# **T28 Software Manual**

Release 6.12

Embention

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In this manual the user can consult a brief description of all the applications created and designed to work together with **Veronte T28**.

In addition, links are available to access the manual for each application.

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Quick Start	Verente Link	
Integration examples	veronte Link	· ·
Troubleshooting	Veronte Link interconnects multiple control stations.	

#### CHAPTER

ONE

#### SOFTWARE APPLICATIONS

**T28** is a tracking antenna which operates with a **Veronte PCS**. **PCS** in turn is controlled by an **Autopilot 1x**. Hence, the software configuration and operation is performed to the **Autopilot 1x** in the **PCS**.

#### **1.1 Veronte Link**

**Veronte Link** establishes communication between a computer and any Veronte product by creating a VCP bridge. It allows to use multiple control stations and autopilots 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.

For more information, visit the Veronte Link user manual.

# 1.2 1x PDI Builder

**1x PDI Builder** is the main configuration tool to adapt a **Veronte Autopilot 1x** to a specific vehicle, including userdefined commnication protocols. **1x PDI Builder** includes:

- Telemetry: real-time onboard UAV metrics, such as sensors, actuators and control states.
- Configuration: edit vehicle settings, such as servo trim, interface/port management and modes.
- Automations: actions that are automatically executed when a set of configured conditions are accomplished.
- Block Programs: Veronte Autopilot 1x can be programmed with a friendly-user programming language.

For more information, visit the 1x PDI Builder user manual.

### 1.3 Veronte Ops

**Veronte Ops** is the application employed to operate and monitor the vehicle during missions. Its interface can be easily customized and adapted to each case.

For more information, visit the Veronte Ops user manual.

#### CHAPTER

# CONFIGURATION

The following steps show the basic configuration to operate with  $\mathbf{T28}$ , the rest of configuration depend on the application and mission.

# 2.1 Air unit



1xVeronte	PDI Builder		× **
Veronte v4	.8 -	ull Telemetry	* & = 0
0	Telemetry	Search Freq 10.0 Hz Address Broadcast	▪ Hash: OxO
	[16%] Data to VApp	Enabled	
	[0%] Data to VApp	Name	
2	[0%] Onboard Log		
•	[0%] User Log		
<b>E</b>	[0%] Fast Log		
	Sniffer		
<b>\$</b> \$			
Ø			
▦			
		Disabled	
		IAS (Indicated Airspeed)	Ô
		TAS (True Airspeed)	
20		GS (Ground Speed)	
X		+ Heading	
		Flight Path Angle	
			~

Fig. 1: 1x PDI Builder - Telemetry

2. Add the variables UAV position and Position not fixed from the **Disabled** window. It is recommended to use the **Search** bar.

1xVeronte PDI Builder - ×					
Veronte v4.8	•	lılı Telemetry			
	<ul> <li>Telemetry</li> <li>[86%] Data to VApp</li> <li>[6%] Data to Broadcast</li> <li>[23%] Onboard Log</li> <li>[0%] User Log</li> <li>[0%] Fast Log</li> <li>(%) Fast Log</li> <li>Sniffer</li> </ul>	Search Freq 10.0 Hz Address Broadcast Hash: 1 Enabled Name Absolute: UAV position Position not fixed	0x8e679e09		
		Disabled + IAS (Indicated Airspeed) + TAS (True Airspeed) + GS (Ground Speed) + Heading + Flight Path Angle	Û		

Fig. 2: Telemetry - Add variables

3. Complete the rest of the configuration according to the vehicle and mission requirements, then click on to write the configuration in **Autopilot 1x**.

# 2.2 Ground unit (T28)

When the ground system is delivered to the costumer, it has the necessary configuration to operate. The user only has to verify that the **Address** of the air unit is correctly configured in the **Sniffer**.

1xVeronte PDI Builder		- x
Veronte v4.8 🔹	III Telemetry	£ & ► 0
C + Telemetry	T. out 1.0 Address Veronte v4.0 123	
Sniffer	Enabled	
(14%) Sniffer 0	- I Absolute: UAV position	
	- 🗣 🛧 📴 Position not fixed	
<b>E</b>		
00		
	Disabled	
	IAS (Indicated Airspeed)	Ô
	TAS (True Airspeed)	
<u>8</u>	GS (Ground Speed)	
X	Heading	
	+ Flight Path Angle	
	A REAL PROPERTY OF A READ REAL PROPERTY OF A REAL P	~

Fig. 3: 1x PDI Builder - Address verification

Note: In case of any problem with the configuration, it can be reset as explained in the T28 configuration reset section.

#### CHAPTER

#### THREE

### **OPERATION**

The **T28** is operated with **Veronte Ops** with its own **Veronte Panel**. This panel can be displayed accessing the widgets menu in the workspace toolbar. To do this, click on the '+' button  $\rightarrow$  **Main**  $\rightarrow$  **Veronte Panel**.

For more information on the Veronte panel widget, please refer to the Main widgets section of the Veronte Ops user manual.

**Note:** The Veronte Panel is configured in the autopilot. In consequence, to obtain it, it is necessary to connect the computer to the device.



Fig. 1: How to open Veronte panels

### 3.1 Veronte Tracker buttons

**Note:** The buttons of **Veronte Tracker panel** exist and perform their respective functions because they were programmed with 1x PDI Builder automations.



Fig. 2: Veronte panel for T28



• Flashing yellow: discharging.



# 3.2 How to operate the Veronte Tracker panel

- 1. The **T28** starts with **Initial** phase.
- 2. Once the GPS indicator turns green, it automatically switches to the ready phase.
- 3. To switch to **Ready** phase, simply drag the **Ready** phase button.
- 4. Once in **Ready** phase (or during the **Initial** phase) the **T28** orientation must be calibrated. To do this, use the trim buttons to point the antenna north. The internal buttons move the antenna by 1 degree and the external buttons by 10 degrees.
- 5. Once the **T28** is calibrated and the GPS and target indicators are green, drag the **Tracking** phase button to switch to tracking.
- 6. To stop tracking, drag the **Ready** phase button to return to ready.

# TROUBLESHOOTING

### 4.1 TCP Connection cannot be established

In order to correctly establish the connection with **T28** through TCP, make sure the computer is set to the following static IP address: **192.168.8.3**. This address should be automatically assigned when connecting to **T28** network.

If this is not the case, please follow the example below in order to assign a static IP address to your device:

• Click on 'Open Network Internet settings' in the dropdown menu of the Internet configuration.



Fig. 1: Open Network Internet settings

• Click on 'Change adapter options' and select your Internet connection method by double clicking on it.



Fig. 2: Connection status

• Click on 'Properties' and select IPv4 Internet Protocol, then click on 'Properties'.

Ethernet Properties	×				
Networking Sharing					
Connect using:					
👳 Realtek PCIe GBE Family Controller					
Configure					
This connection uses the following items:					
Cliente para redes Microsoft					
Protocolo de Internet versión 4 (TCP/IPv4)					
Protocolo de multiplexor de adaptador de red de Micros					
<ul> <li>✓ _ Controlador de protocolo ELDP de Microsoft</li> <li>✓ _ Protocolo de Internet versión 6 (TCP/IPv6)</li> </ul>					
< >	Lure Jes M Micros				
Install Uninstall Properties					
Description	1				
Protocolo TCP/IP. El protocolo de red de área extensa predeterminado que permite la comunicación entre varias redes conectadas entre sí.					
OK Cancel					

Fig. 3: Connection properties

- Select 'Use the following IP address:' and type in the 'IP address' tab 192.168.8.3.
- **'Subnet mask'** should be automatically fulfilled as observed in the following image, otherwise type the indicated subnet (255 255 255 0) mask manually.

Pro	Protocolo de Internet versión 4 (TCP/IPv4) Properties					
Ge	eneral					
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.						
	Ouse the following IP address:					
	IP address:	192.168.8.3				
	Subnet mask:	255 . 255 . 255 . 0				
	Default gateway:					
	Obtain DNS server address autom	atically				
	Use the following DNS server addresses:					
Preferred DNS server:						
	Alternative DNS server:					
	Ualidate settings upon exit	Advanced				
		OK Cancel				

Fig. 4: IP and subnet mask configuration

• Click on 'Ok' and close the opened windows.

# 4.2 T28 configuration reset

Autopilots 1x with software version 6.8 or higher can restore the configuration to the default one. To do it, follow the next steps:

- Connect the Autopilot 1x and check that it is detected in Veronte Link.
- Open 1x PDI Builder and select the Autopilot 1x.

1xVeronte PDI builder			-	>
1xVeronte				
Build PDI to configure your 1xVeronte				
	<b>↓</b> On	an 1vVar	onte	
			de with it	
be undone	Open PD	i online and wo	rk with it	
Not connected		Not sele	cted	 •
		Not selec	ted	

Fig. 5: 1x PDI Builder - Initial menu

- Then click on **Open 1xVeronte** to open the configuration of the connected **1x**.
- Click on



Fig. 6: 1x PDI Builder - Import PDI from repo

• Select the last version of T28 configuration, then click on Import.



Fig. 7: 1x PDI Builder - Import Veronte Tracker configuration

• Finally click on to write the configuration in the autopilot.