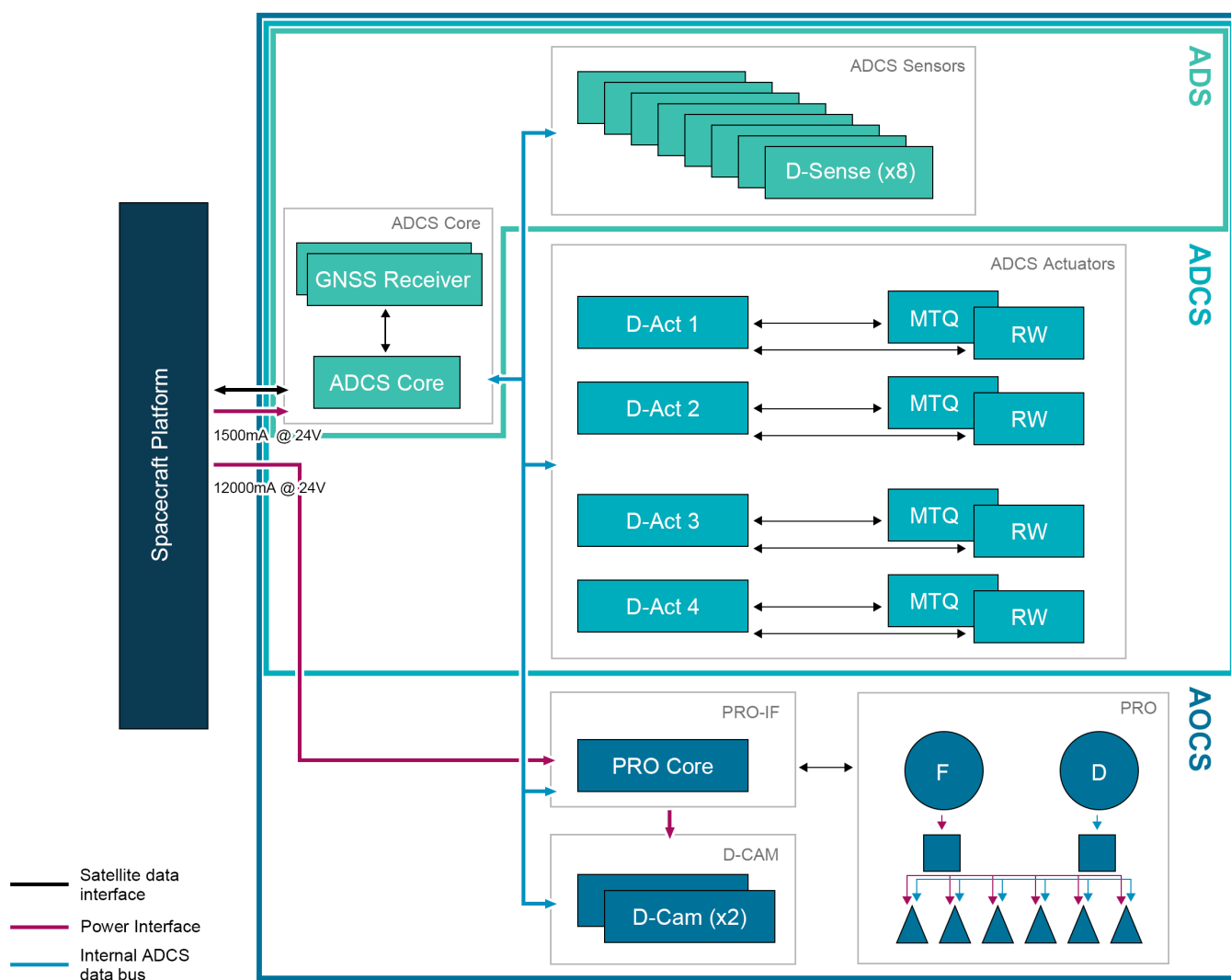


D-Orbit AOCS Suite is a modular attitude and orbit control system solution built of three nested systems that can be acquired separately. Each layer is built upon the ones below, enabling satellite designers to create an ADCS that fits their needs and budgets. A fully architecture with redundant data, power, and propulsion interfaces guarantees failure tolerance. The suite is ideal for spacecraft of up to 400 kg, operating in an orbit up to 1200km high, with an inclination above 30° and any beta angle.

INTERFACES

- Redundant data interface to ADCS Core (2 x CAN 1Mbps, CSP-enabled, other serial interfaces upon request).
- Redundant power interface to ADCS Core (2 x 12V or 24V) .
- Redundant power interface for propulsion (2 x 28 V UNR).



ADS SUITE: an attitude determination system based on D-Orbit proprietary multi-sensor module D-Sense. It can be used as standalone, or as foundational module of the two systems built on top of it.

Hardware components: • 8 D-Sense multi-sensor modules, tracking the Sun, the Earth's horizon, the magnetic field, and the angular rate of the spacecraft.

Software specifications: • ADCS/AOCS Modes State machine • Telemetry manager
• Attitude and orbit determination algorithms • Onboard Control procedure engine for autonomous operations and conditional behaviors
• High level telecommand server

ADCS SUITE: an attitude determination and control system built on top of ADS Suit. It can be connected to third-party actuators through MTQ, RW, and other interfaces.

Hardware components: • ADS Suite
• Up to 4 D-ACT actuators interface boards, each capable of controlling third-party actuators; 1 MTQ, 1 RW, or other 2 actuators or peripherals.

Software specifications: • Attitude Control algorithms

AOCS SUITE: an attitude and orbit control systems built on top of ADCS Suite. It includes a Green chemical bipropellant propulsion subsystem with total impulse up to 250 000 Ns.

Hardware components: • ADCS Suite • Green chemical bipropellant propulsion subsystem with total impulse up to 250 000 Ns
• PRO Core Propulsion interface

Software specifications: • Orbit Control algorithms

TECHNICAL SPECIFICATIONS

Magnetorquer	Max magnetic dipole	30 Am2 each magnetorquer
Reaction wheel	Torque	10 NmN each RW
	Max momentum storage	0.5 Nms each RW
Typical performance	Attitude determination accuracy	Pitch:30, yaw: 30, roll: 72 arcsec
	Star tracker FoV	Full attitude sphere (with proper sensor allocation)
	Attitude control accuracy	Typical: better than 0.1 deg (depending on spacecraft)
	Agility	Typical: better than 1 deg/sec (depending on spacecraft)
	Orbit position knowledge	
	Orbit velocity knowledge	
Physical dimension and temperature	Mass and dimension	Depending on selected options
	Operating temperature	-30 +70 deg C
	Random vibrations	11.92 gRMS
	Shocks	2000g @1000Hz
Interface and ratings	Data interfaces	2 x CAN Bus (CSP Enabled)
	Power interfaces	2 x 12/24 V 2 x 28 V UNR (AOCS Suite only) Cross-strapped

ADS Suite current consumption: Typ: < 100 mA @ 24 V; Peak: 250 mA @ 24 V

ADCS Suite current consumption: (4MTQ, 4 RW) Typ: < 800 mA @ 24 V; Peak:1500 mA @ 24 V

AOCS Suite current consumption (during PRO fire): (6 thrusters) Peak: 12000 mA @ 24 V