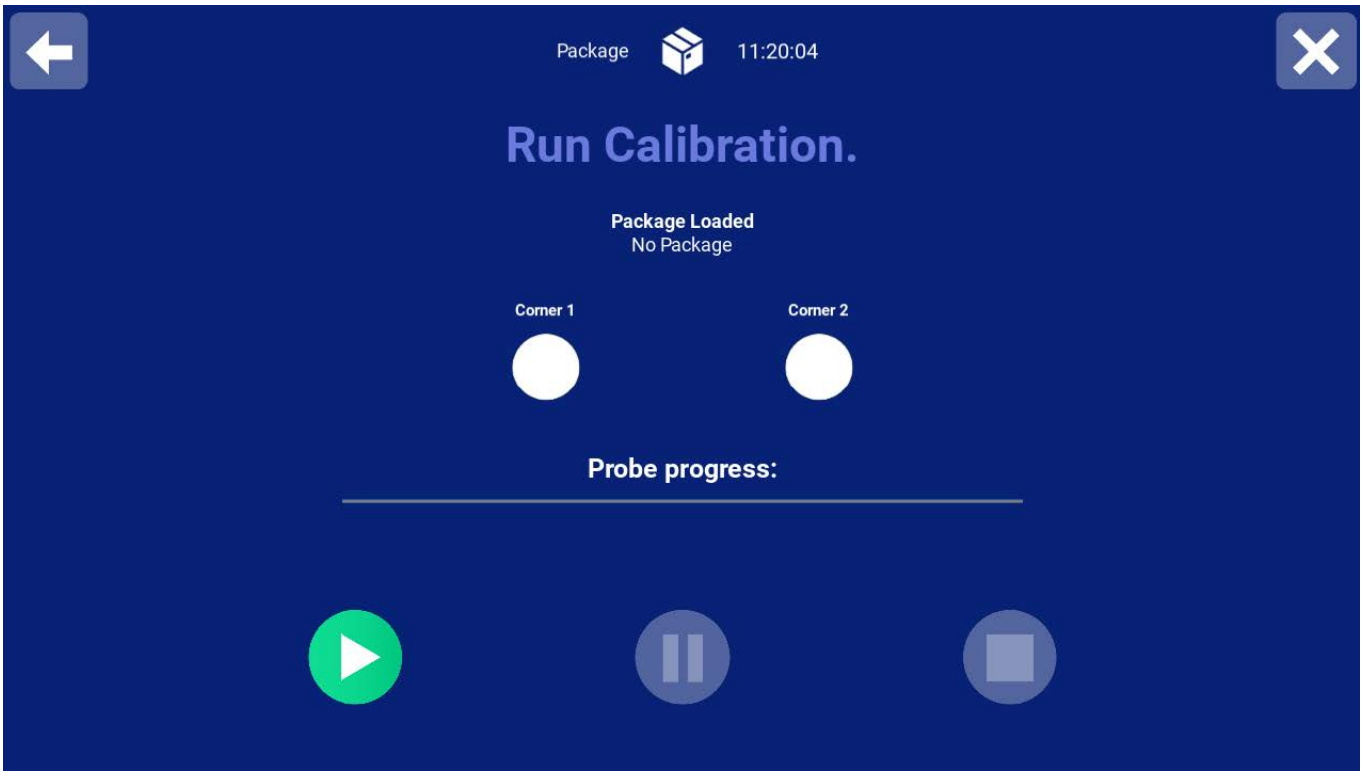
Placement of the calibration device

On this screen you choose where your calibration device is placed, above (on top of the element) or below the element. When you picked which way your calibration device is placed, you will get directed to the next screen.

Run Calibration

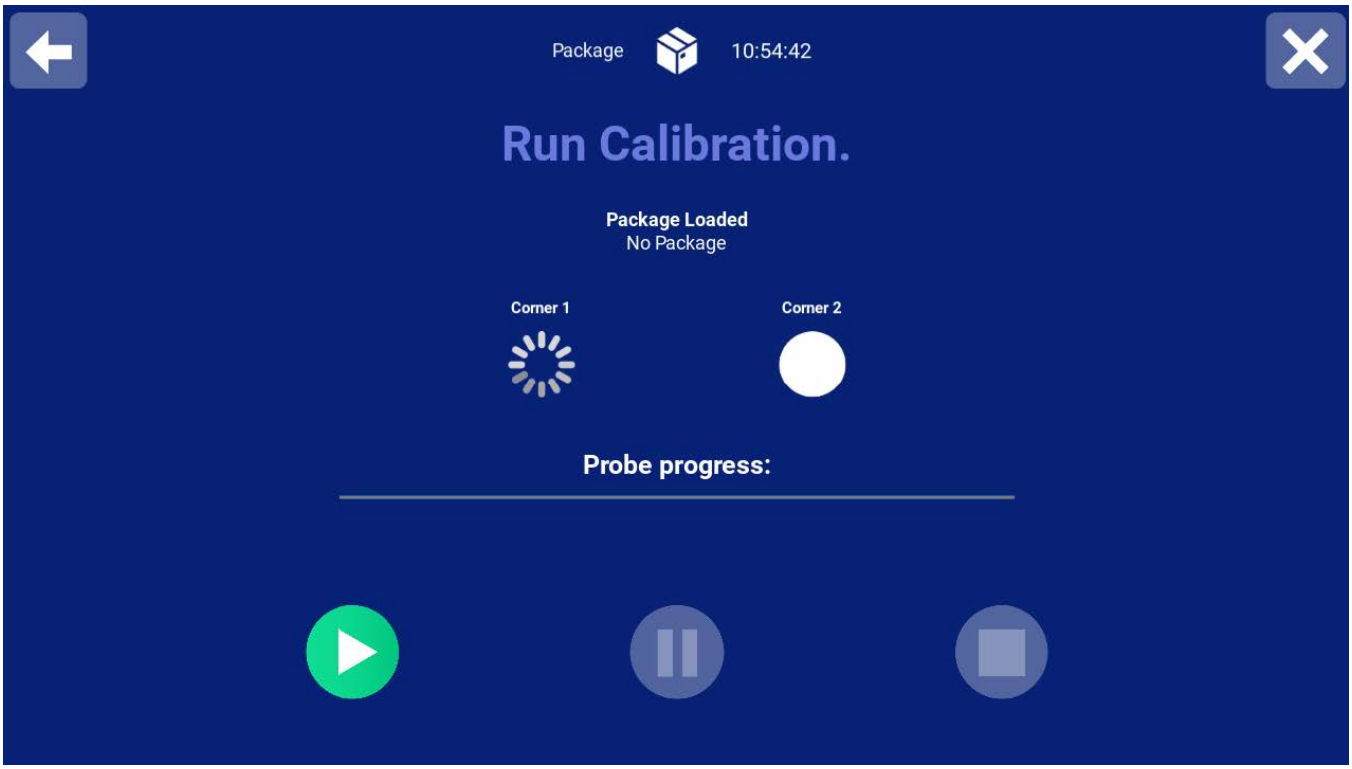
Here you calibrate the robot accordingly to the element. If the element is different heights or is placed crooked,

this is where it will be spotted and taken care off.



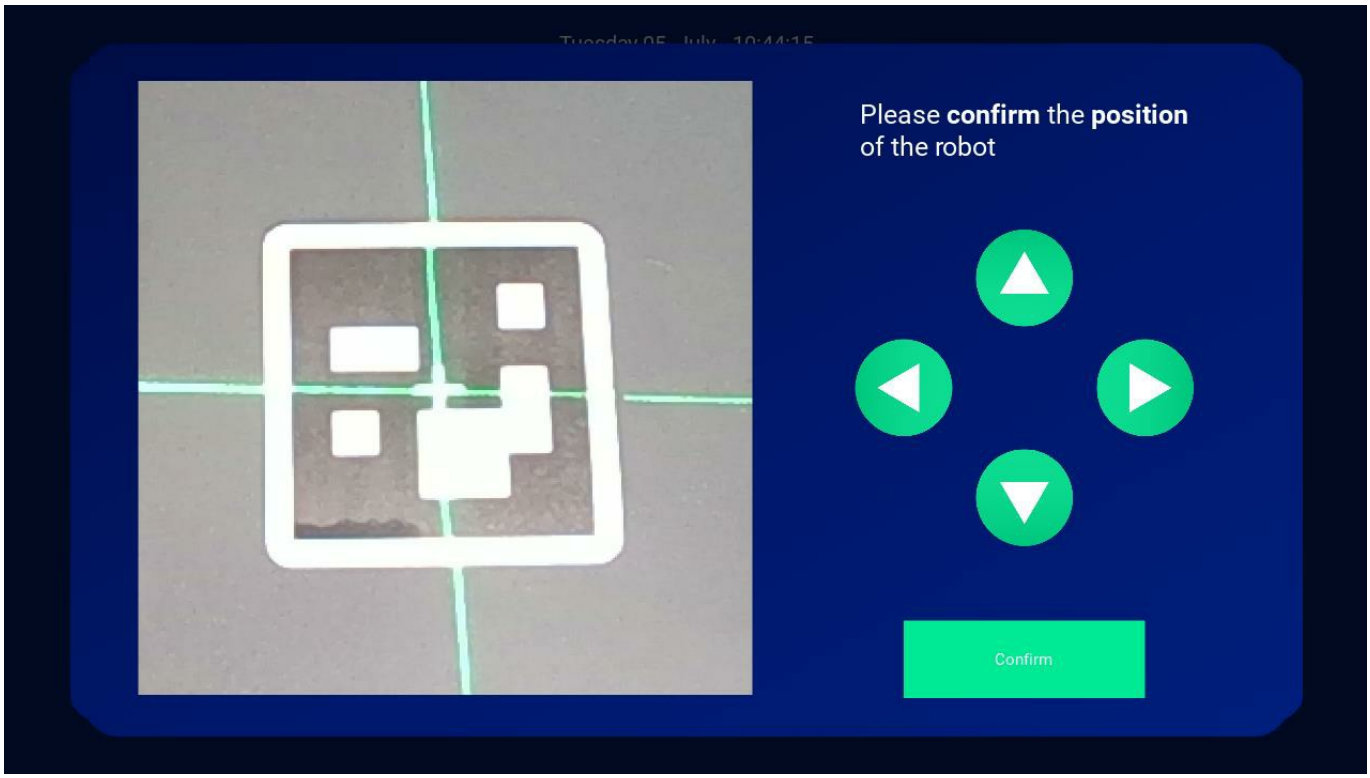
Calibration of the element

From here you can just click start, and the calibration package will start by location the corners.



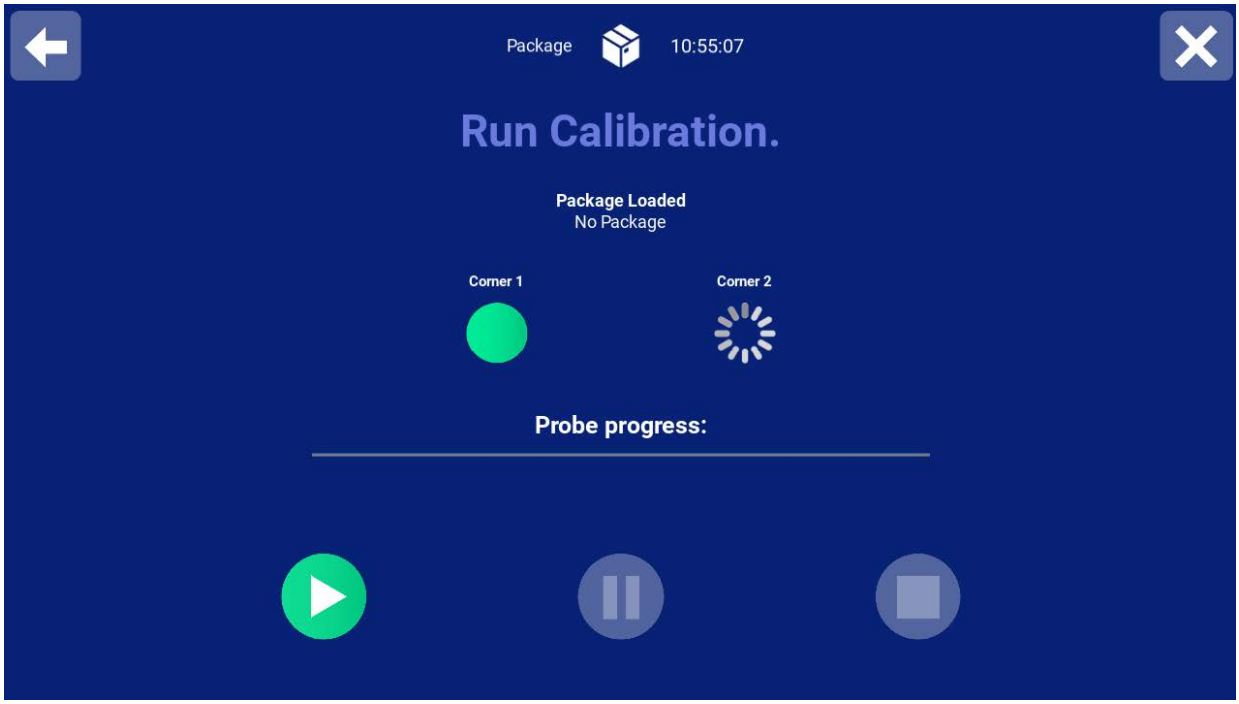
Locating corner 1

When it locates a corner, a new screen will appear with a direct feed to the camera and what it sees, here you can calibrate the laser pointer, if it’s not exactly In the middle, otherwise click confirm.



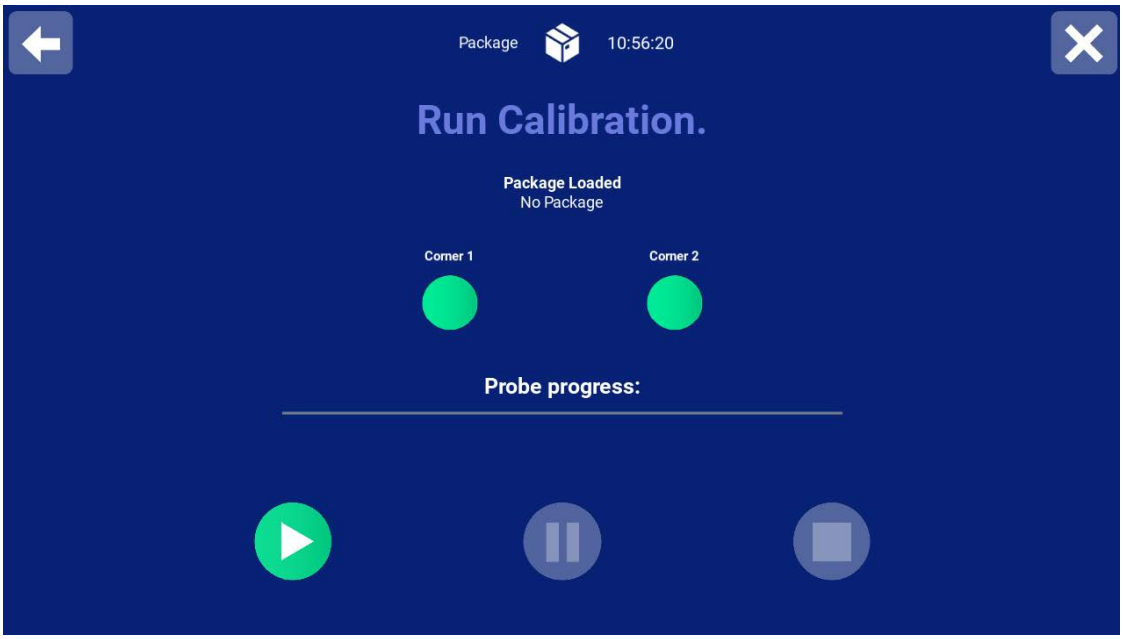
Direct feed to camera

When you click confirm, you will be directed back to the prior screen.



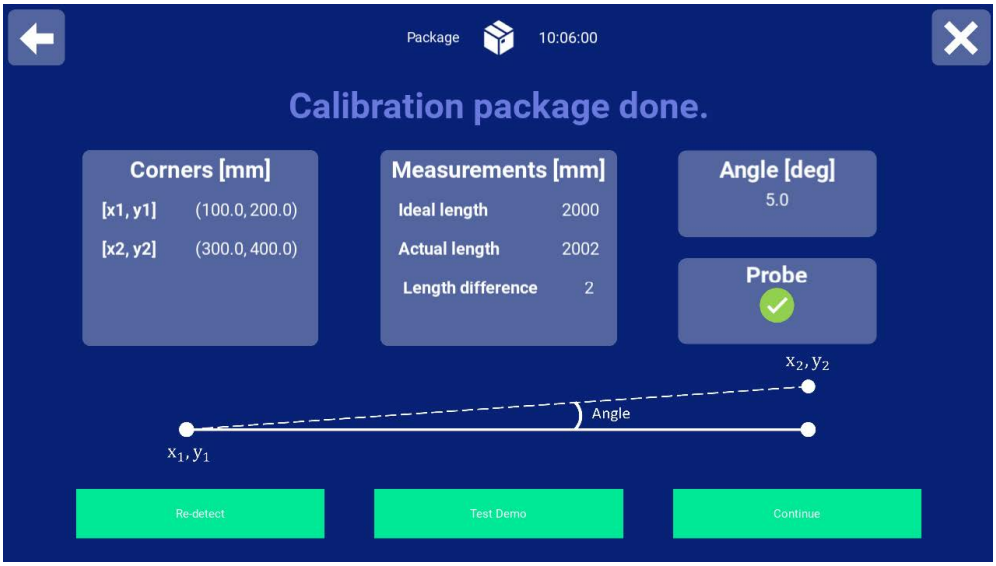
Corner 1 located

Here the next coroner will be detected in the same manor.



Locating corner 2

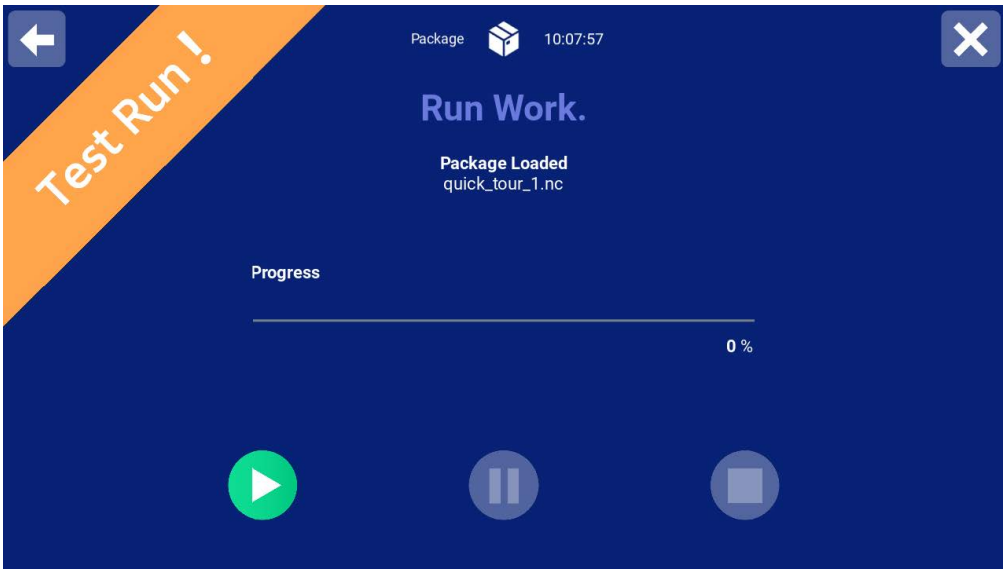
From here the probe progress will begin and the bar will be filled. After the bar is filled and the probing is done, you will be directed to the next page. During probing you may pause, start, and stop it.



The calibration result of the corners

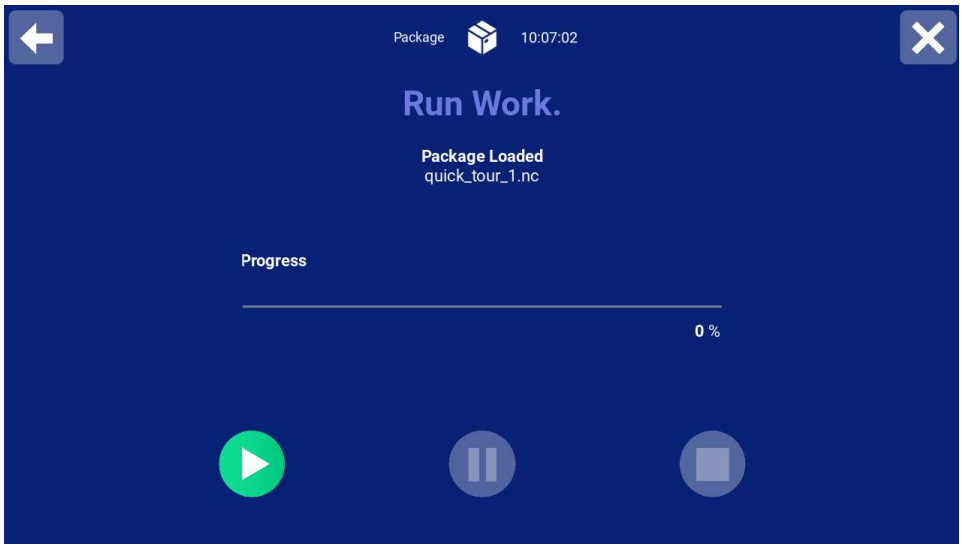
On this page the user can see the dimensions of corners and angle, as well as the measurements from the package. The probe box will then be either green, yellow or red, depending on how the probing went. If the probing is green, its good and within the margin, if its yellow it's close to the margin but still within, if its red, the user will need to redo the package.
The user can from here either redo, do a test demo (running the package without running it) or continue to the work package.
If the user wants to redo it, go back to the run calibration page.

If the user do a test demo, they will be directed to this page, where they can run a test demo



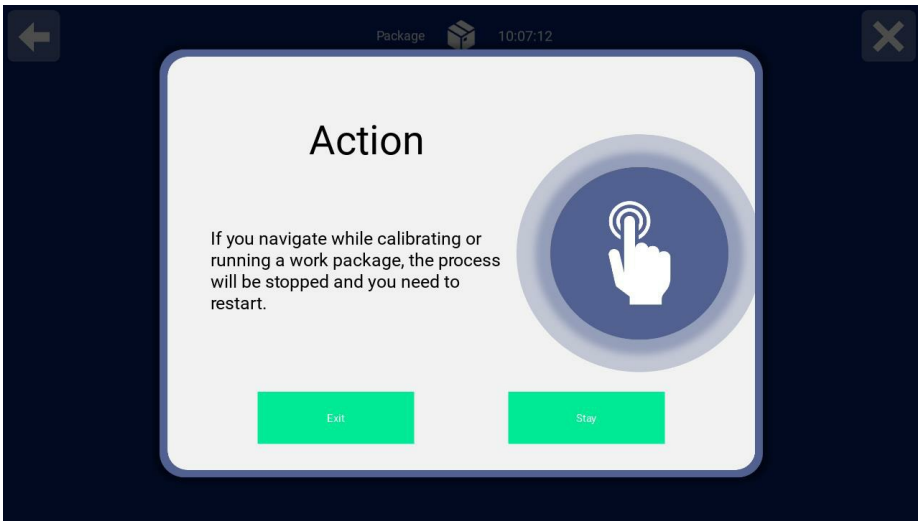
Test Run of the chosen work package

From here the user can run the actual package, but above the element, so the user can see that it works as expected before actually working on the element.
If the user click continue they will be directed to the run package page:
This page will run the actual work package and start working on the element. It can be started, paused and stopped during the work time.



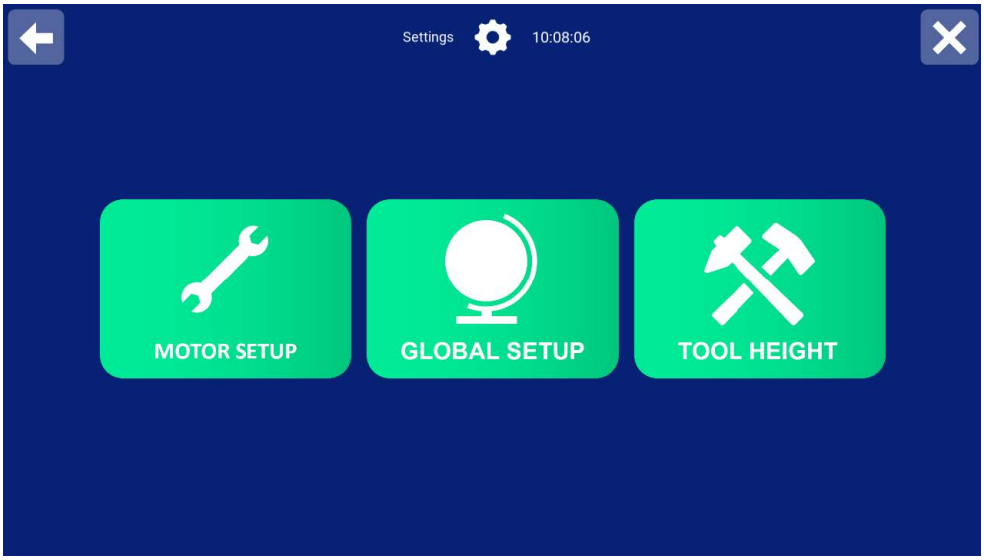
Ruining the work package

There are a few different pop-ups that may appear depending on what happens with the robot. For example: If you leave during calibration the user must redo the whole thing.



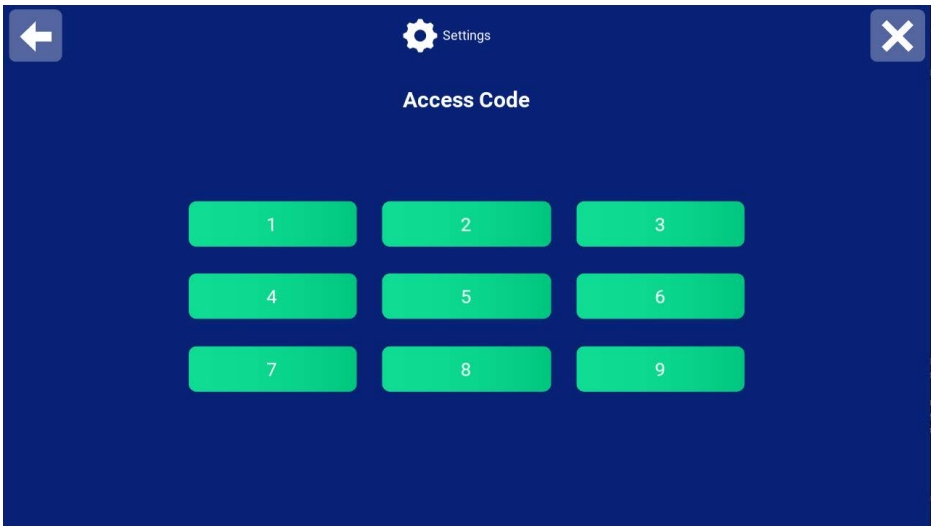
Pop-up during running a package

Settings



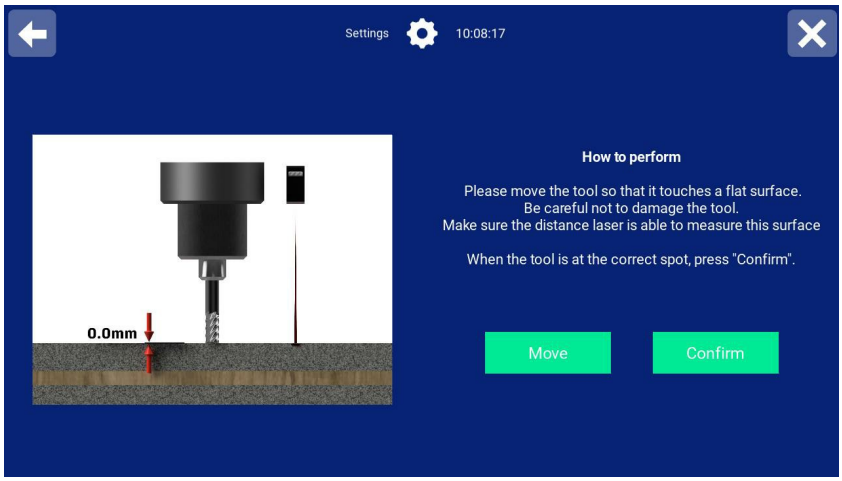
Settings page

Settings is the last screen which can be accessed via Home. Settings have the responsibility of grouping the different settings, calibration and more, which may be needed in the everyday production. Advanced settings is not a page you will need, but is something we will use. Motor Setup and Global Setup will therefore have an access code, which will ensure the users from not changing any settings in here, which may result in damaging the robot or misguide the user. If the user clicks on aeither, this screen will appear:



Need access for the settings functions

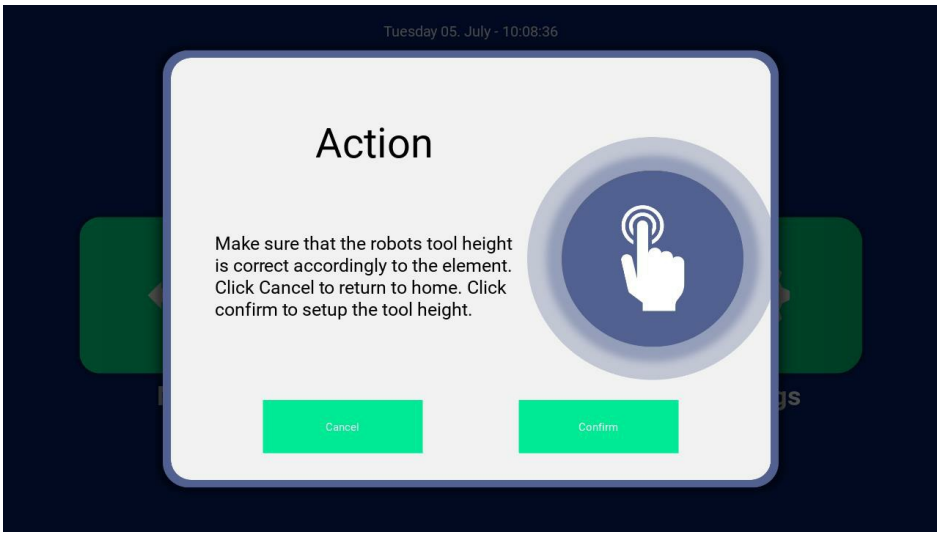
Tool height



Tool height page

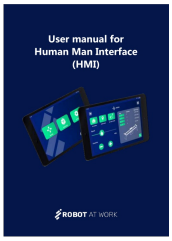
In the tool height screen, there is a text which guides the user on how to set the tool height correct. Read this carefully before calibrating the tool height. When you know what to do, click on ‘Move’, this will direct you to the move screen, which will give you free access to navigate the robot as needed. Move the robot accordingly to the guidance text. Leave the move page and find your way into settings again, click on ‘Tool height’ and make sure the robot is at the location you wish, if it is, click confirm. Otherwise, click on move and move it to the desired location.

Pop-ups that can appear during tool height:
This is an informative pop-up that makes sure the user is aware of changing the tool height accordingly to the element.



Pop-up window

Documents / Resources

	ROBOT HMI Human Machine Interface [pdf] User Manual HMI Human Machine Interface, Human Machine Interface, Machine Interface, Interface