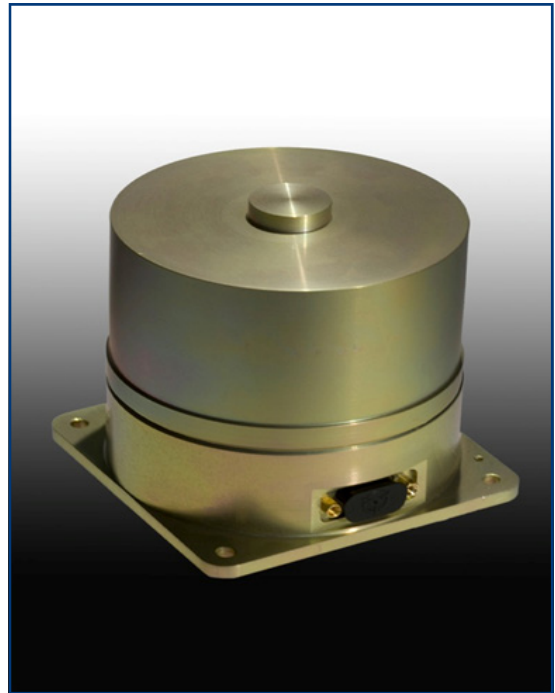


Reaction Wheel

Reaction wheels provide small satellites with 3-axis control torques and 3-axis momentum exchange capability.

The integration of the reaction wheels with external gyroscopes enables 3-axis control of a spacecraft's inertial rates. The reaction wheels have high torques and high wheel momentums that make them useful for agile or larger small satellites.

Each reaction wheel has built-in electronics and software for controlling the wheel and optional gyroscope. The reaction wheels may be operated independently in current, speed or torque control modes, or their operation may be integrated with a gyro to provide inertial rate control and inertial angle control modes.



Applications

- High performance 3-axis torque and momentum exchange actuators for agile small satellites
- Momentum Bias
- Inertial rate control for accurate pointing of imagers

Features

- High wheel torque
- High wheel momentum capacity
- High accuracy speed control
- High accuracy inertial rate control (with addition of gyroscope)
- Reaction wheel hermetically sealed
- Built-in electronics
- Simple digital interface to satellite bus

Qualification

The qualification of the Reaction Wheels comes from flight heritage on the SUNSAT and TUBSAT Satellites. The latest generation has been fully flight qualified and will fly on the Orbcomm 2nd Generation constellation.

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	
	Max wheel torque: 20 mNm
	Max wheel momentum: 0.65 Nms
	Speed range: -9000 to +9000 rpm
	Rotor moment of inertia: $1.0 \times 10^{-3} \text{ kg.m}^2$
	Speed control tracking error: <1 rpm
	Current consumption: 40 mA / mNm
Physical Characteristics	
	Mass: 1550g
	Dimensions: 102 x 102 x 105 mm
	Static unbalance: < 5 g.mm
	Operating temperature -30 to +60C
Current Consumption	
	At 0 rpm: 45 mA
	At 100 rpm: 65 mA
	At 4000 rpm: 165 mA
Interfaces	
	Power supply: 28V unregulated
	Data: RS422

Contact information

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