PRIMECOR

FLIGHT CONTROL UNIT

ALPHA

FOR HEAVY UAS SAIL III & IV

*The **Flight Control Unit ALPHA** by **PrimeCor Systems** is an integrated navigation, flight control and mission management unit designed for heavy and advanced UAS platforms. Its architecture enables scalable redundancy, while maintaining a compact, design to minimize volume and weight.*

The system includes dissimilar self-monitoring architecture, providing enhanced operational safety and robustness for demanding missions.

ADVANCED FLIGHT CONTROL WITH SCALABLE *SAFETY ARCHITECTURE*

***PrimeCor Systems** can accommodate the integration requirements of complex and certifiable UAS platforms.*

- ***HIGH-VALUE FOR SAFETY*** *CRITICAL OPERATIONS*
- ***ARCHITECTURE PROVIDING*** *SCALABLE REDUNDANCY*
- ***OPERATIONS REQUIRING*** *ENHANCED CONTAINMENT*

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NAVIGATION, GUIDANCE *AND CONTROL CAPABILITIES*

PLATFORM CONTROL

- *Multiple helicopter configurations.*
- *Fixed-wing aircrafts.*
- *Multirotor platforms.*
- *Hybrid multirotor / fixed-wing aircraft.*

GUIDANCE AND MISSION MANAGEMENT

- *Waypoint-based navigation.*
- *Automatic Take-Off and Landing (ATOL) capabilities.*
- *Nominal and contingency flight management.*
- *Geofencing and geocaging.*
- *Integrated mission management and emergency recovery logic.*

NAVIGATION AND SENSOR FUSION

- *GNSS-INS sensor fusion, allowing continued operation during temporary GNSS outages.*
- *Native integration of DGPS and RTK with ground reference station.*
- *Capability to integrate third-party navigation sensors, including:*
    - *•Comparison and voting with PrimeCor sensors.*
    - *•Development of custom sensor-fusion solutions using customer-selected sensors.*

INTERFACES AND PROTOCOLS

*The **Flight Control Unit ALPHA** has been designed with maximum interface flexibility, enabling seamless integration into complex and safety-critical UAS architectures.*

- *Support for multiple standard UAS communication buses and protocols.*
- *Architecture adaptable to customer-specific aircraft requirements.*
- *Possibility to implement dedicated interfaces for program-specific needs.*

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TECHNICAL *SPECIFICATIONS*

SENSORS

- *Gyro (x2): 300-2.000 deg/s*
- *Accel (x2): 8g & 10g*
- *Accuracy roll & pitch: 0.1 deg RMS*
- *Accuracy yaw (external Magnetometer): 1.0 deg RMS*
- *Pressure altitude accuracy: <10m*
- *Velocity accuracy: 1m/s*
- *Position accuracy: 2 - 2.5 m*

MECHANICAL & ELECTRICAL

- *Temperature range: -40 to 60ºC*
- *IP 67 – enc. Aluminium*
- *Weight: 500g*
- *Dimensions: 92 x 92 x 44 mm*
- *Environmental: DO-160*
- *Input Voltage: 12 to 32 (MIL-STD-704)*
- *Power consumption: 10 - 15W*

INTERFACES

- *2x CAN BUS*
- *2x RS485*
- *2x RS232*
- *2x GNSS*
- *1x Ethernet*
- *6X GPIO / PWM*
- *4X GPIO*
- *6X ADC*
- *1x UART*

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