

Setup of the QHY camera system and telescope

This first picture shows what you already have that you will continue to use. The telescope is here with the Telrad installed. The telescope box with the hand controller is shown.



The grey cable you see here is an extension cable that was loose in the new box of stuff. The white block connects the hand controller to the extension cable and the other end goes in the port on the base of the telescope that is labeled "hand controller". I find it nice to have the controller next to the telescope especially for centering and guiding.

Here you see the power hookup to the telescope. This is going to be a tiny bit confusing. You have been using the short cable with a right-angle connector to plug into the telescope and that will continue. There is a new double-barrel cable in the black box that I sent. This will plug into the battery pack and into the old short cable. As we've been doing, you see this cable tied off to the handle. With the battery in this rough location you should have plenty of length for the power cable.

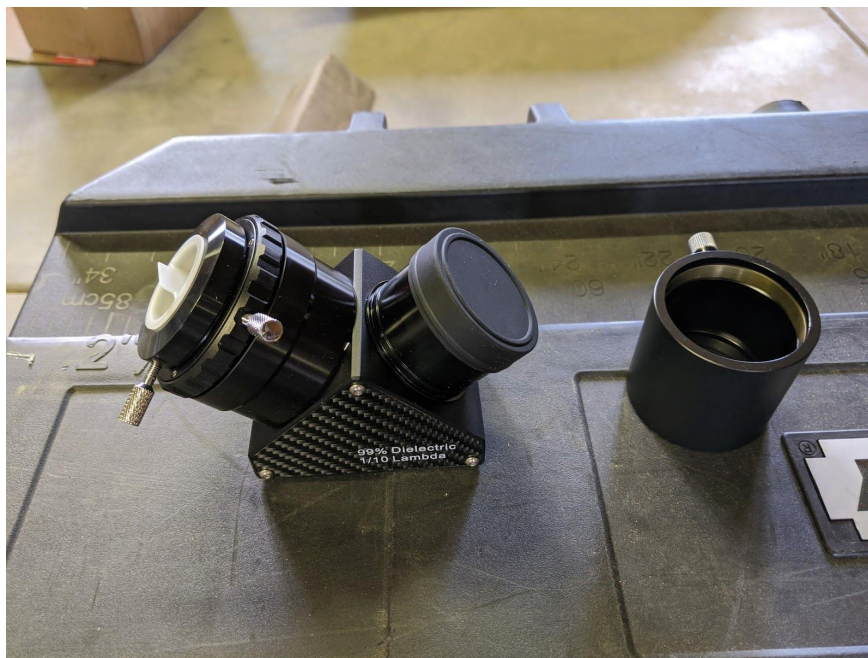


The top of the battery has a flexible rubbery lid that covers the controls. Warning: you can't flip this all the way back without breaking the attachments. Also, there's no way to leave it open. Once you let go the lid flops back down loosely covering the controls. Note that there are USB ports here as well but you shouldn't use them. The power is for the telescope and camera, not extra accessories like your phone. Unlike your old battery, this one has an on/off switch. If you don't use it for a while it will automatically turn itself off. So, if you connect to the telescope and turn the battery on but don't turn on the telescope, it could power itself off while you are doing other things.

There are two buttons here. One labeled "Power/Status" on the left. The one on the right

is labeled “Red/White”. The one on the right turns on the built in lights. A quick press turns on the red light on low (though it’s not that faint). Press again and the red light gets brighter. A third press and the red light is turned off. A long press on the button turns on the white light. Quick presses here toggle between low and high. To turn off the white light, you have to do another long press. I recommend sparing use of this before the event. Save your power for taking data. When packing up this may prove to be useful.

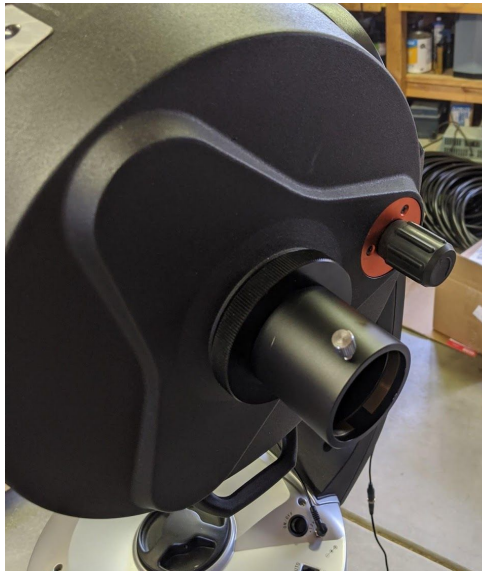
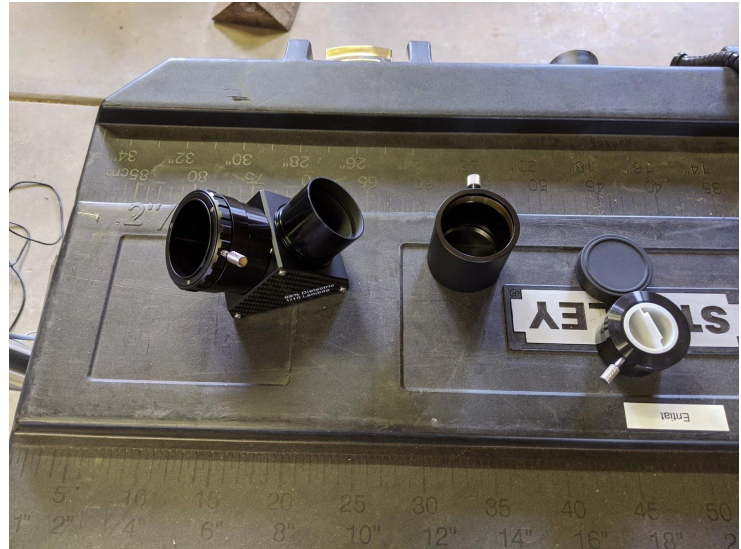
The left button controls the power. If all lights are off, the unit is not active and does not provide any power to the ports. Press the button and it shows status information for a few seconds and then leaves the battery on. The two lights shown here mean it’s on. Right after pressing the button, the “battery indicator” lights come on. When all four are lit it means the battery is full. Fewer lights means less power. While it’s on, a quick press will show the battery status again. To turn off, do a long press on the power button. You see here the status light from the camera cooler power cord is lit because the battery is on.



Here is the new 2” diagonal on the left and the new 2” visual back. These are needed to mount the camera and its focal reducer. The diagonal should be stored as you see here. There is a pliable cover on one side. There is a white cover and an adapter for 1¼” eyepieces that serve to cover and protect the

mirror inside. You really want to keep this clean.

Here you see the diagonal with the covers removed (sitting to the right) and ready to be put on the telescope.



The visual back will thread directly onto the back of the telescope (after removing the cover on the back of the telescope). You want this to be tightened reasonably snug but it's not important to make it super tight.

Next to go on is the diagonal. The smooth end will slide into the visual back. Note that I have the telescope pointed mostly horizontal with the telrad on top. As we did for the old system, the diagonal should end up pointing up with the telescope in this orientation. The screw knob on the visual back will nicely clamp down on the diagonal. It doesn't take that much clamping with the screw before it won't rotate. Some of you may have a diagonal that integrates the visual back with the diagonal and it will screw directly onto the telescope.



The next part will be to insert the camera into the diagonal on the exposed end you see here. Unlike the old camera, this setup cannot slide in so far that it will hit the mirror.



The camera assembly has a focal reducer already attached. I recommend leaving it on at all times and there room for it to be stored this way in the camera storage box that you've already seen. There is a ledge on the focal reducer that is about 25 mm back from the front. I like to align this ledge with the outer edge of the diagonal and this is where it should be clamped into place. If you push it in too far you may not be able to clamp it in place.

Note, however, that there is a standard orientation shown here. On the back of the camera there are three ports in a line. The blue one on the left is the USB connection, the center round one is for the power from the battery, and the gold one on the right is for the GPS antenna. Rotate the camera so that the GPS antenna is on the right as shown. This will make it easier to use the finding charts we provide.

Next we connect the power to the camera. You will use the long cord with a barrel on one end and the lighter plug on the other that you used to use on the telescope. This goes into the camera after tying off to the handle like you are used to doing.

IMPORTANT: if the battery is not on, turn it on now. With the battery on and this wire connected, you will hear a fan running inside the camera. It is very important that you hear this fan. Without it, the camera will heat up and the data will be much worse. Left to run this way long enough you might



even damage the camera. Some of the cameras have a looser socket and the power connection may be somewhat flaky. The short cable that comes in the camera bin can be used for more solid connection in such a case. If you don't absolutely need the short cable, don't use it.



The final bit of cabling is the USB cable, seen here connected at the camera but waiting for the computer on the desk (telescope crate). Also connected now is the USB antenna. The connector on the end screws onto the back of the camera. This should screw on very easily. Don't force it or you could damage the connector or camera. Tighten this snugly and unfold the legs of the tripod on the antenna and set it on the desk. Once you get the hang of this you may find it easier to connect all the wires before putting the camera on so you don't stress the diagonal. All that is left is to connect the computer and turn it on.

Simple. Just make sure to plug in the USB to the left side of the laptop.



Everything is powered on here, including the telescope. You see the UT date and time and a nice picture. Note that you should leave the laptop configured to use and show UT time.



Hit "Enter". This will trigger the login prompt with the default user "recon" and a password box. The password is "tnorecon".



At this point you are at the working desktop in Windows. For instructions on startup and use of the data collection program, SharpCap, please view the training video to walk you through a simple session.

