

flexfeeder XQ

Step-by-Step Guide flexfeeder Calibration

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1 Requirement

The flexfeeder is ready for use, according to document "[Step-by-Step-Guide flexfeeder-Installation.pdf](#)"

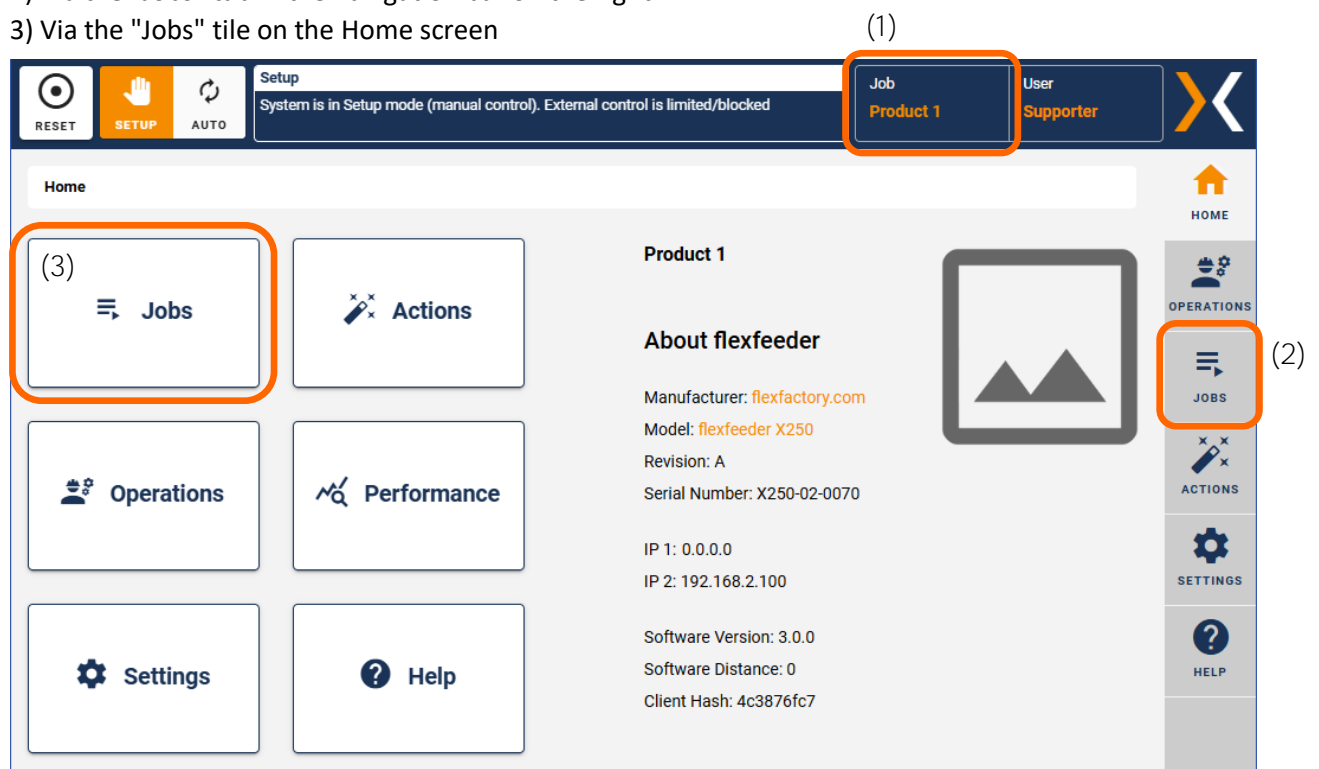
2 Calibration setup: Feeder job

For each calibration part (usually only one is needed), a feeder job must be created on the flexfeeder and a corresponding camera job. This chapter describes how to set up the feeder job for calibration. ([Calibration setup: Camera job – setup is described in chapter 3](#))

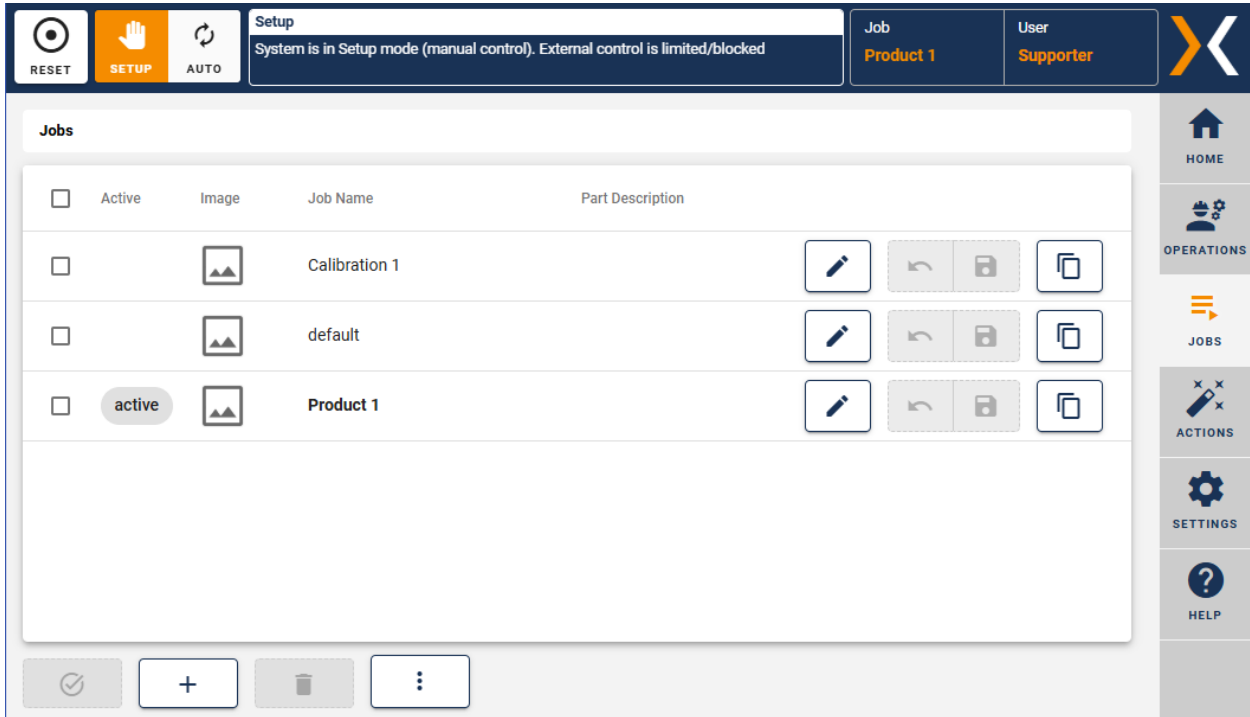
2.1 Job management

The feeder job management can be opened in different ways:

- 1) Via the "Job" field in the information bar at the top (the currently active job is displayed there)
- 2) Via the "Jobs" tab in the navigation bar on the right
- 3) Via the "Jobs" tile on the Home screen



On the "Jobs" page, feeder jobs can be created, copied, edited, activated and deleted:



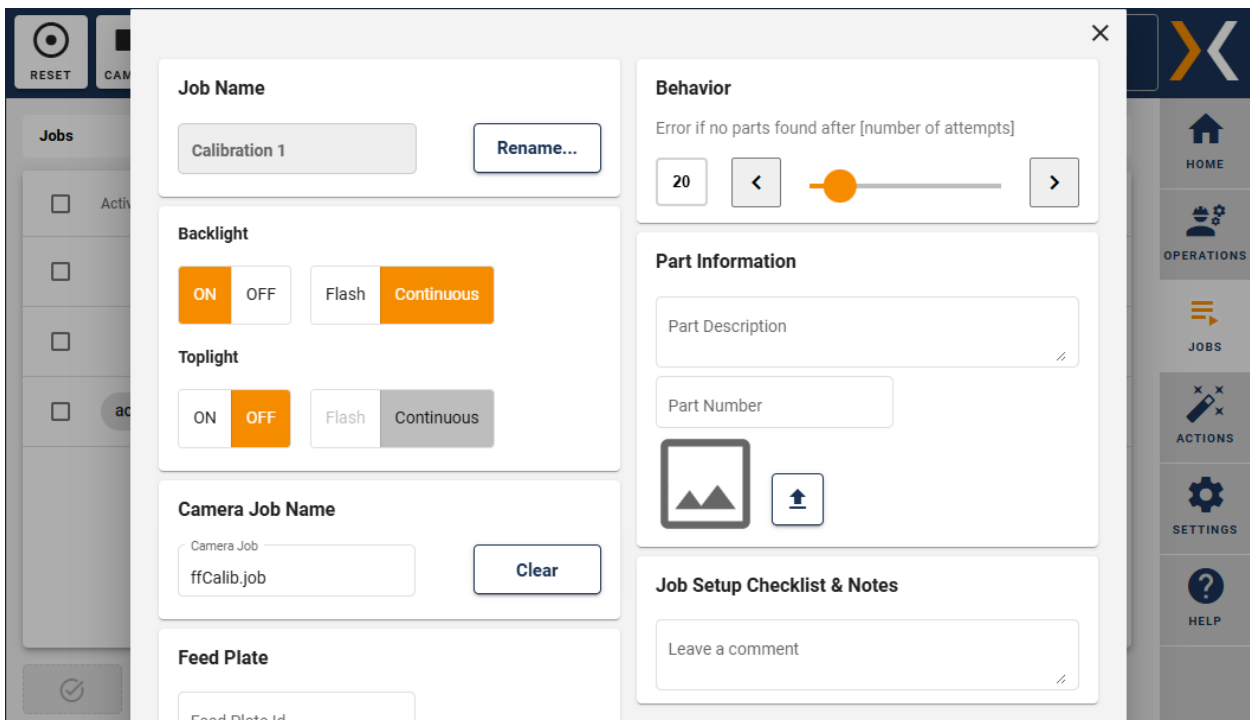
2.2 Calibration-job settings

The calibration job "Calibration 1" on the flexfeeder is no different from a normal feeder job for feeding. However, a specific job should be selected for calibration so that its lighting settings can be applied. If there is no "Calibration" job present on the feeder, you can simply create a new one.

The basic settings of the calibration job can be adjusted using the pen symbol on the job page.

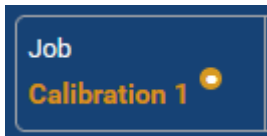
These settings are particularly important:

- Light Settings (Correct lighting for the calibration part)
- Camera Job Name (assignment of the Cognex calib-job to the calibration-job on the flexfeeder)

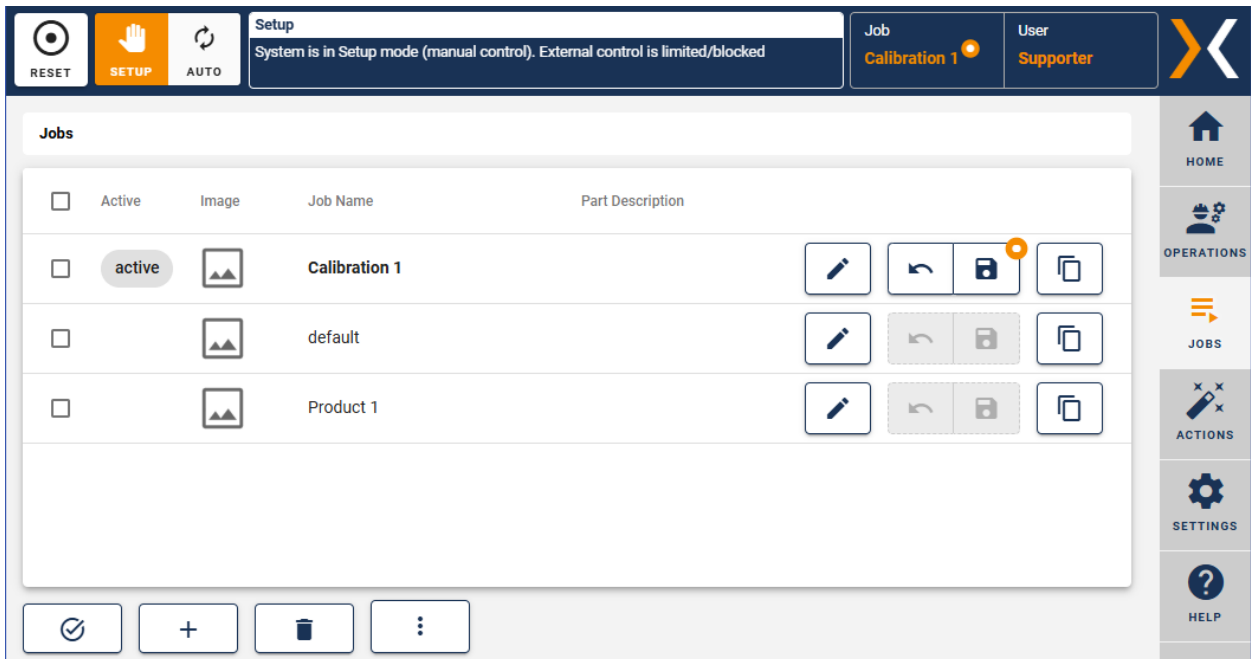


2.3 Save Feeder job

Whenever changes to an active feeder job are made, it is indicated by an orange dot next to the job name in the title bar:



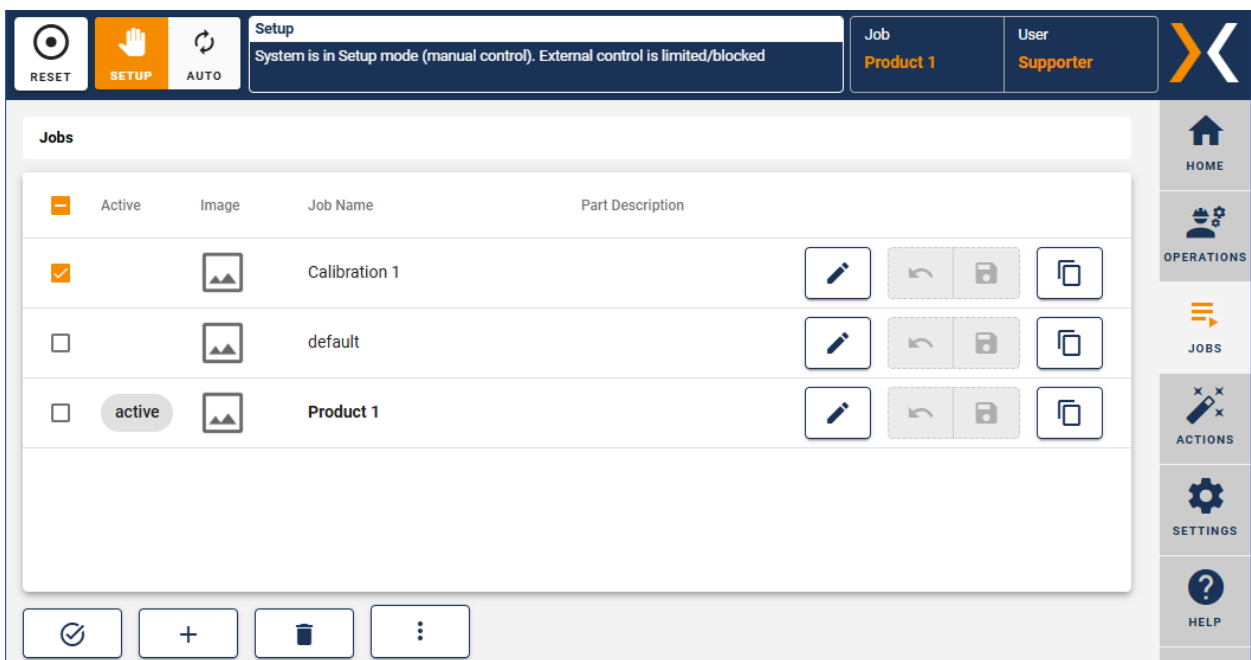
On the job page, an orange dot near the disk symbol also indicates that changes have been made to the job. Here the changes can be saved or undone:



The screenshot shows the 'Jobs' table with the following data:

<input type="checkbox"/>	Active	Image	Job Name	Part Description				
<input type="checkbox"/>	active		Calibration 1					
<input type="checkbox"/>			default					
<input type="checkbox"/>			Product 1					

You can see which job is currently loaded under the "Active" column. If the job "Calibration 1" is not yet active on the flexfeeder, you can now activate it by selecting the corresponding checkbox and clicking the marked button at the bottom left:



The screenshot shows the 'Jobs' table with the following data:

<input type="checkbox"/>	Active	Image	Job Name	Part Description				
<input checked="" type="checkbox"/>			Calibration 1					
<input type="checkbox"/>			default					
<input type="checkbox"/>	active		Product 1					

3 Calibration setup: Camera job

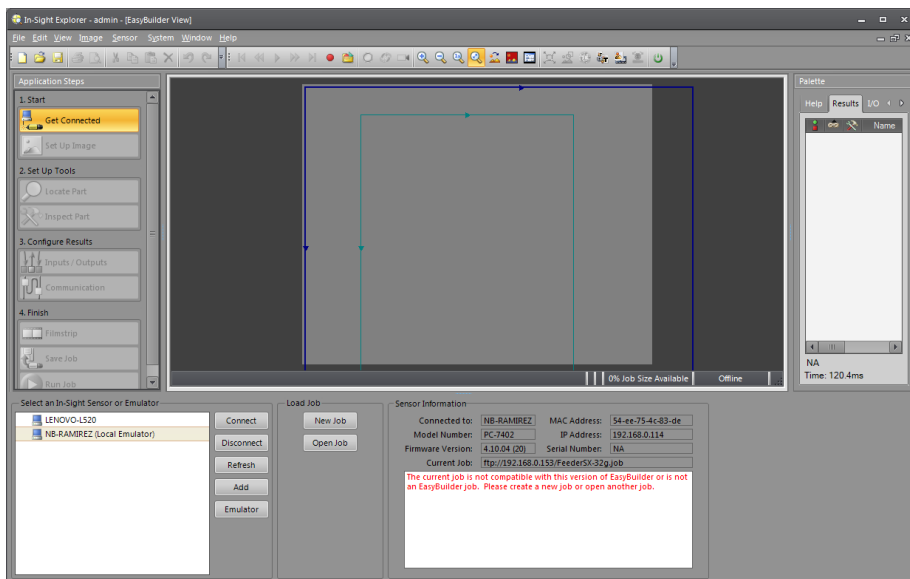
To set up the part recognition in the camera, you must first establish a connection between your computer and the camera/the image processing system. This requires the “In-Sight Explorer” software from Cognex, which can be downloaded free of charge under the following link:

<https://support.cognex.com/downloads/download/4064/1033>

3.1 In-Sight Explorer configuration

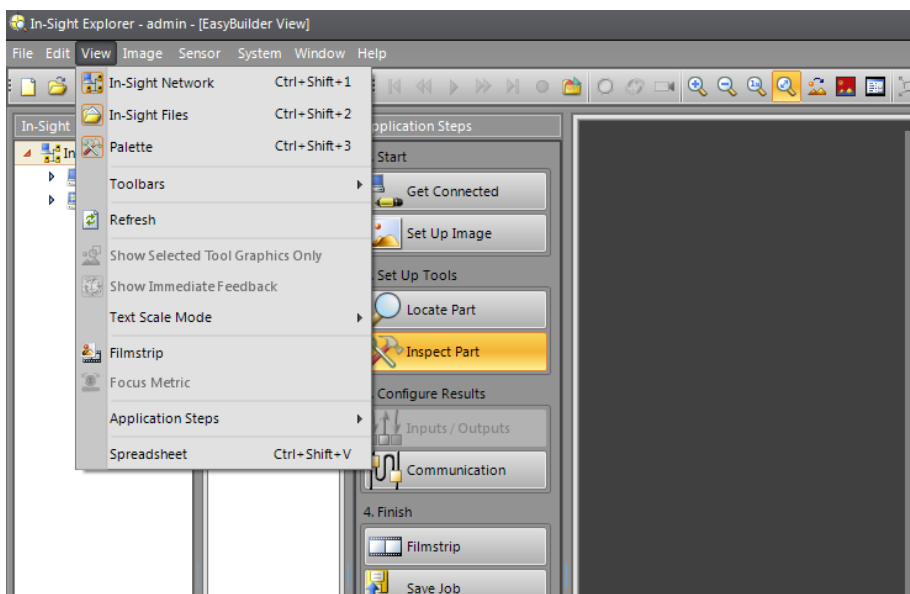
After installing the In-Sight Explorer software, the program environment must be set up correctly in order to work with the feedWare recognition job. Please follow the steps below:

1. When you first start the In-Sight Explorer, the 'Easy-Builder' view is displayed, which we don't use (we need the 'Spreadsheet' view). So you see the following screen:

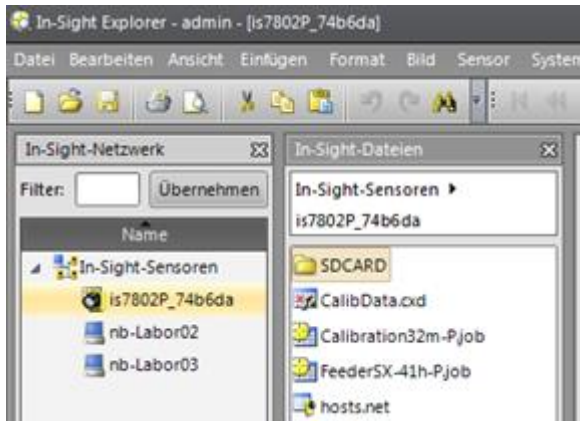


2. Go to «View» in the Menu bar and activate / deactivate the following items:

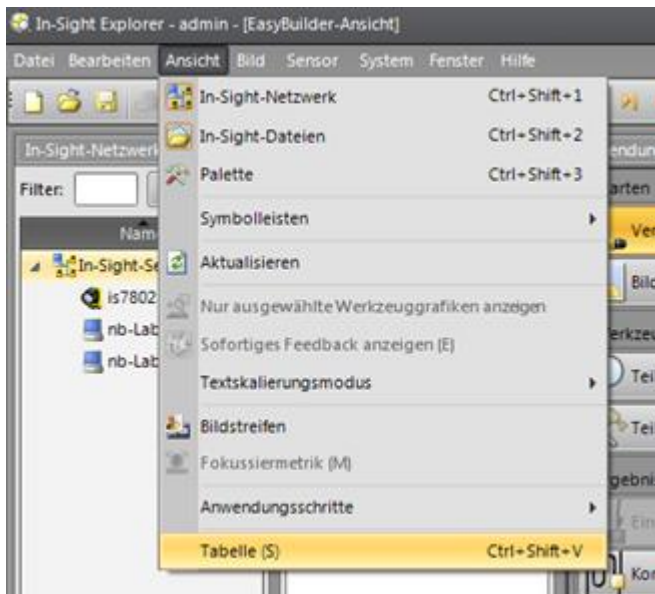
- activate «In-Sight Network» (Ctrl+Shift+1)
- activate «In-Sight Files» (Ctrl+Shift+2)
- deactivate «Palette» (Ctrl+Shift+3)



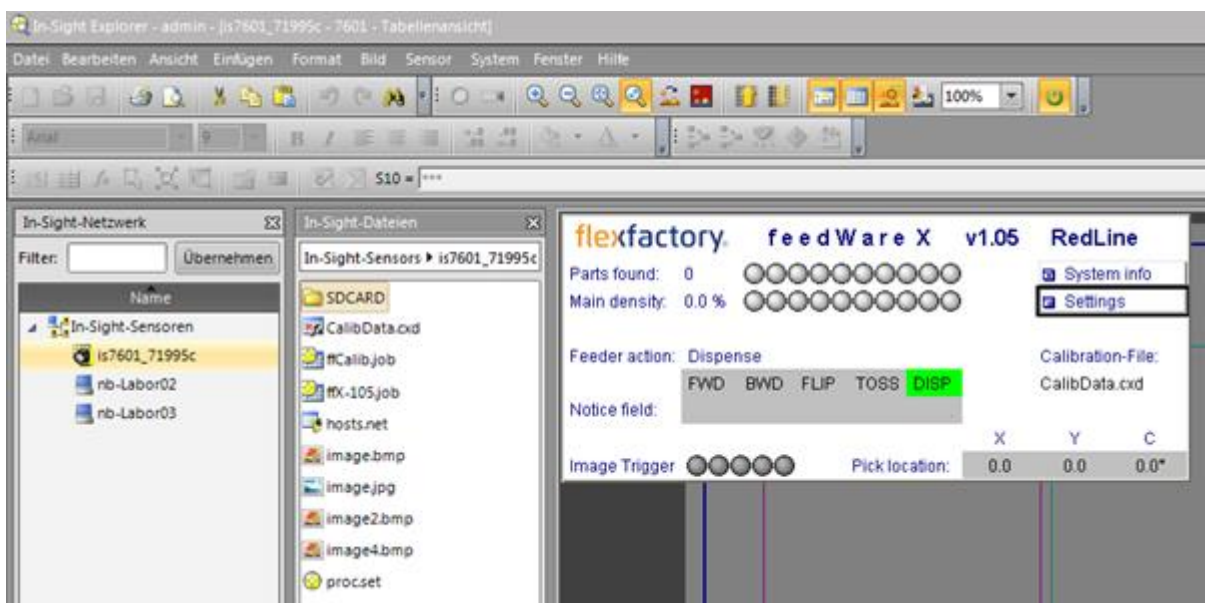
- Now double-click on the camera in the area «In-Sight Network» in order to connect to it.



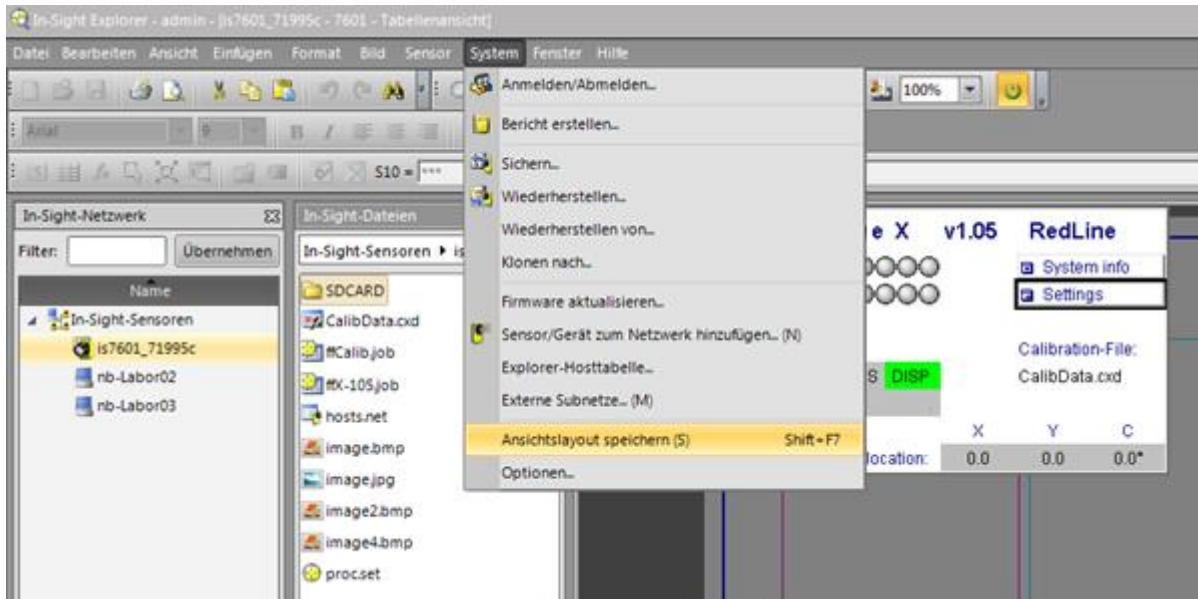
- Go again to the «View» menu und select «Spreadsheet» at the bottom of the drop-down menu:



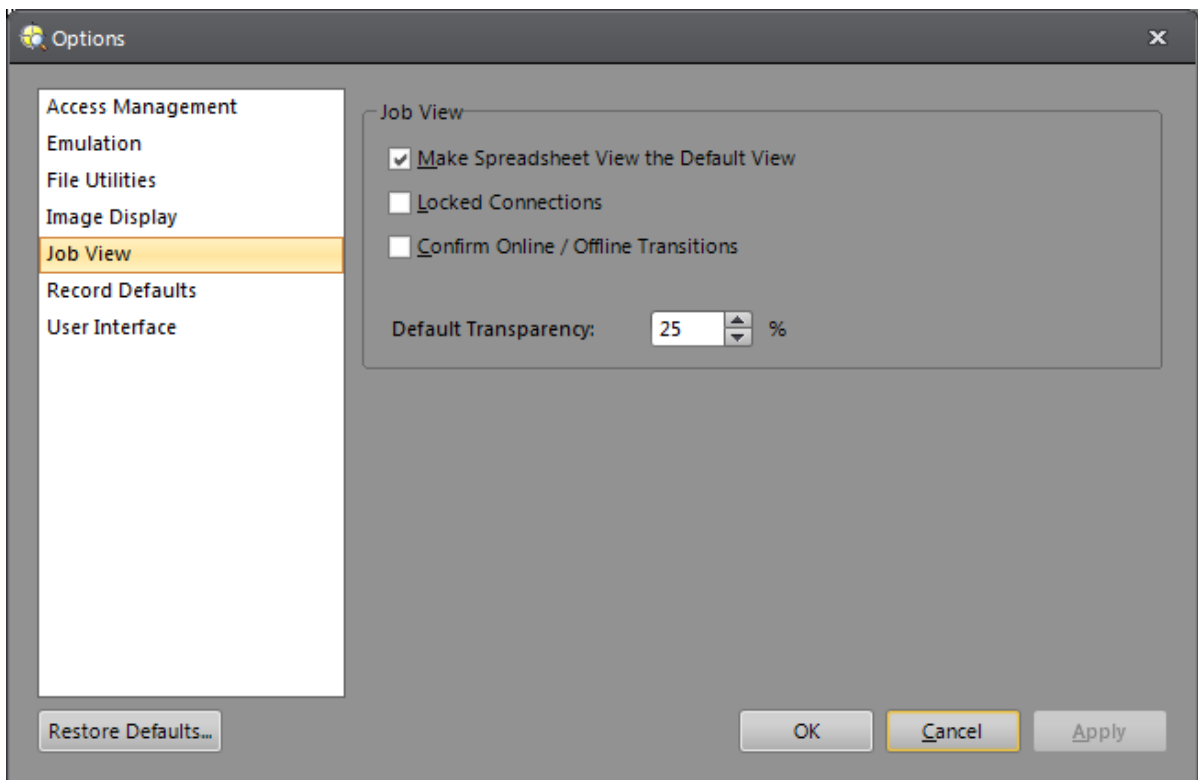
- Now you should see the following view with the feedWare user interface and the camera-jobs in the «In-Sight Files» section:



6. Save this view in the menu «System», «Save view layout (S)»:



7. Finally go to menu «System», «Options...» und there to the «Job view» section. Activate the option «Set spreadsheet view as default view» and deactivate 'Confirm Online/Offline':

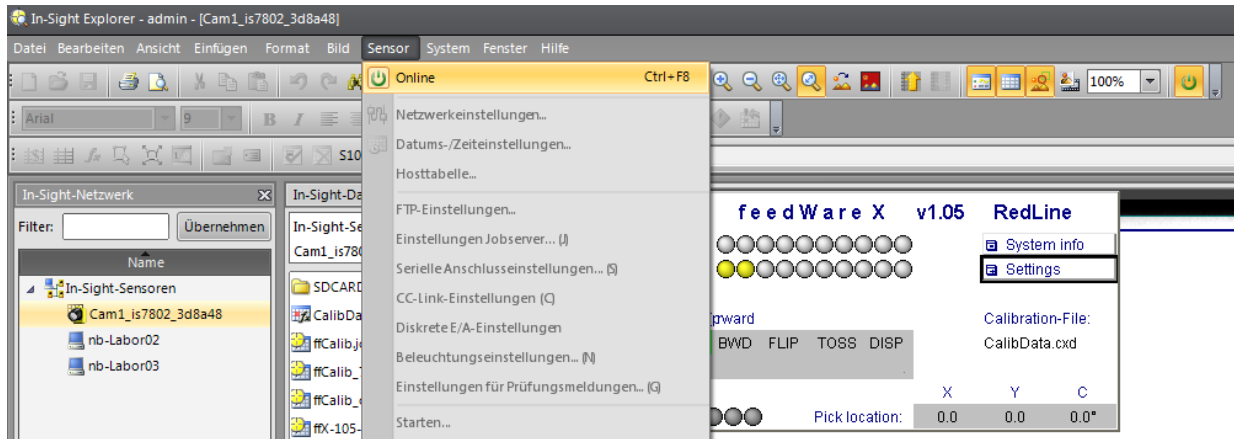


Note:

If there are problems with the connection to the camera or if the files on the camera are not displayed in the “In-Sight Files” area, this may be due to the computer’s firewall. Set the firewall so that your computer or the “In-Sight Explorer” program has unrestricted access to the camera.

3.2 Manual image acquisition

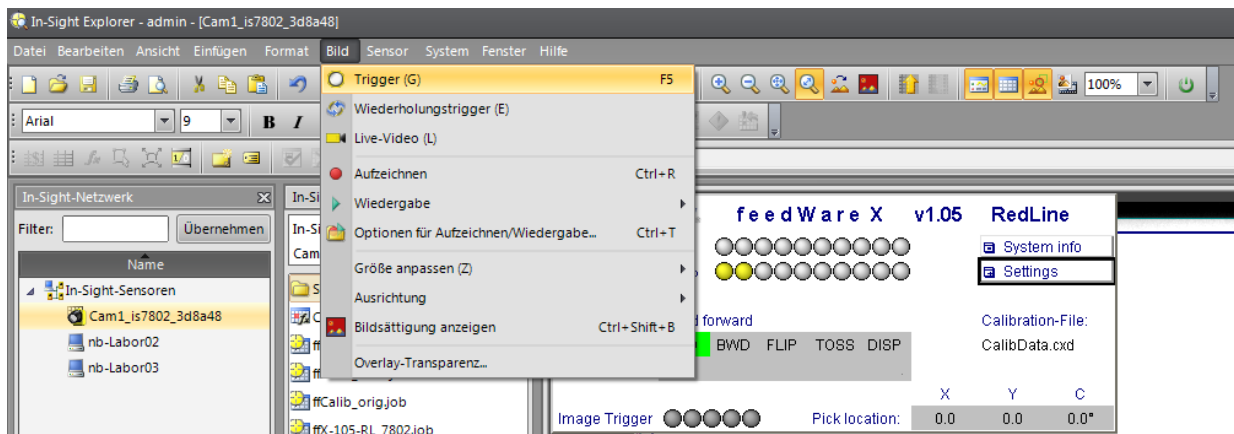
To manually trigger an image acquisition, you must switch the camera offline. This can be done via the menu «Sensor», «Online» or with the corresponding icon in the toolbar:



The On-/Offline State of the camera is displayed in the bottom right corner of the In-Sight Explorer:

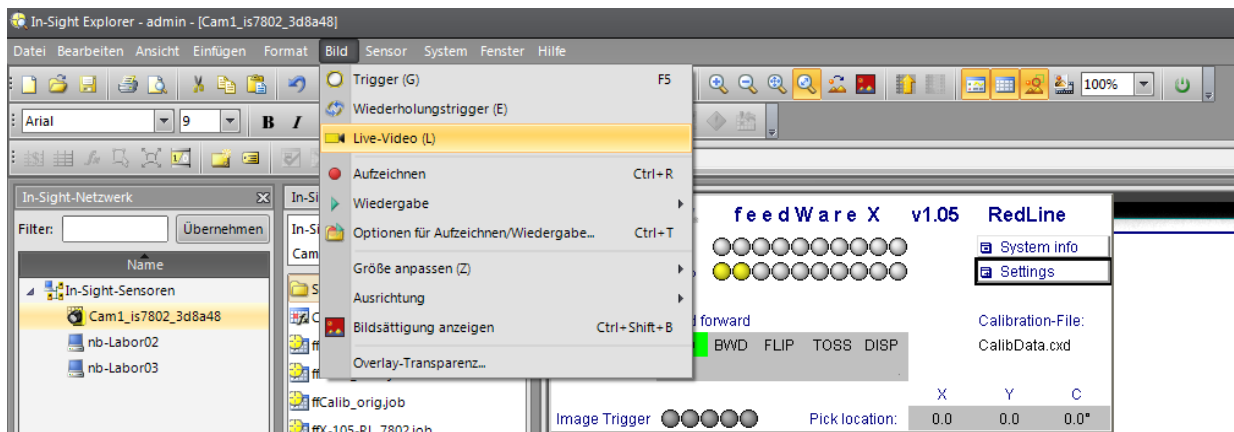


The image acquisition can now be triggered via the menu «Image», «Trigger» or via the corresponding icon in der toolbar:



3.3 Live-Video

To adjust the focus of the lens i.e. the sharpness of the image, set the camera to 'Live' mode. In this mode the camera continuously takes pictures so that you have visual feedback when you change the focus on the lens. The Live-mode can be started via the menu «Image», «Live-Video» or via the corresponding icon in der toolbar:



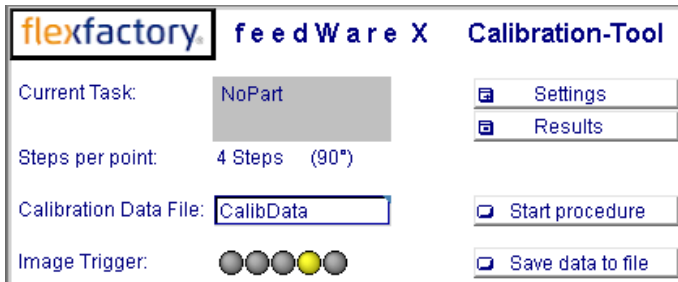
3.4 Load calibration-job

Select the calibration job “ffCalib.job” and drag it into the image area with the mouse. Please note that the camera must be switched to “Offline” for this step. You should then see the “Calibration tool” view as shown in the next section.

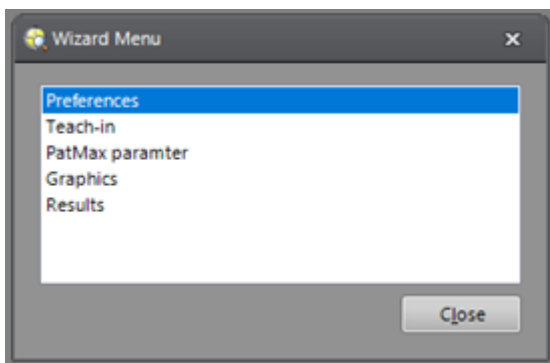
Note that the camera job for the calibration is different from a normal production job.

3.5 Adjust exposure time

The brightness of the image i.e. the exposure time is set via the feedWare camera job. To do this, click on the «**Settings**» button:

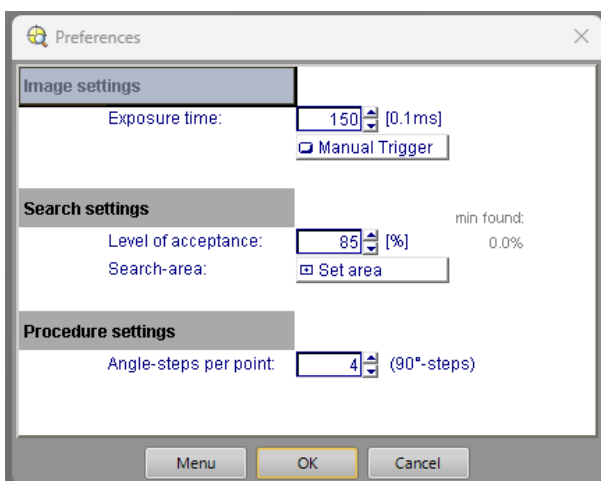


...and select «**Preferences**» from the sub-menu:



The exposure time can be adjusted in the «Preferences» menu at the top.

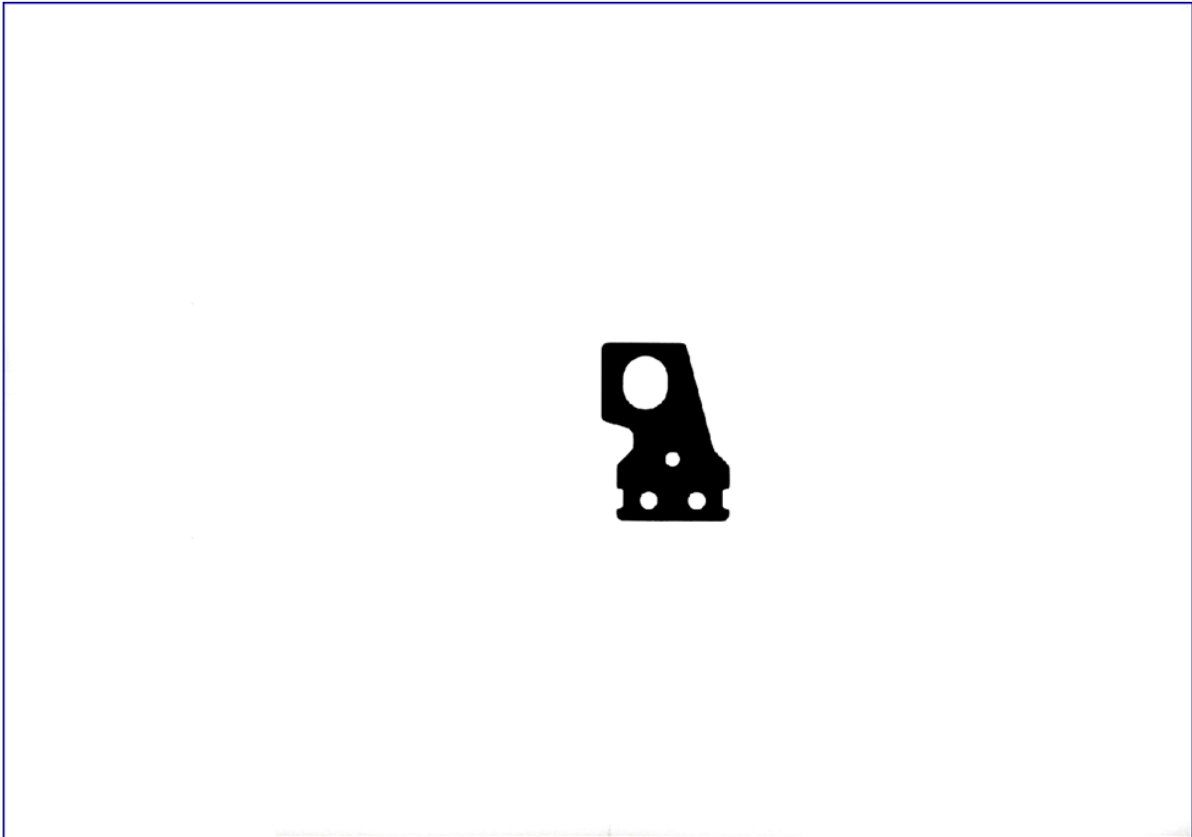
Use the button 'Manual Trigger' for image acquisition to check the setting of exposure time:



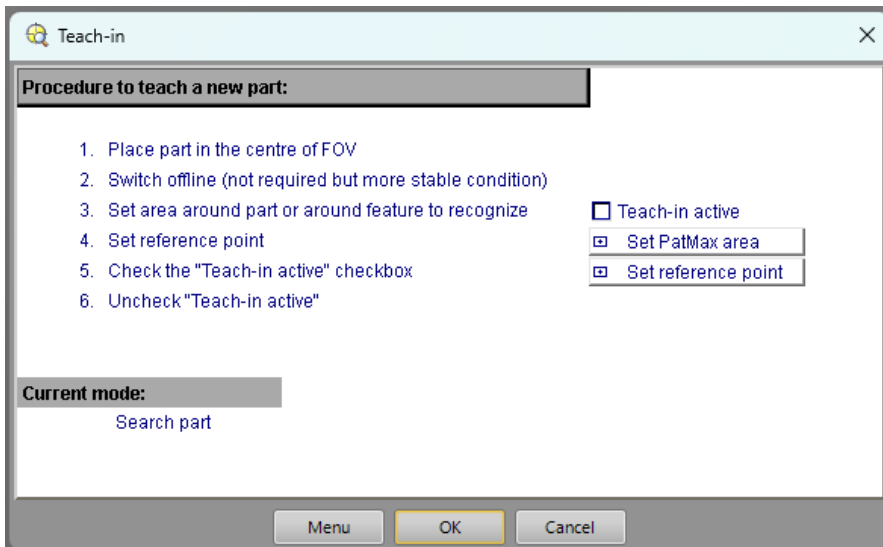
If the brightness of the image is correct, close this menu by clicking OK.

3.6 Recognition setup (Teach-in)

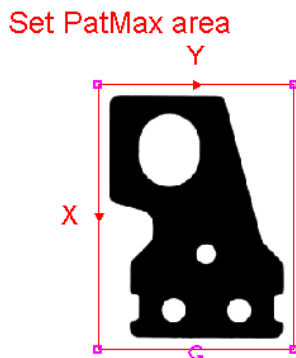
Once the image setting has been completed, you can start the teach-in of the part. First place the part in the center of the image and execute an image acquisition. Then save this image as a reference on the camera's SDCARD. To do this, go to menu «File» and select «Save Image As...»



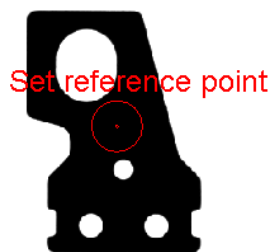
Next, go to «Settings» and select the second entry «PatMax Teach-in».



Click the button «Set PatMax area» and draw the rectangle around the part.
Acknowledge the setting with <Enter> or double-click.

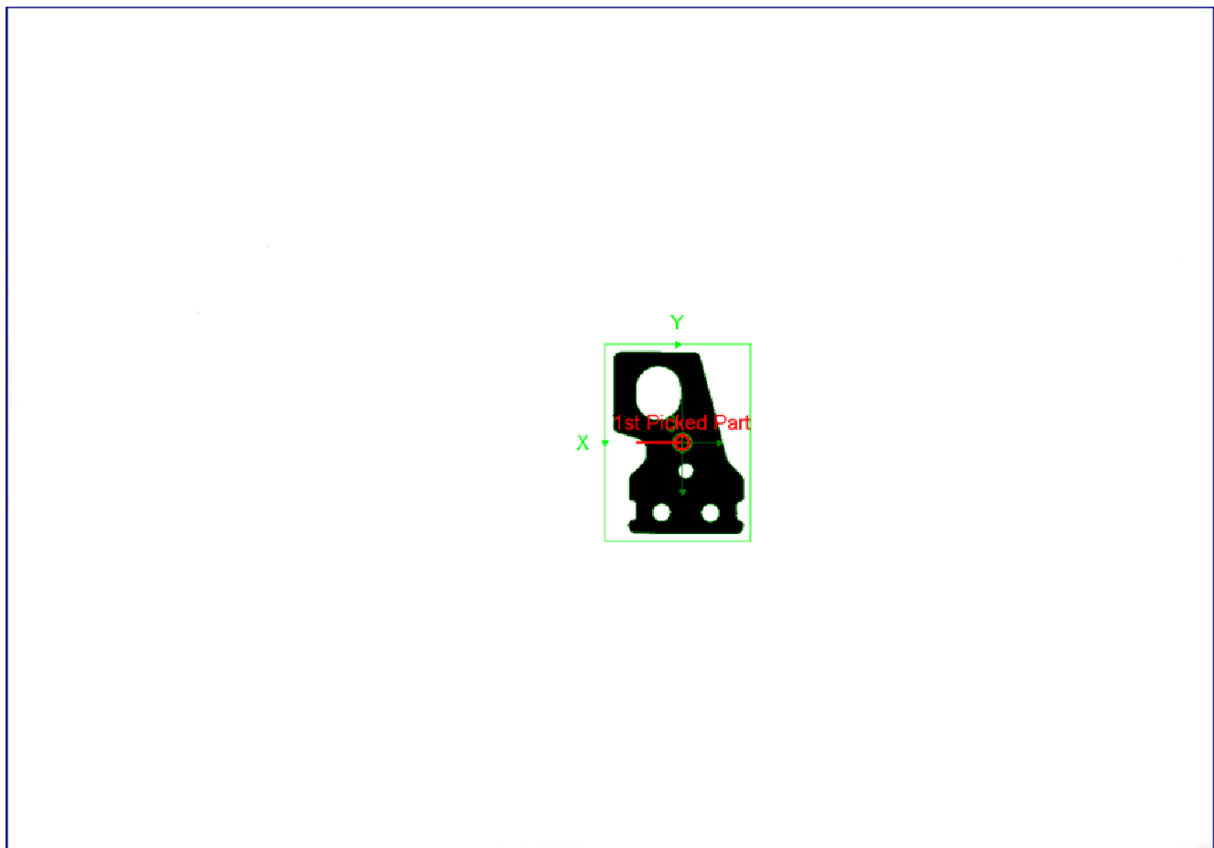


Then click the button «Set reference point» and set the point (the center of the two circles) roughly where the gripper center will be. This setting does not have to be accurate. Acknowledge with <Enter> or double-click.



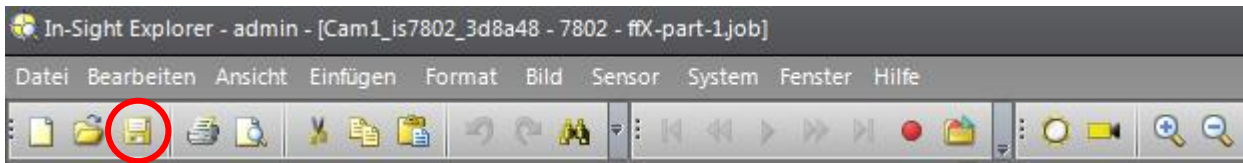
Now select the checkbox Teach-in active and deactivate it again immediately.

This teaches the pattern, i.e. the geometry of the part, as a reference and it is immediately searched for it in the image. Found parts are marked with a green rectangle:

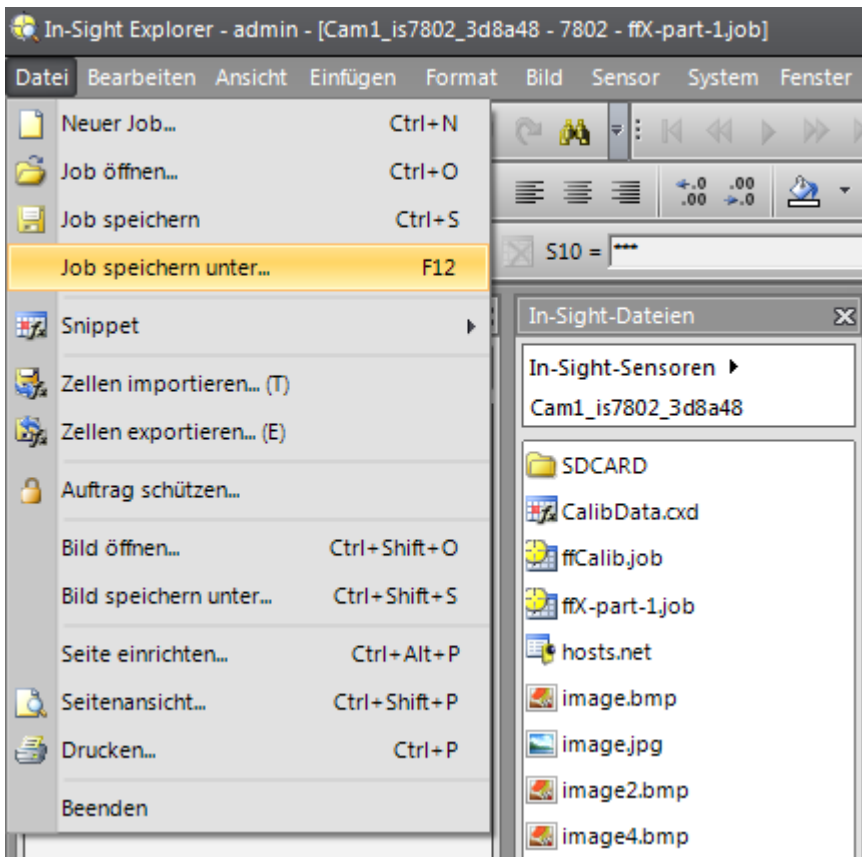


3.7 Save the camera job

To save the camera job, click on the disk icon in the toolbar on the left:



Or go to menu «File», «Save Job As...» if the job should be saved under a different name than the currently loaded job (displayed in the title bar of the In-Sight Explorer).



After the job has been saved, switch the camera "Online" again.

4 Execute calibration-procedure with the robot

Once you have completed the preparations for the calibration, you can now carry out the calibration process with the robot according to the interface description (pages 4 and 5):

[flexfeeder_TCP-interface.pdf](#)

Under the following link you find a video that shows the automated calibration process between robot and flexfeeder/camera

[flexfeeder/flexfeeder_calibration_process.mp4](#)