

Version 1.19.0

# ADVANCED PEOPLE SENSOR

## APS Video Player

### Instructions for Use



*Original Instructions for Use*

HAGL-120-00085

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# Supplemental Directives

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Document history

Version	Modification
1.19.0	No changes in manual.
1.18.0	No changes in manual.
1.17.0	<p>Chapter 3.1</p> <ul style="list-style-type: none"> <li>■ New button for Floor Map, GPIO and snapshot.</li> </ul> <p>Chapter 3.3.1</p> <ul style="list-style-type: none"> <li>■ New counting result for wheelchairs.</li> </ul> <p>Chapter 3.3.3</p> <ul style="list-style-type: none"> <li>■ New track color for wheelchairs.</li> </ul> <p>Chapter 3.3.5</p> <ul style="list-style-type: none"> <li>■ New chapter for displaying floor map.</li> </ul> <p>Chapter 3.3.7</p> <ul style="list-style-type: none"> <li>■ New chapter for displaying GPIO status and motion state.</li> </ul>

Version	Modification
	<p>Chapter 3.4</p> <ul style="list-style-type: none"> <li>■ New: Making a snapshot.</li> </ul>
1.13.0	<p>Open videos from current versions.</p> <p>Adaptation of the pictorial representations to the changed appearance.</p> <p>Chapter 3.3</p> <ul style="list-style-type: none"> <li>■ New structure for the chapter.</li> <li>■ More detailed information.</li> </ul>
1.12.0	<p>No new manual , only firmware</p> <p>Playing APS-RS videos</p> <ul style="list-style-type: none"> <li>■ Displaying the new counting information for groups and carts.</li> <li>■ Displaying tracks for carts.</li> </ul>
1.11.0	<p>Open videos from current versions.</p> <p>The track info window now shows the dwell time of tracks as “dwell” in seconds instead of “age” in frames.</p> <p>Playing APS-RS videos</p> <ul style="list-style-type: none"> <li>■ Possibility to play videos of multi sensor arrays. The player will show moving tracks on a stiched image.</li> <li>■ Adaption for new extended height range in APS-RS SW v1.16.</li> </ul> <p>Playing APS-M videos</p> <ul style="list-style-type: none"> <li>■ Visualization of new Stop/Motion Detector in APS-M SW v1.9.</li> </ul>
1.10.0	<p>Creation of document.</p>

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# 1 Introduction

The Advanced People Sensor (APS) can store videos internally. To keep the video data manageable, APS-M videos have a maximum recording time of 60 minutes, and APS-RS videos are split into intervals having a 30 minutes maximum length. These are stored on the APS in an archive (tar-file<sup>+</sup>) format which contains standard video information and configuration and sensing data.

With a standard video player, it is only possible to play back the video information.

The APS Video Player can also overlay specific configuration and sensing data over the video information, such as:

- Counting lines and results
- Motion state information (only with APS-M videos)
- Occupancy information (only with APS-M videos)
- Zone monitoring info (only with APS-RS videos)
- Object tracks
- Track info
- Range
- Floor area
- Floor map (only with APS-M videos)
- Obstructions
- Status of the digital inputs and outputs (only with APS-M videos)

This specific configuration and sensing data is available if the APS firmware version supports this information.

Having this configuration and sensing data available allows customer installations to be evaluated and counting errors to be analyzed.

In addition, it is possible to combine these configuration and sensing data overlays with the video information, and convert this into a standard video format (playable on a standard video player).

The APS Video Player version 1.19.0 is needed to play videos from the following APS variants:

- APS retail variants (APS-RS<sup>+</sup>) with firmware 2.2
- APS public transport variants (APS-M<sup>+</sup>) with firmware 2.3

The APS Video Player version 1.19.0 can also play videos from all lower firmware versions.

## 2 Installation

### Requirements

- Windows 7 SP1/Windows 8/Windows 10 (64 bit versions only)
- At least 2 GB RAM
- Graphic resolution 1024 x 768, 16 bit
- At least 300 MB free disk space

To install the APS<sup>+</sup> Video Player proceed as follows:

1.  Download the installation file from  [www.people-sensing.com/downloads/](http://www.people-sensing.com/downloads/)
2.  Start the installation by double-clicking the downloaded executable file.
3.  You'll be ask: This will install APS Video Player 1.19.0. Do you wish to continue? Confirm with *<Yes>*.
  - ➔ The Setup Wizard starts.
4.  Click *<Next>* for the next step.
5.  The APS Video Player is installed by default in the folder:  
C:\Program Files\APSVideoPlayer1.19.0.  
  
To change this folder click *<Browse>*.  
  
To go to the next step click *<Next>*.
6.  The settings for the installation are shown. To start the installation click *<Install>*.
  - ➔ The installation starts.
7.  The APS Video Player has been installed on your computer. To exit the Setup Wizard click *<Finish>*.

# 3 Working with the APS Video Player

The easiest way to start the APS+ Video Player is to double-click the APS Video Player icon  on the desktop which has been placed on the desktop during installation. Alternatively, select "Start Menu → All apps → APS Video Player 1.19.0 → Run APSVideoPlayer 1.19.0".

## 3.1 Work screen

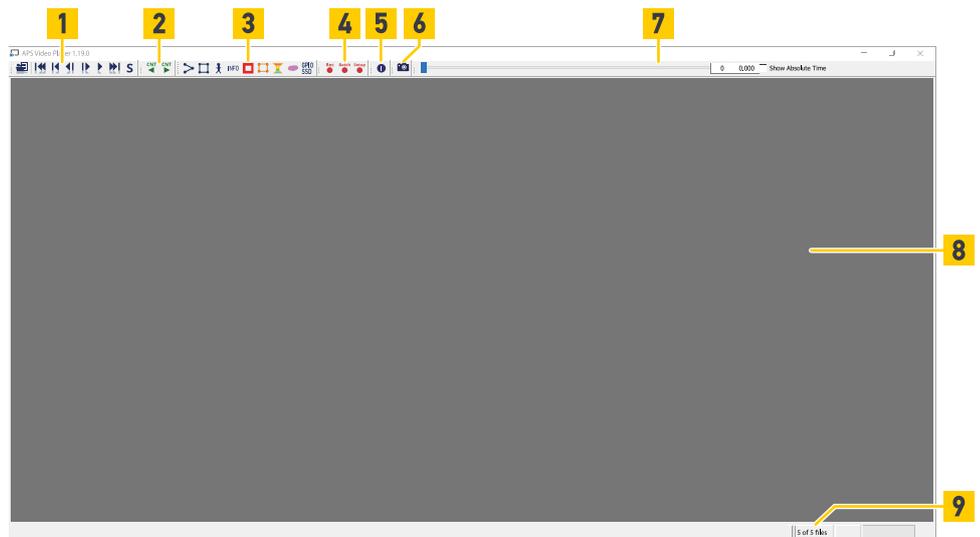


Fig. 1: Elements of the work screen

- |   |                       |   |                      |
|---|-----------------------|---|----------------------|
| 1 | Video control toolbar | 2 | Count event toolbar  |
| 3 | Visualization toolbar | 4 | Video export toolbar |
| 5 | Info toolbar          | 6 | Snapshot toolbar     |
| 7 | Time slider toolbar   | 8 | Video file area      |
| 9 | Status bar            |   |                      |

**Video control toolbar**

Use the elements of the video control toolbar to open and play APS+ video files.



Open a video file



Open the previous video file in the directory



Go to the start of the video (or <home>)



Step backwards (or <shift>+ <tab>)



Step forwards (or <tab>)



Play/Pause the video (or <space bar>)



Open the next video file in the directory



Toggle player speed

**Count event toolbar**

Use the count event toolbar to go directly to the next or previous count event.



Jump to previous count event



Jump to next count event

**Visualization toolbar**

Use the visualization toolbar to show or hide counting lines, areas, tracking information and so on. The available information is based on the firmware, configuration and licenses of the APS+.



Show/hide counting lines and counting results



Show/hide zone monitoring areas and zone monitoring results



Show/hide tracks



Show/hide track information



Show/hide the monitoring range



Show/hide the configured floor area



Show/hide the floor map



Show/hide marked obstructions



Show/hide status of digital inputs, digital outputs and start/stop detection (only APS-M+ variants)

**Video export toolbar**

Use the video export toolbar to convert the APS+ video file with all displayed information into standard video formats like avi or mp4.



Start/stop single video conversion (e.g. avi+ or mp4+)



Convert all video files in a directory



Choose video file format for conversion

**Info toolbar**

Use the info button to get information about the program, HELLA Aglaia and Open Source Licenses.



Opens a window with information

**Snapshot toolbar**

Use the snapshot button to store the current video picture.



Store the picture as PNG, JPG or BMP file

**Time slider toolbar**

Use the time slider toolbar to move to any point in time of a video by either entering the specific frame, entering a specific time stamp, or using the slider.

**Video file area**

See the video and counting information if selected.

**Status bar**

Get information about the toolbars and the number of files in the current directory.

### 3.2 Playing a video

1. → To open an APS<sup>+</sup> video file, click the  button.
  - ➔ The file-open dialog opens to select a tar-file<sup>+</sup> on the computer.
2. → Select a tar-file and click open.
  - ➔ The video and counting information is displayed in the video file area (Fig. 1 /7).

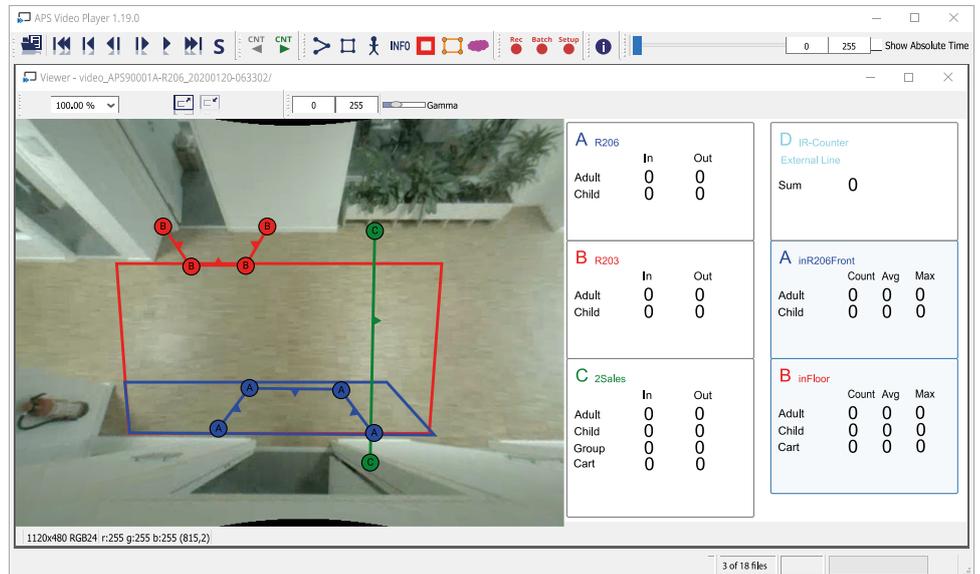


Fig. 2: Displaying APS-RS video file

3. Click the button to start the play back.
  - ➔ The button changes to .
4. Click the button to jump to the next count event or the button to jump to the previous count event. If the video is paused, use the and buttons to go step by step through the video.



#### Keyboard commands

Some of the buttons can also be operated using keyboard commands (➔ List of keyboard commands on page 26).

### 3.3 Displaying additional information

Use the visualization toolbar buttons (Fig. 1 /3) to switch the additional information on or off.

When starting the video player and opening a video file counting lines, monitored zones and tracks are displayed by default.



#### Licensed functions

Some of the information are licensed functions. They are only displayed if the function is available on the APS+.

### 3.3.1 Displaying counting lines and results

Use  to show/hide counting lines and counting results. Based on your firmware version (APS-M or APS-RS) and installed licenses different counting information can be displayed.

APS-M firmware

**i** *Only APS-M variants*  
*This functionality is only available with APS-M<sup>+</sup> variants.*

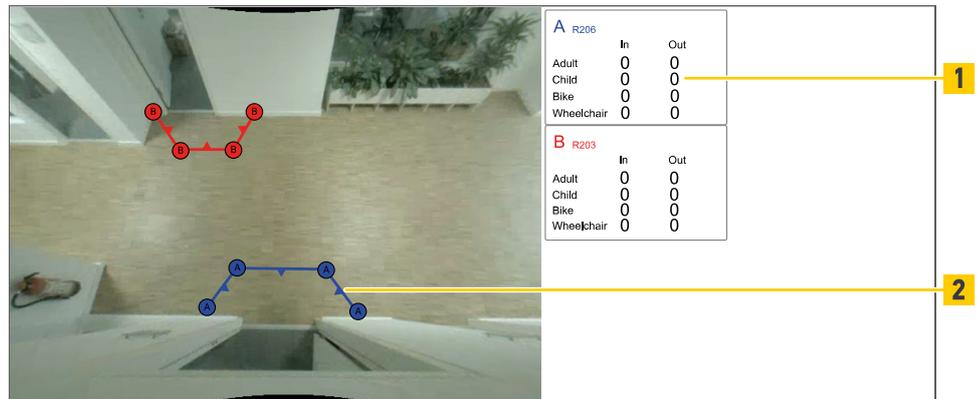


Fig. 3: Displaying counting lines and counting information with APS-M firmware

- The counting results are separated into Adult, Child, Bike and Wheelchairs (Fig. 3 /1) if an Object Classification license is installed on the device. In the other case, all counting of persons are grouped under Adult.
- The direction of movement IN is indicated by the arrow on the counting line (Fig. 3 /2).

APS-RS firmware

**i** *Only APS-RS variants*  
*The described functionality is only available with APS-RS+ variants.*



Fig. 4: Displaying counting lines and counting information with APS-RS firmware

- The counting results are separated into Adult, Child, Groups and Carts (Fig. 4 /2) if an Object Classification license is installed on the device. In the other case, all counting of persons are grouped under Adult. The counting of groups and carts can be individually configured for each counting line (Fig. 4 /3).
- The direction of movement IN is indicated by the arrow on the counting line (Fig. 4 /4).
- It is possible to use a digital input e.g. with an infrared sensor for counting. In this case, the APS reports the count of pulses at the digital input. The direction of movement cannot be determined, and there is no counting line (Fig. 4 /1) in the image.

### 3.3.2 Displaying zone monitoring areas and results

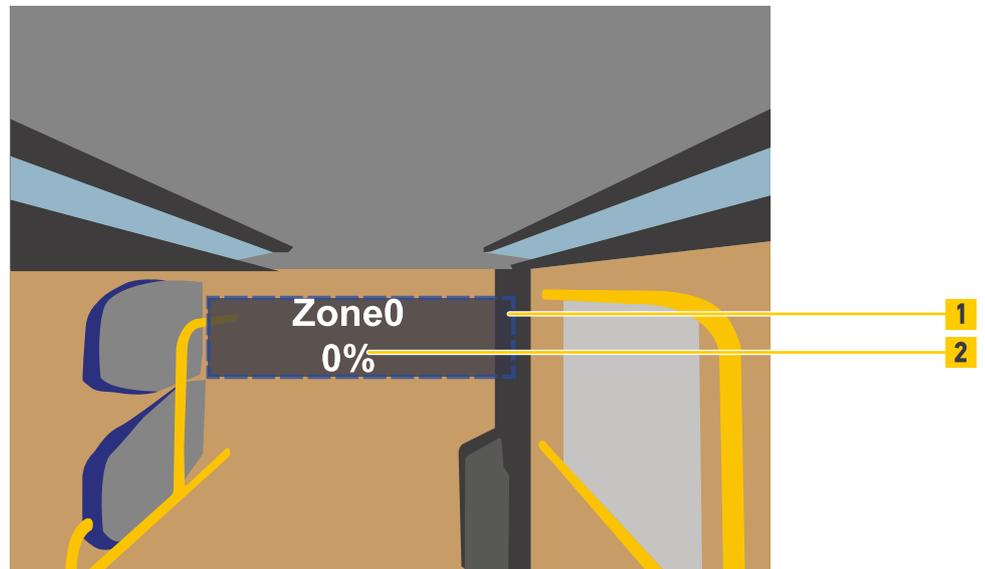
Use  to show/hide zone monitoring areas and zone monitoring results (APS-RS variants) or occupancy zones with information (APS-M variants). Based on your firmware version (APS-M or APS-RS) and installed licenses, different information can be displayed.

APS-M firmware



*Only APS-M variants*

*This functionality is only available with APS-M<sup>+</sup> variants.*



*Fig. 5: Displaying occupancy zones and covered space*

- Occupancy zones are displayed with their space (Fig. 5 /1), their name and occupancy level (Fig. 5 /2) in the video.

APS-RS firmware



*Only APS-RS variants*

*The described functionality is only available with APS-RS+ variants.*

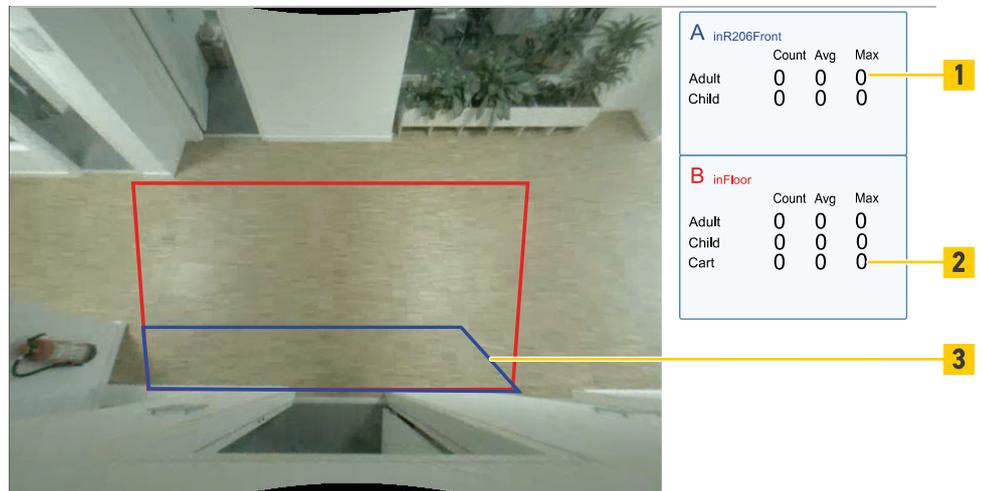


Fig. 6: Displaying zone monitoring areas and zone monitoring results

- The information about the monitored zones is displayed with a blue background (Fig. 6 /1).
- The information about the monitored zones (Fig. 6 /3) is separated into Adult, Child and Carts (Fig. 6 /2) if an Object Classification license is installed on the device. In the other case, all information are grouped under Adult.

### 3.3.3 Displaying tracks and track information

Use  to show/hide tracks.

Use  to show/hide track information.

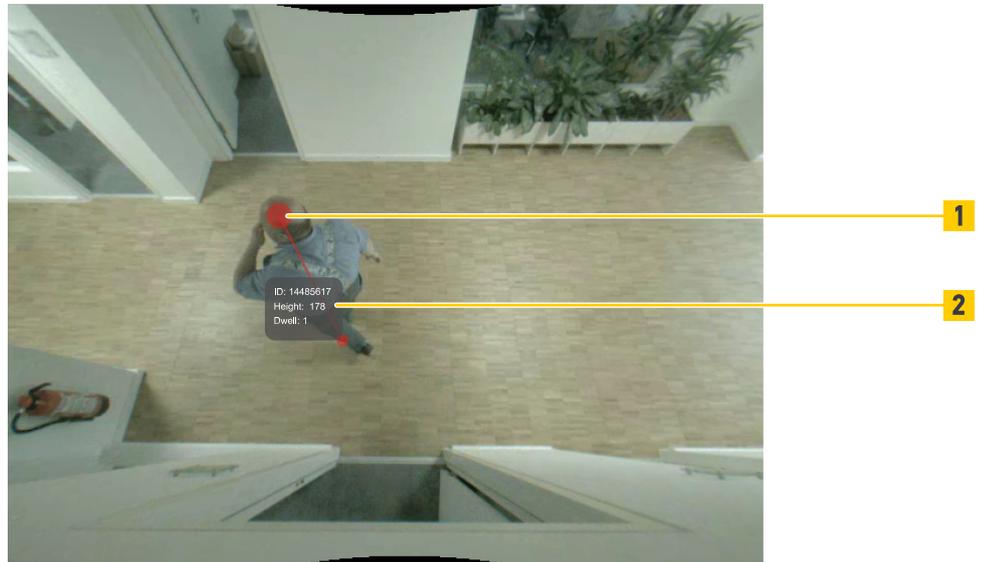


Fig. 7: Displaying tracks and track info

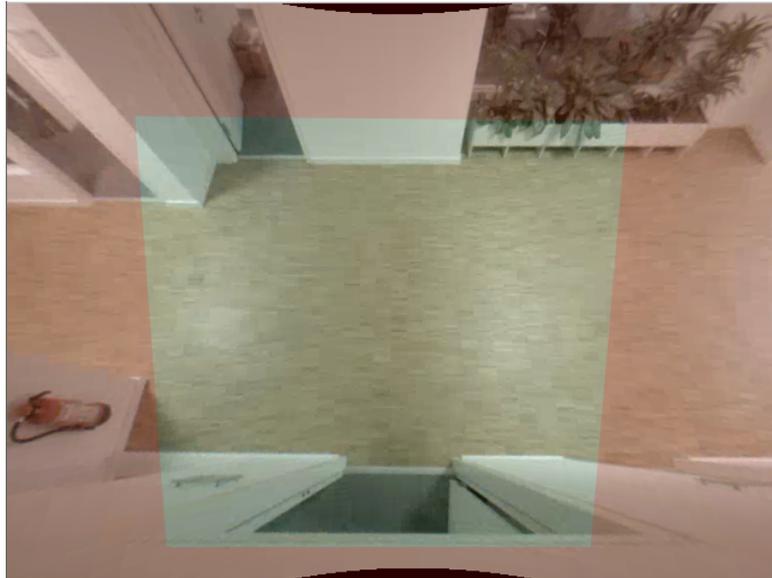
- The tracks (Fig. 7 /1) visualize moving objects. They mark the top and bottom of the objects. The color of the tracks is based on the object classification.

The tracks are colored in:

-  for adults.
-  for children.
-  for bicycles (only APS-M variants).
-  for wheelchairs (only APS-M variants).
-  for carts (only APS-RS variants).
-  for other moving objects (only APS-RS variants).
- The track info (Fig. 7 /2) shows some information about the object. It shows:
  - the unique ID of the object.
  - the height of the object.
  - the dwell time of the object.

### 3.3.4 Displaying monitoring range and floor area

Use  to show/hide the range.



*Fig. 8: Displaying the range*

The range shows where people can be tracked and counted. The red area is not usable for counting.

Use  to show/hide the configured floor area.



*Fig. 9: Displaying the configured floor area*

The floor area is the area where people are counted if they cross a counting line.

### 3.3.5 Displaying floor map

Use  to show/hide the floor map.



*Fig. 10: Displaying floor map*

The floor map shows the determined floor area with height information. The different colors represent different detected heights. Large distances to the APS + are displayed in yellow/green tones (Fig. 10 /1). The middle distance range is displayed in red tones (Fig. 10 /2). The closer an object is to the APS, the darker (Fig. 10 /3) the area is displayed.

### 3.3.6 Displaying obstructions

Use  to show/hide marked obstructions.



*Fig. 11: Displaying marked obstructions*

Ceiling panels, door compartments, exit signs or hanging objects can intrude into the monitored area of the device from the top. If people can stand below these objects, they must be masked to disregard them in count calculations.

### 3.3.7 Displaying GPIO and motion state



*Only APS-M variants*

*This functionality is only available with APS-M<sup>+</sup> variants.*

Use  to show/hide the GPIO status and the motion state status.

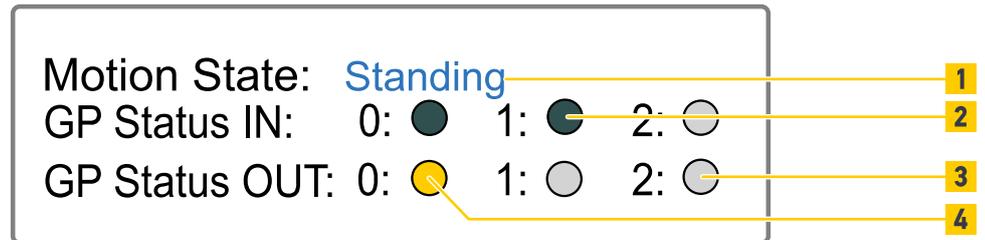


Fig. 12: Displaying the status of GPIO and the motion state

- The motion state (Fig. 12 /1) alternates between moving and standing.
- The status of the Outputs and Inputs is colored in:
  - for not existing (Fig. 12 /3).
  - for Inactive (Fig. 12 /2).
  - for active (Fig. 12 /4).

### 3.3.8 Multi Sensor Fusion



*Only APS-RS variants*

*The described functionality is only available with APS-RS+ variants.*

When a video is played from a Multi Sensor Fusion, the stitched image is displayed. This image is larger than the standard videos. It shows the fusion and can also be in a T- or L-shape, like the fusion is.

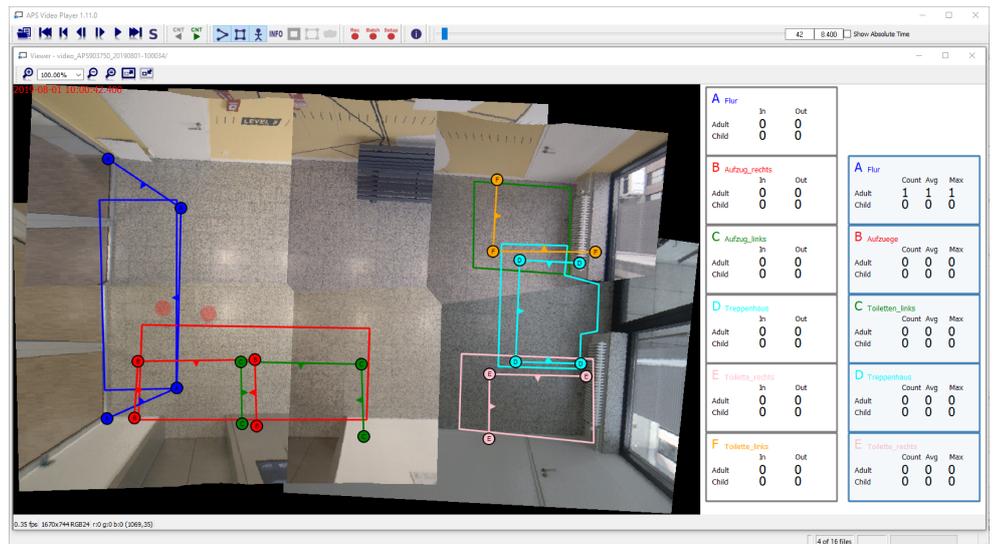


Fig. 13: Multi Sensor Fusion

The video doesn't show any people. Movements can only be recognized by the tracks. Tracks should therefore be displayed.

Information about the floor area, range, or obstructions cannot be displayed. The corresponding buttons cannot be selected.

## 3.4 Making a snapshot

A snapshot can be used by the service to analyze and simulate the installation. A snapshot shows the camera view without any overlay information.

1. To make a snapshot, click
  - ➔ The Save Image dialog opens to name the snapshot.
2. Select a directory and set a file name and file format (png, bmp or jpg). If no file format is given, the snapshot is stored as png-file.
3. To save the snapshot, click Save.

### 3.5 Converting videos

Converting a video means to combine the video data and the selected counting information as overlay into one video file, that can be played by a standard video player software.

There are 2 possibilities to convert:

- Converting a single file.
- Converting all video files in a folder.

For both possibilities, first open a file (➔ Further information on page 12).

#### 3.5.1 Setting a video format

1. ➔ To set the video format of the exported video, click .
  - ➔ The Video Settings window opens.
2. ➔ Select a video format from the list (Fig. 14 /2).
3. ➔ To confirm the selection, click OK (Fig. 14 /1).
  - ➔ The Video Settings window closes.



Fig. 14: Video settings

**i** **Settings**  
*The video export settings are not stored permanently.*

#### 3.5.2 Convert single files

1. ➔ To convert a single file, switch on .
2. ➔ Switch on all additional information you want to display in the converted video (➔ Chapter 3.3 Displaying additional information on page 13).

**i** **Speed up conversion**  
*You can speed up the conversion by clicking the Toggle Player Speed button **S** before you start the conversion. This is useful when converting very large files or batch converting many files!*

3. ➔ To start the conversion, click .
4. ➔ To stop the conversion, click  again.
  - ➔ The converted file is stored in a subfolder called "Converted", which is created in the same directory as your chosen video file.

The file is named: <original file name>\_<sequential number>.<format extension>.

### 3.5.3 Convert all files within a folder

1. ➤ Switch on all additional information you want to display in the converted videos (➔ Chapter 3.3 Displaying additional information on page 13).
2. ➤ To convert all files in a folder, switch on .
  - ➔ The Batch Video Conversion window opens.
3. ➤ See the number of files to convert (Fig. 15 /1).



Fig. 15: Batch Video Conversion



#### Speed up conversion

You can speed up the conversion by clicking the Toggle Player Speed button **S** before you start the conversion. This is useful when converting very large files or batch converting many files!

4. ➤ To start the conversion, click Start (Fig. 15 /2).
  - ➔ Each file in the folder is converted.
5. ➤ The conversion stops when all files are converted. To close the window click Ok (Fig. 16 /1).
  - ➔ The converted files are stored in a subfolder called "Converted", which is created in the same directory as your chosen batch folder.



Fig. 16: Batch Video Conversion finished

The files are named: <original file name>.<format extension>.



#### Storing files

Files with the same name will be overwritten.

## 4 Appendix

### List of keyboard commands

Key	Button	Description
<home>		Go to the start of the video.
<shift> + <tab>		Step backwards
<tab>		Step forwards
<space bar>	 and 	Play/Pause the video

## 5 Glossary and Abbreviations

<b>APC</b>	<b>Automatic People Counter</b> First generation people counter.
<b>APS</b>	<b>Advanced People Sensor</b> Second generation people sensor, successor of the APC <sup>+</sup> .
<b>APS-M</b>	<b>APS<sup>+</sup></b> for <b>Mobile</b> applications such as busses and trains.
<b>APS-RS</b>	<b>APS</b> for <b>Retail &amp; Smart Spaces</b> and other stationary applications.
<b>AVI</b>	<b>Audio Video Interleave</b> Audio Video Interleave is a multimedia container format from Microsoft that allows synchronous audio-with-video playback.
<b>MP4</b>	<b>MotionPicture4</b> or <b>MPEG-4 Part 14</b> is a digital multimedia container format most commonly used to store video and audio, but it can also be used to store other data such as subtitles and still images
<b>tar-file</b>	A <b>tapearchive-file</b> is an archive file to store many files into one single file.

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