



## Differences between galvo mode and AOD mode

The Acousto-Optical Deflector (AOD) mode is capable of scanning at a much higher frame rate (25 frames per second/FPS) than galvo mode. It also has a faster minimum dwell time (.1 compared to galvo mode's .4), which reduces photobleaching. However, the optical zoom, image size, and dwell time are more restricted due to the current limitations of AOD technology.

## Switching between galvo and AOD modes

In the Prairie View Scanning menu, click on Scan Mode to choose AOD. If the AOD is not connected or functioning, this box will be grayed out.

## Working with AOD mode

Frame rate (FPS) is determined by the image size, dwell time, and optical zoom settings.

Default AOD settings:

- 512 x 512 pixels
- .1 dwell time
- 1.0 optical zoom
- 25 FPS

***Note: Changes in any of these settings will cause Prairie View to automatically compensate by changing the others. This keeps the AOD calibrated correctly.***

To select one parameter to keep constant, click the checkbox next to it. Prairie View will not change that setting unless you uncheck the box or restart Prairie View.

## Frame Rate

Frame rate is calculated automatically based on the image size, dwell time, and optical zoom settings. For faster frame rates, set those parameters lower.

## Image Size

The number of pixels in the scan area. Set higher for cleaner images, lower for faster frame rates.

## **Optical Zoom**

This setting is separate from the zoom in/out feature in the image window. Zooming in/out in the image window does not change scan parameters.

Setting optical zoom to 4.0 allows the greatest range of image sizes and dwell times.

To get the full field of view, make sure the plunger position inside the AOD matches the optical zoom level. (If you do not know what the plunger position is, restart Prairie View. The software will automatically detect the correct optical zoom. All other parameters will reset to default.)

## **Dwell Time**

The amount of time spent imaging each individual pixel. Decrease to reduce photobleaching. The minimum possible setting in AOD mode is .1.

Each .1 change in dwell time doubles/halves image size (e.g. 512 to 256 pixels), or increases/decreases optical zoom by 1.0 (e.g. 2.0 to 3.0).

## **Additional Tips**

Increase image resolution by increasing either image size (total number of pixels) or dwell time (amount of time spent imaging each pixel). Note that changing either of these settings will cause the optical zoom and frame rate to change accordingly.

Improve image quality with the Average Every N Frames feature. Because AOD mode scans so quickly, it can average frames much faster than galvo mode.

