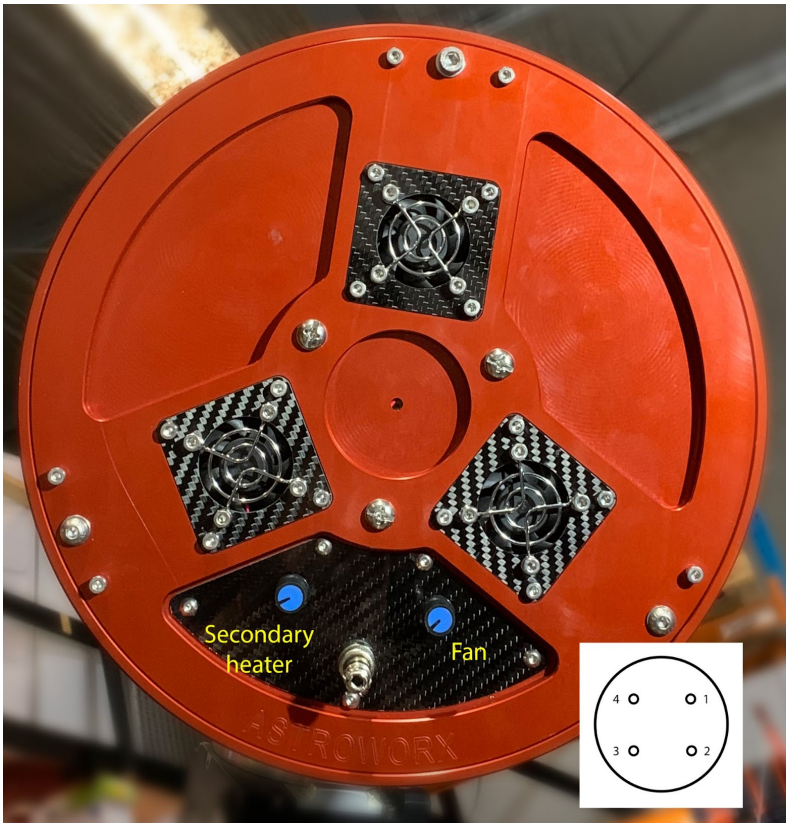
# Astroworx back plate controls

The back plate of standard Astroworx Newtonian telescopes provides the controls for the primary mirror fans and the secondary heater. A heater is also provided in the primary mirror cell.

The controls are laid out as in the following photograph.




## Secondary mirror heater and primary mirror fans

The standard Astroworx Newtonian is provided with a heater for the secondary mirror. On a cold or humid night, dew may form on the secondary mirror, ruining your images. When the mirror is heated to slightly above the temperature of the ambient air, it is less likely that dew will form on the mirror.

To turn the secondary heater up or down, use the control knob on the left. It is unlikely that the heater will need to be turned up to more than about half way.

The standard Astroworx telescope is also supplied with fans that direct air onto the back of the primary mirror. During the night, the ambient temperature changes, and the aim of the fans is to speed up the process of equalising the temperatures of the mirror and the surrounding air. A temperature differential can affect images due to slight distortion of the mirror and a column of warm air rising inside the tube. With the fans running, the

temperature of the mirror will equalise faster, decreasing the difference in mirror and air temperatures.

We recommend that while you are setting up your equipment in the evening, you turn the fan up to a high setting, and then turn it down to a low speed when you begin imaging. Ideally, this will help equalise the mirror to near ambient temperature before imaging begins.

To control the primary cooling fan, use the control knob on the right. If you listen carefully, you will hear the fan changing speed.

## Primary mirror heater

The Astroworx astrograph is supplied with a heater on the primary mirror. This heater is to prevent dew buildup on the primary after imaging is complete.

The strategy for the primary heater is that it is turned on at the end of an imaging session. If the primary mirror fans have been managed correctly, the mirror should be a fraction above ambient temperature by the end of the imaging session. Heating the mirror gently after this will make the formation of dew on the mirror surface less likely. Allowing dew to form on your mirror at any time draws surface dust into clumps, which may start to become visible on your images. Note that the primary mirror heater should not be turned on during the imaging session.

If it is installed, the primary mirror heater uses pins 3 and 4 on the GX12 connector. Polarity of these pins is unimportant. The heater requires 12-16V and may be turned on and off using a relay such as a Dragonfly.

## Electrical input

A 4-pin GX12 socket is provided on the back plate. This provides power for the fan and heater as well as a primary mirror heater (if installed).

The plug has four pins which are set out in the photo inset. They are connected as follows:

1. Negative for fan and secondary heater
2. Positive for fan and secondary heater

A matching four-pin GX12 plug is provided, and the user is expected to connect their own power supplies.

The orientation notch for the plug is between pins 1 and 4. Note that the socket may not be in the same orientation as in the photo.