

DATASHEET | APB-L

Aurora Plasma Brake - Large

APB Product line

APB-S-TC

APB-L

APB-SA

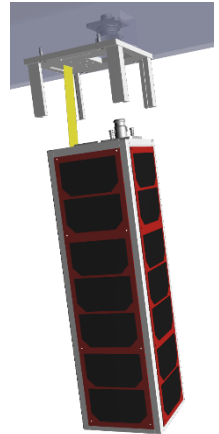
APB-LA

The APB-L can deorbit any spacecraft in the mass range of 50 – 500 kg from orbits up to 1000 km. Designed for launch vehicle terminal stages and SmallSats, the system has minimal mass and volume requirements.

This Plasma Brake variant uses the gravity gradient to deploy its micro-tether, posing minimal requirements for the host spacecraft.

SCIENCE BEHIND THE TECHNOLOGY

The Plasma Brake uses Coulomb drag to interact with the upper atmosphere plasma, causing a drag force that deorbits the spacecraft. Its power requirements are minimal compared to the drag created. The thrust depends on the orbit, tether length and space weather. You can read more about the scientific background [here](#).



Concept render

MODULAR STRUCTURE FOR CUSTOM REQUIREMENTS

The APB-G can be fitted with a microtether in the range of 500 to 5000 meters. An automatic de-orbiting functionality is also under development, deorbiting the satellite even in situations where the spacecraft has died. Aurora will recommend the best variant and suitable tether length based on customer requirements and mission profile.

SAFETY

The plasma brake is inherently safe and reliable due to its simplicity. It is also safe for other satellites due to the use of the $\varnothing 50 \mu\text{m}$ (or smaller) microtether; even if it hits another satellite, it only leaves a mark few micrometers deep, equal to the daily micrometeoroid bombardment present in LEO.

SPECS

Target satellite	50-200 kg	200-500 kg
Tether length	Up to 2000 m	Up to 5000 m
Thrust	Up to 100 nN / m	
Mass	~ 4 kg	
Form factor	100 * 140 * 300 mm ³	
Deorbit duration	Sized for nominal 2 years deorbit, worst case < 5 years	