

RSI 45 Momentum and Reaction Wheels 15 – 45 Nms with integrated 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
- › Volume/mass optimized
- › Hermetically sealed
- › Modular configuration
 - fast adaptation to customer requirements
 - Space qualified subsystems (Rotor, Motor, Bearing unit, electronics)
- › Broad spectrum of different wheel types

Key Features

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

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Main technical data	RSI 15-215/20	RSI 45-75/60
Angular momentum at nominal speed	15 Nms	45 Nms
Operational speed range	± 2,000 rpm	± 6,000 rpm
Speed limiter (EMF)	< 3,000 rpm	< 7,500 rpm
Motor torque at nominal speed	215 mNm	75 mNm
Loss torque	< 20 mNm	< 20 mNm
Imbalance		
Static	< 1.5 gcm	< 1.5 gcm
Dynamic	< 20 gcm ²	< 20 gcm ²
Dimensions		
Diameter	310 mm	310 mm
Height	160 mm	160 mm
Mass	< 7.7 kg	< 7.7 kg
Power consumption		
Steady state at nominal speed	< 15 W	< 22 W
Maximum torque at nominal speed	< 90 W	< 90 W
Power interface		
Supply voltage	21 to 37 VDC	21 to 37 VDC
Input current	< 4.5 A	< 4.5 A
Galvanic isolation between primary and secondary return	Yes	Yes
Preceding stage	Yes	Yes
On/off relay	Yes	Yes
Signal interface		
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	-25 to +70 °C	-25 to +70 °C
Operating temperature	-20 to +65 °C	-20 to +65 °C
Survival/non-operating temperature	-40 to +75 °C	-40 to +75 °C
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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