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Space technology

Reaction Wheels



Reaction Wheel RW 250 For Small Satellites

Integrated wheel drive electronics

4 working modes, for example:

- Basic mode - command wheel torque (acceleration) and
- Kalman- filter based state space control mode

Selectable power modes

Internal compensation of friction, time delays and electromotive force of motor

Each command will be replied with actual speed and the acceleration / de acceleration reserve

After 4 seconds without communication it goes to PID control mode - maintaining the actual state

Extended house- keeping data by command

ASCII or binary protocol at RS 485 interface

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

- please turn over -

Parameter	Data
Mass of satellite	≤ 250 kg
Electrical:	
Voltage	28 V
Power (steady state / maximum)	1 W / 25 W
Mechanical:	
Angular momentum	± 4 Nms
Max. torque (linear range)	
continous	0,055 Nm
maximum	0,165 Nm
Average torque deviation	10 ⁻⁷ Nm
Slew rate (satelite specific)	0 - 10 °/s
Max. wheel rate	10 000 rpm
Mass	ca 2,7 kg
Internal friction	< 1 mNm
Vibration load	
Sinus	10 g from 20.....100 Hz
Random Vibration	14 g · rms
Pyroshock	1500 g shock response spektrum
Other Parameters:	
Temperature range	storage - 40°C - +70°C working mode - 30°C - +65°C
Elektro- mechanical time constant	~ 10 s