2.4GHz 8 Channel
Single Line System Receiver

OPTIMA SL

Instruction
Version 1.0

Introduction

Thank you for your purchase of the Hitec Adaptive Frequency Hopping Spread Spectrum (AFHSS) 2.4GHz receiver system. This manual contains the complete directions on how to use the Optima SL receiver We encourage you to review the entire manual before using these products.

Service & Support Hitec Customer Service

Help is available from the Hitec office through phone support and e-mail inquiries.
Our US office is generally open Monday thru Friday, 8:00AM to 4:30PM PST. These hours and days may vary by season. Every attempt is made to answer every incoming service call. Should you reach our voicemail, leave your name and number and a staff member will return your call.

Hitec Website

Make plans to visit the Hitec website, www.hitecrcd.com, on a regular basis. Not only is it full of specs and other information about the entire Hitec product line, our website's FAQ pages will eventually hold valuable information and program updates about the module and Optima SL receiver.

The On-Line Community

One of the benefits of the extensive R/C online community is the vast wealth of archived knowledge available.
Hitec sponsors forums on most of the popular R/C websites where a Hitec staff member or representative tries to answer all manner of product related questions. Bringing together strangers with common interests is proving to be one of the greatest gifts of the internet. If past history is any guide to the future, we are certain forums will be started about the Hitec 2.4 system and several are certain to stand out as valuable archives of information.

Warranty and Non-Warranty Service

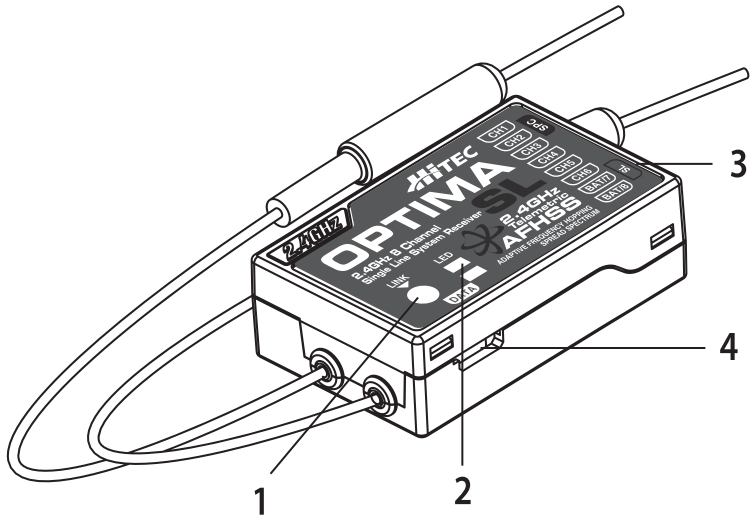
All Hitec products carry a two year from date-of-purchase warranty against manufacturer's defects. Our trained and professional service representatives will determine if the item will be repaired or replaced. To provide all the necessary information we need to administrate your repair, visit our website at www.hitecrcd.com and download the repair form, fill it out and send in your item for repair.

Hitec Service
12115 Paine St. Poway CA 92064
1-858-748-6948
E-mail: service@hitecrcd.com

OPTIMA SL Receiver Specifications & Features

Full Range AFHSS 2.4GHz Receiver

Receiver Model	Size	Weight	Stock Number
OPTIMA SL	1.85 x 1.14 x 0.59in (47.7 x 29.1 x 15.5mm)	0.77oz (22g)	27224



1. Function Button
- Used for binding the receiver to a module or Hitec 2.4 built-in transmitters, entering the FAIL-SAFE or Hold feature.

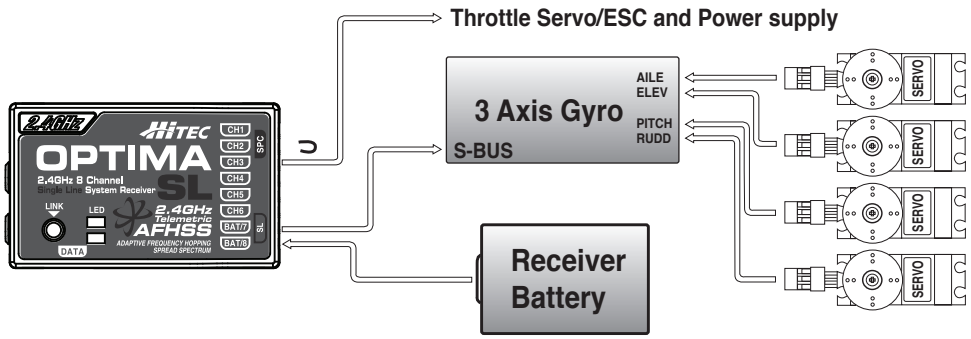
2. Dual LED Status Indicator
- Indicates the set-up process codes and current status of the receiver.

3.PWM Channel, Battery slots and Single Line Input Ports
- Optima SL has 8 slots for PWM, 2 slots for Batteries and 1 slot for Single Line connection.

4. Telemetry Sensor and Data Port*
- A three pin servo plug connector port is featured on the Optima SL. Using the HPP-22 PC interface accessory, this port serves to facilitate upgrading the device's software and interfacing the optional onboard sensor station.

Jumper
The jumper is installed at the factory and is used when the receiver is powered by an electronic speed control, a commercially available B.E.C. (battery eliminator circuit), dedicated 4.8 to 6V, NiMH battery pack or a regulated Li-Po battery. The jumper is removed when the receiver is powered using the SPC feature as described.

Single Line Connection Diagrams



Note

Please select 'S-Bus' on Gyro software when SL slot is connecting to 3 axis gyro.
When you use OPTIMA SL with other brand's devices, some of functions of devices may not operate perfectly. Please check fully functions before the flight.

Link (ID-Setup or Bind)

The way to bind with Optima SL can be different for each Transmitters. Please refer to the description about binding with Receivers on the manual of each Transmitters.

FAIL-SAFE and Hold Mode Setup

If the receiver signal somehow becomes interrupted or interference occurs, the servos will move to the pre-set FAIL-SAFE point you previously stored in the FAIL-SAFE set-up. Make sure you set the FAIL-SAFE function properly.

If FAIL-SAFE has not been activated, the signal will switch off after the HOLD period of one second.
This means that the servos become "soft" and remain in their last commanded position under no load (this may equate to full-throttle!), until a valid signal is picked up again.

In the interest of safety, we recommend that the FAIL-SAFE function should always be activated, and the FAIL-SAFE settings should be selected so as to bring the model to a non-critical situation (e.g. motor idle /electric motor OFF, control surfaces neutral, airbrakes extended, aero-tow release open, etc.).

Fail safe mode.

a. Switch on transmitter and receiver.
   Wait for the system to boot and gain control over the model.
b. Press and hold the button on the receiver until the LED turns off (approx. 6 seconds)
c. Release the button. After 2 seconds, both RED and BLUE LEDs blink alternately.
   The receiver will count 5 seconds, during that time, move all the transmitter sticks and other controls to the desired FAIL-SAFE positions (e.g. motor idle, control surfaces neutral). Hold until blinking stops.
d. When blinking stops, the system will temporarily remember the FAIL-SAFE position. Turn off the system to save and exit.

Testing the FAIL-SAFE Setting
a. Move the sticks to positions other than the FAIL-SAFE settings and then switch off the transmitter.
   The servos should now move to the FAIL-SAFE positions previously stored, after the one second HOLD period.

How to turn FAIL-SAFE Off and reactivate the Hold Mode
a. Switch on the transmitter then the receiver. Wait for the system to boot and you have control over the model.
b. Press and hold the receiver function button for 6 seconds and release. After 2 seconds, the RED and BLUE LEDs will blink rapidly.
c. Immediately press the button once.
d. FAIL-SAFE Mode is now deactivated and HOLD mode is activated.
e. Turn the transmitter off then the receiver off.
f. Turn the system back on to use it.

Note

If FAIL-SAFE is deactivated, the FAIL-SAFE position settings are also deleted!
The FAIL-SAFE settings should be checked every time before you run the engine/motor.

Telemetry System

The Hitec AFHSS 2.4Ghz system and Optima SL feature full telemetry capabilities and include a Low Receiver Battery Warning as a basic function.

I. Basic Function: Low Onboard Battery Warning
When the Optima SL is powered up, it will automatically detect the battery voltage level and recognize between 4-cell or 5-cell NiMH and NiCd batteries (4 cell < 5.8V < 5 cell).
In case a 2-cell LiPo battery is being used, you can customize the battery warning level by using the HPP-22 PC program.
- When the battery level is safe (4 cell > 4.5V, 5 cell > 5.6V), there will be no change to the LED lights.
- When the battery level is low (4 cell < 4.5V, 5 cell < 5.6V), the BLUE LED glows constantly and the RED LED will blink fast. You will hear three continuous beeps from the module as a low receiver battery warning. Upon hearing the beeps, we advise you to land at once.

II. Optional Functions:
GPS, Airspeed, Variometer, Servo Manager, FUEL, TEMP, O-RPM, M-RPM, VOLT, Amp Sensors - Applicable for Optima SL
- More devices will be available in the future.
  Check the Hitec website at www.hitecrcd.com for more up-to-date information.

Warning

Low Battery Warning function is only for your reference. The actual battery level could be different. Battery Memory Effects such as Lazy Battery Effect or Battery Memory could affect the Low Battery Warning function.
- When the 2.4GHz system and HV servos are used together, we strongly recommend using fully-charged, large capacity battery packs and you must constantly monitor the battery status.