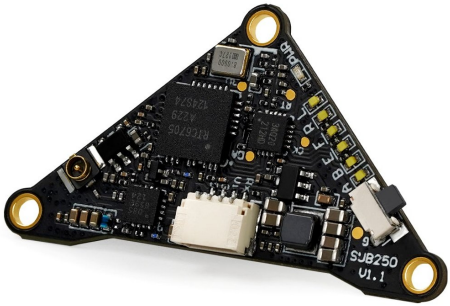
Send T400

SUB250 – analogue 5.8 GHz video transmitter
User manual



Never power the transmitter without an antenna connected. Power supply 5 V only.

www.rotorama.com

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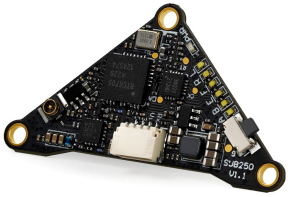
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1. Product description

1.1 Intended use

SUB250 Send T400 is a small analogue video transmitter (VTX) for the 5.8 GHz band, designed mainly for lightweight FPV drones under 250 g with an AIO-type flight controller. It transmits the image from the FPV camera to FPV goggles or a monitor. Mounting holes with 25.5 × 25.5 mm (M2) spacing allow the transmitter to be mounted above the AIO board.

The channel and output power are set with the button on the board or – when connected to a serial port of the flight controller (FC) via the **IRC Tramp** protocol – from the OSD and the radio. Seven LEDs show the current channel and power. A temperature control system protects the transmitter against overheating.



SUB250 Send T400

1.2 Specifications and package contents

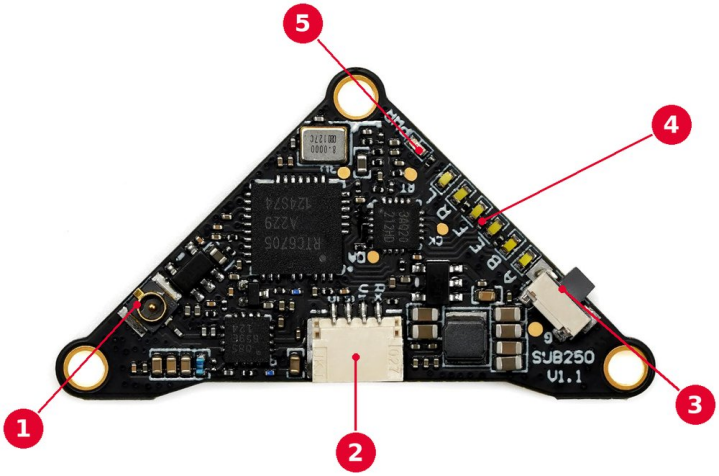
Product designation	SUB250 Send T400
Input voltage	5 V
Video input impedance	75 Ω
Control protocol	IRC Tramp
Output power	PitMode / 25 mW / 200 mW / 400 mW
Number of channels	48
Microphone	no
Antenna connector	u.FL (UFL)
Cable connector	SH1.0, 4-pin
Mounting holes	25.5 × 25.5 mm (M2)
Board dimensions	40 × 21 mm
Weight	2 g
Package contents	1× Send T400 transmitter, 1× SH1.0 cable (4-pin), 1× 5.8 GHz antenna (50 mm)
Not included	FPV camera, flight controller, mounting screws and standoffs, FPV goggles or video receiver

2. Safety instructions

- **Never power the transmitter without an antenna connected.** Transmitting without an antenna can permanently damage the output stage. Use the antenna supplied by the manufacturer or a 5.8 GHz antenna with a u.FL connector.
- Power the transmitter **with 5 V only**. Never connect it directly to the battery or to an output with a higher voltage.
- Disconnect the drone battery before soldering and wiring. Check that solder joints are not shorted and that wires are not chafed.
- The transmitter gets warm during operation. Do not touch it immediately after switching off and ensure airflow around it. For longer operation on the ground (setup, tuning) use PitMode or the lowest power.
- The u.FL connector is mechanically fragile. Attach and remove the antenna perpendicularly without levering, and secure the antenna cable against being torn out in a crash.
- The product is not intended for children. Keep small parts out of their reach.
- The user is responsible for setting the channel and power in accordance with the regulations – see chapter 5.

3. Parts and wiring

3.1 Parts description



Top side of the transmitter

① u.FL antenna connector

② SH1.0 connector (4-pin) for the cable to the flight controller

③ Button for setting the channel and power

④ Six status LEDs, marked L, R, F, E, B and A on the board

⑤ LED marked PWR

※ According to the manufacturer, the seven LEDs (④ and ⑤) show the current channel and power.

3.2 Connector and solder pads

The transmitter can be connected with the supplied SH1.0 cable to connector ② or by soldering wires to the pads on the bottom side of the board. The pads are marked 5V, G, Vi and Rx; the same signals are also routed to the connector.



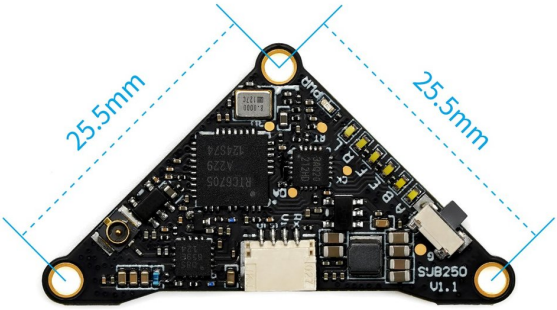
Bottom side with solder pads

Pad	Function and connection
5V	5 V power supply – connect to the 5 V output of the flight controller
G	ground (GND)
Vi	video input – connect to the video output of the FPV camera or to the video output of a flight controller with OSD
Rx	IRC Tramp serial line – connect to the TX pin of a free UART on the flight controller

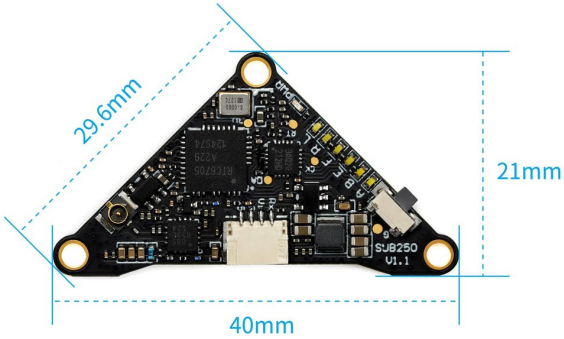
※ Before wiring, check the pinout of the connector in the documentation of your flight controller. Use the cable only if the wire order matches on both sides; otherwise solder the wires.

3.3 Mounting

The transmitter has three mounting holes for M2 screws with 25.5 mm spacing, so it can be mounted above a 25.5 × 25.5 mm flight controller. Place standoffs or rubber grommets between the transmitter and the adjacent board so that the components of the boards do not touch.



Mounting hole spacing



Board dimensions

- Route the antenna as far as possible from carbon frame parts and from the RC receiver; the active part of the antenna should protrude outside the frame.
- Secure the antenna cable and power wires so that they cannot get into the propellers.
- Leave space around the transmitter for airflow.

4. Operation

4.1 Button and LEDs

The channel and output power can be set with button ③ directly on the transmitter; the current status is shown by LEDs ④ and ⑤. The manufacturer has not published a detailed procedure for button operation or the full meaning of the individual LED indications.

- After each channel change, check the setting on the receiver of the FPV goggles or monitor – the image must be clear and free of interference.
- If the transmitter is connected to the flight controller via IRC Tramp, we recommend setting the channel and power via the OSD (chapter 4.2), where you can see the set values directly in the image.
- ※ A flight controller with the IRC Tramp protocol configured may overwrite the values set with the button with its own settings after power-up.

4.2 Control via the flight controller (IRC Tramp)

After connecting the Rx pad to the TX pin of a free UART (chapter 3.2), the channel and power can be set from the configurator, from the OSD menu or from the radio. Procedure in the Betaflight configurator:

① On the *Ports* tab, select *VTX (IRC Tramp)* in the *Peripherals* column for the UART used and save the settings.

② On the *Video Transmitter* tab, set up the VTX table so that it matches the channels and power levels of this transmitter (power according to the manufacturer: 25, 200 and 400 mW).

③ Select the band, channel and power and save the settings.

④ Check that the change has taken effect on the video receiver. The settings can also be changed in the OSD menu (VTX item) or via the Lua script on the radio.

※ The manufacturer has not published a VTX table for the Send T400. Menu names may differ slightly between configurator versions.

4.3 PitMode and overheating protection

- **PitMode** is a mode with minimum radiated power. Use it when powering up the drone near other pilots (e.g. at races) so that your transmitter does not interfere with their video.
- The transmitter has a temperature control system that protects it against overheating. Nevertheless, do not operate it on the ground at high power for long periods.

5. Radio frequencies and transmitting power

5.1 The law of the country of operation applies

Frequency bands and maximum permitted transmitting powers are not uniform across Europe – national regulations differ from country to country. The information in this chapter describes the situation in the Czech Republic. If you operate the transmitter in another country, you must comply with the regulations of the country in which you use it.

5.2 Situation in the Czech Republic

Without an individual authorisation, the video transmitter may be operated in the Czech Republic under the general authorisation of the Czech Telecommunication Office (ČTÚ) No. VO-R/10 (short-range devices):

Band	Max. power	Regulation
5725–5875 MHz	25 mW e.i.r.p.	VO-R/10, Art. 3(k)

The 200 mW and 400 mW power levels exceed the limit of the general authorisation. Without an appropriate authorisation (e.g. an amateur radio licence or an individual ČTÚ authorisation), use only 25 mW or PitMode in the Czech Republic, and only on channels within the 5725–5875 MHz band.

- The user is responsible for the choice of channel and power.
- Under the general authorisation, the device may only be operated with the antenna specified by the manufacturer and without additional amplifiers.
- The transmitter must not cause harmful interference to other radio services.

6. Troubleshooting

Problem	Possible cause and solution
No image, LEDs off	The transmitter has no power. Check the 5V and G connections and the voltage at the flight controller output.
LEDs on, but no image	The receiver is tuned to a different channel or the transmitter is in PitMode. Check the channel, power and the Vi signal connection from the camera.
Noisy image, short range	Low power, damaged or poorly attached antenna, antenna shielded by the carbon frame. Check the u.FL connector and the antenna position.
OSD control does not work	The Rx pad is not connected to the UART TX, *VTX (IRC Tramp)* is not selected on the *Ports* tab, or the VTX table is missing.
Button settings change after power-up	The flight controller overwrites the settings via IRC Tramp. Set the channel and power in the flight controller.
The transmitter is very hot	Insufficient cooling or long operation on the ground at high power. Use PitMode or the lowest power and ensure airflow.

7. Information for the EU and Czech Market

7.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.com

7.2 Product conformity

CE

- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation (Send T400) and the manufacturer's brand (SUB250) are printed on the printed circuit board of the transmitter.

7.3 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

8. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 7.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.