Gyro Program Box

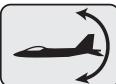
GPB-1

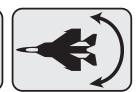
for GYA553/573 (Ver.6.0)

Software Update Functions

# GYA553/GYA573





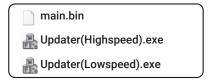


# **GPB-1 Software Update Procedure**

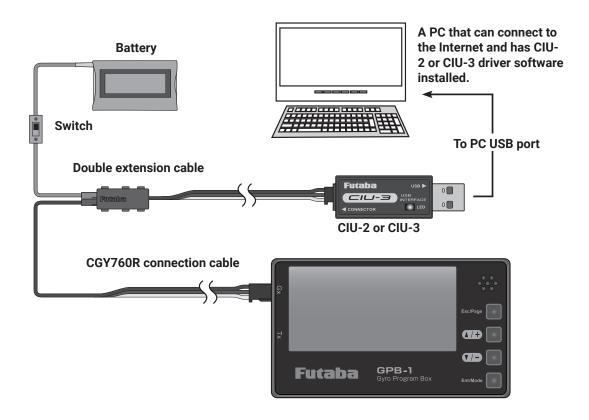
#### **GPB-1 UPDATE**

The GPB-1 can be updated from PC using CIU-2 or CIU-3.

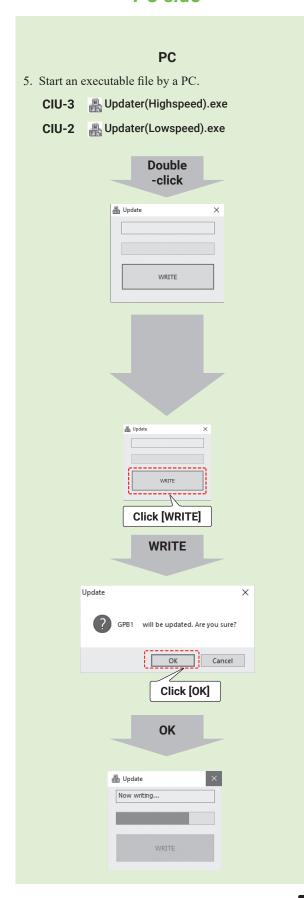
- \* The following optional products are required for the update.
- · CIU-2 or CIU-3
- $\cdot$  Cable for CGY760R / GY701 / GY520 or DSC cable for update
- · Receiver battery
- 1. Download the CGY760R update file from our website or your local distribtor's website.
- 2. Extract the zip file on your computer.



3. Connect as shown in the figure.



# PC side



# GPB-1 side

#### GPB-1

4. When using the CIU-3, hold down the [Enter] and [Esc/Page] keys of the GPB-1 and turn on the power. Release the [Enter] and the [Esc / Page] keys when the backlight of the screen lights up.



Press the [Enter] and [Esc/Page] keys next turn ON

When using the CIU-2, hold down the [A/+] and [V/-] keys of the GPB-1 and turn on the power. Release the [A/+] and [V/-] keys when the backlight of the screen lights up.



Press the [₄/+] and [▼/-] keys next turn ON



PROGRAM UPDATE (HI)
READY

⚠CAUTION

○ Do not turn off the power or remove the battery while updating. GPB-1 may be damaged.

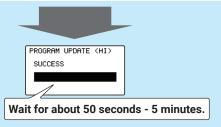


# PC side

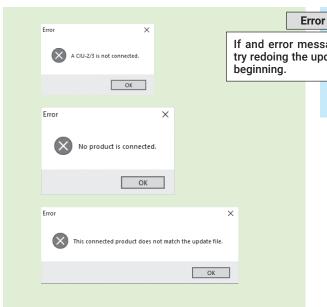
# Update This update succeeded.

Click [OK]

# GPB-1 side



- 6. Turn off the power after the completed message "SUCCESS" appears.
- 7. Check the GPB-1 program version on the Information
- 8.Be sure to check each setting and check the operation before using.



If and error message appears, try redoing the update form the

PROGRAM UPDATE (HI) WRITE FAILED

If the cable disconnects or a contact failure occurs during the update, the update stops halfway. In that case, please try updating again from the beginning.

If the GPB-1 fails to update or does not start, please have it serviced.

#### Ver.6.0

Compatible with airplane gyro GYA573. Ver.6.0 is for airplanes only. Helicopter gyros cannot be used.

#### Ver.5.2

Supported servo type change of S-HC501.

#### Ver.5.1

Added function of gyro GYA553 V4~ for Airplane

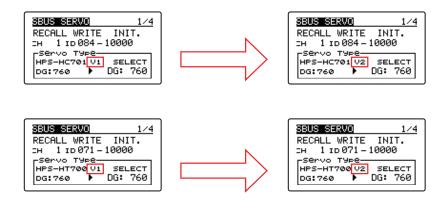
#### Ver.5.0

Added function of gyro CGY770R for helicopter

#### Ver.4.4

- 1. Supported servo type change of HPS-H701.
- 2. Compatible with Ver2.0 of HPS-HC701 and HPS-HT700.

  Before the update, V1 will be displayed, and after the Ver2.0 update, V2 will be displayed.



#### Ver.4.3

Supported servo type change of HPS-HC701 and HPS-HT700.

#### Ver.4.2

Added function of gyro GYA553 for airplane

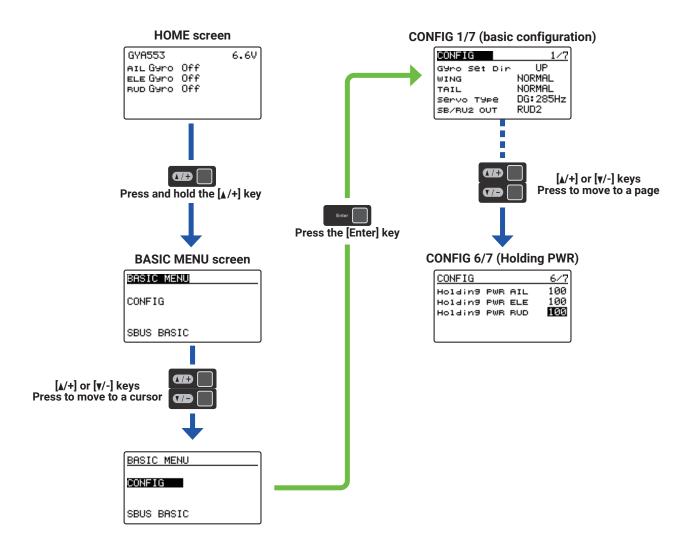
- 1. Added Aileron 3/Aileron 4.
- **2.** S.BUS(HS)---SV servo and S.BUS(STD)---S3175HV, DLPH-1, etc. can be selected with SB/RU2 output (S.BUS output).

# Ver.4.1

#### GYA553 --- Added AIL / ELE / RUD "Holding PWR" setting to parameter setting

You can adjust the attitude holding force of the aircraft in AVCS mode.

Decreasing the value weakens the holding power and makes the operation feeling closer to the normal mode.



#### CGY760R / 755 --- GOV Basic Menu 5/6 "Rev. Sensor" screen

Even if the "SBUS 2rpm out" setting is set to INH in the GOV basic menu 6/6 of the CGY760R / 755, the rotation speed sensor test is now possible on the "Rev. Sensor" screen.





# GPB-1 GYA553 GYA573



GPB-1 for GYA553/573 (Ver.6.0 ∼)

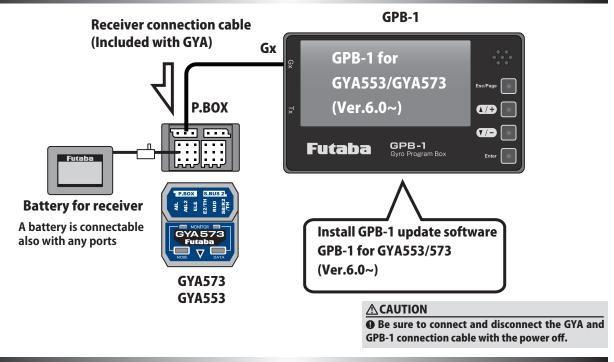
**GYA553 Ver.3 ∼ Ver.4 GYA573** 

**Setting manual** 

\*GPB-1 for GYA553/573 (Ver.6.x) is for use only with GYA573, GYA553 Ver.3 and Ver.4. It cannot be used to configure helicopter gyros (CGY760R and CGY770R).

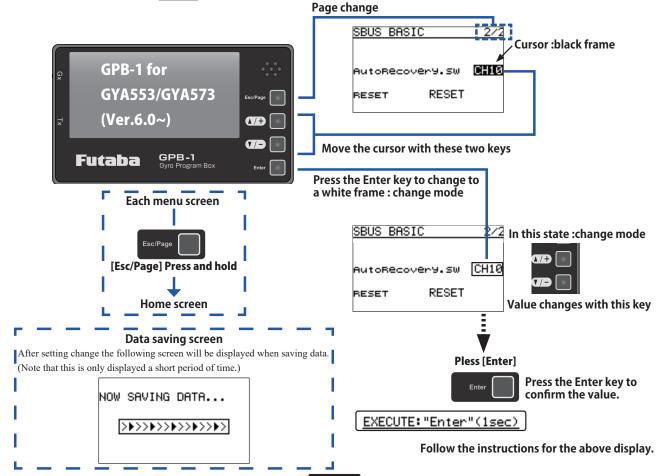


#### **Connection GPB-1 and GYA**



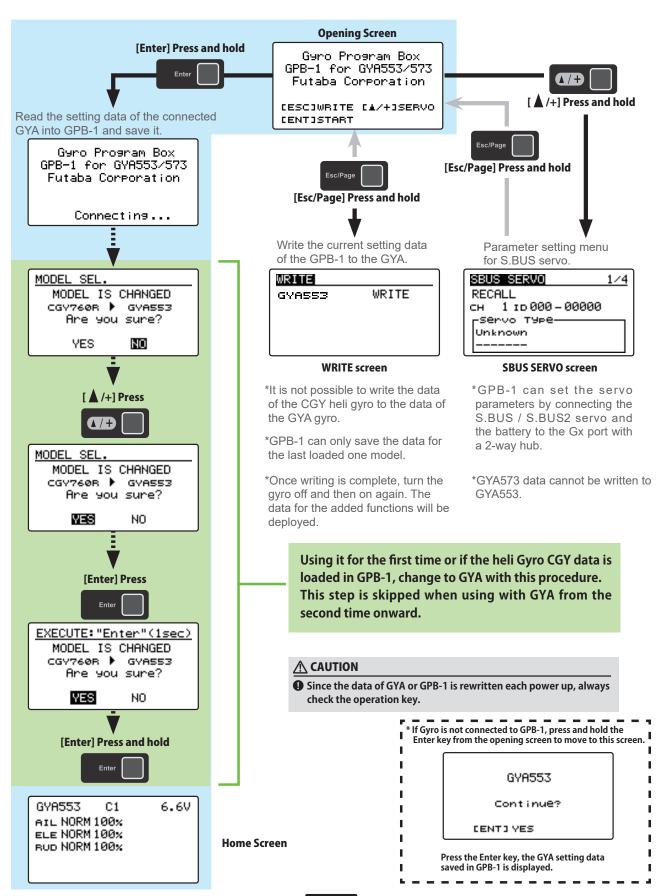
#### How to operate each menu screen

Use the or key to move the cursor to the setting item on the screen and press the [Enter] key to enter the setting mode. or key to change the setting contents. When you are done, press [Enter] key to exit setting mode.



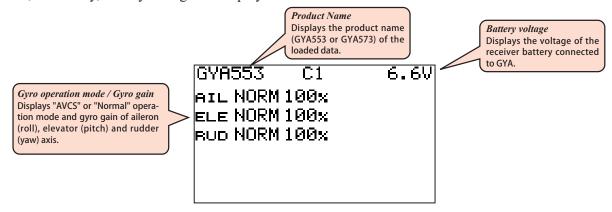
#### **Opening Screen**

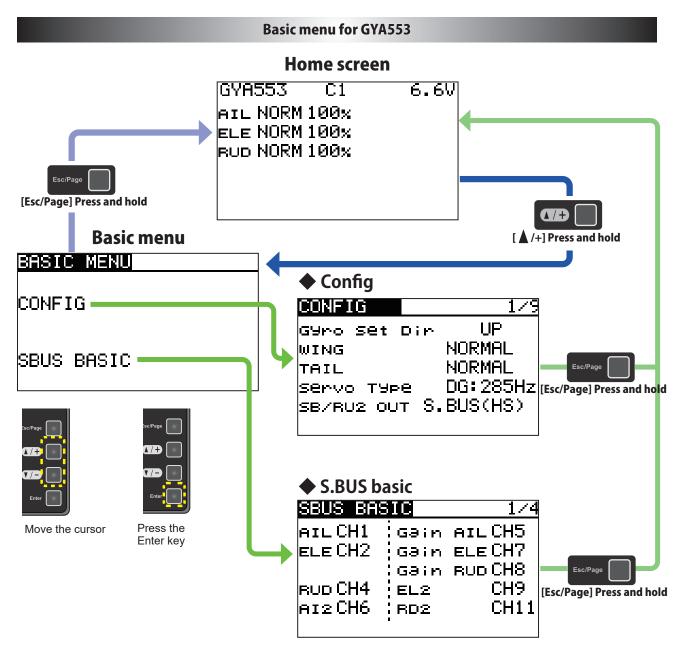
When GPB-1 starts up with power on, the opening screen is displayed first.

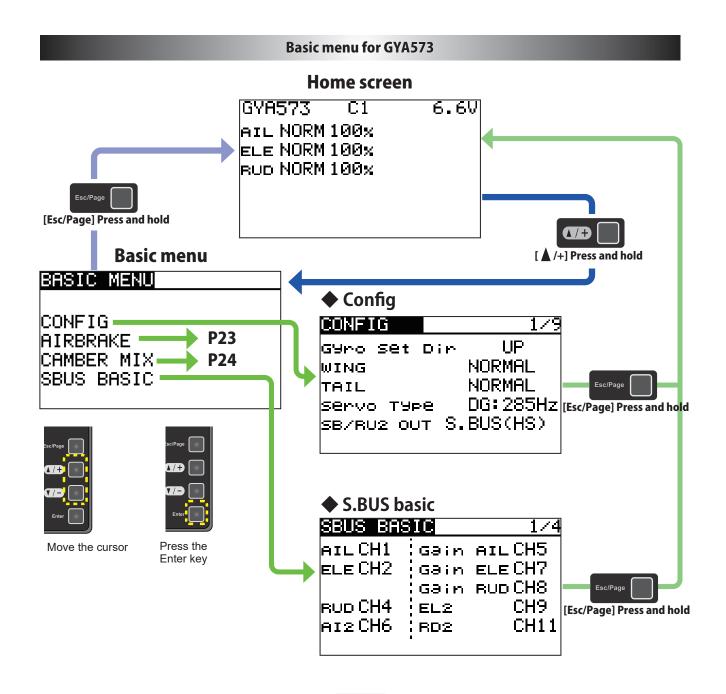


#### **Home screen**

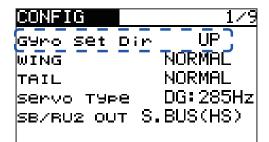
On the home screen, basic information such as gyro operation mode, sensitivity, battery voltage are displayed.



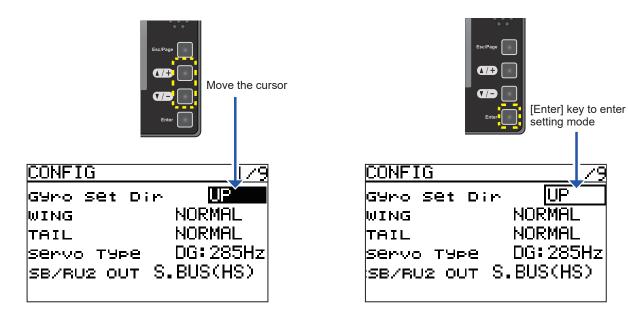


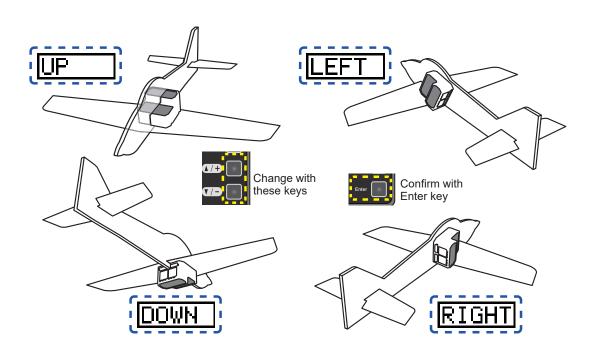


## Config 1/9 Gyro set mounting direction

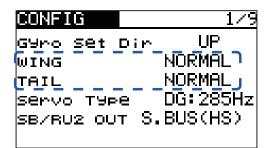


Set the mounting direction of GYA. Set mounting direction with reference to figure below.



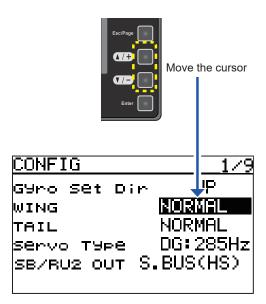


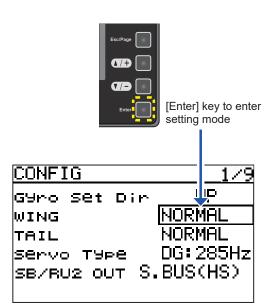
#### Config 1/9 WING/TAIL



Set with the wing type/tail type of GYA. The wing type/tail type of the transmitter is not used and is normal.

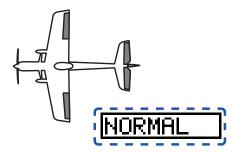
- Turn off the elevon / V-tail mixing on the transmitter side.
- •Do not use transmitter sub-trim. Adjust using the gyro neutral offset.
- When using the S.BUS servo, you can also use the neutral offset function of the S.BUS servo setting parameters.



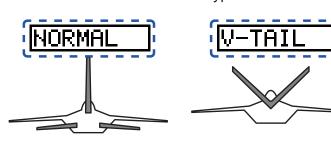


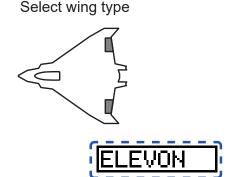




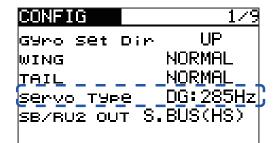


Select tail type





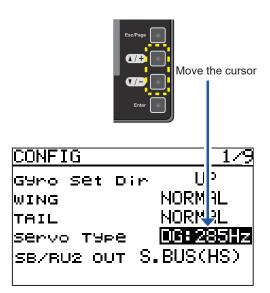
## **Config 1/9 Servo type**

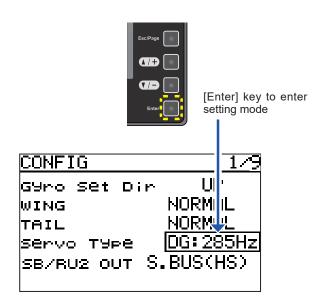


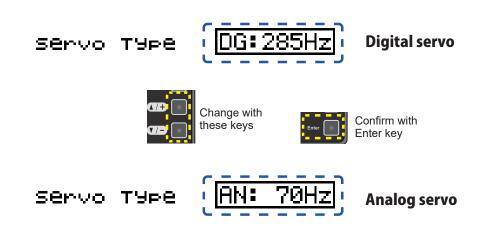
Select the servo type according to the servo to be used.

Digital servo → DG : 285 Hz Analog servo → AN : 70 Hz

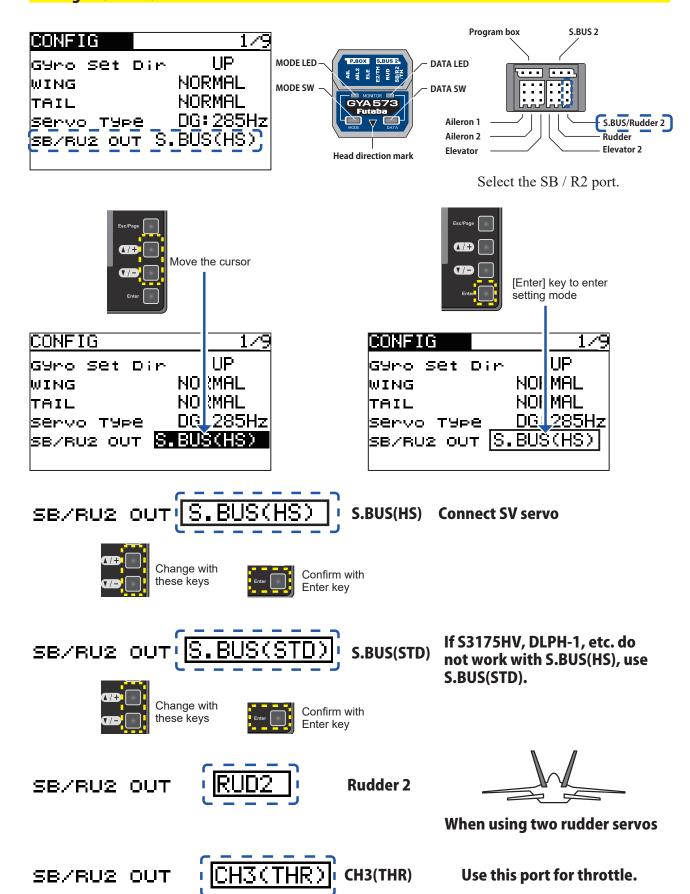
The stability of digital-servo mode of a flight increases in order to perform a high-speed control action.





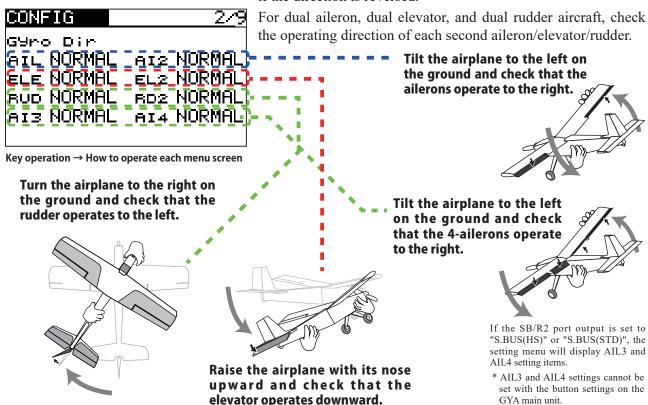


#### Config 1/9 SB/R2 OUT

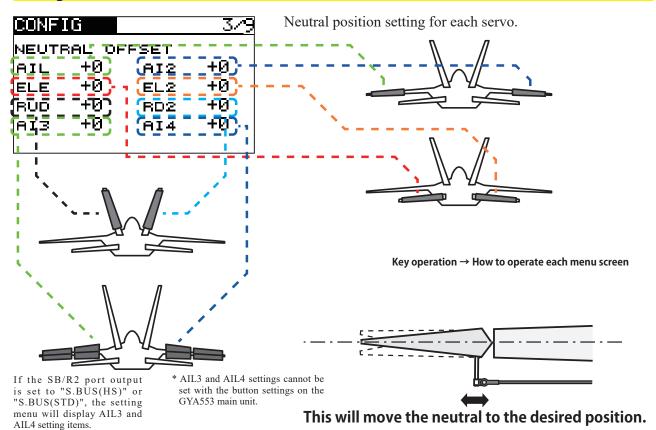


#### Config 2/9 Gyro direction

It is the direction setting of the gyro. Be careful as it will crash if the direction is reversed.



#### **Config 3/9 Neutral offset**



# Config 4/9 5/9 Servo limit

COME	FIG		4/9
	Limit		
AIL	$100  \mathrm{x}$	100 ×	
ELE	100  %	100 ×	
RUD	$100 \times$	100×	
AIZ	$100 \times$	100×	

CONF	FIG		<u>5/9</u>
srv.	Limit		
AI2	$100  \mathrm{x}$	100%	
EL2	100 %	100%	
RD2	$100 \times$	100 %	
AI4	$100 \times$	100 %	

Key operation → How to operate each menu screen

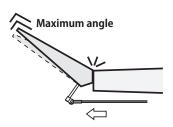
If the SB/R2 port output is set to "S.BUS(HS)" or "S.BUS(STD)", the setting menu will display AIL3 and AIL4 setting items.

This is the limit setting for each servo. The position of the maximum operation is read into the gyro in the first setting.

# **Aileron example**



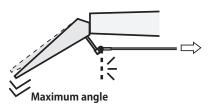
Stick to full right



Adjust the value (%) to reach the maximum operating position



Stick to full left



Adjust the value (%) to reach the maximum operating position

<sup>\*</sup> AIL3 and AIL4 settings cannot be set with the button settings on the GYA main unit.

#### Config 6/9 Holding Power

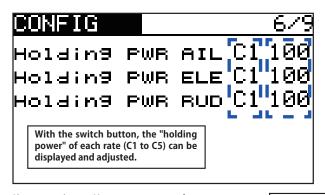
It is a function to adjust the posture holding force of the aircraft in AVCS mode.

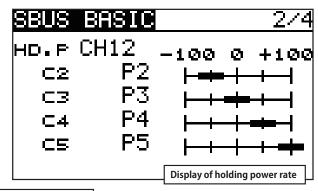
Decreasing the value weakens the holding power and makes the operation feeling closer to the normal mode.

The current rate numbers C1 to C5 are displayed by operating the channel of the transmitter.

Like the flight condition function of the transmitter, you can set up to 5 different data for the attitude holding force rate of the aircraft in AVCS mode by operating the switch from the transmitter, and switch between them. You can set the holding power rate selector switch to the channel with the AFR function of the transmitter, and set the point for each rate on the AFR point curve to switch. It is also possible to use the flight condition function to work with the flight condition switch.

S.BUS Basic 2/3

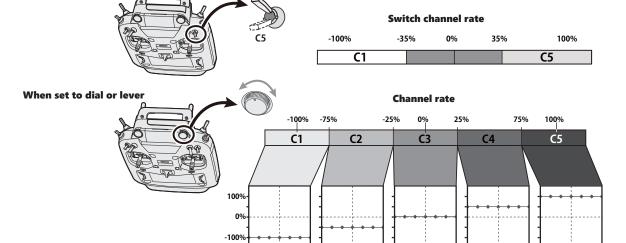




Key operation  $\rightarrow$  How to operate each menu screen

Display and adjust the current rate numbers C1 to C5 by operating the channel on the transmitter.

When set to SW of DG1 or DG2



**C**1

#### Config 7/9 4D Flight (Backward flight) Gyro Reverse Mode Adjustment

Page 7 is for setting the gyro reverse mode. This is a special setting for 4D backward flight. Select whether to reverse the control direction of the aileron, elevator, and rudder when flying backward. Normally, when flying backward, the steering direction of all the rudder is reversed, so the control direction of the gyro is also reversed.

Switching between forward (FW) and reverse (BK) uses the same CH12 signal as the holding force. Up from near the midpoint of the throttle stick is forward, and down is reverse.

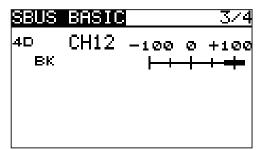
For details on setting the switching point, please refer to the transmitter settings.

In gyro reverse mode, the gyro controls in the same direction as the aircraft's tilt. Switch between forward and reverse to check that the gyro control direction changes correctly.

Config 7/9

CONFIG		7/9
4D Fli9ht	AIL	HMI
4D Fli9ht	ELE	HMI
4D Fli9ht	RUD	HMI

S.BUS Basic 3/4



#### Config 8/9 4D Flight (Backward flight) Mode Adjustment

Page 8 is for setting the gyro reverse mode. This is a special setting for 4D backward flight.

The AET (BK) and AET (FW) functions estimate the aircraft's flight attitude during forward and backward transitions and optimize gyro control. If the aircraft's attitude changes quickly, decrease the value. If the attitude changes slowly, increase the value. The correction values for forward and backward transitions can be set independently. The setting range is 0 to 30. The OPC parameter adjusts the speed when the control amount increases and decreases. The setting range is 0 to 27. The values in the setting example are the standard setting values for SkyLeaf-ST. The optimal value will vary depending on the aircraft characteristics and flight style.

Config 8/9



The setting screen will not be displayed on GYA553 ~Ver.3. Setting is possible on GYA553 Ver.4~ or GYA573.

# Config 9/9 Reset

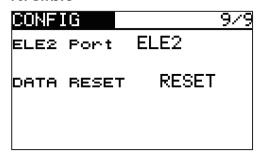
#### Config 9/9

#### For GYA553



Reset each Config item. It returns to the initial value.

#### For GYA573



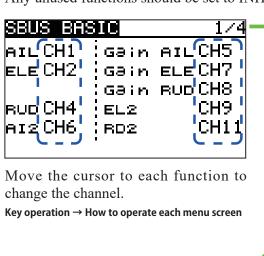
For GYA573, the E2/TH port can be set to ELE2 output or CH3 (THR) output.



<sup>\*</sup>For GYA573, air brake and camber mix settings will also be initialized.

#### **SBUS Basic menu**

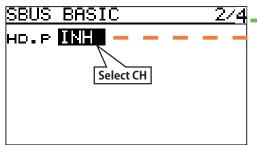
Set the CH for each function according to the transmitter to be used. Any unused functions should be set to INH (Inhibited).



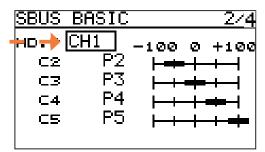
#### **AWARNING**

• Always verify that the S.BUS function assignments match your transmitter's function (in the FUNCTION menu) assignments. If any changes are made within the transmitter function assignments, then it will also be necessary to make the changes within the S.BUS function assignments. To change the channel, GYA and GPB-1 must be connected.

Holding power rate display



Key operation  $\rightarrow$  How to operate each menu screen

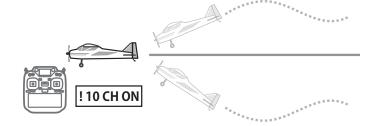


CH setting items for AIL3 and AIL4 are displayed on the final screen of the S.BUS basic setting screen. By setting the operation CH of AIL3 and AIL4, the gyrocontrolled signal is output to the corresponding CH of the S.BUS output.

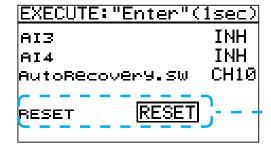
- \* Match the operation CH and CH setting on the function setting screen on the transmitter side.
- \*When the AIL3 and AIL4 CH settings are INH, the gyro control is not performed and the data sent from the transmitter is output as is.



Key operation → How to operate each menu screen



ON-OFF channel for auto recovery.



- Reset each S.BUS function. It returns to the initial value.
  - **1.** Use the [♣/+] or [▼/-] key to move the cursor to the [RE-SET] on the screen and press the [Enter] key to enter the setting mode.
  - **2.** As shown on the left screen, [EXECUTE: "Enter" (1sec)] is displayed.
  - **3.** Press and hold the [Enter] key to reset.

#### **SBUS Basic menu**

#### For GYA573



This is the channel setting for the switch that turns roll flat ON/OFF.

The roll angle at which roll flat turns ON can be set by the pulse width at the ON position.

(Set using the AFR rate on the transmitter for this setting CH, etc.)

# [Roll Flat]

This function keeps only the roll axis horizontal (roll angle  $0^{\circ}$  ).

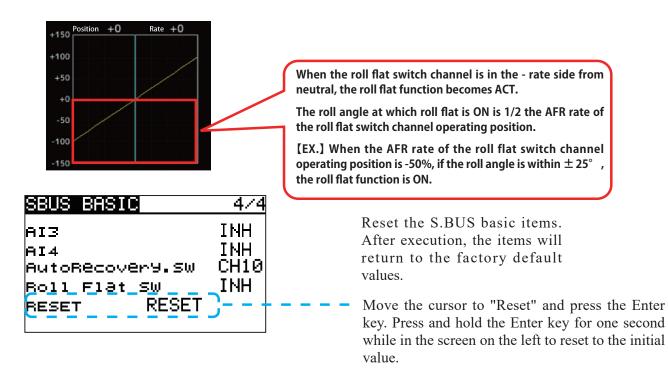
When used during landing approach, it keeps the roll axis horizontal, making aileron operation easier and allowing you to concentrate on throttle and elevator operation, making landing easier. It also maintains horizontality during inverted flight. The roll angle at which the roll flat function turns on should be set to 10° to 15° during landing, and 15° to 20° during normal flight, for a smooth flight.

Conditions for the roll flat function to be ON (when all of the following conditions are met)

- 1) Roll Flat Switch Channel is set (not INH)
- 2) When the roll flat switch channel is in the position from neutral when viewed on the transmitter AFR setting screen.
- **3**) When the roll flat switch channel operation position is viewed on the AFR setting screen of the transmitter, when the rate value is Wp (%), the roll angle of the aircraft is within Wp/2 (degrees).
- **4**) When the aileron stick is in the neutral position.
- **5**) When the aircraft pitch angle is  $\pm$  60° or less

**(EX.)** When the roll flat switch channel is CH15, if the operating position of CH15 is the AFR rate -50%, the roll angle at which the roll flat function will be turned ON will be within  $\pm$  25°

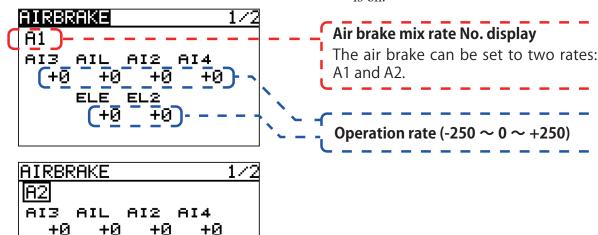
When the Roll Flat Switch Channel is set to an AFR rate of -100% or less, the auto recovery mode operates.

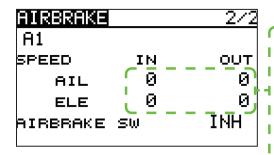


#### **Air Brake**

This function is the same as the air brake function of the transmitter. Two rates, A1 and A2, can be set. (The amount of operation is slightly less than that of the air brake function of the transmitter. It can also be used in AVCS mode where the air brake function of the transmitter cannot be used.)

Roll Flat function works even when the air brake is on.





EL2

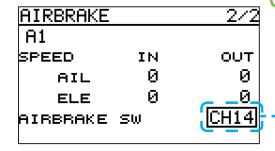
+0

ELE +Ø



IN is the operating speed when the air brake mix is turned ON.

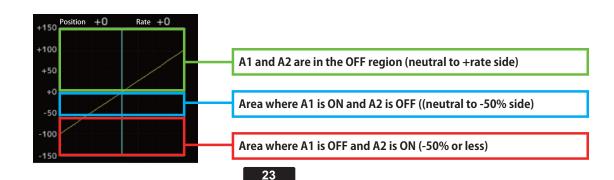
OUT is the speed when the air brake mix is turned OFF. When switching between A1  $\Leftrightarrow$  A2, the speed setting of the one that is turned ON (IN side) takes priority.



# Air brake Mix ON/OFF CH setting Setting range: INH, CH1-CH16, DG1, DG2

A1 and A2 rates change with the pulse width of the same  $\operatorname{CH}$ 

Set with AFR on the transmitter



#### **Camber mixing**

This function is equivalent to the camber mixing function of the transmitter.

It can also be used in AVCS mode where the transmitter's camber mixing function cannot be used.

