

QHY8
Color
Cooled astronomical CCD Camera
User's guide

QHY8 CCD Camera User Manual

Thank you for purchasing a QHY product.
Please take the time to read the user's guide so you can familiarize yourself with the camera and its functions so you can get the most out of your new purchase.

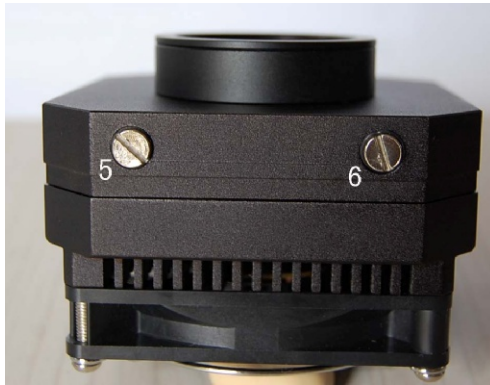


QHY8 Image by Mr. Carsten Jacobs from Namibia with 18inch AK2 telescope

1. Camera Interface connections



- (1). Camera Power supply 4pin mini-DIN socket
- (2). DC socket for fan and TEC cooling
- (3). USB socket to connect PC
- (4). M42/0.75 screw. To connect IR or AR optic windows



- (5). Air socket port. M5 Europe standard (Used for Gas purging or recycle dry air system)
- (6). Air socket port. M5 Europe standard (Used for Gas purging)



- (7). rubber plug.

2. Accessories

- (1) .M42 (male) to M42 (female) optic window .The standard package includes one . User can select if AR+AR or IR+AR.



- (2).4-pin mini-DIN power cable(S-VDIEO cable). 1.5 meter length



(3).DC101 Power supply adapter. (Input socket is 2.1mm DC socket. **Inner is +**)



(4).Optional 12V 4A AC power supply adapter. Input voltage range 100-240V.



(5).Optional Air sealed box with electrically heated silicon gel.



(6).USB 2.0 cable 1.5meter



(9).DC cable



(10). Optional M42 to M42. heater



3. How to use camera

1.Driver Installation(32bit WINDOWS only)

Step1: Download Drivers

Please download the QHY8 drivers at <http://www.qhyccd.com> -> Download -> "New QHY8 Drivers and MaximDL plugin Version 200906"(Or the last release).Download it and decompress. Find the install.bat file in driver folder. Run it.

Step2:

Connect USB cable between camera and PC.(For this step, you can only connect USB cable. It is not necessary to connect 4pin power cable and DC cable)

Step3:

Computer find new device. Following windows message box and click next step. Please see the installation movie for the detail steps. If windows require input directions of driver file, The driver folder should be C:\windows\system32\drivers . After driver installation success,The LED on back side of Camera will ON.

(Please see the detail installation movie here: <http://www.qhyccd.com/files/driverinstall-movie.rar>)

2.Install the applications software and do a simple test

Step1:

Download EZCAP capture software at <http://www.qhyccd.com> ->download ->"EZCAP software V1.51"(Or last released).Download it and decompress it. EZCAP is green software. After decompressed you can run it directly, no need install.

Step2:

Simple function test. You can do a simple function test to see if camera is all functional. Connect the power cable , DC cable and USB cable. Please see the following image of the connection method. Run "EZCAP.EXE"->Select search camera in camera menu. It will show the QHY8 camera, check this item. If success, the preview panel will open automaticly. ->adjust the gain, offset and exposure time. For testing you can simply use GAIN=50, OFFSET=120, Exposure time=500ms, Adjust the stretch bar to max range -> Check Live Preview box-> Image will appear on the main windows. Block all light the image will become black. Unblock the light and toward the ccd to light, the image will become white. It shows the camera has response to the light. And the camera works basic properly

Step3:

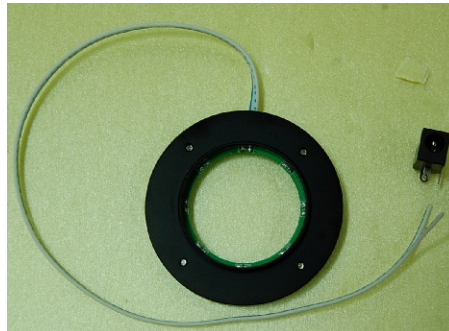
connect camera to lens or telescopes.(You can test the scene at daytime.In daytime, because the scene is in strong light. You should reduce the exposure to minimum value.If still over exposure, we suggest you try it at night or on dusk. At night, you can use the light faraway to test the camera and do some exercise.



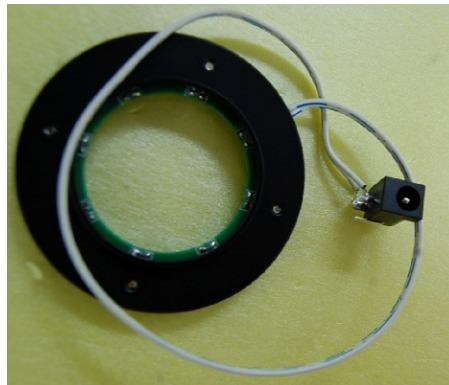
4. Heating ring(Optional Component) Installations and the functions

The function of the heater is to avoid the front surface of the optic windows get dew.Please install it following the steps:

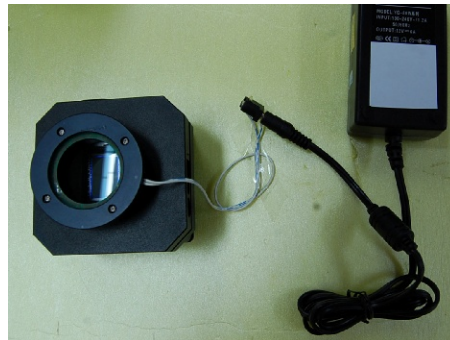
A DC socket should be prepared



Seal the DC socket to the cable of heater



Screw the heater into the Optic windows



5. How to avoid CCD sensor moisture in high humidity

The internal space of CCD camera is a relatively airtight. When in low humidity conditions, the cooling anti-dew device in the CCD camera can change all vapor inside the CCD camera into ice. The ice will be kept on the surface of the anti-dew device and avoid the CCD surface getting ice. But the capacity of holding water of this device is not unlimited. So the humidity of the internal space must be kept in a low condition before using the CCD camera. If the camera always stays in a high humidity condition, the vapor of the outer environment will enter the CCD camera slowly and the internal space humidity will tend to the environment humidity. This condition may cause the CCD surface to get dew, even cause plenty of ice to be kept on the anti-dew device, which will melt into water and get the electric component and PCB board corrupted. Although the component and PCB board has anti-water glue covered, plenty of water is still a risk for the camera.

The method to keep the internal space of the CCD dry:

At the end of using, put the camera into a fully airtight box with silicon gel, take off the rubber plug of the camera, let the air connect with the dry air in the airtight box. And enclose the airtight box. (Please confirm the silicon gel is effective before doing it). After some time, the vapor in the camera is absorbed by the silicon gel and the internal space gets dry. Take out the camera and install the rubber plug at once when using the camera next time.

The airtight box with electric heating silicon gel is an optional part. We recommend ordering it.

Important hint for safe using

In high humidity conditions, after ending using, when disconnecting the TEC power, the camera will warm up and the ice absorbed on the anti-dew component will melt and become water. Please disconnect the CCD power supply after disconnecting the TEC power. Otherwise, the water may cause electric damage to the camera. If you want to power on the camera again at once, please remember cleaning the water on the anti-dew component (the metal board surrounding the CCD sensor). If you want to store the camera, please use the fully airtight box with desiccant.

6. How to clean QHY8 CCD sensor

QHY8 is designed to allow users to clean the CCD sensor in an easy way. QHY8 has IR or AR optic windows. Please unscrew it. Then you can clean the CCD surface. The QHY8 CCD surface has no

coating. It is very easy to clean. You can use the alcohols and lens paper. Clean the CCD carefully. After cleaning CCD. Please wait all liquid dry. Screw on the optic windows and dry the camera according the method in above description.

Of course it is a difficult thing to get zero dust. For small dust we suggest use flat field calibration to remove it.



7. Camera Specifications

pixel :	3110 x 2030
Active pixels:	3032 x 2016
Pixel Size:	7.8um x 7.8um square
Binning	1*1,2*2,4*4
Color method:	RGB BAYER film on CCD
Effective sensor area:	28.4 mm diagonal
QE:	60% at Green (Peak) , 50% at Blue and H.a
Readout noise:	8 -10 e @600 Kpixel/s
Readout Speed	600kpixel/s(Slow mode). 3Mpixel/s(Fast mode)
Download Time	10sec(Slow mode). 2sec(Fast Mode) 0.5sec(Preview and focus mode)
Microlens:	Microlensing on chip
Readout Mode	Progressive Scan
Anti Blooming Gate	Yes. -110dB
ADC	16bit ADC with CDS and Preamp
Computer Interface	USB2.0 High Speed interface
Telescope Interface	M42/0.75 screw
Weight	Approx 500g

8. How to uninstall the driver

If you want to uninstall the drivers. Please following the steps:

Download the driver remove software at <http://www.qhyccd.com> ->download ->software and drivers by AstroSoft Be ->click driver uninstall tools. After download finished, run installTool.exe. The software will search all QHY drivers installed in your computers. Select QHY8 device and click remove.