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Space Technology

AOCS-Components



Reaction Wheel RW 90 for Small and Micro Satellites

The RW 90 is a **flight proven smart** Reaction Wheel with following features:

- Integrated wheel drive electronics
- Different operation modes for speed and acceleration using model based controllers
- High torque and speed stability (low noise)
- Internal compensation of friction and time delays

- Provides extensive housekeepings (e.g.: measured and estimated speed, voltage, current, acceleration reserves etc.)
- Various protective and monitoring mechanisms for:
 - Voltage and current
 - Temperature
 - Data processing

- Low level emitted vibrations, due to the mechanical design and the high level of alignments and balancing

Parameter**Data****Performance:**

Angular momentum	0.34 Nms @ 7 800 rpm
Nominal rotation speed	6 000 rpm
Max. rotation speed	approx. 7 800 rpm
Nominal torque	0.015 Nm

Mechanical:

Mass	≤ 0.9 kg
Dimension (with flange)	103 mm x 101 mm x 80 mm
Moment of inertia (rotating mass)	$4.2 \cdot 10^{-4} \text{ kgm}^2$

Electrical:

Voltage	18 V to 34 V
Power consumption	
Standby (motor off)	≤ 1.8 W
Conservation of nominal rotation speed	≤ 3.5 W
Nominal torque at nominal speed	≤ 6 W
Maximum (no limitations)	≤ 15 W

Data interfaces: RS485 (others on request)

General:

Operation temperature range	-20°C to +50°C
Non-operation temperature range	-30°C to +60°C
Design lifetime	7 years in low earth orbit
Storage time	3 year (incl. max. 240 h of ground operation)

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