

VTX R3000 (4.9–6.2G 3W)

User manual



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1. Product overview



Fig.1. VTX R3000 (4.9–6.2G 3W)

The VTX Pilotix R3000 is a high-power, long-range FPV video transmitter designed for demanding drone applications. It combines a broad frequency range with robust output power, making it suitable for competitive racing and long-range cruising alike.

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	GND	Ground (–)	Black	GND
2	V-IN	Power (+)	Red	5V or VBAT (VC)
3	V-IN	Power (+)	—	Not connected
4	GND	Ground (–)	—	Not connected
5	DATA	TBS SmartAudio	White	TX (UART)
6	5V-OUT	+ Output to ext. camera	—	Not connected
7	GND	– Output to ext. camera	—	Not connected
8	VIDEO	CVBS analog video	Yellow	VTX (video in)

POWER / PIT Button

Short Press — Switch Output Power

Each short press cycles through the available power levels. The LED color indicates the current setting:

LED Color	Output Power
● Green	25 mW — Minimum power
● Yellow	1 W
● Red	2 W
● Purple	3 W — Maximum power

Long Press — PIT Mode

- Hold the POWER/PIT button for 2 seconds to activate PIT mode.
- In PIT mode, the VTX transmits at near-zero power (pit-lane mode), allowing other pilots to remain in the air without interference.
- Indicator: Green LED flashes continuously while in PIT mode.

BAND / CH Button

Short Press — Switch Channel

- Each short press advances the channel by one step: CH1 → CH2 → ... → CH8.
- The 8 blue LEDs represent channels CH1 through CH8 — the active channel's LED is lit.

Hold 2 Seconds — Enter Band Switching Mode

- Hold the button for 2 seconds. When both blue LEDs light up simultaneously, the device has entered frequency group (band) switching mode.

Hold 5 Seconds — Switch Band

- While in band switching mode, hold for an additional 5 seconds to cycle to the next band (A → B → E → F → R → L → X and back).
- The new setting is saved automatically and the device exits band switching mode.

Frequency Group (Band) Indicator Lights

The blue LEDs also indicate the active frequency band by a specific pair of lights being lit together:

Band	LEDs Active	Notes
A	Blue 1 + Blue 2	5725–5865 MHz
B	Blue 2 + Blue 3	5733–5866 MHz
E	Blue 3 + Blue 4	5645–5945 MHz
F	Blue 4 + Blue 5	5740–5880 MHz
R	Blue 5 + Blue 6	5658–5917 MHz (Raceband)
L	Blue 6 + Blue 7	5362–5621 MHz (Low band)
X	Blue 3 + Blue 5	4990–5200 MHz
Y*	—	6002–6184 MHz (requires factory mode in Betaflight)

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–6S LiPo). Exceeding this range will permanently damage the device.
- Confirm pin assignments 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 area before flying.

During Operation

- Never touch the VTX body or antenna during operation — RF output and heat from the built-in fan can cause burns or interference.
- Maintain adequate airflow around the unit. Although the VTX has a built-in fan, obstruction of the fan vent at high power levels (2 W / 3 W) can lead to overheating.
- Operating temperature range is -20 - 40 °C. Do not use the device outside these limits.
- Do not use the Y band (6.0–6.2 GHz) without first enabling Factory Mode in Betaflight — normal firmware limits will restrict these frequencies unexpectedly.
- In PIT mode the transmitter is still active at very low power. Do not assume the device is off; always power down completely when not flying.

Handling & Storage

- Keep the device away from moisture, conductive debris, and direct water exposure — this is not a sealed unit.
- Store in a cool, dry environment when not in use. Avoid prolonged exposure to temperatures above 50 °C (e.g., inside a closed vehicle in summer).
- Handle the MMCX antenna connector with care. Repeated or rough insertion/removal 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.

Contacts:

WhatsApp: +420 777 054 888

Email: support@pilotix.eu

Telegram: https://t.me/PilotixSupport_bot