

# PowerBox

# iGYRO

3 AXIS GPS CONTROLLED

# SRS



## Add-on Setup Assistant

Here at **PowerBox Systems** we are committed to making high-tech electronics accessible to all pilots without requiring them to tackle complicated programming procedures. Our top priority is to make it as simple as possible to operate the equipment without restricting its performance. The **iGyro** was developed from the outset with this in mind, and that is why it constitutes a high-performance triple-axis gyro system which is simple to operate. However, from past experience we are aware that beginners to gyros in particular are wary of exploiting this technology, because they are frightened off by the effort involved in setting up the system.

**PowerBox Systems** have succeeded in further simplifying the set-up process, and believe we are setting new standards!

With the help of the Setup Assistant you should be in a position to set up the **iGyro** in no more than ten minutes. Once you have completed the basic settings, **only a single flight** is required for fine adjustment.

Although the **iGyro** is set up using its integral screen, please take the time to read through these instructions as they contain supplementary information which is useful during the set-up process.

The Assistant covers 99% of all model types, but its suitability for the following types is limited:

- Canards
- Models with thrust vectoring

The Assistant can be used to set up the primary functions for these types of model, but the non-standard functions mentioned above have to be set up manually.

Before carrying out the set-up flight we recommend that you run the **Test Fly Assistant** on the ground **several times**, to familiarise yourself with the sequence of operations and the way it works. It is also extremely helpful to have a fellow-modeller by your side during the set-up flight, as he will be able to follow the flow-chart, and keep abreast of the set-up sequence. The system also incorporates a safety function, should anything unexpected occur:

### Moving the flight mode switch to the FM1 position disables all the gyro functions!

The set-up procedure is divided into two sections:

#### - SETUP ASSISTANT

In this section you select all the model-specific settings, e.g. the gyro's

SET GYRO DIRECTION  
AILE-A NORMAL  
AILE-B NORMAL  
ELEU-A REVERSE  
ELEU-B NORMAL  
RUDD NORMAL OK

BASIC SETUP  
ASSISTANT COMPLETED  
NEXT STEP:  
TEST FLY ASSISTANT  
OK

The **iGyro** now automatically activates Heading mode, enabling you to see the gyro's effect as clearly as possible. Now check the direction of effect of the control surfaces: if the direction is incorrect, move the cursor to the appropriate channel and press the SET button to reverse the gyro's effect. **Please take your time over this, and check everything very thoroughly!**

When you are confident that all the control surfaces are correctly set up, select **OK**; this action switches Heading mode off again.

You have now completed the basic set-up procedure, and can fly the model using the **TEST FLY ASSISTANT**.

One final reminder: please run this Assistant several times on the ground to familiarise yourself with its method of working. You will find small tick-boxes next to each individual step. If you have a friend to help you, ask him to tick each box to confirm which steps have already been completed. If you are not sure of the status of the Assistant at any time, it can be helpful to land the model and check before flying again.

SETUP ASSISTANT  
TEST FLY ASSISTANT

In the main menu select the **TEST FLY ASSISTANT**.

KEEP PLANE STILL  
GYRO IS ZEROING  
●●○○○

At this point the **iGyro** carries out a self-calibration: hold the model still during this procedure.

MOVE ALL STICKS TO  
TEACH END POSITIONS  
BACK OK

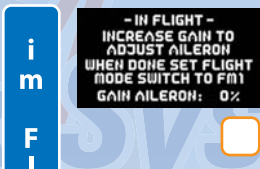
Now move all the transmitter sticks to their end-points to define those points. Select **OK** when you are finished.

SET FLIGHT MODE  
SWITCH TO FM2 OR FM3  
GAIN SLIDER OR KNOB  
TO 0%

The **iGyro** now waits until the flight mode switch is at the **FM1** position, and the gain adjuster is set to 0%, before proceeding.

- IN FLIGHT -  
INCREASE GAIN TO  
ADJUST AILERON  
WHEN DONE SET FLIGHT  
MODE SWITCH TO FM1  
GAIN AILERON: 0%

The model can now be launched! The gyro is active, and the gain adjuster is set to 0%. Fly the aeroplane straight and level, and carry out a slow pass, at the same time advancing the gain adjuster until the model starts to oscillate around the **aileron axis**. At this point reduce the gain setting slightly. It is



The set-up procedure is divided into two sections:

### - **SETUP ASSISTANT**

In this section you select all the model-specific settings, e.g. the gyro's orientation in the model, channel assignment, direction of gyro effect.

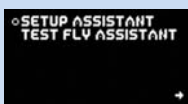
### - **TEST FLY ASSISTANT**

In this section you adjust the gyro's gain (sensitivity) while the model is flying. It is advisable to run this section of the Assistant several times before flying the model to ensure that you are familiar with the set-up procedure. Carrying out a 'dry run' in this way does not affect the settings of the **SETUP ASSISTANT**. However, if you are not confident of doing this, the alternative is to land the model after setting each value, and view the gyro's current status on the integral screen.

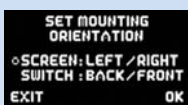
The only preparations you have to make are these:

- Enter the radio control system you wish to use in the **RX SETTINGS** menu
- Assign a three-position switch and a rotary knob or linear slider at the transmitter

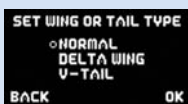
The simplicity of the procedure is evident from the following flow-chart:



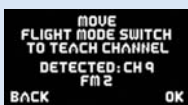
In the main menu select the **SETUP ASSISTANT**



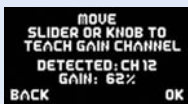
At this point you define the gyro's physical orientation: six different combinations are possible. For example, LEFT/RIGHT means left or right, and refers to the position of the gyro's integral screen.



Setting the wing and tail type.



Move the three-position switch previously selected at the transmitter: the Assistant automatically detects the channel. Select all the flight modes in turn, so that the Assistant can also check that the switch is working properly. In this example the gyro has identified Channel 9.



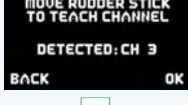
Move the knob or slider which is to adjust gyro gain: the **iGyro** automatically detects the channel. Now move the adjuster through its full travel, i.e. from 0% - 100%. If the Assistant does not accept the travel (OK), increase servo travel for that channel to -105% to +105% at the transmitter.



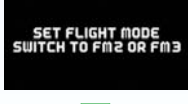
Move the aileron stick: the **iGyro** automatically detects whether you are using one or two channels for aileron control. If you accidentally move a different function at the transmitter, simply move the correct one afterwards. Use the transmitter's servo monitor to check your selection.



Move the elevator stick: the **iGyro** automatically detects whether you are using one or two channels for elevator control. Use the transmitter's servo monitor to check your selection.



Move the rudder stick. Use the transmitter's servo monitor to check your selection.



Move the flight mode switch to the **FM2** or **FM3** position



F l u g

i m F l u g

i m F l u g

i m F l u g

i m F l u g

i m F l u g

i m F l u g

GAIN AILERON: 0%



SET FLIGHT MODE SWITCH TO FM2 OR FM3  
GAIN SLIDER OR KNOB TO 0%



- IN FLIGHT -  
INCREASE GAIN TO ADJUST ELEVATOR  
WHEN DONE SET FLIGHT MODE SWITCH TO FM1  
GAIN ELEVATOR: 100%



SET FLIGHT MODE SWITCH TO FM2 OR FM3  
GAIN SLIDER OR KNOB TO 0%



- IN FLIGHT -  
INCREASE GAIN TO ADJUST RUDDER HORN  
WHEN DONE SET FLIGHT MODE SWITCH TO FM1  
GAIN RUDDER: 81%



SET FLIGHT MODE SWITCH TO FM2 OR FM3  
GAIN SLIDER OR KNOB TO 0%



- IN FLIGHT -  
INCREASE GAIN TO ADJUST RUDDER HEAD  
WHEN DONE SET FLIGHT MODE SWITCH TO FM1  
GAIN RUDDER: 100%



GYRO SETUP COMPLETED  
HAVE FUN !!



and carry out a slow pass, at the same time advancing the gain adjuster until the model starts to oscillate around the **aileron axis**. At this point reduce the gain setting slightly. It is a good idea to fly several circuits to ascertain the optimum effect. When you are satisfied that the setting is correct, switch the flight mode to 1 in order to disable the gyro again.

The **iGyro** now waits again until you switch the flight mode to **FM2** or **FM3**, and the gain control is at 0% once more. Once you have done that, you are ready for the next stage: establishing the correct elevator setting.

Fly the aeroplane straight and level, and carry out a slow pass, at the same time advancing the gain adjuster until the model starts to oscillate around the **elevator axis**. At this point reduce the gain setting slightly. It is a good idea to fly several circuits to ascertain the optimum effect. When you are confident that the setting is correct, switch the flight mode to 1 in order to disable the gyro again.

The **iGyro** is switched off, and waits again until you switch to flight mode **FM2** or **FM3**, and the gain control is at 0% once more. Once you have done that, you can move on to the next stage: establishing the **rudder setting in Normal mode**.

The rudder has to be set up slightly differently: when the model is turning normally, the Heading value has an adverse effect, so the Normal and Heading Values have to be set up separately. Use the gain control to set the gyro effect for the rudder, then move the flight mode switch to **FM1** to continue.

The **iGyro** is switched off, and waits again until you switch to flight mode **FM2** or **FM3**, and the gain control is at 0% once more. Once you have done that, you can move on to the next stage: establishing the **rudder setting in Heading mode**.

The method of setting gyro gain is exactly as described above. However, if you do not complete the task of finding the optimum setting on the first slow pass, apply the rudder very slightly through the subsequent turn in order to suppress the Heading value for the rudder. After completing the turn you can safely continue with the procedure. When you are satisfied with the setting, switch to **FM1**.

The set-up procedure for the **iGyro** is now complete. The Assistant has created flight modes **FM2** and **FM3**: **FM2** is set as the Standard flight phase, and the Heading value for rudder is disabled. You can switch to **FM3** for particular manoeuvres such as knife-edge passes and slow rolls.

The **iGyro Setup Assistant** has stored the same values for aileron and elevator for both Normal and Heading modes. Naturally it is possible at any time to adjust or fine-tune the settings subsequently. For example, you might wish to set up different settings for the Normal or Heading values, or activate the Booster for particular axes.

**Note:** if you are a 3D pilot, we recommend that you program at least one flight mode without a Heading value: when a model is flying a 3D manoeuvre, its lack of airspeed makes it incapable of moving in all directions, and the gyro's attempts to maintain position may cause control surfaces to move to their end-points. If the model then picks up speed again, the deflections could cause the model to carry out unexpected movements.