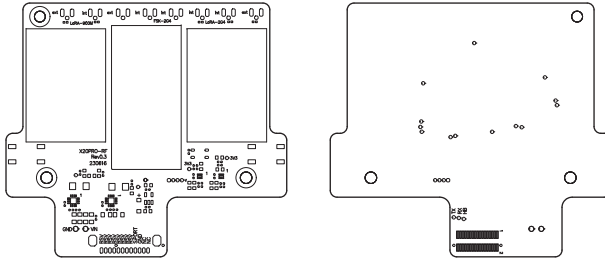


## Information

The TD PRO Tri-frequency RF system has the characteristics and advantages of FrSky 900MHz LoRA, 2.4GHzLoRA and 2.4GHz FSK RF combined in one system. TD has a true simultaneous three-way RF remote control and telemetry function, which can achieve reliable point-to-point 4ms time-delay communication, while maintaining robust and high-quality signal connection. Built-in TANDEM PRO RF system supports ACCESS and ACCST D16, TD, TW protocol, and supports the full series of TD PRO, TD, TW, ACCESS and ACCST D16 receivers.

## Outline



### Interface definition

- VIN: connect to radio main board
- GND: connect to radio GND
- RX/TX: connect to radio USART
- HB: connect to radio Heart Beat input
- S.PORT: connect to radio S.PORT bus

## Specification

- Operating Voltage Range: DC 6.5-8.4V Rating: DC 7.4V
- Operating Temperature: -10°C~60°C (14°F~140°F)
- Number of channels: 32 CH
- Frequency band: 2.4GHz&900MHz
  - 2.4GHz-FSK: 2400.7~2482.5MHz RF Power: ≤20dbm
  - 2.4Ghz-LoRA: 2400~2482.7MHz RF Power: ≤20dbm
  - 900MHz: 904~925Mhz RF Power: ≤30dbm
- Antenna gain:
  - 900M: 1.8dBi
  - 2.4G: ANT 1: 4.33 dBi ANT 2: 3.74 dBi ANT 3: 3.15 dBi ANT 4: 3.95 dBi
- Compatible: ACCESS Receiver&ACCST receivers for 2.4ghz band and TD or TW series receivers

## Features

- It is supported by the newest ETHOS system, the newest ETHOS.
- Supports FRISKY ACCESS, TW, TD protocol
- Supports 2.4GHz FSK & 2.4GHz LoRA & 900MHz tri-frequency
- Supports 2S lithium battery
- Supports 5 build-in internal antennas
- Supports 3 external antennas
- Supports UART communication

- Supports heartbeat signals synchronization
- F.port upgrade is supported

### Usage method

**Step 1:** Touch the screen or use the navigation button to enter the RF system menu. Select the INT MODULE (internal module). Then open the internal RF. Set the internal RF mode corresponding to the receiver.

**Step 2:** Support 24 channels, the channel range is configurable, need to be checked again before use.

**Step 3:** When a new model is created, the system automatically assigns the receiver a number (Model ID).

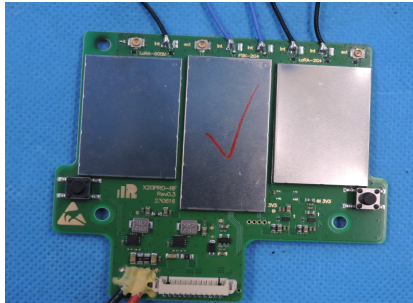
**Step 4:** In the model, the STATE [Register] is selected on the radio side to enter the registration state. Then press the F / S button and turn on the receiver power, then select "RX Name XX" (receive name XX) and [register] to complete the registration process, and then turn off the receiver power.

**Step 5:** Move the cursor to Rx 1 [BIND], then select it, power the receiver, select RX, then complete the process, the system will confirm "binding success".

**Step 6:** Turn on the power function table column, and select the required power level according to the usage situation.

**Note:** A Pre-flight distance check should be performed before each flight. Move the cursor to "Settings", scroll through the encoder to select the Range mode, and then press the encoder. In the range check mode, the effective distance will decrease to 1 / 30. Press the encoder again and go to the normal state.

### Label



尺寸：37x17mm

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](http://www.frsky-rc.com) for the latest update firmware and manuals

## FCC Caution.

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, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any 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 radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio 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 radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Integration instructions for host product manufacturers according to KDB 996369  
D03 OEM Manual v01

### **2.2 List of applicable FCC rules**

List the FCC rules that are applicable to the modular transmitter. These are the rules that specifically establish the bands of operation, the power, spurious emissions, and operating fundamental frequencies. DO NOT list compliance to unintentional-radiator rules (Part 15 Subpart B) since that is not a condition of a module grant that is extended to a host manufacturer. See also Section 2.10 below concerning the need to notify host manufacturers that further testing is required.

Explanation: FCC Part 15 Subpart C 15.247

### **2.3 Summarize the specific operational use conditions**

Describe use conditions that are applicable to the modular transmitter, including for example any limits on antennas, etc. For example, if point-to-point antennas are used that require reduction in power or compensation for cable loss, then this information must be in the instructions. If the use condition limitations extend to professional users, then instructions must state that this information also extends to the host manufacturer's instruction manual. In addition, certain information may also be needed, such as peak gain per frequency band and minimum gain, specifically for master devices in 5 GHz DFS bands.

Explanation: The EUT is Single-band and PIFA Antenna, the antenna use a permanently attached antenna which is not replaceable.

### **2.4 Limited module procedures**

If a modular transmitter is approved as a "limited module," then the module manufacturer is responsible for approving the host environment that the limited module is used with. The manufacturer of a limited module must describe, both in the filing and in the installation instructions, the alternative means that the limited module manufacturer uses to verify that the host meets the necessary requirements to satisfy the module limiting conditions.

A limited module manufacturer has the flexibility to define its alternative method to address the conditions that limit the initial approval, such as: shielding, minimum signaling amplitude, buffered modulation/data inputs, or power supply regulation. The alternative method could include that the limited module manufacturer reviews detailed test data or host designs prior to giving the host manufacturer approval.

This limited module procedure is also applicable for RF exposure evaluation when it is necessary to demonstrate compliance in a specific host. The module manufacturer must state how control of the product into which the modular transmitter will be installed will be maintained such that full compliance of the product is always ensured. For additional hosts other than the specific host originally granted with a limited module, a Class II permissive change is required on the module grant to register the additional host as a specific host also approved with the module.

Explanation: The Module is not a limited module.

### **2.5 Trace antenna designs**

For a modular transmitter with trace antenna designs, see the guidance in Question 11 of KDB Publication 996369 D02 FAQ – Modules for Micro-Strip Antennas and traces. The integration information shall include for the TCB review the integration instructions for the following aspects: layout of trace design, parts list (BOM), antenna, connectors, and isolation requirements.

a) Information that includes permitted variances (e.g., trace boundary limits, thickness, length, width, shape(s), dielectric constant, and impedance as applicable for each type of antenna);

- b) Each design shall be considered a different type (e.g., antenna length in multiple(s) of frequency, the wavelength, and antenna shape (traces in phase) can affect antenna gain and must be considered);
- c) The parameters shall be provided in a manner permitting host manufacturers to design the printed circuit (PC) board layout;
- d) Appropriate parts by manufacturer and specifications;
- e) Test procedures for design verification; and
- f) Production test procedures for ensuring compliance.

The module grantee shall provide a notice that any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the host product manufacturer must notify the module grantee that they wish to change the antenna trace design. In this case, a Class II permissive change application is required to be filed by the grantee, or the host manufacturer can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

Explanation: Yes, the antenna use a permanently attached antenna which is not replaceable, Please refer to the antenna specification book for antenna dimension.

## **2.6 RF exposure considerations**

It is essential for module grantees to clearly and explicitly state the RF exposure conditions that permit a host product manufacturer to use the module. Two types of instructions are required for RF exposure information: (1) to the host product manufacturer, to define the application conditions (mobile, portable – xx cm from a person's body); and (2) additional text needed for the host product manufacturer to provide to end users in their end-product manuals. If RF exposure statements and use conditions are not provided, then the host product manufacturer is required to take responsibility of the module through a change in FCC ID (new application).

Explanation: Transmitter meets MPE calculation of 47 CFR 1.1307 and KDB 447498. Refer to MPE Reports

## **2.7 Antennas**

A list of antennas included in the application for certification must be provided in the instructions. For modular transmitters approved as limited modules, all applicable professional installer instructions must be included as part of the information to the host product manufacturer. The antenna list shall also identify the antenna types (monopole, PIFA, dipole, etc. (note that for example an "omni-directional antenna" is not considered to be a specific "antenna type"))).

For situations where the host product manufacturer is responsible for an external connector, for example with an RF pin and antenna trace design, the integration instructions shall inform the installer that unique antenna connector must be used on the Part 15 authorized transmitters used in the host product. The module manufacturers shall provide a list of acceptable unique connectors.

Explanation: The EUT is Single-band and PIFA Antenna, the antenna use a permanently attached antenna which is not replaceable.

## **2.8 Label and compliance information**

Grantees are responsible for the continued compliance of their modules to the FCC rules. This includes advising host product manufacturers that they need to provide a physical or e-label stating “Contains FCC ID” with their finished product. See Guidelines for Labeling and User Information for RF Devices – KDB Publication 784748.

Explanation: The modular has a permanent fixed label, and below statement was listed in the User Manual ;The host device must be labeled to display the FCC ID of the module “Contains FCC ID: XYFTDPROMDL”

## **2.9 Information on test modes and additional testing requirements**

Additional guidance for testing host products is given in KDB Publication 996369 D04 Module Integration Guide. Test modes should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.

The grantee should provide information on how to configure test modes for host product evaluation for different operational conditions for a stand-alone modular transmitter in a host, versus with multiple, simultaneously transmitting modules or other transmitters in a host.

Grantees can increase the utility of their modular transmitters by providing special means, modes, or instructions that simulates or characterizes a connection by enabling a transmitter. This can greatly simplify a host manufacturer’s determination that a module as installed in a host complies with FCC requirements.

Explanation: The module comply with all specific rules applicable to the transmitter including all the conditions provided in the integration instructions by the grantee, Refer to test report

## **2.10 Additional testing, Part 15 Subpart B disclaimer**

The grantee should include a statement that the modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

Explanation: The module without unintentional-radiator digital circuitry, so the module does not require an evaluation by FCC Part 15 Subpart B. The host should be evaluated by the FCC Subpart B.