
Gimbal Software Manual

Release 6.12

Embention

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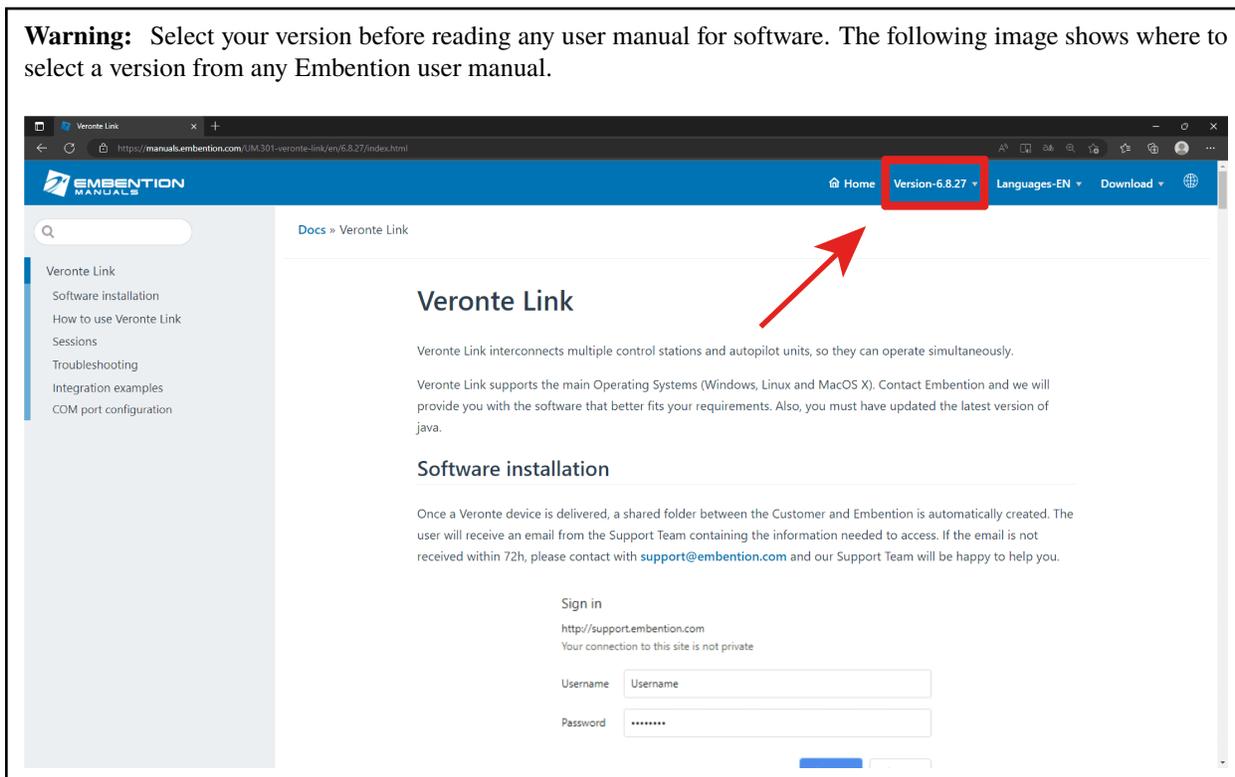
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This user manual is common to **Veronte Gimbal 10z** and **30z**, including their variants. Before reading this document, it is recommended to read the hardware manual, in order to understand and connect the product to a computer.

- For **Gimbal 10z**, read [Gimbal 10z Hardware Manual](#).
- For **Gimbal 30z**, read [Gimbal 30z Hardware Manual](#).
- For **Autopilot 1x**, read [1x Hardware Manual](#).

Warning: Select your version before reading any user manual for software. The following image shows where to select a version from any Embention user manual.



SOFTWARE APPLICATIONS

Once the **Autopilot 1x** has been connected to a computer, it is necessary to use [Veronte Link](#) to establish communication between both devices.

1.1 Veronte Link

Veronte Link establishes communication between a computer and **Veronte Autopilot 1x** by creating a [VCP bridge](#). It allows to use multiple control stations and devices to be interconnected, operating simultaneously. **Veronte Link** also includes a post-flight viewer, to reproduce all recorded data from previous flights and generate plots and reports.

Read the user manual for [Veronte Link](#) to know more.

1.2 1x PDI Builder

1x PDI Builder is the main configuration tool to adapt a **Veronte Autopilot 1x** to a specific vehicle, including user-defined communication protocols. **1x PDI Builder** includes different configurations for **Gimbal**:

- **Gimbal block** controls the movement of the camera, [link to Gimbal block](#) explanation in the Block Programs section of **1x PDI Builder** user manual.
- Cameras configuration has its own panel, [link to Camera panel](#) explanation in the Devices section of **1x PDI Builder** user manual.
- **Gimbal** actions (including events that trigger them) can be defined with the Command block, [link to Command block action](#) explanation in the Automations section of **1x PDI Builder** user manual.

1.3 Veronte Ops

Veronte Ops is the application employed to operate and monitor the **Autopilot 1x** during missions. It is also used to operate **Veronte Gimbal** through **Autopilot 1x**, by configuring the [Gimbal panel](#) and [Input widgets](#), such as:

- Stick, [link to Stick widget](#).
- Gimbal Buttons, [link to Gimbal Buttons widget](#).
- Gimbal Setup, [link to Gimbal Setup widget](#).

In addition, the integration process for a **Veronte Gimbal** with **Veronte Ops** is explained in the Veronte Gimbal section of the Integration Examples in the **Veronte Ops** manual. [Click here](#) to read it.

LISTS OF VARIABLES

This section shows variables specific to **Veronte Gimbal**.

2.1 Real Variables (RVar) - 32 Bits

| ID | Name | Units/Value | Description |
|-----------|--------------------------------------|-------------|---|
| 650 | Gimbal Command Yaw | customType | Yaw sent to the gimbal |
| 651 | Gimbal command Pitch | customType | Pitch sent to the gimbal |
| 652 | Gimbal Stick Yaw | customType | Yaw received from the joystick controlling the gimbal |
| 653 | Gimbal Stick Pitch | customType | Pitch received from the joystick controlling the gimbal |
| 654 | Gimbal Pitch Correction 0 | customType | Correction calculated by the gimbal for the pitch control 0 |
| 655 | Gimbal Pitch Correction 1 | customType | Correction calculated by the gimbal for the pitch control 1 |
| 656 | Gimbal Old Joint 0 | customType | Auxiliar variable 0 for Gimbal control configuration |
| 657 | Gimbal Old Joint 1 | customType | Auxiliar variable 1 for Gimbal control configuration |
| 658 | Cos (Gimbal Yaw) | customType | Auxiliar variable 0 for Gimbal control configuration |
| 659 | Sin (Gimbal Yaw) | customType | Auxiliar variable 1 for Gimbal control configuration |
| 660 | Gimbal Yaw Radian | customType | Auxiliar variable for Gimbal control configuration |
| 661 | Veronte Gimbal Yaw Output | customType | Yaw value the gimbal is sending as output |
| 662 | Veronte Gimbal Pitch Output | customType | Pitch value the gimbal is sending as output |
| 663 | Gimbal Phi(z) | customType | Auxiliar variable phi for Gimbal control configuration |
| 664 | Gimbal Theta(y) | customType | Auxiliar variable theta for Gimbal control configuration |
| 665 | Gimbal Psi(x) | customType | Auxiliar variable psi for Gimbal control configuration |
| 666 | Veronte Gimbal Roll Output (Degrees) | customType | Roll value the gimbal is sending as output |
| 2300-2302 | Joint 0-2 of Gimbal 0 | rad | Variables for Gimbal 0 configuration - Angles sent to gimbal as Yaw (0), Pitch (1) and Roll (2) |
| 2303-2305 | Joint 0-2 of Gimbal 1 | rad | Variables for Gimbal 1 configuration - Angles sent to gimbal as Yaw (0), Pitch (1) and Roll (2) |

2.2 Integer Variables (UVar) - 16 Bits

| ID | Name | Description |
|---------|--------------|--------------------------------------|
| 550-557 | Reserved 0-7 | System reserved variables for Gimbal |

CAN BUS PROTOCOL

CAN messages are used to command the stepper motors that move **Gimbal** cameras. These motors use the same CAN bus protocol as the motor controller **Veronte MC01S**. Hence, to know this protocol, refer to the [CAN Bus protocol](#) section of the **MC01 Software Manual**.