

# Heli-Max<sup>®</sup>

## Proseries

Thank you for purchasing the Heli-Max HM4050 Heading Lock Gyro. You can use this fast setup guide to get you going but please take the time to **read the full manual at Heli-Max.com**. There you will learn all the benefits this gyro offers.

### HM4050 AVCS Heading Lock Gyro Fast Setup Guide



#### Understanding Your Gyro



##### 1-Light Emitting Diode (LED)

The LED will glow green anytime the gyro is powered and operating.

##### 2-Limit Dial (LIMIT)

This dial adjusts the rudder servo travel. 100% = maximum travel.

##### 3-Sensing Dial (SENS)

This dial is used to change the delay time between the gyro and the servo. **NOTE: With the GYRO SENS ADJ switch set to (ON) this dial becomes your GAIN adjustment (see below).**

##### 4-SENS ADJ

This switch is used to change the gyro from being able to adjust "gain" from the transmitter (Off) or adjust the gain from the SENS dial (On).

##### 5-Direction (DIR)

This switch is used to change the gyro's compensation direction. **NOTE: Incorrectly setting the direction switch can cause an unsafe situation.**

##### 6-Digital Servo (DS)

This switch is used to select between digital or analog servos.

**WARNING: In this step it is best to unplug the motor or move the motor pinion gear away from the main gear or you might risk injury.**

#### Installing the Gyro

Install the rudder servo following the helicopter manufacturer's instructions. Note: A more detailed servo installation is explained on heli-max.com.

Installation: Once your helicopter is fully assembled and you are ready to install the gyro, take time to verify that the tail rotor's pitch compensation is the correct direction. To do this, simply plug the rudder servo into channel 4 of your receiver. Turn on the transmitter and then power up the helicopter. Moving the left stick (rudder stick) to the left should cause the trailing edge of the tail blades to follow the stick movement. If it does not, use your transmitter's servo reversing switch to change it.

To install the Gyro select an open area on the helicopter away from the motor and motor controller. Your installation position should be with the gyro in-line with the main shaft. Typically, most gyros are installed on the frame set over the tail boom mounting area.

The orientation of the gyro's sensor is such that the label of the gyro faces up. Clean the area with an alcohol pad and attach the gyro using the supplied foam tape. Press down firmly to secure the gyro. To be consistent, mount the gyro so the face plate wording is legible from the back of the helicopter.

Attach your rudder servo connector to the open female connector leading from the gyro.

Attach the 3 wire male connector (rudder) from the gyro to channel 4 of your receiver (Futaba<sup>®</sup>). Also, plug in the one wire plug from the gyro (gain) in to channel 5 (Futaba), making sure the yellow wire is aligned with the signal wire of the other servo plugs.

#### Gyro Setup

Turn on your transmitter and enter your radio's menu and check to make sure REVO MIX (Revolution Mixing) is disabled. Plug the main power battery into the controller. **Again, it is best to unplug the motor or move the motor pinion gear away from the main gear or you might risk injury.** Wait at least 5 seconds before moving the helicopter. This is important as the gyro is reading its current position and should not be disrupted at this time. Move the rudder stick left and right. Adjust the LIMIT dial so the tail pitch slider does not bottom out on the tail case or tail hub. Start at 50 percent and work the dial either a lesser percentage or larger percentage to complete the adjustment.

Adjust the DIR switch so the gyro provides the proper compensation direction. To check this, grasp the helicopter holding the tail away from you. Swing or rotate the helicopter left to right. The trailing edge of the tail blades should move the same direction as your rotation direction.

#### Gyro Usage

##### Flying using "LOCAL" mode (SENS ADJ Switch "ON")

If you choose to use the gyro in local mode it will automatically be in heading hold. It's important to note

that when in heading hold the servo arm will not center when you release pressure of the rudder stick. This is normal. To adjust the gain you must do this manually using the SENS dial located on the top of the gyro.

Adjust the SENS dial to 50%.

Hover the helicopter and look for any tail wag or fade. If you are a skilled pilot you will want to put the helicopter in forward flight and review the tail's performance.

Adjust the SENS (gain) dial either higher for more gain or lower for less.

**NOTE: Dialing back the SENS (gain) dial too far will limit the travel of the servo. The goal is to adjust the gain so the tail does not wag but holds the yaw axes in all flight directions. It's also important to note that if you are using a radio system with limited programming capabilities, this might be the best mode for your application.**

### **Using the gyro in "REMOTE" (SENS ADJ Switch "OFF")**

With the LOCAL switch off, you will enter the GYRO menu of your transmitter to adjust the gain.

To get an idea of how this works, let's step through setting up the gyro using the Futaba 6EX radio system in our Heli-Max AXE 400.

First make sure your rudder trim setting is centered on the transmitter. Leave it at center; you do not want to make any adjustments to the trim with the gyro in heading hold anytime the helicopter is in use.

Check your electronic EPA (end point adjustment) in the transmitter.

To start you want those values (rudder stick left and rudder stick right) at 100%. To do so, with the transmitter on (the helicopter need not be powered up for this adjustment), press and hold the Mode/Select buttons simultaneously. The system will enter the main menu. Press the Mode button until EPA appears. Press the select button until you bring up channel 4. Move the rudder stick left to right to view the end point percentages. Set the value to 100% using the +/- button if needed.

### **To Set Up the Remote Gain Percentages**

Enter the main menu by pressing and holding the Mode/Select buttons simultaneously.

Press and hold to scroll to the GYRO menu. If the GYRO menu is INH (Inhibited) shift the arrow key positive + and hold until the GYRO menu says ON.

Press the select button; here you will see a number percentage with a small arrow to the left. NOTE: Switch H is the GYRO switch on the 6EX (CH: 5). Flipping this

switch will cause a small arrow to change from up to down based on the position of the switch. You will also see a plus or negative symbol to the right of the small arrow. You will use the +/- button located to the right of the screen to change the gain value.

If you set both values to a positive percentage, switch up and switch down, you can obtain two heading hold gain values in the same flight program; for instance, one value for hover (typically a higher gain percentage) and one value for forward flight or 3D (typically less gain). Again, it's important to note that in Heading Hold the servo arm will not center when you release pressure off the rudder stick. We find this to be the most common gain setup. That being said, 55% to 60% gain is a good starting point.

If you have both percentages at a negative value the gyro will operate in "normal" mode and also provide you with two possible "normal" flight gain conditions. This is the least common gain setup.

If you choose, you can have the heading hold switch position (up) and a normal switch position (down), with different values at the same time – a combination of the two gyro gain setups. Most call this style of set up a "trim setup"; one can easily toggle from normal to heading hold to review the installation and setup of the rudder servo.

### **Warranty Service**

Heli-Max® will warrant your Gyro for 90 days after the purchase from defects in materials or workmanship of original manufacture. Heli-Max, at their option, will repair or replace at no charge, the incorrectly made part. This warranty does not cover damage caused by crash, abuse, misuse, alteration or accident. To return your Gyro for service you need to provide proof of purchase, your store receipt or product invoice will suffice. IN NO EVENT SHALL THE PURCHASER BE ENTITLED TO ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

#### **Hobby Services**

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Attn: Service Department

Phone: (217) 398-0007

9:00 am - 5:00 pm Central Time M-F

E-mail: [hobbyservices@hobbico.com](mailto:hobbyservices@hobbico.com)

Outside USA and Canada, contact local importer for warranty information.