Where Precision and Reliability Soar!

Northwest UAV

VERONTE AUTOPILOTS

FULLY AUTOMATIC CONTROL

For Unmanned Vehicles

- Triple Redundancy
- Fully Autonomous Control
- Urban Air Mobility (UAM)
- Hybrid VTOL, Multirotor, Fixed-wing, Heli, Ground Vehicle, Boat and more
- BLOS Communications (4G, Satcom)
- Cloud Connectivity
- DO-178B/ED-12, DO-254B, DO-160 and IP67 Compliant
- Sense and Avoid
- Adaptive Control
- RTK & RTCM Positioning
- 4x Redundant Configurations
- One-Click Missions
- Curve Based Navigation
- Fly-by-Camera and Gimbal Auto Tracking

Veronte Autopilot Is The Flight Controller's Choice for Advanced and Professional UAV and Unmanned Vehicle Control

INTEGRATE, TRAIN, AND FLIGHT TEST AT NORTHWEST UAV

VERONTE AUTOPILOTS

EMBENTION

VERONTE AUTOPILOT 1X

The Veronte Autopilot 1X is designed to control any unmanned vehicle: UAVs, multirotors, helicopters, airplanes, Hybrid VTOL, blimps … as well as ground and surface vehicles, and many others.

Custom flight phases and control channels provide support for any aircraft layout and performance. Compatible with any payload (gimbal, camera, cargo release, transponder, etc.).

APPLICATIONS

- Mapping
- Firefighting
- Surveillance
- Agriculture
- Defense
- Delivery

MAIN FEATURES

- Cloud Connectivity
- Automations
- Sense and Avoid / UTM
- Custom Flight Phases
- RTK Precise Positioning
- Certification Support

VERONTE AUTOPILOT 4X

Veronte Autopilot 4x is the optimal choice for critical applications that require a redundant autopilot, where the risk of casualties in civilian applications or the failure of military operations, is not an option.

It incorporates three complete Veronte Autopilot modules and connectivity for a fourth external module. The dissimilar arbiter includes advanced voting algorithms for selecting the control module, eliminating single points of failure.

APPLICATIONS

- Urban Air Mobility (UAM)
- Populated Areas
- MALE/HALE
- Restricted Airspace
- Critical Operations
- Law Enforcement

MAIN FEATURES

- Highly Reliable
- Automations
- Sense and Avoid / UTM
- Custom Flight Phases
- RTK Precise Positioning
- Certification Support

SPECIFICATIONS & HIGHLIGHTS

	VERONTE AUTOPILOT 1X	VERONTE AUTOPILOT 4X (REDUNDANT)
Sensors	2x Magnetometer, 1x Pitot, 3x IMU, 3x Barometer, 2x GNSS	6x Magnetometer, 3x Pitot, 9x IMU, 9x Barometer, & 6x GNSS
GNSS	Dual GNSS: 72 Channels, RTK & RTCM, GPS, GLONASS, BeiDou	6x GNSS: 72 Channels, RTK & RTCM, GPS, GLONASS, BeiDou
Attitude Aiding	Differential GNSS	
Speed	IAS up to 382 Km/h (Optional up to 2900 km/h)	
Pitch / Roll / Yaw	0.5 / 0.5 / 1.5 deg (0.2 / 0.2 / 0.3 deg upgrade)	
Weight / Size	190 g / 63 x 39.6 x 67.9 mm (90 g 52.6 x 34.7 x 55 mm no enclosure)	660 g / 117 x 70 x 82 mm
Processor	DSP + Dissimilar Supervisor	N/A
Supervised FCUs	N/A	3 Individual Autopilot Units + Optional External Autopilot
Casing	Sealed Anodized Aluminium, IP67 Waterproof, EMI Shielding	
Temperature (operation)	-40° to 65°C	-40° to 65°C – Up to 25000 ft
I/O Ports	PWM / GPIO, DIGIN, CAN Bus, ADC, EQEP, 12C, UART, USB, RS232, RS485, FTS	
LOS Data-link Radio	Encrypted 400 MHz, 900 MHz or 2.4 GH + External	
BLOS Communication	Satcom Compatibility, Embedded M2M LTE Module	
Certifications	DO-178B/ED-12, DO-254B, DO-160, DAL-B	
Power Input	Dual Independent (6.5 – 36 VDC)	
Device Compatibility	Transponder, Gimbal, Altimeter, Obstacle Detection, Companion …	
Advanced Control	Fly-by-Camera, Curve Based Navigation, Follow Me, One Click Missions, Adaptive Control …	
Optional	Embedded ADS-B In & Out | Sense & Avoid | Aircraft Display on Ground	

NOTE: Standard Veronte autopilot system requires both and onboard and control station unit; both units must have the same radio installed.

See page 5 for configurations and accessories.

Northwest UAV A GLOBAL COMPANY **is the proud distributor for the Embention Veronte line of Autopilots and Accessories.**

VERONTE AUTOPILOT 1X KIT

"The updated Veronte SIL Simulator incorporates the 2-processor Veronte Autopilot Software architecture. Enabling Veronte to be the first certified dual-core based autopilot in the market."

This is the ideal autopilot kit choice for UAS/RPAS professionals seeking an advanced integration environment to configure and fine-tune the Veronte Autopilot into their UAS/RPAS.

The 1X KIT includes the Hardware-in-the-Loop (HIL) Simulator, whereby your UAS/RPAS will fly in a simulated virtual environment provided by X-Plane, allowing for adjustments, e.g. control PID gains on the fly.

Veronte Autopilot OEM

Contact us for more information.

APPLICATIONS

- First Integration
- Real HIL
- Testing
- Fine Tuning
- Training
- Any Vehicle

MAIN FEATURES

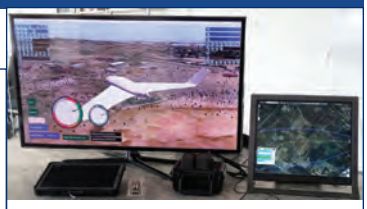
- Airborne Autopilot
- Veronte PIPE Software
- GCS Electronics
- HIL Simulation
- Embedded Data-link
- Wiring & Accessories

SPECIFICATIONS & HIGHLIGHTS

	VERONTE AUTOPILOT KIT
Ready for Installation	Includes All Needed Equipment for Veronte Autopilot Integration
Learning Tool	Hardware-in-The-Loop Safe Virtual X-Plane Test Flight Environment
Tuning Capabilities	Real Aircraft Layout and Performance in the Virtual Environment
Compatibility	Autopilot Installation within Any Vehicle
Onboard Unit	Veronte Autopilot 1X
Control Station Unit	Veronte BCS Autopilot
Harness	Circular 68-pin Connector and Control Station Cable Included
Data-link	Embedded LOS (900 MHz or 2.4 GHz) + BLOS (4G) Module
Autopilot Casing	Sealed Anodized Aluminium, IP67 Waterproof, EMI Shielding
Accessories	GPS & RF Antennas Included
Extended Support	Real Time Support through Email, Phone or Remote Desktop
Device Compatibility	Transponder, Gimbal, Altimeter, Obstacle Detection, Comparison ...
Full Autopilot Functionalities	Fly-by-Camera, Curve Based Navigation, Follow Me, One Click Missions, Adaptive Control ...
Optional Upgrade	High Gain GPS Antenna Enhancement

1X KIT CONTENT: 1x HIL Simulator License | **Control Station Equipment:** 1x Veronte Autopilot BCS + LOS & BLOS radio, 1x GPS antenna, 1x RF antenna, 2x Antenna extension 9.84 in/25 cm, 1x Autopilot mating connector for BCS, 1x Power source (Europlug), Veronte PIPE Software, 10h Extended real time support | **Onboard Equipment:** 1x Veronte Autopilot 1X + LOS & BLOS radio, 1x GPS antenna, 1x RF antenna, 2x Antenna extension 9.84 in/25 cm, 1x Autopilot mating connector.

See page 5 for configurations and accessories.



VERONTE HIL & SIL SIMULATORS

Two types of tools for performing UAV simulations. We will assist you to determine the appropriate tool for you:

- HIL simulations (Hardware-in-the-Loop)
- SIL simulations (Software-in-the-Loop)

The ability to test is an essential part of the development process for drones or eVTOL systems. Verification of the many elements ensures that all configurations are correct. A simulation of the System before the flight is vital, particularly in the UAS industry, where mission-critical success is imperative. These factors make simulations a valuable and powerful tool.

HIL SIMULATOR uses the hardware to simulates specific environments and situations and monitors the autopilot, taking into account responses of the real Hardware's performance in real-time. With HIL hardware simulations, some environmental conditions are hard to predict; this is where the power of the SIL software simulation comes in.

SIL SIMULATOR allows the operator to simulate the operation of the drone or eVTOL with the use of software and without the need for the real Hardware. The software system can be programmed to simulate and control the flight (start, restart, etc.) and record detailed analysis of the system's navigation and control algorithms that are not available using the HIL Simulator. Recent updates incorporate many improvements to the SIL Simulator and allow SIL to connect with Veronte PIPE software.

VERONTE CONTROL STATIONS & CONTROL STATION AUTOPILOT

VERONTE MCS STATION

MAIN FEATURES

- Antiglare Screen
- WiFi Connection
- High Brightness
- Dual Screen
- Rugged
- Multi-Touch

Veronte MCS Station is Embention's portable dual display control station. A ready-to-use system designed for high performance operations. Included is an embedded battery, and high brightness screens with antiglare treatment for outdoor use. The MCS is a highly responsive choice for the most demanding needs. Color: Black.

VERONTE PCS STATION

MAIN FEATURES

- Geo Positioning
- IP66 Protection
- Embedded Data-link
- >3m Altitude
- WiFi & Ethernet
- Expansion Bay

Veronte PCS Control Station includes all the necessary components to perform a wide range of operations. The embedded Veronte Autopilot enables navigation and communications between the onboard autopilot and control station computer. The expansion bay allows operators to add additional devices to the system. Veronte AP plus mast is designed to be installed in a Tracker, but can be used alone.

VERONTE BCS AUTOPILOT

MAIN FEATURES

- Veronte to PC Connection
- Can Be Used with Any PC or Tablet
- Embedded Data-link, GPS and Sensors
- Telemetry and Telecommand
- Servo and Device Control
- Joystick, Tracker, Servo, Tunnels …

Veronte Autopilot for Control Station electronics enable communication between the Control Station and unmanned vehicle autopilots. Additional features: Differential GPS for precise positioning, use from a moving platforms for automatic actions performance, Follow Me and relative missions, sensor data, display and monitor pressure, position, altitude, etc.

SPECIFICATIONS & HIGHLIGHTS

	VERONTE MCS	VERONTE PCS
Weight	21 kg	5.2 kg
Size	Closed: 560x356x229 mm Open: 560x516x355 mm	360x160x90 mm
Robust Design	IP7 High-Performance & Strict Design Standards	IP66
Temperature	-40° to 65°	
Power	Input: DC 24V | 11.5 A	DC 24V y 11.5 A
Battery	4h	3h
Communications	WiFi & Bluetooth	PC USB | WiFi | Ethernet
Enclosure	Polypropylene	Reinforced Glass Fiber | Black
Transport	Wheeled | Cabin Size	–
Display	15.4" Multi-touch, Capacitative, Sunlight Readable, Antiglare Protection	–
Embedded PC	Intel Core i5 4th Generation, 8 GB RAM, 128 SDD, Windows 10 Pro	–
USB	3 x USB 3.0	–
Mast	–	Weight: 6.2 kg | Altitude: 1.5 - 3.15 m
Expansion Bay IO	–	10-14V, 5V, RS232, PPM, SBUS, Ethernet
Data-link Options	–	TM/TC: 400 MHz, 900 MHz, 2.4 GHz, TM/TC/VIDEO: 2.4 GHz
GNSS	–	Embedded Antenna SMA External Antenna Connector
Core	–	Embedded Veronte Autopilot BCS

	VERONTE BCS AUTOPILOT
Weight	120 g (60 g no enclosure)
Size	65x38x65 mm (53x35x55 mm no enclosure)
Temp. Range (No Convection)	-40° to 65°C
I/O Ports	PWM/GPIO, DIGIN, CAN Bus, ADC, EQEP, 12C, UART, USB, RS232, RS485, FTS
LOS Data-link Radio	Encrypted 400 MHz, 900 MHz or 2.4 GH
Dual GNSS	72 Channels, 10 Hz receiver, RTK & RTCM, GPS, GLONASS, BelDou
Casing	Anodized Aluminium, IP67 Waterproof
Certifications	DO-178B/ED-12, DO-254, DO-160G

NOTE: Standard Veronte autopilot system requires both an onboard and control station unit; both units must have the same radio installed.

For questions on Veronte product capabilities or custom integration, contact Northwest UAV.

See page 5 for configurations and accessories.

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VERONTE SOFTWARE, PAYLOAD & ACCESSORIES

VERONTE GIMBAL 10Z SERIES

Custom options available.

MAIN FEATURES

- Full HD EO Camera (720p/30fps)
- RGB and IR Camera, x10 Optical Zoom
- Gyro Stabilization
- Artificial Vision
- Video Streaming

Veronte Gimbal 10Z Series is a small, lightweight and compact, dual visible, thermal camera with onboard video processing. Capable of detecting, recognizing and identifying vehicles and people day or night. Veronte Gimbal 10Z when used in conjunction with a Veronte Autopilot extends the camera's performance and capabilities: Geo-location, Fly-by-Camera, Target Follow or Moving Object Detection.

Veronte Gimbal 10Z SC: HD EO visible camera with x10 optical zoom.

Veronte Gimbal 10Z: HD EO visible camera with x10 optical zoom, FLIR IR camera (320x256 resolution).

VERONTE GIMBAL 30Z SERIES

MAIN FEATURES

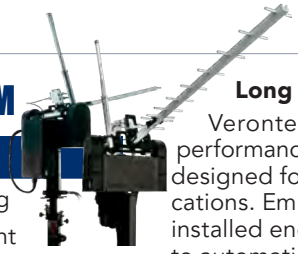
- Full HD EO Camera (1080p/60fps)
- RGB and IR Camera, x30 Optical Zoom
- Gyro Stabilization
- Artificial Vision
- Video Streaming

Veronte Gimbal 30Z Series is an outstanding isible spectrum and IR camera for the most demanding applications. Gyro stabilized with two degrees of freedom, the Gimbal builds upon a full HD visible spectrum camera with a very powerful optical zoom, a highly sensitive infrared camera and an advanced video processing board. Gimbal 30Z makes it possible to detect, recognize and identify vehicles and people from several kilometers away.

Veronte Gimbal 30Z SC: Full HD EO visible camera with x30 optical zoom.

Veronte Gimbal 30Z: Full HD EO visible camera with x30 optical zoom, FLIR IR camera (640x512 resolution).

VERONTE TRACKER 26NM



MAIN FEATURES

- Precise Pan and Tilt Positioning
- Tripod with Adjustable Height
- Dissembles for Easy Transportation
- Embedded Precision Encoders
- Compatible with Yagi, Patch, and Parabolic Directional Antennas
- Configurations Available: 400 MHz, 900 MHz, 2.4 GHz and Custom
- Compatable with Veronte Autopilot and Third Party Systems
- Anodized Aluminum and Stainless Steel Construction
- Use for Both Fixed and Moving Stations

Long Range Communications

Veronte Tracker 26NM is a high-performance tracking antenna specifically designed for the most demanding applications. Embedded control actuators and installed encoders permit the operator to automatically point the antenna with accuracy. This design makes the tracker perfect for long-range operations.

Flexible Configurations

Installation of different types of antenna for video and data-link communication is possible. Yagi, Patch or Parabolic antennas can be used for best performance.

Advanced Control

Compatible with Veronte and third party autopilots. Operator assisted manual control is also available from the joystick and Veronte PIPE software.

VERONTE PIPE SOFTWARE

SUPPORTED OPERATIONS

- Cross-platform Software (Windows, Linux, Mac OS)
- Intuitive, Easy-to-Use and Dependable
- Customizable to Your Needs
- Configure the Veronte System
- Create and Edit Missions
- Monitor Flight Information
- Action Package: Automatically Configure Actions
- Compatible with All Veronte Systems

Veronte PIPE is the intuitive software designed for operating the Veronte Autopilot. Users achieve a combination of an easy-to-use application for real-time response and safe operations.

Veronte powered systems have two main elements, air and ground segments:

Veronte Air includes any necessary element to communicate with ground component, take flight measures, control the aircraft and control the payload.

Veronte Ground redirects stick and PC data to the air component, and manages bi-directional communication between Veronte PIPE and Veronte Air.

Supported operations include: Telemetry, telecommand, mission design, mission analysis, configuration/edit RPAS settings and multiple users simultaneously.

Veronte PIPE has been developed using software standard IEEE STD 830-1998, recommended practice for Software Requirements Specifications (SRS) and STANAG 4671, subpart I, "About UAV Control Stations" documentation and adapted to the Veronte system.

Veronte PIPE is included in all Veronte Autopilot options.

See page 5 for configurations and accessories.

VERONTE PRODUCT LIST

Veronte Autopilot 1X

LOS + BLOS Radio Options
- External Radio (RS232)
- 4G + 2.4 GHz Radio
- 4G + 900 MHz Radio
- 4G + 400 MHz & 900 MHz Radio

Options
- Mounting Kit
- IP67 Aluminum Protection Removed

NOTE: Standard Veronte autopilot system requires both an onboard and control station unit; both units must have the same radio installed.

Veronte Autopilot 4x

Configuration
- Veronte Autopilot 4x (Redundant)

LOS + BLOS Radio Options
- External Radio (RS232)
- 3x 4G + 2.4 GHz Radio
- 3x 4G + 900 MHz Radio
- 3x 4G + 400 MHz & 900 MHz Radio

NOTE: Standard Veronte autopilot system requires both an onboard and control station unit; both units must have the same radio installed.

Veronte Autopilot 1X KIT

LOS + BLOS Radio Options
- 4G + 2.4 GHz Radio
- 4G + 900 MHz Radio

Professional Simulator Kits

- HIL Kit (Hardware-in-the-Loop)
- SIL Kit (Software-in-the-Loop)
- HIL Kit for X-Plane Simulator

Available Accessories
- Veronte HIL Simulation cable
- 4x Veronte HIL Simulation cable

SOFTWARE

Veronte PIPE Software

Veronte MCS Station

LOS + BLOS Radio Options
- External Radio (RS232)
- 4G + 2.4 GHz Radio
- 4G + 900 MHz Radio
- 4G + 400 MHz & 900 MHz Radio

Veronte PCS Station

LOS + BLOS Radio Options
- External Radio (RS232)
- 4G + 2.4 GHz Radio
- 4G + 900 MHz Radio
- 4G + 400 MHz & 900 MHz Radio

Veronte BCS Autopilot for Control Station

Configuration
- Veronte Autopilot CS

LOS + BLOS Radio Options
- External Radio (RS232)
- 4G + 2.4 GHz Radio
- 4G + 900 MHz Radio
- 4G + 400 MHz & 900 MHz Radio

Options
- Mounting Kit
- IP67 Aluminum Protection Removed

NOTE: Standard Veronte autopilot system requires both an onboard and control station unit; both units must have the same radio installed.

Veronte Tracker 26NM

Veronte Tracker Antenna with detachable tripod with multiple configurations:

400 MHz	2.4 GHz
900 MHz	Call for custom

Payload / Veronte Gimbal

Gimbal 10Z	Gimbal 10z SC
Gimbal 30Z	Gimbal 30Z SC

Accessories

COMMUNICATIONS
- 900 MHz 1.2 dBi Antenna
- 900 MHz Pro 3 dBi Antenna
- 2.4 GHz 3.2 dBi Antenna
- 1.8 GHz Short Antenna
- 1.8 GHz Height Gain Antenna
- GPS Antenna Standard SSMA
- GPS Antenna Advanced SSMA
- Antenna Extension Cable SSMA to SMA IP67 (25 cm)
- Antenna Extension Cable SSMA to SMA IP67 (1 m)
- SMA Extension Cable (15 cm)
- SMA Extension Cable (60 cm)
- SMA Extension Cable (91 cm)

HARNESSES
- Autopilot Harness
- Autopilot Harness CS

PERIPHERALS
- Veronte Expander CEX
- Veronte Expander CEM
- Veronte Expander COM
- Veronte Expander MLINK
- Veronte Expander MAGNETO
- Veronte Expander STICK
- Veronte Expander GIM3

POWER
- Veronte Redundant DC-DC Converter
- Veronte 12V Power Source for Autopilot CS and HIL Simulator

LICENSING
- **Veronte Communications Protocol (VCP) License** [SRSV014] (1-Year of updates and support. API libraries, VCP conectivity manuals, and advanced HIL Simulator connectivity)
- **Pay-Per-Fly License**
- **Lifetime License**

For questions on Veronte product prices, capabilities, custom integration, training & support contact David Jackson, David.Jackson@nwuav.com | 503.434.6845 x185 or Northwest UAV 503.434-6845 | customerservice@nwuav.com

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