ACTUATORS / MOVER CONTROLLER WIRING TROUBLESHOOTING.

To Contact Rainier Satellite: Call 509-486-4137
On the web: www.rainiersatellite.com

Wiring

Actuators and mover controllers must be wired and set up properly to avoid issues. Many problems arise from inexperience when wiring & setting it up. <mark>Do it right the first time -- avoid mistakes.</mark>

4 wires are required to control most satellite actuators. Two heavy wires are used to provide 36V DC power to the actuator motor, and two more wires are needed for receiving data from the actuator sensor about the dish movements.

The two power lines should be capable of driving between 1 – 3.5 amps of current to the actuator depending on the size of the dish. Solid copper wire is very important here vs copper clad aluminum as with solid copper voltage and current remains at a higher level when reaching its destination. An 8ft mesh dish usually requires about 950mA of current to drive with an 18 inch actuator, whereas a 12ft mesh dish requires about 1.7A of current to drive with a 36 inch actuator. If your actuator is moving a solid dish or has to move the dish under heavy wind, snow or ice loads, it will use even more current. You must ensure that the actuator wire you select is rated for the voltage and amperage needed. Rainier carry's high quality trouble free cables.

<mark>TIP:</mark> It's better to use a larger AWG then smaller. Take this into consideration when purchasing cable.

The two data lines transmit a differential analog voltage signal from a sensor that is generated by a magnetic wheel inside the actuator that turns in synchronization with your dish and provides information about dish movements. The voltages generated in this pair of wires are very small and can be attenuated significantly over long cable runs. Larger AWG is needed for longer runs.

Recommended Actuator Wire (stranded and shielded with ground line)
(AWG = American Wire Gauge – the lower the AWG the larger the wire diameter)

MOTOR WIRES (SOLID COPPER)

18 AWG: less than 75ft run
16 AWG: between 75ft – 175ft run
14 AWG: greater than 175ft run
12 AWG: if using heavy dish or high current issues are a problem

**SENSOR WIRES (foil shielded with drain wire)**

22 AWG: less than 175ft run
20 AWG: greater distances

Wiring the Actuator and Controller

Wire the actuator and controller as shown in the pictures below. The red and green wires provide 36 DC power to the motor and the black and white wires relay sensor information. DO NOT mix up the power wires with the sensor wire or you may damage the sensor.

If you reverse the red and green wires on the controller, your dish will simply move in the opposite direction in response to the polarity change. Reversing the black and white wires will have no effect because the sensor signal is differential and not referenced to ground.

DO NOT mix up the MOTOR power wires with the SENSOR wires or your actuator sensor may be damaged.
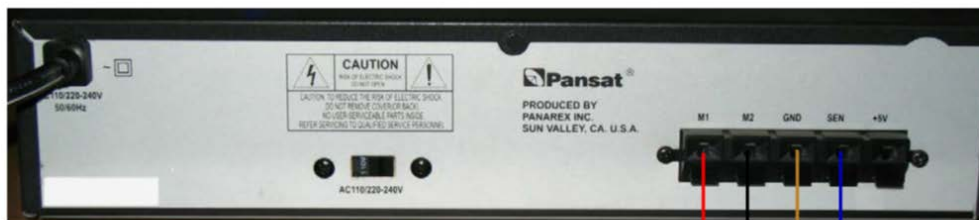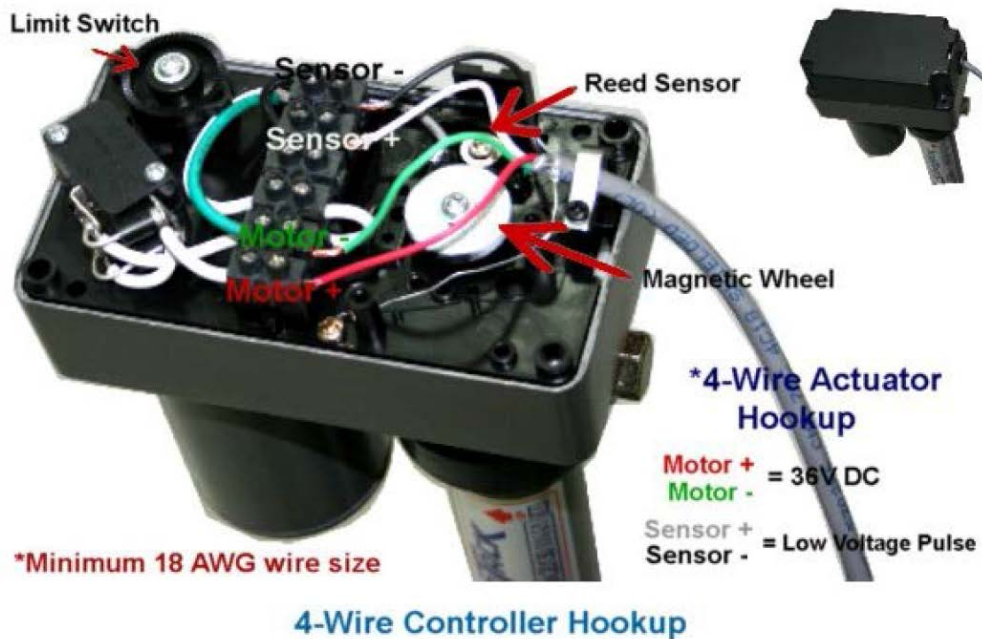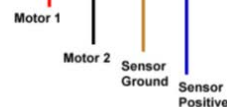
Setting Limits / Programming Satellites Overview

Your Pansat AP-600 comes with a manual. Please read and follow instructions in this booklet.

Your Mechanical Limits in the actuator must be set before you set the electrical limits. Please follow instructions supplied with actuator to set the mechanical limits.

After you set mechanical and electrical limits you can commence setting up your satellite positions. Please use the quality meter in the D9865, or an external meter such as a super buddy or spectrum analyzer to confirm you are well targeted on the Rainier signals before storing satellite position. Your arm must have no end play for 100% target each time accessed.

If you followed all instructions properly there should be no issues with your install. If you're having issues and are using old cable or actuators not purchased from Rainier we advise you to replace with Rainier approved wire and actuators from us. We offer free tech support on products purchased from us. There is an $85.00 per hour technical support fee for help with non-Rainier purchased products.