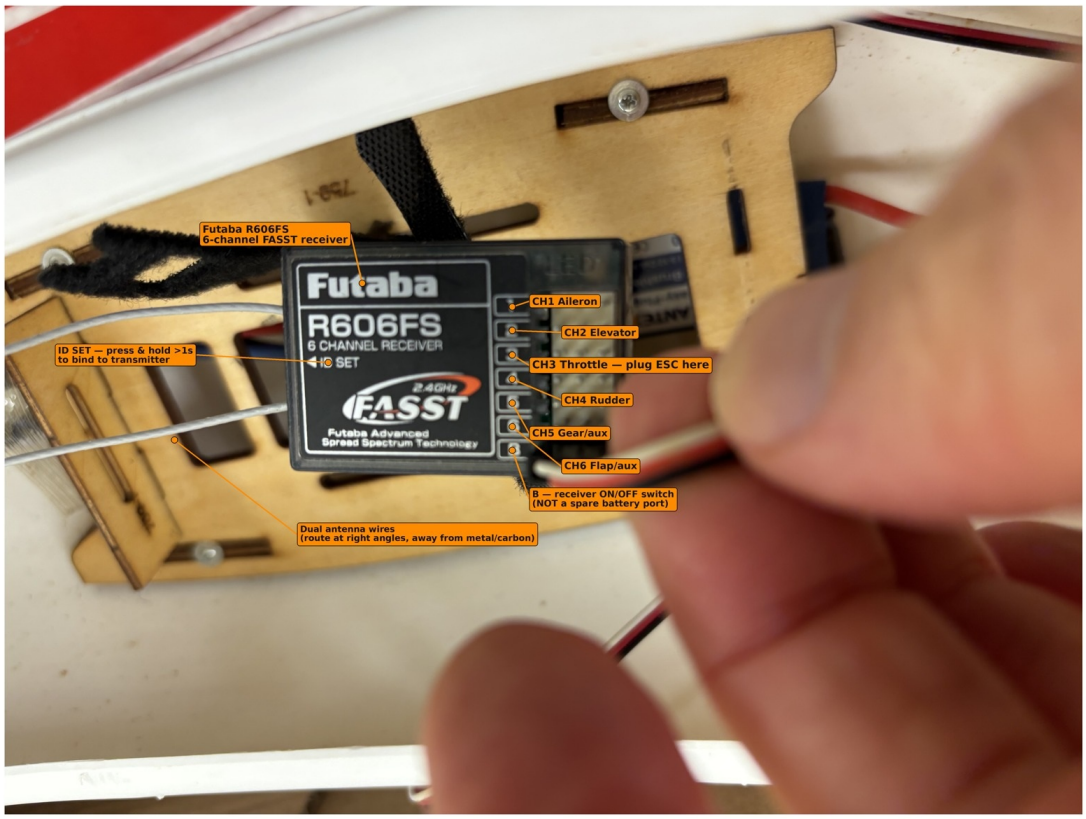
Fixed Wing RC Autonomous Drone — Receiver

Futaba R606FS Receiver

Reference summary & ESC/throttle wiring guide

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Futaba R606FS — channel ports, ID SET bind button, and antenna routing.

Connector Layout

- Six numbered 3-pin servo outputs (1–6), matching the transmitter's channel map: CH1 Aileron, CH2 Elevator, **CH3 Throttle**, CH4 Rudder, CH5 Gear/aux, CH6 Flap/aux.
- A 7th port labeled **"B"** — this is **not** a battery or bind-only port. Per the manual it's the **receiver on/off switch connector** (the red-sheathed plug goes into the receiver; the physical switch mounts through the fuselage side). Worth knowing if you expected it to be a spare power tap — it isn't.
- The manual explicitly warns: **never power this receiver from a dry (disposable) battery pack** — use a proper NiMH/LiPo receiver pack, or an ESC's BEC output, not AAs.

Pin Order

Standard Futaba 3-pin convention — **verify against the printed marks on your specific unit before plugging anything in**:

- **White** = signal
- **Red** = positive (+)
- **Black** = negative / ground (–)

Signal is the pin closest to the outer edge of the receiver case on each channel header. Reversed polarity can damage the receiver or ESC, so a quick visual check against the housing's printed labels before the first connection is worth the extra few seconds.

Wiring the ESC (Throttle on Left Stick)

The T6EX is already in Mode 2 (see transmitter page) — throttle lives on the left stick, assigned to CH3 — so the wiring itself is straightforward:

1. **Plug the ESC's 3-wire servo connector into receiver channel 3** (printed "3" on the case) — the throttle channel per the transmitter's own channel map.
2. **Match polarity**: signal-to-signal, +-to-+, ground-to-ground, per the pin order above. Check both the ESC plug and the receiver housing markings — don't assume another brand's wire-color convention carries over.
3. **Receiver power**: most ESCs supply 5–6V to the receiver through this same 3-wire connection via their onboard BEC — with a single motor/ESC (the configuration settled on for this build), you typically don't need a separate receiver battery at all. This also sidesteps the classic mistake of two ESCs' BECs fighting over receiver power, which would have been a real risk with the twin-motor layout considered earlier.
4. **Confirm direction**: after binding (below) and powering up, push the left stick forward/up and confirm the ESC's throttle response increases, not decreases. If reversed, don't re-wire — use the transmitter's channel-reverse function instead: Programming mode → REVR → select CH3 → hold DATA INPUT down ~0.5s to reverse.
5. **Set throttle failsafe**: In programming mode, go to the F/S screen, hold the throttle stick at idle, then hold DATA INPUT down for ~2 seconds to set that as the failsafe position (confirmed by a beep and a percentage readout). This makes the ESC cut to idle/off if the radio link is lost — the single most important safety setting here before a prop is ever spinning.
6. **Set up THR.CUT**: with the stick at idle, tap the throttle-cut switch twice and confirm the ESC drops to zero throttle. This gives a dedicated "kill the motor" switch on the ground, independent of the stick itself.

Binding (ID Link) Procedure

1. Place transmitter and receiver within about 3 feet (1 meter) of each other.
2. Power on the transmitter first; confirm its rear LED is solid green (RF active).
3. Power on the receiver.
4. Press and hold the receiver's **ID SET** button for more than 1 second, then release — it enters linking mode.
5. Linking is complete when the receiver's LED goes solid green. Move a stick and confirm the connected servo/ESC responds.

LED reference: red = no signal · solid green = linked and receiving · blinking green = receiving but ID mismatch (not bound to this transmitter) · red/green alternating = unrecoverable fault.

> **Battery failsafe caveat:** The T6EX's low-voltage failsafe (throttle to idle below ~3.8V) watches the receiver's own power input. If the receiver is powered from the ESC's BEC rather than a separate receiver pack, that failsafe is watching the BEC's regulated 5–6V output, not your main flight LiPo's actual state of charge — so don't rely on it as a main-battery warning. A standalone LiPo low-voltage buzzer (or later, the flight controller's own battery monitoring) is still worth having.

Compatibility Note

Each channel here outputs its own individual PWM signal — there's no combined PPM/SBUS output pin. Fine for this manual-flight setup, but as noted on the transmitter page, this receiver won't plug straight into a single-RCIN flight controller for the later ArduPilot phase without an added PPM encoder.

Sources: Futaba 6EX-2.4GHz / T6EX / R606FS Instruction Manual · Futaba 6EX 2.4GHz User Manual — receiver & servo connections