



EMBENTION



Reliable Control Systems
Fully autonomous control for
unmanned vehicles



VERONTE
AUTOPILOTS



ADAPTIVE CONTROL

Developed to control **any unmanned vehicle**: fixed, wing, helicopter, VTOL, blimps, USV, UGV... The custom flight phases and automations permit to perform **fully autonomous operations**.

Real-time system identification, gain scheduling and PID auto-tuning are available to automatically adapt the control to any changing conditions such as actuator failure or mass changes.

DO178 & DO254 COMPLIANCE

Evidences (PHAC, SAS, SCI...) are available for **System Certification**. Fail-Safe operations are powered by a dual dissimilar microprocessor with redundant power supply and **FTS (Flight Termination System)** activation.

SENSE & AVOID

Avoidance algorithms compatible with a wide variety of collaborative and uncollaborative sensing and **obstacle detection** means: radar, transponder, LIDAR, vision-based... for autonomous sense and avoid maneuvers.

CLOUD CONNECTIVITY

Embedded M2M module for 4G communications allows to operate UAVs from the internet and to perform **Beyond Line of Sight (BLOS)** operations. Telemetry synchronization and remote monitoring also enables **Unmanned Traffic Management (UTM)**.



4X REDUNDANT

The redundant version contains three complete Veronte Autopilot modules plus an additional I/O connection for one external unit. All four modules are monitored by a **supervisor arbiter** including advanced voting algorithms to manage the redundancy.

MECHANICAL

Antivibration: Embedded vibration isolation

Enclosure: OEM or IP67 anodized aluminum

OEM: 52.6x34.7x55 mm - 90 g

Enclosure: 63x39.6x67.9 mm - 190 g

4x Redundant: 114x68x51 - 750 g

Temperature: -40 to 65 (°C)

Processor: Dual DSP + Dissimilar supervisor

INCREASED PRECISION

Redundancy: 2x IMU & barometer

DUAL GNSS: GPS, GLONASS, BeiDou with RTK & RTCM

GNSS-Based Attitude: No magnetometer needed

High Speed: IAS up to 1480 km/h

Pitch/Roll: 0.5 deg (0.2 deg upgrade)

Yaw: 1.5 deg (0.3 deg upgrade)

Acceleration: up to ±16 G (sustained)

CONNECTIVITY

- ✓ Embedded M2M LTE
- ✓ 400MHz, 900MHz, 2.4GHz
- ✓ Satcom
- ✓ External radio modules

I/O PORTS

- ✓ PWM/GPIO: Up to 20
- ✓ DIGIN: Up to 6
- ✓ EQEP: Up to 1
- ✓ ADC: 5
- ✓ CAN Bus: 2
- ✓ USB: 1
- ✓ RS232: 1 & RS485: 1
- ✓ UART: 1
- ✓ I2C: 1
- ✓ Deadman output: 2
- ✓ VIn: 2 (6.5 - 36 VDC)
- ✓ VOut 5 & 3,3 V

COMPATIBLE DEVICES

- ✓ Gimbal
- ✓ Photo Camera
- ✓ Cargo Release
- ✓ Spraying
- ✓ Pointing
- ✓ External Sensors
- ✓ Obstacle Detection
- ✓ Transponder
- ✓ Companion
- ✓ Termination System
- ✓ Altimeter
- ✓ Many others...

VERONTE CONTROL STATIONS





VERONTE OEM



VERONTE AUTOPILOT



VERONTE 4x REDUNDANT

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| <ul style="list-style-type: none"> ✓ Unlimited WP & paths ✓ Curve based navigation ✓ Follow me ✓ Relative missions ✓ One-click missions | <ul style="list-style-type: none"> ✓ Gimbal auto-tracking ✓ Fly-by-camera ✓ Situational awareness ✓ Auto, manual, arcade ✓ Custom user interface | <ul style="list-style-type: none"> ✓ Onboard black box ✓ On demand telemetry ✓ Inflight PID tuning ✓ Custom calculations ✓ Automations module | <ul style="list-style-type: none"> ✓ Data encryption ✓ Dissimilar FTS ✓ Dual DSP ✓ DO178 & DO 254 ✓ Support for certification |
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