

ZWO

ASI Cooled Camera

Quick Guide



苏州振旺光电有限公司

Suzhou ZWO Co.,Ltd.

Thank you for purchasing a ZWO ASI camera. This guide is brief summary of the installation procedure to get you up and running with your new camera. Please be sure to read the user manual for more complete instructions.

Driver and software installation(Windows)

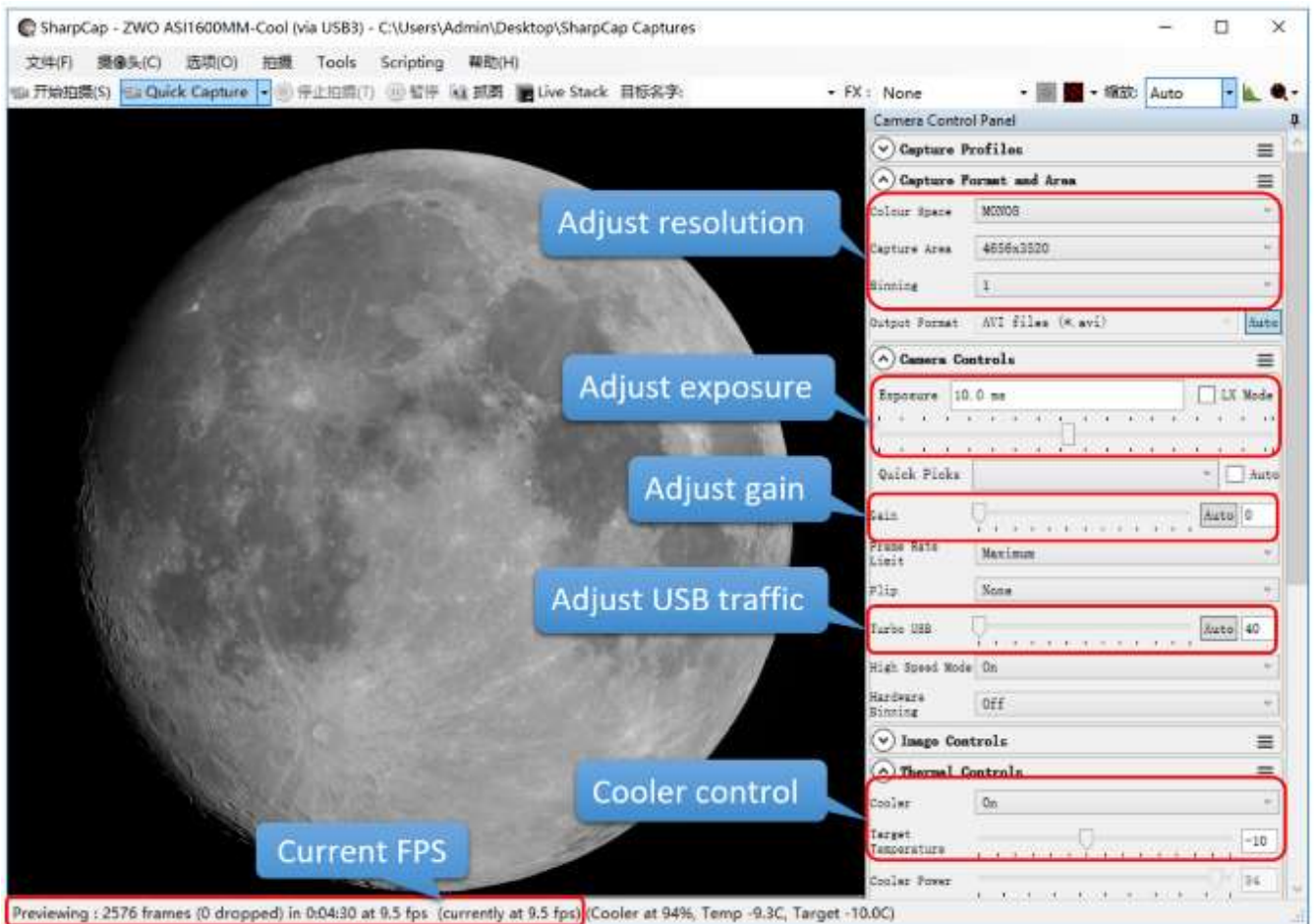
1. Download and install [ASI Camera driver](#) from our [website](#)¹ or the CD-ROM that came with your camera.

After plugging in the camera, you will see your ZWO camera model listed under the “*Imaging devices*” category of the Device Manager if the driver is installed successfully.



NOTE: To open device manager in windows, you may use one of the following methods:

- a) All Windows: Open Control Panel; Find and open Hardware and Sound; Find and open Device Manager.
 - b) Windows 8/10: Right-click Start menu; Find Device Manager and click to open.
 - c) Click “Start” menu and click “Run” (or press “WIN+R” key); Type devmgmt.msc and choose OK.
2. Download and install [SharpCap](#) (capture software) from our website or CD-ROM. Choose your camera model from the camera menu. Then you can see the preview video. Keep in mind that you will only see some brightness in the preview video without lens or telescope.



- Download and install [ASCOM driver](#) from our [website](#)¹ or CD-ROM. **Important note:** Please install newest [ASCOM Platform](#)² first! Then you should install the ASI camera ASCOM driver:

ASCOM Driver

[ASCOM](#) is the software standards for astronomy on Windows

So you can use many astro software after installing our ASCOM driver

Please install ASCOM Platform first – [ASCOM Platform 6.2](#)

ASI Cameras ASCOM Driver: [ASICamera ASCOM Setup V1.0.2.25](#)





4. Download one of various imaging software programs from our website

Capture and Processing Software

*"Through ASCOM" means you need to install ASCOM driver at first

*"Native support" means software support our cameras directly, no ASCOM needed

*"Plugin" means you can install the plugin to get support by the software

 Planetary imaging software	
 DSO imaging software	<ul style="list-style-type: none">• SIPS (Through ASCOM, Free software)• MaximDL (Through ASCOM)• Nebulosity (Native Support and ASCOM)• APT (Through ASCOM)• The Sky (Through ASCOM and Plugin(camera, filter wheel))• PRISM (Through ASCOM)
 Livestack software	
 Guide software	
 Meteor capture	
 Processing software	
 Microscopy software	

That's all! You are ready to use your ASI camera to begin imaging the night sky, including planetary objects as well as deep sky objects(DSO).

To learn more about your camera, you may find a more detailed user manual can be found at our website:

<https://astronomy-imaging-camera.com/manuals/>

Definations:

website¹: <https://astronomy-imaging-camera.com/software/>

ASCOM Platform²: <http://ascom-standards.org/>

Camera ports

USB 2.0 Hub:

Connect to a guide camera or EFW

USB3.0 Port:

Connect to your computer

LED: Power on



Chamber seal screw:

Do not open it.

Cooler power supply: Cooler and fan need an external power supply. We recommend at least a 12V@3A AC-DC adapter or battery from 9-15V is also suitable.
Connector standard: 2.1*5.5mm, center positive.

Connecting the camera to the telescope

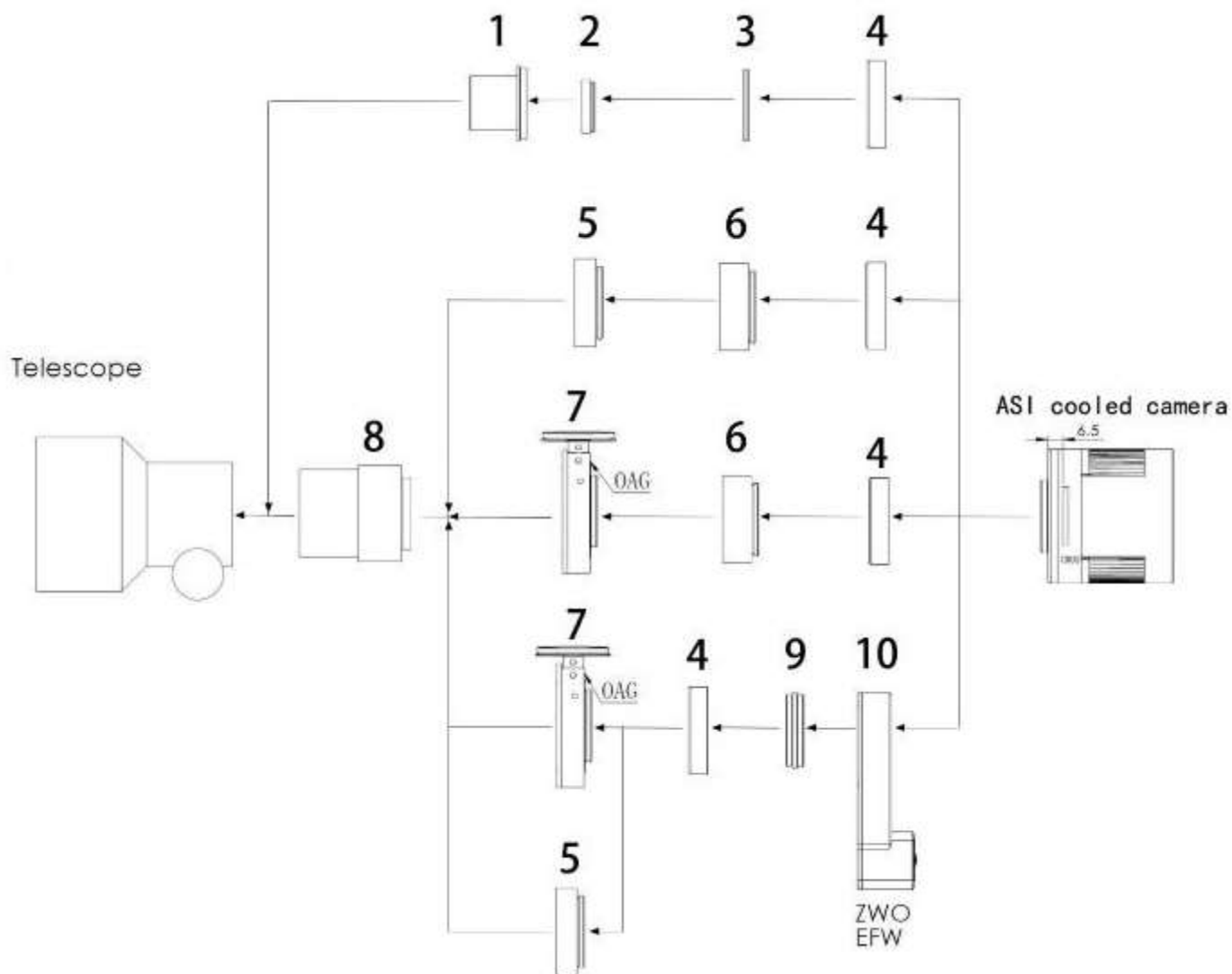
Color camera connection diagram (depicted *without* EFW):



Mono camera connection diagram (depicted *with* EFW, OAG& Guide camera):



Additional options are available to adapt ASI cooled cameras to different apertures, interfaces and thread standards:



1. 1.25" nose-piece

2. 1.25" filter (optional)

3. M42-M48 adapter

4. T2 extender 11mm

5. M42-M48 16.5mm extender

6. M42 21mm extender

7. OAG

8. Focal reducer (optional)

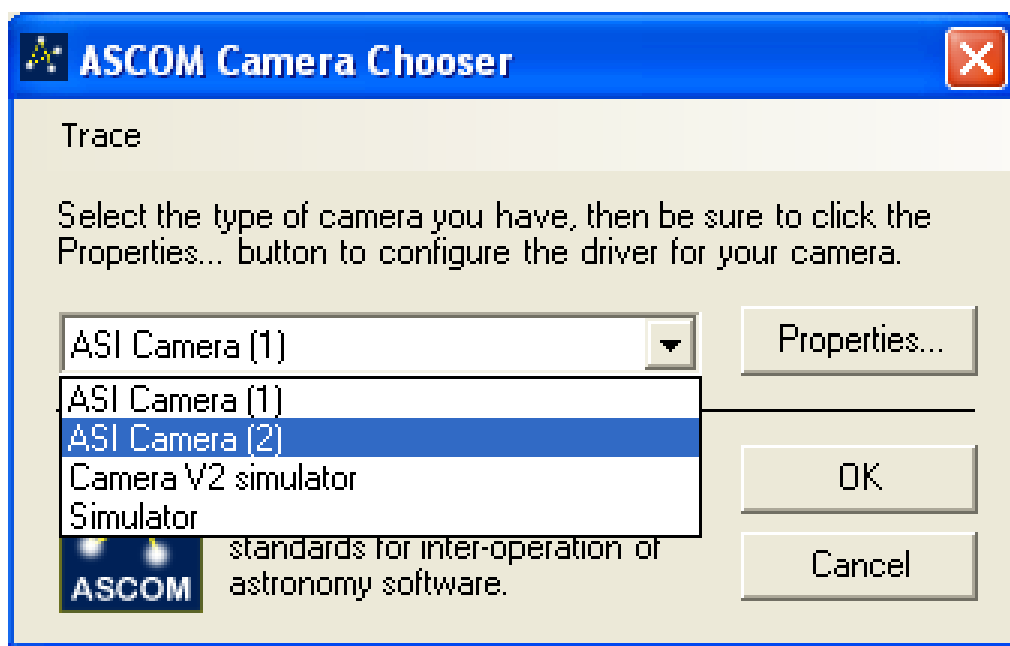
9. M42-M42 adapter(male to male)

10. ZWO EFW

Controlling your camera through ASCOM

ASCOM is a standard platform for astronomy software, many astronomy imaging programs support ASCOM. When you want to use ASCOM to control the camera, the **ASCOM Platform**(6.2 or newer) must first be installed. After you have installed the ASCOM Platform, you may then install the ASI Camera ASCOM driver.

There are two ASI cameras that can be chosen in setup dialog. Please select “*ASI Camera(1)*” for main camera and “*ASI Camera(2)*” for guide camera, if you need to control two ASI cameras simultaneously for imaging and guiding.

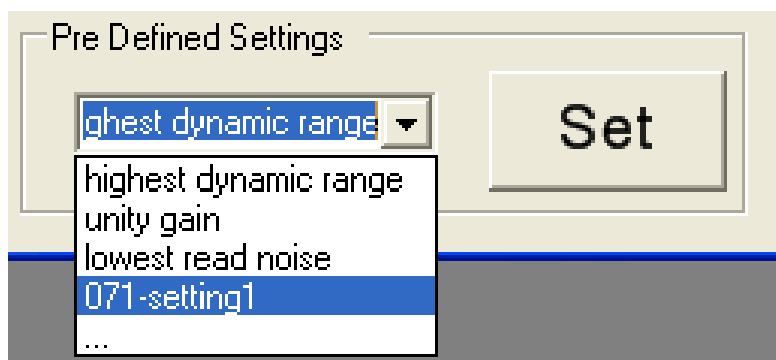


For a single-camera setup, you can just use “*ASI Camera(1)*” to setup your ASI camera.

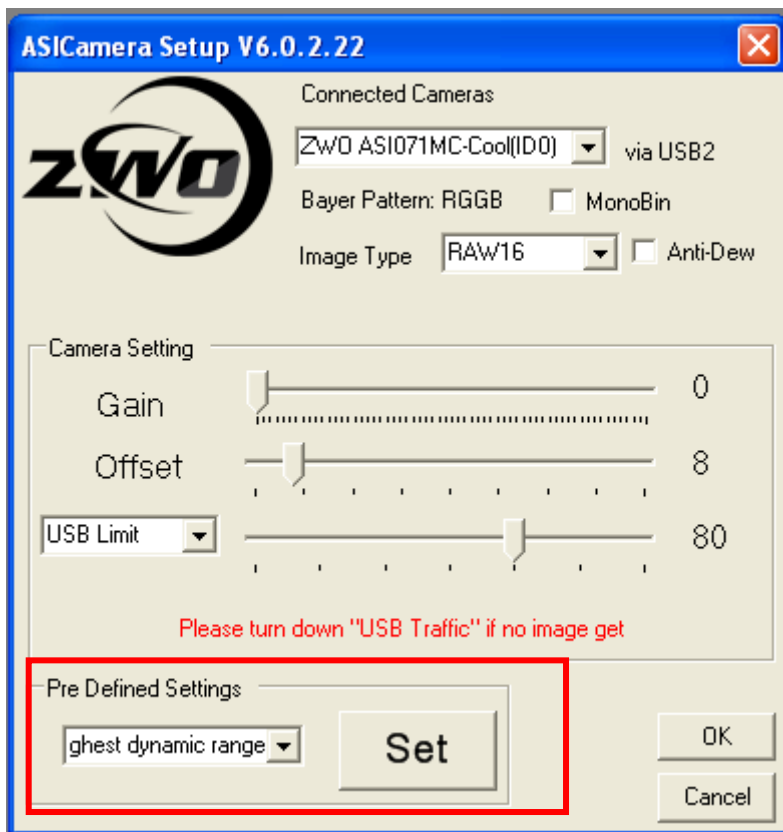
In the ASCOM settings dialog, we provide 3 different gain and offset settings for DSO imaging:

Highest Dynamic Range and **Unity Gain** and **Lowest Read Noise**

You can add own presets if you wish as well (select the “...” option):



You can select a predefined setting depending on your conditions. Then press “Set” button to apply the preset and press “OK” to save the settings.



The **Highest Dynamic Range** setting gives better results with longer exposures, as well as with brighter (light polluted) skies. This setting avoids saturated stars, provides good SNR and very low read noise.

If you preferred shorter exposures with the lowest possible read noise, for narrow band imaging and play “lucky imaging” techniques, or because of mount tracking limitations, we recommend the **Lowest Read Noise** setting.



Trouble shooting problems with your ASI camera

Q: *Why is my camera cooler not working?*

A: Please check and verify that a 12V DC power cable is connected and the red LED is on. This power cable may come from an AC-DC adapter, or a 9V-15V battery, and the connector must be a **2.1x5.5mm center positive** standard.

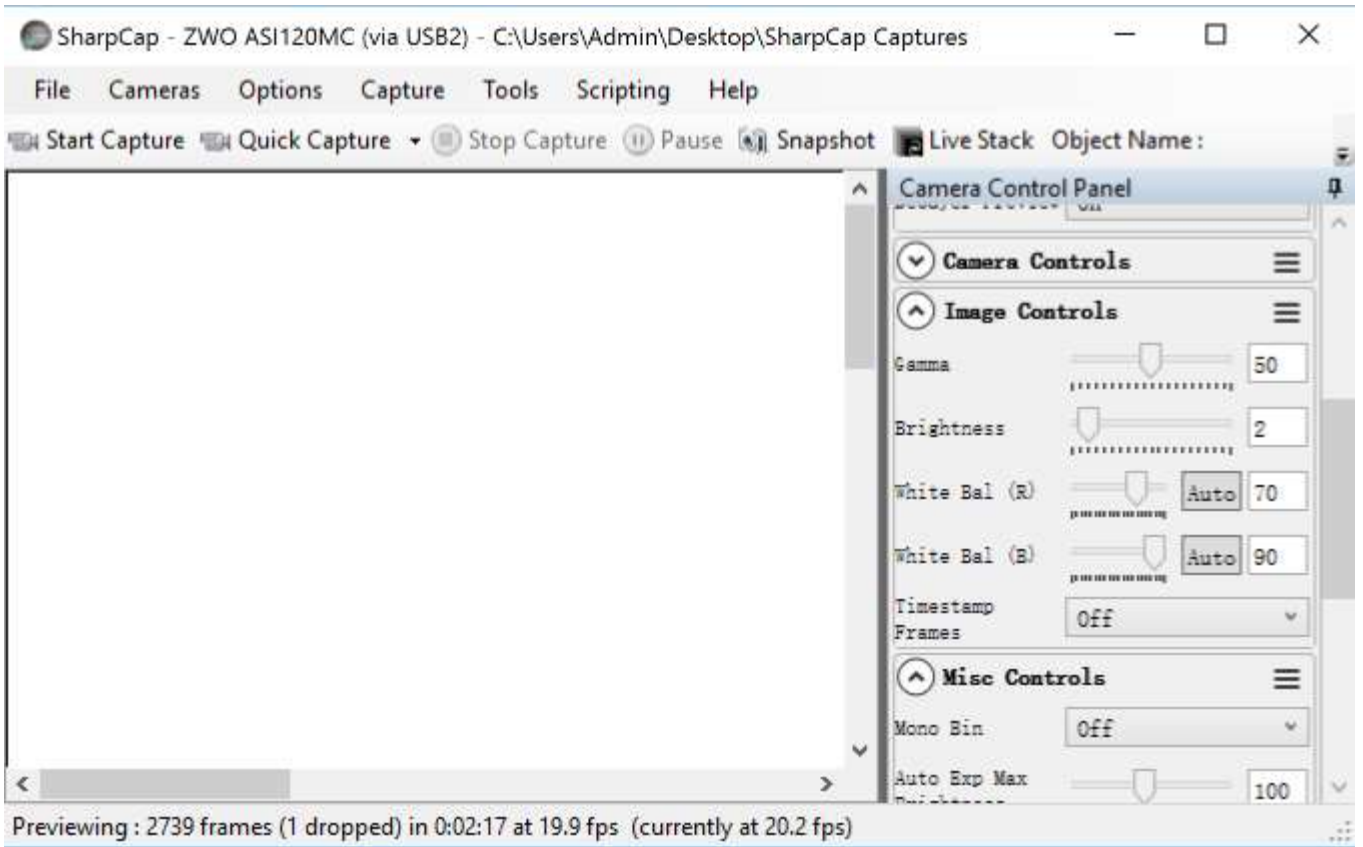
The red LED indicates that the external power supply works.

The fan will only be running when you enable the camera cooler in compatible software. The fan will not run when the cooler is not powered and running.



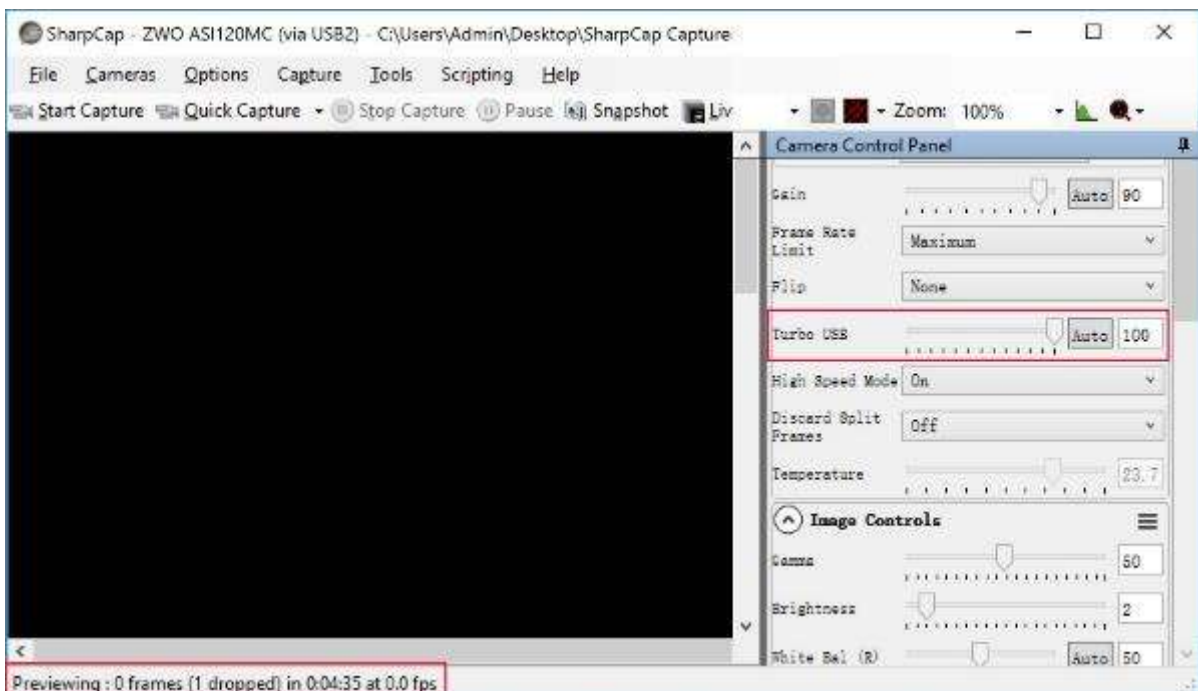
Q: *Why is the preview screen completely white but the FPS appears to be normal? (in SharpCap)*

A: If you can see the fps meter in SharpCap change over time, then the camera is most likely operating correctly. This issue may occur because the camera is overexposing. You must reduce the exposure setting or reduce the gain setting, until you can see the image from the camera.



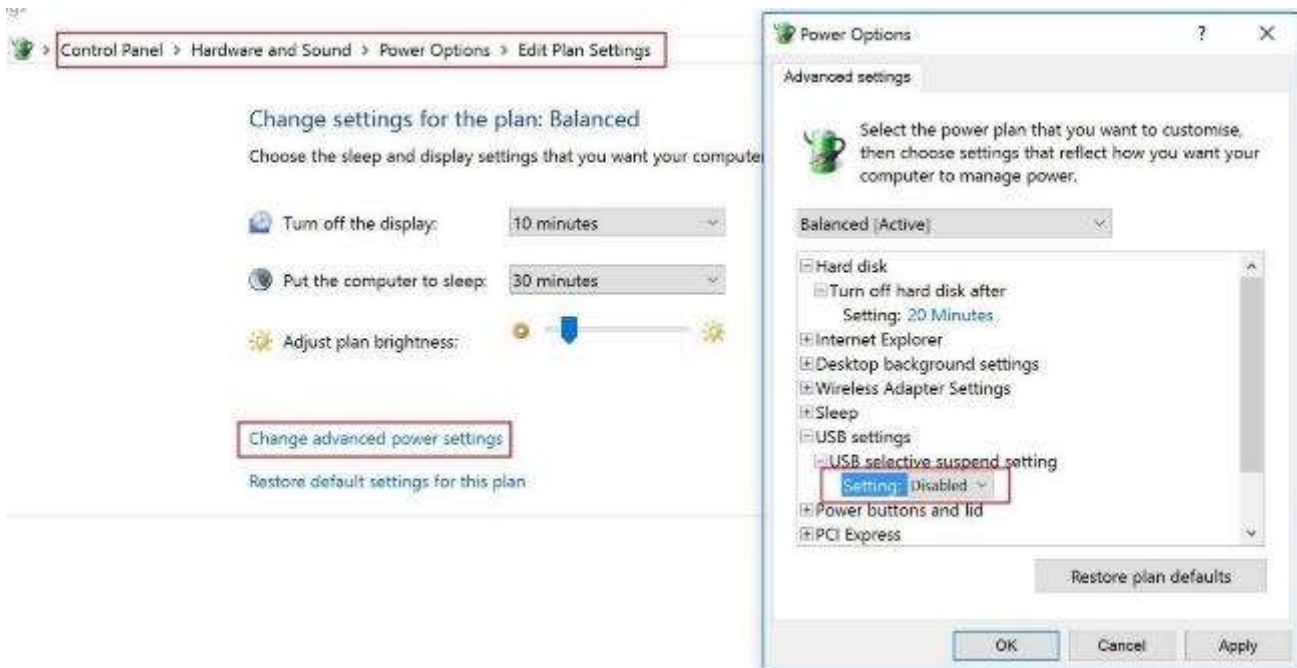
Q: Why is the preview screen is black and the FPS stuck at “0”?

A: The camera may be having trouble communicating effectively with the computer. This may be due to your USB configuration. Please try reducing the “Turbo USB” slider from a high value like 100 to a lower value like 40 to 60.



Q: *Why won't my camera run continually on a laptop without external power?*

A: This is because of the power saving mode of your laptop. By default many will allow the USB power to be suspended when the computer enters a **Low Power Mode**. You need to disable power saving option of the USB port:

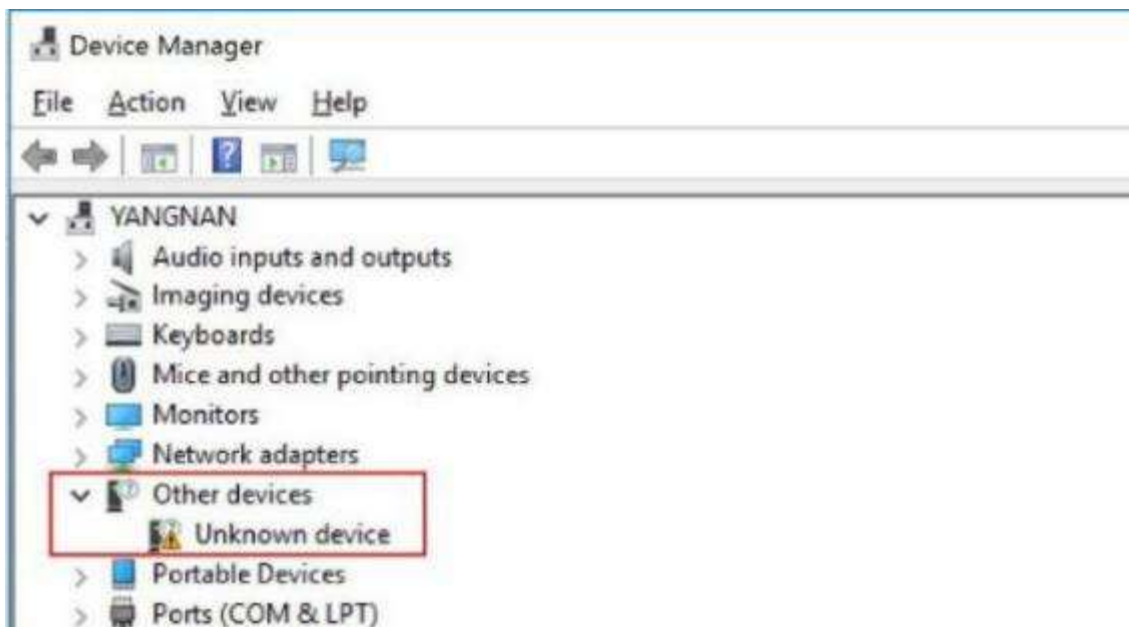


For long imaging sessions, it is highly recommended that you disable power management on your computer, or at the very least, change the configuration so it may not put the computer to sleep. Even if you disable the power saving mode of the USB port, many power saving settings will still allow the computer to enter a sleep mode, which will still affect your imaging session.

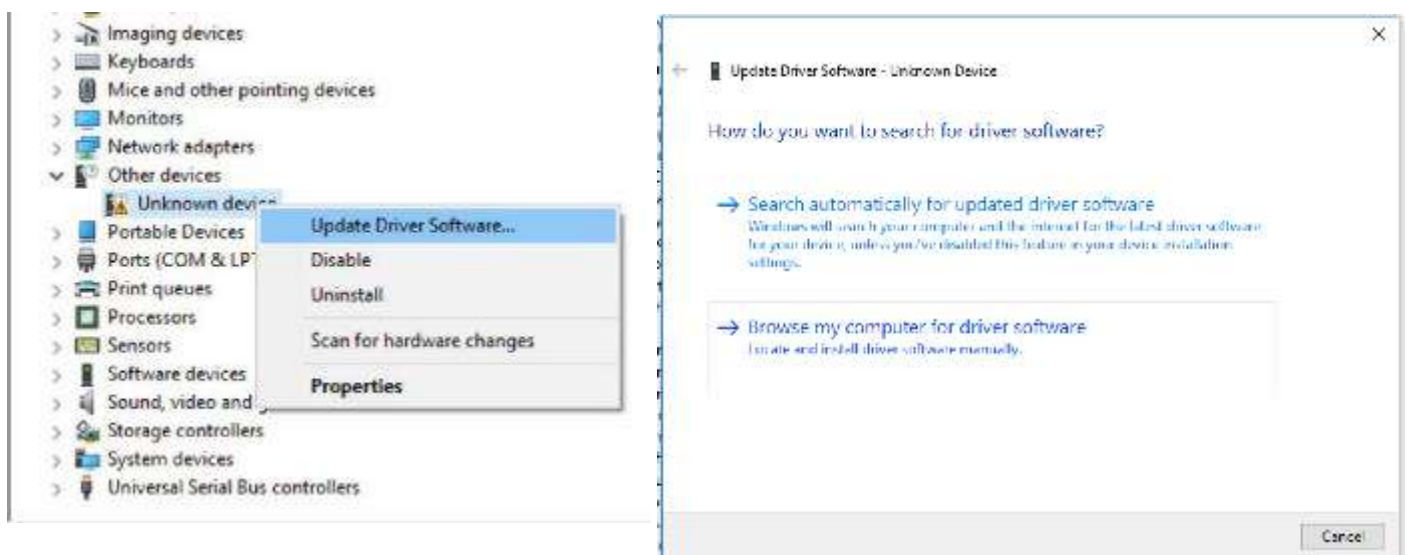
Q: *Why does "Unknown device" show in the device manager after connecting the camera?*

A: This is because the driver did not install properly. Try installing the driver again. You may need to configure any anti-virus software to allow the installer program to run.

As a last resort, you may try to close any anti-virus software and re-install the driver. (NOTE: Make sure you only install an ASI camera driver downloaded from the ZWO web site or from the CD-ROM, and not from any other driver suppliers, to prevent issues with malware!)



You may also update the driver manually if re-installation doesn't work.



Right click the “Unknown device”, choose the “Update Driver Software...” option and choose the driver directory. Normally, the driver directory is:

C:\Program Files (x86)\ZWO Design\ZWO_USB_Cameras_driver\



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