



# Model 2 Straight-vane Spider Anti-Dew Heater Installation & Use

Rev 2/21

**Important!** If you're installing a heated Protostar spider into a metal tube, you must use the supplied insulation bushings shown below in Figure 1. *Failure to do this will lead to a short circuit and possible damage.*

Installing a heated spider into a non-conductive tube or cage (cardboard, wood, etc) **does not** require the bushings.

## General Information

Having the anti-dew heater built into the secondary support eliminates the need to add wiring along the spider vanes, or attach a heater to the secondary mirror. The heated mirror holder is designed to uniformly warm the optic. The red LED on the face of the spider hub indicates when the heater is active.

The spider is internally fuse protected. While this gives electrical short protection within the spider itself, your own wiring to the spider should also be fuse protected (most commercial battery power supplies are).

## Installation

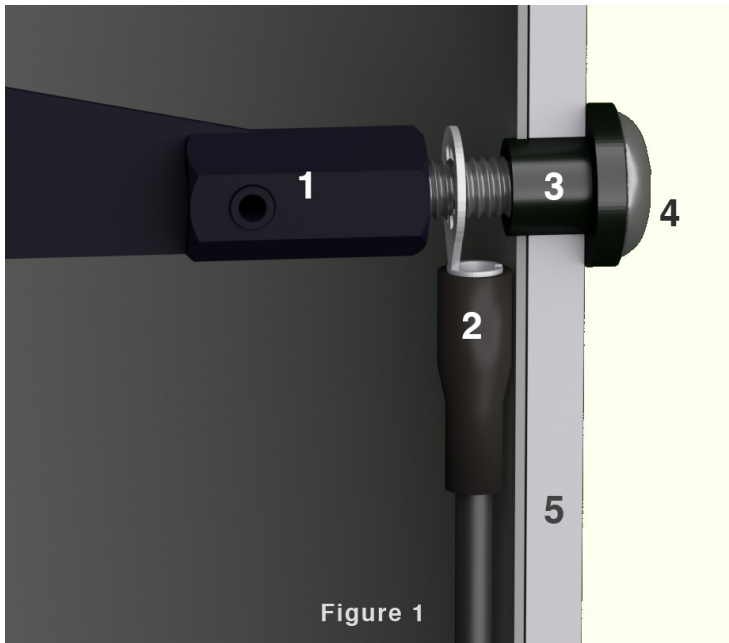


Figure 1

Figure 1 shows the recommended scheme for connecting power when installing into a metal tube, and illustrates how to use the insulation bushing (item 3). The bushing is not needed when installing into a non-conducting tube or cage material (wood, cardboard, fiberglass, plastic, etc.).

The items shown in the cut-away view are:

1. spider vane lug
2. ring lug (supplied in kit)
3. isolator bushing (supplied in kit)
4. vane mounting screw
5. tube wall (cut-away view)

The positive vane (+) has a small red paint dot near the tip of the vane, and the negative vane (-) has a white dot. If using a ring lug as shown, orient the lug with the ring face farthest from the tube wall.

If installing into a metal telescope tube, use the supplied bushings (item 3) supplied in the kit. The proper drill size for the bushing is 7/32". *Do not drill all of the spider mounting holes this size, as the non-conducting vanes do not need bushings and should be drilled with a smaller #7 drill size.*

## Installing the Holder Into the Spider

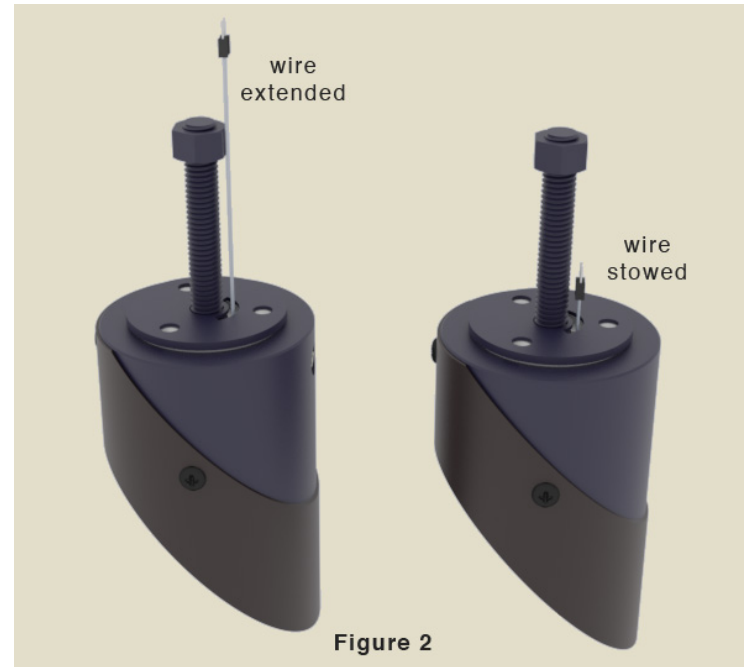


Figure 2

Fully extend the mirror holder's heater wire, and connect the micro-plug to the female plug on the spider (see Figure 2). The plug's polarity is not important. Push the wire into the holder body as you join the spider and holder.

## Using the Anti-Dew Heater In the Field

If conditions at your observing site indicate a possibility of dew, it's best to use the heater in a "preventative mode". Power the heater with 4-6 Volts DC (VDC) throughout the observing session. It requires a very small amount of power to prevent dew from forming.

If dew surprises you and forms, applying full voltage (12-13 VDC) will clear the dew within about 15 minutes without having to wipe the secondary mirror's optical surface. It's not recommended to leave the heater at full power during the observing session, as it can create subtle thermal currents in the optical path.