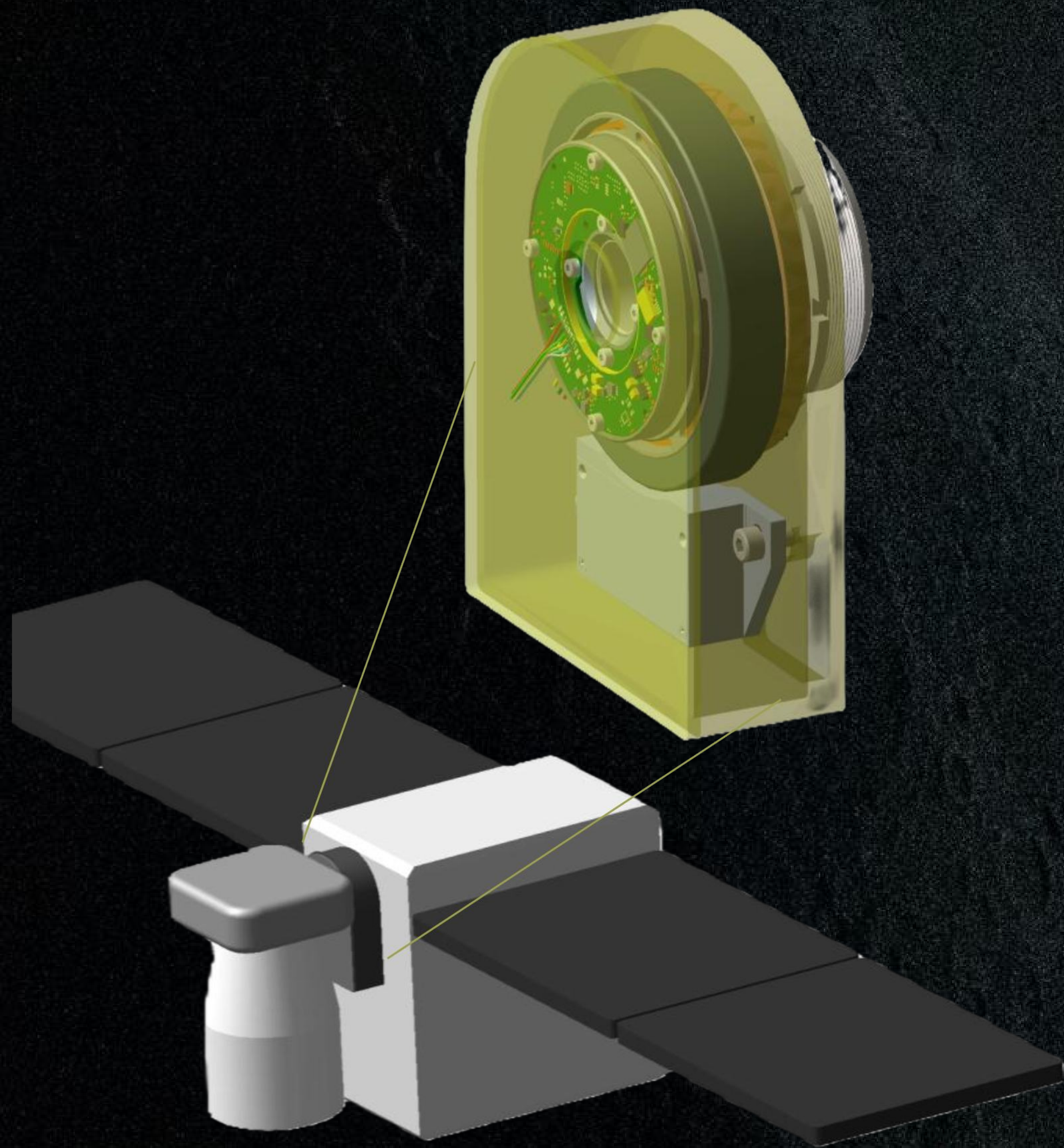


# ZERO-NET MOMENTUM ACTUATOR (ZNMA)



A ZNMA gimbal decouples the dynamic motion of a payload from the bus so that **no momentum is imparted onto the bus.**

This is middleware infrastructure that enables a satellite to operate independently from any moving payload, reducing integration and control complexity, and saving fuel and power.

Work with us to embed the technology within your payload or attach it between a payload and a satellite platform.

Supports: Antennas, Gimbals, LiDAR, Robotic Arms, Grippers, Laser Beam Drivers, Imagers, and other Deployable Space Systems.

## APPLICATIONS

- Orbital Debris Tracking
- Communications
- Payload Maneuvering
- In-Orbit Refueling
- Satellite Repair
- In-Space Manufacturing
- Scanning

## HOLDING POSITION

0.01°

## LIFETIME

MTTF analysis of 10 years

## MAX PAYLOAD RESOLUTION

±180°  
(Optionally N360° with slip ring)

## TEMPERATURE

Operational: -200 °C - 180 °C  
(Optional inclusion of heaters)

## MAX PAYLOAD SPEED

No Design Limit  
(Subject to Mission Requirements)

## OTHER DESIGN FEATURES

Hollow shaft design, slim, low SWaP-C

## MAX PAYLOAD MASS

No Design Limit  
(Subject to Mission Requirements)

## VOLTAGE

24-60V

## ZNMA MASS

2-10% of Payload Mass  
(Subject to Mission Requirements)

## BUILT-IN ELECTRONICS

Optional HDRM(s)  
Optionally, control PCBs can be built-into system

