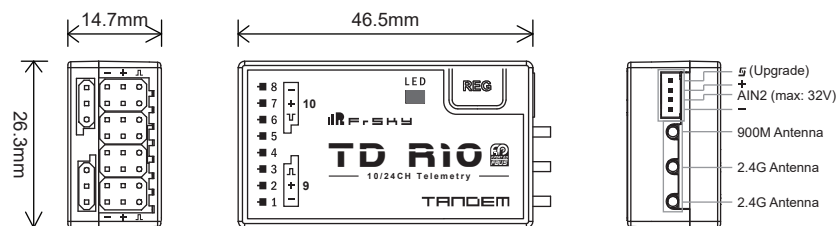## Introduction

The Tandem dual-band receivers are unlike any other FrSky 2.4Ghz or 900Mhz receivers, they work simultaneously at both 900Mhz and 2.4Ghz frequencies. That means Tandem receivers provide not only the low latency signal and long-range control, also benefits from the enhanced level of high reliability and anti-interference performance.

The Tandem series receivers adopt the triple antenna design that provides multi-directional wide coverage for the remote signal. The data (Power & Signal related) under unusual status during the flight can be recorded by Tandem receivers through a built-in black box module.

The configurable 10 channel ports are a big feature of TD R10, each channel port can be assigned as PWM, SBUS, FBUS, or S.Port. With the FBUS protocol, the Tandem series receivers can open up the possibility of seamlessly pairing with multiple telemetry devices (Neuron ESC, Advance Sensors, etc.) as well as simplifying the builds setup.

Overview

- 14.7mm
- 46.5mm
- 26.3mm
- 8 7 6 5 4 3 2 1 / 10 / 9
- LED
- REG
- TD R10
- 10/24CH Telemetry
- TANDEM
- (Upgrade)
- AIN2 (max: 32V)
- 900M Antenna
- 2.4G Antenna
- 2.4G Antenna

Specifications

- Frequency: 2.4GHz & 900MHz
- Dimension: 46.5*26.3*14.7mm (L*W*H)
- Weight: 16.6g
- Operating Voltage: 3.5-10v DC
- Operating Current: ≤180mA@5V
- Compatibility: Tandem series transmitter & TD protocol capable RF module
- Triple 2.4G/900M Antenna
  - 2* External 2.4G antenna (IPEX1)
  - 1* External 900M antenna (IPEX1)

Features

- Simultaneous working dual-band TD mode
- Triple antenna design for multi-directional coverage
- Black Box function
- Built-in voltage sensor
- Race Mode with Telemetry
- Long control range (up to 50KM - 100KM)
- Over-The-Air (OTA) FW update
- 10 Configurable Channel Ports
  - CP1: PWM / SBUS OUT / FBUS / S.Port / SBUS IN
  - CP2-10: PWM / SBUS OUT / FBUS / S.Port
- Supply current range (every single port)
  - Instantaneous current: 5A
  - Continuous current: 3A

Registration & Automatic binding

Follow the steps below to finish the Registration & binding procedure:
1. For TANDEM X20 as an example, enter into the Model, select RF System, turn on the internal module, select status [ON] and TD MODE(Type). You can select the Internal / External antenna and the power as you need, then select [Register].
2. Connect the battery to the receiver while holding the button on the receiver. The RED LED and GREEN LED on the receiver will be on, indicating the [Reg] status.
3. When it shows the Register ID, RX name, and UID, click [Register]. The RED LED and GREEN LED on the receiver will flash, and the transmitter displays [Registration OK].
4. Turn off the receiver.
5. Move the cursor to select any one of the 3 receivers [Bind].
6. Connect the battery to the receiver.
7. Select the RX, the GREEN will keep lit, and the BLUE will flash. Then the transmitter displays [Bind successful].

LED state

| Green LED	Blue LED	Red LED	Status
On	Off	On	Register
Flash	Off	Flash	Register successfully
On	Off	Off	Bind
On	Flash	Off	Bind successfully
On	Flash	Off	Working normally
Off	Off	On	Failsafe

How to configure channel ports

1. For TANDEM X20 as an example, please select RF System, click [RX1 TD10R]-[Set]-[Options].
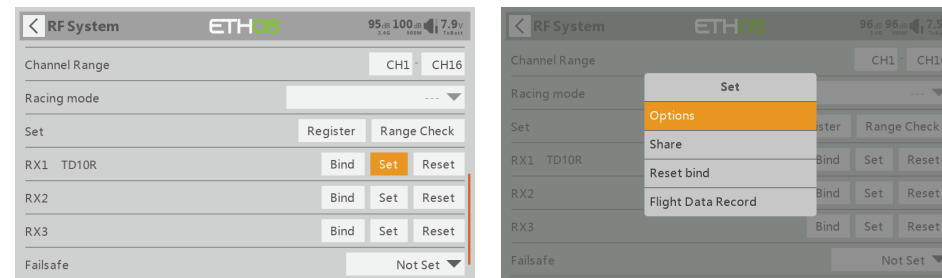
2. You will enter into RX Settings,then function definition of every single pin (pin1-pin10) could be set.
- pin1: Smart Port/ SBUS OUT/ FBUS / SBUS IN/ PWM
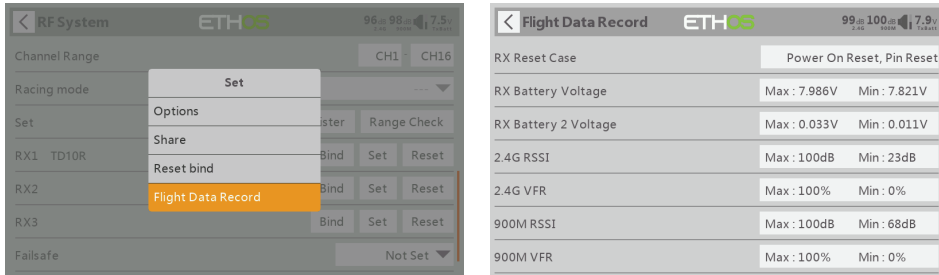- pin2-10: Smart Port/ SBUS OUT/ FBUS/ PWM
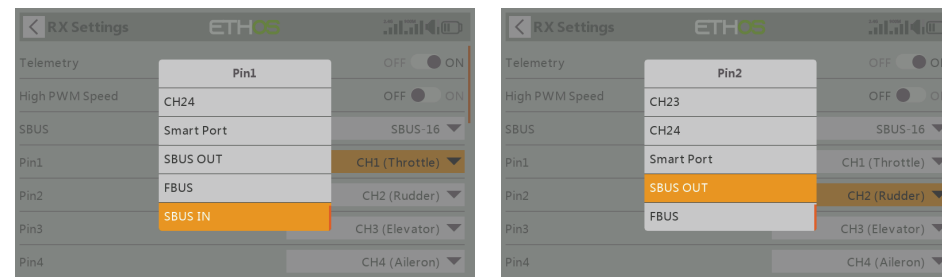
How to enter into the Race mode (down to 4ms)

Enter into Model-RF system, select the Channel Range as CH1-CH8. Click [Switch Positions] and select a switch to start the race mode.

Black Box

Black box records flight data, e.g, RX Reset Case, RSSI, VFR and so on.
For TANDEM X20 as an example, to get flight data, go to RF System-[Set]-[Flight Data Record].

About OTA function

For TANDEM X20 as an example, go to the [File manager], and select the FW, press the enter button, select [Flash RX by int.OTA]. Power on the receiver, select the RX, go to the [ENTER], complete the flash process, the transmitter will display [Success]. Wait for 3 seconds, the receiver works properly at the moment.

Note: Please do not do the binding operation in the near range while the firmware upgrading in progress.

Note: Update the firmware after the receiver gets bound.

Failsafe

Failsafe is a useful feature which is for a preset channel output position whenever control signal is lost for a period. Follow the steps to set Failsafe for channels necessary:
Failsafe for receiver supporting ACCESS can be set via transmitter interface, which support no pulse, hold and custom three modes for each channel.
For TANDEM X20 as an example, turn on the transmitter, go to: MODEL SETUP/Internal RF/Failsafe.

Range Check

A pre-flight range check should be done before each flying session. Reflections from nearby metal fences, concrete buildings or trees can cause loss of signal both during range check and during the flight. Under Range Check Mode, the RF power would decrease and Range distance will reduce to 1/30--1/10 that of Normal Model.
Place the model at least 60cm (two feet) above non-metal contaminated ground (e.g on a wooden bench). The receiver antenna should be in vertical position.
Much more operation and instruction please refer to transmitter manual.

FCC STATEMENT

Product certificated FCC ID: XYFTDMR2409
1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
    1) This device may not cause harmful interference.
    2) This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate transmitter frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to transmitter communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to transmitter or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
    - Reorient or relocate the receiving antenna.
    - Increase the separation between the equipment and receiver.
    - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
    - Consult the dealer or an experienced transmitter/TV technician for help.

FrSky is continuously adding features and improvements to our products. To get the most from your product, please check the download section of the FrSky website www.frsky-rc.com for the latest update firmware and manuals