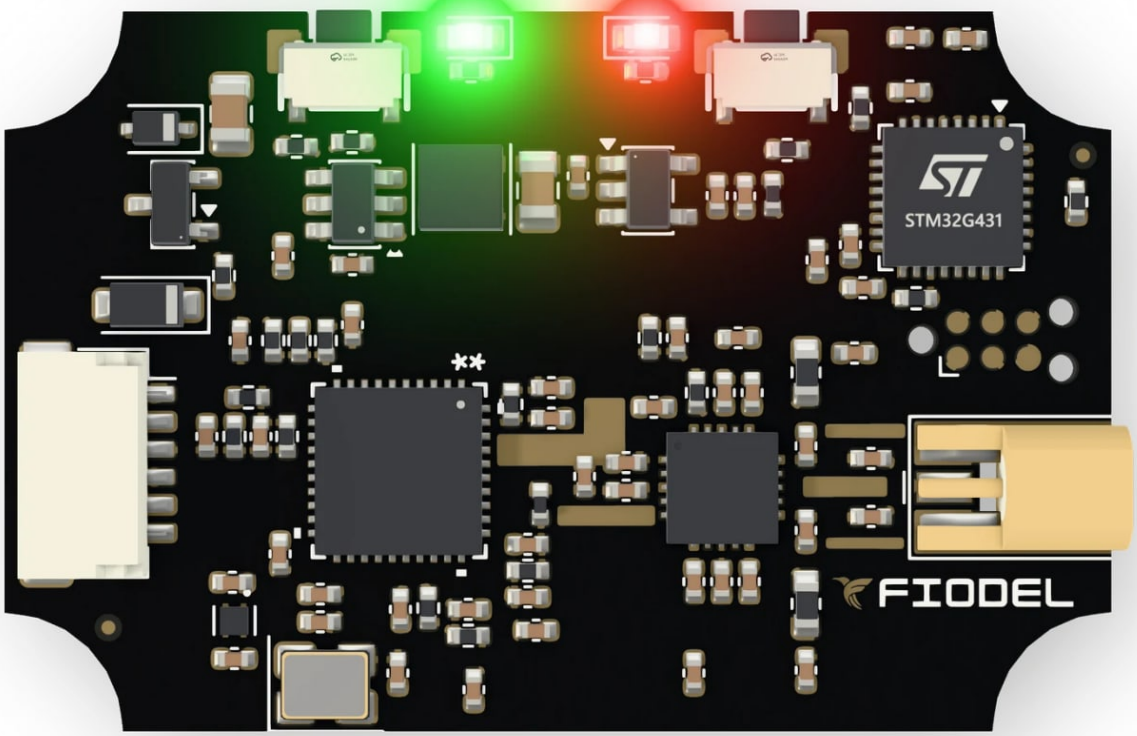
VIDEO TRANSMITTER · FD-VTX-2W5

Fiodel 2.5W VTX

Analog 5.8 GHz video transmitter with a power amplifier capable of 2.5 W, cooled by its own heatsink and fan. Ships limited to 1 W.



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Before you start

> It ships limited to 1 W maximum. 2.5 W is the capability of the hardware; higher power can be unlocked by licensed professionals.

> Power comes from the battery, 2S to 6S, or from a flight controller's 10 V video-transmitter supply if its regulator can output 15 W. The Fiodel F405 Flight Controller's does, at its analog VTX socket (J7).

> Never connect it to a flight controller's 6-pin HD VTX socket with a straight cable. That socket carries 10 V where this transmitter expects 5 V.

> On the Fiodel F405 Flight Controller it connects to the analog VTX socket, J7: 10 V to power in, video out to video in, TX3 to SmartAudio. The 10V, G, VTX and T3 pads carry the same signals, for the tinned-lead cable: red, black, yellow, green.

> Unlocked to 2.5 W and run from a battery, use 4S or higher: on 2S and 3S the current at full power is more than a single JST-SH contact is rated for.

> Always fit an antenna before powering the transmitter, and keep the heatsink and fan in place.

> The pictures show the bare board. It ships with its heatsink and fan fitted.

In the box

- 2.5W VTX with heatsink and fan fitted
- MMCX antenna
- 100 mm 6-pin JST-SH to tinned-lead cable (power, ground, video, SmartAudio)

Overview

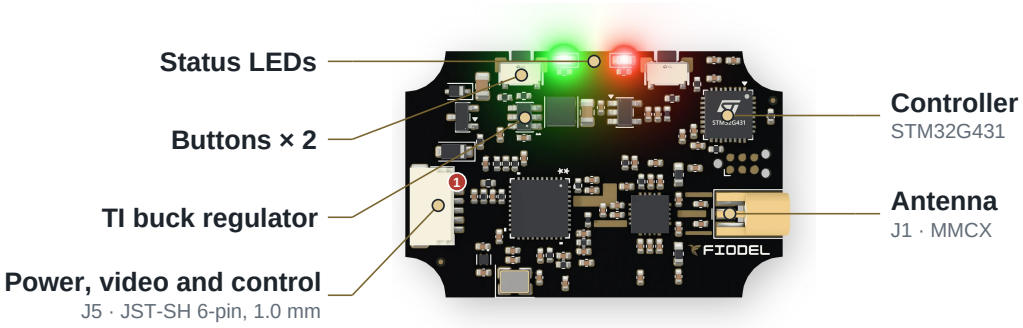
The Fiodel 2.5W VTX is a long-range analog 5.8 GHz video transmitter. Its power amplifier is capable of 2.5 W (+34 dBm) into an MMCX antenna connector over an impedance-controlled 50 ohm line. That figure is what the hardware can do: as shipped, output is limited to 1 W maximum, and higher power can be unlocked by licensed professionals.

It takes power straight from the flight battery, 2S to 6S, through reverse-polarity protection and its own 5 V buck converter — or from a flight controller's 10 V rail, if that rail can supply 15 W, as the Fiodel F405 Flight Controller's does. The RF section has its own low-noise regulator. An STM32G431 handles channel and power changes over SmartAudio from the flight controller, or from the two buttons on the board.

Heat is designed in, not added on: the board ships wrapped in a heatsink with a fan powered from the board, and a bare-copper window under the power amplifier couples it directly to the metal.

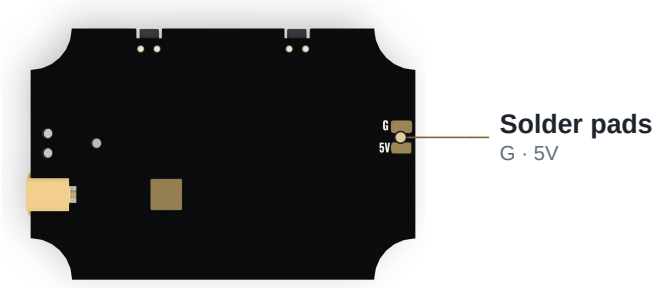
Layout

TOP SIDE



❶ Pin 1 of the socket: the pin tables count from here.

BOTTOM SIDE

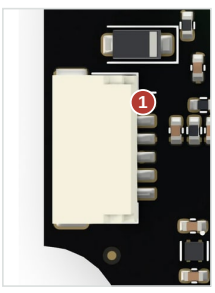


Connections

J5 — Power, video and control JST-SH 6-pin, 1.0 mm

Fiodel pinout — use the supplied cable.

PIN	SIGNAL	DETAIL
1	+5 V out	For a camera. Never feed voltage into this pin
2	GND	
3	Video in	
4	SmartAudio	
5	GND	
6	Power in	2–6S battery, or 10 V from the flight controller



Top side · red 1 = pin 1

J1 — Antenna MMCX

PIN	SIGNAL	DETAIL
RF	5.8 GHz output	



Top side

Specifications

RF

Type	Analog FM video transmitter, 5.8 GHz band
Output power, hardware	25 / 200 / 600 / 1600 / 2500 mW, plus pit mode
Peak output, hardware	+34 dBm (2.5 W)
As shipped	Limited to 1 W maximum. Higher power can be unlocked by licensed professionals
Antenna connector	MMCX
Video input	Composite, 1 Vpp, 75 ohm
Audio	None (no microphone)

CONTROL

Protocol	SmartAudio, single wire
MCU	STMicro STM32G431
Buttons	2
Indicators	Green and red LEDs

POWER

Input	2–6S battery, 7.4–25.2 V, or a flight controller's 10 V rail that can supply 15 W
Consumption	About 13 W at 2.5 W output — roughly 0.6 A on 6S, 1.0 A on 4S
Protection	Reverse-polarity P-FET and TVS diode
Regulators	Texas Instruments 5 V buck regulator; low-noise 3.3 V regulator for the RF section
5 V output	On pin 1 of the connector, for a camera

BOARD AND COOLING

Size	40 × 26 mm (board)

Construction	4-layer, 1.0 mm, controlled impedance, ENIG finish, black solder mask
Cooling	Heatsink wrap with fan, fitted; fan powered from the board's 5 V

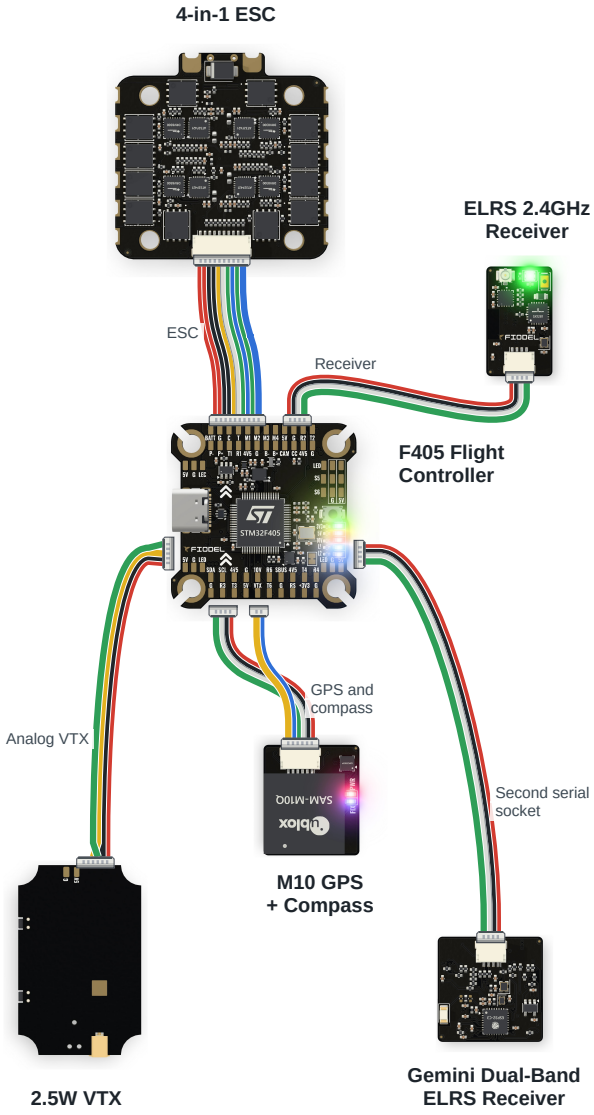
Firmware

Runs	Fiodel's own firmware, on the STM32G431

The board ships with its firmware flashed. The firmware file will be on fiodel.com/products/vtx-2-5w before the first boards ship.

How the range connects

Every Fiodel board plugs into the flight controller with its own cable, every wire on the pin it really joins. The flight controller is drawn from above, its sockets underneath along the edges its cables leave by; every board is at its true size.



ESC	10-pin cable, in the ESC's box
Receiver	4-pin cable, in the receiver's box
Second serial socket	Same plug as the receiver socket
GPS and compass	Y-cable, in the GPS's box: its 4-pin end to GPS, its 2-pin end to Compass
Analog VTX	10 V, ground, video and SmartAudio

Wire colours: red is power, black is ground, white is data into the flight controller, green is data out of it. Yellow and blue are a cable's other lines.

Setup guides

Step by step, on our site:

Connecting the 2.5W VTX
fiodel.com/guides/connecting-the-2-5w-vtx

Questions

Does the OSD still work?
Yes, as long as the video comes from the flight controller's video-out pad. A camera wired straight to the transmitter bypasses the OSD.

Does it put out 2.5 W out of the box?
No. 2.5 W is what the hardware is capable of. It ships limited to 1 W maximum; higher power can be unlocked by licensed professionals.

Can I run it from my flight controller's 10 V rail?
Yes, if its regulator can output 15 W. The Fiodel F405 Flight Controller's does, and it has a socket of its own for an analog transmitter (J7). If your flight controller's rail cannot, wire the transmitter to the battery.

Warranty and support

- 6-month warranty against manufacturing defects, serviced at our workshop in Gurugram. Terms: fiodel.com/warranty
- Returns within 7 days for wrong, damaged or dead-on-arrival items: fiodel.com/returns
- Questions: WhatsApp or call +91-9891446688, or write to contact@fiodel.com. 9am–6pm, Monday to Saturday.

This manual is made from the product's page: fiodel.com/products/vtx-2-5w always has the latest.