

HG-5000 & HSG-5083MG

Gyro Combo Set Up Guide

Instruction Manual

Thank you for choosing the Hitec HG-5000 high performance micro gyro. Following this guide will help you fully understand all the features of this gyro and allow you to achieve a rock solid tail just like the pros.

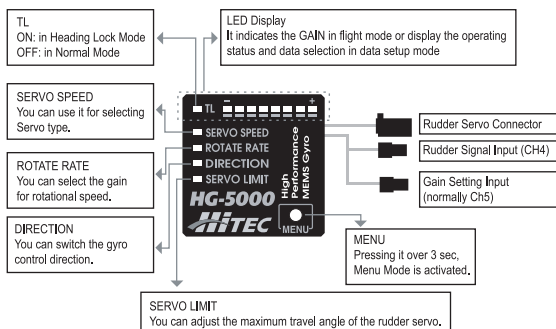
1.Features:

- Precision control technology for accurate heading lock function
- Optimized solution for consistent pirouette rate
- Extreme tolerance against disturbance and vibration
- Optimized high response narrow band Hitec signal. Best results when used with Hitec HS-5083mg servo.
- Universal signal selectable (for analog, digital, and high frame rate servos)
- Auto detection for any transmitter and receiver types.
- Zero initialization time when powered up in heading lock mode.
- Advanced real time signal processing
- Built-in temperature sensor for zero temperature differential drift.
- Remote gain adjustment through your transmitter. (if TX is capable of remote gain adjust)
- Ultra light weight & compact size
- Self diagnosis function
- Simple and informative led display
- Low power consumption (20mA)

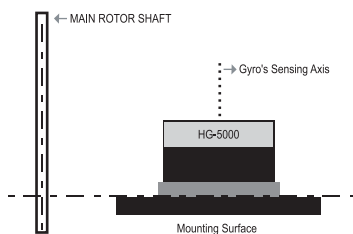
2.Specification

- Operating Voltage: 4.5 ~ 5.5V
- Power Consumption: 20mA
- Input Signal: 2 Channels (Rudder and Gain control)
- Output Signal: 1 Channel (Servo)
- Sensitivity Adjustment: Remotely controlled by transmitter
- Compatibility: Auto detection for all brands of transmitters and receivers
- Data Setting: Using menu button and rudder stick operation
- Data Display: 8 LED
- Dimensions: 22 x 22 x 11 mm (0.85" x 0.85" x 0.45")
- Weight: 10g (0.35oz)

3.Functions



4.Installation



- Install the gyro's sensing axis parallel with the Main Shaft axis and have the bottom of the gyro perpendicular to the main shaft.
- Install the gyro at least 10cm away from the motor when using it in an electric helicopter. (RF noise created by the motor may create glitching)
- Clean any oil or dust from the mounting surfaces on the helicopter and gyro before using the double sided mounting tape to install the gyro.

5.Basic Menu Structure

Sequence of HG-5000 Menu Structure:

Servo Speed → Rotate Rate → Direction → Servo Limit

- Push and hold the menu button down for more than 3 seconds to get into the menu mode. Each time you push the menu button it will go to the next menu function.
- If nothing is touched for 5 seconds it will reset with the light off. Simply push the menu button again to get to the function you want to set.
- Pressing the menu button after moving and holding the rudder stick will increase/decrease data values.
- Left will decrease and right will increase values unless the rudder channel in the transmitter has been reversed.

6.Initial Setup

A.Transmitter DATA Setting

I.Set the transmitter data for the rudder channel as below

: D/R 100%, EPA 140%, Sub Trim 0% and Trim 0%

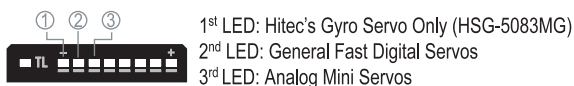
B. Transmitter Type Scanning

- When using the HG-5000 for the first time, you will need to scan and find the correct signal type. (i.e. Hitec, Futaba, JR type etc..)
- Apply full left or right rudder stick. Then turn on the TX power and wait for 10 seconds with the rudder stick at the full left or right position, then return the rudder stick to the neutral position for five seconds.
- After finishing the scan, turn off the power to receiver then turn it back on.
- The HG-5000 is now set to your transmitter type. If you change transmitter types you will have to repeat this process.

7.Servo Type Selection (Servo Speed)

Push the menu button to select the "Servo Speed" LED.

Move the rudder stick to the left or right to change servo type then push the menu button to select the servo type you're using:

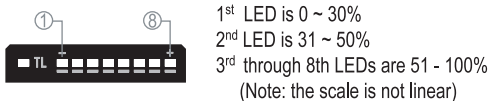


*Caution:

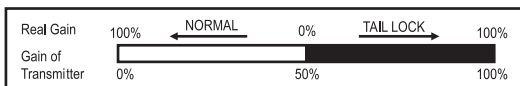
Never use the Hitec Gyro servo mode (First LED) with any servo other than Hitec's optimized HSG-5083MG. This mode of the HG-5000 gyro uses a different signal pulse width that is incompatible with any other servo product.

8. Setting the gyro GAIN

The gyro gain setting is done in the transmitter, normally on channel 5; consult your transmitter manual for the channel used on your radio type. The light at the top left hand corner of the gyro marked TL (Tail Lock) will light when in heading hold mode. This occurs with 50% to 100% gain set in the transmitter with the higher percentage being the higher gain. Normal Gyro Rate mode (TL light off) will occur from 50% to 0% with the lower percentage being a higher gain. While the gyro is in normal operation the LED that is lit indicates the approximate value of gyro gain the transmitter is currently set to:



- A. You can adjust the gyro's sensitivity or gain with your TX.
 B. The figure below shows the corresponding gyro sensitivity gain for the TX's gain setting value.



9. Gyro compensation direction (Direction)

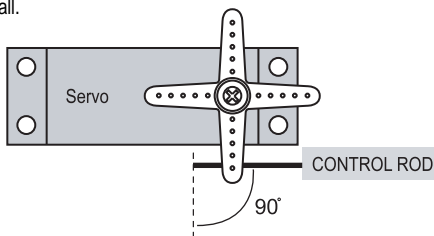
First, make sure the rudder servo moves the correct direction to the stick input. When you move the rudder stick to the right, the rudder servo moves in the direction that would increase the tail rotor pitch to make the nose of the helicopter turn to the right. If it is not correct then reverse the servo direction in the transmitter. Now, pick up the helicopter and rotate the nose to the left and see which way the servo moves. The servo should move in the direction that would increase tail rotor pitch to make the helicopter turn to the right (compensate for the helicopter turning left). If the servo moves the wrong direction then go to the "Direction" function on the gyro with the menu button and change the LED for the correct compensation direction.



10. Servo linkage set up

*** To gain optimum performance from the HG-5000 Gyro perform step 10 thoroughly!**

- A. Activate the standard rate mode (25% gain in the TX recommended).
 B. With the rudder stick at neutral connect the linkage so that the servo horn and control rod are perpendicular (90 Degrees to each other).
 C. Prepare the helicopter for flight and hover it to check if it rotates with the rudder stick in the neutral position.
 Adjust the linkage of the control rod until the helicopter does not rotate at all.



(This mechanical linkage set up is VERY IMPORTANT for proper operation. DO NOT SKIP!)

*Caution:

Do NOT adjust the servo horn using Sub-Trim or Transmitter trim. Always adjust the mechanical linkage, the control rod or servo horn. If you adjust the sub-trim the gyro will recognize the trim change as a signal input. Then the helicopter will rotate even if the rudder stick is at the neutral position.

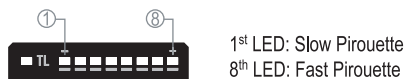
11. Tail Rotor Limit Setting (Servo Limit)

- A. Turn on the "Servo Limit" function using the menu button.
 B. Move the rudder stick until the tail rotor locates at the end of its travel without binding and press the menu button to lock it in.
 Do this with both left and right end points.

12. Pirouette Rate (Rotate Rate)

- A. Activate the "Rotate Rate" using the menu button.
 B. Select TL mode with the transmitter gain around 70% to 80%.
 C. Lift off slowly into a hover and check the pirouette rate.
 D. Adjust the pirouette speed by setting the "Rotate Rate" value from 1 to 8 by holding the rudder stick and pressing the menu button.

Do this for both the left and right side end points.



13. Gyro Default settings:

- A. Servo Speed: 3rd LED
 B. Rotate Rate: 1st LED (Slow Pirouette)
 C. Direction: 1st LED
 D. Servo Limit: Left -25%, Right 25%

Error codes:

- First LED Blinks: Disorder with built in sensor or abnormal input signal.
 Second LED Blinks: No rudder input signal or abnormal input signal.
 Third LED Blinks: No gain input signal or abnormal input signal.

Micro Digital Servo for Gyro HSG-5083MG

- Micro Digital Servo for HG-5000 use only
- Optimized for 400 ~ 500class EP helicopter
- All Metal Gear Applied (1st MP Gear)
- Size: 29 x 13 x 30mm (1.14 x 0.51 x 1.18in)
- Weight : 21g (0.74oz)
- Torque at 4.8V : 1.5kg.cm (20.85oz.in)
- Speed at 4.8V : 0.07sec/60deg.
(Fastest Servo Hitec ever made)
- Non-Programmable



- 55021 HSG-5083MG METAL GEAR SET (MP FIRST GEAR)
- 55023 HSG-5083MG METAL PLASTIC FIRST GEAR SET (1PC)
- 55421 HSG-5083MG CASE SET
- 56326 MICRO HORN SET (HS-81/82/85/5082MG/5085MG/HSG-5083MG)

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