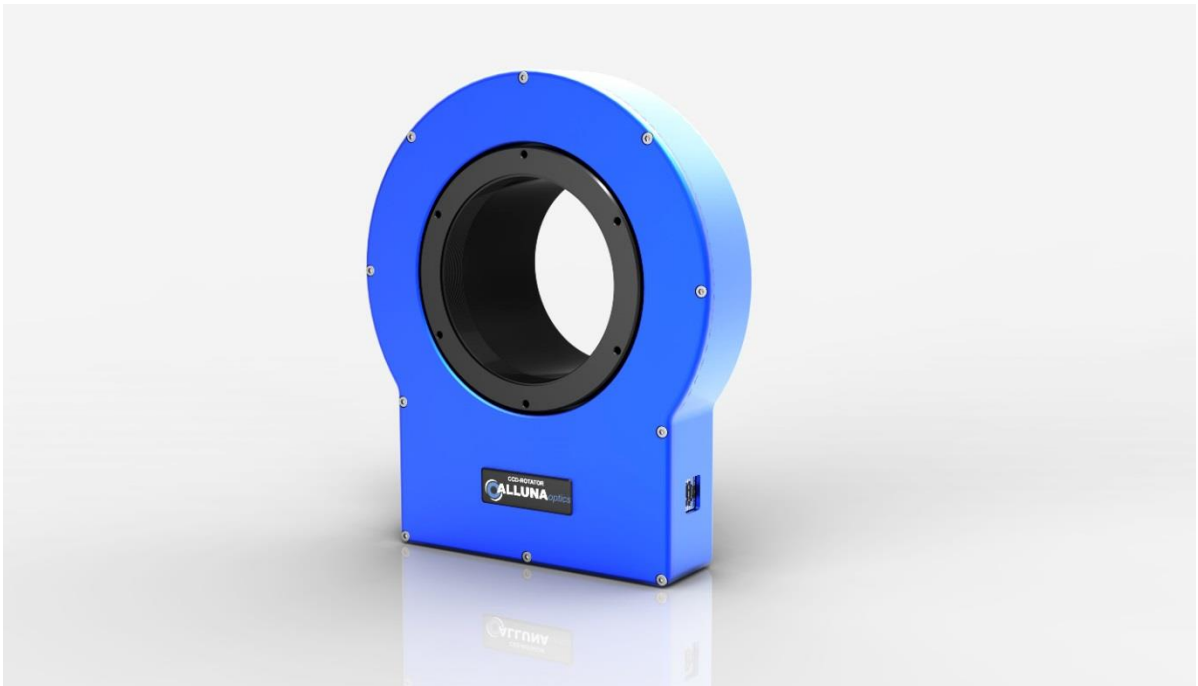




# Instructions Manual 4-inch Instrument Rotator

English (updated December 2015)



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Dear customer,

Thank you for purchasing this Alluna Optics product. We use cutting-edge technology and top-quality components to guarantee "Made in Germany" quality.

With its internal aperture diameter of 4 in (100 mm), the Alluna Instrument Rotator is used to rotate and position the photographic equipment to which it is connected without causing any vignetting of the optical path. The Instrument Rotator is tightly bolted to the telescope and is extremely stable. There is no distortion, even with heavy camera systems – everything is rock-solid and exactly aligned with the optical axis, and nothing can wobble.

Please note that this Instrument Rotator can only be used with Alluna RC telescopes manufactured in or after August 2015. A TCS-2 telescope control system is required for operation.

The Rotator is capable of turning through more than 360°. For this reason, please take personal care that the cables of the equipment you attach do not twist or tangle in a way that could cause damage.

The technical specifications, illustrations and dimensions in these instructions are provided without warranty of any kind and cannot form the basis of any claim. We reserve the right to make improvements without altering these instructions.



## Case contents



1. 4-inch Instrument Rotator
2. Carry case
3. Long-handle Allen key
4. Connector cable for TCS-2 control system
5. Instructions manual

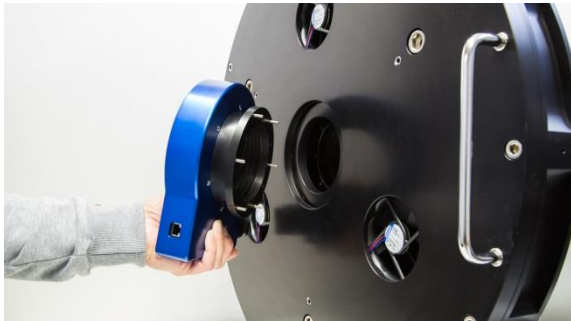
## Fitting the Rotator to the telescope



The Instrument Rotator is bolted securely to the telescope.

To achieve this, the existing M100x1 attachment flange on the telescope must be removed by unscrewing the six Allen screws.

Note: positioning the telescope horizontally will make this task easier.



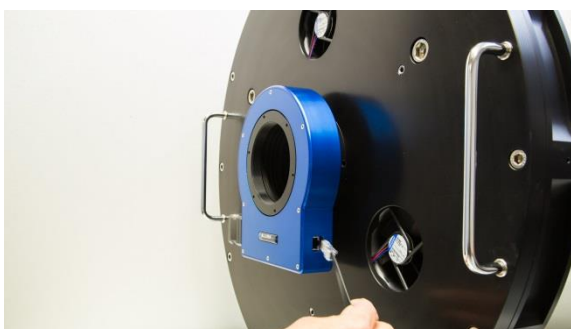
Use the same Allen screws to mount the Instrument Rotator on the flange on the rear side of the telescope. The flange surfaces should be free of dust and dirt.

Note: You will find it helpful to first site all six Allen screws in the apertures on the Rotator flange.



Now bolt the Rotator to the rear plate of the telescope by tightening all six Allen screws.

Note: there is very little clearance between the Rotator housing and the flange. For this reason, please use the short end of the enclosed long-handle Allen key.



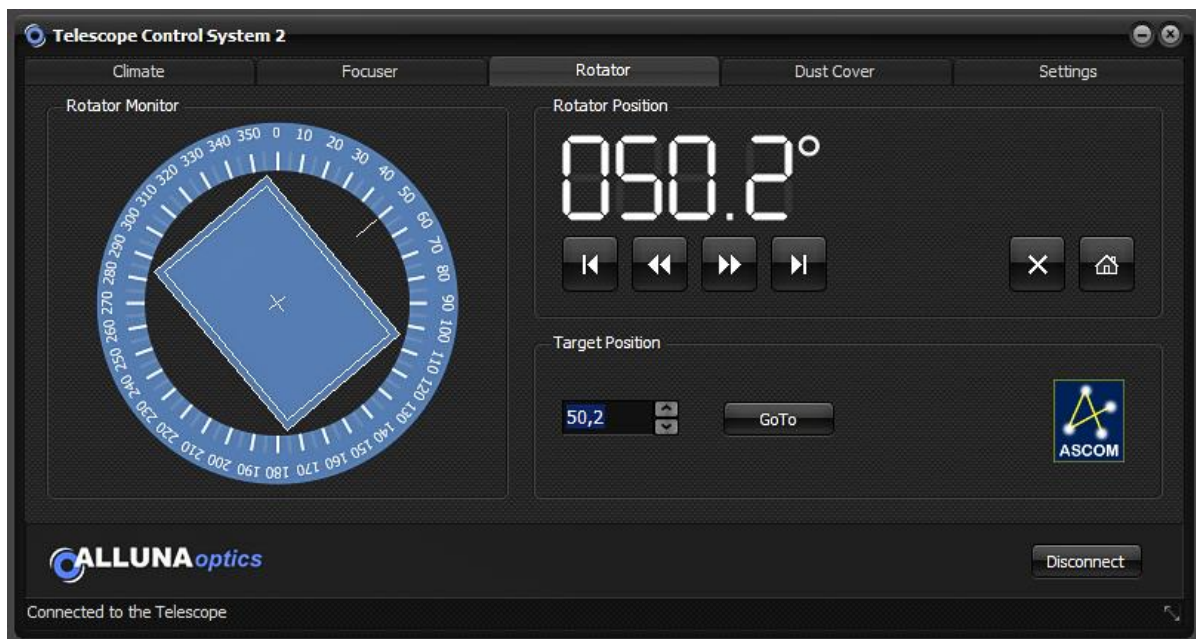
When all the Allen screws are tight, connect the Instrument Rotator to the TCS2 control unit using the RJ-12 connector cable included in the case contents.

## Initial operation

The Instrument Rotator can be used with the TCS2 control unit as soon as it is connected.

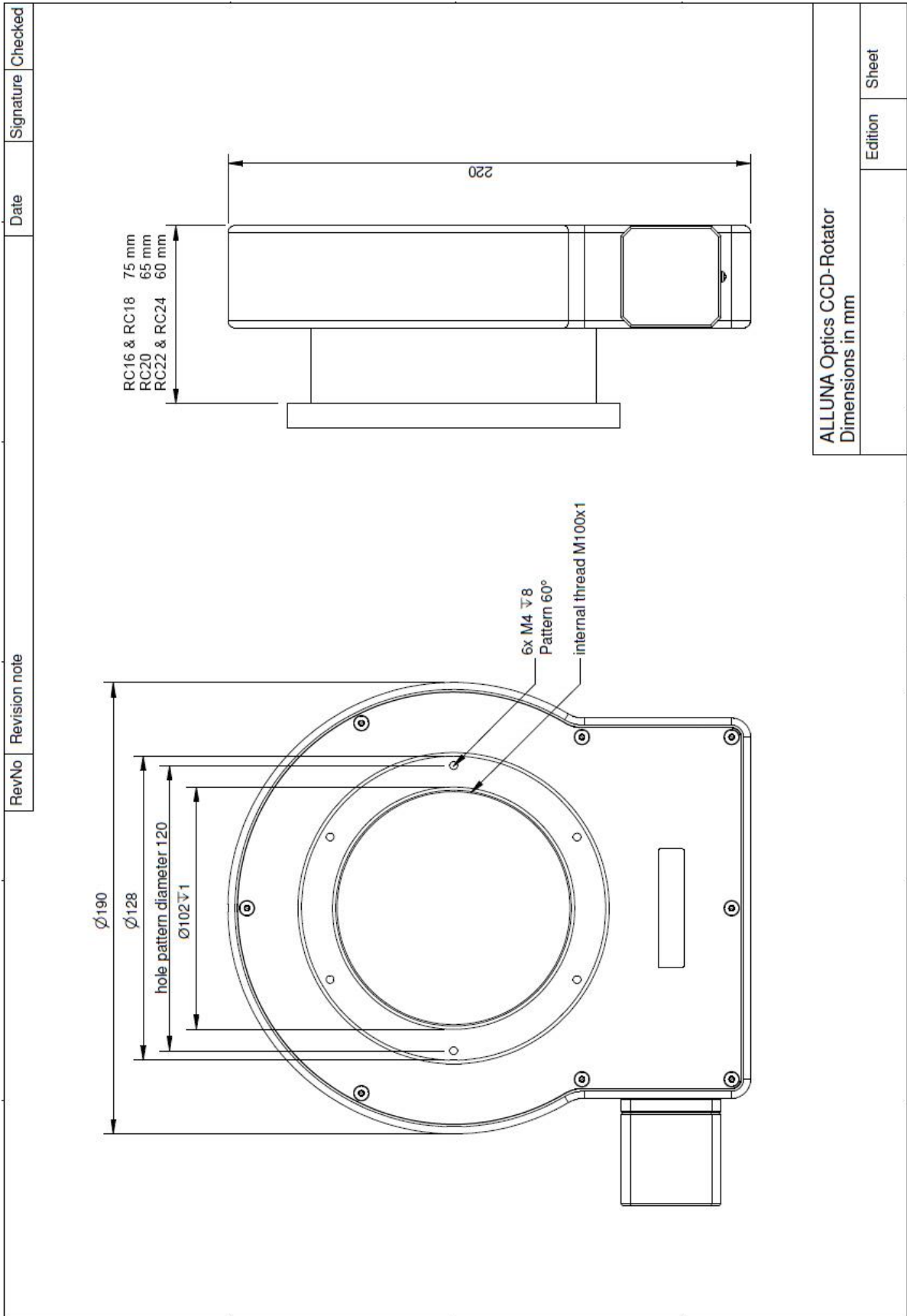
The first step is to carry out a reference test run. To achieve this, please click on the “Home” symbol. The Rotator will then travel to its home position and register this position. This may take several seconds. Please be aware that, shortly after reaching the “Home” position, the motor will switch into micro-step mode for one or two seconds. This will alter the operating noise. This is the correct process and entirely normal procedure. Once this has been completed, the Rotator may be operated using the TCS2 software, the manual control box or the application programming interface (API).

You will find a detailed description of the Rotator’s individual functions in the Telescope Control System 2 instructions manual.



## Technical data

Internal aperture diameter	4 inches/99 mm
Connection Telescope	flange aperture (telescope)
Connection Instrumentside	M100x1 or 120 mm hole flange
Control	via TCS2, manual controller or application programming interface
Weight	7 lb 3 oz (3.3 kg)
Required optical path	RC16, RC18, 75 mm/RC20, RC22 and RC24 65 mm,
Worm wheel	bronze
Worm gear	stainless steel
Speed	4.9°/second
Number of steps per 360 °	standard mode 36.000, micro-step mode 576.000
Positioning accuracy	standard 0.01°
Maximum load	15 kg (depending on leverage)
Operating temperature range	tested from -15° to +50° C



ALLUNA Optics CCD-Rotator  
Dimensions in mm

Edition Sheet