2.4GHz R8SB
D8_Mode Compatible Telemetry Receiver
INSTRUCTION MANUAL

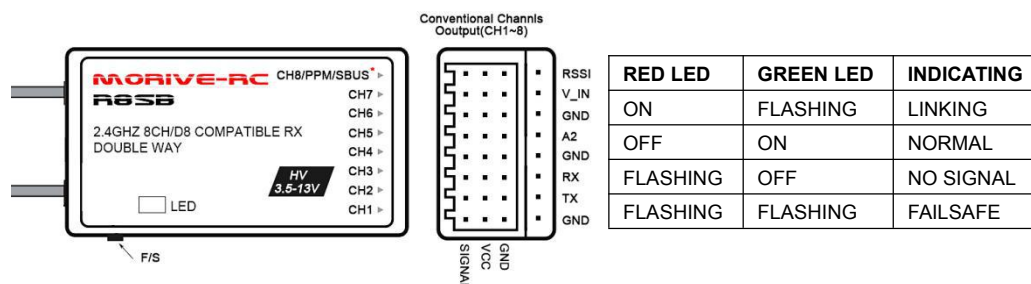Thank you for purchase of the R8SB receiver.
This manual contains the complete direction on how to use this receiver, we encourage you to review the entire manual before using these products.
R8SB receiver is designed for iRange X, Jumper, and FrSky Radio D8 Model system, please check the compatibility before use!

Main Features

1. 1.2km far reaching range.
2. Satisfy with various model type with Physical channel PWM outputs, PPM, SBUS and RSSI outputs(For FC).
3. RSSI Output analog 0~3.3V.
4. Two analog telemetry ports (A1&A2) , A1 for internal receiver battery voltage sensor, A2 for external battery voltage sensor(0~30V,1~6S).
5. One digital data-stream port (Rx,Tx).

Layout and LED definition

RED LED	GREEN LED	INDICATING
ON	FLASHING	LINKING
OFF	ON	NORMAL
FLASHING	OFF	NO SIGNAL
FLASHING	FLASHING	FAILSAFE

*set different signal output by bind in different mode.

Specifications

Size: 35 x 21 x 12 mm (L x W x H)
Weight: 6.8g
Number of Channels: Up to 9CH from SBUS(CH1~8 for PWM, CH9 RSSI for FC)
Input Voltage Range: 3.5V - 13.0V (5V Normal Operating Range)
Range: above 1.2KM
Compatibility: iRange X , Jumper Transmitters, FrSky DJT/DFT/DHT, D8_Mode on all FrSky transmitters

Antenna installation:
R8SB receiver is made for high directivity consisting of two antenna, in order to maximize signal reception and promote safe modelling has adopted a diversity antenna system. This allow the receiver to obtain RF signal on both antennas and fly problem-free.

Be sure that the two antennas are placed at 90 degree to each other, and keep away from conductive materials to avoid short circuit.

Linking to Transmitter

Step 1:
Set R8SB receiver in Binding mode FIRST and Select operate mode you want (Please reference below sheet):
Connect battery to R8SB receiver while holing the F/S button on the receiver enter binding mode.

Mode select:
1. Set receiver in binding mode;
2. Each press of the F/S button advances the receiver to the next Mode, when you reach the mode that you wish to operate in, short press the button.
3.Once locked into the correct mode the LED will flashing in corresponding times constantly.

R8SB RECEIVER CHANNEL MODE SHEET

Receiver output Connector	Channels			
	Mode 1 CH 1~8 Normal Mode (20mS)	**Mode 2** CH 1~8 High Speed Mode (3mS)	**Mode 3** CH1~7 + CH8 PPM	**Mode 4** CH1~7 + CH8 SBUS/RSSI
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	PPM	**8Channels of Output w/ 9th Channel Dedicated to RSSI**
Red LED Blink	**1 time**	**2 times**	**3 times**	**4 times**

Only PPM/SBUS Capable devices may be connect to the PPM/SBUS port. Analog servo   or gyros should not be connect on PPM/SBUS port.

Step 2:

Set Tx module/ Transmitter in Binding Mode

1. Linking to Frsky Radio (X9D/X9D Plus/SE, QX7/QX7S, X-Lite, X12S, X9E)

In the Taranis, go to **MODE SETUP** (page 2) in the model configuration. Go to Mode inside Internal RF and select D8. We press BIND. The transmitter beeps, indicating it's in bind mode. Wait for the **green LED on the receiver fast flashing and red LED solid on** indicates the receiver is receiving commands from the transmitter. The binding procedure has finished. Receiver will auto enter Normal operation mode within 5 seconds. Exit the bind mode in transmitter and turn off.

2. Linking the receiver to the XJT/DFT/DJT RF module

Using the dip switches of the XJT/DFT/DJT module, select the **D8 mode**. They should be in the following position: switch 1 = ON, switch 2 = OFF. Press and hold the bind button and turn the transmitter on. Release the button. A green light should blink in the module, indicating it's in bind mode. Wait for the **green LED on the receiver fast flashing and red LED solid on** indicates the receiver is receiving commands from the transmitter. The binding procedure has finished. Receiver will auto enter Normal operation mode within 5 seconds. Exit the bind mode in transmitter and turn off.

3. Linking the receiver to iRange X

Take example by iRange X module mounted on FrSky Taranis transmitter (as long as your transmitter can use the Open TX firmware, then it is compatible with module).

In the Taranis, go to **MODE SETUP** (page 2) in the model configuration. Go to Mode External RF and select MULTI-FrSky- D8. We press BIND. The transmitter beeps, indicating it's in bind mode. Wait for the **green LED on the receiver fast flashing and red LED solid on** indicates the receiver is receiving commands from the transmitter. The binding procedure has finished. Receiver will auto enter Normal operation mode within 5 seconds. Exit the bind mode in transmitter and turn off.

4. Linking the receiver to Jumper Transmitter

In the Jumper transmitter, we go to the **Model set** up page, selecting **FrSky** and press BIND. Wait for the **green LED on the receiver fast flashing and red LED solid on** indicates the receiver is receiving commands from the transmitter. The binding procedure has finished.Receiver will auto enter Normal operation mode within 5 seconds.

Fail-safe

Fail-safe is a useful feature in which all controls move to a preset position whenever the control signal is lost for a period of time. R8SB receiver supports fail-safe function for all channels. Follow the steps below to set fail-safe positions for each channel:

1.Bind the receiver first and turn on both the transmitter and receiver;
2.Move the controls to the desired fail-safe position for all channels;
3.Press briefly the F/S button of the receiver (less than 3 second). The GREEN & RED LED of the receiver will flash, indicating the fails-afe position has been set in the receiver.
Re-bind the receiver to disable the fail-safe function.

Senior Functions

1. Receiver Configuration(SBUS & RSSI) in the Beat flight configuration:
Binding receiver in SBUS mode, connect CH8 channel of receiver to UART RX port of FC

Connect R8SB to F7 FC
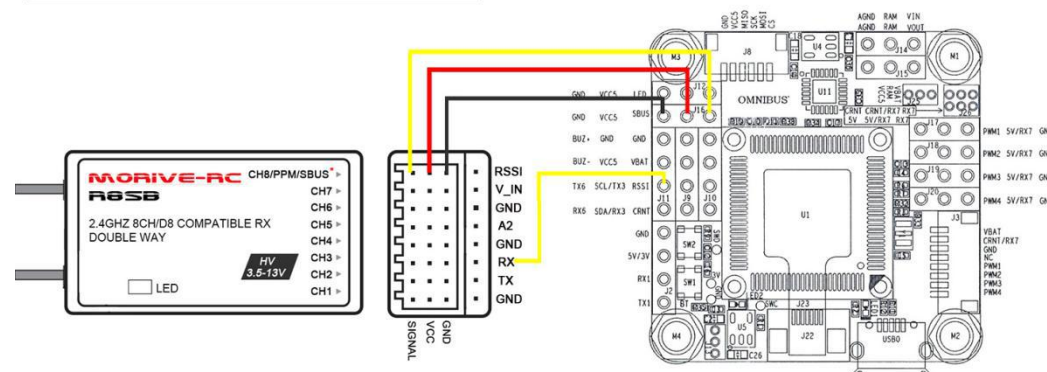
In the GUI PORTS tab, select the UART that corresponds to the receiver (usually UART2 in F7 flight controllers) and activate Serial RX.
Save by clicking on the Save and Reboot button.

In the CONFIGURATION tab, in the Receiver Mode section, select RX_SERIAL.
In the same tab, in the Serial Receiver Provider section, select SBUS.
Save by clicking on the Save and Reboot button.

Go to the RECEIVER tab and confirm that all channels are responding correctly.
AUX 5 should be indicating a higher value than the other channels, this is the RSSI channel. In the 'RSSI Channel' drop down, choose AUX 5. Now, the RSSI value can be set to display in the Betaflight OSD.
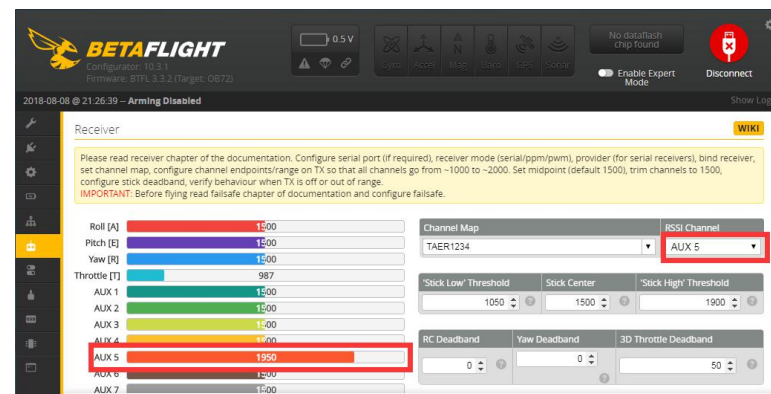
Enter the OSD tab and activate the 'RSSI Value' button under 'Elements'. Position the RSSI indicator anywhere on the OSD display and press save. Now you can view the real-time RSSI strength in your goggles.
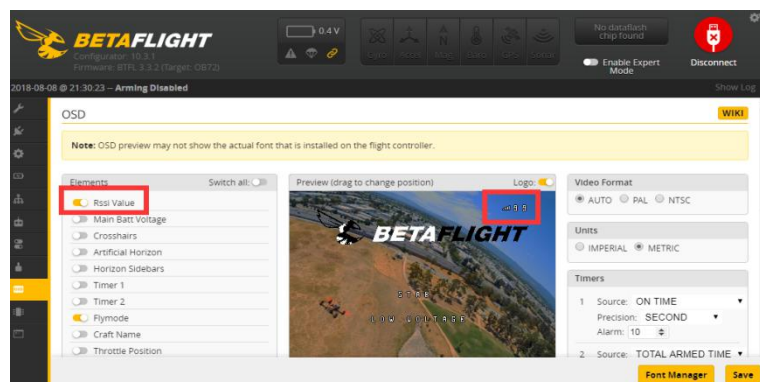
2. Setting Telemetry on FrSky TARANIS with R8SB Receiver
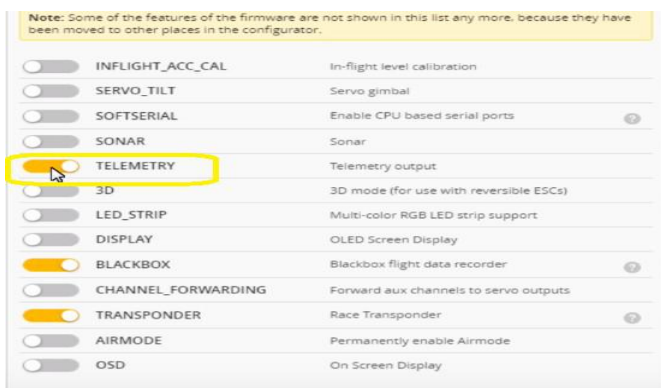
Connect RX channel of receiver to UART TX port of FC

In the GUI PORTS tab, select the UART that corresponds to the telemetry (usually UART6 in F7 flight controllers)

Select FrSky in Telemetry. Leave the baudrate to AUTO.

The FC will reboot, applying the change.
Make sure you're getting the telemetry values in Transmitter correctly.

3. A1&A2 for battery voltage sensor

A1 and A2 are the analog telemetry ports on the R8SB receiver. A1 for internal receiver battery voltage sensor, A2 for external battery voltage sensor(0~36.3V,1~6S liPo)

How to use A2 port for external battery
Connect the battery to the A2 port of the R8SB receiver, set Taranis in "Telemetry" screen, select "Discover new sensor", you will find "A2" data.
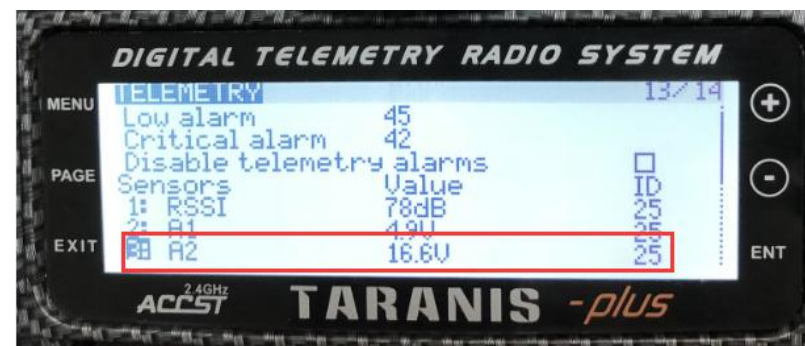
We need to setup the A2 Ratio. Select A2, long press the ENT button to enter the setting interface.
The receiver's maximum input voltage used for telemetry is 3.3V. Internal voltage divider is 11:1. Maximum voltage reading for A2 is 3.3×11=36.3. We suggest to use 36.5V as this is recommended. Now you can get the correct voltage of the battery on transmitter.
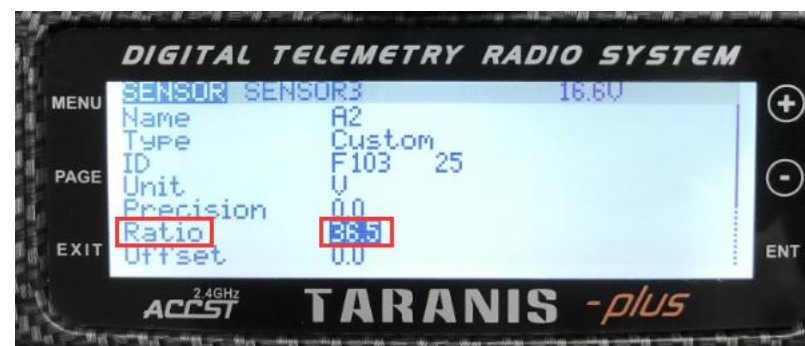
Declaimer: This receiver is RC compatible receiver with FrSky D8 Mode system. iRange X, Jumper, and FrSky are trade marks.
For technical support please mail to motive-rc@gmail.com