

## Instruction Manual for FrSky D8R-XP

### 1. Introduction

#### 1.1 Compatibility

Compatible with FrSky two way telemetry modules: DFT, DJT, DHT, DHT-U

#### 1.2 Specifications

Dimension: 55\*25\*14mm

Weight: 12.4g

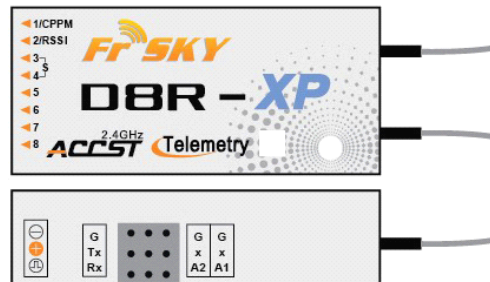
Operating Voltage Range: 3.5V-10.0V

Operating Current: 100mA

Operating Range: full range (>1.5km)

Servo Frame Rate: 18ms (FS – Normal Speed Mode)

9ms (HS – High Speed Mode)



#### 1.3 Features

- 1) Two external analog telemetry ports (A1&A2) and one digital data-stream port (Rx);
- 2) RSSI (PWM) and CPPM output - If CH3 and CH4 are connected by a Jumper, CH1 will output CPPM for CH1~CH8, and CH2 will output RSSI (PWM);
- 3) When side port pins of A1 and X are connected by the jumper, A1 will change from external analog telemetry port to internal built-in battery voltage sensor;
- 4) Firmware upgradeable;
- 5) Two switchable PPM modes - FS mode and HS mode;
- 6) Alarm warning on low voltage, poor reception, etc.

### 2. Set up

#### 2.1 Bind procedure

- 1) Ascertain that the transmitter is in the PPM mode. Turn off the transmitter.
- 2) Turn on the transmitter while holding the F/S button on the transmitter module (Ensure that both switches on the transmitter module are OFF when using D8R-XP in two way mode). Release the button. The RED LED on the transmitter module will flash, indicating the transmitter is ready to bind to the receiver.
- 3) Connect battery to the receiver while holding the F/S button on the receiver. The RED LED on the receiver will flash, indicating the binding process is completed. Turn off both the transmitter and the receiver.
- 4) Turn on the transmitter and connect the battery to the receiver. The RED LED on the receiver will indicate the receiver is receiving commands from the transmitter. The receiver/transmitter module binding will not have to be repeated, unless one of the two is replaced.

**Warning: Battery or servos are NOT to be plugged into side ports (A1/A2/Rx), otherwise damage may occur.**

#### 2.2 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.

The following steps are to be followed to perform the range check of the model before the flight:

- 1) Place the model at least 60cm (two feet) above non-metal contaminated ground (e.g. on a wooden bench).
- 2) The receiver antennas should be separated in the model, and do not touch the ground.
- 3) Place the antenna of the transmitter in a vertical position.
- 4) Turn on the transmitter and the receiver, press the F/S button of the transmitter module for 4 seconds to enter range check mode, the RED LED of the transmitter module will be off, GREEN LED will flash rapidly, and the beeper will sound. The effective distance will be decreased to 1/30 of full range.
- 5) Walk away from the model while simultaneously operating the controls on the transmitter, confirming that all controls operate normally to a distance of at least 30 meters (~30 yds).
- 6) Press the F/S button of the transmitter module for 1S-4S to exit range check mode, RED LED will be back on, indicating normal operation is back.

#### 2.3 Setting failsafe

Failsafe is a useful feature in which all controls move to a preset position whenever the control signal is lost for a period of time. D8R-XP supports failsafe function for all channels.

Follow the steps below to set failsafe positions for each channel:

- 1) Bind the receiver first and turn on both the transmitter and the receiver;
- 2) Move the controls to the desired failsafe position for all channels;
- 3) Press briefly the F/S button on the receiver (less than 1 second). The transmitter module will make a long "beep",

indicating the failsafe position has been set in the receiver.

To disable the failsafe function, re-bind the receiver.

**Failsafe is recommended to set when system is firstly used, or receiver has been re-bound. Follow steps below to set failsafe.**

**Option-1. How to set failsafe to a user-determined state on lost signal:**

- 1) Bind the receiver to the transmitter module first and turn on both the transmitter and the receiver;
- 2) Move the controls to desired failsafe position for all channels;
- 3) Press briefly the F/S button on the receiver and you are done.

**Option-2. How to set failsafe for no pulses on lost signal:**

- 1) Just press briefly the F/S button on the receiver while the transmitter is off and you are done.

**Note: If failsafe is not set, failsafe default will hold last position before signal is lost. In this case, there exists risk that your model will fly away or cause injury.**

## 2.4 LED status

RED LED	GREEN LED	Mode
On	Dimly On	Normal Operation
Blinking	Off	No Signal
Blinking	On	Binding Successful

## 2.5 Pins definition for side ports

It should be noted that 3.3V only has a limited driving current (1~10mA), it should not be used for driving a MPU.

**2.5.1** Two external analog telemetry ports (A1&A2) and one digital data-stream port (Rx).

G	G	G
Tx	X	X
Rx	A2	A1

Rx: input to receiver, RS232 level, connect with FrSky sensor hub

A2 (external): max voltage 3.3V, division ratio 1:1

A1 (external): max voltage 3.3V, division ratio 1:1

**2.5.2 When side port pins of A1 and X are connected by the jumper, A1 will change from external analog telemetry port to internal built-in battery voltage sensor.**

G	G	G
Tx	X	X
Rx	A2	A1

Rx: input to receiver, RS232 level, connect with FrSky sensor hub

A2 (external): max voltage 3.3V, division ratio 1:1

A1 (internal): max voltage 3.3V, division ratio 4:1

## 3. How to switch between two PPM modes

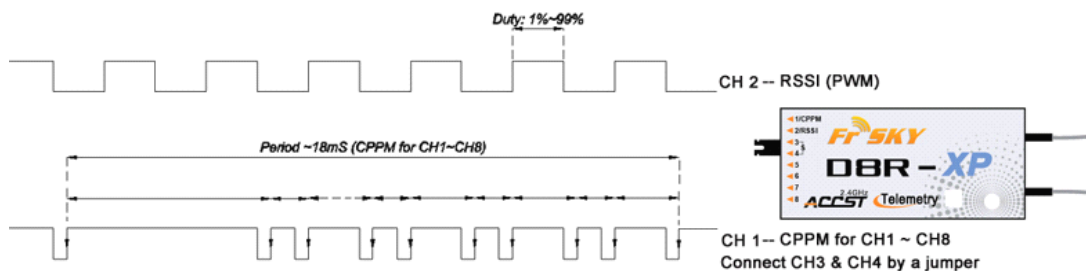
Turn the transmitter off, connect the battery to the receiver, pressing the F/S button of the receiver for 6 seconds and then release. The red LED will flash fast in HS mode and slowly in FS mode. The mode alternates each time this procedure is done.

**Warning: HS mode is only applied for high-speed digital servos.**

**Other servos should select FS mode, otherwise servos will get hot and may burn out.**

## 4. How to get CPPM and RSSI from D8R-XP

If CH3 and CH4 are connected by a jumper, CH1 will output CPPM for CH1~ CH8 and CH2 will output RSSI (PWM).



**CPPM channel can not handle all eight channels at the same time with all throws are maxed out, as it does not have enough frame gap. It is recommended to use at most six channels from CPPM channel while leaving off the rest two channels, otherwise improper performance might occur.**

