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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 with latch-up protection
- Different operation modes for speed and acceleration using model based controllers
- High torque and speed stability (low noise)
- Provides extensive housekeepings (e.g.: speed, voltage, current, temperatures)
- Internal compensation of friction and time delays
- Low level emitted vibrations, due to the mechanical design and the high level of alignments and balancing

Parameter	Data
<b>Performance:</b>	
Angular momentum	0.34 Nms @ 7 800 rpm
Nominal rotation speed	6000 rpm
Max. rotation speed	approx. 7820 rpm
Max. reaction torque	0.015 Nm
<b>Mechanical:</b>	
Mass	< 0.9 kg
Dimension (with flange)	103 mm x 101 mm x 80 mm
Moment of inertia (rotating mass)	$4.2 \cdot 10^{-4} \text{ kgm}^2$
<b>Electrical:</b>	
Voltage	18 V to 34 V
Power consumption	
Standby (motor off)	< 2.0 W
Conservation of nominal rotation speed	$\leq 3.5 \text{ W}$
Maximum (no limitations)	$\leq 15 \text{ W}$
<b>Data interfaces:</b>	RS-485 (others on request)
<b>General:</b>	
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 years (incl. max. 240 h of ground operation)

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