

# Aimetis Symphony™

## Camera Setup and Field Recommendations



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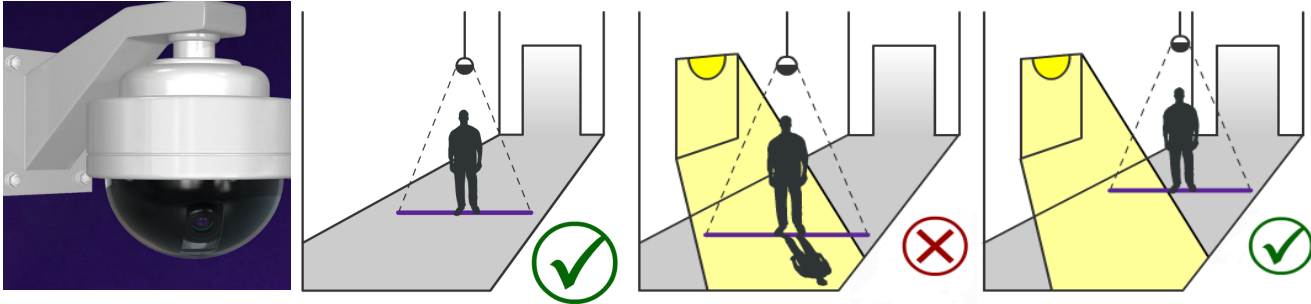
Portions of this software are based in part on the work of the Independent JPEG Group.

# Table of Contents

<b>Environmental Factors that Influence Video Analytics .....</b>	<b>1</b>
<b>Camera Angle .....</b>	<b>2</b>
<b>Degree of Activity .....</b>	<b>5</b>
<b>Lighting and Shadows .....</b>	<b>7</b>
<b>Weather .....</b>	<b>9</b>
<b>Background .....</b>	<b>10</b>

# Camera Setup and Field Guidelines

## Environmental Factors that Influence Video Analytics



### Camera Angle

The angle of the camera influences several factors used in video analytics, including perspective, occlusion, and segmentation of objects.

### Camera Height/Counting Line

Most video analytics require a minimum pixel size. However, if pixel sizes of the objects are too large, that too can distort the performance of the analytics.

### Degree of Activity

The degree of activity in an environment influences the performance of video analytics. For instance, if the view of the camera includes a constantly moving escalator, this could result in false counts.

### Lighting and Shadows

For video analytics to detect objects, minimum light must be available (unless infrared or thermal cameras are being used). Abrupt changes in lighting can cause false counts. Large glass windows and doors can create changes to the scene viewed by the indoor camera.

### Weather

The volatility and variance of weather (sun, rain, snow, wind, trees, clouds, and shadows) can cause false conclusions for video analytics, especially in outdoor environments.

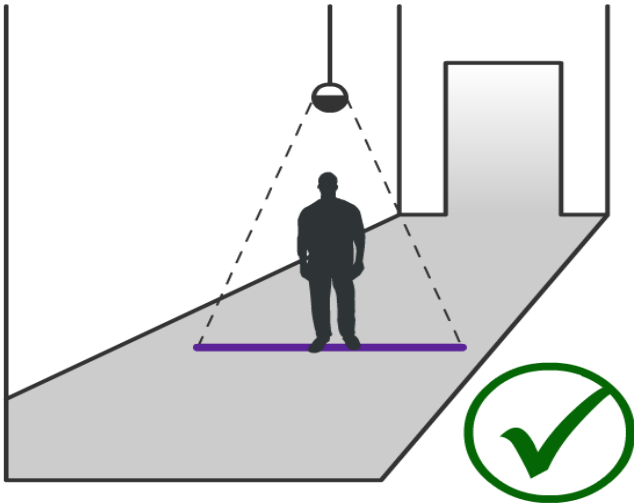
### Backgrounds

The background of a camera view can impact the performance of video analytics and so must be taken into account when developing or installing a solution.

## Camera Angle

### Best Practices

For People Counting, install the camera **90 degrees** overhead at a **minimum height of 9 feet (3 metres)**.



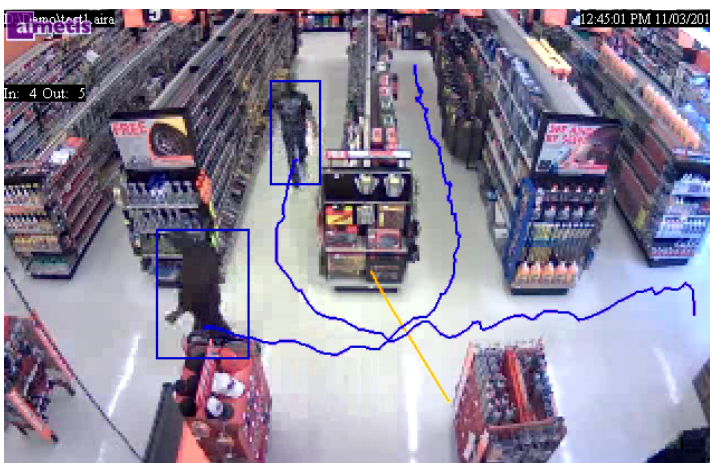
A different height is possible depending on the zoom capabilities of your camera.

An overhead view is usually more accurate for counting people across a line, but it covers less ground than a 45-degree view if the ceiling is low.

- Try to have at least 1 meter of floor space on either side of the counting line.
- In angled views, try to have at least 2 meters of space on either side of the counting line.

Accuracy decreases for nearly horizontal views (for example, less than 20 degrees declination)

**Correct for angle view:**



## Camera Height/Counting Line

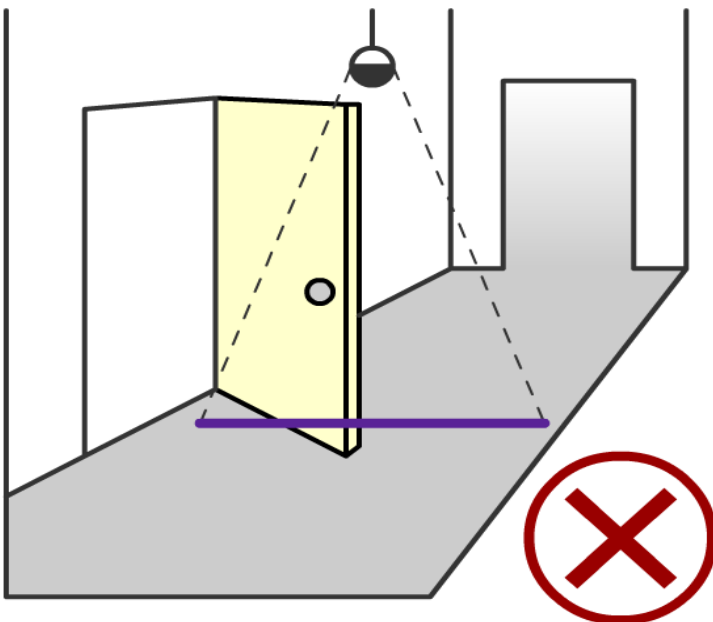
### Best Practices

Different heights are possible depending on the zoom capabilities of your camera. The most common problem is that the camera is installed too low. People will appear very large and to be moving very fast.

**Incorrect:** Camera too low. Opening and closing of the door may cause false counts.



Doors may obstruct view or when opened cross counting lines, raising false counts.



### Best Practices (Continued)

**Incorrect:** Counting line is too close to the door.



**Correct:**

Place the counting line farther away from the door so that people do not stop on the counting line. Also, draw the counting line as a semi-circle to include any people crossing the line from the sides.



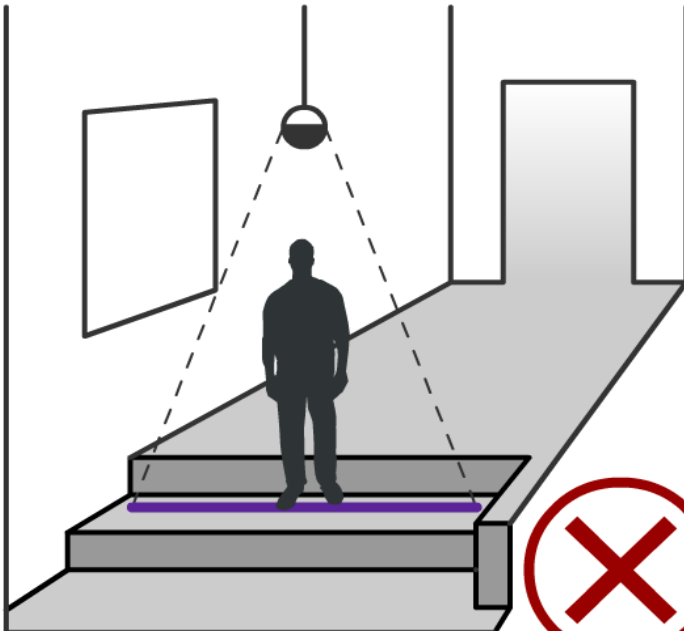
## Degree of Activity

### Best Practices

Place camera away from moving objects such as elevator doors, or moved objects such as carts, carriages and large luggage.



Avoid camera placement near escalators or stairs. Ensure that people are tracked on flat and level surfaces for accurate detection.



## Best Practices (Continued)

Ensure that people are fully visible to the camera and not partially hidden by shelves or low walls.



## Lighting and Shadows

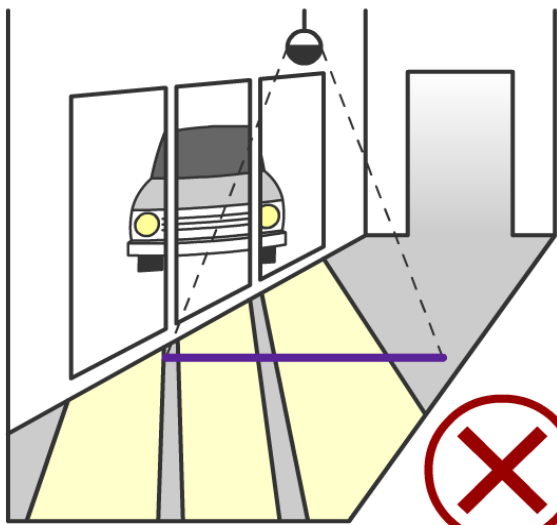
### Best Practices

At least 75 LUX or better. **Poor lighting** causes the camera to increase the sensitivity of the sensors, thus generating more noise in the video, which may result in false counts. Ensure there is consistent light throughout the space and throughout the period of time that people are tracked.

Ensure that there are no shiny objects, like a shiny floor in the area people are tracked. A shiny floor may reflect light/shadows from the surrounding area and generate false counts.

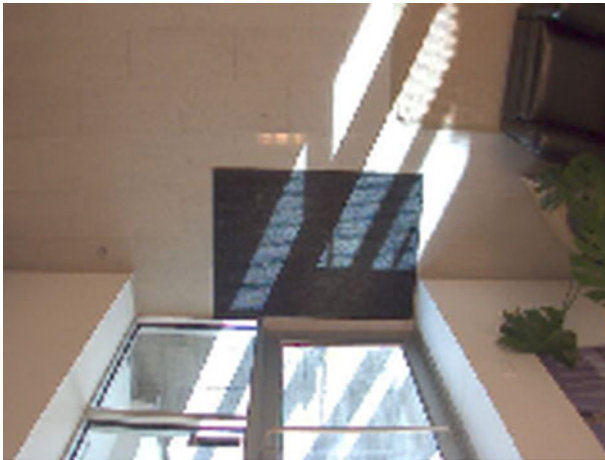


An increase in lighting occurs, for example, when car headlights suddenly appear or when an overcast day becomes a sunny day.

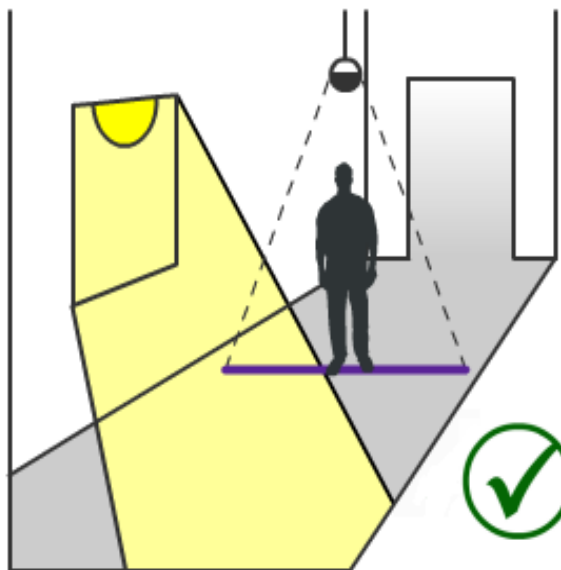
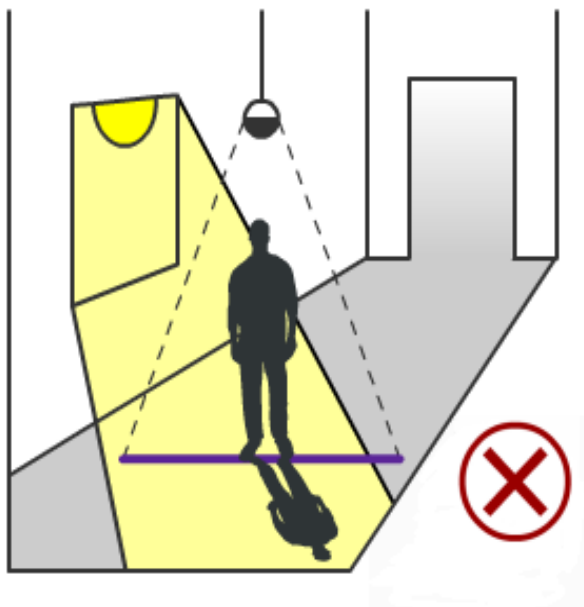


## Best Practices (Continued)

In the indoor tracking area, if possible, avoid sunlight from outside. Sunlight from outside, occasionally obscured by moving clouds will cause shadows to cross a counting line.



Depending on the angle of an indoor light or the sun, the shadows of people walking by (but not through) a counting line can trigger false counts.



## Weather

### Best Practices

Wind or vibrations causes the camera to move. The camera must be stable.

Keep the camera lens clean from rain droplets or insects. Rain droplets or insects hitting the camera lens directly will cause false alarms. If a spotlight is installed too close to the camera, it will attract insects.



## Background

### Consider background

A person wearing light clothing on a dark background raises illumination.

A person wearing dark clothing on light background can appear as a shadow.



Objects with similar colour as background may not be detected, for example, a black mat on floor with person in dark clothing crossing counting line.



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