



Astrel Instruments

**AST-8300-B**  
**MOUNTING FILTERS STEP BY STEP**  
**USER GUIDE**  
**rev E**

## Introduction

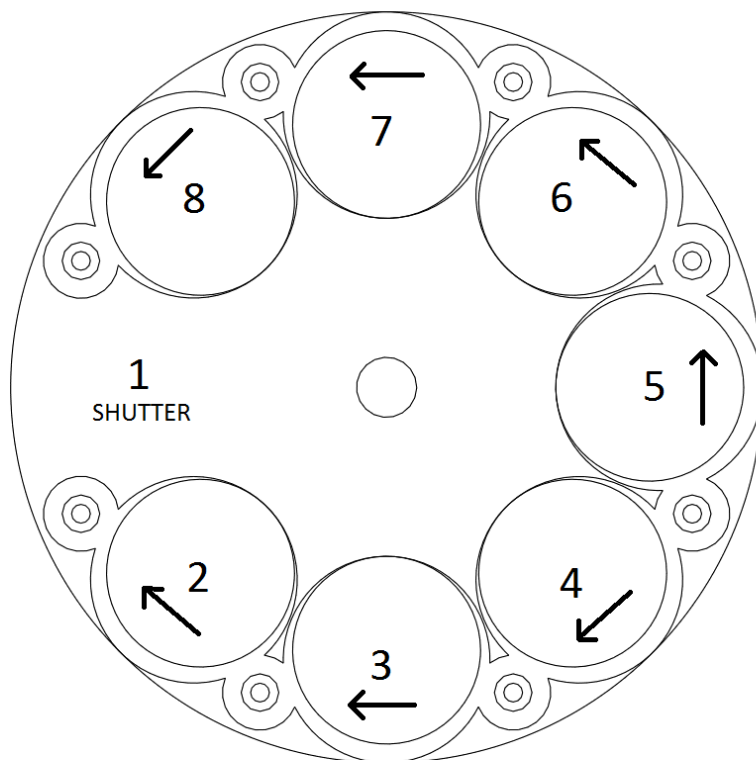
This guide describes the complete procedure to be followed by the user to mount filters on the integrated filter-wheel.

The guide refers to SW release 1.12.

## Filters mounting step by step

On the wheel, filters are referenced as 1 (shutter) - 2 - 3 ... looking at the camera from the optical window side and counting CCW.

While taking photos the wheel moves CW when are selected filters 2-3-4 and CCW for filters 5-6-7-8 while moves to filters 1 (shutter) both CW and CCW at the end of exposition.



**WARNING:** Do all the operation in a clean and dry ambient.

1. Set-up the camera control: the best is to use a PC (via ETH cable or WIFI through the WIFI dongle on USB FS port)
2. power on the camera and wait for boot completion
3. remove the three screws that fix the metal ring around the optical window, then remove the ring

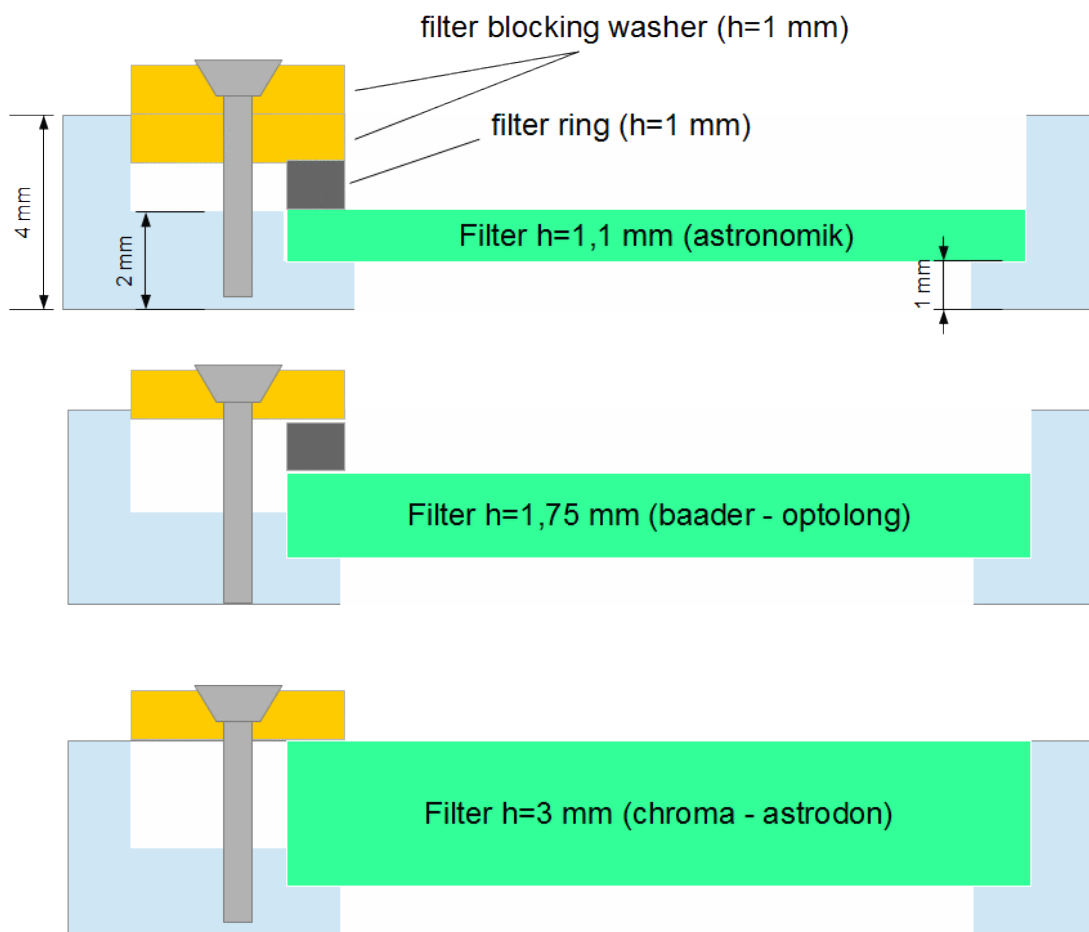
**WARNING:** Before removing the metal ring take note of its orientation with respect to the camera: after the filters mounting it must to be positioned as it was originally in order to maintain the correct parallelism between the CCD and the Telescope optics.



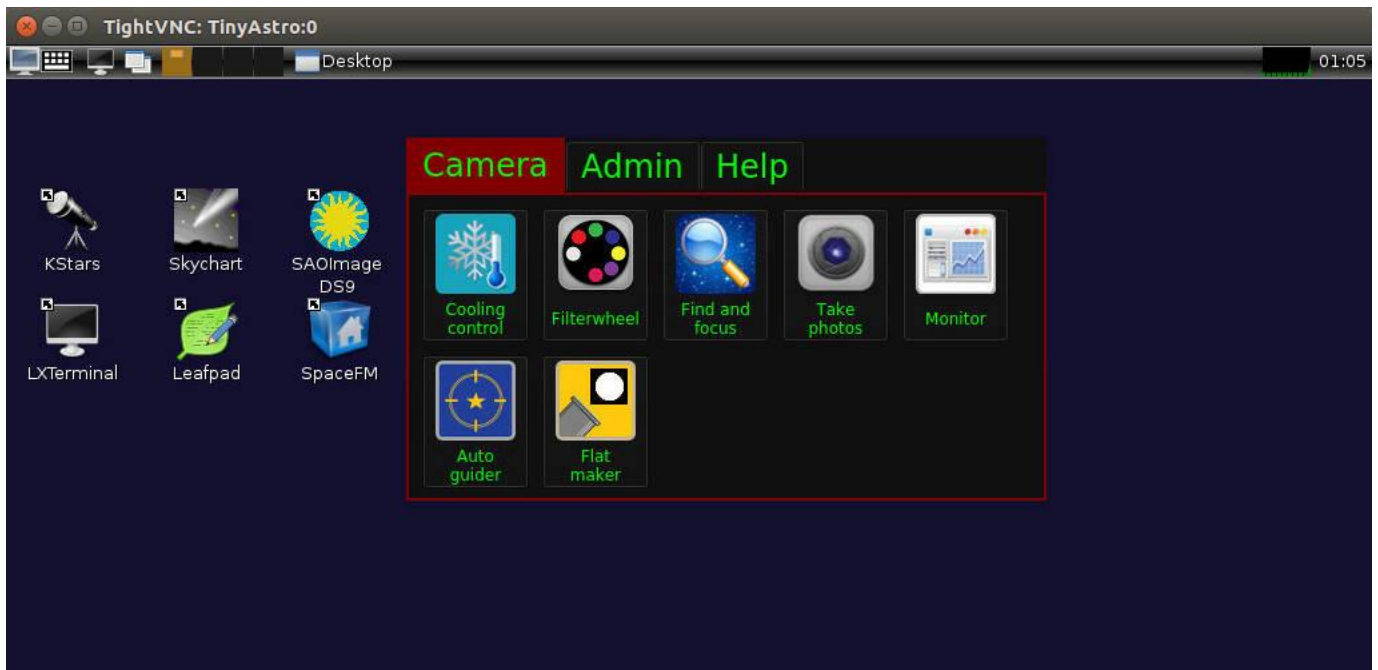
4. before opening the air valve to remove the vacuum, always insert the vacuum pump into the camera air valve and make vacuum on the connecting tube: using the vacuum pump to fill air into the camera helps to avoid the air water vapor to condensate into liquid water inside the camera
5. open the air valve
6. remove the vacuum by lightly pressing the button below the nose of the vacuum pump
7. remove the optical window and the o-ring. Depending on the camera release date, there could be one o-ring between the metal ring and the optical window: if present remove it, then carefully remove the optical window, and finally remove the o-ring under it, so that you can access the filterwheel.

Each filter is blocked by one or two plastic caps fixed by a screw and if needed also a plastic ring, depending on the filter's thickness; refer to the following picture to select the proper way to

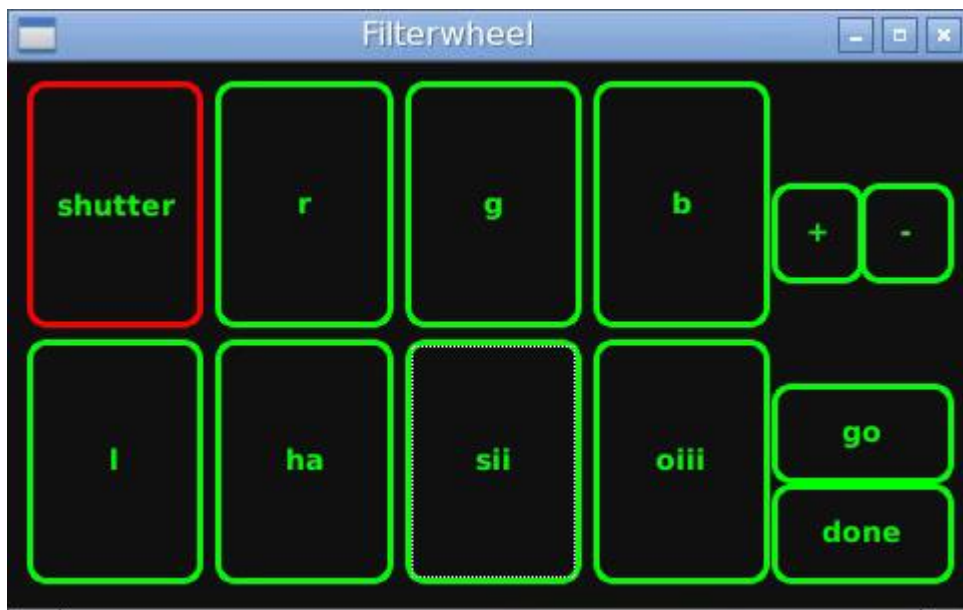
block the filters:



8. open to [Filterwheel](#) app from the Camera Desktop menu



9. push the button of the selected filter (on the first row there are filter 1 (Shutter) - 2 - 3 - 4; on the second row there are filter 5 - 6 - 7 - 8)



10. push the button of the selected filter on the [Filterwheel](#) app and then push go to center the filter hole with the optical window hole
11. insert the filter: depending on the camera release date, the filters holes facing the sensor may have round or squared profiles. The round profiles wheels are compatible with 27mm diameter, 1mm thickness filters, while the squared profiles wheels are compatible with filters up to 27.6mm and up to 3mm thickness.
12. Insert the plastic ring if needed (1 and 2mm thickness filters), gently pushing it until it fits into the hole completely
13. repeat steps 10-12 for all the other filters

14. Use + and – buttons to move the wheel until one of the tapped holes for the plastic caps is accessible
15. take one of the correct plastic caps (depending on the filter's thickness) and fasten one of the screws on it, then screw the so obtained assembly into the filterwheel tapped hole until it firmly locks the filters

**WARNING:** never leave the screws unfastened when moving the filterwheel: the cap may hit the border of the optical window hole and lock, possibly breaking the filterwheel motor!

16. repeat steps 14-15 for all the tapped holes on the filterwheel
17. put the o-ring, the optical window, the second o-ring if present and the metal ring in their original placements
18. slightly fasten the three screws that fix the ring around the optical window
19. make the vacuum inside the camera using the vacuum pump and close the valve
20. complete fastening the three screws

When putting/removing filters, weight distribution of the wheel changes and it could be necessary to adjust the filterwheel calibration using the provided app into the Admin tab of the camera Desktop (refer to the Admin Tools User Guide).

The filter name on the buttons of Filterwheel can be changed using the Configure app into the Admin tab of the camera Desktop (refer to the Admin Tools User Guide).