



**EMBENTION**

# **VERONTE HCS**

User Manual



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## CHANGES RECORD

| Issue | Date       | Change description            |
|-------|------------|-------------------------------|
| 1.0   | 02/04/2016 | Initial Issue document        |
| 1.1   | 20/12/2017 | Operational information added |
| 2.0   | 22/02/2018 | Updated to the new version.   |
| 2.1   | 06/03/2018 | Battery information added.    |

## 2 Overview

Embention's component division has developed the HCS control station for high performance operation. This portable control station provides the operator with a rugged device for Veronte systems control.



Veronte HCS includes Veronte Autopilot and Veronte Pipe systems. Please refer to the specific manual for further detail on these elements.

### 2.1 Typical applications

Veronte HCS is the main control station used to operate Veronte systems. This system is available in multiple configurations to fit each application requirements.

Some of the main applications for the system are:

- Photogrammetry & Mapping
- Surveillance
- Wildlife monitoring and research
- Firefighting

Switch to manual aircraft control can be performed at any time during the operation. Joystick control allows manual, assisted and custom flight modes.



## 2.2 Package Content

| Units | Item                        |
|-------|-----------------------------|
| 1     | Veronte HCS control station |
| 1     | Veronte HCS charger         |

## 2.3 Veronte HCS Parts

Main control station parts are described below for further reference.



| ID | Item  |
|----|---|
| A  | Sun-readable displays (Touch optional)  |
| B  | Power switches <ul style="list-style-type: none"> <li>• Battery connection button (left)</li> <li>• Embedded PC (right)</li> </ul>  |
| C  | Interface connectors (From top to bottom) <ul style="list-style-type: none"> <li>• Power: external power connection/battery charger</li> <li>• Ethernet: PC Ethernet connection</li> <li>• USB: PC USB connection</li> <li>• I/O: Veronte I/O connections</li> <li>• Joystick: Veronte Digital Input connection for Joystick</li> </ul> |
| D  | Cooling fans  |
| E  | Display controls  |
| F  | RF antenna connectors. Can be situated on the upper or on the lower part depending on the model. These antenna ports can be (depending on the model): <ul style="list-style-type: none"> <li>-M2M</li> <li>-TELEMETRY</li> <li>-AUXILIARY GPS</li> <li>-VIDEO RF</li> </ul>   |

## 2.4 Radio communications

HCS does not include any radio communication system in its default configuration.

In order to fully operate as a UAV ground station, an external radio modem shall be connected. Moreover, the customer can ask Embention to internally integrate any communication systems that fulfils the final user country's regulation.

For operation within Spain, Embention recommends the use of 2.4 Ghz modems. If any other band is required, authorization from the regulatory authorities might be required.

### 3 Connection

Veronte HCS is provided with military grade connectors.

The mating aerial connectors are:

| Connector  | MIL                     |
|------------|-------------------------|
| Power      | Amphenol: MS3116E10-6S  |
| Ethernet   | Amphenol: RJF6MB        |
| USB        | USB Male                |
| I/O        | Amphenol: MS3116F12-10S |
| Joystick   | Amphenol: MS3116F8-2S   |
| RF Antenna | SMA Male                |

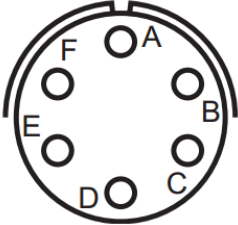
Connector's pinout is shown below (HCS front view). Please ask Embention for custom pinout configuration or custom wiring development.

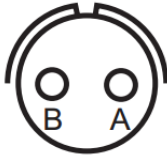
**Power**

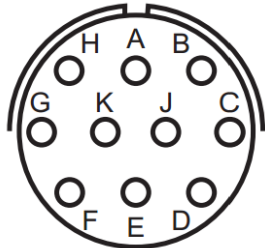
**Joystick**

**I/O**

MIL







| PIN | SIGNAL |
|-----|--------|
| A   | VCC    |
| B   | VCC    |
| C   | VCC    |
| D   | GND    |
| E   | GND    |
| F   | GND    |

| PIN | SIGNAL              |
|-----|---------------------|
| A   | PPM- VERONTE PIN 55 |
| B   | GND                 |

| PIN | SIGNAL                   |
|-----|--------------------------|
| A   | UNREGULATED VCC (24-22V) |
| B   | GND                      |
| C   | CANAH                    |
| D   | CANAL                    |
| E   | PWM1- VERONTE PIN 1      |
| F   | PWM2- VERONTE PIN 2      |
| G   | ECAP- VERONTE PIN 56     |
| H   | ECAP- VERONTE PIN 57     |
| J   | PWM3- VERONTE PIN 3      |
| K   | PWM4- VERONTE PIN 4      |

## 4 Operation

### 4.1 Battery Charge

Embedded battery works as a backup battery which permits to plug or unplug the battery charger/external power supply during the operation without turning off the system. In order to charge the battery, just connect the charger to the control station, the LED will blink red while charging and green once the battery is fully charged. Always use original battery chargers provided for avoiding damaging the system.

### 4.2 Battery Characteristics

The internal battery is a 6 cell LiFePo4 unit.

Battery values are the followings:

- Vmax: 21.9V
- Vnominal:19.8V
- Vmin:17.5V

Limits can be selected in Veronte software Pipe in order to set up user alarms<sup>1</sup>.

### 4.3 Operation

Veronte HCS is highly intuitive and easy to operate; main steps in order to operate the system are as follow:

- Place the control station in a firm, dry surface and open the suitcase.
- Plug external components: RF antenna, battery charger/external power supply, joystick, tracker...
- Once the battery charger is plugged, the system will power on since the battery charger acts as an external power supply as well. The HCS switches between the battery charger and the internal battery automatically if the battery button is ON.
- Turn on battery button, which is the left button with a red led. By doing this, the internal battery is connected to the system to act as a backup in the external power supply is removed.
- Turn on embedded PC button to power up the internal PC (button on the right).
- Open Veronte Pipe application in order to operate the Veronte system. It is available on the main desktop on the upper screen.
- **CAUTION:** Don't forget to turn off the battery button after powering off the HCS. It will prevent a full discharge of the battery.

Veronte HGS is usually provided with touch screens but it may also be configured with standard displays. In case of needing a mouse or a keyboard it can be plugged on the USB connector given.

Embedded computer is supplied with Windows or Ubuntu OS. This allows to install custom applications within the system in order to be used together with Veronte Autopilot software. Admin password on the PC is the same as the admin user.

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<sup>1</sup> Please check Veronte User Manual at [www.embention.com](http://www.embention.com)



The system can be connected to the internet by using the WIFI connection available on the system or the Ethernet port.



## 5 Good Practices and maintenance

- Veronte HCS is not water resistant once opened. Please keep it in a dry space during the operation.
- Do not use chemical cleaners for product maintenance; a damp cloth is enough to perform the cleaning.
- Never cover the fans or the vents for ensuring the correct system refrigeration. Make sure that nothing obstruct the fans prior to turning it on as otherwise it may be damaged.
- Do not to bump the unit during transport or operation, some components could be damaged. Veronte HCS is embedded into a rugged suitcase but harsh shocks may affect to the internal components on the system.
- Never close the suitcase with the antennas or connectors plugged to the system. All removable elements should be removed prior to closing the system as it may damage the displays or the panels inside the case. Make sure that it does not occur accidentally on high wind conditions or when operating from moving platforms.
- Take care when installing external applications on the PC as it may contain viruses or slow down the system which may be unsafe during the Veronte systems operation.



## 6 Contact Information

You may contact Embention to ask for help related to its products. Contact can be done by phone, email or at our facilities:

Phone number: (+34) 965 115 421

Email: [embention@embention.com](mailto:embention@embention.com) or [support@embention.com](mailto:support@embention.com)

Address: Polígono Industrial Las Atalayas, C/ Chelín, Nº 16, CP 03114, Alicante (España).