Reaction/Momentum Wheel (RMW)

SITAEL Reaction/Momentum Wheel (RMW) is an attitude control device suitable for LEO orbits. Each RMW is capable to store up to 0.4 Nms angular moment and to provide up to 10 mNm control torque in a range between 0 and ±4000 rpm.

The RMW structure has been optimized in order to provide high angular momentum storage in a reduced volume envelope (120x100x130 mm) and mass (up to 1.2 kg in the fully equipped version). Its internal components are guaranteed for a standard lifetime of about 2 years that could be extended depending on the operating conditions.

The RMW driver can be controlled via RS232 serial protocol, but an additional interface can be provided to integrate also a redundant CAN bus communication port.

From a mechanical point of view, the MWR has been sized to resist to the mechanical launch loads of the most common launch vehicle for mini/micro satellite class.

SITAEL RMW

Features

- High torque/mass ratio actuator
- High stall torque
- Hard preloaded bearings
- Robust thermal and mechanical response
- Scalable to fit different mission profiles
- Oil lubrication with space grade lubricant

Technical Information

SPECIFICATIONS	
Speed range	[-4000 ; +4000] rpm
Momentum storage	≤ 0.4 Nms
Bus Input Voltage (V)	+12 V to +30 V
Interfaces	RS232, CAN-Bus
Environment	Storage Temperature: -40 °C to +100 °C
	Operating Temperature: -10 °C to +60 °C
Power Consumption	14 W (peak) / 2.5 W (typ.)
Size	120x100x130 mm (L x W x H)
Mass (g)	≤ 1100

4-wheels redundant configuration (reaction/momentum)

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