CLIFF HAWK ELECTRICS

FROM CONCEPT TO COMBAT

www.cliffhawk.in

CLIFF HAWK ELECTRICS

Grounded In Expertise. Driven To Elevate.

Cliff Hawk Electrics is an indigenous UAV company designing and manufacturing next-generation unmanned aviation systems for defence, industry and research.

Built on deep engineering expertise, every system integrates hardware, intelligence, and reliability with precision.

40+
Drone Labs Established

700+
Successful Drone Deliveries

15+
Years of Team Expertise

Our Vision

To make Cliff Hawk Electrics synonymous with reliability in the skies and make it the company professionals across industries choose when the mission cannot afford to fail.

Our Mission

To advance India's aerial capability through indigenous UAV technology, engineering systems of uncompromising quality that strengthen our defence, accelerate our industries, and expand the frontiers of our science.

Focused On Decisive Outcomes

Cliff Hawk Electrics is built to solve real-world operational challenges through advanced UAV systems. Founded by an aerospace veteran, the company brings together engineering discipline and innovation to create systems that perform where failure is not an option.

Every platform is designed with a clear objective: to deliver reliable outcomes in demanding environments.

Where We Shine

Defence & Security

Mission-ready systems for surveillance, engagement, and protection

Industrial & Commercial

Inspection, monitoring, and operational efficiency

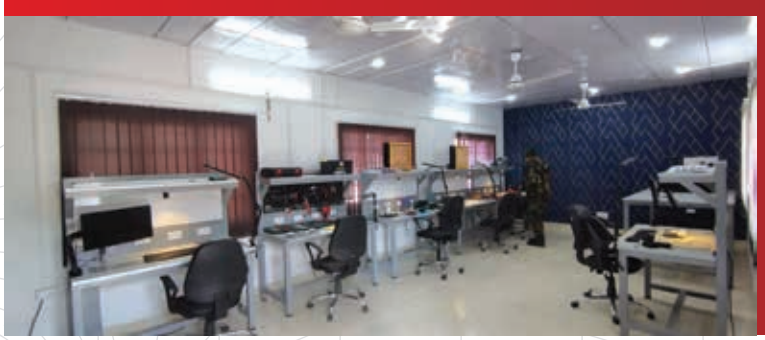
Agriculture

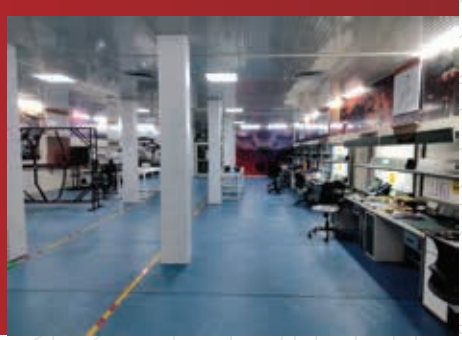
Precision-driven data and field intelligence

Research

Platforms built for experimentation and advancement

40+ Drone Labs Established





H-TAIL UAV Platform

ENDURANCE
Up to 4 hours

MTOW
28 kg

MAX SPEED
110 - 130 kmph

LAUNCHING ALTITUDE
Up to 3500 m

A stable, long-endurance UAV platform optimised for mapping, surveillance, and inspection. Built for precision data capture across diverse terrains.

Main Features

- H-tail configuration for enhanced flight stability & control
- High aspect ratio wing enabling long-endurance missions
- Dual propulsion options: electric or internal combustion engine
- Autonomous waypoint navigation with advanced autopilot
- Multiple takeoff options: runway or assisted catapult launch
- Flexible landing: wheeled or belly landing capability
- Redundant navigation systems with fail-safe recovery modes
- Modular, field-serviceable airframe with detachable wings
- Reinforced landing gear for rugged terrain operations
- Optimised for efficient flight across varied mission profiles

Applications

- Tactical Surveillance & Reconnaissance (ISR)
- Border & Coastal Security Operations
- Persistent Area Monitoring & Threat Detection
- Tactical Reconnaissance & Target Tracking
- Forward Operating Surveillance Support
- Communication Relay in Field Deployments
- Search & Rescue (SAR) Support Operations
- Critical Infrastructure Protection

Payload

- EO/IR camera systems
- RGB/multispectral mapping sensors
- LiDAR payload (optional)
- Environmental & monitoring sensors
- Modular payload bay with quick-swap capability

Specifications

- Wingspan: 3.6 m
- Length: 2.4 m
- Wing Area: 133 dm²
- Empty Weight: ~16 kg
- Cruise Speed: 60 - 90 kmph
- Operational Range: 20 - 60 km LOS
- Stall Speed: 45 kmph Wind
- Resistance: Up to 35 kmph

ORBITER 1K

ENDURANCE
Up to 2.5 hours

PAYLOAD
8 kg

MAX SPEED
120 kmph

CEILING ALTITUDE
Up to 4000 m

A Class 1 loitering UAV engineered for precision soft-target engagement. Built on combat-proven technology, it delivers high endurance, controlled lethality, and minimal collateral impact.

Main Features

- Targets: soft vehicles & personnel
- BLOS capability across terrains
- Long-endurance surveillance
- Proximity fuse for effective coverage
- Advanced guidance & autonomy
- Artillery support & BDA
- GPS-denied operation capable
- Multi-platform GCS compatibility
- Maritime-ready: Vertical Takeoff & landing
- precision vessel landing

Applications

- Tactical Surveillance & Reconnaissance (ISR)
- Forward Operating Surveillance Support
- Communication Relay in Field Deployments
- Search & Rescue (SAR) Support Operations
- Critical Infrastructure Protection
- Border & Coastal Security Operations
- Persistent Area Monitoring & Threat Detection
- Tactical Reconnaissance & Target Tracking

Payload

- Stabilised mini dual EO/IR camera
- Fragmentation warhead capacity – over 3 kgs

Specifications

- Wingspan: 5 m
- Mission Range: Up to 200km
- Payload Weight: Over 5 kg
- Service Ceiling: 13,000 ft. ASL

DELTA PLATFORM

ENDURANCE
Up to 5 hours

MTOW
30-35 kg

MAX SPEED
140 - 160 kmph

LAUNCHING ALTITUDE
Up to 4000 m

A high-endurance fixed-wing UAV designed for multi-role missions. Combines speed, modular payload integration, and autonomous navigation for consistent operational performance.

Main Features

- Delta wing design for enhanced speed & flight stability
- Long endurance with mission-dependent flight duration
- Autonomous waypoint navigation with advanced autopilot systems
- Multiple launch options: rocket-assisted/catapult deployment
- Flexible recovery modes: belly landing, parachute, or mission termination
- Secure communication with optional AES-based encryption
- Redundant avionics with fail-safe recovery mechanisms
- Operational in diverse environmental & weather conditions
- Portable design with detachable wings for easy transport

Applications

- Precision Strike
- Surveillance & reconnaissance (ISR) operations
- Border patrol & defense missions
- Forward Operating Surveillance Support
- Communication Relay in Field Deployments
- Search & Rescue (SAR) Support Operations
- Critical Infrastructure Protection
- Border & Coastal Security Operations
- Persistent Area Monitoring & Threat Detection
- Tactical Reconnaissance & Target Tracking

Payload

- Electro-optical (EO) camera (1080p/4K)
- Thermal imaging payload (optional)
- 2-axis / 3-axis stabilized gimbal
- Custom payload bay for ISR / surveillance

Specifications

- Wingspan: 1.8 - 2.0 m
- Overall Length: 1.6 - 1.8 m
- Payload Capacity: 2 - 7 kg
- Cruise Speed: 110-120 kmph
- Operational Range: 300 km extendable
- Engine: 2-stroke internal combustion
- Wind Resistance: Up to 45 kmph

HIGH-SPEED TURBOJET UAV PLATFORM

ENDURANCE
Up to 1.5 hours

MTOW
18-30 kg

MAX SPEED
200 -250 kmph

LAUNCHING ALTITUDE
Up to 6000 m

A high-speed UAV engineered for rapid deployment and dynamic missions. Designed for surveillance, testing, and high-performance operations.

Main Features

- Turbojet propulsion for high-speed, sustained flight performance
- Aerodynamically optimised airframe for low drag & stability
- Rapid climb capability with jet-assisted thrust
- Multiple launch options: catapult or runway takeoff
- Flexible recovery: parachute, belly landing, or skid landing
- Advanced autonomous flight modes with waypoint navigation
- Redundant avionics with dual IMU for enhanced reliability
- Secure communication with optional encrypted links
- Modular payload integration with quick-swap capability
- Heat-resistant engine bay with vibration-damped avionics mounting

Applications

- High-speed surveillance missions
- Target drone for defence training
- Aerodynamic & propulsion testing
- Rapid response monitoring
- Research & development operations

Payload

- EO/IR camera systems
- Controlled payload release mechanism
- Modular payload bay for mission-specific integration

Specifications

- Wingspan: 2 - 5 m
- Length: 2.2 - 3.0 m
- Payload Capacity: 3 - 8 kg
- Cruise Speed: 150 - 200 kmph
- Operational Range: 40 - 120 km LOS
- Engine: Mini turbojet
- Fuel Type: Jet A1/ATK
- Fuel Capacity: 15 litres
- Wind Resistance: Up to 50 kmph

MINI PAYLOAD DRONE

A compact multi-rotor UAV engineered for rapid deployment and versatile payload operations. Designed with a modular multi-load architecture, it delivers reliable performance across applications.

ENDURANCE
Up to 1.16 hours

MTOW
16 kg

MAX SPEED
97 kmph

Main Features

- Quick-release assembly with under 5-minute deployment time
- Multi-load payload architecture for flexible mission use
- Autonomous & manual flight modes with advanced navigation
- High wind resistance & stable flight performance
- Compact & portable carbon fibre structure
- Multiple fail-safe modes, including Return-to-Home
- IP55-rated protection for field operations

Applications

- Surveillance & monitoring operations
- Tactical payload delivery
- Disaster response & public safety
- Industrial inspection & reconnaissance

Payload

- Daylight camera systems
- Thermal / night vision camera
- Megaphone integration
- Payload dropping mechanism
- Multi-platform mounting (lower, overhead & extended)

Specifications

- Wheelbase: 906 mm
- Payload Capacity: Up to 5 kg
- Operational Altitude: Up to 5500 m
- Control Range: 5 km (30 km optional)
- Weight: 7.7 kg (with battery)
- Wind Resistance: Up to 16 m/s

PAYLOAD DRONE

A multi-rotor UAV designed for extended endurance and high payload capacity missions. Built for sustained aerial operations with robust flight stability and modular adaptability.

ENDURANCE
Up to 2 hours

MTOW
20 kg

MAX SPEED
54 kmph

Main Features

- Extended endurance with optimised power management
- High payload capacity for mission-critical operations
- Quick deployment with modular payload configuration
- Autonomous navigation with advanced flight modes
- Robust carbon fibre structure for durability
- Secure & stable flight in varied conditions
- IP55-rated for field operations

Applications

- Heavy payload transport
- Surveillance & tactical monitoring
- Logistics & supply delivery
- Disaster relief operations

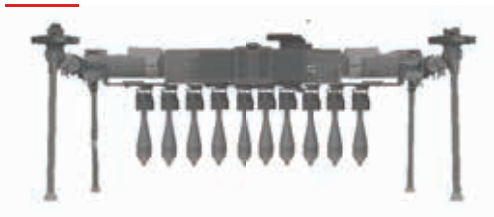
Payload

- Daylight & thermal imaging systems
- Megaphone systems
- Payload dropping capability
- Multi-platform payload integration

Specifications

- Wheelbase: 1250 mm
- Payload Capacity: Up to 10 kg
- Operational Altitude: Up to 5500 m
- Control Range: 5 km (30 km optional)
- Weight: 10 kg (with battery)
- Wind Resistance: Up to 12 m/s

Payload Dropping Mechanism



Lifts Multiple Explosives / IEDS and drop them at designated locations in dropping mode:
• Single • Double • Multiple • All at once
b) Max payload carrying capacity 10kgs
c) Accuracy of drop +\- 1 mtr

KAMIKAZE FPV DRONE

ENDURANCE

Up to 0.41 hours

MTOW

1.5 kg

MAX SPEED

150 kmph

A high-speed FPV drone engineered for precision strike and rapid engagement missions that combines agility, real-time video transmission, and dual-mode detonation capability.

Main Features

- High-speed agile flight with manual & assisted control modes
- HD FPV transmission for real-time targeting
- Dual detonation modes for mission flexibility
- Compact carbon fibre frame with shock-mounted electronics
- Optional anti-jamming communication systems
- Extendable control range via relay systems

Applications

- Precision strike operations
- Tactical reconnaissance
- Rapid engagement missions

Payload

- DModular explosive / grenade payload
- Dual-mode detonation (drop + impact)

Specifications

- Frame Size: 10 inches
- Takeoff Weight: 3.5 - 4 kg
- Max Speed: Up to 150 kmph
- Control Range: Up to 2 km (extendable)
- Battery: 6S LiPo (22.2 V)

REMOTE DETONATING SYSTEM

Experience the next generation of remote detonation technology with our cutting-edge system. Designed for security, reliability, and ease of use, our solution provides unmatched control for critical operations.

Key Features & Benefits:

Extended Range & Communication:

- 2 km Line of Sight (LOS), extendable via multi-hop relay nodes.
- Encrypted RF (UHF/VHF/LoRa-based) for secure, jam-resistant communication.
- ISM Band (433 MHz / 868 MHz / 915 MHz) for global applicability.

Unrivaled Security & Safety:

- AES-128/256 encryption with unique device pairing and anti-jamming protection.
- AES encryption with authentication handshake for the receiver.
- Dual-action trigger with safety code and physical toggle switch.
- Arm/disarm switch, multi-step authentication, and signal timeout auto-disable.
- Fail-safe mechanisms accept only authenticated, verified signals.

Rugged & Portable Design:

- Ground Station: Handheld, portable RF transmitter.
- Blast End Unit: RF receiver with integrated detonation control.
- Both units: <1.5 kg, IP65/IP68 ruggedized casing (waterproof and dustproof).
- MIL-STD-810G compliant for extreme shock and vibration resistance.

Efficient Power & Deployment:

- Rechargeable Li-ion battery (7.4V, 2000-5000 mAh) for up to 20 hrs operation (Ground Station).
- Electronic firing circuit with opto-isolated input (Blast End Unit).
- Rapid deployment: < 2 minutes (Ground Station), < 1 minute (Blast End Unit).

Intuitive Interface:

- OLED/LCD display with physical keys or capacitive touch (Ground Station).
- Minimal LEDs or status indicators (Blast End Unit).

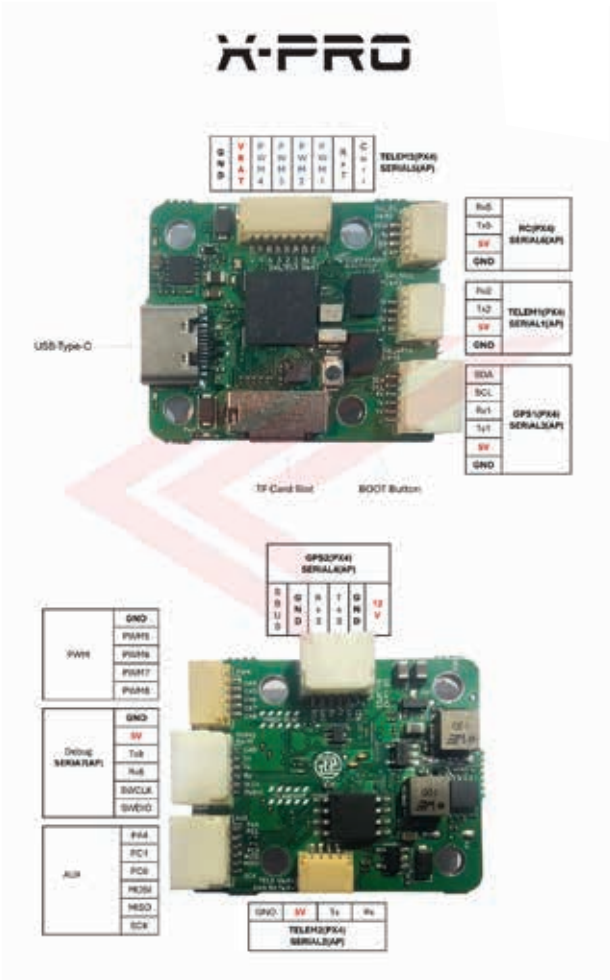
Environmental Resilience:

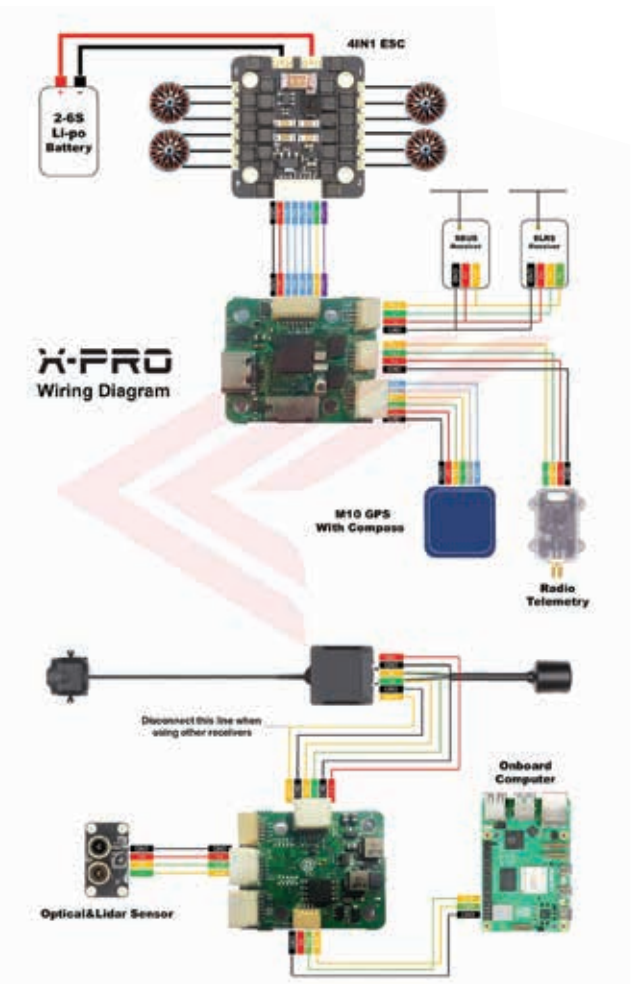
- Operates reliably from -20°C to +55°C (Ground Station) and -20°C to +60°C (Blast End Unit), with high humidity, vibration/shock resistance.

Status Feedback:

Monitor signal strength, relay hop status, armed/disarmed state, and battery status in real-time.

The X-PRO Flight Controller





The X-PRO Flight Controller is engineered for developers, drone builders, and autonomous systems requiring reliability, flexibility, and high-speed processing.

Specifications

- MCU: STM32H743VIH6, 480MHz, 2MB Flash
- IMU: BMI088+BMI088(DUAL)
- Baro: SPL06
- MicroSD Card Slot
- 7x UART
- 8x PWM
- 1 x 12C
- 1 x SPI
- 1x SWD
- 2x ADC (VBAT, Current)
- USB Type-C
- BEC 5V 2.5A output (for controller, receiver, GPS, optical flow or other devices)
- BEC 12V 2.5A output (for video transmitter, camera)

UART Mapping (Ardupilot)

- SERIALO -> USB
- SERIAL 1 -> UART2
- SERIAL2 -> UART4
- SERIAL3 -> UART1 (GPS)
- SERIAL4 -> UART3 (DJI-03)
- SERIALS-> UART? (ESC Telemetry)
- SERIAL6 -> UART5 (RCIN)
- SERIAL?-> UART8

UART Mapping(PX4)

- TE LEM 1 -> UART2
- TELEM2 -> UART4
- TELEM3 -> UART? (ESC Telemetry)
- SERIAL4 -> UART8
- GPS 1 -> UART1
- GPS2 -> UART3
- Radio Controller -> UART5 (RCIN)

RC Input

The default RC input port supports SBUS and CRSF protocol.
Set SERIAL6_PROTOCOL=23 on Ardupilot or set RC_INPUT_PROTO = Auto on PX4.

VTX Support

The SH 1.0-6P connector supports a OJI 03 Air Unit connection. Pin 1 of the connector is 12v so be careful not to connect this to a peripheral requiring 5v.

PWM Output

The X-PRO supports up to 8 PWM outputs. Channels 1-8 support DShot.

Battery Monitoring

The board has a internal voltage sensor and connections on the ESC connector for an external current sensor input.

Compass

The X-PRO does not have a built-in compass, but you can attach an external compass using 12C on the SDA and SCL connector.

Physical

- Mounting: 20 x 20mm, ct>3mm
- Dimensions: 27 x 32 x 8 mm
- Weight: 6.5g
- 3D Model (stp)

CLIFF HAWK ELECTRICS

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