

## FEATURES

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Subject to change Rev August 2016

# Auto Exposure

## AUTO EXPOSURE APPLICATIONS:

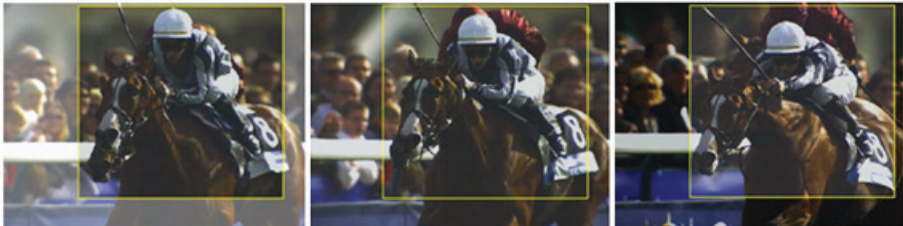
Applications that benefit most from Auto Exposure include:

- Outdoor ranges where cloud cover is present
- Object tracking where the background changes dramatically
- Object tracking where target enters or leaves a shadow
- Test where a high intensity light source adds additional illumination to the area of interest during the recording

### INTRODUCTION:

Auto Exposure is a feature in all Phantom V-Series and Miro cameras which, when enabled, adjusts the overall exposure of the image based on the light level. This is beneficial when the overall lighting changes dramatically during a recording. As the light changes, the camera automatically adjusts the exposure time to maintain a constant image exposure.

The following images illustrate the result of using the Auto Exposure feature.



In the image sequence above, notice how the area of interest (inside the rectangle) remains properly exposed even when cloud cover changes the brightness of the surrounding area of the scene.

### GENERAL OPERATION:

Auto Exposure is most useful in constantly changing lighting conditions. For example, exposures can vary between 2 or 3 f/stops when the clouds roll in overhead. To use this feature most effectively, it should be set using the longest acceptable exposure time with the lens stopped down. Once enabled, open the lens iris to the widest aperture. The camera will automatically increase the shutter speed to compensate for the additional light. When set in this manner, the user allows either a brighter or darkening of the overall light level while maintaining a steady exposure.

### HOW TO SPECIFY THE AUTO EXPOSURE SETTING:

There are slight differences in the way that this feature works based on the generation of Phantom camera. In all V-Series and Miro cameras released prior to 2012, the Auto Exposure area and threshold needs to be defined manually. This is done in Phantom PCC software by setting your desired exposure level, and then using your cursor to draw a rectangle on the live image in which to judge the light level for the exposure:

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### IMPORTANT OPERATION NOTES:

Auto Exposure is available in Phantom Miro and V-Series cameras only. It is not available in the Phantom HD Gold, P65 or Flex.

The larger the Auto Exposure area the slower the adjustment becomes.

The Auto Exposure feature cannot be used in conjunction with the EDR (Extreme Dynamic Range) feature. Once the Auto Exposure feature is enabled EDR will automatically be disabled.

Auto Exposure should not be enabled while performing a CSR (Current Session Reference)

### Focused

Since 1950, Vision Research has been designing, and manufacturing high-speed cameras. Our single focus is to invent, build, and support the most advanced cameras possible.



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- From the Live tab in PCC, with the camera selected and displaying a live image, locate the right side menu titled 'Auto Exposure'.
- Expand on the Auto Exposure sub-menu and define the parameters as follows:
  - Enable (check), Auto Exposure
  - Specify the desired level, which is the average gray scale level for the specified area to be realized by the automatic exposure process. In all cameras this is measured on a scale from 0 (black) and 255 (white saturation). Mid-gray is 128.
  - Enable (check) "Lock at trigger" if you do not want the actual exposure time to change past the trigger point.
  - Define the area of interest rectangle by:
    - Using the cursor to draw a box around the area in which for the Auto Exposure to be calculated, and when released select 'Auto Exposure'.
    - The rectangle parameters in the Auto Exposure menu will populate.
    - Alternatively, those points can be entered manually, or if the entire image is desired to be used, the "Full" button can be selected.
    - Enable (check) "Show on Image" to display the rectangle on the live software image, if desired.



Phantom cameras released since late 2011, such as the V1210, V1610, and Miro M-series, run on a new protocol which enables a different method of setting Auto Exposure. The control is much simpler with fewer variables:

- From the Live tab in PCC, with the camera selected and displaying a live image, locate the right side menu titled 'Auto Exposure'. Enable, (check), Auto Exposure.
- Expand on the Auto Exposure sub-menu and define the parameters as follows:
  - Enable (check), Auto Exposure
  - Select the Mode. 'Average' is the full image, 'Spot' is a small area in the center, and 'Center Weighted' averages a larger area in the center of the live image.
  - Select the exposure compensation. A compensation of 0 would be an average 50% grey level. The compensation can then expand to +2 or -2 f/stops.

