HYPERION
TECHNOLOGIES

ENGINEERED FOR PERFORMANCE

# PM200

DAWN
AEROSPACE

Propulsion module

The PM200 is a bi-propellant propulsion module offered in partnership with Dawn Aerospace. It is intended for use in 3-6U CubeSats and allows manoeuvres of up to 230 m/s to be performed utilizing non-toxic propellants (nitrous oxide and propene) in a self-pressurizing configuration.

Low system complexity and zero propellant toxicity allow for simple and robust operations, both on the ground and when in orbit. The medium tank pressure and high storage density of liquid propellants enables high safety factor tanks to be used with little mass penalty.

The standard configuration with a 1U propulsion module can be configured to suit any CubeSat structure and features an I²C or RS422/RS485 compliant interface.

Through the use of additive manufacturing, the system is highly customizable. Design parameters such as total system delta-V, interface style and thrust direction can be changed on request and adapted to an existing CubeSat architecture.

The PM200 can be seamlessly integrated with Hyperion Technologies' line of integrated attitude determination and control systems to provide a fully integrated GNC and ADCS solution.
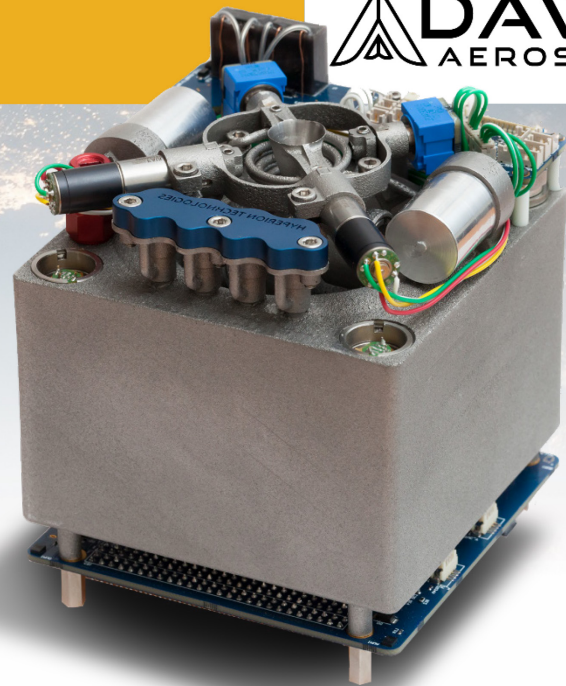
HIGHLIGHTS

- Nominal thrust   0.5 N
- Specific impulse   > 285 s
- ΔV (3U CubeSat)   > 230 m/s
- Minimum impulse bit   35 mN.s
- Maximum impulse bit   5 N.s
- Repeatability (3 σ)   +/- 5 mN.s
- Power requirement (firing)   < 12 W
- Power requirement (sleep)   < 0.1 W
- Storability   > 5 years
- Ready to fire seconds after wake-up
- No measured thruster degradation
- Integrated thruster management system

www.hyperion.space

sales@hyperion.space
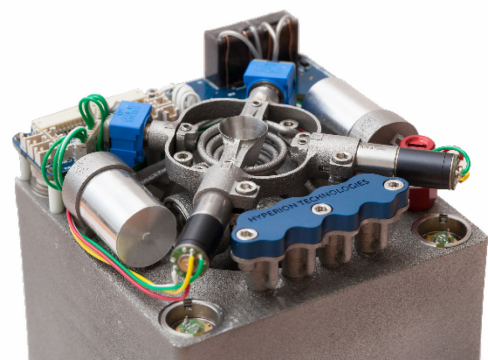
PERFORMANCE

The standard 1U configuration of the PM200 propulsion module can deliver in excess of 230 m/s of velocity increment to a 3U CubeSat of 4 kg. The system utilizes a single 0.5 N thruster. This relatively high thrust allows manoeuvres to be completed in a timely manner as well as enabling the use of Hohmann transfer orbits. Integrated thrust vector control ensure that inherent thruster disturbance torques are actively compensated.

The smallest deliverable impulse bit of 35 mN.s results in a velocity increment of 0.01 m/s of a 3U CubeSat. A velocity increment of up to 1.37 m/s can be imparted before cooldown is required.

The system makes use of pressure and temperature sensors to monitor system health and provide real-time thruster performance data.

SPECIFICATIONS

Performance		
Total impulse	> 850	N.s
Thrust	0.5	N
$I_{sp\ vac}$	> 285	s
ΔV (4kg satellite incl. PM200)	> 230	m/s
Environmental		
Operating temperature	-5 to +35	°C
Electrical specifications		
Supply voltages	5 and 12	V
Power required (during firing)	< 12	W
Power required (sleep)	< 0.1	W
Mechanical		
Outer dimensions	97.7 x 95.4 x 95.4	mm
Nom. propellant storage pressures	45 (Ox) / 9 (Fuel)	bar
Dry mass (excluding propellant)	1100	g
Propellant mass	310	g

MECHANICAL CHARACTERISTICS (IN MM)
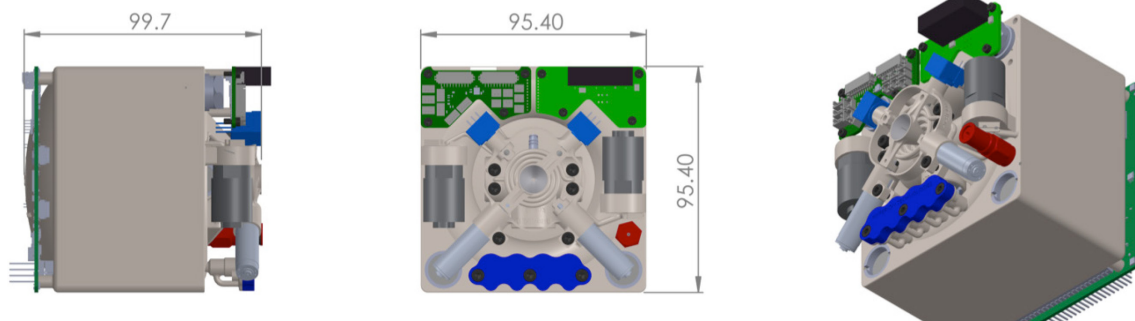
For pricing, delivery, configuration and ordering information please contact us at **sales@hyperion.space** or call us at **+31(0)15-5160905**

www.hyperion.space

sales@hyperion.space