

# FIRST light

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## Celestron 11-inch Rowe-Ackermann Schmidt astrograph

A four-element lens group helps this imaging scope deliver stunning astrophotos

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### VITAL STATS

- **Price** £3,149
- **Optics** Rowe-Ackermann Schmidt design
- **Aperture** 279mm (11 inches)
- **Focal length** 620mm (f/2.22)
- **Focuser** Dual 10:1 Feather Touch
- **Extras** M42 (T thread) and M48 adaptor plates, battery pouch for cooling fan
- **Weight** 19.5kg
- **Supplier** David Hinds
- **www.celestron.uk.com**
- **Tel** 01525 852696

Celestron's Rowe-Ackermann Schmidt astrograph (RASA) is designed specifically to photograph the wonders of deep space. The formal definition of an astrograph is a telescope designed for the sole purpose of astrophotography, and this instrument certainly fits the bill. Dividing its 620mm focal length by its 279mm (11-inch) aperture identifies this as a fast f/2.22 instrument.

The astrograph is moderately heavy, with a single carry handle at the rear of the tube; for mounting, we'd recommend you enlist an extra pair of hands. Where you'd possibly expect an eyepiece holder, there's a 12V MagLev cooling fan protected by a dust filter. Cameras connect to a threaded cylinder on the front, which protrudes through the corrector plate. This is a similar arrangement to the Hyperstar adaptors used on certain Schmidt-Cassegrains, although the RASA is a redesign rather than simply a Hyperstar Schmidt-Cassegrain itself.

The threaded cylinder also houses a four-element lens assembly, which is protected behind an optical window. The window can be replaced by a filter, though the only alternative at the time of writing

### SKY SAYS...

The stars were sharp across the entire field and showed no serious distortion right to the frame corners

seems to be a £619 light pollution filter. On the subject of the corrector plate, it's also worth investing in a portable 12V hair dryer, because large pieces of glass like this are prone to misting up on damp UK nights.

M42 (T thread) and M48 adaptors are provided, both attaching via a screw-on collar. The collar's thread is long and it takes a lot of turns to secure it fully. You also need to be careful not to touch the corrector while doing this. Collimation screws are presented on the four-element lens assembly and slots in the camera adaptor plates give you surprisingly good access to them.

### The ideal camera is...

The best camera to use with this scope would be a CCD with a low circular profile, so that it is completely hidden behind the adaptor plate. However, DSLRs are perfectly okay to use too, and they do not have any significant effect on the resulting image. The use of a mono CCD camera requires filters to produce colour images, but too large a filter wheel will start to block light. One solution would be to use interchangeable slot drawers, several of which can be bought separately. ▶

### A DESIGN THAT MIMICS FILM

Schmidt astrographs were common in the days of film astrophotography, but the film used had to be specially curved in the focal plane of the instrument to maintain sharp stars from corner to corner of the photograph. But the RASA works with the flat digital imaging sensors found in modern cameras, and it is not uncommon to find that some of these now exceed the original dimensions of 35mm film.

Amateur astronomers Dave Rowe and Mark Ackermann, both experts in optics, came up with a telescope design which could emulate the curved film performance of early Schmidt astrographs with flat, digital sensors. It's the four-element, rare-Earth glass lens group that performs the optical magic that makes this telescope such a marvel. After passing through the Schmidt corrector plate, reflecting off the large primary mirror and passing through the four-element lens group, the resulting image is flat and distortion free to each corner of the imaging frame. Stars remain pin sharp and the superb resolution of this large aperture instrument is maintained throughout the photograph.



Four-element lens group

### FAST LIGHT BUCKET

The generous 11-inch aperture and fast f/2.22 focal ratio delivers a bright image. Consequently, deep images of delicate celestial objects can be achieved in relatively short exposures. In addition, the 11-inch aperture provides a 0.5-arcsecond resolution. This compares extremely favourably with the 1.36-arcsecond resolution provided by a 4-inch apochromatic refractor, for example.



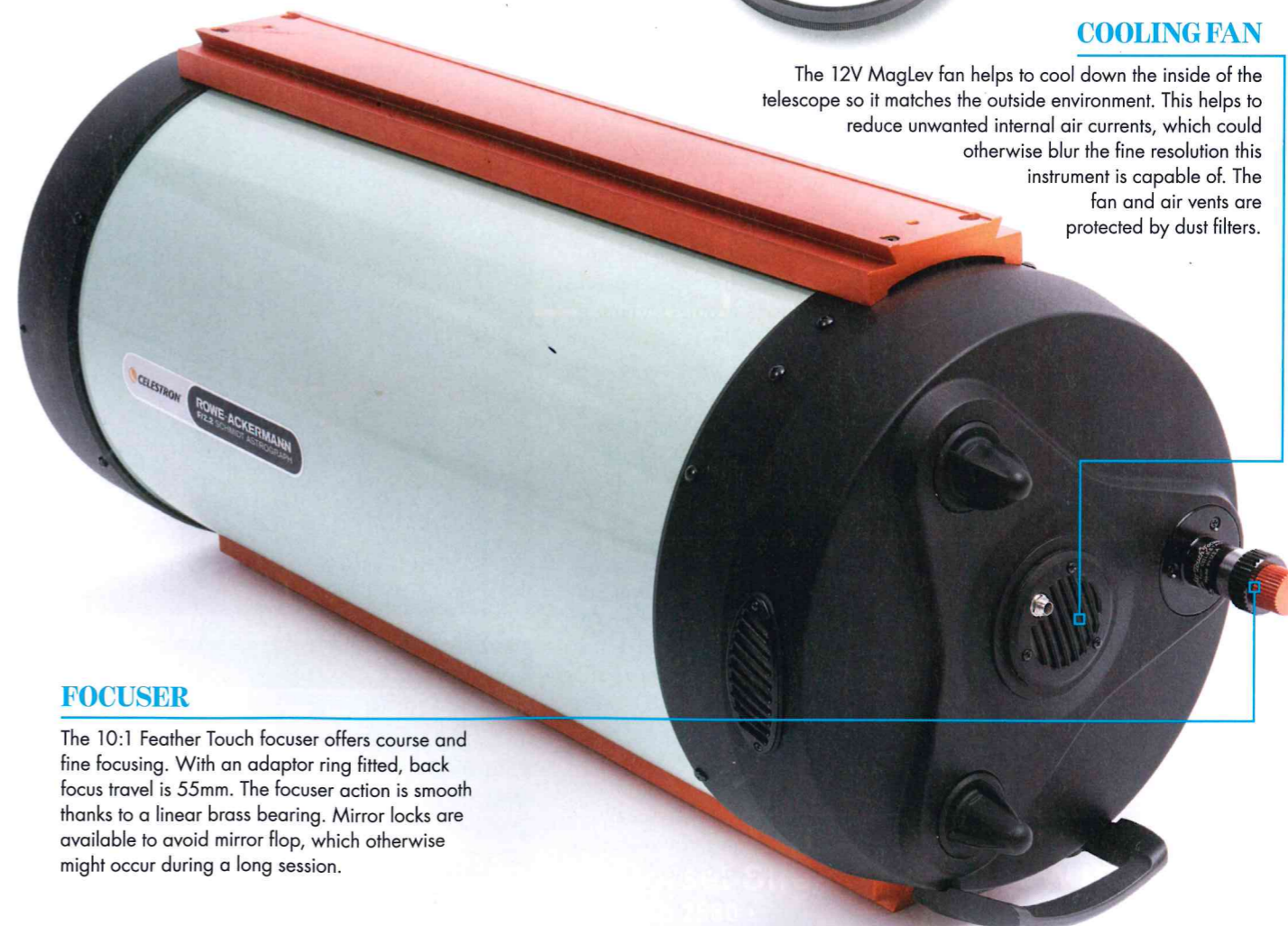
### ADAPTOR PLATES AND FITTING COLLAR

Cameras are attached to the front of the telescope via an adaptor plate. M42 (T thread) and M48 plates are included as standard, and these are secured in the centre of the corrector by a screw-on collar. Unscrewing the collar slightly allows you to rotate the camera for better framing.



### COOLING FAN

The 12V MagLev fan helps to cool down the inside of the telescope so it matches the outside environment. This helps to reduce unwanted internal air currents, which could otherwise blur the fine resolution this instrument is capable of. The fan and air vents are protected by dust filters.



### FOCUSER

The 10:1 Feather Touch focuser offers course and fine focusing. With an adaptor ring fitted, back focus travel is 55mm. The focuser action is smooth thanks to a linear brass bearing. Mirror locks are available to avoid mirror flop, which otherwise might occur during a long session.