My astroimaging equipment

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Currently I have three telescopes:

- William Optics Zenithstar 81

- Skywatcher Esprit 120

- Skywatcher Skymax 127

Tripod and mount

- Skywatcher EQ6-R Pro
- German equatorial with goto hand controller

<u>Pros</u>

Solid mount and tripod
Takes up to 20 kg payload
Capable of excellent tracking
No rotation of images

<u>Cons</u>

Heavy (17.3 kg + 7.5 kg + 2x5kg counterweights)
Portable (when broken down), but only just
Relatively expensive ($2700+)

WO Zenithstar rig

- William Optics Zenithstar 81
- Doublet refractor
- 81mm aperture, 559 mm focal length, f6.9
- 0.8 Flattener/reducer > FL 447mm

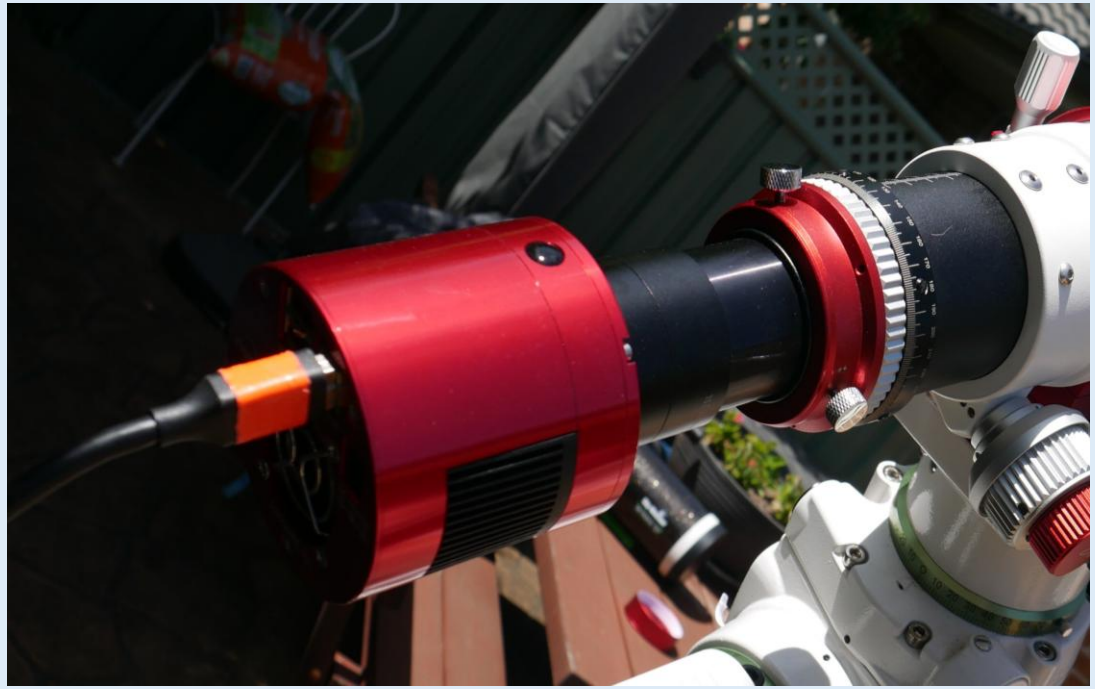
<u>Pros</u>

Solid build quality
Portable, easy to carry
In built rotator, dew shield and Bahtinov mask
Wider field of view
Fast (f5.5) when 0.8 reducer is used

<u>Cons</u>

Relatively expensive ($3100)
Doublet – chromatic aberration at edges of FOV
Relatively small aperture

WO Zenithstar rig



Camera
ASI 294MC Pro
Colour
Cooled

Pros
Seems to be a popular choice – maybe hits the sweet spot for price and features ($1770)

Cons
Suffers from amp glow
Doesn’t have a sensor anti-dew heater

WO Zenithstar rig

Peripherals

0.8 flattener/reducer
(pros: wider FOV, faster)

1.25” filter wheel

Guide scope and
guide camera

ASI Air

ASI Air

Pros

Easy to use

All-in-one solution – autoguiding, polar alignment, sky atlas, scheduling, image plans, mosaics

Extremely portable

Reduces the number of cables

Wireless control via phone or tablet

In built power management and outlets for other peripherals

An ideal way to start astrophotography

Cons

Closed to the ZWO system (except mounts)

Wifi can be weak or unstable (but the unit still continues to operate)

Cannot set up a repeated sequence for multi filter plans, eg R-G-B-R-G-B etc

No formal support for use on a laptop (but there are workarounds)

Skywatcher Esprit 120 rig

Triplet refractor
- 120mm aperture, FL 840mm (f7)
- Field flattener (no reduction)
- In-built rotator and dew shield

<u>Pros</u>
Solid build quality
Excellent image quality – no chromatic aberration

<u>Cons</u>
Heavy (10kg)
Requires cool down time for best performance
Relatively narrow FOV
Expensive ($5700)

Skywatcher Esprit 120 rig

Camera

ZWO ASI 2600MM Pro
Monochrome camera
Cooled

Pros

Better sensitivity than colour camera
Zero amp glow
Large APS-C sensor
Built in sensor anti-dew heater

Cons

Expensive ($3550+)
Large file size (51 MB)

Skywatcher Esprit 120 rig

Peripherals

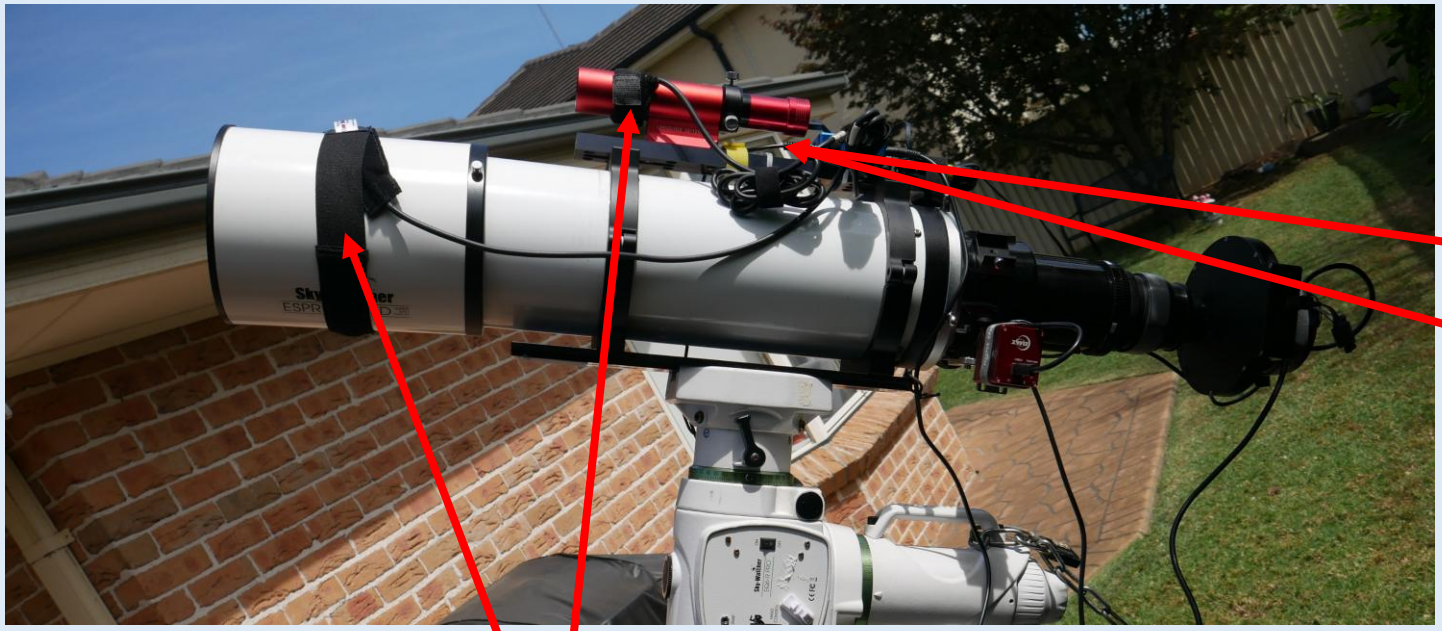
Guide scope and guide camera

ZWO 7-position filter wheel
R,G,B, Lum, Ha, O3, S2 filters

ZWO Autofocusser

Skywatcher Esprit 120 rig

Peripherals – dew control



Pegasus Pocket Powerbox Micro with humidity and temp. sensor

Dew heaters on main scope and guide scope – connected to Powerbox for optimal power usage

Skywatcher Skymax 127 rig

Maksukov Cassegrain
127mm aperture, 1500mm FL, f11.8
Purchased specifically for planetary imaging

<u>Pros</u>

Compact, light, portable
Long FL ideal for planetary and lunar imaging
Requires only infrequent collimation
No chromatic aberration

<u>Cons</u>

Closed system requires time to cool down
Small FOV

Skywatcher Skymax 127 rig

Camera

ASI224MC; uncooled

Pros

High frame rate, ideal for planetary imaging

Low price point

Cons

Small sensor size

Requires IR-cut filter for correct colours

Peripheral

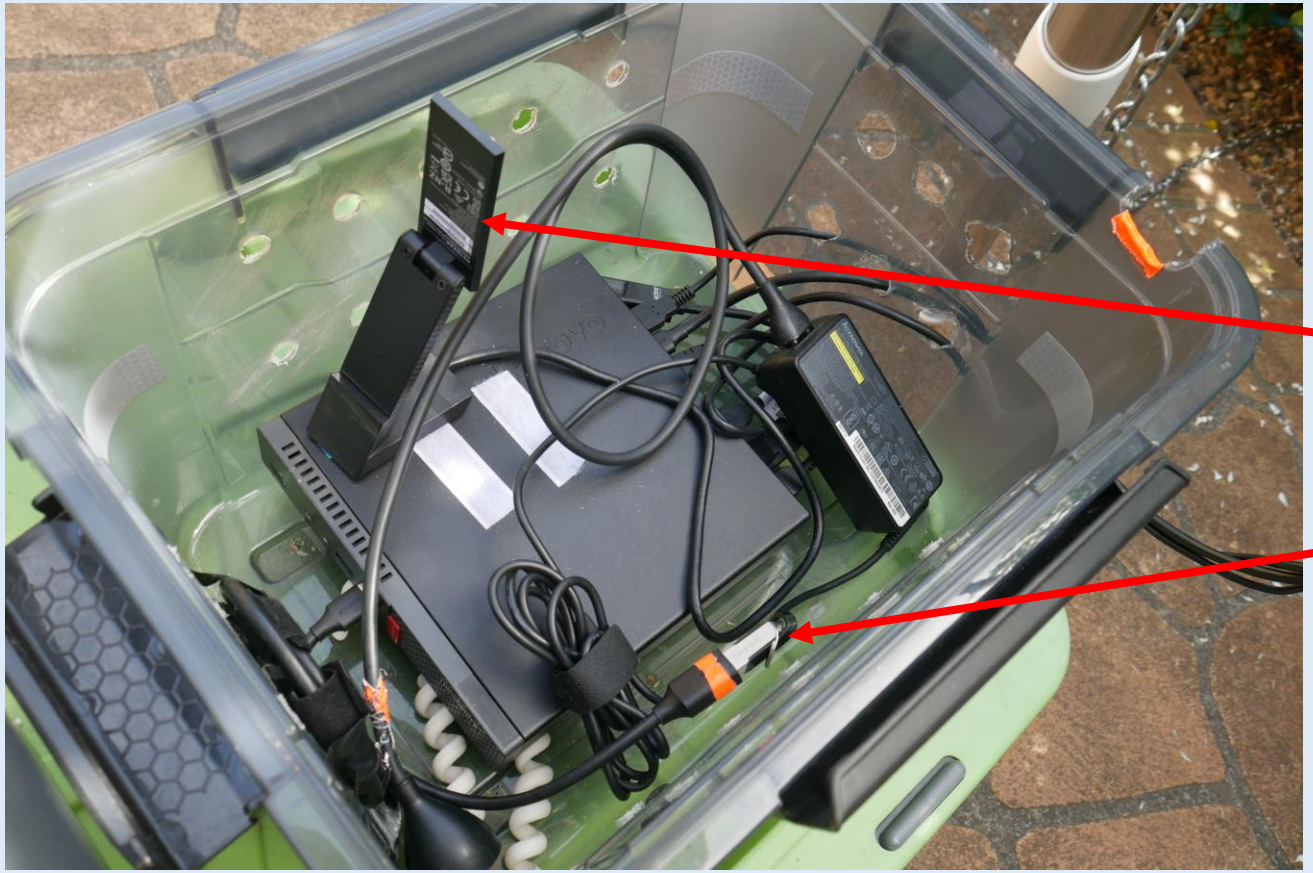
Explore Scientific 2x focal extender

Other peripherals

<u>Bluetti EB70 battery</u>

- LiFePo battery
- 1000W, 716 Wh
- 2500+ cycles to 80% of original capacity
- Multiple outlets
- Can power the Skywatcher 120 rig and mount all night (but not including the mini PC)

Other peripherals



Mini PC

- Refurbished miniPC - Lenovo Thinkcentre M710q - Runs NINA (deepsky) and Sharpcap (planetary)
- USB modem connects to home network for remote operation
- Data saved onto 128GB thumb drive
- Stored in weatherproof box