Eye Rig Servos

Relay to keep servos unpowered until Arduino boots up

USB Shield not shown. However, pin numbers are consistent.

X,Y,Z Limit Switches

24V DC Supplied via 24V DC Power Supply

TB6600 Stepper Motor Drivers

X,Y,Z Stepper Motors

The Power to the 24V and 5V DC Power Supplies is supplied via the tilt switch/plug assembly mounted on the front of the electrical box. From this point 120V AC power is distributed to both power supplies.

The sole purpose of the 24V DC Power Supply is to power the stepper motors via theTB6600 Stepper Motor Drivers.

The 5V DC Power Supply was intended to power the cooling fan in addition to the Arduino itself via the barrel jack. However, it is currently only powering the cooling fan.

The Arduino must be powered via a USB connection to a laptop or the surface on the rig itself. This is because every attempt to power it via the 5V PS resulted in very erratic servo movement. We initially believed that this was due to the barrel jack requiring between 7-12V instead of 5V. We then tried stepping down from the 24V PS with a buck converter set to vaules between 5-12V, however the erratic servo movement was still persistent.

We now believe that it may be necessary to add capacitors in parallel to the power source for the Arduino. We ran out of time to investigate this issue any further, but have reason to believe that this may help smooth any voltage spikes/noise that may be introduced to the system.

We suggest using this YouTube link to get some ideas. https://www.youtube.com/watch?v=oEMe6cXDNZs&ab_channel=electronzapdotcom