

Cyclopital3D

Digital Stereoscope

Owner's Manual (rev. 2.0)



Congratulations for purchasing the Cyclopital3D digital stereoscope! As fellow stereo photography enthusiasts, we are excited to make this product available to you. Please contact us if you have any questions or problems with your Viewer as we are committed to providing you with the highest level of customer service and quality products. We appreciate your business!

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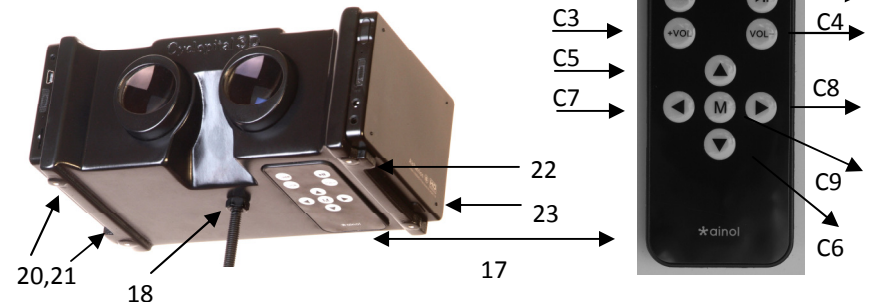
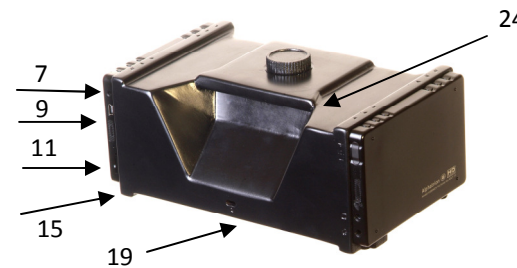
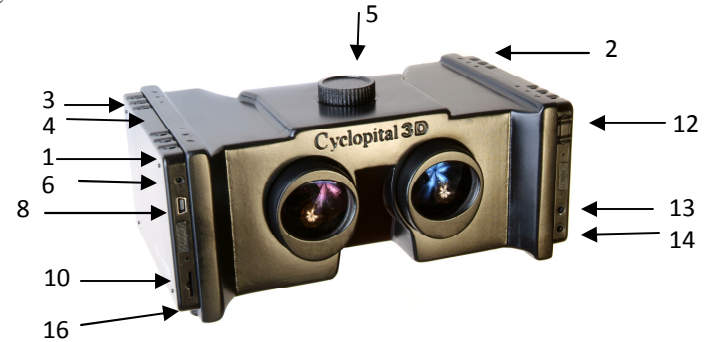
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Viewer Package Includes:

- Viewer with 2 ViewSonic VPD400 Personal Media Players (PMPs)
- 2 Chargers
- 2 USB cables
- 1 set of earphones
- 1 Allen wrench/Hex wrench size .050 inch
- 1 Extra control (unit as a backup)
- 1 Microfiber lens cleaning cloth
- 2 Disposable lens cleaning cloths for cleaning internal mirrors
- 1 Manual

Viewer Features:

- Bright stereoscopic images with no ghosting
- Stunningly wide Field Of View (FOV) provides an ortho-stereo perspective for most digital stereo cameras – you see the same FOV as the camera
- Stereoscopic zoom and pan
- Holds thousands of stereo pairs on 16GB of combined memory
- Completely portable, provides 4 hours of continuous viewing before recharging
- Focus adjustment accommodates the vision of most people
- Images can be organized into folders for rapid access
- Fully coated precision optics with large, perfectly matched achromatic lenses provide a uniquely immersive viewing experience
- High quality front surface mirrors provide crisp, bright and perfectly aligned images



Viewer Diagram Legend

Note: Right and Left are referenced looking into the lenses.

1. Left PMP power button, press for two seconds to power on
2. Right PMP power button, press for two seconds to power on
3. Left PMP “Up Arrow” (on top), use for correcting mis-sync condition
4. Left PMP “Down Arrow” (on top), use for correcting mis-sync condition
5. Focus knob, adjust for best focus
6. Left PMP DC power-in port
7. Right PMP DC power-in port
8. Left PMP USB port
9. Right PMP USB port
10. Left PMP microSD card slot
11. Right PMP microSD card slot
12. Right PMP Volume control
13. Right PMP Video out jack
14. Right PMP Audio out / headphone
15. Right PMP power switch (on bottom, MUST be ON to Use or Charge)
16. Left PMP power switch (on bottom, MUST be ON to Use or Charge)
17. Control panel, operates both PMP units simultaneously
18. ¼ – 20 Tripod mount, for tabletop tripod or handle (not supplied)
19. Port for Kensington cable lock
20. Left PMP mounting set screws (4-40)
21. Left PMP mounting set screw (4-40)
22. Right PMP mounting set screw (4-40)
23. Right PMP mounting set screw (4-40)
24. Handle, for picking the Viewer up off a table or out of a box

The Control Panel:

- C1. Power button. Used to power off the PMP units (will not turn the units on)
- C2. >|| button. Used to start and stop slide shows and exit image zoom
- C3. +Vol. Used to turn the audio volume up, and to zoom in on images
- C4. –Vol. Used to turn the audio volume down, and to zoom out on images
- C5. Up-Arrow. Used to go “up” in menus and backwards when viewing images
- C6. Down-Arrow. Used to go “down” in menus and forwards when viewing images
- C7. Left-Arrow. Used to go “right” in menus and as an “escape” or “back” button
- C8. Right-Arrow. Used to go “left” in menus
- C9. “M” button. Used to “select” a function or as an “enter” button

Viewer Usage

We thought you might be excited to view some images right away, so the Viewer is preloaded with a sample set of some of our favorite photos. To begin:

1. Turn on power for PMP units by moving switches 15 & 16 into the “ON” position, then push and hold buttons 1 & 2 for two seconds. Look into eyepieces to see the menu light up to confirm that both units have powered up. Note: the Menu text will be reversed due to the Viewer’s Wheatstone design.
2. Using the control panel on the bottom of the Viewer (17), press the right arrow (C8) to advance the menu to the photo (camera) icon. Then press the middle “M” button (C9) on the control panel to “select” the function. Note, if you accidentally select the wrong icon, the left arrow (C7) on the control panel acts as your “back” button. When you select the photo function you will see a menu of folders identifying which “Disk” to access. “Local Disk” is the memory built into the PMP unit; “External Disk” is the optional microSD card. Select “Local Disk” to see a folder named “Samples,” select it and you see a list of images, select again to view the image in 3D.
3. When your images are on the screen use the focus knob on top (5) of the Viewer to find the best position for your clearest viewing. You may need to re-adjust the focus for images with subjects that are close up or far away.
4. Advance images by firmly pressing the down-arrow button (C6) on the control panel, press the up-arrow (C5) to go backwards through the images.
5. When you are done viewing turn off the Viewer using the power button (C1) on the control panel (17) or moving switches 15 and 16 into the off position.

Notes:

- **Very important!!** When charging the PMP units, the switches on the bottom of each unit (15 & 16) MUST be in the ON position.
- The Viewer has a power save function that comes preset to turn the Viewer backlight off after 15 minutes of no activity, but it will drain power at a low level unless the PMP units are turned completely off.
- It’s possible for the two PMP units to become mis-synchronized when viewing images; there are a couple of reasons this can happen: either a button was accidentally pressed on the top of one PMP unit that advances the picture on that unit, but not the other, or the control pad wasn’t pressed firmly enough to send the infrared signal to both units. There are a few ways to recover from a mis-synchronized condition; see page 10 “Troubleshooting” for remedies.
- The Cyclopital3D Stereoscope (Viewer) is based on the Wheatstone design of the 1830’s which incorporates mirrors to provide a wide Field of View (FOV). As a result the Viewer uses independent left and right files that must be flipped horizontally (mirrored) for correct viewing. The images may also be re-centered or offset in order to obtain the widest HFOV and the most comfortable viewing.

Preparing Images for your Viewer using StereoPhotoMaker (SPM)

Digital stereo photographs are composed of two images, one for the left eye and one for the right. They can be stored in many different formats, in a single file or as separate files. One of the most common storage formats is “side by side” (SbS) in which both the left and right images of the view are placed next to each other and stored as one image in a single file. The SbS format has two variants, “wall-eyed” and “cross-eyed.” In a wall-eyed SbS file the image intended for the left eye is on the left, in cross-eyed format it's on the right. The Fuji W1 camera uses a storage format with a file extension of “MPO”, in SPM the MPO format is treated as a wall-eyed SbS format.

Note that in the process described here the source images are assumed to be already mounted. That is that the alignment between the left and right views has been previously adjusted and the “stereo window” has been set, either automatically or by hand, as per normal for digital stereo photographs. MPO files from the Fuji camera are automatically “mounted” in the camera. However, you can have the images “re-mounted” by SMP by simply “checking” the “Auto Alignment” option in SPM.

Two template files to be used in the “Multi Conversion” dialog in SPM are supplied by Cycloptical3D in order to simplify the conversion process, which can be found on the root directory of either PMP unit.

The template file named “SbS_To_C3DV_800.mcv” produces images that are 800 pixels wide, the other one named SbS_To_C3DV_2400.mcv produces images that are 2400 pixels wide. Both templates also provide for “offsetting” the images to control centering and overall convergence. You can use either one, but the smaller images load faster and consume less memory. Larger images may look better when you zoom in on them using the zoom function on the Viewer. If you don't zoom in much it's better to use images that are 800 pixels wide.

Preparing the Images for the Viewer

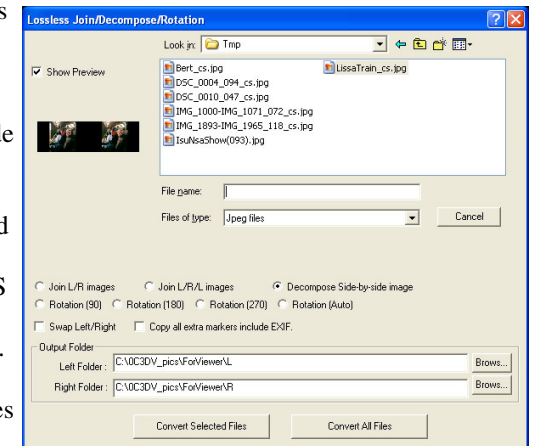
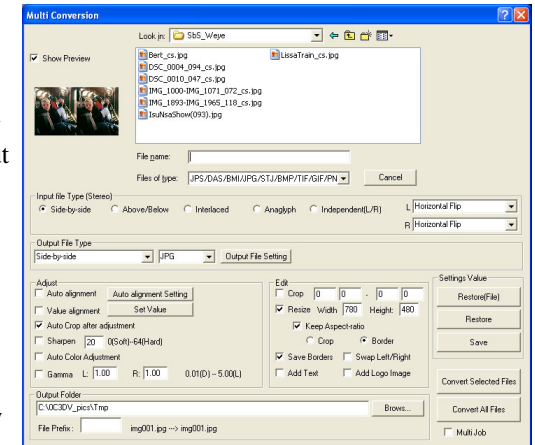
Preparing images for the Viewer is a two step process, first you create properly formatted temporary SbS files from your source MPO or SbS files using the “Multi-Conversion” dialog in SPM. Then you split the temporary files into their right and left components using SPM's "Lossless Jpeg Multi Conversion..." dialog. The resulting files get loaded onto the Viewer and the temporary files can be discarded.

The dialog on the following page is the “Multi Conversion” dialog in SPM, use the “Restore File” button to load one of the template files supplied, this action will set most of the parameters in the dialog so all you have to do is set the input and output folders.

Step by step instructions for using SPM to create files ready to load onto the Viewer:

1. Start SPM and open the “File->Multi Conversion...” dialog
2. Use the “Restore(File)” button to load either SbS_To_C3DV_800.mcv or SbS_To_C3DV_2400.mcv (depending on the output image size you desire).
3. Set "Look in" to point to the source folder of SbS files you wish to process.
4. Set "Output Folder" to a folder that will be used to store the SbS temporary files that will be created by this processing step.
5. Press "Convert All Files"
6. After the process completes, close the “Multi Conversion” dialog
7. Next, execute the "Lossless Jpeg Multi Conversion..." dialog to separate the side by side temporary files created above into left and right files for the viewer. The only option selected should be “Decompose Side-by-side image” as shown in the dialog to the right. The “Look in:” field should point to the directory that contains the temporary SbS files you created using the “Multi Conversion” dialog. The “Output folders” are where you will find the files that are ready to be transferred to the Viewer, set them to a convenient location (you can type new directory names into the fields, the new directories will be created when the process runs).
8. Press “Convert All Files” to create the files you will load onto the viewer. Load the left (_l) files on the Left PMP unit, and the right (_r) files on the Right PMP unit. (see “Loading Images into your Viewer” below)
9. Delete the SbS temporary files created using the “Multi Conversion” dialog.

Notes:



Advanced Image Preparation options:

The check mark in the “Save Borders” option of the “Multi Conversion” dialog tells SPM to use the parameters set in the “Boarder” dialog when saving the SbS image. The option is used in this procedure to control the “centering” of the images on the PMP units, which sets the overall convergence of the scene. It can also be used to better center the right and left images as seen through each eyepiece for people that have very narrow (less than 58 mm) or very wide (greater than 72 mm) eye spacing (interocular). As most people fall within this range, modifying the value from its “default” is usually not necessary.

If you do decide to modify the value you may consider creating multiple copies of your images on the viewer organized in separate directories for “Narrow”, “Normal”, and/or “Wide” eyed persons.

The “offset from center” of each image is half the value set as the “L/R Space” parameter. This parameter is stored in the “Multi Conversion” template (.mcv) file so it is set properly when you “Restore(File)” to load the settings in this dialog (even though it's not shown in the dialog). For images 800 pixels wide the “default” offset is 40 pixels (20 pixels per side), for 2400 pixel wide images the “default” offset is 120 pixels (60 pixels per side).

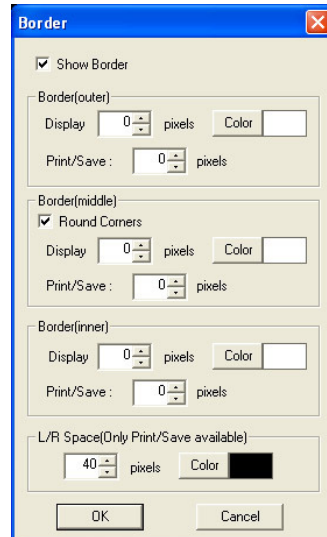
You can set the offset to something other than 40 (for 800 pixel wide images) or 120 (for 2400 pixel wide images). You can decrease the value of the offset to accommodate people with very narrow eyes, or increase it for people with very wide eyes.

To do this, first load the appropriate .mcv file in the “Multi Conversion” dialog, then exit the dialog and use the “View->Border Options...” dialog from the main menu to show the “Border” dialog.

Change the “L/R Space” value to the desired total offset. Then re-enter the “Multi Conversion” dialog and change the “Width” setting to the total image width (800 or 2400) minus half the new offset (half the “L/R Space”). Note, to change the border options you must have a stereo image loaded in SPM or the “View” menu option will be grayed out. Finally, save the new parameters in a new “template” by using the “Save” button in the “Multi Conversion” dialog.

Note that everything in this “Border” dialog should be 0 except the L/R Space, which should be set to twice the distance each image will be shifted.

Note also that you can just edit the .mcv file directly (with Notepad) to change the relevant parameters instead of using the rather complex process described above.



Loading Images into your Viewer

Once you have appropriately formatted Left and Right image files you can load them into the Viewer from Windows computers using “Windows Explorer. Copy the left images of stereo pairs from your computer to the left PMP unit, and the right images to the PMP unit on the right (referenced looking into the lenses).

For convenience, images may be organized hierarchically in a tree of folders. The image files are stored in memory on the PMP units, in either built in memory (Local Disk) or on optional microSD memory cards (External Disk).

Each PMP unit must be loaded separately. If two memory cards are used, one must contain the left images and the other the right, and they must be inserted into their respective Left and Right PMP units.

The structure of folders and files MUST be identical on both the left and right PMP units. Any folder that exists on the left PMP unit must have a compliment on the right PMP unit. Complimentary folders must contain the same number of files (and folders) with “similar” names. The complimentary files and folders must be named so that they sort alpha-numerically in the same sequence. One way to do this is to have all folders and files named identically on both the left and right PMP units, but this is not absolutely necessary. The characters may differ toward the end of a complimentary name pair, as long as they sort alpha-numerically in the same order on both PMP units. For instance, folders and files on the left PMP unit could have “_L” appended to the names, where and “_R” might be used on the right PMP unit.

Using microSD Memory Cards

Memory cards work just like internal memory in the PMP units; again you must make sure the file structures on the cards for the left and right units match, meaning that all files and folders sort alpha-numerically in the same sequence. To view images stored on microSD cards select the “External Disk” option under “Photo” in the main menu instead of “Local Disk”. With microSD cards the image storage capacity can be extended up to 64 GB total.

For Apple Users

There is no specialized support for converting images (splitting, mirroring and resizing) on a Mac or for transferring images from your Mac to the Viewer. We recommend using “Boot Camp” or another Windows emulator to run StereoPhoto Maker. Mac computers will recognize the PMP units and present their file systems as per normal so you can copy the left and right directory trees of images to the PMP units using “finder.” (not recommended)

Technical Notes

The Viewsonic PMP units are of the LTPS variety, which have the smallest spacing between pixels of any LCD type available and the colors are rich and beautiful. The units are too complex to document all the features they support here, this manual documents only the functions you need to view 3D photos.

Miscellaneous Display Functions

- To set the background wallpaper. View the image you want to use as your background using the normal process for viewing images. Then press “M” (C9) on the control panel to see a list of options. “Set Wallpaper” is the last choice, use the “Down-Arrow” button (C6) on the Control Panel to highlight it and then press “M” again. Press the “Left-Arrow (C7) to exit the list of options.
- Setting image transition format. You can setup different graphic effects for the transition from viewing one image to the next in the viewer. The “default” is a simple replacement, but you can do sweeps etc. instead. To change the transition type, first view any image, then press “M” (C9) to see a list of options, select “switch mode” and choose the transition you like.
- Use of the Automatic Slide Show is not recommended because after a few minutes the two PMP units will fall out of Sync. This may be fixed in a future PMP firmware update, but for now the slide show function is basically not usable.
- Zooming and Panning on images. You can zoom in and pan around on images while you are viewing them in 3D. Pressing the +Vol button (12) on the control panel zooms in, and pressing the -Vol button zooms out. While you are zoomed in the arrow buttons on the control panel can be used to pan around on the image. There are three zoom levels up to a maximum of 3X 800x480 or 2400 x 1440 (which is recommended for zooming).

Miscellaneous Functions on PMP units

The PMP units are preset as follows:

In the Settings menu,

Language → English

Auto Power Off (inactivity time before power off) → 15 min

Screen Close (inactivity time before backlight turns off) → 1 min

Brightness → Level 5 (maximum brightness)

Power Management and Charging

IMPORTANT: The power switches (15 and 16) on the bottom of the PMP units **MUST** be in the ON position when charging. If the power switches are in the OFF position the PMP units will **NOT** charge.

You must press both buttons (1 and 2) on the top of the PMP units for at least two seconds to turn the PMP units on.

Your Viewer control panel (17) uses a 3V lithium battery, CR2025. The control panel is attached to the bottom of your Viewer with several sturdy pieces of Velcro and can be removed when a battery change is necessary.

Your Viewer has built in batteries and can operate for up to 4 hours of continuous use on a single charge. Recharging of fully drained batteries can take up to 3 hours. A battery charge indicator is displayed in the upper left corner when the main menu is showing, they may be different for right and left so close one eye to see them separately.

To charge you PMP units simply plug in your AC adapters and connect them to the PMP units (6 and 7). Each PMP unit has it's own battery and must be charged separately.

There are two types of chargers available, one that plugs into the Power-In Port (6 and 7) and another that plugs into the USB port (8 and 9).

When you plug the units in to charge they will turn on automatically. However, when charging is complete and you unplug the units they will stay on and may drain the batteries. Be sure to turn the units off after charging if you don't intend to use them right away.

Troubleshooting

- Left/Right image synchronization errors. At some point the two PMP units may get “out of sync”. There are a few ways that this can happen, but the most common is when a button is accidentally pressed on one PMP unit that advances the picture on that unit, but not the other. There are a few ways to recover from a mis-synchronized condition:
 1. Press one of the arrow buttons on the top of the Viewer (3 or 4). One of the buttons advances to the next image on that side and the other goes back. Which one you need to press depends on which unit is “ahead” of the other. Try pressing one arrow and if that doesn't work, press the other arrow on the same unit twice.
 2. Another way to recover from mis-sync is to press the left arrow button (C7) on the control panel until both units are showing the main menu and then navigate back to where you were.
 3. Lastly you can turn both the units off (C1) and start over from power up.

Troubleshooting

- Image folders out of sync in Photo->Local Disk menu. If you accidentally enter “Record” mode (microphone icon in the main menu) a folder on the “Local Disk” named “record” will be automatically created by the PMP unit. If this happens on one unit and not both the folders on the two PMP units will be “out of sync”, to remedy the situation simply delete the “record” folder. There are two ways to do this:
 1. Connect the PMP unit to your computer using USB (8 or 9) and delete the folder using Windows Explorer.
 2. Delete the folder by using the buttons on the PMP unit itself (not the control panel). To delete the folder first highlight it under Photo->Local Disk using the control panel. Then quickly press the top power button (1 or 2) on the PMP unit that has the “record” folder highlighted. You will get a menu with the first option “delete” highlighted. Press the button on the opposite end of the same PMP unit twice (the button is not labeled on the case, but actually performs the “enter” or “select” function). The first press is to select the “delete” function, the second is to confirm the deletion.
- If somehow a PMP unit gets set to a language other than English it can be set back to English using the icon that looks like a “globe” in the settings menu (gear icon). Choose the middle option for English. Unfortunately the only languages supported are Chinese, simplified Chinese, and English.

Technical Support

Your Viewer purchase comes with a lifetime of free technical support and firmware upgrades, and 90 days of hardware repair coverage, which commences on the shipping date.

If you experience persistent technical problems after reading the troubleshooting recommendations in this manual and checking our website, <http://www.cyclopital3d.com> for additional troubleshooting information, you may send an email to kburgess@cyclopital3d.com for technical support. Support requests will normally be responded to in 24 hours.

Viewer Specifications

800 x 480 resolution (each eye)

Fully coated achromatic lens

Scratch resistant front surface mirrors

Uses two Viewsonic VDP400 PMP units for image storage and display

8GB of storage per PMP unit for a total of 16GB

Size: 200mm x 120mm x 95mm (7.9” x 4.75” x 3.75”)

Weight: 850 grams (1 lb 14 oz)

Care and Maintenance

Use the lens cleaning cloth that was provided with your Viewer, or a similar microfiber lint free cloth to clean lenses. Do not spray liquid directly onto the Viewer and avoid getting any moisture in any openings.

If it becomes necessary to clean the LCDs on the PMP units, the mirrors, or the backside of the lenses you may gain access by removing the PMP units from the side. Simply loosen the two set screws that hold each one in place using the 0.050” Allen Wrench provided and pull the unit outward. Be careful not to scratch the front surface mirrors, they are coated for scratch resistance but are still somewhat vulnerable. Use the sterile, disposable cleaning cloths for internal cleaning.

Product Warranty

The Cyclopital3D Digital Hand Viewer includes with a 90-day warranty against manufacturing defects in material or workmanship. It is warranted for normal use; abuse of the product is not covered. If you drop it, it will break.

The Viewsonic PMP units include a separate manufacturer warranty that is transferred to the owner of the Cyclopital3D Viewer. But, if a PMP unit should fail you may contact Cyclopital3D and we will attempt to provide technical support or possibly replace the unit for you.

Caution: this is a delicate precision product and should be treated with the same care given to any fine camera or lens. Do not apply excessive force to the focus mechanism or lens barrels.