

RDR 68 Momentum and Reaction Wheels 14 – 68 Nms with external Wheel Drive Electronics



TELDIX® Space Wheels deliver industry leading capability and reliability for spacecraft attitude control.

They are available with an angular momentum storage capacity spanning a range between 0.04 Nms and 68 Nms. The wheels accommodate the requirements of attitude control systems for spacecraft weighing between 30 kg and 7,000 kg.

With more than 30 years experience in Space Wheel technology, our Teldix Space Wheels have accumulated more than 2900 years of in-orbit operational time - far exceeding competing products.

Key BeNefITS

- › Power/loss torque optimized
- › Hermetically sealed
- › Modular configuration
 - fast adaptation to customer requirements
 - Space qualified subsystems (Rotor, Motor, Bearing Unit, electronics)
- › Broad spectrum of different wheel types
- › Thermal optimized

Key feATURES

- › for satellites weighing 1,500 – 5,000 kg
- › High reliability through heritage
- › Usable as momentum or reaction wheel
- › More than 15 years lifetime design

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Main technical data	RDR 23-0 (RDR 57-0) and WDE 8-47	RDR 68-3 and WDE 8-45
Angular momentum at nominal speed	23 (57) Nms	68 Nms
Operational speed range	± 5,250 rpm	± 6,000 rpm
Speed limiter (EMF)	< 7,500 rpm	< 7,500 rpm
Motor torque at nominal speed	90 mNm	75 mNm
Loss torque (maximum)	< 20 mNm	< 20 mNm
Dimensions - Wheel (RDR)		
Diameter	345 mm	345 mm
Height	118 mm	118 mm
Mass	< 5.5 (7.6) kg	< 7.6 kg
Dimensions - Wheel drive electronics (WDE)		
Ground plane	170 x 220 mm	52 x 247 mm
Height	56 mm	145 mm
Mass (incl. Radiation shielding)	1.45 kg	1.25 kg
Total mass (RDR + WDE)	< 6.95 (9.05) kg	< 8.85 kg
Power consumption (RDR/WDE)		
Standby	< 5 W	< 5 W
Steady state at nominal speed	< 20 W	< 20 W
Maximum torque at nominal speed	< 90 W	< 90 W
Power interface		
Supply voltage	24 to 51 VDC	24 to 51 VDC
Input current	< 4.2 A	< 4.2 A
Galvanic isolation between primary return and secondary return	Yes	Yes
Preceding stage	Yes	Yes
On/off relay	Yes	Yes
Signal interface (WDE)		
Torque command and direction	Analog/bi-level	Analog/bi-level
Speed measurement and direction	Analog/bi-level	Analog/bi-level
Motor torque (current)	Analog	Analog
Bearing temperature	Analog (thermistor)	Analog (thermistor)
On/off status	Bi-level	Bi-level
On/off command	Pulses	Pulses
Environmental conditions		
Qualification/protoflight temperature	-10 to +55 °C (mineral oil), -25 to +75 °C (synthetic oil)	-10 to +55 °C (mineral oil), -25 to +75 °C (synthetic oil)
Operating temperature	-5 to +50 °C (mineral oil), -20 to +70 °C (synthetic oil)	-5 to +50 °C (mineral oil), -20 to +70 °C (synthetic oil)
Survival/non-operating temperature	-20 to +60 °C (mineral oil), -40 to +75 °C (synthetic oil)	-20 to +60 °C (mineral oil), -40 to +75 °C (synthetic oil)
Lifetime	> 15 years (in orbit)	> 15 years (in orbit)

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Rockwell Collins delivers smart communication and aviation electronics solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

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