

## Introduction

In the following the individual parameters of the **mvAutoFeatureControls** are described:

mvAutoFeatureControl	
mvAutoFeatureBrightness	50
mvAutoFeatureSensitivity	50
mvAutoFeatureCharacteristic	mvShortExposure
mvAutoFeatureBrightnessCalculation	mvPeak
mvAutoFeatureAOIHighlightEnable	Off
mvAutoFeatureAOIMode	mvFull
mvAutoFeatureBrightnessTolerance	2

## Parameters

### mvAutoFeatureBrightness

- Determines (in percent) how bright / dark the brightness of the image should be.
  - → This property depends on mvAutoFeatureBrightnessCalculation.

### mvAutoFeatureSensitivity

- Determines the sensitivity / aggressiveness (in percent) how much short-term changes of the average brightness affect the control. At lower values, the camera reacts sluggishly and does not readjust as much.
- At higher values the camera tries to adjust the average brightness faster back to the defaults from mvAutoFeatureBrightness.

### mvAutoFeatureCharacteristic

<b>AcquisitionControl</b>	
AcquisitionMode	Continuous
ExposureMode	Timed
ExposureTime	12237.000
ExposureAuto	Continuous
mvExposureAutoLowerLimit	5000.000
mvExposureAutoUpperLimit	1000000.000
<b>TriggerSelector</b>	
mvAcquisitionFrameRateLimitM	mvDeviceLinkThroughput
AcquisitionFrameRateEnable	<input checked="" type="checkbox"/>
AcquisitionFrameRate	3200.000
AcquisitionFrameCount	1
mvAcquisitionMemoryMode	Default
mvAcquisitionMemoryMaxFram	28
mvAcquisitionMemoryFrameCo	0
mvSmartFrameRecallEnable	<input type="checkbox"/>
mvSmartFrameRecallFrameSkip	0
mvSmartFrameRecallTimestamp	1
mvResultingFrameRate	42.400
<b>CounterAndTimerControl</b>	
<b>AnalogControl</b>	
mvGainMode	Default
<b>GainSelector</b>	
Gain	24.000
GainAuto	Continuous
mvGainAutoLowerLimit	0.000
mvGainAutoUpperLimit	24.000
<b>BlackLevelSelector</b>	
mvGammaEnable	<input type="checkbox"/>
mvGammaSelector	mv\$RGB
<b>mvAutoFeatureControl</b>	
mvAutoFeatureBrightness	50
mvAutoFeatureSensitivity	50
mvAutoFeatureCharacteristic	mvShortExposure
mvAutoFeatureBrightnessCalcul	mvPeak
mvAutoFeatureAOIHighlightEna	Off
mvAutoFeatureAOIMode	mvFull
mvAutoFeatureBrightnessTolar	2

### mvShortExposure:

First the gain is increased up to the mvGainAutoUpperLimit. Only when the limit is reached, the ExposureTime is increased.

**Attention:** The maximum frame rate depends on the last value of the property ExposureTime. If (default) 20,000 µs were set, only a maximum of approx. 50 FPS is possible. Still to be corrected.

Advantages:

- Maximum framerate

Disadvantages:

- Image noise increases

<b>AcquisitionControl</b>	
AcquisitionMode	Continuous
ExposureMode	Timed
ExposureTime	182056.000
ExposureAuto	Continuous
mvExposureAutoLowerLimit	5000.000
mvExposureAutoUpperLimit	1000000.000
<b>TriggerSelector</b>	
mvAcquisitionFrameRateLimitM	mvDeviceLinkThroughput
AcquisitionFrameRateEnable	<input checked="" type="checkbox"/>
AcquisitionFrameRate	3200.000
AcquisitionFrameCount	1
mvAcquisitionMemoryMode	Default
mvAcquisitionMemoryMaxFram	28
mvAcquisitionMemoryFrameCo	0
mvSmartFrameRecallEnable	<input type="checkbox"/>
mvSmartFrameRecallFramesSkip	0
mvSmartFrameRecallTimestamp	1
mvResultingFrameRate	9.940
<b>CounterAndTimerControl</b>	
<b>AnalogControl</b>	
mvGainMode	Default
<b>GainSelector</b>	
Gain	0.000
GainAuto	Continuous
mvGainAutoLowerLimit	0.000
mvGainAutoUpperLimit	24.000
<b>BlackLevelSelector</b>	
mvGammaEnable	<input type="checkbox"/>
mvGammaSelector	mvSRGB
<b>mvAutoFeatureControl</b>	
mvAutoFeatureBrightness	50
mvAutoFeatureSensitivity	50
mvAutoFeatureCharacteristic	mvLowGain
mvAutoFeatureBrightnessCalcul	mvPeak
mvAutoFeatureAOIHighlightEna	Off
mvAutoFeatureAOIMode	mvFull
mvAutoFeatureBrightnessTolera	2



**mvLowGain:**

First the ExposureTime is increased up to the mvExposureAutoUpperLimit. Only when the limit is reached, the gain is increased:

Advantages:

- Little noise

Disadvantages:

- Lower frame rate

**In both cases, the average brightness of the image remains the same.**

## mvAutoFeatureBrightnessCalculation

- **mvPeak:**
  - Once too bright pixels are detected, the brightness is not increased further by the camera. The 12% rule applies (i.e. 12% of all total histogram pixels).
    - Better for rapidly fluctuating brightness changes:
      - For example, one part from the image depicts the sky and the other part a dark environment.
- **mvAverage:**
  - Allows more bright pixels than mvPeak
    - Better in homogeneous lighting conditions:
      - For example, in an industrial plant where the light is always on and only the day/night lighting conditions need to be balanced.

## mvAutoFeatureAOIHighlightEnable

- On
  - Draws the set AOI into the image in the form of the brightness applied in the future. The rest of the image that is outside of the AOI is still displayed here with the previously set settings.
- Off
  - No AOI is visibly displayed

## mvAutoFeatureAOIMode

- mvFull
  - The full image is used as AOI -> same effect as no AOI
- mvCenter
  - 25% of the image is used as AOI, starting from the center of the image. The image size is the reference point here. If the image size has been changed before by using e.g. Decimation or the Height and Width properties, this will affect mvCenter.
- mvUser
  - The user defines his own AOI. As control variables are available:
    - mvAutoFeatureAOIOffsetX
      - Offset in X-direction. Reference point is the upper - left corner
    - mvAutoFeatureAOIOffsetY
      - Offset in Y-direction. Reference point is the upper - left corner
    - mvAutoFeatureAOIWidth
      - Width of the AOI. Start point of the AOI depends on the previously set mvAutoFeatureAOIOffsetX.
    - mvAutoFeatureAOIHeight
      - Height of the AOI. Start point of the AOI depends on the previously set mvAutoFeatureAOIOffsetY.

## mvAutoFeatureBrightnessTolerance

- Number of false frames until the control readjusts → hysteresis.