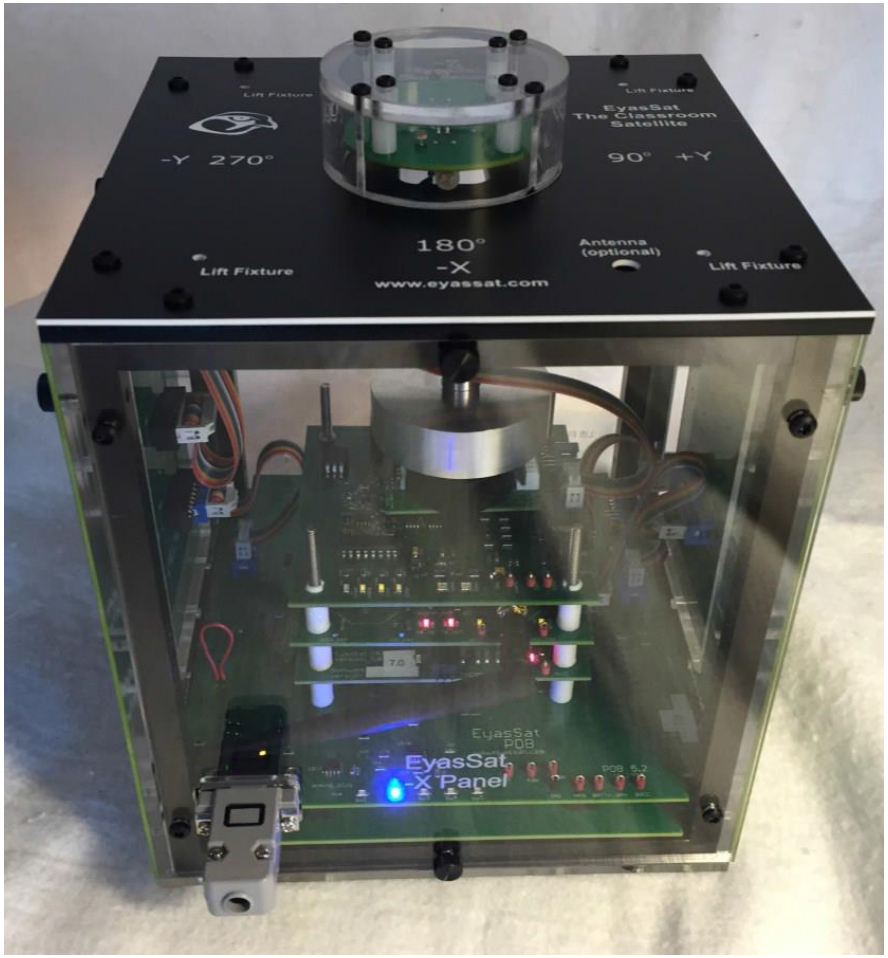
GEN 5
NanoSat Desktop Satellite
With COSMOS© Command and Control

For training on simple physics concepts through sophisticated systems engineering principles and attitude control ops.

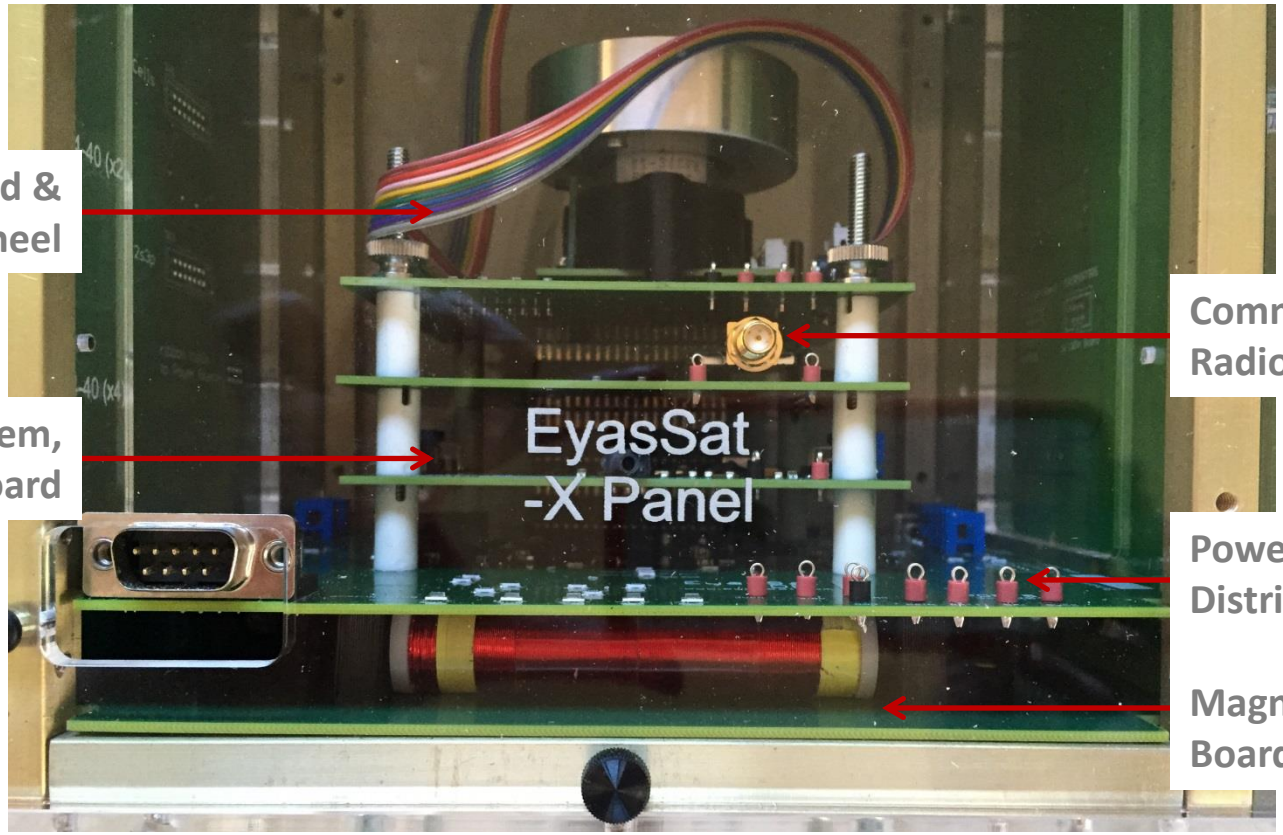
GEN 5



$9950 USD

All Major Subsystems:

Power, ADCS, C&DH, Comm, Thermal



ADCS Board & Reaction Wheel

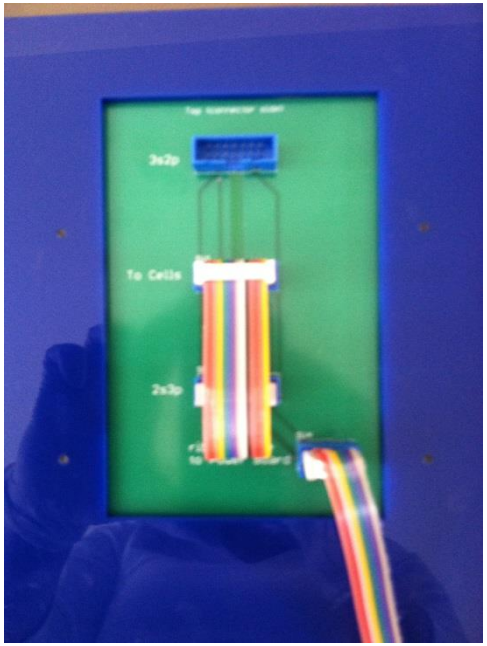
C&DH Subsystem, Master Board

Comm Board & Radio

Power Distribution Board

Magnetorquer Board

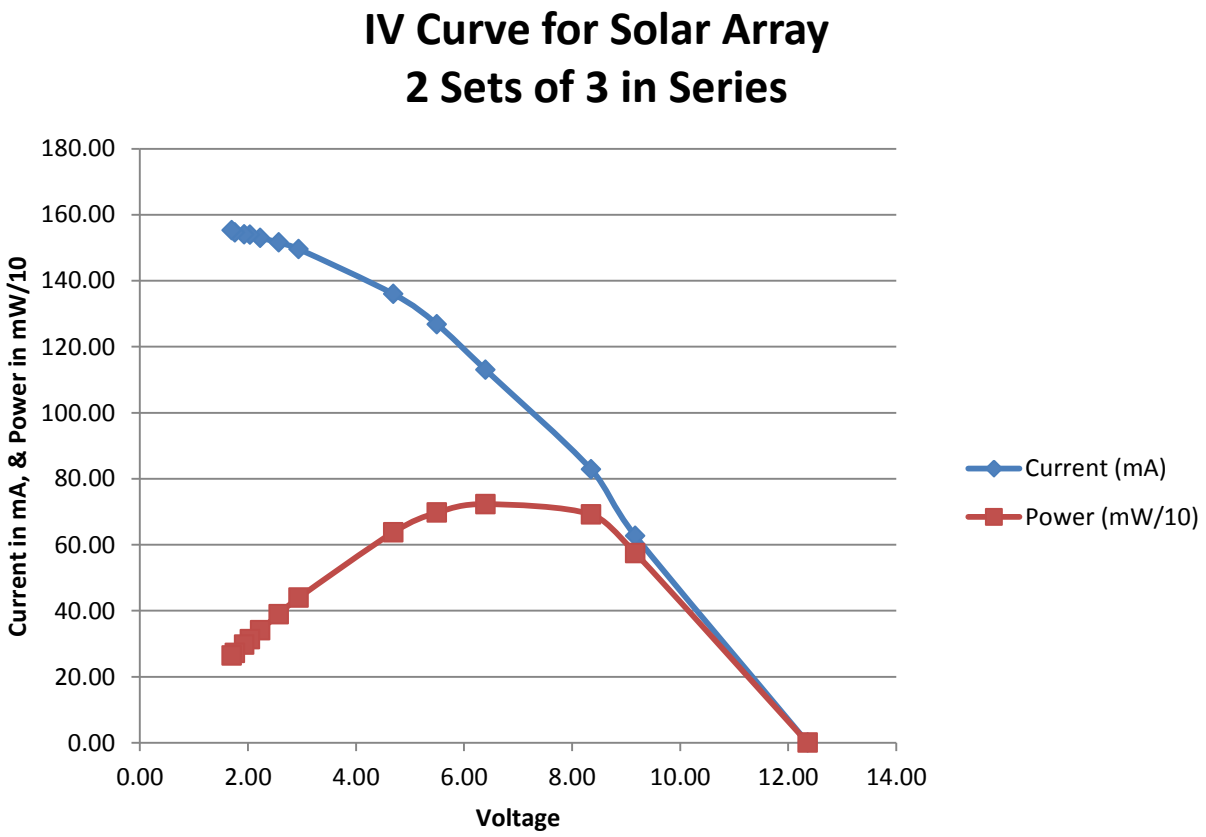
Solar Array & Thermal Panels



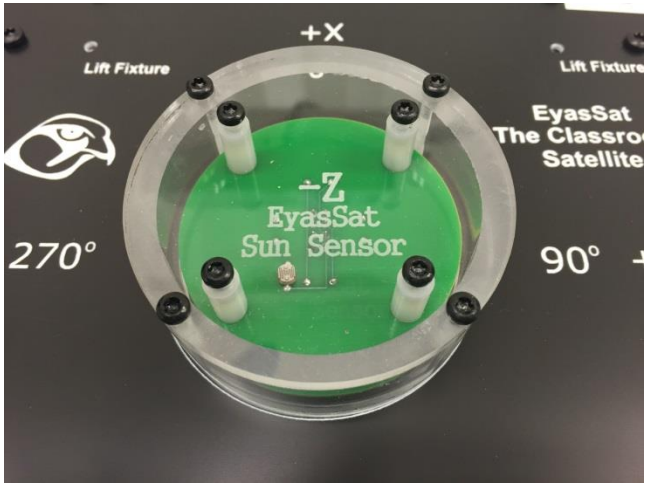
Use jumper cable to change configuration of cells (3s,2p and 2s,3p), create IV curves, determine peak power and best configuration for direct energy transfer. Optional 2nd solar array.

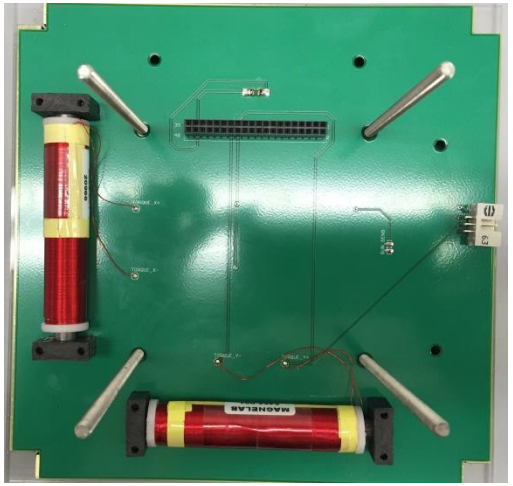
Use cold spray, halogen lamp, and heaters (behind panels) powered by PDB to conduct thermal experiments, i.e. emissivity and absorptivity (different materials optional), heat pipe versus copper rod.

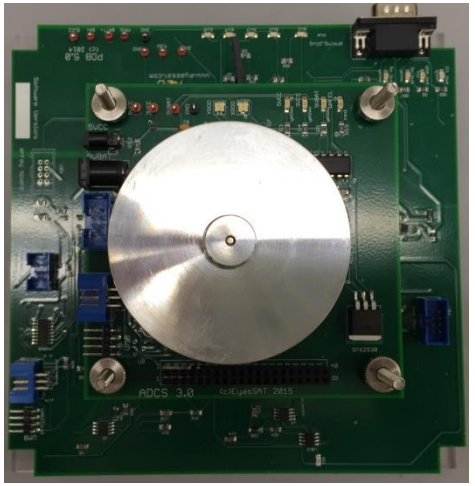
Example I-V Curve



Attitude Determination & Control (ADCS)







Top, Bottom, & Yaw Sensors for attitude control tests in 4 modes, Bang Bang, PID, Sun Tracking, and PWM.

Optional sensors include magnetometers and accelerometers.

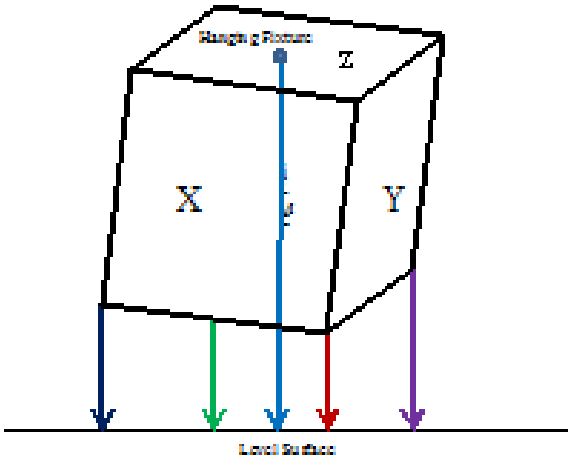
Two types of actuators: magnetorquers and reaction wheel can demonstrate momentum dumping.

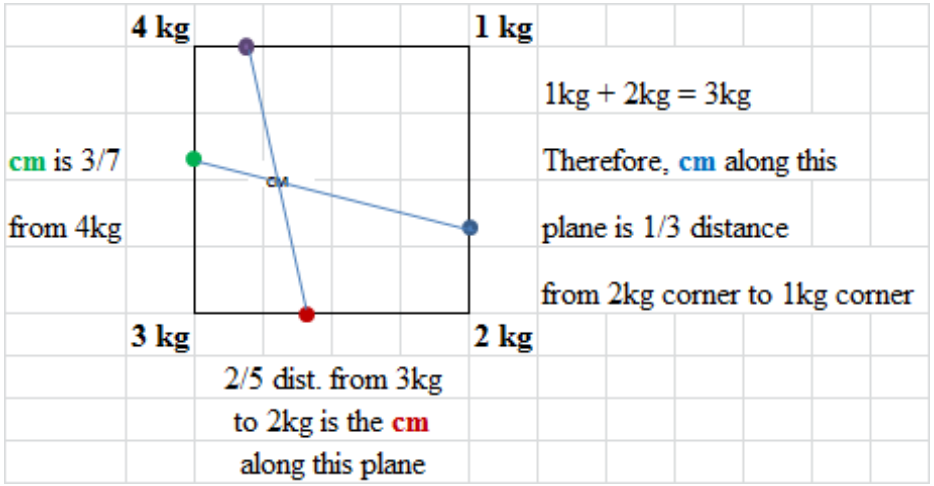
Comes with lifting fixture and suspension stand.

Optional single axis air bearing (under development).

Structural Specifications

- Understand LV requirements, including center of mass, mass budget, minimum natural frequency, and system moment of inertia.
- Determine CM and ballast placement by hanging, weighing, or optional CG Transducer Board.





Mission Ops with COSMOS©

COSMOS interfaces allows users to command the unit, collect telemetry, graph, chart, log data, watch for trends, perform test procedures and more.

References & Accessories

- User guide containing step by step instructions for structural - subsystem acceptance and integration labs.
- Example curricula from USAFA.
- Software Interface/GUI (COSMOS)
- Copper suspension stand for ADCS and center of mass exercises.
- Lifting fixture, attachable in 3 axes.
- GSE Radio, GSE Power Box, Battery Charger, LED flashlight, magnet, antistatic kit, and gloves.

Optional Accessories

- Extra Solar Array for providing extra power to battery. Price $300
- CG Transducer Board has resistors for determining center of mass. $600 USD
- Accelerometer and Magnetometer. $160 USD.
- Kapton Tape Set for further Thermal Studies. $75 USD
- Software License/Maintenance agreement. Price TBD
- Single Axis Air Bearing for closer to “frictionless” flight experiments (in development).Price TBD