

LOREO 3D Lens in a Cap 9005
4:3 format (Model 9005B)
Operating instructions

(please refer to your camera instruction manual for changing your lens)



Specifications

Model: LA9005B

Lens Type: 3D, parallel view, all manual, no electronics

Lens system: dual, 40 mm, f11-22, 2 elements, plastic polymer composite

Stereo Base (pitch): 90mm

Sensor Format: ~ (17.3-18) x (13-13.5) mm 4:3 and Micro 4:3 format subframe digital SLR sensor - equivalent to 2x crop

Diaphragm: Twin Blade, f11, f16, f22 with click stops

Focus adjustment: Continuous focusing slider

Focusing range: 1.5m to infinity.

Accessory lens: 58 mm filter thread. Maximum outer diameter 86 mm. Ideal minimum rear lens diameter 44 mm. Suitable for wide angle and tele converters. 52 mm accessories can be used with a stepping ring.

Special Features: Focus coupled Parallax Compensation. Parallax feedback focus aid.

Function: Gives a 4:3 format digital SLR camera 3D capabilities using normal processing. Retains many of the features of an SLR camera, such as through the lens viewing, auto exposure, TTL flash.

Digital SLR body mounts: 4:3 and Micro 4:3. Please also check the DSLR compatibility section.

1. Line up the index mark on the back of the 3D Lens in a Cap 9005 with the index mark on the camera body and attach it to the camera.
2. This lens is for use with sub-frame Single Lens Reflex (SLR) cameras with the image sensor format stated on the box. Mostly, these will be digital cameras. If used with a full-frame camera, the surplus image area will have to be cropped off.
3. This is a manual lens. There are no electronics. Turn off auto-focusing before using the lens. Aperture priority auto-exposure should work. If not, turn that off as well.
4. Usage: First select aperture using the aperture slider. Three click stop apertures (f11/f16/f22) are provided. Set focus from 1.5 m (5 ft.) to infinity.

5. The 3D Lens in a Cap 9005 works with TTL flash, Aperture Priority (AV) or Program (P) mode exposure on many cameras. For manual control use a light meter or exposure chart.
6. The 3D Lens in a Cap 9005 has no auto diaphragm, so the viewfinder image darkens when f/22 is chosen. This allows the user to judge depth of field, and has no adverse effect on the final picture.
7. This depth of field scale gives an estimated distance range in which all objects will be sharp for a given aperture.

D \ A	f/11	f/16	f/22
1.5m	1.2 - 2.5m	1.1 - 2.6m	1 - 3.5m
2.2m	1.5 - 4m	1.4 - 6m	1.2 - 10m
5m	2.8m - ∞	2m - ∞	1.7m - ∞
∞	5m - ∞	4m - ∞	2.5m - ∞

D - Distance A - Aperture

If the lens is set to f/11 and focused at 5m, depth of field

8. will be 2.8m to infinity, which is the optimal pan-focus configuration for 9005 style 3D photography.
9. Depth of field is very useful for stereo photography. High image sensor sensitivity compensates for small aperture. ISO 200-400 will give excellent results. Loreo 3D lenses in the right hands can take beautiful 3D photographs. Maximize the potential of your Loreo 3D lens by using a monopod and a high quality modern DSLR.
10. Make sure the lens is aligned with the camera on the horizontal. This can affect the vertical alignment of the 3D image pair.

10. The two 58 mm threads on the front can be used for mounting lightweight filters, lens hoods, wide angle lenses and tele lenses. Attachments should be selected and used with care so

11. as not to damage the thread. Converter lenses should be matched at purchase.
11. In selecting accessories for the lens make sure that the maximum outer diameter does not exceed 85 mm. The minimum inner diameter should not be less than 44mm for 4:3 format 9005 lenses.

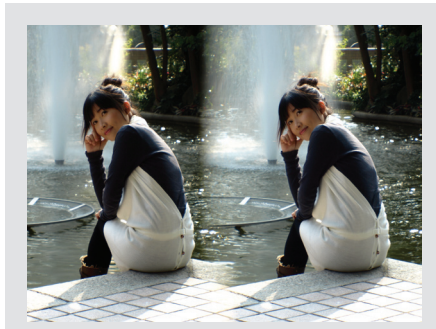
For APS-C format, there are very few tele converters with a sufficient inner diameter to avoid vignetting. Photos taken with tele converters on APS-C format 9005 lenses will most likely need to be cropped afterwards.

Since the wide stereo base of the 9005 is suitable for 3D photography at mid-distance (5m or more away), users can multiply the tele effect simply by cropping the image pair. Tele converters can make it more convenient, but are not essential.

- For 3D photographers, balance between left and right frame sizes is very important. With Loreo 3D lenses, the perceived position of the center line can sometimes be misleading.

With an SLR camera, the presence of mirrors prevents the partition between the image pair being extended all the way to the film plane. As a result, the center line can never be clearly defined. There will always be some overlap. Even with mirrorless DSLR cameras, in which the partition can be set much closer to the film plane, there is still a gap.

For this reason, the 9005 3D lens has been set up to produce images with an overlap as opposed to a thick dark band down the middle. The following two images were taken with the same 3D Lens in a Cap 9005 on the same DSLR camera.



In the first image (above), the right hand frame seems to encroach upon the center line. In the second image, the two sides appear to be well balanced. Subject matter and lighting make all the difference.



- Internal reflection will occasionally cause flare, which is visible in the viewfinder. Sometimes a ghost image will appear. This can be avoided by shifting the angle of the lens, or shielding the side to avoid light shining directly in. Hoods can also be added using the filter mounts in the front.



- 3D images taken with this lens are best viewed with Loreo 3D print and screen viewers. Some people can freeview 3D images. The image pairs have a high degree of correspondence, so feel free to experiment with viewing methods which require symmetry (anaglyphs).
- Image pairs are not pitch-adjusted for cropping as in film printing days. Some may find fusing 4R prints on a Deluxe 3D Viewer difficult. If so, use 3R prints. Viewing with the Lite and Pixi Viewers should not be a problem.
- Different people have different eyesight, so you may have to move the viewer closer or further away from your eyes for the stereo effect to appear.

- Tips for taking dramatic 3D pictures: As in conventional photography, the subject will usually be placed in the center of the picture composition, and exposure is best if the light source is behind the photographer.
- When taking pictures you can point your camera slightly up or down, but always keep it horizontal. Never hold your camera vertical, since you would not be able to view the pictures in 3D.
- Avoid the subject being too close to the lens (<1.5 m). This leads to discomfort in viewing. avoid there being too much empty space between foreground and background if closeup shots are taken of a subject at 1.5m, the background should not be more than 3 meters away.

The subject in this picture is the parrot. It is too close to the lens, so parallax compensation no longer works. Note how the parrot does not appear in the same relative position in each frame.



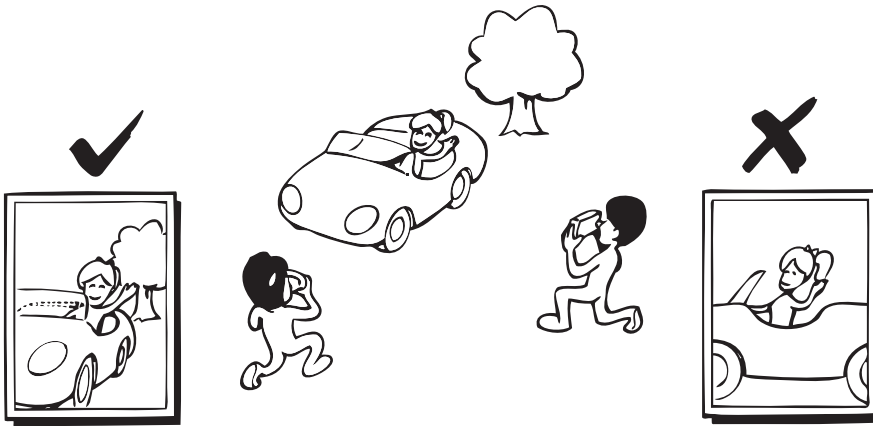
20. A 3D camera or lens records both the shape of things and the depth of the scene. 3D pictures should show foreground objects as well as the background scene. When photographing a person, include objects in front, and an interesting view behind.
21. Compose the picture with the subject material away from the edges. This will improve correspondence between the two images.

The first picture on the right would look better if the lens were further back, and the young lady and the cool cat were away from the edges of both picture frames.

Most people compose an image in a single frame of the image pair. When doing this, take note of what is happening on the other side to make sure the subject is not cropped at the edge.



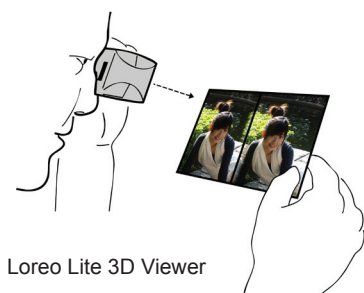
22. Printing: The 3D Lens in a Cap 9005 takes two side by side pictures in each frame. The 3D effect is viewable immediately after processing. 3R and 4R prints work best. Make normal prints. Do not make half frame photographs.



23. Viewing: Put a 3D picture in the Deluxe 3D Viewer (bottom left) and hold the eyepiece 6 inches from your eyes. It may take a few seconds for your eyes to adjust to the 3D image.

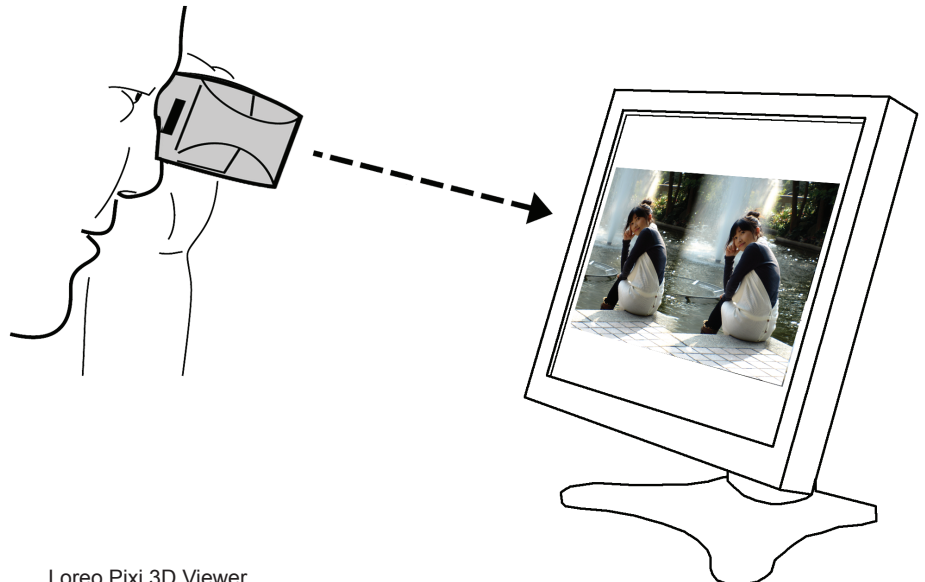


Loreo Deluxe 3D Viewer



Loreo Lite 3D Viewer

24. Sharing: One of the great joys of 3D photography is in sharing images with friends and family. Foldable, mailable viewers such as the Lite 3D Viewer (print viewing) and Pixi 3D Viewer (screen viewing) are ideal for this purpose.



Loreo Pixi 3D Viewer

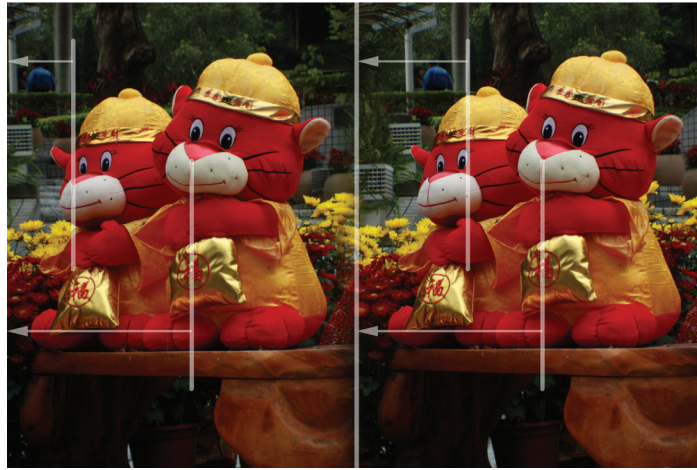
25. For best clarity when viewing 3D pictures avoid bright lights reflecting on the viewing lens surface. Natural light falling on the stereo print and not on the viewing lens, will always give the best stereo effect.

Parallax Compensation

1. The 3D Lens in a Cap 9005 has a focus coupled Parallax Compensation system. When the lens is focused on a subject at a given distance, the point of convergence is automatically adjusted within the unit itself to suit the object distance.

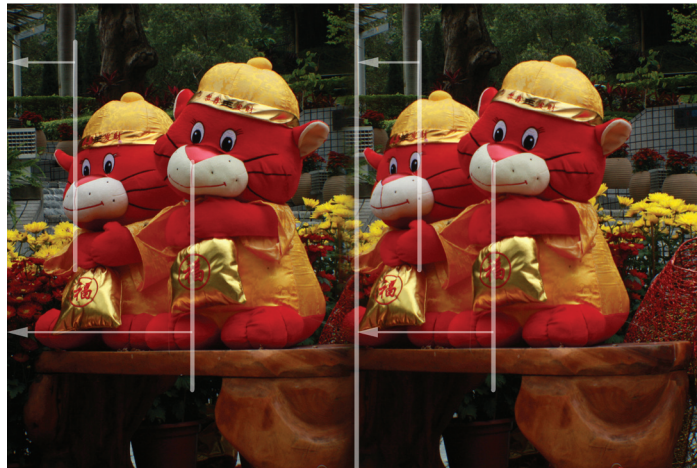
This works from 1.5m to infinity. The adjustment of the relative positions of the image pair can be viewed in the viewfinder, or with Live View in modern digital SLR cameras.

2. Once a user learns how to use the lens, focusing can be done by parallax compensation alone. When the subject appears in the same relative position in both the left and right image in the viewfinder, it will automatically be in focus.



The distance from the New Year Tiger's snout to the edge of each frame is the same. The lens is now focused on the New Year Tiger at 2.2m

Note the discrepancy in the distance from the grey tree trunk in the background to the edge of each frame.



Note the distance from the New Year Tiger's snout to the center line. The discrepancy between the two images in the pair indicates that the lens is not focused on the New Year Tiger.

The distance from the grey tree trunk in the background to the edge of each frame is the same. The lens is now focused at infinity.

Care and Troubleshooting

1. Slight rain or salt water splashes on the lens body should be harmless. Wipe with a clean cloth. A soiled lens may be gently cleaned with lens tissue moistened with lens cleaning fluid. Never put liquid lens cleaner directly onto any lens. Do not wipe with dry tissue as it may scratch the lens surface.
2. Nikon digital SLR cameras may need to be switched to manual mode before they will function with a non-Nikon lens. Minolta and Sony SLR cameras need to have the shutter lock disabled. Some Sony models have to function in manual mode.

3. The 3D Lens in a Cap 9005 is a lens with an unconventional shape. With two lens converters attached, it will be front heavy as well. Lightweight accessories are strongly recommended. For example, wide angle converters can range from 160g to 250g apiece. Users should take care not to drop the lens or bump it against anything while it is attached to the camera. The shock load can cause damage to the SLR camera body and to the lens mount of the 3D lens.
4. The 3D Lens in a Cap 9005 should be detached from the camera when not in use.

Digital SLR Compatibility (as of March 2010)

1. Four Thirds digital SLR cameras (Olympus E1, E3, E30, E300, E330, E400, E410, E500, E510, E520, E620 etc.)
2. Micro Four Thirds mount digital SLR cameras (Olympus E-P1, E-P2, E-PL1, Panasonic G1, GH1, GF1)