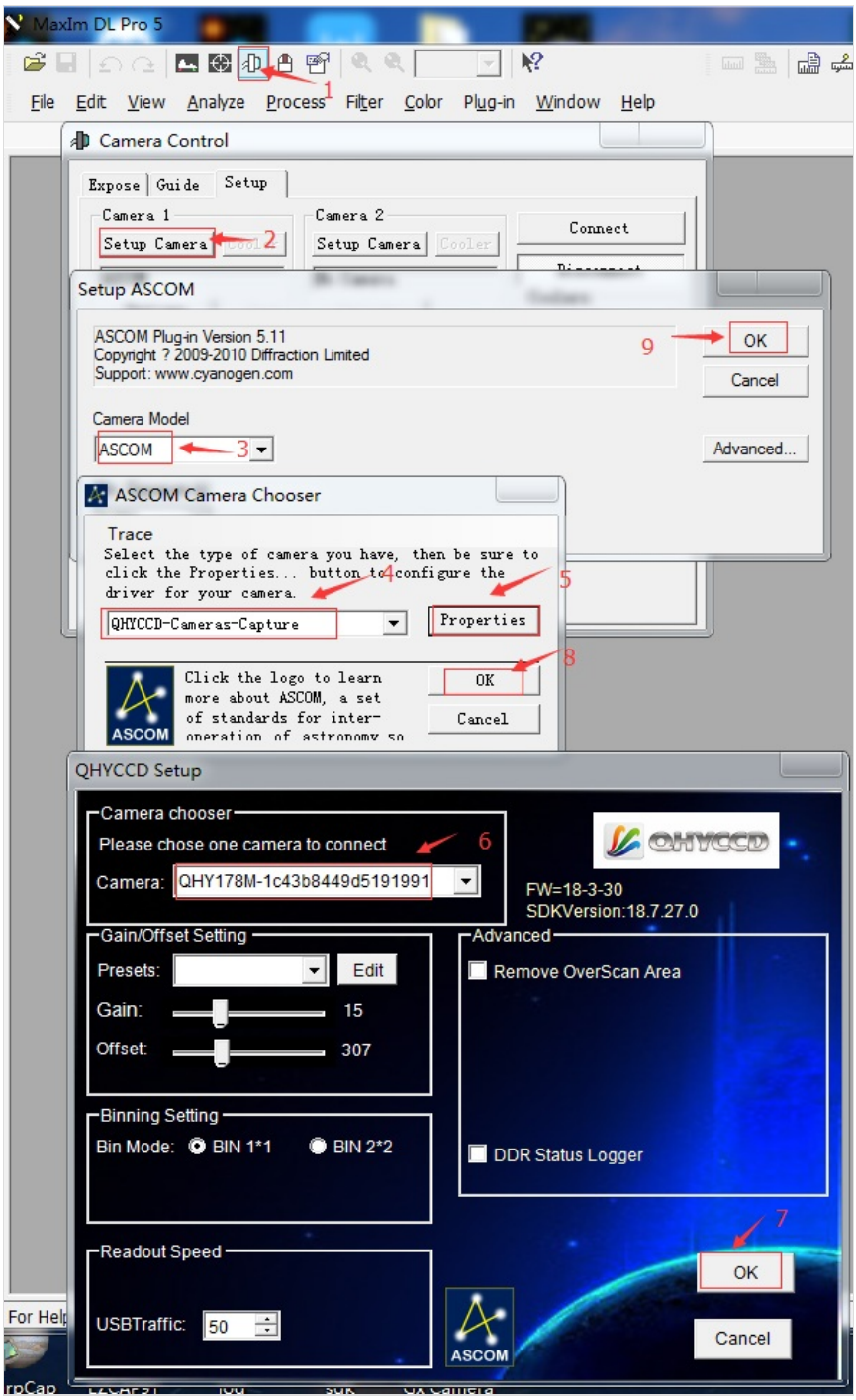
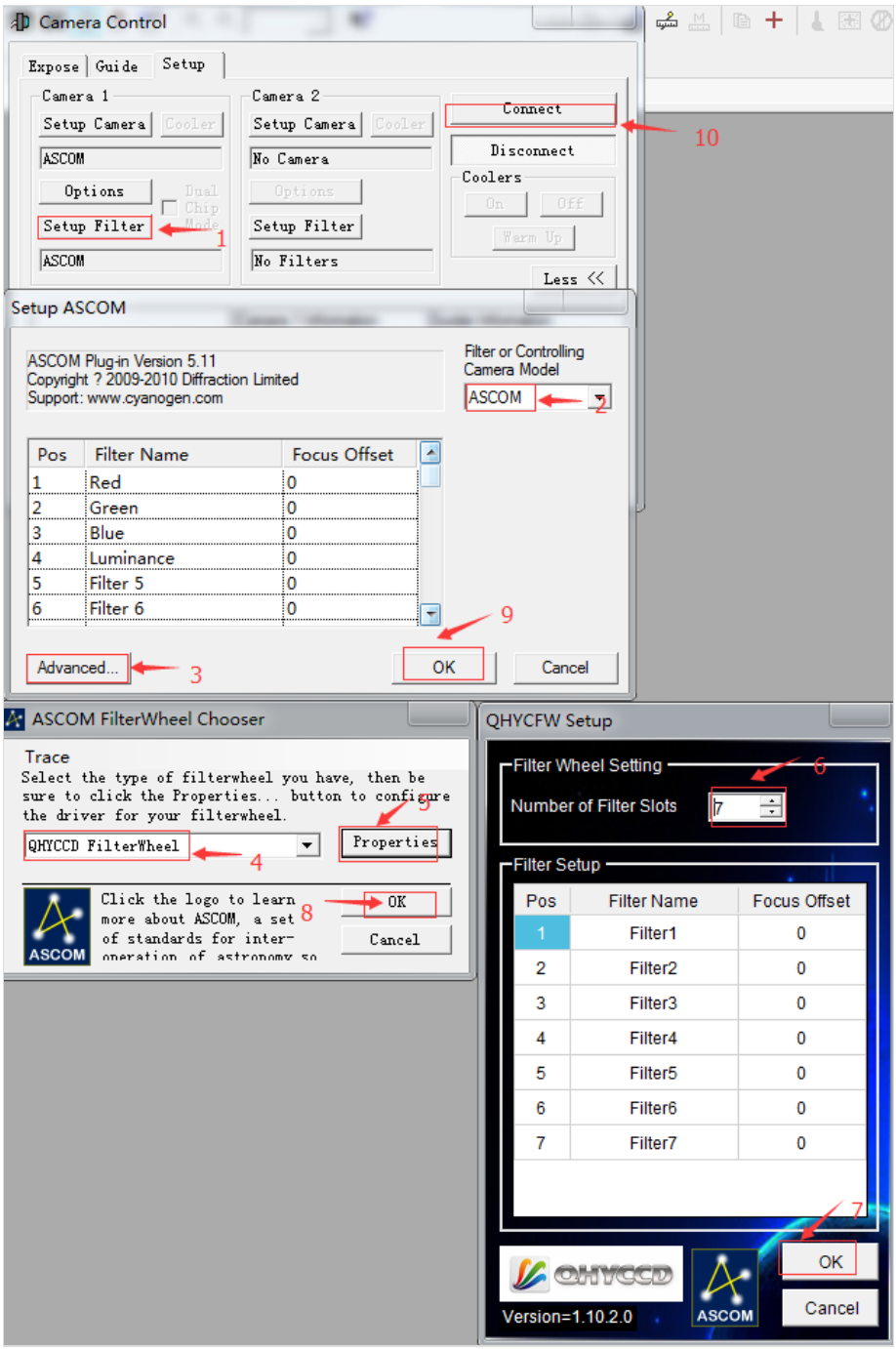
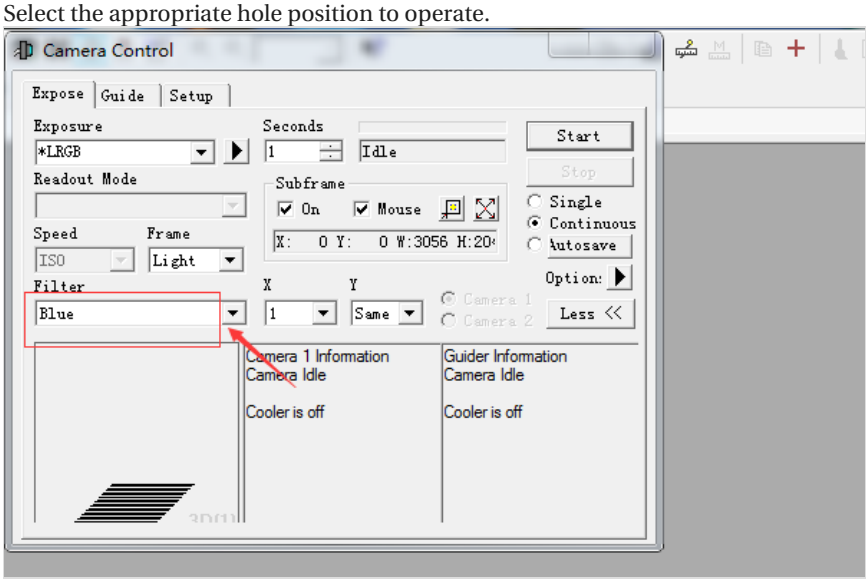


After connecting the camera, go back to the interface and select Setup Filter to select the filter wheel. Follow the steps (as shown).



Select the appropriate hole position to operate.



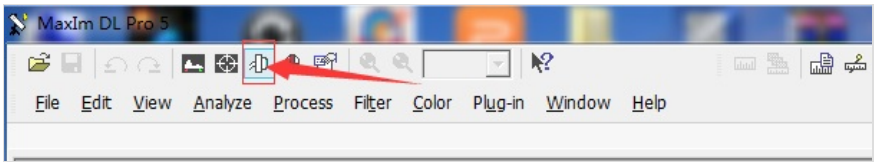
- Use USB cable to control the filter wheel

This method is implemented by ASCOM, which requires only a USB cable to control the filter wheel without connecting the camera. First, we need to switch the control port button (shown by the red arrow in the figure below) to implement USB port control. (Observation indicator red light indicates USB control mode)

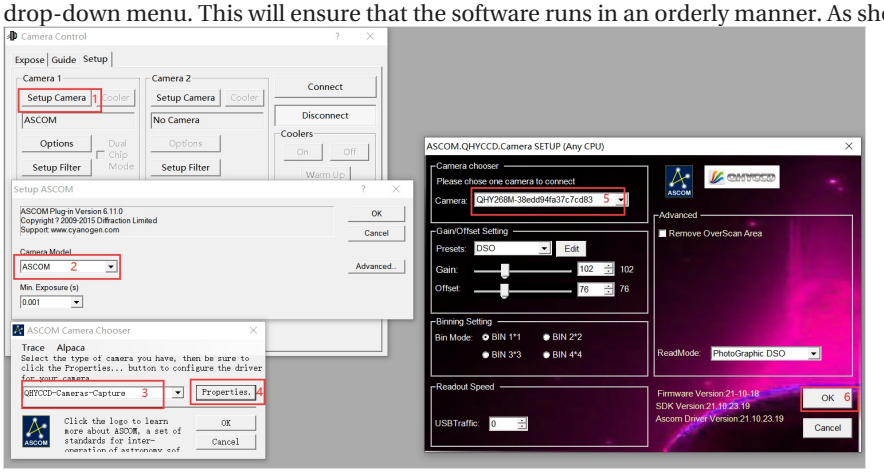
Use the USB cable to plug into the USB port of the filter wheel and the other end to connect to the computer.

Open the device manager to check the port number (if the driver is installed on the computer, the driver to be installed will be detected automatically, otherwise the 2CP210X driver in ALL-in-one pack will need to be installed).

Open the MaxIm DL software and click on Camera Contorl. As shown



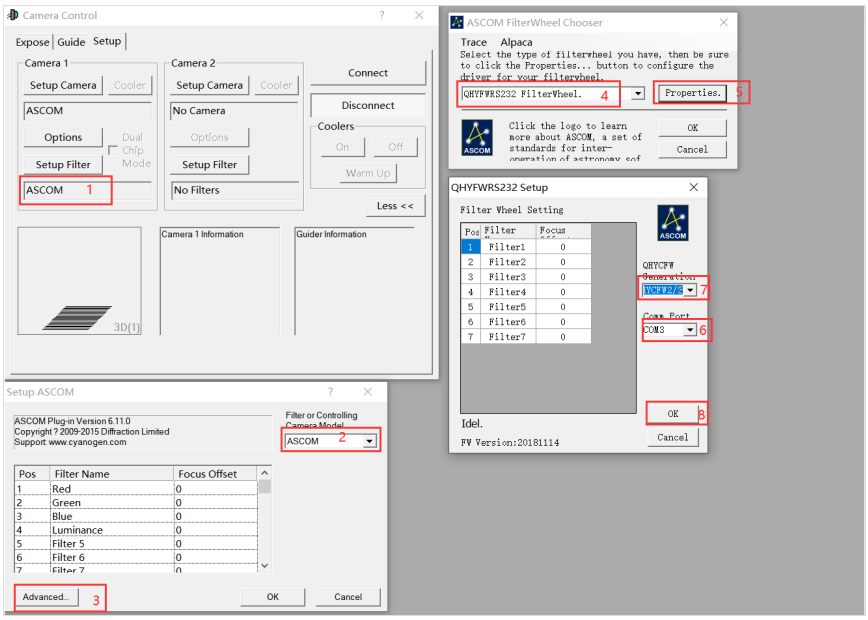
Popup page
Click on Setup and then click on the Camera model drop-down menu in the Setup Camera to select the ASCOM option. Then click the “Advanced” button on the right to bring up a new window for ASCOM Camera Chooer, and then select a virtual camera model from the drop-down menu. This will ensure that the software runs in an orderly manner. As shown below:



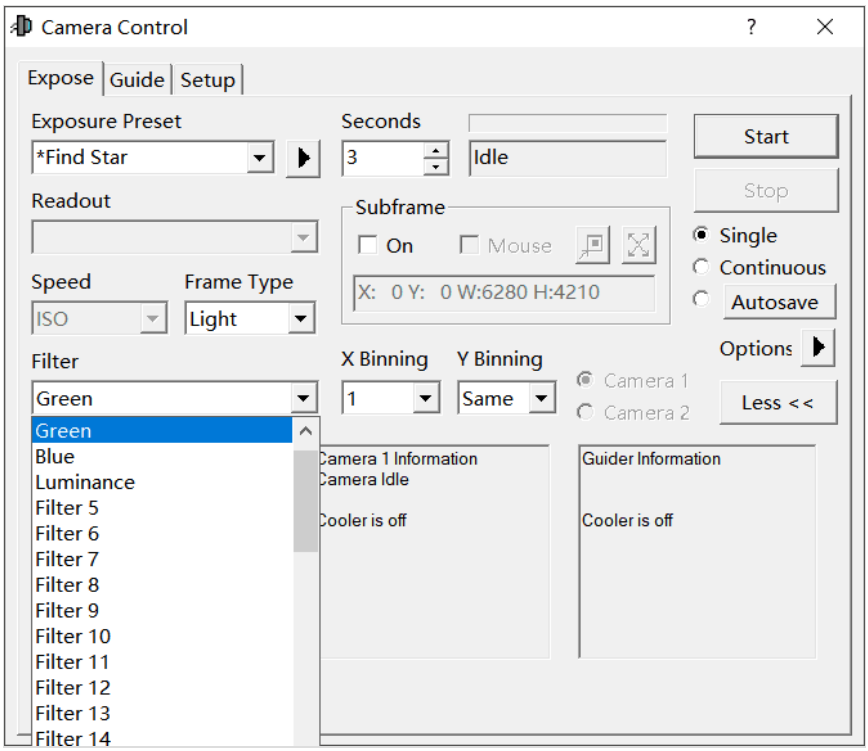
After confirming the error, click the ok button continuously. Go back to the Camera Control page.

Click the Setup Filter button below the Camera Control page to bring up
First click on the drop-down menu of Filter or controlling camera model in the upper right corner to select ASCOM. Click on Advanced in the lower left corner. A new ASCOM Filterwheel Chooser window pops up. Select the connected filter wheel in the strip box.

A new ASCOM Filterwheel Chooser window pops up. Select the connected filter wheel in the strip box.
Click on Properties to determine the filter wheel properties. Make sure to select the port that matches the previous download driver, click ok to return to the Camera Control page.



After returning to the Camera Control page, click the connect link in the top right corner.
Finally, switch to the Expose page, click the Filter button in the lower left corner, select the options in the drop-down menu, select the option, the filter wheel rotates, and the operation is successful.



- Filter wheel serial protocol

Command	CFW action	CFW return info
0(ASCII)	goto position 1	*Note 1
1(ASCII)	goto position 2	
2(ASCII)	goto position 3	
3(ASCII)	goto position 4	
4(ASCII)	goto position 5	
5(ASCII)	goto position 6	
6(ASCII)	goto position 7	
7(ASCII)	goto position 8	
8(ASCII)	goto position 9	
9(ASCII)	goto position 10	
A(ASCII)	goto position 11	
B(ASCII)	goto position 12	
C(ASCII)	goto position 13	
D(ASCII)	goto position 14	
E(ASCII)	goto position 15	
F(ASCII)	goto position 16	
VRS(ASCII)	get FW version	yyyymmdd(ASCII) eg: 20140302 *Note2
MXP(ASCII)	get the information of how many position of the current disk	(ASCII) eg: 4=5position 6=7position 9=10position F=16 position *Note3
NOW(ASCII)	get the current position that the disk is stay	(ASCII) eg: 0 (disk stay in position 1) *Note4

Note 1: When send a goto command to QHYCFW3. Motor will start goto the target position. After arrived. QHYCFW3 will send back the current position.
For example: Now QHYCFW3 is in position 1(position1=command 0) and tar(et is position 4(position4=command 3). After the color wheel arrived the target , it will send back 3(ASCII)
But if current position is 1 (position1=command 0) and you send the same position (command 0) to QHYCFW3 . Color wheel will not rotate. And in the old version (the version before 201409) the color wheel will not send back any info in this condition. In the new version . the color wheel will send the current position:
0(ASCII)
This modification is used to judge if the colorwheel has arrived the target for the host software.

VRS MXP NOW RESET