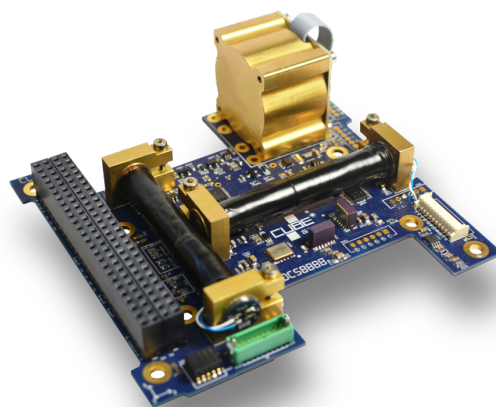


# CubeControl

Actuator and Sensor Interface Board

## DESCRIPTION

CubeControl is an actuator and sensor interface module for nanosatellites with advanced attitude control requirements. It is capable of controlling magnetorquers and a momentum wheel. It can also interface with magnetometers, coarse sun sensors, and rate sensors. The module can be configured to include any desired combination of actuators and sensors, depending on the mission requirements.



## FEATURE LIST

### Magnetorquers:

- On/Off control for improved linearity
- Interface for 3 magnetorquers
- Onboard mounting of two CubeTorquer rods

### Momentum Wheel:

- PWM current control
- Over-current protection
- Brushless DC motor with vacuum-rated bearings
- Onboard mounting of Small CubeWheel; can also interface with Medium or Large (momentum wheels)

### Magnetometers:

- Active temperature compensation
- Two magnetometer interfaces for redundancy
- Interface for deployment mechanism

### Coarse Sun Sensors:

- Interface for up to 10 photodiode coarse sun sensors

### Rate Sensors:

- 3 orthogonal MEMS rate sensors mounted onboard

## APPLICATION

- For nanosatellites that require attitude control
- Easily integrates with all CubeSpace components
- PC104 form factor, compatible with CubeSat standard

## TESTING & HERITAGE

- Successful vibration and heated vacuum tests
- Radiation test (TID)
- Used on QB50 precursor satellites

## SPECIFICATIONS

Operating voltage*	3.3 V, 5 V, $V_{bat}$ (6.4 V - 16 V)
Power consumption	250 mW (no actuators)
I2C bus voltage	3.3 V / 5 V
Operating temperature	-10°C to 70°C
Mass**	140 g
Dimensions**	90 x 96 x 30 mm

**\* The wheel has a minimum turn-on voltage of 7.4 V, but can operate down to 6.4 V when it is already switched on.**

**\*\* Depends on configuration options**

### Contact Us

Phone : +27 21 808 9499  
E-mail : [info@cubespace.co.za](mailto:info@cubespace.co.za)  
Web : [www.cubespace.co.za](http://www.cubespace.co.za)  
Facebook : /CubeSpaceADCS  
Twitter : @CubeSpace\_ADCS

### Physical Address

**CubeSpace**  
The LaunchLab  
Hammanhand Road  
Stellenbosch, 7600  
South Africa