

HT-RSI High Motor Torque Momentum and Reaction Wheels 14 – 68 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 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	RSI 18-220/45	RSI 30-280/30	RSI 68-170/60
Angular momentum at nominal speed	18 Nms	30 Nms	68 Nms
Operational speed range	± 4,500 rpm	± 3,000 rpm	± 6,000 rpm
Speed limiter (EMF)	< 7,300 rpm	< 7,300 rpm	< 7,300 rpm
Motor torque at nominal speed	± 220 mNm	± 280 mNm	± 170 mNm
Loss torque	< 20 mNm	< 20 mNm	< 20 mNm
Dimensions			
Diameter	347 mm	347 mm	347 mm
Height	124 mm	124 mm	124 mm
Mass	< 6.3 kg	< 8.5 kg	< 8.9 kg
Power consumption			
Steady state at nominal speed	< 20 W	< 20 W	< 20 W
Maximum torque at nominal speed	< 150 W	< 150 W	< 150 W
Power interface			
Supply voltage	98 to 102 V	98 to 102 V	98 to 102 V
Input current	< 2.0 A	< 2.0 A	< 2.0 A
Galvanic isolation between primary and secondary return	Yes	Yes	Yes
Preceding stage	Yes	Yes	Yes
On/off relay	Yes	Yes	Yes
Power feedback to bus	Yes	Yes	Yes
Signal interface			
Torque command and direction	PWM @ 500 Hz	PWM @ 500 Hz	PWM @ 500 Hz
Speed measurement (Tacho Pulses)	Bi-level	Bi-level	Bi-level
Speed direction	Bi-level	Bi-level	Bi-level
Wheel status	Bi-level	Bi-level	Bi-level
Motor torque (current)	PWM @ 10 kHz	PWM @ 10 kHz	PWM @ 10 kHz
Bearing temperature	Analog (thermistor)	Analog (thermistor)	Analog (thermistor)
On/off status	Relay contact	Relay contact	Relay contact
On/off command	Pulses (relay)	Pulses (relay)	Pulses (relay)
Environmental conditions			
Qualification/protoflight temperature	-25 to +75 °C	-25 to +75 °C	-25 to +75 °C
Operating temperature	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
Survival/non-operating temperature	-40 to +70 °C	-40 to +70 °C	-40 to +70 °C
Lifetime	> 15 years (in orbit)	> 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.

For more information contact:

Rockwell Collins Deutschland GmbH
 Grenzhoefer Weg 36
 69123 Heidelberg
 Germany
 Tel: +49 (0) 6221 / 512 - 293
 email: rcd-space@rockwellcollins.com
www.rockwellcollins.com/gs

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