

VC-101MX-M/C 9 H VC-151MX-M/C 6 H

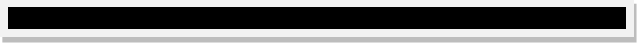
Ultra High Resolution CMOS Digital Camera



 CoaxPress®

AN 79: Basic Camera Control Coaxpress

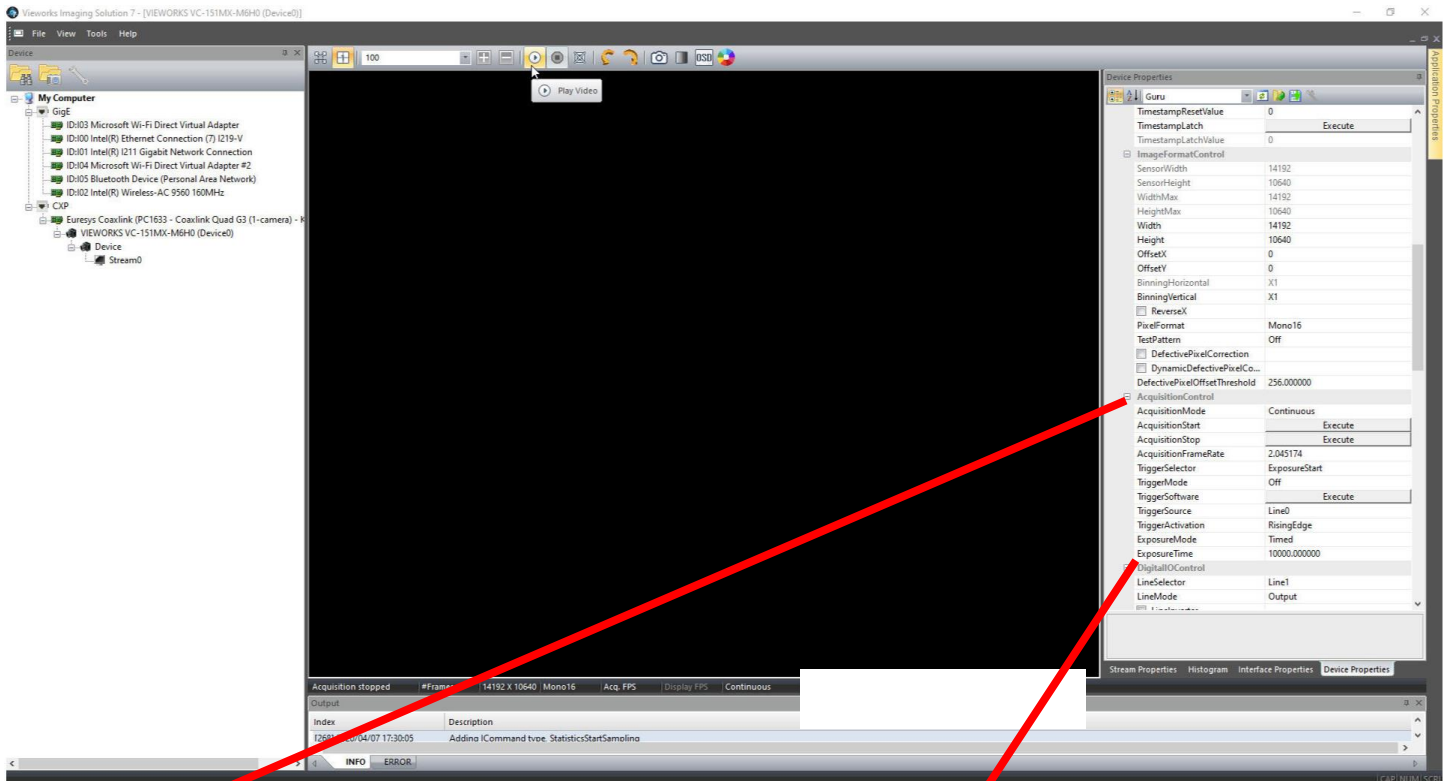
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Basic Camera Control Using the VIS Viewer for Coaxpress

Fundamental control of a Coaxpress camera involves controlling the frame rate, exposure and gain to produce an image. Lens adjustment will not be part of this topic.

On the right side of the VIS Viewer you have all the camera registers which control and configure the camera.

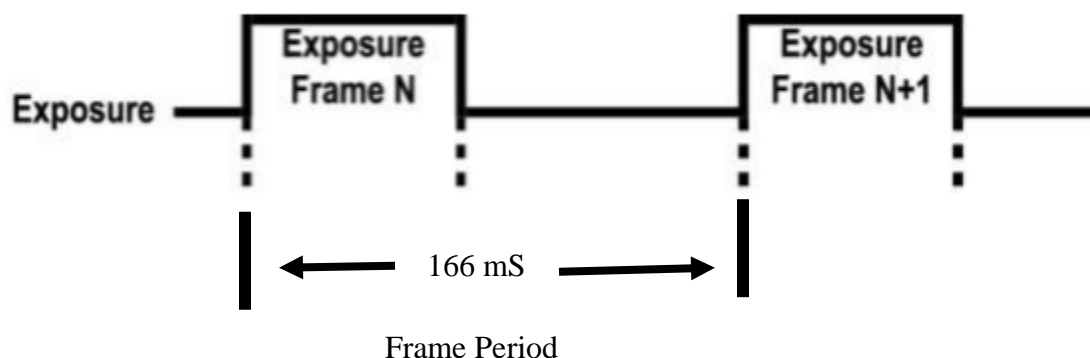


AcquisitionControl	
AcquisitionMode	Continuous
AcquisitionStart	Execute
AcquisitionStop	Execute
AcquisitionFrameRate	2.045174
TriggerSelector	ExposureStart
TriggerMode	Off
TriggerSoftware	Execute
TriggerSource	Line0
TriggerActivation	RisingEdge
ExposureMode	Timed
ExposureTime	10000.000000



FRAME RATE

In testing a camera, most likely you want to run continuously where the camera is FREE RUNNING. The camera is not being triggered in this situation. Vieworks cameras has what is called an APERATURE PRIORITY. This means if the frame rate is 6 FPS which means $1/6 = 166$ mS per frame period. If the user sets the EXPOSURE greater than 166 mS, the frame period will increase where the Frames Per Second decreases to the EXPOSURE TIME. If the EXPOSURE was increased to 250 mS, the frame rate would be $1/250$ mS or 4 FPS. If a specific frame rate is desired, just type in (camera stopped) the frame rate you desire within the camera maximum FPS.



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Continuous Mode

Frame Rate (FPS)

Exposure (microseconds)



EXPOSURE

Exposure is controlled by the register called EXPOSURE TIME. The units are microseconds. If you want to change the exposure, just type in the value you want. It is OK for the camera to be making images (PLAY button on VIS). If you enter a value that exceeds what the camera can do, an splash screen pops up telling you the range that is valid.

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← Continuous Mode
← Frame Rate (FPS)
← Exposure (microseconds)

GAIN

Gain control can be found under the Register group called AnalogControl. There you will see the register labeled GAIN. Normally, the camera factory settings are a GAIN of 1.0. You can change the gain value to increase the sensitivity of the camera. Increasing the gain also amplifies noise. For your application, noise may be tolerated in order to see the detail that you want. Like other registers, if you type in a value out of the cameras range, a splash screen appears and tells you the valid range.

XML Parameters		Value	Description
AnalogControl	GainSelector	DigitalAll	Applies the Gain value to all digital channels.
	Gain	1.0x ~ 32.0x	Sets a digital gain value.
	BlackLevelSelector	DigitalAll	Applies the Black Level value to all digital channels.
	BlackLevel	0 ~ 255	Sets a black level value.

Increasing a camera's sensitivity can be accomplished by making the EXPOSURE longer. If there is movement, a long exposure could show some blur due to motion not being frozen. You can increase the GAIN to improve the sensitivity keeping in mind that noise will be also increased in the image. And, moving the camera closer to the object will improve sensitivity since light decrease by the SQRT(sum of the sq distances). Increasing the light level is the other option.