

Author Thomas Vogel
Datum 17.02.2021
Version 1.0 (EN)

DOCUMENTATION

Cognex Camera Setup Guide

flexfactory ag
Giessenstrasse 15
CH-8953 Dietikon

Phone +41 44 774 55 66
Fax +41 44 774 55 67

info@flexfactory.com
flexfactory.com



1 Initial setup guide for Cognex cameras

To setup the camera, it's required to connect a PC via network to it. In order to connect with the camera, you need to install the «Cognex In-Sight Explorer» program, which can be downloaded free of charge from the Cognex website: [LINK](#).

The following points must be done to start with the setup procedure:

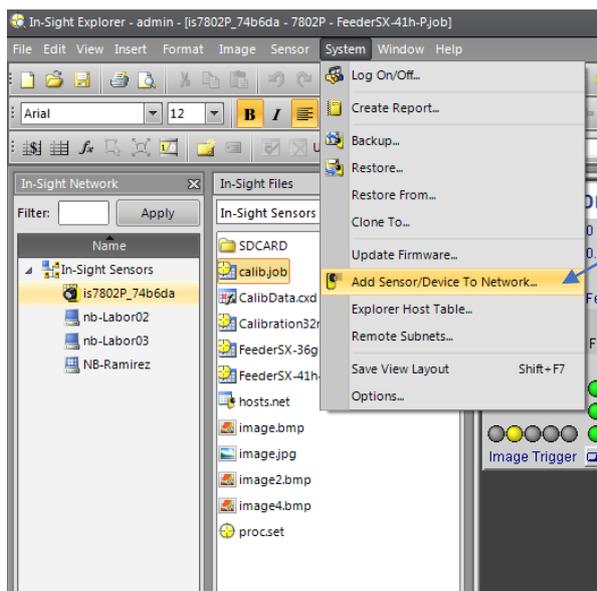
- The Cognex camera must be correctly wired based on our example wiring diagram, which can be found here: [LINK](#).
- The lens (and if applicable, the infrared pass filter) must be mounted on the camera. The infrared pass filter is optional and is only required, when working with infrared backlight.

1.1 Step 1: In-Sight Explorer setup

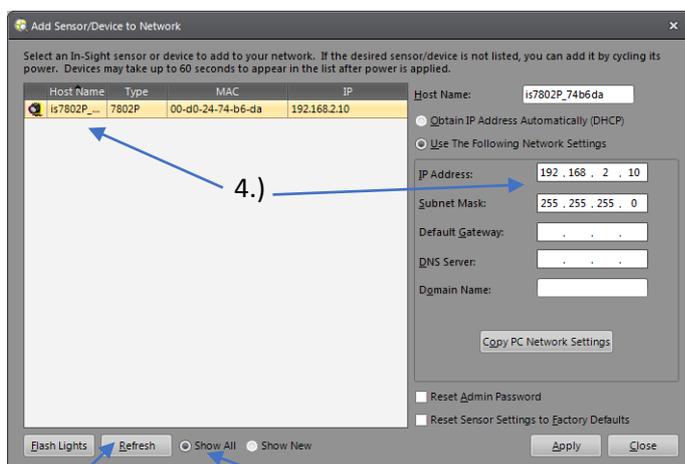
After installing the Cognex In-Sight Explorer, the program must be configured correctly before you can connect to the camera and work with our software. Please refer to our manual "In-Sight Explorer Setup Guide", that you find here: [LINK](#). After completing this guide go to the next Step.

1.2 Step 2: Scan for camera and change IP-Address

Your computer and the camera must be on the same network (IP range), otherwise the camera is not visible in the «In-Sight Network» section. flexfactory ship the cameras with IP-Address 192.168.2.10 and Subnet-Mask 255.255.255.0 by default. To change that, follow these steps:



1.) In the In-Sight Explorer select menu «System/**Add Sensor/Device To Network...**»



2.) select «Show all»

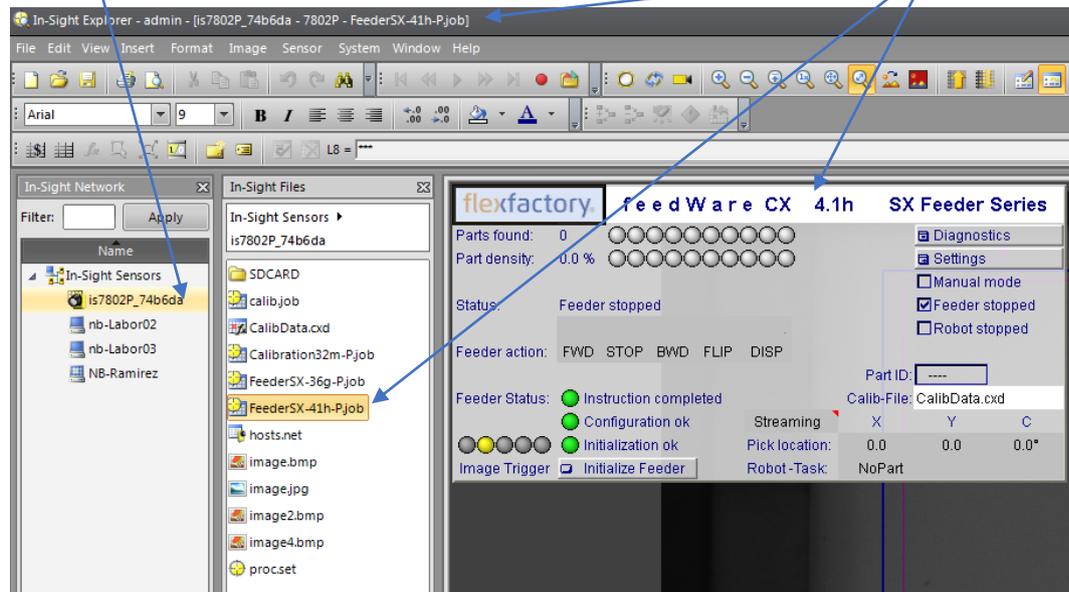
3.) select «Refresh» and wait for a few seconds. After the refresh all cameras in the network will be listed here.

4.) Now you can select the requested camera and change its network settings on the right.

3.) 2.)

After changing the cameras or computers IP-address, to be in the same network, the camera will be visible in the «In-Sight Network» section.

Double-click on the camera to connect to it. When connected, the currently loaded and active camera-job will be displayed.



1.3 Step 3: Turn on the light

To adjust the image settings the light must be switched on.

When using Toplight:

Our toplights are always shipped with white light. You can easily check the on- or off-state of the light visually.

When using Backlight:

The backlight is integrated in the feeder and is permanent switched on by default, when the feeder is powered up (connected to 24V power supply).

It's not possible to detect the on- or off-state of most backlight with your eyes, because the preferred light color of the backlights is infrared (IR). Infrared light can't be seen by human eyes.

Please check the power supply of the feeder and the backlight indicator-LED to find out if the infrared backlight is on or off.

1.4 Step 4: Place a part in the center of the pick area

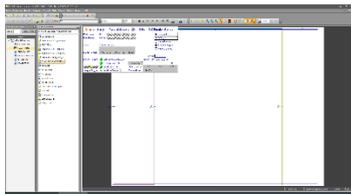
Place any part in the center of the pick area. Make sure that the part has a good contrast against the feed plate, otherwise it will not be visible very well with the camera.

1.5 Step 5: Trigger a picture and adjust exposure time

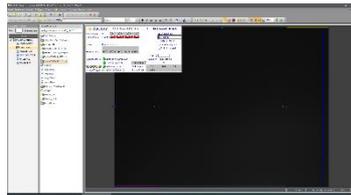
Now the camera must be switched offline, if it is not already in this state. Press the «Online/Offline» button  in the In-Sight Explorer menu bar, to switch the camera on- or offline.

After that you can manually trigger a new picture with the «Trigger» Button  or the F5 key. If these two symbols are not visible in the menu bar of your In-Sight Explorer program, go to «View/Toolbars» and activate the «Job Display» toolbar.

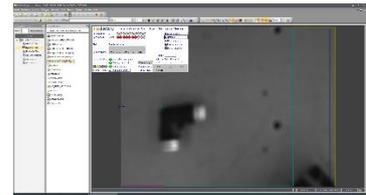
After triggering a new picture, the camera image can be either completely white, black or greyish. See the following pictures for reference.



A completely white picture indicates that the exposure time is too high. The exposure time should be decreased in this case.



A completely black picture indicates that the exposure time is too low. The exposure time should be increased in this case.



A greyish/blurred picture indicates that the exposure time is in an acceptable range. In this case the exposure time doesn't need to be changed

The cameras «exposure time» can be adjusted in the menu: «Settings/Preferences/Exposure Time». After changing it, a new picture with the new exposure time can be created with the «Trigger» Button. Please adjust this time until you have a greyish/blurred picture on the camera, like the far-right picture above.

1.6 Step 6: check aperture and set focus on the lens of the camera

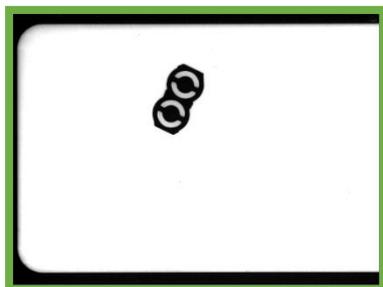
Check the aperture on the lens (upper adjusting ring & setscrew): it should be set to 4 (default). If required you can change this, but **don't forget** to tighten the setscrew after adjusting the aperture.

After setting a nearly ideal exposure time (Step 5), the focus can be adjusted on the lens (lower adjusting ring & setscrew). Start a «Live Video» with this Button  in the In-Sight-Explorer menu bar. Now adjust the focus on the lens manually and simultaneously check the camera live video display until you found the ideal setting, i.e. sharpest image. **don't forget to tighten the setscrew** after changing the focus. After changing focus, the exposure time may need to be readjusted.

1.7 Step 7: check camera position

Please check the position of the camera in respect to the feeder. The camera must cover the whole pick area on the feeder. Note that the camera image has a rectangular aspect ratio, therefore the longer side of the image must be along the side of the feeder and the short side along the width of the feeder. Align/center the camera to the pick area, so that the rim is regularly visible.

This is an example of correct camera positioning:



Here examples of bad camera positioning:

