

**According to local regulations, image capture in a Traffic Enforcement scenario demands different details on images: licence plate, car body, driver's face, and sometimes background.**

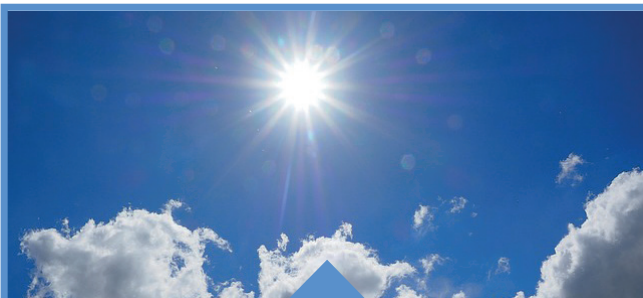
Image capture is light capture. Adequate lighting means better images in terms of lightness, details readability, depth of field or motion blur:

- shadows can darken a licence plate, and make it unreadable,
- clouds reflections can hide a driver's face,
- quality images are possible only when light is mastered.

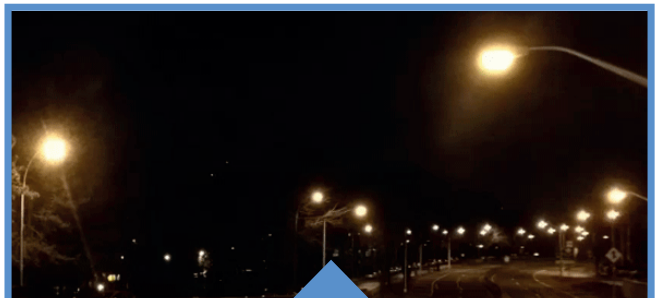
In this document we will detail how a flash does improve image capture and quality by delivering the right light at the right place.

## What are the common light sources

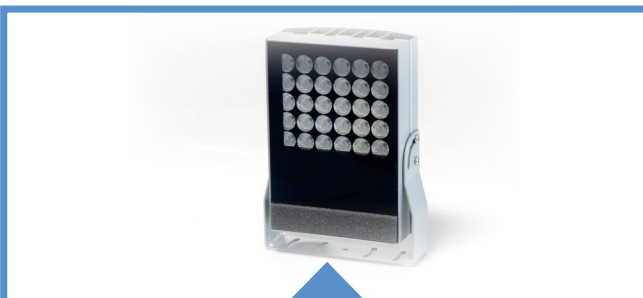
Multiple sources can bring light to the scene in a traffic enforcement scenario:



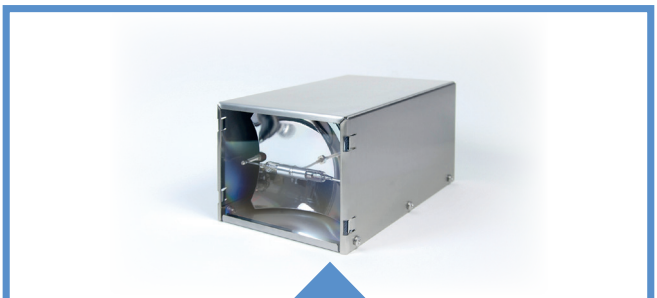
**The sun:** gives bright light, but is inconsistent in intensity (clouds) and direction (displacement in the sky) creating unmanageable shadows.



**Street light:** much too weak to capture a clear image of moving objects, and poorly placed (creates adverse shadows).



**LED panel:** can be placed geometrically to avoid shadows. Perfect for close distance illumination of still vehicles, but much too weak for very short capture times.



**Xenon Flash:** can be placed geometrically to avoid shadows, produces a very intense light capable to surpass the sunshine at a distance.

**Only an appropriate light source can guarantee a high and repeatable image quality: a Xenon Flash**

Why use a flash to improve image capture?

## #1: TO BRING ENOUGH LIGHT TO THE SCENE

- image capture is light capture: no light means no image.
- camera sensors' sensitivity keeps increasing year after year, but image quality and readability remain vastly dependent on the light level on the subject.
- a flash is a very bright light source capable of revealing more details on an image.

## #2: TO FIGHT VARIATIONS IN AMBIENT LIGHT

Ambient light varies greatly over a daytime, and from day to day:

- total amount of light: night / day / clouds.
- position of the sun in a clear sky.
- diffused sunlight by cloudy sky.

Driver's face and licence plate by night



A FLASH CAN ENSURE A PROPER ILLUMINATION, BY DAYTIME OR BY NIGHTTIME

## #3: TO MANAGE ADVERSE SHADOWS AND REFLECTIONS

The only way to defeat adverse shadows or reflections is to choose the light source placement:

- sunshine creates shadows that may hide the drivers' face, or darken the licence plate.
- sun or sky reflections on windscreens hide the drivers' face.

Driver's face under daylight



A FLASH IS A MASTERED LIGHT SOURCE ABLE TO DEFEAT ADVERSE SHADOWS OR REFLECTIONS

## #4: TO OPTIMIZE CAMERA SETTINGS

More light opens the range of settings in the below parameters:

- lower camera gain creates less "noise" on the images.
- smaller lens aperture (higher f-stop figure) translates in more depth of field, and higher chances for sharp images.
- shorter shutter time means sharper images of moving objects.

**A flash is an illumination tool that brings light to the scene in a sufficient quantity and with a defined geometry**

- It opens latitude in camera settings and image management
- It improves image readability under a variety of circumstances