Understanding CCTV

[Focal Length, Field of View & Angle of View]
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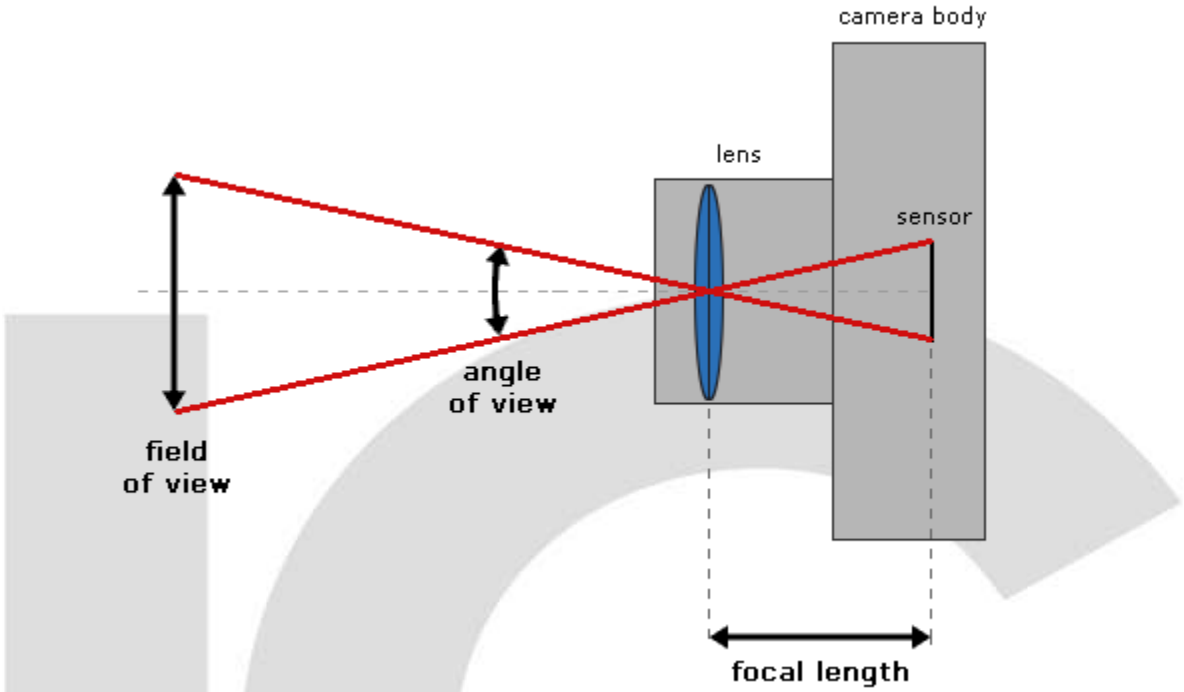
Contents

Overview

Descriptions of some lens terminology that many people take for granted, but are not clearly understood by everyone.

- Focal Length
- Angle of View
- Field of View

Understanding CCTV - Focal Length, Field of View & Angle of View



Definitions:

Focal Length:

The distance between the center of a lens or curved mirror and its focus. The focal length is fixed for any lens, and doesn't change when the lens is mounted on different camera bodies.

The focal length of a lens is one of the key specifications of a lens. For example, the focal length of the Canon EF-S 18-55mm f/3.5-5.6 IS lens ranges from 18mm to 55mm, depending on the zoom set by the lens' zoom ring. On the other hand, prime lenses such as the Canon EF 50mm f/1.8, have a fixed focal length that cannot be varied (ie, 50mm).

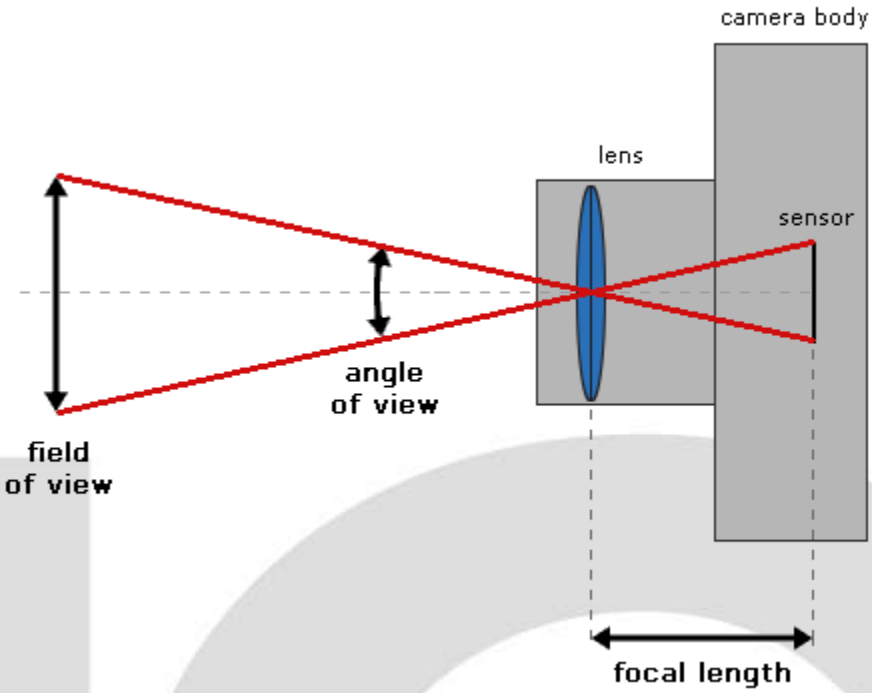
Angle of View:

Angle of view (AOV) describes the angular extent of a given scene that is imaged by a camera. In other words, it's the angle over which the sensor can "see" through the lens.

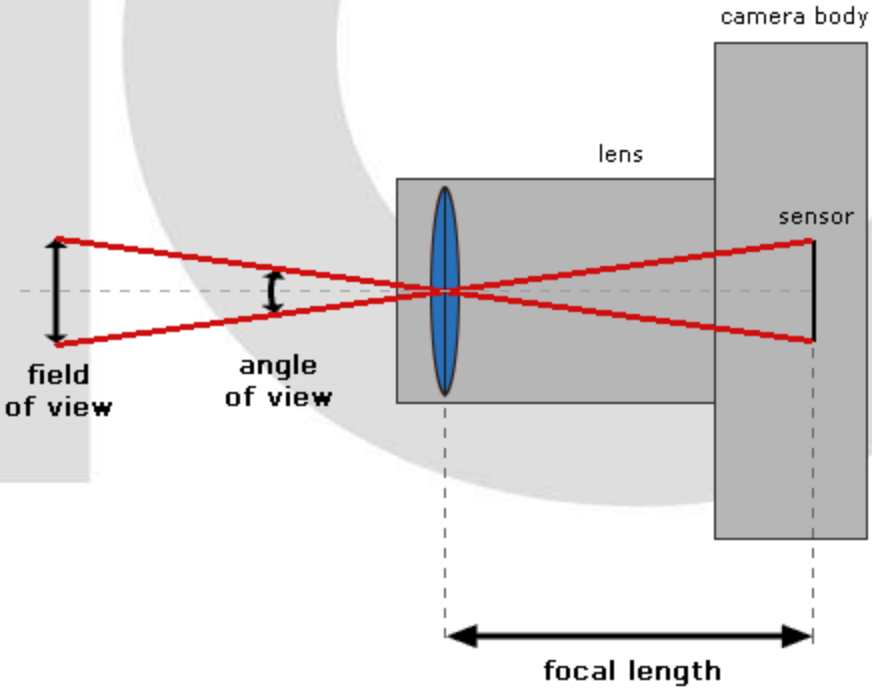
The angle of view depends on the focal length of the lens, and the size of the camera's sensor.

Field of View:

Field of view (FOV) is another way of representing the angle of view, but expressed as a measurement of the subject area, rather than an angle.



A top view of a camera, indicating the focal length, angle of view and field of view, for a lens set to a relatively short focal length.



The angle of view and field of view are significantly decreased when the focal length is increased.

Reference

Additional Reading: Wikipedia – Photography: Technical aspects
https://en.wikipedia.org/wiki/Photography#Technical_aspects

Related topics: Howstuffworks – 10 Important Photography Terms
http://electronics.howstuffworks.com/cameras-photography/tips/10-important-photography-terms.htm#page=1

Cited materials: Martin Pot - Photography Blog
http://martybugs.net/blog/blog.cgi/learning/Field-Of-View-And-More.html