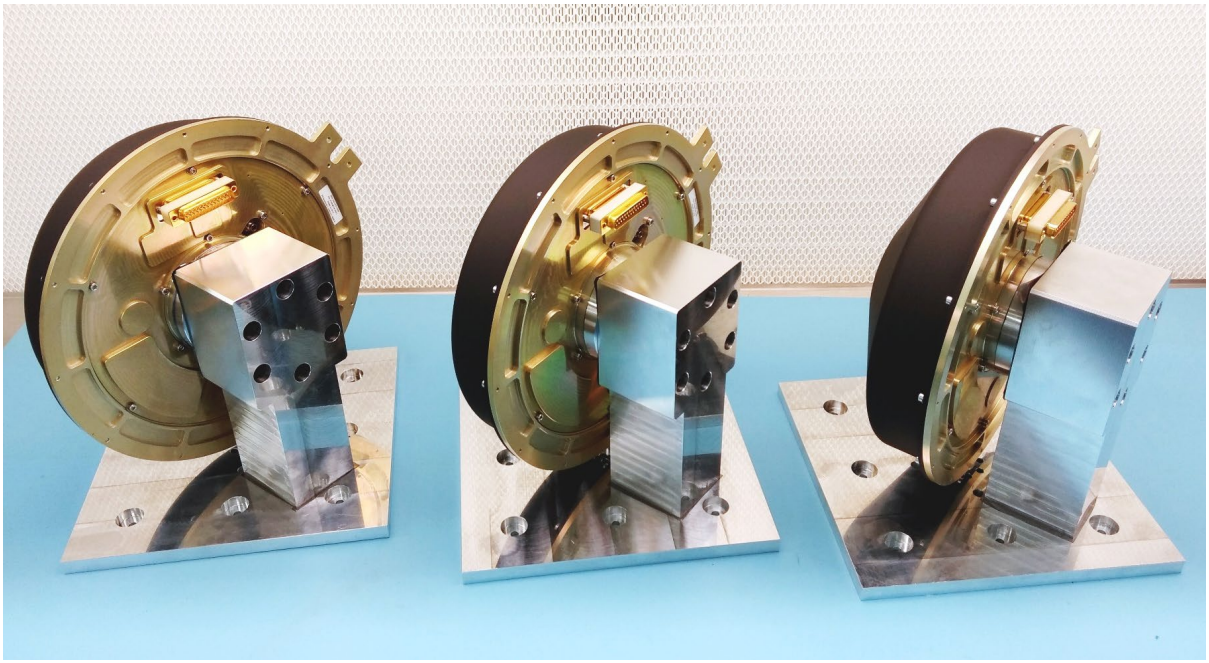
SSTL GEO WHEEL



Surrey Satellite Technology under contract with prime contractor Airbus Defence and Space (ADS), have designed, developed, qualified in 2018 and completed delivery of SSTL's first four Geostationary flight wheels in March 2019. All reviews were held with Airbus Defence & Space and the European Space Agency.

BENEFITS

- 15 year design life in GEO orbit
- Fully integrated radiation hard electronics
- Hermetically sealed mechanism
- Fully qualified
- Flight units delivered

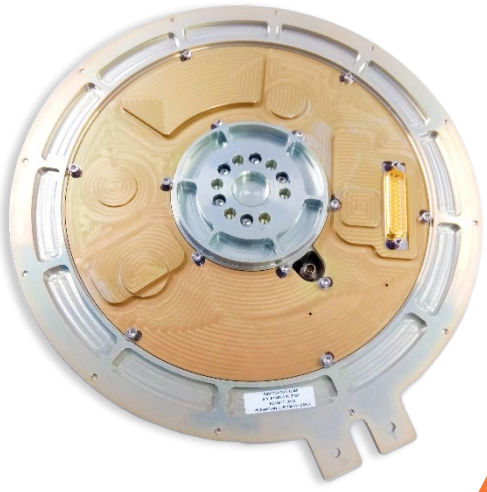
FEATURES

- Both current and speed modes implemented
- Single connector for communications & power
- Chassis or harness grounding
- Regenerated power returns back to spacecraft bus
- ON/OFF electrically isolated (optical)
- RS485 communications

SSTL GEO WHEEL

SPECIFICATIONS:

Model Code	SSW-200-OGS-12000
Reaction Torque	200mNm to +/-3900rpm at 48.5V DC
Momentum	12Nms @ +/-5000rpm
Speed range	+/-5000rpm
Operational revolutions (orbit)	<20.1 billion
Speed accuracy	0.4166rpm (720PPR) - Encoder
Speed jitter	2 x 0.416rpm
Unbalance	Static <2gcm Dynamic <14gcm^2
Lifetime (orbit)	15.25 years
Environment	Designed for Geostationary Orbit
Vibration (qualification)	15 Grms X/Y, 16 Grms Z
Shock (qualification)	100Hz 20g, 1400Hz 1000g, 10000Hz 1000g
Thermal (qualification)	-35°C to +70°C (survival) -30°C to +60°C (operating)
Electrical Interface	Single male socket (D-type) 25 way
Nominal Regulated range Voltage	48.5 to 52.5V DC (full performance) 23.5V DC min (reduced performance)
Idle power consumption Maximum power consumption	<5 Watts <180 Watts
ON/OFF operations	Unlimited
Telecommands	Speed demand, current demand (torque), control gains, coast
Telemetry	Speed, control loop, control current, motor current internal temperatures, internal rail voltages, gains
Communications	RS485
Internal speed controller update rate	5Hz
Maximum external telemetry update rate	5Hz
Wheel volume	Diameter 240 x 95mm
Wheel mechanical interface	6 off M6 on 38mm PCD
Mass	<5.6kg



Specifications may be subject to change

SSTL designs, manufactures and operates high performance satellites, subsystems and ground systems for space agencies, international governments, and commercial customers worldwide. Our satellite platforms are designed to fly remote sensing, navigation and communication payloads in LEO, MEO and GEO orbits and beyond. Our innovative approach to low cost spacecraft engineering is changing the economics of space.

W: sstl.co.uk
E: info@sstl.co.uk
T: +44 (0)1483 803803