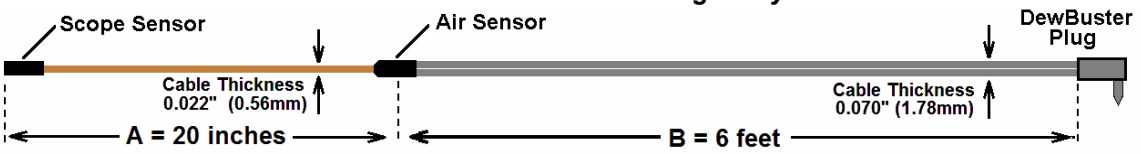
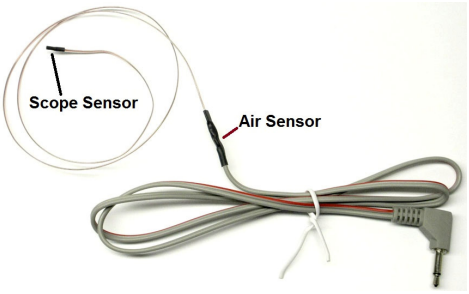
Optional Newtonian Temperature Sensor

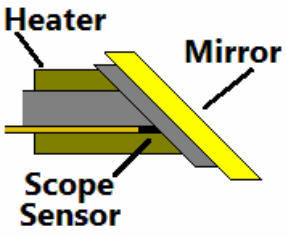
NOTE: Never heat the primary mirror because it will distort the perfect figure resulting in blurred images. A cooling fan on the back of the mirror will keep it at ambient air temperature and prevent dew. If you have an open tube Newtonian it must have a shroud to reduce heat loss to the night sky.

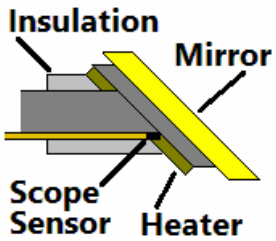


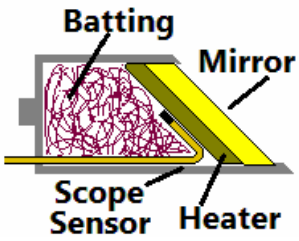
The Air Sensor and Scope Sensors are interconnected by a 20 inch long wire (dimension A). The wire has a very small diameter to allow routing it along the spider vane with minimal light obstruction. It may be painted or taped over if desired. If the wire is longer than needed, do not attempt to shorten it; simply bundle the extra near the Air Sensor so that it will not block the optical path. The 6-foot long gray wire between the Air Sensor and DewBuster plug (dimension B) is **copper wire so it may be cut and spliced if desired** (soldering suggested) or you may add a connector at the tube wall if you would like. If you e-mail me when ordering I can customize both A and B dimensions to suit your needs.

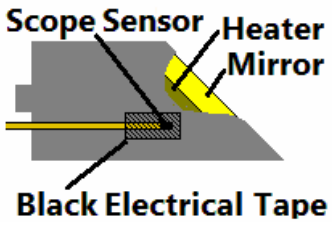


The Temperature Sensor combines both air and telescope sensors into a single cable. An SCT/Refractor version is also available for use with heater strips (clips onto and held in place by heater strip). The Newtonian version (shown on left) does not have a clip so the user must fasten it in place by other means as described below. The **Scope Sensor** measures the mirror temperature and should be positioned as close to the mirror as possible. The **Air Sensor** must be exposed to the outside air and should not directly touch any part of the telescope (leave a small air space between the Air Sensor and any part of the telescope). Only the sensors (black bands) measure temperature, the small diameter brown wire that connects them may be taped-to or wrapped around any part of the telescope without affecting temperature measurement.

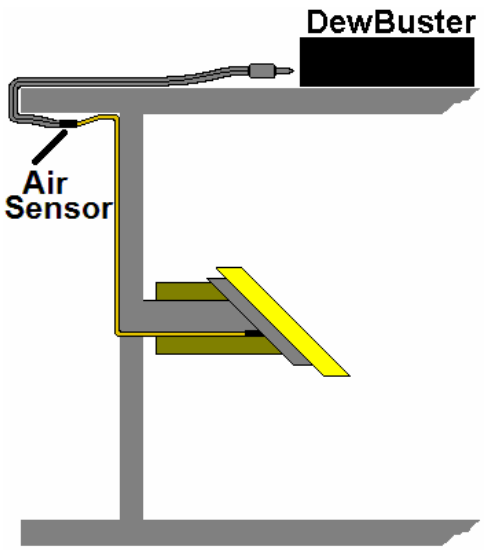








Shown above are examples of Scope Sensor placement on Newtonian secondary mirrors. Ideally the sensor would be glued (Silicone RTV works well) or taped (black electrical tape works well) directly to the back of the mirror, however this is not always practical. The sensor can be placed on the stalk which will be close to the mirror temperature since they are glued together. The 1st diagram shows a wrap-around heater with the sensor placed inside and as close to the mirror as possible. The 2nd diagram shows a flat heater glued to the mirror mount with the sensor placed as close to the heater as possible and wrapped with insulation to help retain heat. The 3rd diagram shows a cell-mounted secondary mirror with heater glued to the mirror. The sensor is placed inside and as close to the heater as possible. The batting inside of the mirror cell acts as an insulator so the sensor temperature will be very close to the mirror/heater temperature. The 4th diagram is the same mirror cell as the 3rd, but the user did not wish to disassemble the mirror holder so they taped the sensor to the outside of the mirror cell with black electrical tape. This method will not control mirror temperature as precisely as the 3rd diagram, but it will work. Although the diagrams show Newtonians, the principles also apply to other types of secondary mirror holders.



After attaching the Scope Sensor, route the small diameter wire along the spider vane and locate the Air Sensor outside of the optical path. Typically the Air Sensor is located inside the tube to shield it from your body heat. Leave a small air gap between the sensor and any part of the telescope so that the sensor can accurately measure air temperature. The diagram at right shows an example of how the cable can be routed.