# Razor™

## High Fidelity UAS Simulation and Test System

ADSYS CONTROLS INC.

# Development, Simulation, HIL Test, and Operator Training for Unmanned Aerial Systems

Adsys Controls' Razor™ UAS Test System is a UAS hardware-in-the-loop test environment including a real-time 6-DOF vehicle simulation, vehicle systems simulator, synthetic visualization system, and operator/analysis station. Razor contains a large set of I/O interfaces, supports full air vehicle system modeling, and contains a 3-D visualization system. Razor's tools provide an end-to-end tool chain for UAS development through flight test analysis.

### SIMULATION FEATURES

A library of interchangeable simulation modules supports multiple vehicle configurations with customer-specific flight dynamics, propulsion, mass properties, avionics, payloads, electrical power systems, thermal management systems and communications systems.

- Physics-based hardware-in-the-loop 6-Degrees of Freedom (6DoF) dynamic simulation of air vehicles
- Support for standard fixed-wing vehicles, flying wing, rotorcraft, airships, and multi-copters
- Aerodynamic and atmospheric models, including ground effect, wind, and turbulence
- Propulsion models of internal combustion, turbine, and electric power plants
- Model EO/IR imaging, target tracking, image stabilization payloads
- Model communications systems, RF propagation of atmospheric signal attenuation, antenna obscuration, directional antenna effects, and multi-channel switching
- Multi-vehicle support for modeling of formation flying or multi-vehicle scenarios

### OPERATOR STATION FEATURES

- Real-time system monitoring, data recording, test automation, and fault-insertion
- 3-D visualization system with synthetic terrain environment
- Simultaneous vehicle and payload views
- Customer-specific 3-D air vehicle modeling and multiple viewing perspectives

Adsys Controls provides state-of-the-art solutions for the most challenging problems

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### TEST FEATURES

» Enables complete testing from component integration through validation and full-system verification

» Test data acquisition and real-time data display of iron bird and simulation system data

» Run Monte Carlo and deterministic simulations

» Enables fully autonomous testing including test scripting and fault insertion, event playback, and event-driven test execution and data recording

» Supports payload system testing, mission testing, field/depot service testing, and operator training activities

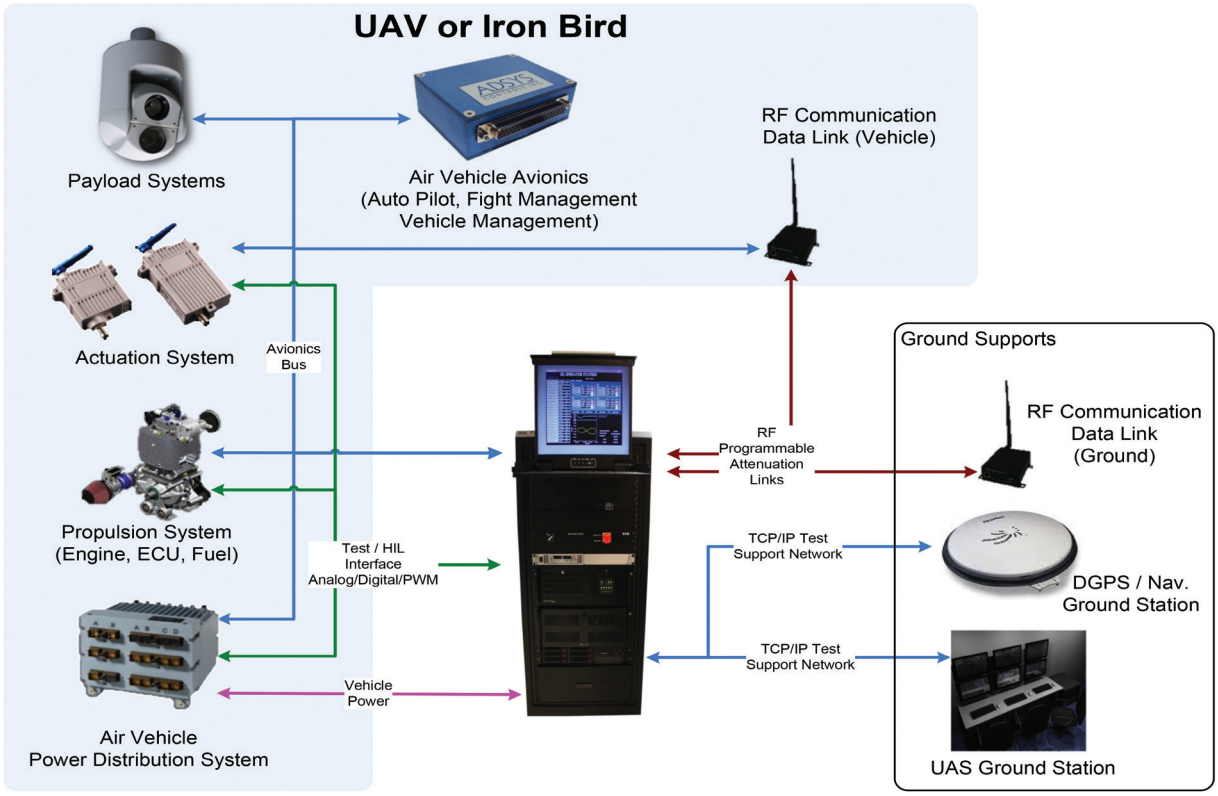
### ADDITIONAL CAPABILITIES

» Multi-vehicle design, model, and test. Model aerial interactions and formation flight

» Plug in commercial autopilots including Adsys Controls' FireFly™ Autopilot, Cloud Cap Piccolo, as well as custom autopilots, or use internal software autopilot

» Integrates with other Adsys Controls products, such as the Arrow Gimbals, and FireFly™ Autopilot

» Adsys Controls offers a full range of support, including customizing the simulation models, system characterization, test prep, and test execution




Adsys Controls provides solutions for precision control systems, advanced electro-optical systems, laser systems, modeling and simulation, and unmanned aerial systems for military and commercial markets. From electronics design, embedded RT software, and image processing to game-changing laser and electro-optical systems for ISR&T, weapons, communication, and navigation, Adsys Controls provides state-of-the-art solutions for the most challenging problems.

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