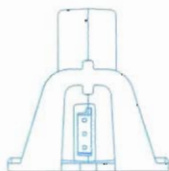
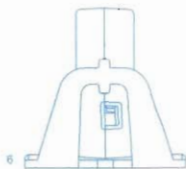
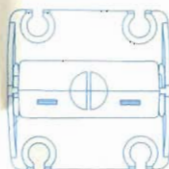


GWS

GWS PG-02 DUAL-RATE PIEZO GYRO INSTRUCTIONS

Note: Please read the instruction manual thoroughly before operation



Specifications:

Dimension: 28.5x26.5x11.0mm

Weight: 11.0 g (gyro only)

13.0g (with gyro mount)

Power Supply: 4.8~ 6.0 Volts

Current Drain: 30mA (at 4.8V)

Gain Adjustment: Dual-Gain (Remote control)

Operating Temperature: -5°C ~ +50°C

Applicable R/C System: Futaba, JR, Hi-tec, Sanwa/Airtronics Multiplex, GWS

INTRODUCTION

Thank you for choosing the GWS PG-02 Piezo Gyro system. The PG02 has been designed using a new micro piezo sensor that has been specially developed for this state-of-the-art gyro system and features an ultra-rapid, super-accurate detection and response system.

PG-02 has dual-rate gain adjustment remotely controlled by auxiliary channel switch (or slide) on the transmitter and features greater crash and impact resistance with the special gyro mount; plus new circuit designed to improve temperature and neutral stability firmly defines the PG-02 as new industry standard in Precision Micro Piezo Gyro.

The PG-02's ultra-light weight (a mere 11.0 grams) and incredible compact size allow installation in all classes of helicopters, aircraft and other vehicles.

Please read this instruction manual carefully before operating your PG-02 gyro.

INSTALLATION

Wiring and Connections (For Helicopters)



Disconnect the servo to be compensated from the receiver and plug the black connector from the gyro there and the red connector is to any of auxiliary channels (preferably spare channel with a switch) on the receiver, then insert the servo connector to the gyro port.

Warning:

Be sure to observe the correct polarity when connecting the servo to the gyro.

Pay careful attention to gyro mounting and vibration absorption.

Make sure that no wires/connectors or other objects come into contact with the gyro case and that wiring to/from the gyro is not under strain. Failure to observe this may lead to poor gyro performance and/or possible gyro disconnection in use.

Location

Find the most ideal location in your model to mount the gyro ensuring that an area of minimum vibration is chosen. Follow carefully any manufacturers recommendations. Please make sure that the gain value, neutral and switching point adjustment trimmers are accessible for future adjustment.

Mounting

There are several ways to mount the PG-02 gyro in the ideal position in your models.

1. Install the gyro mount using the supplied screws, grommets and eyelets like the servo mounting. Tighten the screws until the grommets are slightly crushed for best shock absorption. Do not over-tighten the screws. Then, just snap the gyro on to the mount.
2. Apply the supplied double-sided adhesive tape on the bottom of the gyro and attach it to your model firmly and securely. Then, snap the gyro on to the mount.
3. Apply the supplied double-sided adhesive tape directly to the bottom of the gyro and amount it in your model.

Conventional double-sided tape is not suitable because it cannot absorb enough vibration when used with the ultra-light PG-02.

It is always vital to check the gyro is operating in the proper direction as the PG-02 is not fitted with a direction reversion switch.

If the reverse direction is required, rotate the gyro through 180 degrees.

Control Linkage

To get the best performance and result from the PG-02, it is important to check for binding and slop on all control linkages on your model. If any problem is found, you have to remove and correct it before operating your radio control system including the PG-02 gyro. Remember that you need to repeat the same procedure regularly.

SET-UP AND ADJUSTMENT

Set-up Adjustment

1. Connect all components (receiver, servos, gyro, battery pack, switch harness etc.) as per the wiring diagram and the instruction manual of your radio control system.
2. To activate the PG-02 gyro, first turn on your transmitter, then your receiver. Normally, the bicolor LED will light in red and green simultaneously. It means that the neutral position is correctly set and it does not need to adjust the neutral trimmer.
3. If the bicolor LED lights either in red or in green, it means that the neutral position is offset. Turn the neutral trimmer with an insulated screwdriver (not supplied) in either direction until the bicolor LED starts to light in red and green at the same time. By adjusting the neutral trimmer in this proper manner, the input and output signals will be synchronized perfectly when no movement is detected by the gyro.

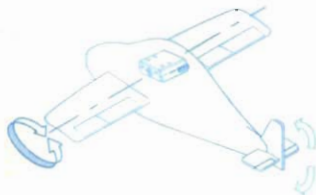
TYPICAL EXAMPLE OF USAGE



Helicopter (Yaw Stabilization)
RX ⇒ PG-02 ⇒ Rudder Servo



Airplane (Roll Stabilization)
RX ⇒ PG-02 ⇒ Aileron Servo



Airplane (Pitch Stabilization)
RX ⇒ PG-02 ⇒ Elevator Servo

4. To set dual-rate gain adjustment it is necessary to connect to any of auxiliary channels (preferably spare channel with a switch). Normally it is not necessary to adjust the switching point when you are using 2-position (On-Off) switch that has very wide control pulse. Check if the red LED will light by flipping the switch, from Gain 1 to Gain 2 or vice versa
5. When you are going to use the 3-position (On-Neutral-Off) switch, it may necessary to adjust the switching point trimmer to obtain dual gains separately as the control pulse is relatively narrow. You can select the dual-rate gains by this switch (On-Neutral or Neutral-Off).

Gain Value Adjustment

The PG-02 has been factory-adjusted with a gain setting of around 50%. This setting is usually

suitable for both sport and advanced users. However, some adjustment of the gain setting may be required to match the gyro performance to the model in order to cater for such variables as model type, main rotor speed, maneuver, engine power, pilot skill etc.

1. Increase the gain value (sensitivity) by rotating the trimmer clockwise and decrease the gain by rotating the trimmer counter-clockwise. For novice helicopter fliers, turn the trimmer 20-30 degrees clockwise from the center position. For expert and 3-D helicopter fliers, turn the trimmer 20 - 30 degrees counter-clockwise.
2. If your helicopter wags its tail or hunts, reduce the gain and fly again. Adjust the gain until the tail no longer wags.
3. When flying airplanes with the gain set excessively high, control can feel sluggish or oversable. When using the PG-02 for aileron or elevator, use relatively small amount of gain and you will be rewarded with pitch, predictable control plus outstanding model stability in windy conditions.

PRECAUTIONS

Always handle your PG-02 gyro with care when transporting and when operating with R/C models. The PG-02 is precision piece of electronic equipment and despite featuring a highly robust sensor can suffer damage if abused, crushed or mistreated. Do not expose the gyro too strong direct sunlight or heat for too long. E&OE

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