FULLY AUTONOMOUS CONTROL FOR UNMANNED VEHICLES

Northwest UAV

Where Precision and Reliability Soar!

VERONTE AUTOPILOTS

- Triple Redundancy
- Fully Autonomous Control
- Urban Air Mobility (UAM)
- Hybrid VTOL, Multirotor, Fixed-wing, Heli, Missile, 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

REV D AS9100 Quality Management Certified
ISO9001 CERTIFIED

INTEGRATE, TRAIN, AND FLIGHT TEST AT NORTHWEST UAV
The Veronte Autopilot 1X is designed to control any unmanned vehicle: UAVs, multicopters, 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

**SPECIFICATIONS & HIGHLIGHTS**

<table>
<thead>
<tr>
<th>VERONTE AUTOPILOT 1X</th>
<th>VERONTE AUTOPILOT 4X (REdundant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensors</td>
<td>6x Magnetometer, 3x Pitot, 9x IMU, 9x Barometer, &amp; 6x GNSS</td>
</tr>
<tr>
<td>GNSS</td>
<td>6x GNSS, 72 Channels, RTK &amp; RTCM, GPS, GLONASS, Beidou</td>
</tr>
<tr>
<td>Attitude Aiding</td>
<td>Differential GNSS</td>
</tr>
<tr>
<td>Speed</td>
<td>IAS up to 382 Km/h (Optional up to 2900 km/h)</td>
</tr>
<tr>
<td>Pitch / Roll / Yaw</td>
<td>0.5 / 0.5 / 1.5 deg (0.2 / 0.2 / 0.3 deg upgrade)</td>
</tr>
<tr>
<td>Weight / Size</td>
<td>660 g / 117 x 70 x 82 mm</td>
</tr>
<tr>
<td>Processor</td>
<td>DSP + Dissimilar Supervisor</td>
</tr>
<tr>
<td>Supervised FCUs</td>
<td>3 Individual Autopilot Units + Optional External Autopilot</td>
</tr>
<tr>
<td>Casing</td>
<td>Sealed Anodized Aluminium, IP67 Waterproof, EMI Shielding</td>
</tr>
<tr>
<td>Temperature (operation)</td>
<td>-40° to 65°C – Up to 25000 ft</td>
</tr>
<tr>
<td>I/O Ports</td>
<td>PWM / GPIO, DIGIN, CAN Bus, ADC, EQEP, 12C, UART, USB, RS232, RS485, RTS</td>
</tr>
<tr>
<td>LOS Data-link Radio</td>
<td>Encrypted 400 MHz, 900 MHz or 2.4 GH + External</td>
</tr>
<tr>
<td>BLOS Communication</td>
<td>Satcom Compatibility, Embedded M2M LTE Module</td>
</tr>
<tr>
<td>Certifications</td>
<td>DO-178B/ED-12, DO-254B, DO-160, DAL-B</td>
</tr>
<tr>
<td>Power Input</td>
<td>Dual Independent (6.5 – 36 VDC)</td>
</tr>
<tr>
<td>Device Compatibility</td>
<td>Transponder, Gimbal, Altimeter, Obstacle Detection, Companion …</td>
</tr>
<tr>
<td>Advanced Control</td>
<td>Fly-by-Camera, Curve Based Navigation, Follow Me, One Click Missions, Adaptive Control …</td>
</tr>
<tr>
<td>Optional</td>
<td>Embedded ADS-B In &amp; Out</td>
</tr>
</tbody>
</table>

**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

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

See page 5 for configurations and accessories.
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 1X KIT

This kit is ready for installation and includes all needed equipment for Veronte Autopilot integration.

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 Functionality: 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.

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 simulate 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 AUTOPILOT KIT

VERONTE HIL & SIL SIMULATORS

SPECIFICATIONS & HIGHLIGHTS

See page 5 for configurations and accessories.
**VERONTE MCS STATION**

**MAIN FEATURES**
- Antiglare Screen
- WiFi Connection
- High Brightness
- Dual Screen
- Rugged
- Multi-Touch

**VERONTE PCS STATION**

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

**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...

**SPECIFICATIONS & HIGHLIGHTS**

<table>
<thead>
<tr>
<th>VERONTE MCS</th>
<th>VERONTE PCS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
<td>21 kg</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Closed: 560x356x229 mm</td>
</tr>
<tr>
<td></td>
<td>Open: 560x516x355 mm</td>
</tr>
<tr>
<td><strong>Robust Design</strong></td>
<td>IP7</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>-40° to 65°</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Input: DC 24V</td>
</tr>
<tr>
<td></td>
<td>DC 24V y 11.5 A</td>
</tr>
<tr>
<td><strong>Communications</strong></td>
<td>WiFi &amp; Bluetooth</td>
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<tr>
<td></td>
<td>PC USB</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Polypropylene</td>
</tr>
<tr>
<td></td>
<td>Reinforced Glass Fiber</td>
</tr>
<tr>
<td><strong>Transport</strong></td>
<td>Wheeled</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>15.4” Multi-touch, Capacitative, Sunlight Readable, Antiglare Protection</td>
</tr>
<tr>
<td><strong>Embedded PC</strong></td>
<td>Intel Core i5 4th Generation, 8 GB RAM, 128 SDD, Windows 10 Pro</td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>3 x USB 3.0</td>
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<tr>
<td><strong>Mast</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Expansion Bay IO</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Data-link Options</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>GNSS</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Core</strong></td>
<td>-</td>
</tr>
</tbody>
</table>

See page 5 for configurations and accessories.
**VERONTE SOFTWARE, PAYLOAD & ACCESSORIES**

**VERONTE GIMBAL 10Z SERIES**

- **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 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 MDS 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 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 Tracker 26NM
Veronte Tracker Antenna with detachable tripod with multiple configurations:
- 400 MHz
- 2.4 GHz
- 900 MHz
- Call for custom

## 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 connectivity manuals, and advanced HIL Simulator connectivity)
- Pay-Per-Fly License
- Lifetime License

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