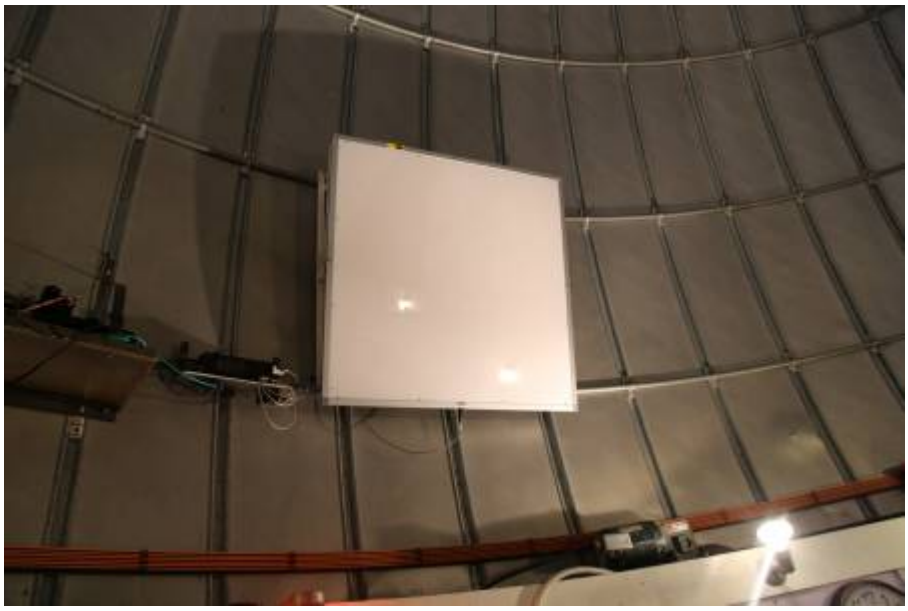
How to Reset the Flat Field Panel

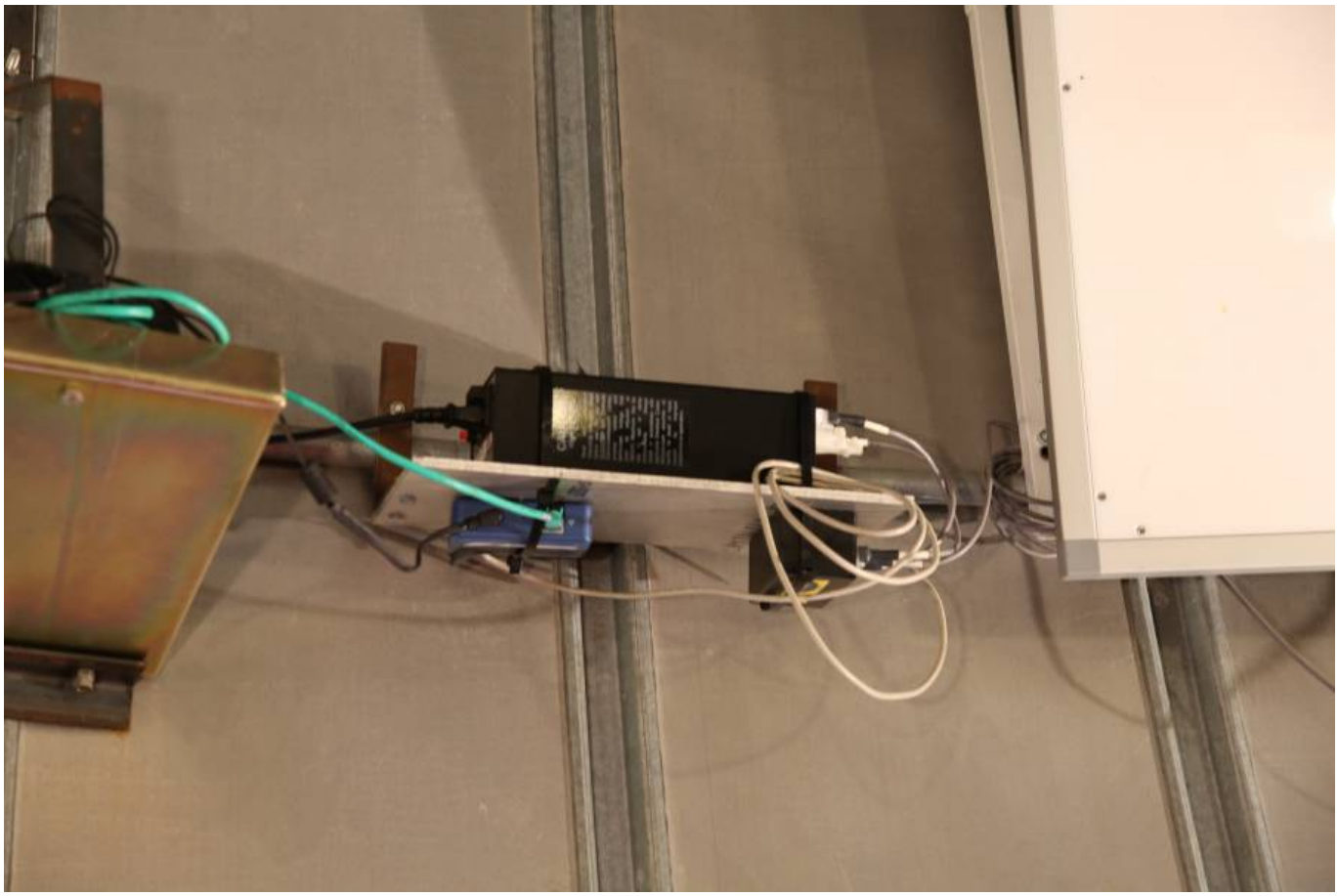
Occasionally either devices or software that operate the Flat Field Electroluminescent Panel need to be reset in order for it to function. Typically the problem occurs due to a loss of power or after the system has been shutdown and restarted. Another possible issue, which is much more “devious”, is that the slip rings that deliver energy to the panel may have intermittent power. This is generally caused by poor contact connections with the brushes that service devices. A quick test to verify consistent power is to plug a light bulb into the power outlet that is riding on the dome (being powered by the slip rings). If it flickers at particular azimuthal positions that is a very good chance the brushes need to be adjusted or maintained/replaced. Even a “brown out” of power can cause loss of communication with the panel.

Parts of the Flat Field Panel System

The Flat Field Panel System is comprised of the following (see Figures below chart):

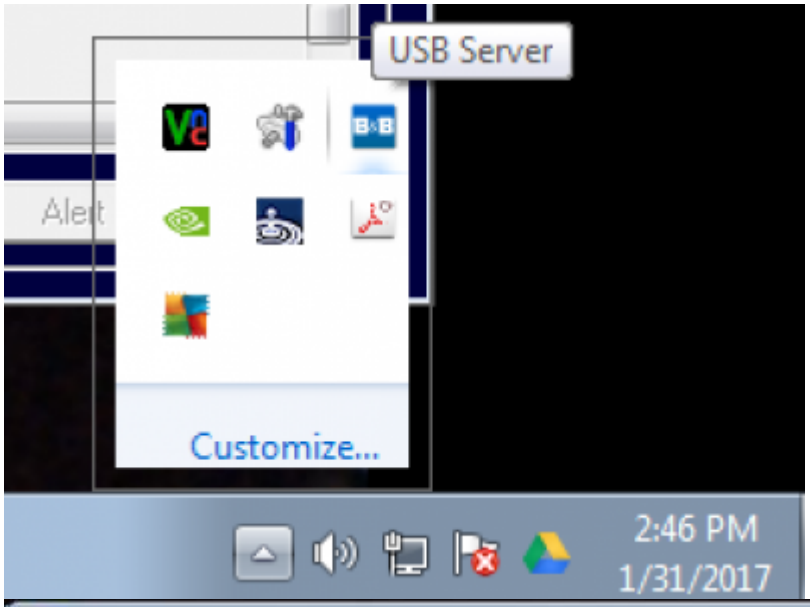
Part	Function
EL Light	48-inch Square panel with variable lamp/light.
Panel Controller	Smaller black box on dome's Flat Field shelf.
Panel Power Supply	Large rectangular black box on dome's Flat Field shelf.
USB over Powerlines hub	Small blue device with Cat 5 input from Flat Field and output to power line/plug.
USB over Powerlines controller	Connected to power in the Warm Room.
USB Server Software	B&B Electronics sofware running in resident memory on observatory control computer.
Alnitak Astrosystems Controller Software	ASCOM Software control for the Flat Field panel used when generating Flats.

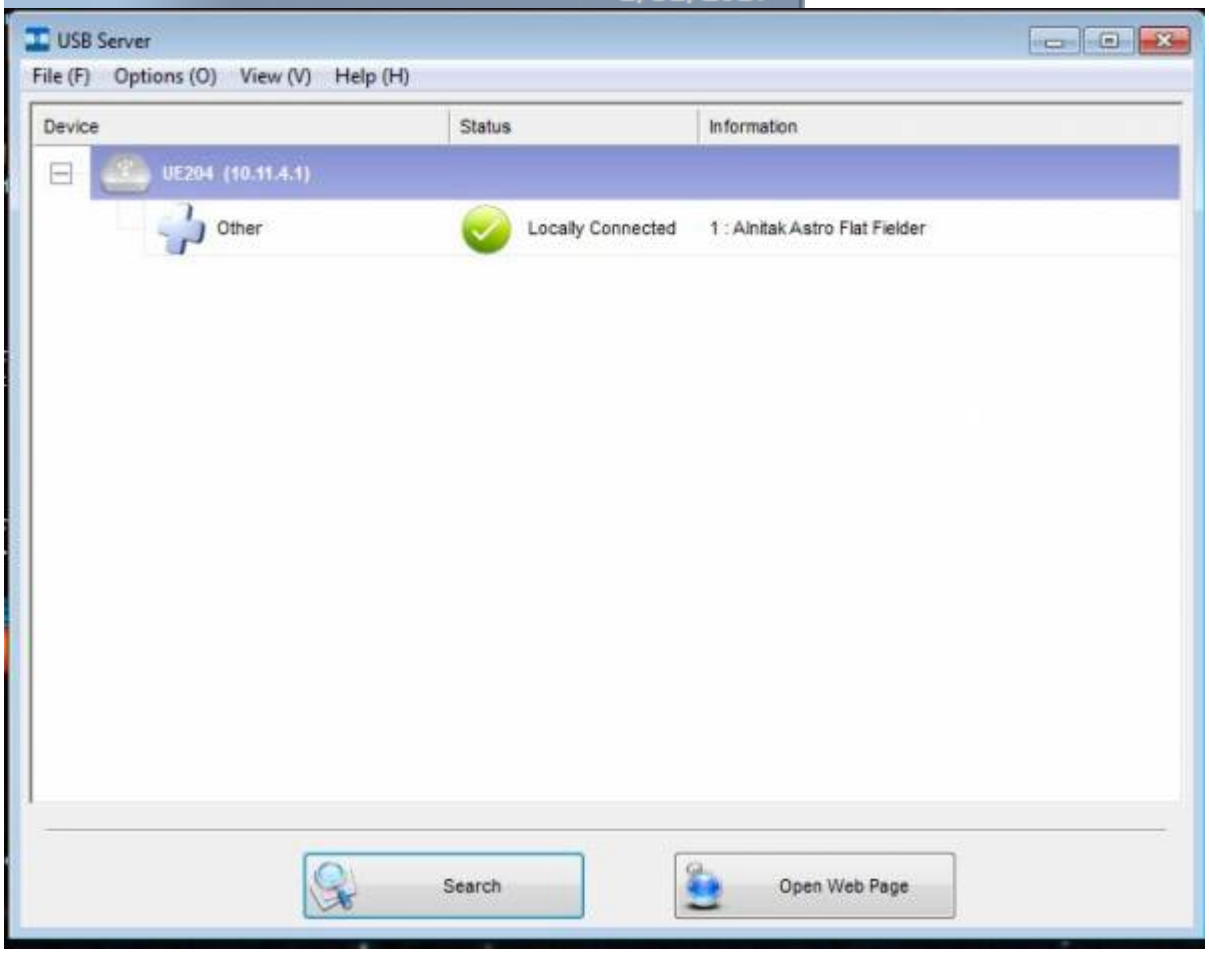




How the Flat Field Panel System Works

The Flat Field panel is powered by the slip rings that run around the lower portion of the dome. The panel, through its controller box, is USB device. However connecting with a long USB cable to the computer is a problem since the dome rotates. The USB over power lines solves the problem. The panel (through the controller) is connected to the USB hub on the dome. This device sends a signal through the slip rings and building power conductors to the device that is in the warm room- it is connected to the observatory power lines also. This USB server is connected to the Draytek switch as a device with an associated IP address. This puts the USB server on the network. The B&B Electronics software is running on the observatory computer and finds the device automatically on the network. In fact it is currently set to automatically look for it every few seconds. You will note that during a loss of communication the software will report connection errors regularly. See the figures below to find the B&B Electronics USB server running as a small icon in the lower right and a screen capture of the software interface which shows that it is connected to the USB hub and that a device (the Flat Field Panel) is connected to the hub.





To the left of the Flat Field panel shelf is a second shelf that has that outlets from the slip rings. The plugs for the Flat Panel power supply and the USB hub power are labeled with tape. (Shelf partially shown in the picture above- but not the actual plugs.)

Procedure for Fixing the Flat Panel

1. Look at the B&B software. If the USB server is not connected, power cycle the USB server controller in the warm room and also the USB hub on the shelf.
2. If the USB server is connected but the Flat Field panel (“Alnitak Astro Flat Fielder”) is not

connected, power cycle the USB Hub.
3. If the above does not help. Power cycle the Flat Field panel controller.
4. Listen and monitor the USB server software on the computer for a connection.
5. When reconnecting, it is normal for the panel to light up briefly or flicker a few times. The device should show up on the USB server software.

Final Test

Open the Flat Field panel control software and connect to the FlatMan Xl (the name of the Flat Field panel). If no device shows up, refresh the list. Test the panel by connecting and turning it on at some brightness level. Make certain the light varies in brightness by moving the slider control. Screenshot of user interface for this software is shown below (device is detected, but panel is not connected).