

Pallet Pocket Detection 3D Compact Systems

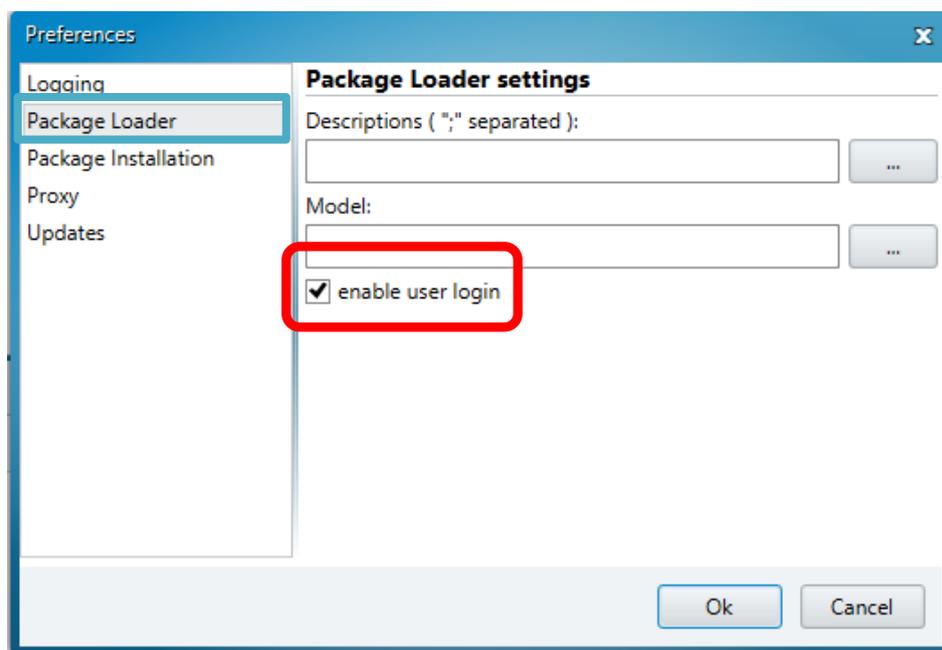
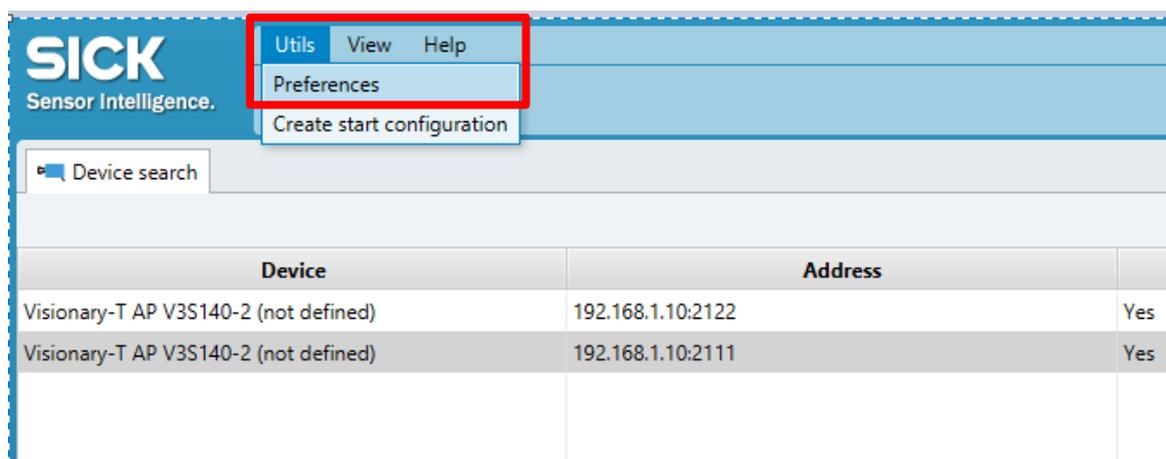
INSTALLATION

Installation

To install the Pallet Pocket Detection App on the Visionary-T AP device you need the AppManager which can be downloaded for free on sick.com.

After installation of AppManager you have to configure the user login.

To enable the user login click on „Utils→ Preferences“.



Now the App can be installed on the Visionary-T AP device.

- Connect your device via Ethernet to your local PC
- Connect the device to a power supply and wait until the Device LED goes green
- Start SICK AppManager
- The device should be detected and displayed automatically (please perform an additional scan if the device is not displayed)

The screenshot shows the SICK Sensor Intelligence interface. At the top, there is a header with the SICK logo and 'Sensor Intelligence.' followed by 'Utils' and 'Help' menus. Below the header is a 'Device search' section with a search bar and buttons for 'Scan', 'Edit IP Address', and a menu icon. The main content is a table with three columns: 'Device', 'Address', and 'AppSpace'.

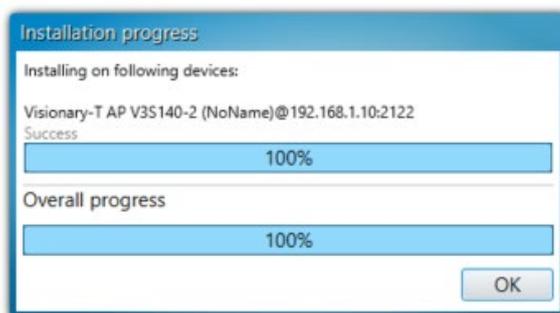
| Device | Address | AppSpace |
|---------------------------|-------------------|----------|
| Visionary-T AP V3S140-... | 192.168.1.10:2122 | Yes |
| Visionary-T AP V3S140-... | 192.168.1.10:2111 | Yes |

- Import your App to the AppManager by clicking to the plus symbol. The App will appear in the “Local Packages” section within the AppManager.
- Select device with PORT 2111

This screenshot is similar to the previous one, showing the same table of devices. The row corresponding to the device at address 192.168.1.10:2111 is highlighted with a red border.

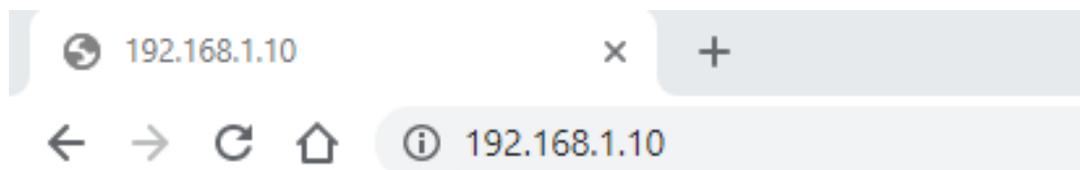
| Device | Address | AppSpace |
|--------------------------------|-------------------|----------|
| Visionary-T AP V3S140-2 (no... | 192.168.1.10:2122 | Yes |
| Visionary-T AP V3S140-2 (no... | 192.168.1.10:2111 | Yes |

- Select the App in “Local Packages” folder and click “install”
- Enter the Userlevel and the password to start the installation
- The success of the installation can be checked in the Installation progress window.

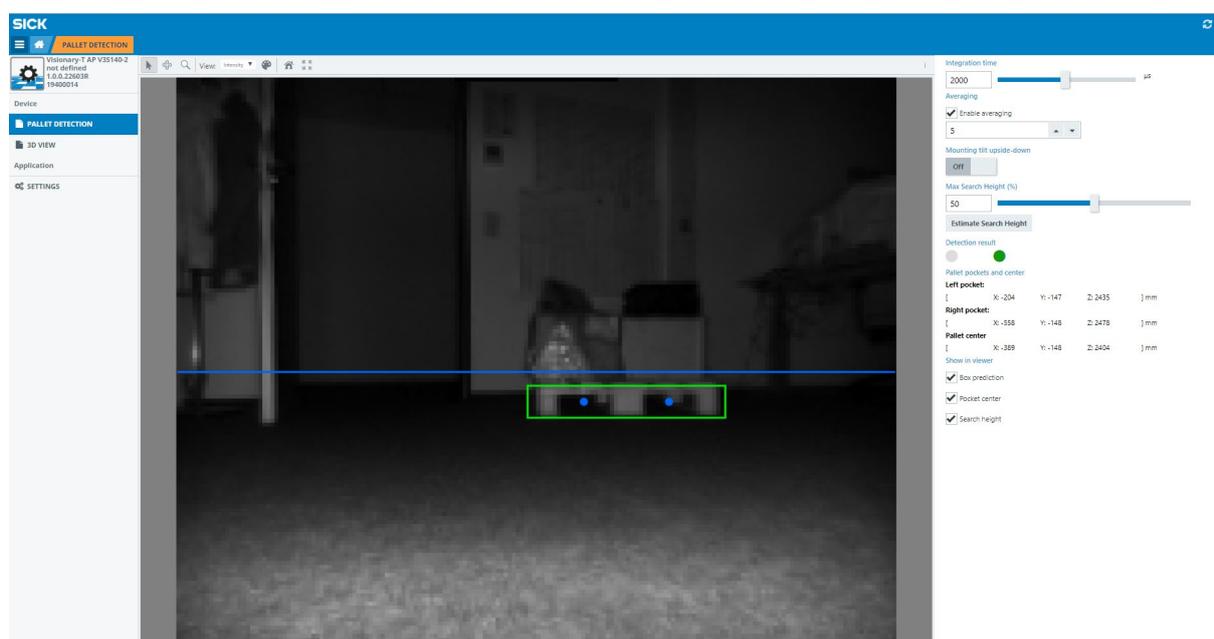


When the App is installed on the device, the GUI can be accessed via SOPASAir.

Open a web browser (we recommend Chrome) and type in the IP address of the camera where you installed the App, e.g. 192.168.1.10.



SOPASAir GUI window of the App opens:



When connected via SOPASAir you can use the GUI to configure the application and check which parameters are needed for the application. Later when the application is running in an automated vehicle you have to transfer these parameters via CoLa2 to the device at each start, or on the fly dependent on your application and setting.

The integration time can be modified due to distance and remission of object (dolly). You can use the slider to change the integration time or type in the value directly and press the enter button. The unit for integration time is [μs].



Optimal integration time:

- The optimal integration time depends on the material of the pallets and detection distance
- A high integration time increases the performance for black pallets and far distances

Activate frame averaging to make the detection more stable:

- Choose the number of images that should be used for the average
- Note: a high average can lead to a slower/delayed detection

Averaging

Enable averaging

5

Use the switch if your device is mounted upside down:

Mounting tilt upside-down

Off

Use the “Max Search Height” slider to define the region where pallet ends and load on the pallet begins. It helps to separate load and pallet more clearly and stabilizes the pallet pocket detection. The height needs to be defined based on the mounting position of the camera based to the floor (or forks of the forklift).

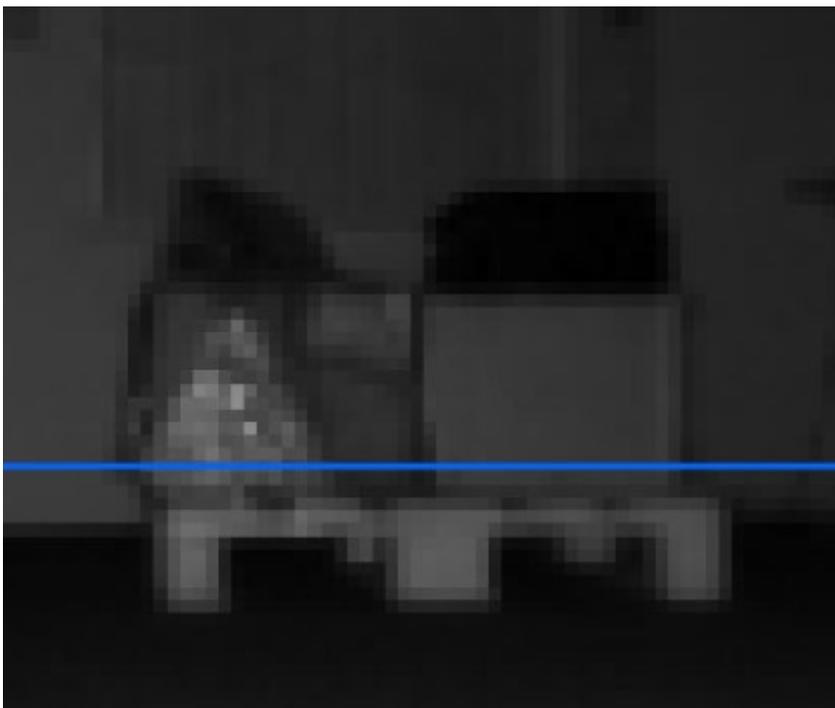
Max Search Height (%)

50



Estimate Search Height

The blue line indicates the defined “Max search height” and helps to localize it within the view.



The following options help to check the performance of the configuration by visualizing the results on the live monitor

- Box prediction: Shows the rough area in which the pallet is located
- Pocket center: Shows the predicted center of the pocket
- Search height: Shows the height defined in “Max Search Height”

Show in viewer

Box prediction

Pocket center

Search height

Once the pallet and pallet pockets are detected and the coordinates are calculated, the XYZ coordinates (based on the camera coordinate system) are displayed in the “Detection result” section.

Detection result



Pallet pockets and center

Left pocket:

[X: -205 Y: -147 Z: 2434] mm

Right pocket:

[X: -558 Y: -148 Z: 2482] mm

Pallet center

[X: -390 Y: -148 Z: 2406] mm

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