



THUNDERHEAD BALLOON SYSTEM

FOR DEFENSE AND INTELLIGENCE APPLICATIONS

Aerostar is the world leader in stratospheric and lighter-than-air technologies. Aerostar's Thunderhead super pressure balloon system has spent more time in the stratosphere than any other HAB system. The Thunderhead Balloon System can achieve altitudes from 45,000 ft – 95,000 ft with a wide variety of user payloads 125-250 pounds. Mission duration of 60+ days are possible, allowing for data collection over a wide area of interest. The Thunderhead balloon system supports ISR, Earth Observation, communications extension, and other applications.



THUNDERHEAD FEATURES

The Thunderhead Balloon System is a cost-effective platform that provides many advantages for a range of complex, tactical missions by providing a uniquely high SWAP, long duration platform maneuverable anywhere in the world. Aerostar has integrated over 40 payloads and packages for stratospheric operations in the last five years, including ELINT, SIGINT, SATCOM, SAR, EO/IR, FMV, secured comms and comms relays. At 60,000 ft, the functional range of sensors on a Thunderhead platform extends beyond terrestrial or typical fixed wing limits and often extends all the way to or beyond the horizon.



GENERAL	200 Series	1200 Series
Weight	65lbs	65lbs
Size	13.5"x13.5"x40"	13.5"x13.5"x40"
Batteries	Li-ion (UN-3481)	Li-ion (UN-3481)
Altitude Range	55-95 Kft (MSL)	50-95 Kft (MSL)
Other Altitudes Available from 45-95 Kft (MSL)		
Flight Duration	90+ days	90+ days
Helium Fill	7,500+ scf (UN-1046)	
Baseline Comms	Iridium	Iridium
Payload Weight	125 lbs	200 lbs
Payload Power	2,400Whr (Daily)	5,500Whr (Daily)
Power Interface	4x 28VDC rails	

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REDEFINING STRATOSPHERIC MISSIONS

Thunderhead Balloon Systems have made long duration and navigational stratospheric missions a proven reality. By leveraging directional wind patterns at high altitudes, Aerostar's Thunderhead Balloon Systems offer groundbreaking capabilities for navigation and persistence over areas of interest.

With Thunderhead Balloon Systems, controlled flight and long duration capabilities can be planned and executed at a fraction of the cost and time of traditional platforms. Thunderhead Balloon Systems can be flown in constellations or individually to support a wide range of mission requirements. Affording users land-based and maritime launch platforms, solar regeneration, and payload recovery, applications are dynamic and diverse.



THUNDERSTORM COMMAND AND CONTROL (C2) SOFTWARE SUITE



The Thunderstorm software suite provides a host of mission planning tools and piloting capabilities. All of Aerostar's stratospheric platforms, including Thunderhead, Cyclone, and Lightning, are supported by the Thunderstorm software suite. Thunderstorm is a server-based software suite that is remotely accessible through secure VPN anywhere in the world. Aerostar uses Thunderstorm to provide BLOS and LOS C2 services to Thunderhead balloons.

TACTICAL DEPLOYMENT VERSATILITY

Aerostar has launched the Thunderhead balloon system from a variety of CONUS and OCONUS locations including both military and commercial maritime vessels. From austere and expeditionary locations, Aerostar has experience launching and operating the Thunderhead Balloon System in a variety of environments. Aerostar provides Thunderhead deployment logistics and airspace coordination services as part of its mission services support. Aerostar also has years of experience coordinating and launching the Thunderhead Balloon system for and with the US military services.



For more than 65 years, Aerostar has designed, manufactured, and integrated systems that solve challenges in Aerospace & Defense. From engineering services, design, and development to highly-technical products and support, we offer tailored turnkey solutions for a multitude of missions.