

Empyreal Galaxy is a modern airship and aerostat manufacturing company that is specialised in the design, development and production of airships and aerostats for various industries, including military, scientific research, and commercial operations. With a team of experienced engineers, designers, and technicians, we utilise the latest technology and innovative materials to produce top-quality airships and aerostats that meet high standards of performance, safety and durability.

Empyreal Galaxy, headquartered in Mumbai with an innovation lab in Nashik (Maharashtra), fully embraces the significance of self-reliance and indigenization in the aerospace sector. In line with our commitment to the "**Make in India**" initiative, we source 90% of our raw materials and components from Indian manufacturers and suppliers.



AIRSHIP – GENERAL SPECIFICATIONS & CAPABILITIES

Overview

An **Airship** is a self-propelled lighter-than-air aerial platform that generates lift using helium or hydrogen gas and is equipped with propulsion, navigation, and steering systems. Unlike tethered aerostats, airships are **fully manoeuvrable and capable of long-duration flight**, enabling wide-area surveillance, cargo transportation, communication relay, environmental monitoring, and disaster response operations.

Empyreal Galaxy's airship platforms are designed to deliver **persistent aerial capability with low operational cost, high payload flexibility, and long endurance**, making them ideal for defence, homeland security, telecom, and commercial applications.

AIRSHIP – GENERAL SPECIFICATIONS

Feature	Specification
Operating Altitude	Up to 12000 meters AGL (Customizable)
Payload Capacity	Up to 5000 kg depending on configuration
Endurance	24 hours – 30 days depending on mission profile
Cruising Speed	40 – 120 km/h
Operational Range	Up to 1000 km (depending on fuel / hybrid system)
Length	30 m – 120 m depending on payload requirements
Gas Type	Helium/Hydrogen (Primary Lift Gas)

Feature	Specification
Power System	Hybrid propulsion (Electric / Fuel / Solar assisted options)
Navigation System	Autonomous navigation with GPS / INS integration
Launch & Recovery Time	4 – 6 hours
Wind Resistance	Up to 60 knots operational wind tolerance
Control System	Onboard flight control system with ground control station
Safety Systems	Emergency gas venting, lightning protection, redundant control systems

KEY CAPABILITIES

- **Persistent Aerial Surveillance**
 - Airships provide **long endurance surveillance capability**, enabling continuous monitoring of large areas including borders, coastlines, and strategic assets.
 - **Large Payload Integration**
 - The platform supports multiple payload types including:
 - Long-range radar
 - EO/IR surveillance systems
 - Communication relay equipment
 - SIGINT / ELINT sensors
 - Environmental monitoring instruments
 - **Wide Area Coverage**
 - Operating at high altitude allows an airship to **monitor hundreds of kilometers of terrain**, significantly enhancing situational awareness.
 - **Low Operational Cost**
 - Compared to conventional aircraft or helicopters, airships offer:
 - Lower fuel consumption
 - Reduced operational cost
 - Longer mission duration
 - **Quiet and Stable Operation**
 - Airships produce **minimal vibration and noise**, making them ideal for sensitive surveillance missions and scientific research.
 - **Modular Payload Architecture**
 - Payload modules can be easily swapped depending on mission requirements.
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PAYLOAD OPTIONS

Category	Payload	Application
Electro Optical Systems	EO / IR Cameras	Day & Night surveillance
Radar Systems	Long Range Radar / GSR	Border & maritime monitoring
Communication Systems	LTE / 5G Relay Nodes	Communication extension
Electronic Intelligence	SIGINT / ELINT Sensors	Interception & monitoring
Environmental Monitoring	Weather sensors / atmospheric sensors	Climate and environmental analysis
Public Safety	PA systems / warning systems	Disaster communication

AIRSHIP APPLICATIONS

Sector	Applications
Defence & Homeland Security	Border surveillance, early warning systems, ISR missions
Maritime Security	Coastal monitoring, anti-piracy operations, port surveillance
Telecommunication	Temporary communication towers, 5G network extension
Disaster Management	Search & rescue, communication restoration, disaster monitoring
Cargo Logistics	Heavy cargo transportation to remote areas
Environmental Monitoring	Weather observation, climate research
Agriculture	Crop monitoring, precision agriculture
Airport Operations	Foreign Object Debris (FOD) Detection & Airfield Monitoring
Power Infrastructure	High-Voltage Transmission Line Monitoring & Inspection

COMPETITIVE ADVANTAGES

- Long endurance missions (days to weeks)
- Lower operating cost compared to aircraft
- High payload capacity
- Large area surveillance capability
- Environmentally friendly propulsion options

- Quick deployment and recovery
- Modular mission configuration

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