



# Axis Camera with VaxALPR On Camera software: Field installation

Version 2.0

## VAXTOR TECHNOLOGIES

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## 1. Introduction

This guide has been designed for those responsible of installing the Axis camera with the VaxALPR On Camera software.

The VaxALPR On Camera software is a real-time solution for Automatic License Plate Recognition (ALPR) that runs entirely within the Axis camera.

## 2. Camera installation for License Plate Recognition

The location of the camera has a crucial role in the overall performance of the ALPR system and must be treated with utmost care.

### 2.1 Minimalizing false triggering during recognition

It is important to install the camera in a way that no high contrasted objects (e.g. billboards, wires fences, trees, etc.) are visible in the image frame. These objects may cause false triggering during recognition. Additionally, the camera should not be pointed directly at light sources (e.g. sun, streetlights) or reflecting surfaces.

### 2.2 Installing the camera

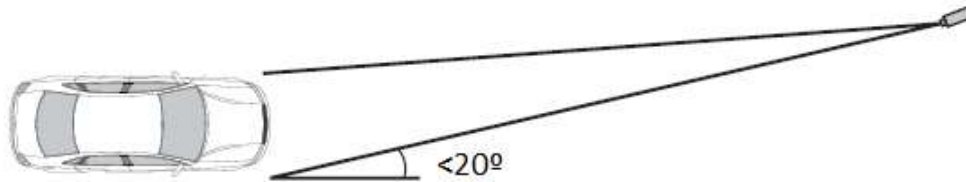
In this section, we describe the optimal settings related with the camera's positioning distance, height, field of view, width of view and depth of field. The following adjustments will help understand camera placement and the ALPR capture range.

#### 2.2.1 Gate or parking

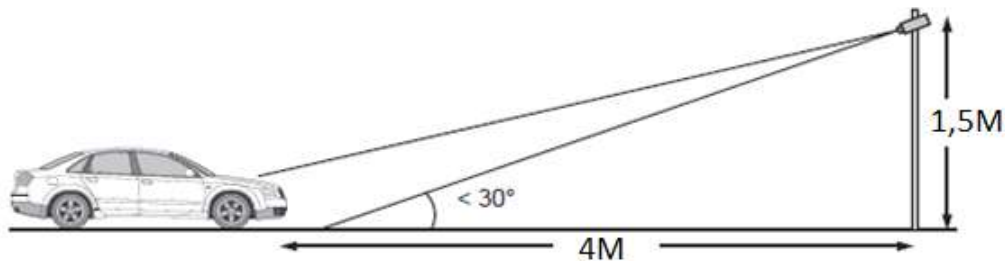
In this scenario, the vehicle comes to a complete stop before entering and leaving a controlled area. When installing the ALPR camera, we recommend the following:

- **Distance** between the camera and the reading point should be **within 2 and 6 meters**.
- **Positioning height of the camera** should be preferably **above or below the gate** so that it does not block camera vision. If it is above the gate, it should be within 1.5 and 2 meters.
- **Camera's vertical setup angle** to the plate should be **within 30 degrees**.
- **Camera's horizontal setup angle** to the plate should be **within 25 degrees**.
- When the camera is setup in a **single lane**:
  - The captured image should only be filled with the full width of the vehicle.
- When the camera is setup in **multiple lanes**:
  - One camera covers a maximum of 2 lanes.

- The captured image should only be filled with the full width of the two vehicles.
- **Focal length** of the lens should be within **2 and 8 millimeters**.
- Camera should have an **IR illuminator**.



Maximum angle on the horizontal axis



Camera's vertical setup angle

### 2.2.2 Road or Street

In this scenario, the vehicle is in motion and the ALPR camera can be set with a frontal view or on the side.

#### a. Camera with a frontal or rear view (recommended frontal view)

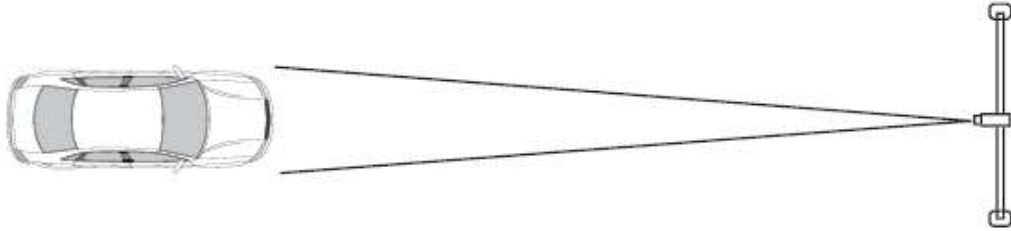
When installing the ALPR camera with a vehicle frontal view (or rear view), we recommend the following:

- **Distance** between the camera and the reading point should be **within 15 and 30 meters**.
- **Positioning height of the camera** should be preferably **within 3.5 and 6 meters**.

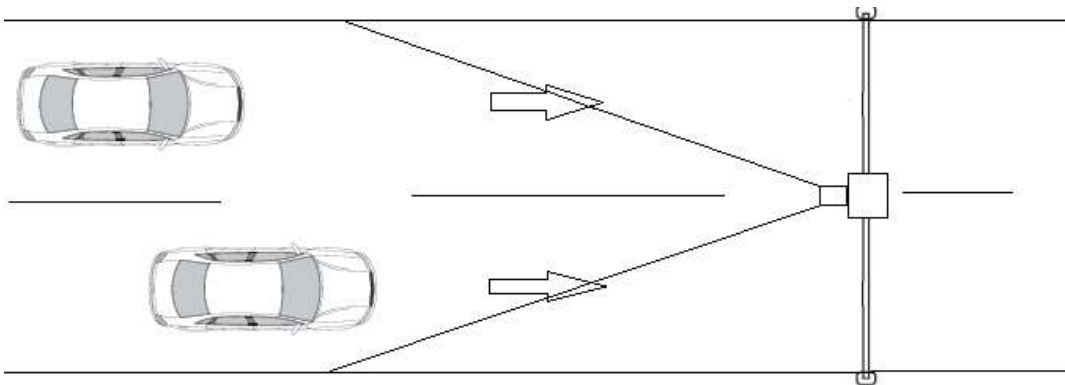
NOTE: The height limit of the vehicles should be considered.

- **Camera's vertical setup angle** to the plate should be **within 30 degrees**.
- When the camera is setup in a **single lane**:
  - The camera should be centered in the lane.
  - The captured image should only be filled with the full width of the vehicle.
- When the camera is setup in **multiple lanes**:

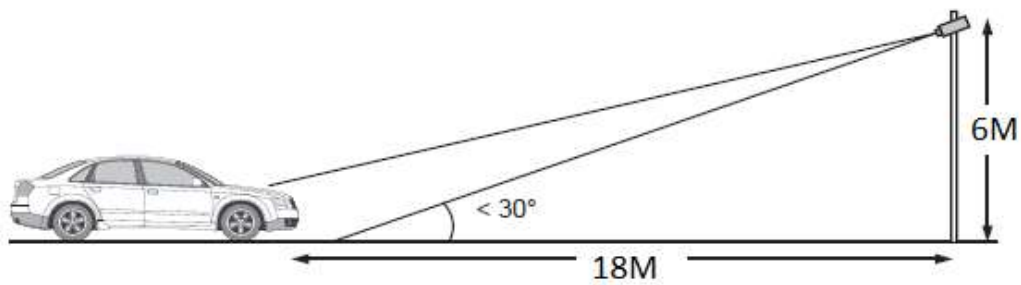
- One camera covers a maximum of 2 lanes.
- The camera should be centered in the middle of the two lanes.
- The captured image should only be filled with the full width of the two vehicles.
- **Focal length** of the lens should be **within 5 and 50 millimeters**.
- Camera should have an **IR illuminator**.



Camera with a frontal view of a single lane



Camera with a frontal view of two lanes

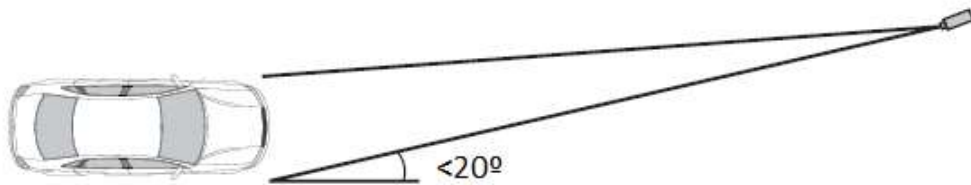


Camera's vertical setup angle

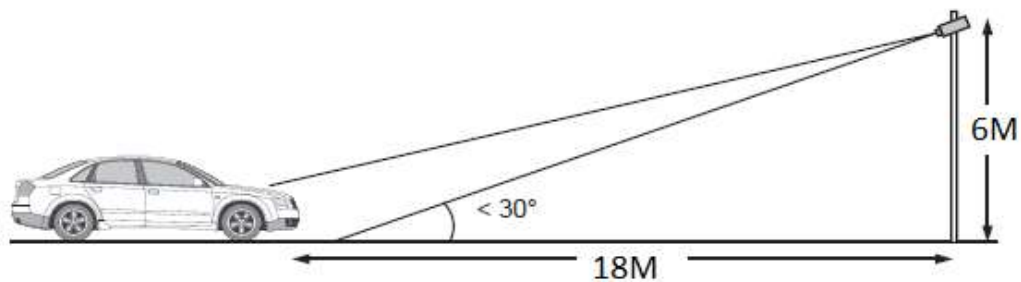
### b. Camera on the side

When installing the ALPR camera on the side front of the vehicle, we recommend the following:

- **Pole** should be as **close to the lane** as possible to avoid capturing unnecessary contents in the image.
- **Distance** between the camera and the reading point should be **within 15 and 30 meters**.
- **Positioning height of the camera** should be preferable **within 3.5 and 6 meters** to capture the front part of the vehicle only.
- **Camera's vertical setup angle** to the plate should be **within 30 degrees**.
- **Camera's horizontal setup angle** to the plate should be **within 25 degrees**.
- When the camera is setup in a **single lane**:
  - The captured image should only be filled with the full width of the vehicle.
- When the camera is setup in **multiple lanes**:
  - One camera covers a maximum of 2 lanes.
  - The captured image should only be filled with the full width of the two vehicles.
- **Focal length** of the lens should be **within 5 and 50 millimeters**.
- Camera should have an **IR illuminator**.



Camera's horizontal setup angle



Camera's vertical setup angle