1M23N35502

Futaba Gyro for RC Drift Cars

GYD550

INSTRUCTION MANUAL

For RC models | Only for Futaba digital servo

Before using your new gyro, please read this manual thoroughly and use the gyro properly and safely. After reading this manual, store it in a safe place.

- No part of this manual may be reproduced in any form without prior permission.
- The contents of this manual are subject to change without prior notice.
- Futaba is not liable for any potential damage (accidental or otherwise) that may occur after installation.

Features of GYD550

● Dedicated RC Drift car setting

Vehicle straight-line and cornering performance can be increased without taking into account the effect of the road surface, etc.

● Remote gain function and mode switching function

You can adjust gain from the transmitter (3 or more CH) by using the remote gain function. The mode switching function allows AVCS/NORMAL gyro mode switching.

● Integrated, compact, and light weight

Compact size (22.6x19.6x11 mm) and light weight (5.6 g) realized by high density mounting technology.

● Aluminum case

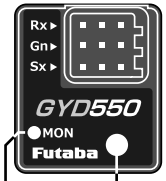
The GYD550 is equipped with a robust and highly rigid aluminum case.

● Supporting the S.BUS/S.BUS2 connection

Only one wire connection to the receiver can operate the GYD550.

● Only for Futaba digital servo

Functions

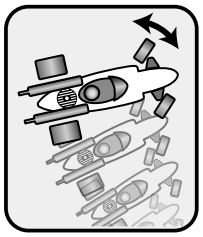


- **● Rx (Steering input/S.BUS input)**
- **● Gn (Gain input)**
- **● Sx (Steering servo output)**

● LED **● Push Switch** Press using the included mini screwdriver

Monitor LED display

State	Color	Move	Reference
1. No servo pulse / sensor error	*Red*	*2 flash*	
2. Warm-up	*Green*	*Fast blink*	
3. Sensor initialization	*Red/Green*	*ON*	*AVCS (Red) NORMAL (Green)*
4. Turn	*Red/Green*	*Fast blink*	*Right (Green) Left (Red)*
5. Neutral offset	*Orange*	*Slow blink*	*Steering operation*
6. Gain OFF	*–*	*OFF*	
7. Low battery	*Red*	*Blink*	*Less than 3.8 V*
8. Parameter settings	*Indicated on the back page*		



Thank you for purchasing the GYD550 RC cars gyro. Compact and lightweight, the GYD550 is designed to control steering for RC Drift cars. Features include S.BUS/S.BUS2 connectivity.

The transmitter needs 3 or more channels to control the gyro gain.

GYD550 Ratings:

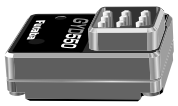
(Integrated sensor type gyro)

- Gyro sensor: MEMS vibrating structure gyro
- Operating voltage: DC 3.5 V to 8.4 V
- Current drain: 30 mA (excluding a servo)
- Operating temperature range: -10 ºC to +45 ºC
- Dimensions: 22.6 x 19.6 x 11.0 mm (0.89 x 0.77 x 0.43 in) (except protrusion)
- Weight: 5.6 g (0.2 oz)
- Functions: LED monitor. Servo selection (SR mode). S.BUS/S.BUS2 connection.

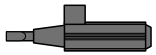
Set Contents

The following items are supplied with the GYD550:

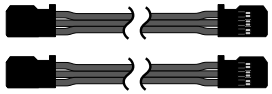
GYD550



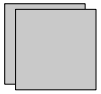
Mini screwdriver



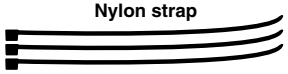
Extension cord



Sensor tape



Nylon strap



⚠ WARNING

Failure to follow these safety precautions may result in severe injury to yourself and others.

❗ Check that there is sufficient battery capacity.

⃠ Do not operate the model and transmitter steering wheel for about 3-5 seconds after turning on the GYD550 (When shared with the receiver).

- GYD550 initialization and neutral position reading. The GYD550 is initialized when the power is turned on. The neutral position is also read at the same time. If initialization ends normally, the operator is informed by two repetitive movements of the servo to the left and right (a little).

❗ Always check the direction of operation of the gyro.

⃠ Do not strike the gyro with a hard object. Do not drop it onto a concrete surface or other hard floor.

- The sensor may become damaged during strong impacts.

⃠ Do not use trims or mixing.

- All corrections are made by the gyro. Therefore, if trimming and mixing, are turned on, operation will be the same as deviating from the neutral position.

⃠ Do not use the GYD550 for applications other than RC cars.

- This gyro is designed for RC cars only. Do not use it for other applications.

⃠ Analog servos cannot be used.

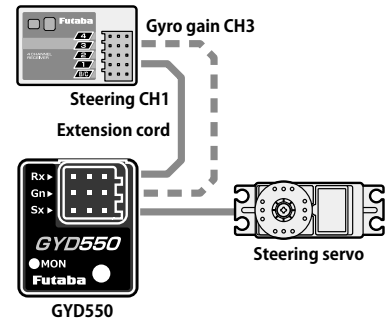
- The use of analog servos may cause servo trouble.

⃠ Do not place gyro near heating equipment (engine, motor, ESC, battery, servo, etc.).

- Always allow the gyro to adjust to the surrounding environmental temperature before use. A large temperature change during use will cause drift and other operational issues.

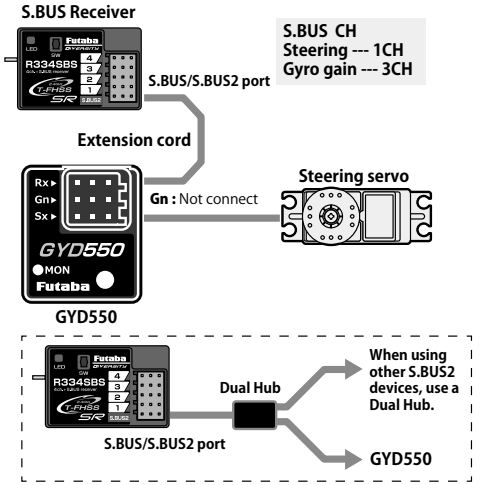
Connecting the GYD550

*In **SR mode**, the transmitter **steering channel** and the **gyro gain channel** should be set to **SR-ON**.



S.BUS Connecting the GYD550

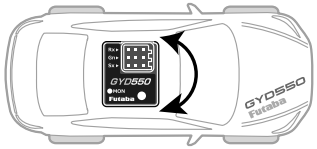
* When using **SR mode**, S.BUS connection is not possible.



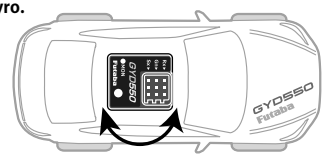
Mounting to Chassis

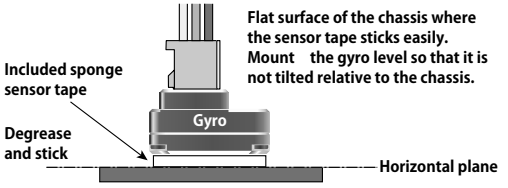
Use the included double-sided sponge tape to firmly attach the gyro perpendicular to the control axis, at a position where there is as little vibration as possible. Make the wiring loose and bundle it with the included nylon strap so that it will not interfere with the linkage rod.

Gyro mounting position



The direction of rotation fixed by the gyro can be any direction within 360° relative to the steering axis controlled by the gyro.





When GYD550 is turned ON

The GYD550 requires 3-5 seconds to initialize when the power is turned on. **Do not move the car and do not move the steering wheel** during this initialization or the gyro may not initialize properly. Once the initialization process has been completed the steering servo will move (a little) several times indicating that the GYD550 is now ready for use. If the neutral has shifted, LED will blink orange. In that case, it reboots.

Steering servo

Link the servo in accordance with the kit instruction manual.

When using S.BUS servo, initialize a parameter.

Make the servo operating range as wide as possible.

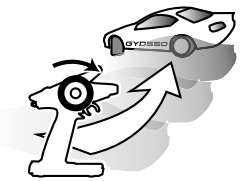
Make the numerical value of EPA (ATV) equal in left and right.

AVCS / NORMAL Modes

The gyro has 2 operating modes: **NORMAL** mode and **AVCS** mode. In the **AVCS** mode, **gyro control is firmer**. Because the feel of operation is different, choose your favorite mode.

NORMAL

The driver needs to perform counter-steer ⇒Operation opposite to the turn direction



AVCS

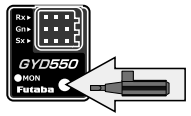
Gyro performs countersteer ⇒Steer in the turn direction.

SR mode

It is possible when using the T7PX(R), T7XC to change the servo to "SR Mode" and improve the servo response. If the servo can't be changed to SR mode, do not set the TX to SR mode.

Parameter settings

For GYD550, **NORMAL/AVCS** switching and **gyro gain** are performed by the transmitter.The settings on the main unit are the 5 items in the following table.



Push 3s

Until orange LED

*Fast flashing lasts about 1 second

Setting mode

1. Servo type	Normal (Default)	1 Green
	SR mode	1 Red
2. Gyro reverse	Normal (Default)	2 Green
	Reverse	2 Red
3. Neutral setting	Within setting range	3 Green
	Out of setting range	3 Red
4. Limit setting	Within setting range	4 Green
	Out of setting range	4 Red
5. Reset	Initialization	5 Green

Push 2s Until orange LED

When setting is changed: Short push → Fast flashing → Short push

Push 2s Until orange LED

When setting is changed: Short push → Fast flashing → Short push

Push 2s Until orange LED

Adjust neutral position with transmitter

Short push

Push 2s Until orange LED

Push 2s Until orange LED

When initializing: Short push → Fast flashing → 3 times short push → Short push → Short push → Short push

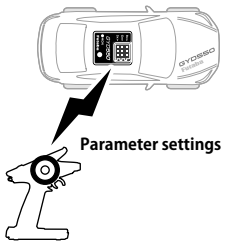
Initialization complete with orange flash

Push 2s

Power off to escape

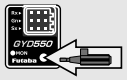
Wireless Settings

GYD550 can be wireless setting from **T7PX(R)/T7XC** and **R334SBS/R334SBS-E**. In that case, it is necessary to update **T7PX(R)/T7XC** and **R334SBS/R334SBS-E** to the version corresponding to GYD550 wireless setting. Refer to the version update manual for setting details.



Limit Setting

Set the 4-Limit setting [LED blinks 4 times] according to the left figure.

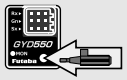


Short push Fast flashing

The servo automatically moves to the current limit position.

Operate the steering wheel to set the limit position.

When the button switch is momentarily pressed once when the steering servo is in the position at which the steering linkage does not strike a stopper, that position is memorized.



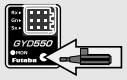
Short push

◇Within setting range→**Green LED**
◆Out of setting range→**Red LED**

Next, the steering servo moves to the opposite limit position.

Operate the steering wheel to set the limit position.

When the button switch is momentarily pressed once when the steering servo is in the position at which the steering linkage does not strike a stopper, that position is memorized.



Short push

◇Within setting range→**Green LED**
◆Out of setting range→**Red LED**

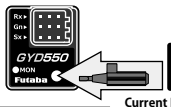
Next, the steering servo moves to the neutral position.

When setting is complete, the LED will blink 4 times. In this state, move the steering wheel and check if the limit positions are normal. (The servo operating angle moves 1.5 times the movement of the stick.) If there is any offset, press the button switch and repeat setting in both directions.

Damper (Hunting suppression)

The GYD550 can adjust the damper in 8 steps. Dampers reduce hunting and adjust steering feel.
This damper can be set separately for NORMAL mode and AVCS mode.

Hunting → To Mild side



Short push

Current Damper is displayed
Red ; AVCS Green ; NORMAL
MON MON

Setting mode

Damper 1	AVCS	1 Red
	NORMAL	1 Green
Damper 2	AVCS	2 Red
	NORMAL	2 Green
Damper 3	AVCS	3 Red
	NORMAL	3 Green
Damper 4	AVCS	4 Red
	NORMAL	4 Green
Damper 5 Default of NORMAL	AVCS	5 Red
	NORMAL	5 Green
Damper 6 Default of AVCS	AVCS	6 Red
	NORMAL	6 Green
Damper 7	AVCS	7 Red
	NORMAL	7 Green
Damper 8	AVCS	8 Red
	NORMAL	8 Green

Short push

Quick

Damper

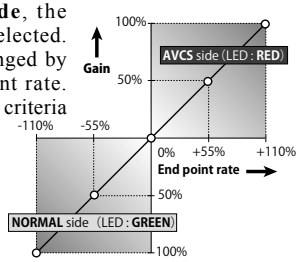
Mild

Escape after about 10 s

Power off to escape

Gyro Gain and Mode Switching

When the remote gain function is used, **NORMAL** and **AVCS** mode switching is performed in accordance with the direction of operation of the transmitter's remote gain channel. At the **+ rate side**, the **AVCS** mode is selected and at the **– rate side**, the **NORMAL** mode is selected. The sensitivity is changed by adjusting the end point rate. The sensitivity setting criteria by end point is shown in the figure below.

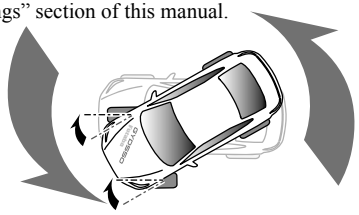


< GAIN CH >

Setup before a run

Set the following GYD550 parameters according to the "Parameter Settings" section of this manual.

1. Servo type
2. Gyro reverse
3. Neutral setting
4. Limit setting



If the car is turned to the left by hand → steering goes out on the right

Turn on your transmitter's power. Set the gyro sensitivity to about 100% at the NORMAL or AVCS side in accordance with the transmitter instruction manual. Refer to the <GAIN CH> <AVCS / NORMAL Modes> graph.

Gyro sensitivity zero	*LED OFF*
AVCS side	*LED Red*
NORMAL side	*LED Green*

*Do not use transmitter trim and sub-trim. Make the neutral setting with a gyro.

Tuning Adjustment

By adjusting the gyro gain and Damper, you can adjust the holding power of the steering and the steering feeling. The setting we recommend is to drive at 70% gain and set the damper to the mild side if hunting occurs. The higher the gain, the greater the gyro effect, and the more hunting tends to occur.

FUTABA CORPORATION
oak kandakajicho 8F 3-4 Kandakajicho, Chiyoda-ku, Tokyo 101-0045, Japan
TEL: +81-3-4316-4820, FAX: +81-3-4316-4823