

CubeSat Magnetorquer Rod



Magnetorquers offer a method of controlling the attitude of a spacecraft. This can be achieved either directly, by interacting with the local Earth's magnetic field, or in combination with reaction wheels where they allow a method of dumping excess momentum in the wheels without the need for a complex propulsion system.

The use of a magnetic alloy rod produces an amplification effect over an air cored magnetorquer. This allows a system that uses less power, which is critical for CubeSat missions. The rods can enable a mission with increased manoeuvrability and reduced detumble rates.

CubeSat Magnetorquer rods are designed to be operated from a 5 Volt power line and should be operated through an H-bridge to allow bi-directional moments. A pulse width modulator can be used to control precise levels of moments if required by the application.



Applications

- Active damping for spin stabilized, momentum biased and gravity gradient controlled CubeSats
- Momentum dumping of reaction wheels in three axis stabilized spacecraft

Features

- Low cost standard product
- High torque for low power
- Small size and low mass
- Simple electronic interface
- No residual magnetic moment

About SSBV

SSBV Space & Ground Systems is a member of the SSBV Aerospace and Technology Group which has 27 years of experience in providing systems to the Space industry.



Specifications

Functional Characteristics	
	Magnetic moment: $>0.2\text{Am}^2$
	Linearity: Better than $\pm 5\%$ across operating design range
	Residual moment: $<0.001\text{Am}^2$
	Power: Typically 200mW from 5 Volt supply
	Operating range: -35°C to $+75^{\circ}\text{C}$
	Random vibration: 15g rms
	Lifetime: >10 years
Physical Characteristics	
	Length: 7cm
	Diameter: 9 mm
	Mounting: Tied and bonded directly to PCB
	Mass: $<30\text{g}$
Interfaces	
	Coil wires solder direct to PCB pads

Contact information

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