



# HG-5000

## High Performance MEMS Gyro

### Instruction Manual

Thank you for buying the Hitec HG-5000 high performance micro gyro. Please read this manual thoroughly before using your new gyro, so you may fully understand the capabilities and features of the powerful HG-5000 gyro.

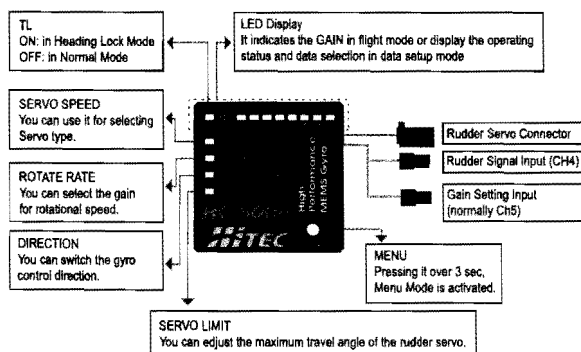
#### 1. Features

- A. Precision Control Technology for Accurate Heading Lock Function
- B. Optimized Solution for Consistent Pirouette Rate
- C. Extreme Tolerance against Disturbance and Vibration
- D. Optimized High Response Narrow Band Hitec Signal. Best results when used with Hitec HS-5083MG servo.
- E. Universal Signal Selectable  
(for both Digital, high frame rate & Analog Servos)
- F. Auto Detection for Any Transmitter and Receiver types.
- G. Zero initialization time when powered up in Heading lock mode.
- H. Advanced Real Time Signal Processing
- I. Built-in Temperature Sensor for zero temperature differential drift.
- J. Remote Gain Adjustment through your Tx.  
(If Tx. is capable of remote gain adjust)
- K. Ultra Light Weight & Compact Size
- L. Self Diagnosis Function
- M. Simple and informative LED Display
- N. Low Power Consumption (20mA)

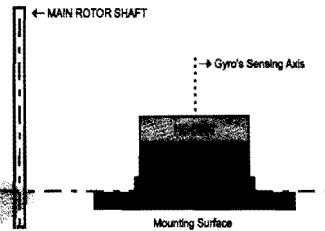
#### 2. Specification

- A. Operating Voltage: 4.5 ~ 5.5V
- B. Power Consumption: 20mA
- C. Input Signal: 2 channels (Rudder and Gain control)
- D. Output Signal: 1 channel (Servo)
- E. Sensitivity Adjustment: Remote control by transmitter
- F. Compatibility: Auto detection for TX and RX for Hitec, Futaba, and JR brands.
- G. Data Setting: Using menu button and rudder stick operation
- H. Data Display: 8 bit LED
- I. Dimension: 22 x 22 x 11 mm or 0.85" x 0.85" x 0.45"
- J. Weight: 10g or .35oz.

#### 3. Functions



#### 4. Installation



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

#### 5. Basic Usage

- A. Press and hold down the Menu Button for over 3 seconds to activate the Menu Mode.
- B. You can change the menu by clicking the menu button without moving the Rudder Stick.
  - i. Order of HG-5000 Menu structure,  
1. Servo Speed '→2. Rotate Rate '→3. Direction '→4. Servo Limit
- C. Pressing the Menu Button after moving the Rudder Stick to the left or right will increase or decrease the data values.
- D. If the rudder channel of the TX is reversed, the value generated is in the opposite direction.

#### 6. Setting

##### A. TX DATA Setting

- i. Please set up the TX's data of the rudder channel as below

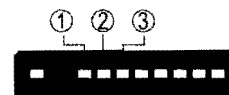
**" D/R, EPA, Sub Trim and Trim a Default value of your TX "**

##### B. TX Type Scanning

- i. When using the HG-5000 for the first time, you'll need to scan and find the correct signal type. (Hitec, Futaba and JR type)
- ii. 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 locate the rudder stick at the neutral position for five seconds.
- iii. After finishing the scan, turn off the Rx power and turn it on again.

##### C. Servo Type Selection

- i. Press the Menu Button to turn on the "Servo Speed" LED.  
(Refer to the Basic Usage section)
- ii. Select the servo type you have.

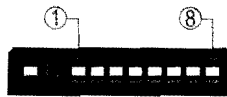
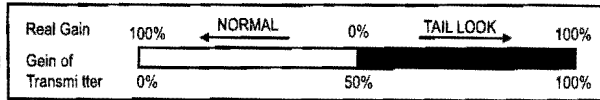


- No. 1 LED : HiTec's Gyro Servo only (HSG-5083MG)
- No. 2 LED : General Fast Digital servos
- No. 3 LED : General mini servos

**\*Caution :** Never use the Hitec Gyro servo mode (No. 1 LED) with any other servo other than Hitec's optimized HS-5083MG. Because this mode of the HG-5000 uses a different signal pulse width incompatible with any other servo product.

#### D. GAIN adjustment

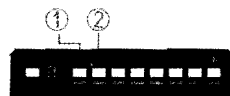
- You can adjust the gyro's sensitivity or gain with your TX.
- The figure below shows the corresponding gyro sensitivity gain for the TX's gain setting value.



TL is turn on at Heading Lock Mode.  
No. 1 LED : Gain 0~30%  
No. 8 LED : Gain 91 ~ 100%

#### E. Gyro operation direction

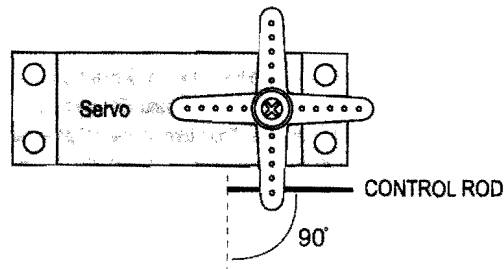
- Press the Menu Button to select the "Direction" function LED
- Check the direction of the rudder servo rotation. Make sure right stick will turn the nose of the heli to the right, and left stick turns the heli's nose left.
- If you need to reverse the direction of rotation (Please refer to the Basic Usage).



No. 1 LED : Normal  
No. 2 LED : Reverse

#### F. Servo Linkage Setting

- Set the TX Sub-trim and Trim as 0%
- Activate the standard rate mode (adjust the Gain channel values to 0% in the TX).
- In the rudder neutral position, connect the linkage so that the servo horn and control rod are perpendicular.



#### 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 or TX 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.

#### G. Rudder neutral position adjustment

- Set the gyro gain at 35% in the TX (Normal mode, Gyro Gain 30%).
- Prepare the heli for flight and hover it to check the direction of rotation.
- Adjust the linkage of the control rod until the helicopter does not rotate

#### H. Limit Setting

- Turn on the "Servo Limit" LED with the Menu button.
- Move the rudder stick until the tail rotor locates at the end point required, then press the Menu Button to save the limit position.
- Do this for both the left and right side end points.

#### I. Rotation Rate Setting

- Activate the "Rotate Rate" LED with the Menu button.
- Select the transmitter gain for 65% (Heading-Lock Mode, Gyro Gain 30%)
- Please take off slowly and hover.
- Adjust the Pirouette speed by setting the "Rotate Rate" value from 1 to 8 using the menu button.



No. 1 LED : Slow Pirouette  
No. 8 LED : Fast Pirouette

#### J. Factory Default Setting Data

- Servo Speed : No. 3 LED (General non-digital, non-high frame rate Mini or micro Servo)
- Rotate Rate : No. 1 LED (Slow pirouette)
- Direction : No.1 LED (Normal Direction)
- Servo Limit : Left - 25%, Right - 25%

#### K. Self-Diagnosis Function

- No.1 LED Blinking: Disorder of built-in sensor or low-performance warning.
- No. 2 LED Blinking: No rudder input signal or abnormal input signal.
- No. 3 LED Blinking: No gain input signal or abnormal input signal.



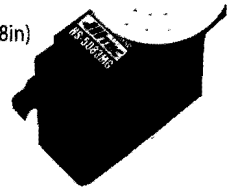
No. 1 LED : Slow Pirouette  
No. 8 LED : Fast Pirouette

#### L. Using Double-sided Tape

- Attach the double-sided tape after cutting it to match the size of the bottom of the gyro.
- Pull the gyro body slightly and stretch the tape by 7mm and release it.
- This is to enhance the effect of vibration elimination.

## 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



#### ACCESSORIES

- # 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-60/81/85/5082MG/5085MG/HSG-5083MG)

*I had a good day, I had Hitec.*  
**HITEC**