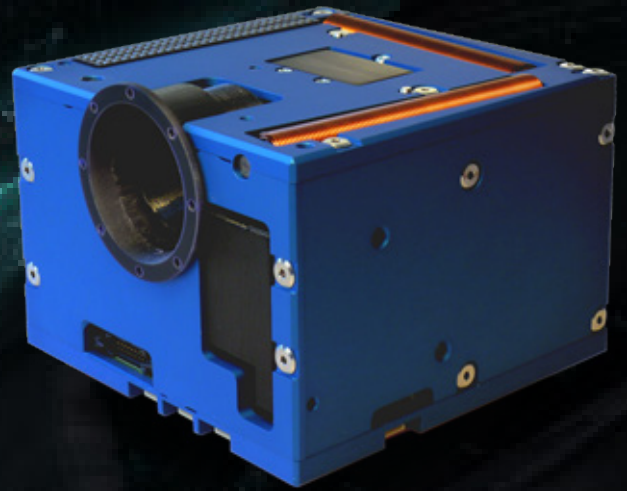


HIGH PRECISION HIGH PERFORMANCE



The iADCS400 is a fully autonomous attitude determination and control system aimed at small satellites with a 6U CubeSat form factor or a larger 12U form factor. It is based on the ST200 star tracker, complemented with RW400 series reaction wheels, MTQ400 series magnetorquers and features an optional external magnetometer, sun sensors, GNSS receivers or precision gyro. It can also host the CP400 Payload Processor inside to save the user additional space.

KEY HIGHLIGHTS:

- Total momentum storage per axis: +/-30 mN.m.s, one reaction wheel per axis
- Maximum torque: 2.5 mN.m
- Standard I2C-compatible interface
- RS422, RS485, U(S)ART and CAN are optional
- Primary components are radiation tolerant up to 45 krad
- Additional radiation shielding built-in
- Interface for external star tracker
- Optional: Built-in OBC/ payload processor



MODES

The iADCS400 features an internal fire-and-forget controller, which frees up the host processor's workload, providing nadir and target-pointing modes, as well as backup de-tumbling, intentional spin modes and slewing for 6 to 12 U satellites or platforms with similar moments of inertia.



ADAPTABILITY

The iADCS400 is delivered with a PC104-compatible footprint, consuming the space of 4 standard CubeSat PCB's, or a total of 0.7 U. This allows the placement of the iADCS400 system anywhere in the CubeSat stack.



DESIGN

Designed for 6 – 12 U platforms the iADCS400 has low mass of 1150 to 1700 g, low power of <4 W peak, and outer dimensions of 95.4 x 95.9 x 67.3mm. The fully autonomous attitude determination and control system has additional radiation shielding built in, plug-and-play ready design and with three-axis magnetorquer configuration with up to 0.5 A.m² of magnetic dipole moment.

TECHNICAL SPECIFICATIONS

Performance		
Total momentum storage per axis	+/- 1.5, +/- 3.0, +/- 6.0 ¹	mN.m.s
Maximum torque	2	mN.m
Magnetic moment	X/Y: 0.5, Z: 0.4	A.m ²
Attitude determination accuracy	30	(3-sigma)
Pointing accuracy	< <1	°
Slew rate	> 1.57	°/s
Radiation tolerance	> 45 ⁸	krad (Si)
Operating temperature	- 45 / - 20 to + 40 / + 85 ⁶	°C

Dimensions		
Outer dimensions	95.4 x 95.9 x 67.3	mm
Mass	1150 / 1300 / 1700 ⁷	g

Electrical specifications				
	Min.	Typ.	Max.	
Supply voltage	4.9	5.0 ¹	15 ²	V
Bus logic level voltage	Referenced to Vsys ³			V
Power consumption				
Idle	-	900 ⁴ (2400) ^{4,5}		mW
Nominal ⁷	-	2000 ⁶		mW
Peak ⁸	-	-	5000 ^{4,5,7}	mW

1 When using the 5V system power pins on the standard CubeSat header

2 When using the VBAT pin on the standard CubeSat header

3 Vsys can range from 3.3 to 5.1V for I²C applications.

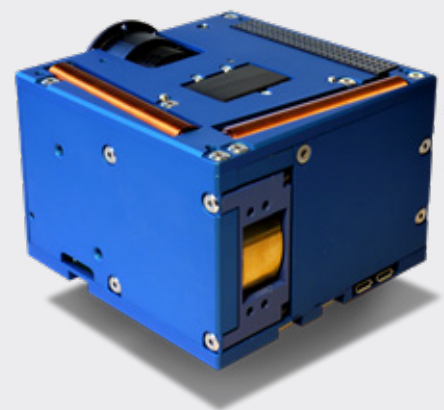
4 To be confirmed

5 When using the low drift, high precision gyroscope

6 Can be tailored

7 Depends on reaction wheels used

8 Not accounting for Star Trackers and Reaction Wheels used



To make an enquiry, request a quotation or learn about AAC Clyde Space's other products and services, please contact:

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