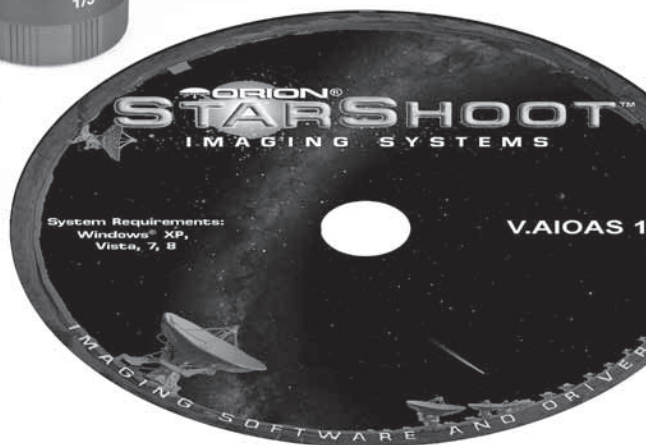


INSTRUCTION MANUAL

Orion® StarShoot All-In-One Astronomy Camera

#52052



ORION
TELESCOPES & BINOCULARS

Providing Exceptional Consumer Optical Products Since 1975

Customer Support:

www.OrionTelescopes.com/contactus

Corporate Offices:

89 Hangar Way, Watsonville CA 95076 - USA

Congratulations on your purchase of the Orion StarShoot All-In-One AllSky Solution. This accessory is designed specifically for use with the Orion StarShoot All-In-One Astronomy Camera (SSAIO).

The Orion StarShoot All-In-One AllSky Solution consists of a 180 degrees fish eye lens and Orion HandyAVI Lite software that when used in combination with Orion AstroCap (included with the SSAIO) can detect meteors, create time-lapse movies, FTP images and movies to a website, email a detected meteor image and more.

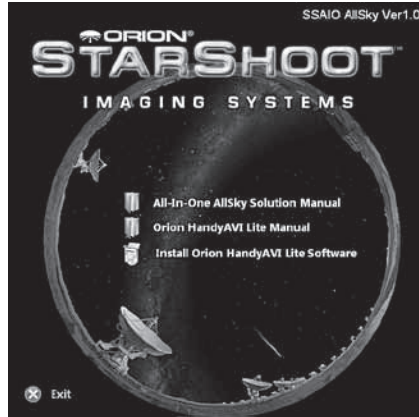


Figure 1. The launcher window.

Software Installation

1. Insert the CD-ROM and wait for the Launcher window to appear (**Figure 1**). If you are using Windows Vista or Windows 7, the **AutoPlay** window will appear first, and then select **Run autorun.exe**
2. When the launcher appears, select **Install Orion HandyAVI Lite**.
3. Go through the prompts until the software is installed.
4. A software Key Request Code is provided on the sleeve of the CD. This code is used to obtain a license key for the software.
5. Please go to <http://www.handyavi.com/getkey> and use the **Orion HandyAvi Lite** Key Request Code to get your **Orion HandyAvi Lite** key.

Quick Start

1. Attach the Fish Eye Lens to the **SSAIO** using the **CS mount adapter** (included with **SSAIO**).
2. Attach adjustable finder bracket (included with **SSAIO**) into finder shoe on mount or use ¼ 20 threaded hole on bottom of finder to attach to tripod (**Figure 2**). The rings can also be removed from the base of the finder bracket to reveal another ¼ 20 threaded hole that can also be used as an alternative.
3. Place the **SSAIO** through the rings on Finder bracket and lock using thumb screws.
4. Connect the **SSAIO** to PC using USB cable.
5. Run **Orion AstroCap** and set resolution to connect to camera.
6. Set exposure, gain and color in **Orion AstroCap** as desired (See **SSAIO** manual for details regarding these settings).

7. Focus lens using **ZOOM** tool and/or **FWHM** tool. (see **SSAIO** manual for details regarding focusing tools)
8. Select **Tools->Live Broadcast**.
9. Run **Orion HandyAVI Lite** software.
10. From within **Orion HandyAVI Lite** select **Capture->Time-lapse Images**.
11. Select **Orion Camera (WDM)** from the Capture Device drop down menu.
12. Select Video format and choose same resolution as the **SSAIO** is set to within **Orion AstroCap** (1280 x 960 full resolution will deliver best results)
13. The Live Video Preview window should now display same image as can be seen within **Orion AstroCap**
14. Set the time-lapse period in the box stating “take one frame every X seconds”. This is normally set to be the same as the exposure time as that set within Orion AstroCap. For example if 500ms is the exposure within Orion AstroCap then to capture every frame Orion HandyAVI would need to set its time-lapse period to $500/1000=0.5$ s.
15. Set the output filename.
16. Select type of compression (we recommend UnCompressed for best non lossy images – however this produces very large files and has maximum ~2GB for each AVI file - the software will automatically close current file and create new files when this limit is reached.
17. Press **START** to begin recording and each captured frame will appear in the capture frame window
18. Press **STOP** to end recording.

Note: When Images and movies are recorded using Orion AstroCap, Reticles and Overlay are not recorded.

However when recording images and movies via Orion HandyAVI Lite, those features will be recorded.

Time-lapse

Orion HandyAviLite allows you to easily make time-lapse videos using the SSAIO. Regular videos consist of frames taken as quickly as possible, usually on the order of 30 frames per second.

Time-lapse videos consist of frames taken at a slower rate. For example, to photograph clouds moving in the sky, you could take one frame every 20 seconds. The time-lapse time is then 20 seconds. When you play back such a video at 30 frames per second, the motion of the clouds appears to be greatly speeded up.

When used in combination with longer exposure times the results can be very rewarding.

Time-lapse photography can be used to film:

- clouds moving
- Meteor showers
- Milky Way moving across the night sky, etc.

The only limitations are your imagination regarding what to photograph using a time-lapse video process.

Anything that occurs slowly can be speeded up using time-lapse photography. The results are often amazing.

Orion HandyAVI Lite will allow you to set any time-lapse time that you desire – from as fast as your **SSAIO** can produce images up to years of elapsed time between frames!



Figure 2. The SSAIO, Fish Eye lens and adjustable rings attached to a standard tripod.

Meteor Detection

OrionHandyAviLite allows you to easily create meteor trail videos using the SSAIO.

Meteor detection can be done real-time or by scanning through older movie files.

When meteors are detected images and movies can be sent via FTP or email.

OrionHandyAviLite employs a sophisticated motion detection algorithm which allows capture of ENTIRE meteor trails.

Your AVI file, after a night of recording, will be relatively small and contain only those frames associated with meteor trails (or other objects moving across the sky such as airplane trails of course.)

The sophisticated motion detection algorithm employed by OrionHandyAVI Lite completely eliminates false detections caused by camera noise, cosmic ray events, star scintillation, etc.

The system will also capture multiple lightning bolts and any other phenomena that trigger the motion detection system.

Tools

Tools are also provided within HandyAVI Lite including:

- Stacking Tools
- Frame Selector
- Crop and Save
- Scan AVI for Meteors

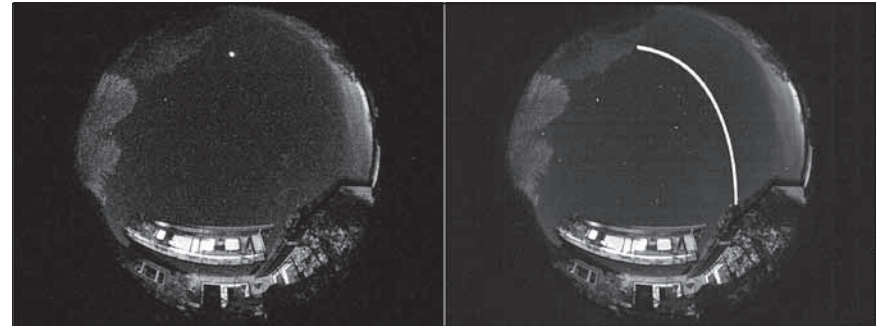


Figure 3. Left: still frame showing ISS overhead. Right: Combined frames using meteor detection to produce a "star trail" of the ISS.

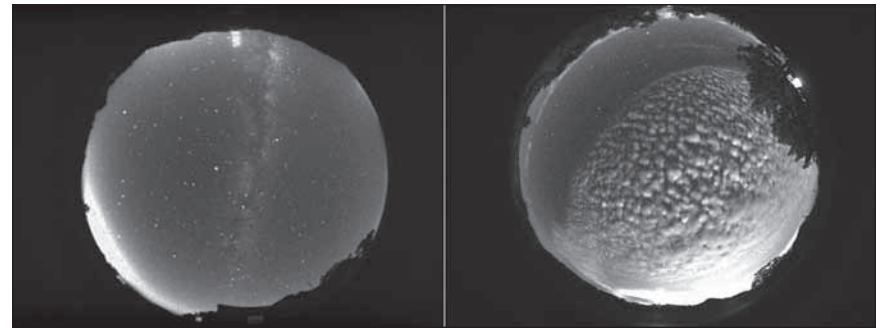


Figure 4. Left: Milky Way. Right: Moonlit clouds.

- Join AVI files
- Make Movie from still images

For more information of software features please read the Orion HandyAVI Lite Manual located on the CD launcher (**Figure 1**).

Care and Maintenance

The lens should only be cleaned if significant dust builds up for if the lens is touched. Any quality optical lens cleaning tissue and optical lens cleaning fluid specifically designed for multi-coated optics can be used to clean the lens.

Never use regular glass cleaner or cleaning fluid designed for eyeglasses.

Before cleaning with fluid and tissue, blow any loose particle off the surface with a blower bulb or compressed air. Then apply some cleaning fluid to a tissue, never directly on the optics. Wipe the optical surface gently in a circular motion, then remove any excess fluid with a fresh lens tissue. Use caution, rubbing too hard may cause scratches.

(Cleaning products available through Orion, check the catalog or OrionTelescopes.com for more information).

Specifications

FishEye lens	for 1/3" MegaPixel sensor
Field of View	180 Degrees
Focal Length	1.25 mm
Focal Ratio	f/1.0
IR Filter	Yes

One-Year Limited Warranty

This Orion product is warranted against defects in materials or workmanship for a period of one year from the date of purchase. This warranty is for the benefit of the original retail purchaser only. During this warranty period Orion Telescopes & Binoculars will repair or replace, at Orion's option, any warranted instrument that proves to be defective, provided it is returned postage paid. Proof of purchase (such as a copy of the original receipt) is required. This warranty is only valid in the country of purchase.

This warranty does not apply if, in Orion's judgment, the instrument has been abused, mishandled, or modified, nor does it apply to normal wear and tear. This warranty gives you specific legal rights. It is not intended to remove or restrict your other legal rights under applicable local consumer law; your state or national statutory consumer rights governing the sale of consumer goods remain fully applicable.

For further warranty information, please visit
www.OrionTelescopes.com/warranty.

Orion Telescopes & Binoculars

Corporate Offices: 89 Hangar Way, Watsonville CA 95076 - USA

Customer Support: www.OrionTelescopes.com/contactus

© Copyright 2013 Orion Telescopes & Binoculars