



Satellite Attitude Control Simulator (SACS)

For customized information, please contact us at:

EMAIL: info@perseispace.com WEBSITE: perseispace.com

SATELLITE ATTITUDE CONTROL SIMULATOR (SACS)

The SACS is an advanced testing platform designed for the comprehensive validation of ADCS subsystems in satellites under 40 kg. By utilizing a three degrees of freedom rotational air bearing and a sun-light emulator, the system provides a near-zero friction environment to simulate orbital conditions. It is currently equipped with a sensor suite, including a gyroscope, magnetometer, and accelerometer, to ensure accurate attitude estimation and full-scale validation of the flight hardware before launch (more specifications can be included if requested).



**Test objects
up to 40 kg**



**XYZ axis
3 DOF**



**Validate
sensors &
actuators**



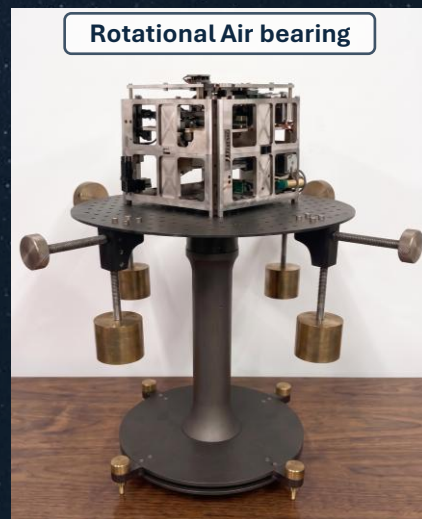
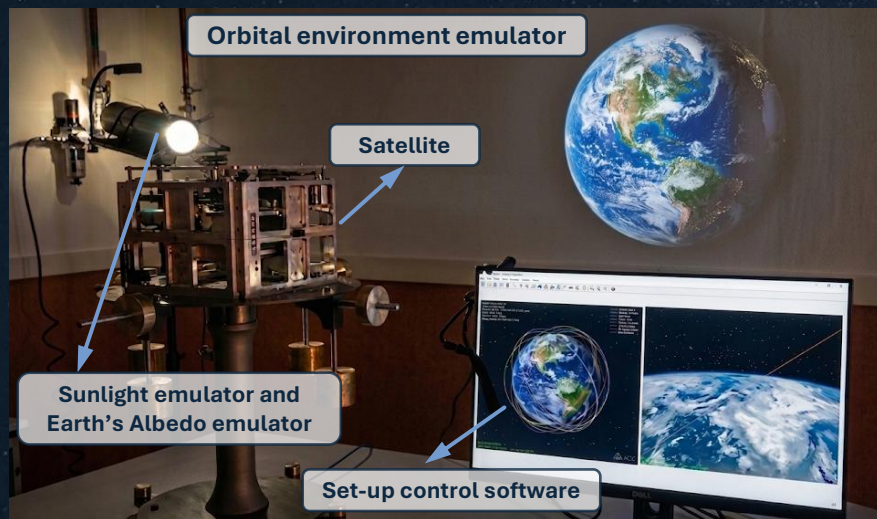
**Validate ADCS
algorithms**

DEVELOPMENT, VALIDATION & HERITAGE

The SACS is a versatile facility designed for Hardware-in-the-Loop validation of small satellite ADCS sensors, actuators, and algorithms. It enables the study of performance, operational bounds, and FDIR solutions under strictly controlled conditions. It has been used profusely in the E.T.PACK-F project to validate the ADCS of an autonomous 12U deorbit device (more info and references available in the QR code below).

SACS SPECIFICATIONS

Degrees of Freedom	X and Y axes: $\pm 20^\circ$ Z axis: 360°	Sensors	Gyroscope, magnetometer, accelerometer, sun emulator
Attitude estimation	Heading: 1° Inclination: 0.5°	Compatible actuators	Reaction wheels, cold gas systems, and magnetorquers
Mass & Dimensions	Mass: 12Kg Plate diameter: 40cm		



SACS with E.T.PACK-F Engineering Model under ADCS Validation



Scan this QR code or follow this
link for references and more info

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