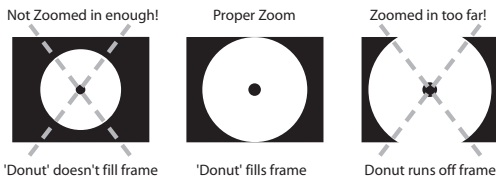# 0-360 Panoramic Optic Setup for Digital SLR Cameras

While different SLR camera & lens combinations will require different settings, these are the basic parameters that need to be set. Please refer to the manuals that came with your camera and lens. We recommend the highest available image resolution settings.

1) Mount Camera to tripod, securely, with lens pointing vertically.

2) Adjust the zoom to approximately 70mm as a starting point.

3) Place a thick rubber band around the lens barrel, and slide it down to the point where the barrel enters the housing. This will prevent gravity from back-driving the zoom.

4) Thread 0-360 Panoramic Optic (with thread adapter) to camera. (Do not overtighten.)

5) Adjust tripod until Optic is vertical (refer to bubble level on top of Optic).

6) Turn Power on. Set camera to Aperture Priority mode, highest resolution, ISO 200.

7) NOTE: If your camera lens has Vibration Reduction or Image Stabilization, turn that OFF.

8) Set the Aperture to a relatively high value. This enables the camera to get the entire mirror is focus, by increasing the depth of field. The aperture setting will vary from lens to lens, but generally will be 16 or higher (Try 22, 27, 32).

9) Adjust the focus. The center of the focusing range should be the horizon in the mirror's image (slightly less than halfway from the center of the mirror to the outside). Use Manual Focus, or, if your camera has the ability to Spot-Auto-Focus off-center, Spot AF on the horizon.

10) Adjust the zoom until the circular mirror just touches the top & bottom of the image frame (see below). Now lock the zoom at this position with the rubber band.

11) HINT: All shots (indoor/outdoor, etc.) use the same focus & zoom. Once you have found the ideal focus and zoom positions, try placing pencil marks on the side of the lens to mark the positions. This will be a real time-saver for future shots... just align the marks and shoot.

12) Turn timer timer on and the flash off. 🕐 ⚡

13) Press the shutter release. You have 10 seconds to hide!

14) Advanced Users: Try using Exposure Bracketing, where the camera takes several exposures at once. These can be composited later to increase the dynamic range of the image.

Not Zoomed in enough!	Proper Zoom	Zoomed in too far!
'Donut' doesn't fill frame	'Donut' fills frame	Donut runs off frame

A note about Aperture, Depth of Field, and Field of View

Aperture- a mechanism behind the camera lens similar to the iris of your eye, opening and closing to adjust the amount of light entering the camera. The aperture opening also determines the Depth of Field of the image.

Depth of Field- describes the objects in the image which are in focus, in terms of their distance from the camera. For example, a camera focused at 30m, with a Depth of Field of 8m, will have objects from 26-34m from the camera in focus. Objects closer than 26m or further than 34m will start to become blurry.

Field of View- the vertical Field of View (vFOV) of the 0-360 attachment. The 0-360 has a vFOV of 115 degrees, meaning it will "see" from 52.5º above the horizon to 62.5º below the horizon.

A smaller Aperture opening (higher F-Stop number) allows less light to enter the camera, but yields a higher Depth of Field. With a high F-Stop, the shutter speed needs to be slowed down to allow more light (else a dark photo), but will have more Depth of Field in focus.

A larger Aperture opening (lower F-Stop number) allows more light to enter the camera, but a lower Depth of Field. This means the shutter speed can be faster, but fewer objects will be in focus. (With slower shutter speeds, moving objects may blur.)

The 0-360 is designed to operate with a camera F-Stop of F16.0 or higher (preferably 22+). This provides a high enough Depth of Field to allow the entire mirror to be in focus. With lower F-stops, the shutter speed can be increased, but the upper or lower portions (or both) of the mirror may not be entirely in focus. This means the image far above or far below the horizon may not be sharply focused. This may not be a problem, as many times the sky or the ground may not need to be sharply focused.

With a good SLR lens, you should be able to get a vFOV of 115 degrees, with good focus across the entire image.

For best results, shoot a well-lit scene! With high F-Stops, you need good lighting, or longer exposure times.

Quick Start Guide

IMPORTANT!
Please read the Care Instructions on back page.

Instructions for use with
Digital SLR Cameras

Panoramic Optic ™
0-360

ENJOY!

only. This warranty supersedes all other warranties, express or implied.

WARRANTY
The 0-360 Panoramic Optic is warranted against defects in material and workmanship for a period of one year from date of purchase. This warranty does not cover damage caused by accident, abuse, misuse, exposure to the elements, or scratches to the mirror surface. If a defect in workmanship or material is discovered, 0-360.com will, at its option, repair or replace the Optic free of charge. Purchaser must first obtain a Return Authorization from 0-360.com, and return the unit properly packaged and freight prepaid. 0-360.com's liability is limited to repair or replacement of the Optic

IMPORTANT!
Care Instructions

Thank you for purchasing the 0-360 Panoramic Optic! With proper care and handling, the Optic should give you years of service. Here are a few important handling instructions:

1) Do not touch, handle, or polish the mirror! While the mirror does have a protective coating, touching or rubbing on its surface can cause scratches. Use the dust blower provided to remove dust before shooting. Use lens cleaning paper or lens cloth only if absolutely necessary, and rub gently. NEVER use a paper towel or other material to clean.

2) Avoid dropping or mishandling the unit, as it is a sensitive glass optical device.

3) Store the unit in its carrying case when not in use, in an upright position and in a cool, dry environment.

4) Use care in threading the Optic into your camera, avoiding cross-threading.