

Astrel Instruments

**AST-16200-B**  
**MOUNTING FILTERS STEP BY STEP**  
**USER GUIDE**  
**rev B**

## Introduction

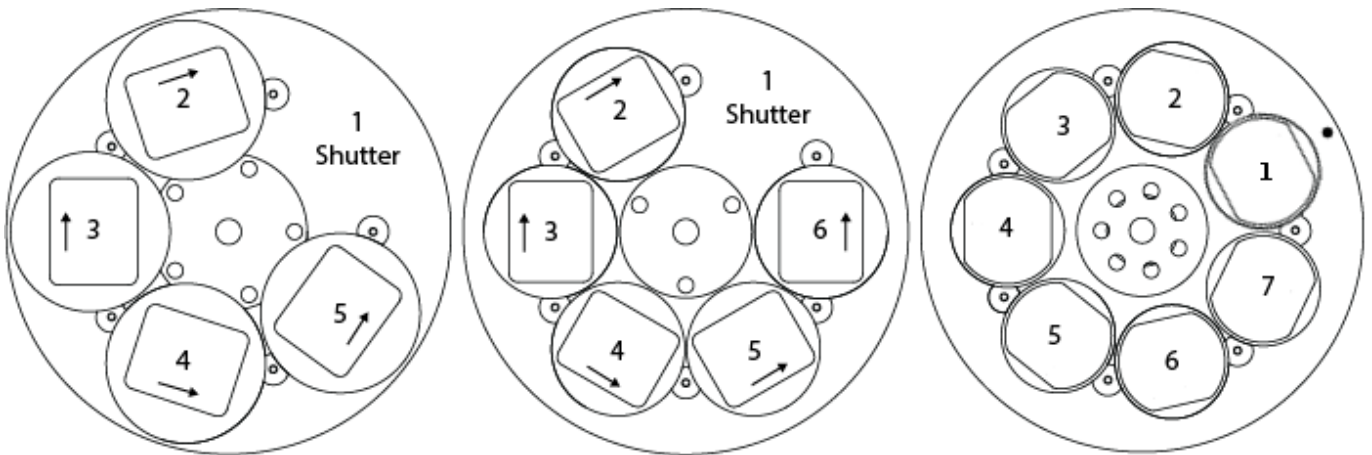
This guide describes the complete procedure to be followed by the user to mount filters on the integrated filter-wheel.

The guide refers to SW release 1.13.

## Filters mounting step by step

The AST16200B can be equipped with different filter-wheels: 4F, 5F and 7F.

On the 4F and 5F wheels, filters are referenced as 1 (shutter) - 2 - 3 ... looking at the camera from the optical window side and counting CCW. The 7F wheel contains also a shutter mechanism



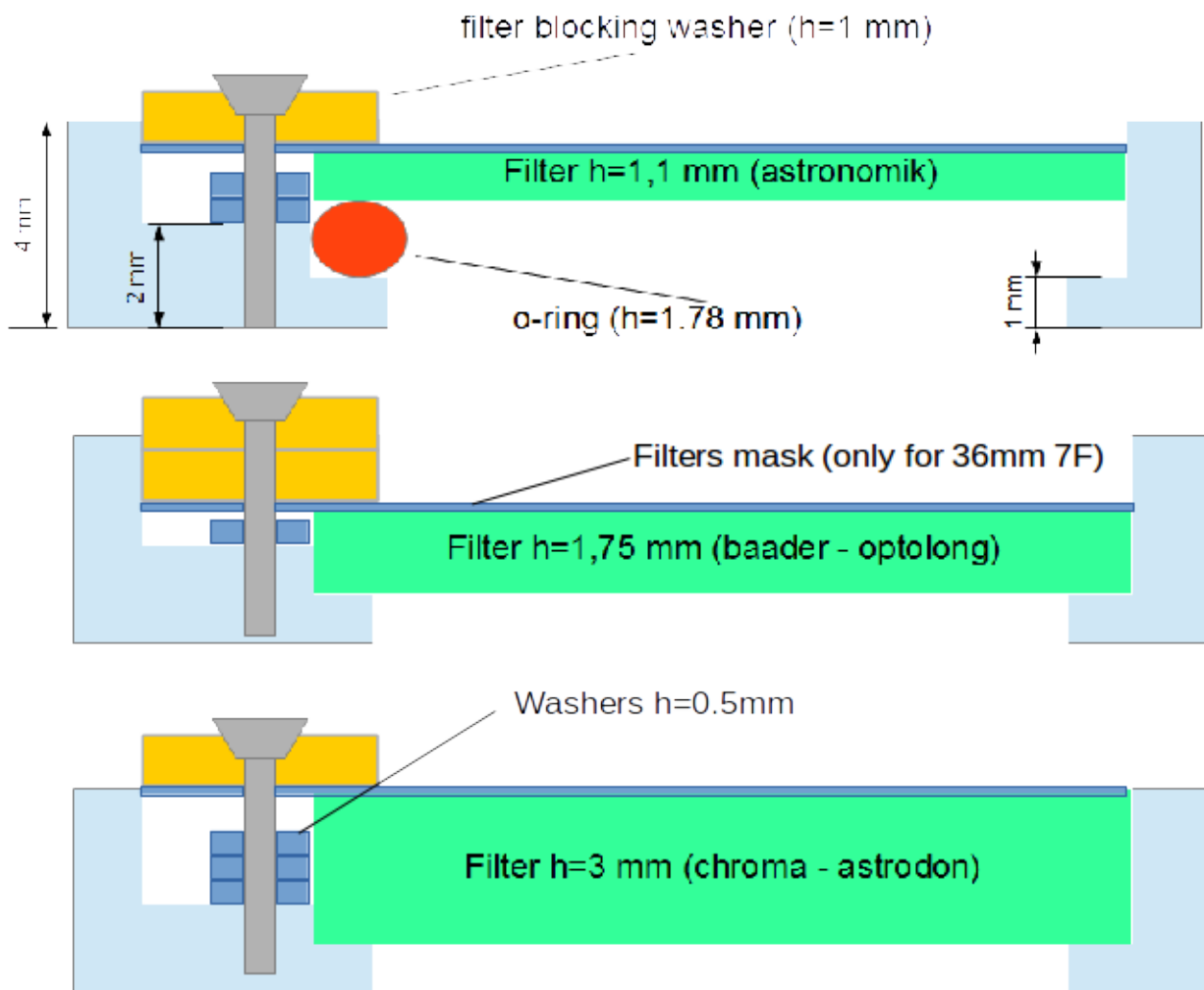
At the beginning of the exposure, the 4F and 5F wheels move CW or CCW depending on which filter is selected in order to minimize filter crossing to reach the selected one (see the arrows), while the 7F always move in the same direction as the shutter is not in a fixed position.

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

1. 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
2. open the air valve
3. remove the vacuum by lightly pressing the button below the nose of the vacuum pump
4. remove the six screws that fix the top of the camera on its body

5. open the camera box
6. remove the o-ring from its site; put the oring on a clean place and camera body with its opening toward the table in order to avoid dust entering into it
7. take the camera top and remove the screw that hold fix the wheel on it
8. Detach the wheel keeping the camera top vertical paying attention to the spring balls near the center of the wheel: they could exit from their holes. In this case, remove them.

Each filter is blocked by plastic washers fixed by a screw. For the 36mm 7 positions wheel, the included flexible filter's mask shall be put on top of the filters to cover uncoated parts that could be present near the filter's borders. Depending on the filter's thickness, you have to use different ways to fix the filters on the wheel, like in the picture below:

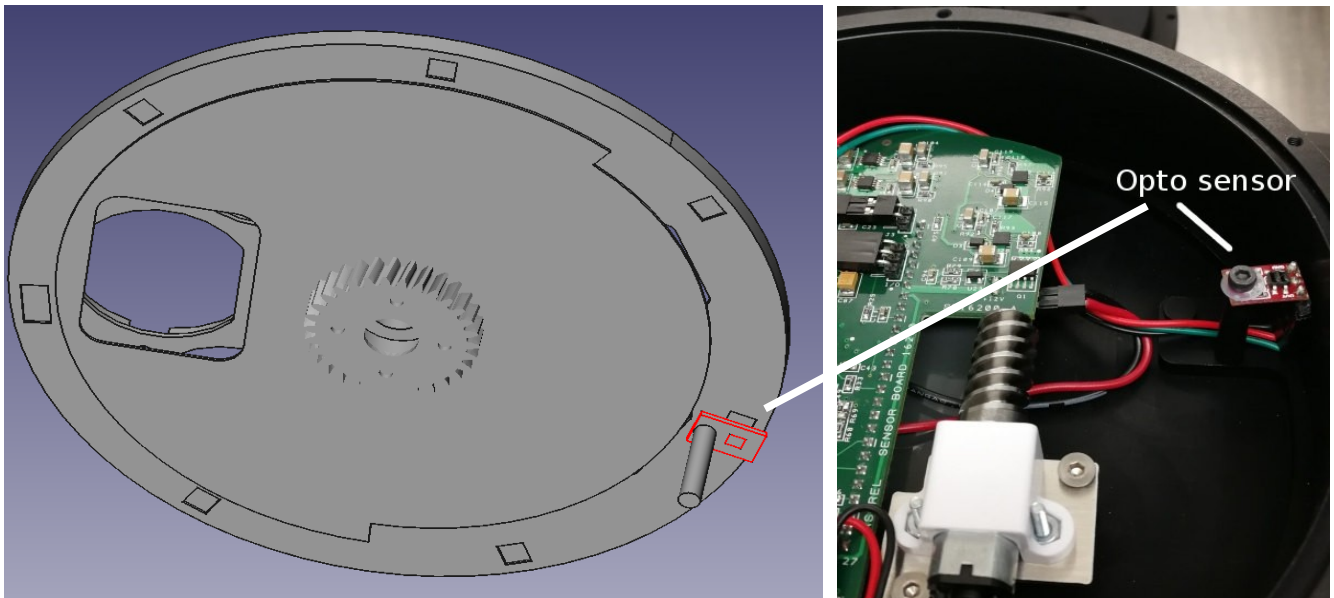


9. insert the o-ring where needed (only for thin filters of 1.1 mm thickness)

10. insert all the filters
11. insert the small 0.5mm washers
12. for the 7 positions wheel, insert the filters mask taking care that it stays flat and doesn't bend
13. insert the correct number of filter washers depending on the filter's thickness and fasten the related screws.

**WARNING:** Always check that the washers and the head of the screw, when the wheel is mounted, don't hit the camera top: it may lock and possibly break the filter wheel motor. Moreover, pay attention that also the bottom of the screws doesn't exit from the wheel thickness protruding outside of the wheel: the CCD sensor is very close to the wheel so anything protruding could hit it, while with the 7F shuttered wheel, a protruding screw bottom could lock the shutter mechanism

14. If needed, put back the spring balls in their holes
15. mount the wheel on the camera top. For 7F shuttered wheel, pay attention that the opto sensor shall be in the gap on the external border of the shutter, like in the picture below:



16. tighten the central screw
17. put the o-ring on its site on the camera body
18. put the top on the camera body
19. slightly fasten the six screws that fix the top on body
20. make the vacuum inside the camera using the vacuum pump and close the valve

21. complete fastening the six 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).