ASCENT
AEROSYSTEMS

SPIRIT

DESCRIPTION + PERFORMANCE

SPIRIT

THE IDEAL PLATFORM FOR MISSION-CRITICAL OPERATIONS

Meet the new face of mission-critical operations from Ascent AeroSystems. Spirit is a dependable, all-weather, high-performance UAV designed and built in the USA. Unlike conventional drones, Spirit is designed to operate reliably in the harshest environments.

PAYLOAD
Up to 9.5 lbs

TOP SPEED
60+ mph

ENDURANCE
Up to 53 mins

ENVIRONMENTAL
Fly in rain, sleet, sand & snow

SIZE
75% smaller than comparable multirotors

COMPACT & MODULAR

Spirit's compact airframe easily fits within a standard backpack and its fully modular airframe allows for field-swappable payloads so it's easy to bring what's needed, where it's needed, when it's needed

RUGGED & ALL WEATHER

Spirit is protected against contamination and can reliably operate in adverse weather conditions including rain, sleet, sand and snow.

EFFICIENT & HIGH-PERFORMANCE

Spirit sets the new standard for performance in its weight class with nearly 10 lbs available for batteries and payloads and a top speed of over 60mph to go farther, faster, longer, and carry more.

VERSATILE & ADAPTABLE

Spirit's adaptable design avails entirely new deployment methods and allows operators to easily incorporate a growing ecosystem of swappable payloads and software.

DESIGNED TO MEET THE REQUIREMENTS OF CRITICAL MISSIONS, ANYTIME, ANYWHERE

DEFENSE

Rapidly deployable, rugged & efficient UAV for mission-critical operations

- Intelligence, Surveillance, and Reconnaissance
- Precision delivery
- Communications relay
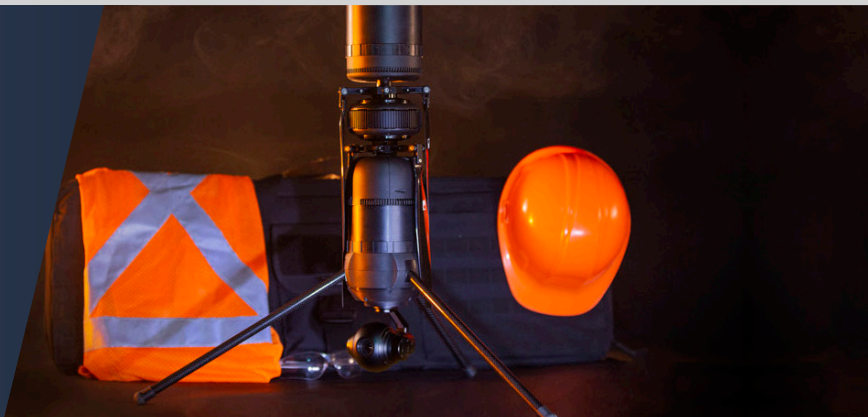- Target identification and designation

PUBLIC SAFETY

Reliable response in any environment

- Search & rescue operations
- Law enforcement
- Rural firefighting
- Disaster response

INDUSTRIAL

Coaxial system designed for quick & dependable deployment in extreme conditions

- Security
- Inspection
- Incident response
- Precision delivery

ASCENT AEROSYSTEMS

Ascent AeroSystems designs and manufactures rugged "coaxial" drones right here in the US. More than seven years of development have made Ascent AeroSystems the world's only source for coaxial vehicles, and hundreds have been delivered to professional, commercial, government and military customers worldwide.

SPIRIT

UNMATCHED MODULARITY

What you need, when you need it,
wherever you need it.

CONFIGURATION EXAMPLES

1.
One battery, EO/IR 4k 40x zoom camera with integrated thermal sensor, fixed landing gear.

2.
One battery (top), 4MP RGB 10x zoom camera, landing skid.

3.
Two batteries, EO/IR camera (top), fixed landing gear , 360-degree camera (bottom).

Many others possible!

ADAPT, CUSTOMIZE, AND UPGRADE

Ascent AeroSystems' coaxial UAVs can be scaled larger or smaller to accommodate a wide range of payloads, power sources, and launch methods to support your missions. Our expert team can work with you to take advantage of the cylindrical design and integrate specific payloads to tackle missions exactly to your specifications.

CORE VEHICLE

SPIRIT OFFERS UNPARALLELED PERFORMANCE AND FLEXIBILITY WITH A MINIMAL AIRFRAME DESIGN.

240-pin Connector

257 mm
12 in

240-pin Connector

106 mm
4.2 in

TOP TO BOTTOM CONNECTIVITY

240 pins distribute power and data to the top and bottom of the core, providing maximum flexibility for mission equipment. Included protocols include all Pixhawk connections, high-speed ethernet (2), HDMI and spares.

PAYLOADS & SENSORS

A range of EO/IR sensors are available now, other modules available soon - Please contact us for details.

PAYLOAD DEVELOPMENT KIT (PDK)

A free technical documentation package and CAD files are available for custom payload development. Hardware kits are also available.

AIRFRAME ENHANCEMENTS

Tethered operations, high speed, extended range flight, launch sleeve, and more.

QUICK CONNECT MODULES

Quick-connect fittings at the top and bottom of the core allow for almost any combination of batteries and payload modules, adaptable to your mission-specific requirements. Exchangeable in seconds, modules can be stacked above and below the core to provide the custom configurations for your missions today and tomorrow.

BATTERY
Ultra high-density Lithium-Ion cells (6AH, 12S 44.4v) mount to the top and bottom of the core.

CAMERAS
Several RGB, Thermal, and EOIR optical modules are available.

LANDING GEAR
Optional landing gear module provides pass-through capability.

SPIRIT | SPECIFICATIONS & PERFORMANCE

CORE

TYPE & CONSTRUCTION	Coaxial Unmanned Aerial Vehicle. Polycarbonates, composites, aluminum
AVAILABLE PAYLOAD MOUNTS	Top and bottom mounts can accept wide combination of batteries or payload (stackable)
DIMENSIONS (NO BATTERY OR PAYLOAD)	1. 12.0 inches (257mm) x 4.2 inches (106mm) (Other payload diameters are supported) 2. Tip-to-tip diameter w/blades extended 25.5 inches (650mm)
DRIVE SYSTEM	Direct drive with 2x brushless motors
MAXIMUM TAKEOFF WEIGHT	13.5 lbs (6.1 kg)
EMPTY WEIGHT	Core Vehicle (no battery or payload) 4.0 lbs. (1.8 kg)
SYSTEM VOLTAGE	12S 44.4 volts
BATTERY OPTIONS	• Single (6.0 A h) Double (2x 6.0 A h) • Battery weight 3.0 lbs. (1.4 kg) 6.0 lbs. (2.7 kg) • Maximum available payload 6.5 lbs. (3.0 kg) 3.5 lbs. (1.6 kg)
FLIGHT ENDURANCE	**ONE BATTERY:** 38 min with no payload / 16 min w/max payload **TWO BATTERIES:** 53 min with no payload / 32 min w/max payload
ENVIRONMENTAL	**MAX DENSITY ALTITUDE**: 14,600 feet above MSL (5,000m) **OPERATING TEMP:** -40 to 130F (-40 to 54C)
ENVIRONMENTAL RATING	IP56
MAXIMUM FORWARD AIRSPEED*	Max (manual mode): >60 mph (100 kph, 27 m/s) Auto (Recommended): 40 mph (65 kph, 18 m/s)
MAXIMUM RECOMMENDED WIND	Recommended 40 mph (65 kph, 18 m/s) or operator's discretion

STANDARD AUTOPILOT & NAVIGATION Other Options Available

STANDARD AUTOPILOT	• Pixhawk 2 (Cube) Ardupilot/MAVLink. Commercial specifications standard, Domestic & MIL-spec available. • Other autopilots and encrypted communications standards are available
GUIDANCE SENSORS	Redundant sensors (barometer, compass, accelerometers, gyroscope)
SATELLITE	GPS, GLONASS
GROUND CONTROL STATION	• Integrated manual mode 2-stick control, autonomous navigation w/integrated 1920 x 1080 touchscreen LCD • Alternative options include ruggedized Windows PCs, Android, iOS available
COMPATIBLE GCS SOFTWARE	All Windows, Android and iOS versions of Mission Planner, QGroundControl, Tower, U.S. DoD ATAK

STANDARD WIRELESS COMMUNICATION & VIDEO Other Options Available

MANUAL FLIGHT CONTROL FREQUENCY	2.4GHz Range: 12 miles (20 km) FCC; 7 miles (12 km) CE & SRRC
VIDEO LINK	1080p @60/30 fps, 720p @30 fps. Latency <110ms from input source to GCS display
AIRBORNE VIDEO INPUTS	Dual HDMI inputs support simultaneous use of two airborne sensors

BLUE sUAS COMPATIBILITY

AIR VEHICLE	NDAA and Executive Order 13981-compliant
GROUND CONTROL STATION	Compatible with multiple Blue sUAS-approved GCS
SENSORS	NDAA-compliant sensors available