Futaba®

T-FHSS · S.BUS · S.BUS2 · High Voltage System HV

R3008SB

T-FHSS Air-2.4GHz Bidirectional Communication System
S.BUS2 / S.BUS Port and 8 Channels for Conventional System Receiver

Thank you for purchasing a Futaba **R3008SB T-FHSS Air-2.4GHz** compatible receiver. The **R3008SB** receiver features bi-directional communication with a **T-FHSS Air-2.4GHz** Futaba transmitter using the **S.BUS2** port. Using the **S.BUS2** port an impressive array of telemetry sensors may be utilized. It also includes both standard PWM output ports and S.BUS output ports.

Applicable systems: Futaba T-FHSS Air-2.4GHz system transmitter

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Usage precaution

- Futaba T-FHSS Air system does not work with current Futaba T-FHSS / S-FHSS / FHSS / FASST / FASSTest system.
- The R3008SB receiver can only be used with T-FHSS Air capable transmitters.
- Don't connect Extra Voltage before turning on a receiver.

⚠ WARNING

🚫 Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

🚫 The R3008SB receiver should be protected from vibration by foam rubber, hook and loop fastener or similar mounting methods. Protect from moisture.

🚫 Keep away from conductive materials to avoid short circuits.

Antenna installation precaution

🚫 Don't cut or bundle the receiver antenna wire.

🚫 Don't bend the coaxial cable. It causes damage.

🚫 The antennas must be mounted in such a way to assure they are strain relieved.

🚫 Keep the antenna as far away from the motor, ESC and other noise sources as you possibly can.

本產品符合低功率電波輻射性電機管理辦法 第十二條、第十四條等條文規定
1. 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
2. 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業，科學及醫療用電波輻射性電機設備之干擾。

(Antenna installation)

Please refer the table below for LED status vs receiver's condition.

LED Indication

Green	Red	Status
Off	*Solid*	No signal reception
Solid	*Off*	Receiving signals
Alternate blink		Unrecoverable error (EEPROM, etc.)

Compliance Information Statement (for U.S.A.)

This device, trade name Futaba Corporation, model number R3008SB, complies with part15 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.

CAUTION:
To assure continued FCC compliance:
1. Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.
2. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

To meet the RF exposure requirements of the FCC this device shall not be co-located with another transmitting device.

🚫 Be sure that the two antennas are placed at 90 degrees to each other.

- The R3008SB has two antennas. In order to maximize signal reception and promote safe modeling Futaba has adopted a diversity antenna system. This allows the receiver to obtain RF signals on both antennas and fly problem-free.

Antenna installation for carbon fuselage

⚠ WARNING

🚫 You must leave 30mm at the tip of the antenna fully exposed. The exposed antenna should be secured so that it cannot move around or back inside of your aircraft.

S.BUS2 precaution

⚠ DANGER

🚫 Don't connect a connector, as shown right.

- It will be a short-circuit, if it connected in this way. A short circuit across the battery terminals may cause abnormal heat, fire and burning.
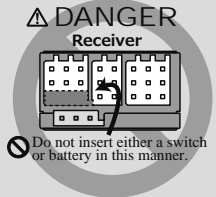
🚫 Don't connect servo for conventional system to S.BUS/S.BUS2 port.

- Digital servo for conventional system→ It does not operate.
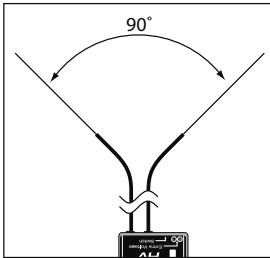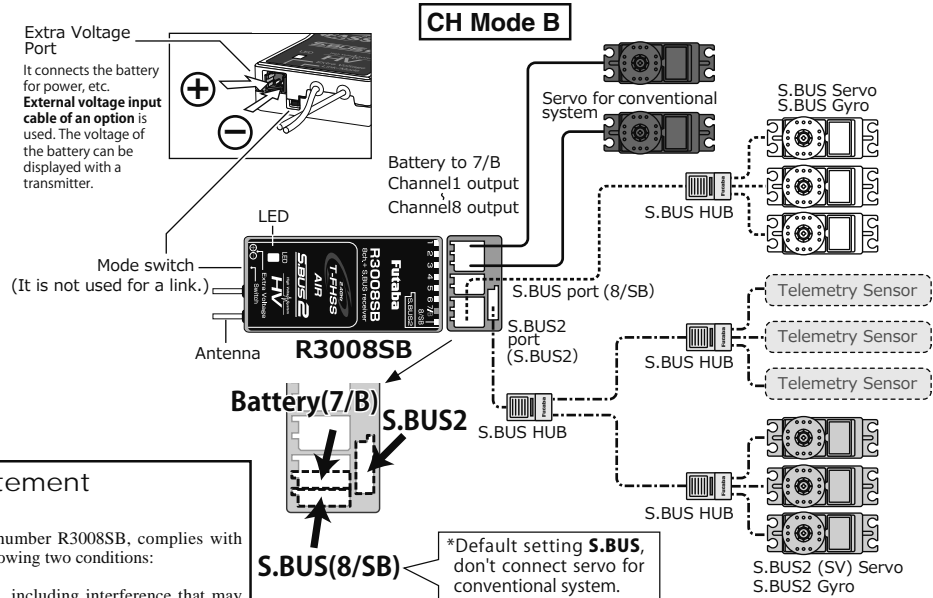- Analog servo → It may cause abnormal heat, fire and burning.

⚠ WARNING

🚫 Only S.BUS2 capable devices may be connected the S.BUS2 port. Standard S.BUS servos and gyros should not be connected the S.BUS2 port.

⚠ DANGER

Receiver

🚫 Do not insert either a switch or battery in this manner.

(Typical installation)

CH Mode B

Extra Voltage Port
It connects the battery for power, etc. **External voltage input cable of an option** is used. The voltage of the battery can be displayed with a transmitter.

LED

Mode switch
(It is not used for a link.)

Antenna

R3008SB

Battery to 7/B
Channel1 output
Channel8 output

Servo for conventional system

S.BUS Servo
S.BUS Gyro

S.BUS port (8/SB)
S.BUS2 port (S.BUS2)

S.BUS HUB

Telemetry Sensor
Telemetry Sensor
Telemetry Sensor

S.BUS HUB

Battery(7/B)

S.BUS2

S.BUS HUB

S.BUS HUB

S.BUS(8/SB)

*Default setting **S.BUS**, don't connect servo for conventional system.

S.BUS2 (SV) Servo
S.BUS2 Gyro

R3008SB Specifications

T-FHSS Air-2.4GHz system/**S.BUS2** and **S.BUS** port and 8 channels for conventional system receiver

- Dual antenna diversity
- Size: 0.98 x 1.86 x 0.56 in. (24.9 x 47.3 x 14.3 mm)
- Weight: 0.36 oz. (10.1 g)
- Power requirement: 4.8 V to 7.4 V
- Battery F/S Voltage: It sets up with a transmitter
- Extra Voltage port: 0 ～ 70 V DC

* Be sure that when using ESCs regulated output the capacity of the ESC must meet your usage condition.

Link to the transmitter

Easy Link ID allows T-FHSS Air receivers to link to compatible transmitter without pressing the link button on the receiver.

1 Bring the transmitter and the receiver close to each other, within 20 inches (half meter).

2 Turn on the transmitter. Place the transmitter into the receiver linking mode.

3 Turn on the receiver.

4 The receiver will wait for the linking process to begin for 3 seconds. Following that it will return to the normal operation mode.

5 When the LED of the receiver changes from blinking red to solid green, linking is completed.
(A link waiting state is ended in 3 second.)

• Refer to the transmitters operation manual for complete details on how to place the transmitter into the linking mode.

• If there are many T-FHSS Air systems turned on in close proximity, your receiver might have difficulty establishing a link to your transmitter. This is a rare occurrence. However, should another T-FHSS Air transmitter/receiver be linking at the same time, your receiver could link to the wrong transmitter. This is very dangerous if you do not notice this situation. In order to avoid the problem,we strongly recommend you to double check whether your receiver is really under control by your transmitter.

• If the System Type of the transmitter is changed, the receiver will need to be re-linked to the transmitter.

⚠ WARNING

🚫 Do not perform the linking procedure while the motor's main wire connected or the engine is operating as it may result in serious injury.

❗ When the linking is complete, please cycle the receiver power and ensure the receiver is properly linked to the transmitter.

❗ Please power up your system in this order. Transmitter first, followed by the receiver.

❗ If the R3008SB receiver was previously linked to another transmitter, make sure that transmitter is not operating while linking the receiver to the new transmitter.

T-FHSS Air

T-FHSS Air is a bidirectional communication system between the R3008SB receiver and T-FHSS Air capable transmitters. Multiple optional telemetry sensors may be connected to the **S.BUS2** on the receiver and that data is in turn displayed on the transmitter.

*Please see your transmitters operation manual to configure transmitter to operate with telemetry sensors.

What is S.BUS?

Unlike conventional radio control systems, the **S.BUS** system uses data communication to transmit control signals from a receiver to a servo, gyro, or other **S.BUS** compatible device. This data includes commands such as "move the channel 3 servo to 15 degrees, move the channel 5 servo to 30 degrees" to multiple devices. The **S.BUS** devices execute only those commands for their own set channel. For this reason, it can be used by connecting multiple servos to the same signal line.

* Set the channel of **S.BUS** servos by using an **SBC-1** channel changer, **CIU-2** USB serial interface or the programming software resident in the **T10J** transmitter.
* Can also be used together with conventional servos. However, conventional servos cannot be used by the **S.BUS** output.
* When using servos with a remote battery pack, use **S.BUS** Hub with Cable (2-way/remote battery pack use).
Please refer to the instruction manual of **S.BUS** Hub with Cable (2-way/remote battery pack use) for the connection method.

⚠ WARNING

❗ Turn on the power in transmitter → receiver order. In addition, always check the operation of all the servos before flight.

🚫 Do not insert or remove the servo connector while the receiver power is ON.

Since the S.BUS servo switches the operation mode automatically according to the type of signal (S.BUS signal/PWM signal) from the receiver, if the connector is inserted or removed while the power is ON, an S.BUS connected servo will be erroneously recognized and may stop.

Channel Modes

The R3008SB is capable of changing its channel allocations as described in the table below.

1 Turn on the receiver. (At this moment, the transmitter should be off.) Then, **LED** blinks RED in about 3 seconds. Next, wait until it becomes solid RED.

2 Press and hold the **Mode switch** more than 5 seconds.

3 Release the button when the **LED** blinks RED and GREEN simultaneously.

4 The receiver is now in the "Operation CH Set" mode. At this moment, the **LED** indicates current set status through flashing a pattern that corresponds to the CH mode.

*Cannot exit this CH setting mode before the operation mode is fixed.

**See the below table that shows correspondence between "CH mode" and way of flashing LED.

***Default CH mode is "Mode B".

5 By pressing the **Mode switch**, the operation CH is switched sequentially as "Mode C" "Mode D" "Mode E" "Mode A"....

6 The operation mode will be set by pressing the **Mode switch** more than 2 seconds at the desired CH mode.

7 Release the button when the **LED** blinks RED and GREEN simultaneously. Then, the operation CH is fixed.

8 After confirming the operation CH mode is changed, turn off and back on the receiver power.

*The "Operation CH Set" mode cannot be changed during the receiver communicates to the transmitter.

R3008SB CH Mode table

Output connector	Channel				
	Mode A 1 ～ 8CH	**Mode B** 1 ～ 7CH	**Mode C** 9 ～ 10CH	**Mode D** 9 ～ 10CH	**Mode E** 8 ～ 10CH
1	1	1	9	9	8
2	2	2	10	10	9
3	3	3	11	11	10
4	4	4	12	12	11
5	5	5	13	13	12
6	6	6	14	14	13
7/B	7	7	15	15	14
8/SB	8	S.BUS	16	S.BUS	S.BUS
Red LED blink	1 time	2 times	3 times	4 times	5 times

Default CH mode

S.BUS2

S.BUS2 extends **S.BUS** and supports bidirectional communication. Sensors are connected the **S.BUS2** port.

*Only S.BUS2 capable devices may be connected the S.BUS2 port. Standard S.BUS servos and gyros should not be connected the S.BUS2 port.

[Connection by S.BUS system]

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