

# Use of Dinion<sup>XF</sup> Cameras to Reduce Motion Blur



Security Systems



## Application Description

This Application Note describes the use of Dinion<sup>XF</sup> cameras to reduce motion blur.

## Introduction

Motion blur is one of the curses of CCTV. In virtually every still picture taken from recordings of incidents, the details are unsharp due to the relatively slow shutter speed, 1/50 or 1/60 sec, used in standard CCTV cameras. As soon as the subject is moving through the pictures, the image is unsharp, making identification more difficult or even impossible. Similar problems arise in industrial automation projects and automated systems such as number plate recognition.

## Using High Speed Shutter

As every photographer knows, preventing motion blur is simple. Just increase the shutter speed and the motion is frozen in the picture. However in photography and CCTV you still need the same amount of light to get the correct exposure. Increasing the shutter speed means increasing the illumination level or the size of the aperture used to compensate for the shorter exposure.

Indeed this has been common in many cameras.

It has been possible to fix a high shutter speed and eliminate the motion blur, at least as long as there was enough light. However with a fixed shutter speed, as the light level goes down, once the lens is fully opened and the AGC has reached its limit, the video simply degrades until it is no longer usable.

## The solution

The solution to the challenge of getting the images without motion blur for as long as possible is achieved in the Dinion<sup>XF</sup> cameras as a result of a number of features that work together to enable optimal performance.

## Default Shutter Mode

In the default shutter mode of the Dinion<sup>XF</sup> camera the user can set the shutter speed minimum to e.g. 1/250 sec. As long as the sufficient light in the scene, for the Auto Iris lens control and automatic gain regulation to produce a full video signal, the shutter remains fixed at the default value. Only when the light fails does the shutter control take over and increase until the standard value is reached. Hence video without motion blur is available for as long as possible, yet the full range of lighting conditions can be covered.

**Superb Sensitivity and XF Dynamic**

It is perhaps obvious but using the faster shutter requires a larger aperture and consequently less depth of field. Overall sharpness in the image is also a function of depth of field. The higher the sensitivity the sharper the image produced. The default shutter speed is used longer and smaller apertures are used. The superb sensitivity and Dynamic range of the Dinion<sup>XF</sup> ensures optimum performance.

*Lens Wizard*

Using large apertures means that focussing needs to be more accurate than when smaller apertures are used. The Bosch Lens Wizard enables fast accurate setting of the (back) focus.

**Remote Set Up**

Using the Bilinx communication and the camera configuration software, fine tuning of the system can be performed without the need to go the camera head. Apart from the physical installation, the camera can be fully set up remotely e.g. from using the monitoring camera configuration software running on a PC or Laptop and communicating directly with the camera over the standard video coax cable. The resulting picture can be viewed directly on the monitor. The camera modes can be fine tuned if necessary to ensure the optimal default shutter speed for the application.

**Typical Default Shutter Speed**

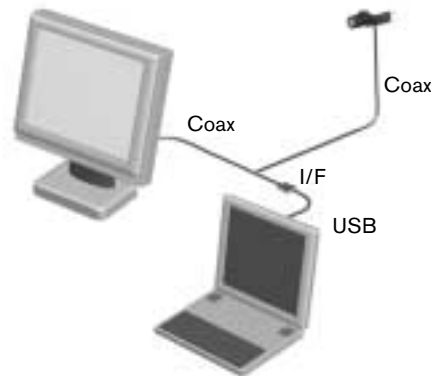
Application	Speed
Retail stores, offices, general surveillance	1/100
Car parks, stations, traffic	1/250
High speed traffic, motorways	1/500
Production line observation	1/1000
High speed production process	1/10000

**User benefits**

Using default shutter allows sharper images to be produced. The difference can be seen immediately on the monitor but is more important when looking at still frames from recordings and in automated processes.

**Typical system components**

	1/3"	1/2"
Colour cameras	LTC0485	LTC0610
Day/night cameras	LTC0495	LTC0620
Monochrome cameras	LTC0385	LTC0510



Offline set up screen of the Dinion<sup>XF</sup> cameras. Default shutter is set to 1/500 sec. A typical setting for traffic surveillance.



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