

VTX R2500 5.8G 2.5W

User manual



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1. Product overview



Fig.1. VTX R2500 5.8G 2.5W

The VTX Pilotix R2500 is a high-power 5.8 GHz FPV video transmitter with output up to 2.5 W, designed for long-range video transmission in FPV drone applications. It features IRC Tramp protocol support, a built-in microphone, and a built-in cooling fan, making it a reliable choice for both racing and freestyle flying.

2. Wiring & controls

Note: Always install the antenna before powering on the device. Operating without an antenna will damage the transmitter.

For the full wiring diagram, please refer to the datasheet available on our website: hobbydrone.cz

Pin Assignment

Pin #	VTX Pin	Signal	Wire Color	FC Connection
1	VIDEO	CVBS analog video	Yellow	VTX (video in)
2	GND-OUT	Ground – to ext. camera	—	Not connected
3	5V-OUT	5V output + to ext. camera	—	Not connected
4	RX-IRC	IRC Tramp	White	TX (UART)
5	GND	Ground (–)	Black	GND
6	7-36V DC-IN	Power (+)	Red	2–8S battery

LED Indicator Overview

The VTX uses three LEDs to indicate status:

LED	Color	Function
Frequency indicator	● Blue	Shows active channel (number of flashes = channel number)
Frequency group indicator	● Green	Shows active band (number of flashes = band A–L)
Power indicator	● Red	Shows output power level (number of flashes = power level)

Band / CH Button

Band Switching

- Long press Button 4 for 5 seconds — the Green LED starts blinking, indicating band switching mode is active.
- Short press Button 4 to step through bands: A → B → E → F → R → L.
- The Green LED flashes to indicate the selected band — number of flashes corresponds to band order:

Band A	Band B	Band E	Band F	Band R	Band L
1 Flash	2 Flashes	3 Flashes	4 Flashes	5 Flashes	6 Flashes

- Long press Button 4 for 5 seconds again to confirm the selected band and exit band switching mode.

Channel Switching

- Short press Button 4 (outside of band switching mode) to step through channels: CH1 → CH2 → ... → CH8.
- The Green LED flashes to indicate the active channel — number of flashes = channel number (1–8).

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
1 Flash	2 Flashes	3 Flashes	4 Flashes	5 Flashes	6 Flashes	7 Flashes	8 Flashes

Power Button

Short Press — Switch Output Power

- Each short press of Button 5 cycles through the power levels: 25 mW → 400 mW → 800 mW → 1500 mW → 2500 mW.
- The Red LED flashes to indicate the active power level:

PIT Mode	25 mW	400 mW	800 mW	1500 mW	2500 mW
Continuous	1 Flash	2 Flashes	3 Flashes	4 Flashes	5 Flashes

Long Press — PIT Mode

- Hold Button 5 for 5 seconds to enter or exit PIT mode.
- In PIT mode the VTX transmits at near-zero power, allowing safe pit-lane presence without interfering with other pilots.
- Indicator: Red LED stays on continuously while in PIT mode.

3. Safety warnings

Before Use

- Always attach the antenna before connecting power. Running the transmitter without an antenna will cause severe RF damage to the output stage.
- Verify input voltage compatibility. The VTX accepts 7–36 V (2S–8S LiPo). Exceeding this range will permanently damage the device.
- Confirm pin assignments and polarity before wiring. Incorrect connections can destroy both the VTX and your flight controller.
- Check local regulations for permitted frequencies and output power levels in your region before flying.
- Use high-quality antennas to ensure effective and safe image transmission.

During Operation

- Never touch the VTX body or antenna during operation — the unit can reach high temperatures and cause burns.
- Ensure adequate airflow around the device. Although it has a built-in fan, blocking the vent at high power levels (1500 mW / 2500 mW) can lead to overheating.
- If the transmitter will be idle for an extended period after power-on, reduce output to minimum (25 mW) to prevent thermal damage.
- Operating temperature range is -10 °C to +60 °C. Do not use the device outside these limits.
- In PIT mode the transmitter is still powered and active. Always fully power down the device when not in use.

Handling & Storage

- Keep the device away from moisture, conductive debris, and direct water exposure — this unit is not sealed or waterproof.
- Store in a cool, dry environment. Avoid prolonged exposure to temperatures above 60 °C (e.g., inside a closed vehicle in summer).
- Handle the MMCX antenna connector with care. Repeated or rough mating cycles can damage the connector and degrade RF performance.
- Do not modify, disassemble, or attempt to repair the VTX yourself. Unauthorized modifications void the warranty and may create safety hazards.

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