

FEATURE LIST

Motor:

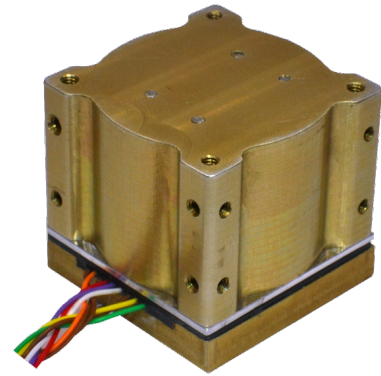
- Brushless DC motor to minimise friction
- Vacuum-rated bearings

Electronics:

- 12-bit angular rate feedback
- Integrated electronics which includes drive circuitry and speed control algorithms
- I2C, UART, and CAN interfaces

Mechanical:

- Various sizes: Small, Medium, and Large
- Mountable in 3 axes
- Magnetically shielded using Mu-Metal



APPLICATION

- Can be used to exchange angular momentum with satellite body
- Easily integrates with CubeADCS bundles

TESTING & HERITAGE

- Successful heated vacuum test
- Wheel design based on momentum wheels used for QB50 precursor satellites

SPECIFICATIONS

CubeWheel	Small	Medium	Large
Operating voltage ($V_{\text{battery}} = 6.5 \text{ V} - 16 \text{ V}$)	$3.3 \text{ V} / V_{\text{battery}}$	$3.3 \text{ V} / V_{\text{battery}}$	$3.3 \text{ V} / V_{\text{battery}}$
Speed range	$\pm 8000 \text{ rpm}$	$\pm 6000 \text{ rpm}$	$\pm 6000 \text{ rpm}$
Speed control accuracy	$< 5 \text{ rpm}$	$< 5 \text{ rpm}$	$< 5 \text{ rpm}$
Max torque ($V_{\text{battery}} = 8 \text{ V}$)	0.23 mNm	1.0 mNm	2.3 mNm
Momentum storage (@ max rpm)	1.7 mNms	10 mNms	30 mNms
Peak power (@ max torque, $V_{\text{battery}} = 8 \text{ V}$)	$< 0.6 \text{ W}$	$< 1.0 \text{ W}$	$< 2.2 \text{ W}$
Average power (@ 2000 rpm, $V_{\text{battery}} = 8 \text{ V}$)	$< 0.18 \text{ W}$	$< 0.24 \text{ W}$	$< 0.27 \text{ W}$
Dimensions	28 x 31 x 26 mm	46 x 46 x 31.5 mm	57 x 57 x 31.5 mm
Mass	55 g	130 g	200 g

Physical Address

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