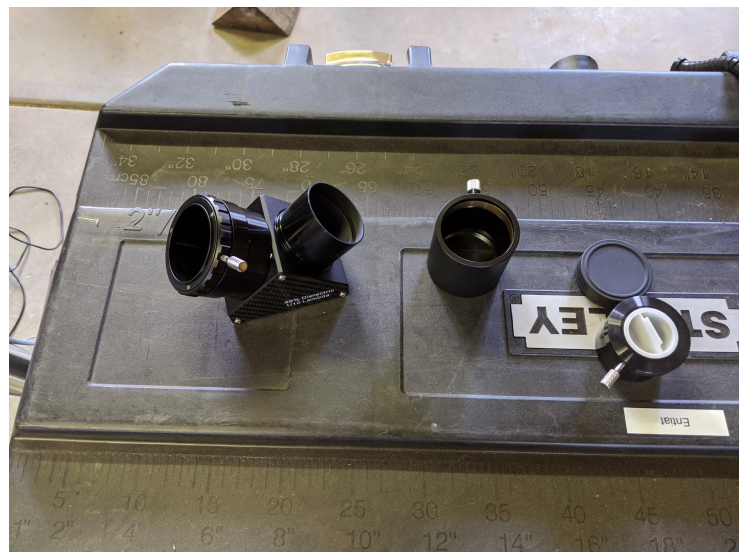


Setup of the telescope and QHY camera system shipped on 20210428

This first picture to right shows what you already have that you will continue to use. The telescope is here with the Telrad mounted and the hand paddle connected to the CPC-1100 and placed in its cradle on the left side of the fork arm. Also shown is your new 2" diagonal and QHY camera (with focal reducer) attached to the back end of the telescope.



Here you see the 2" diagonal (left) before it is mounted to the telescope along with a black diagonal cover and the 1-1/4" adapter removed (to the right). Ignore the visual back in the middle since the diagonal you were shipped does not include or need this adaptor. You can use the 1-1/4" adapter for eyepiece viewing. When storing the diagonal in its brown box, you should be sure to re-insert the 1-1/4" adaptor (with the white plastic cover) and place the black cover on the other end of the diagonal. Closing off both ends of the diagonal while storing is important for keeping the diagonal mirror clean.



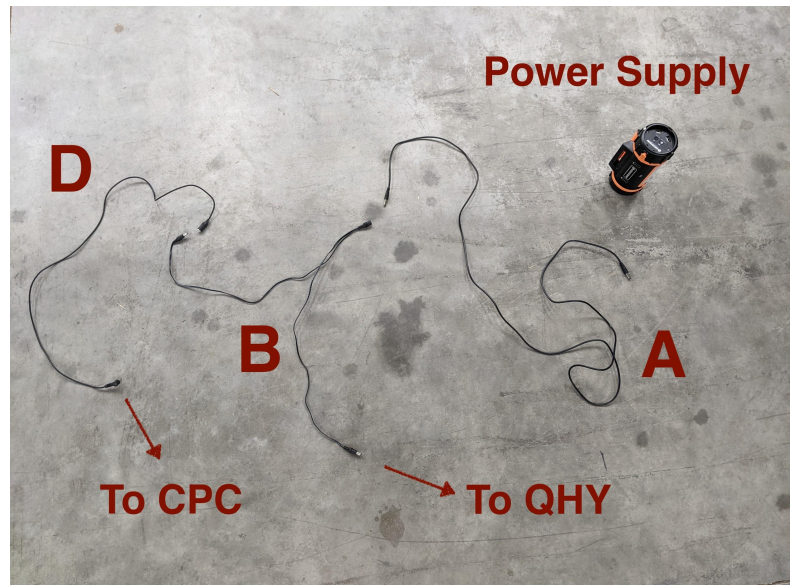
This next image shows the 2" diagonal screwed into the optical tube of the telescope and the QHY inserted into the diagonal. Unlike the old camera, this setup cannot slide in so far that the camera will hit the mirror.



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 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.

The image to the right shows your new power supply and the power cable setup. The cable to the right (Cable A) is a long, straight-male-barrel to straight-male-barrel cable. The middle cable (Cable B) is a y-splitter cable with a straight-female-barrel connector on one end and straight-male-barrel connectors on the other two ends. In the shipment that was sent, there was a third cable (not shown, but let's call it Cable C) connected to one of these y-splitter male connectors with a pigtail (screw attachment) at the end. This connector may come in handy in the future if you ever need to secure the cable to the



camera with the pigtail screw, but this also takes more time and is not completely necessary at this point. For now, store the pigtail cable elsewhere in your RECON container and do not use it, instead inserting the straight-male-barrel from the y-splitter directly into the camera, as shown in the next image. Finally, you should already have Cable D in your RECON 1.0 setup. This has a right-angle male connector at the end which connects to power to your CPC-1100 telescope.



This image shows the power cable setup connected to the telescope and the QHY camera. You can see the power supply on the ground (it can also be placed on the tripod tray if you like). Also notice the cable has been tied off to the handle on the right fork arm. Finally, the right angle connector has been inserted into the CPC-1100 telescope and the other straight-male-barrel connector has been inserted into the power input in the center back of the QHY camera.

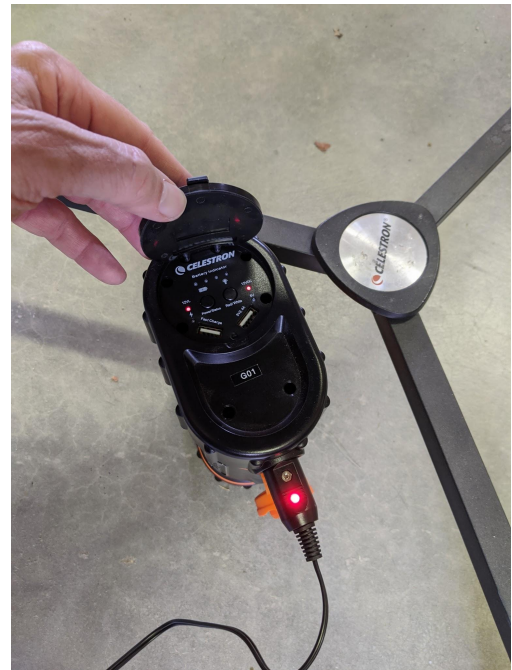


The top of the power supply has a flexible rubbery lid that covers the controls. Warning: you can't flip this all the way back without breaking the attachments. Also, there's no way to leave it open. Once you let go the lid flops back down loosely covering the controls. Note that there are USB ports 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.

(NOTE: These battery instructions were written for a different version of power supply, which is why you see the cigarette lighter plug, which your power supply does not have.)

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.





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.

IMPORTANT: If the battery is not on, turn it on now. With the battery on and power wired to the camera, 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 pigtail cable (Cable C that was shipped but not shown in the cabling image on the first page of this setup guide above) can be used for more solid connection in such a case. If you don't absolutely need the short cable, don't use it.

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 on the laptop screen. 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.



This final image to the right shows the full setup. To review, the CPC-1100 is set up with telrad and hand paddle. The 2" diagonal and QHY camera with focal reducer are attached to the back end of the telescope in the standard RECON orientation shown (with gold GPS antenna connector to the right). Power comes from the power supply via a long cable connected to a y-splitter cable that provides power to the CPC-1100 telescope (using the right-angle-male adapter cable) and to the QHY camera (using the other male end of the y-splitter cable). Unless absolutely necessary, you do not need to use the pigtail cable with the camera and can store this cable separately. The GPS antenna is gently screwed into the gold connector on the back of the QHY camera and placed either on the ground or on the telescope crate with the tripod legs extended. The USB data cable is connected to the camera and inserted into the left side of the RECON 2.0 laptop.

