Flybarless Control Gyro

CGY760R CGY755

Gyro Program Box

GPB-1

INSTRUCTION MANUAL

Software Update Functions

CGY760R/CGY755 Software Updating Procedure

GYRO UPDATE (Update mode of CGY760R/CGY755)

This menu is used to adjust the update mode of the CGY760R/CGY755. The mode selected will be determined by the model of the CIU selected and personal preference. For example, when using the CIU-3, the user may select either the high speed or the slow speed modes. If using the CIU-2, only the slow speed mode is available.

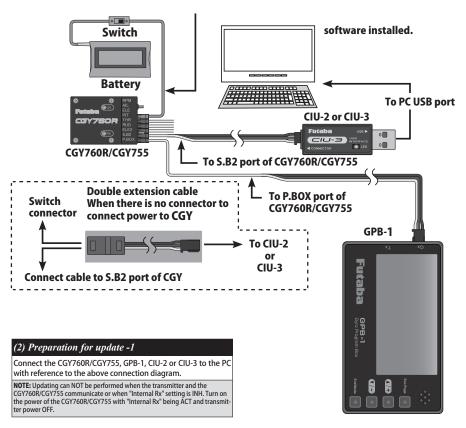
- * The following optional products are required for the update.
- · CIU-2 or CIU-3
- · Cable for CGY760R/CGY755 / GY701 / GY520 or DSC cable for update

(1) Download CGY760R/CGY755 update file

Download the CGY760R/CGY755 update file from our website or your local distribtor's website.

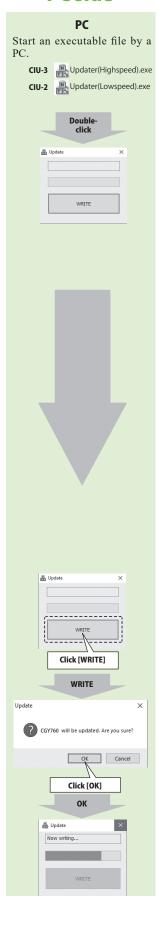
To the open/available slot of CGY760R/CGY755

A PC that can connect to the Internet and has CIU-2 or CIU-3 driver

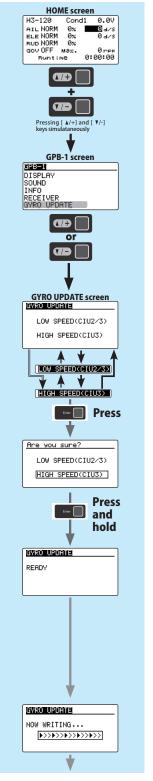


NOTE: Updating can NOT be performed when the transmitter and the CGY760R/CGY755 communicate or when "Internal Rx" setting is INH. Turn on the power of the CGY760R/CGY755 with "Internal Rx" being ACT and transmitter power OFF.

PC side



GPB-1 side



(3) Preparation for update -2

Refer to the "GYRO UPDATE" screen from the GPB-1 menu screen.

(4) Selection of CIU (Speed)

Use the [▲/+] or [▼/-] key to move the cursor to "LOW SPEED (CIU2/3)" or "HIGH SPEED CIU3" and press the [Enter] key. The "Are you sure?" indication will appear on-screen.

Press and hold the Enter key.

(5) Perform update

Click on the update file downloaded to the PC to update the CGY760R/CGY755.

∆CAUTION

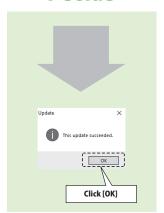
ODo not turn off the power or remove the battery while updating. CGY760R/CGY755 and GPB-1 may be damaged.

If the update is not performed normally, "FAILED!" will be displayed. In If the update has failed, please start the process once again from the beginning. Should it fail once more, it is likely that the update file has been corrupted when downloaded previously. Please download this file and restart the procedure.

SYRO UPDATE FAILED !

PC side

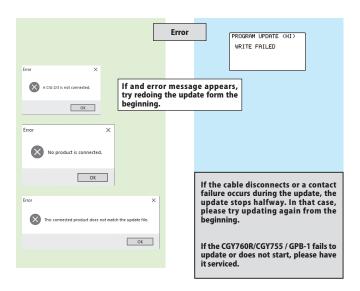






(6) Update complete

When the update has been successfully concluded, "Completed" appears on the screen of GPB-1.



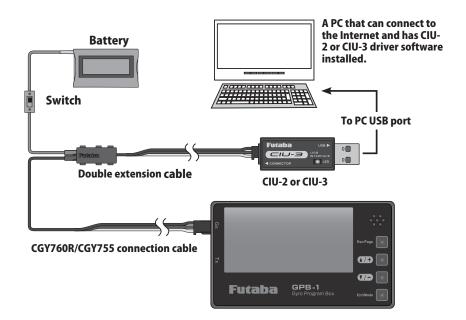
GPB-1 Software Update Procedure

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. \cdot CIU-2 or CIU-3
- · Cable for CGY760R/CGY755 / GY701 / GY520 or DSC cable for update
- · Receiver battery
- 1. Download the CGY760R/CGY755 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.





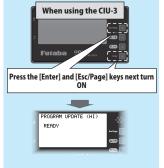
PC side

PC 4. Start an executable file by a PC. CIU-3 Updater(Highspeed).exe CIU-2 Updater(Lowspeed).exe Double-click A Update WRITE Click [WRITE] WRITE will be updated. Are you sure? Cancel Click [OK] ОК

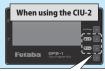
GPB-1 side

GPB-1

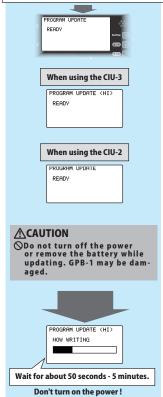
5. When using the CIU-3, hold down the [Enter] and [Esc/ Page] keys of the GPB-1 and turn on the power. Release the [Enter] and the [Esc / Page] keys when the backlight of the screen lights up.



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



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



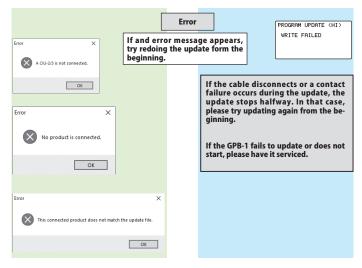
PC side







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



Update Functions Ver 4.0

This software update adds or changes the following functions. In addition to the manual originally supplied with your system, please now refer to the following new instructions: (CGY760R/CGY755 and GPB-1 must be updated separately.)

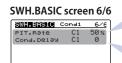
Necessity of updating

Functions Ver 4.0	GPB-1	CGY760R CGY755
Added a PIT rate delay function when switching between conditions C1 to C5 on the gyro side.	0	0

PIT Condition Delay

Added a PIT rate delay function when switching between conditions C1 to C5 on the gyro side.

GPB-1 is compatible with Ver 4.2 or later



PIT.Rate is same as page 3/6.

This is the PIT rate delay setting when the gyro condition changes. The setting range is 0 to 27. The larger the number, the slower the operation.

Update Functions Ver 3.0

This software update adds or changes the following functions. In addition to the manual originally supplied with your system, please now refer to the following new instructions: (CGY760R and GPB-1 must be updated separately.)

Necessity of updating

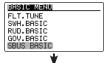
Functions Ver 3.0	GPB-1	CGY760R
Added a servo type select function for using ELE2 ports other than swash.	0	0
Added the condition function to the "Base Gain" of the "FLT. tune" (aileron / elevator).	0	0
Added the condition function to the "Head Resp" of the "FLT. EXPERT".	0	0

Functions Ver 3.0

ELE2 (S.BUS connection) Additional Servo Type

Added a servo type select function for using ELE2 ports other than swash.

BASIC MENU screen



SBUS BASIC screen

SBUS BAS	1/3
	RotHD.GnCH9
ELE CH2	
	Gain RUD CH5 GOV rem CH7
	GOV rem CH7 GOV SW CH8
PITCHO	GOV SW CHO

SBUS BASIC screen 3/3	
SBUS BASIC	3/3
Via Traine	r #1 INH #2 INH
ELE2 Port	CH1 DG: 285Hz
RESET	RESET

(13) ELE2 channel Servo Type

(If you want to use the ELE2 port for purposes other than swash.)
This selects the ELE2 servo types. There are three types of the servo driving frequency selection, AN:70 Hz, DG285 Hz, and 760 µs. All Futaba digital servos can be operated with fastest DG:285 Hz mode but some of other brands of servos do not support DG:285 Hz mode. In this case, select the proper servo driving frequency per the manufacturer's specifications. Move the cursor to "Servo Type" by pressing the $[\![\![\Delta/+]\!]\!]$ or $[\![\![\nabla/-]\!]\!]$ key and press the $[\![\![\![\![\![}\!]\!]\!]$ for left of the servo type with the $[\![\![\![\![\!]\!]\!]\!]$ key. When "EXECUTE: Enter (1 sec)" is displayed, press the $[\![\![\![\![}\!]\!]\!]$ key. When "EXECUTE: Enter (1 sec)" is displayed, press the $[\![\![\![\!]\!]\!]$ key. When "EXECUTE: Enter (1 sec)" is displayed, press the $[\![\![\![\!]\!]\!]$ key the scatting mode. and exits the setting mode. If you select H4-00 or H4-45 with 4 servo swashes, cannot set this ELE2

port servo type. In that case, select all swash servo types in SWH basic

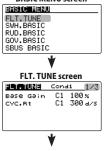
Setting: AN:70 Hz/DG:760 µs/DG:285 Hz Initial setting: DG:285 Hz

① The servo type parameter within the CGY must match the type of servo you are using. Incorrect setting may damage the CGY or the servo. Incorrect setting may also result in a loss of control during flight.

Base Gain: Base Gain Condition

Added the condition function to the "Base Gain" of the "FLT. tune" (aileron

BASIC MENU screen



FLT.TUNE Screen 1/3 FLT.TUNE Condi 1/3 Base Gain C1 100 x CVC.Bt C1 300 d/s

HeadResp: Head Response Condition

Added the condition function to the "Head Resp" of the "FLT. EXPERT".

EXOERT MENU screen

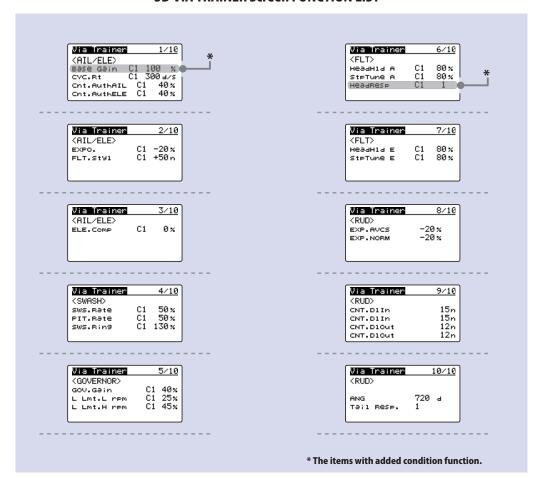


FLT. EXOERT screen

FLT. EXPE	RT	Condi	1/2
неаанта	А	C1	80%
неаанта		C1	80%
StpTune		C1	80%
StpTune	E	C1	80%



3D VIA TRAINER Screen FUNCTION LIST



Update Functions Ver 2.0

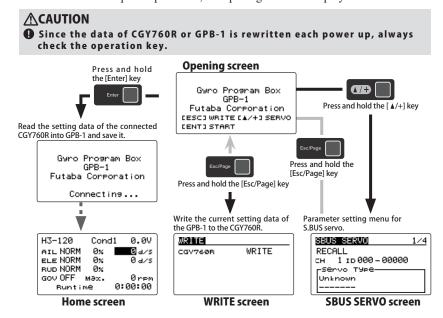
This software update adds or changes the following functions. In addition to the manual originally supplied with your system, please now refer to the following new instructions: (CGY760R and GPB-1 must be updated separately.)

Necessity of updating

Functions Ver 2.0	GPB-1	CGY760R
Another receiver can be used	0	0
ELE 2 can be operated when SWASH TYPE setting is "H1, H3 - XX"	0	0
"L. Scale" is added to the choice of setup style (Large scale model default value)	0	_
ELE. Comp can set condition and via trainer	0	0
When Governor function is INH, change so that gear ratio and number of poles can be set	0	-
When the setup style is "3D", the gyro gain of RUD is now adjustable in the RUD basic display.	0	-
GPB-1 setting data can be written to CGY760R (Setting data can be copied from other CGY760R to CGY760R)	0	-
S.BUS servo setting is possible with GPB-1	0	_

Opening Screen

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



Functions Ver 2.0

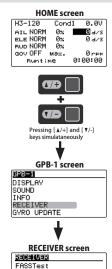
Used by another receiver

RECEIVER (Receiver system setting)

On the "RECEIVER" screen, make sure that the CGY760R setting matches the protocol that is selected/utilized in the transmitter. Display the "RECEIVER" screen from the GPB-1 menu screen.

Note:

To change the "Receiver System" type, first power off the transmitter and receiver, and re-power the CGY760R while the transmitter is still in the OFF position. The only way to change the receiver type is by power cycling the gyro first.



Internal Rx

FASSTest

RECEIVER

Internal Rx INH

Internal Rx INH

With "INH" setting the

receiver system will not display.

RECEIVER

Set the same system as the transmitter to be linked. Move the cursor to the system such as "FASSTest" with the [▲ /+] or [▼ /-] key and press the [Enter] key to enter the setting mode. Then select the system with the $[\underline{A} / +]$ or $[\overline{V} / -]$ key. Since "EXECUTE: Enter (1sec)" is displayed. Pressing the [Enter] key for about 1 second changes the selected system and exits the setting mode. After changing the communication mode, link with the transmitter.



Internal Rx

It is a setting to turn on / off the function of the internal receiver. In the same way as in "Receiver System", set ACT / INH of "Internal Rx" by pressing the [Enter] key for about 1 second. When "Internal Rx" setting is INH, (1) communication mode is not displayed.

Setting: ACT/ INH

ACAUTION

Please turn off the power when connecting the receiver.

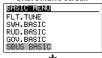
If the power is on and connected, the CGY760R or the receiver may be damaged. **△WARNING**

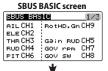
• If you do not turn off the power after changing "Internal Rx" setting to INH, the internal receiver is in operation. After changing the setting, please power cycle. If the power is not cycled, the receiver will not keep bind and the helicopter will crash.

ELE2 (S.BUS connection)

When SWASH TYPE setting is "H1 and H3 - XX", CH operation of ELE 2 is pos-







SBUS BASIC screen 3/3



S. BUS connection: ELE2 (Elevator) channel

Select "ELE 2 CH *" in the same way as other S.BUS connection channels and use the [▲ /+] or [▼ /-] key to set the elevator 2 channels of the trans-

The "SWH BASIC" settings can be set only for H1 and H3-XX (When set to H4-XX, it is automatically set to ELE's CH setting.) If you change the setting between H1 and H3, the CH will remain as it is.

Setup style "L.SCALE"

L.SCALE: Initial parameter mode corresponding to a large machine with a total length of 2.5 m or more.





SWH. BASIC screen 1/5



Setup style

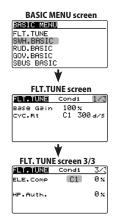
3D mode contains a proven set of parameters which are good for not only 3D but also F3C flying. F3C Mode and L.SCALE (Large scale model) Mode are for unique or special tuning types only.

*The changed menu is indicated on a map

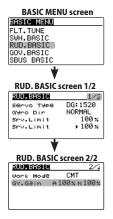
When the style is changed, setting of AIL/ELE/RUD is re-initialized and defaults are changed.

Move the cursor to "Setup style" by pressing the [▲ /+] or [▼ /-] key and press the [Enter] key to enter the setting mode. Use the [▲ /+] or [▼ /-] key to set the style. When "EXECUTE: Enter (1 sec)" is displayed. Press the [Enter] key for about 1 second to changes the selected style. The program will also exit the setting mode accordingly.

ELE. Comp can set condition and via trainer



Gyro base gain setting to RUD. BASIC



GY. Gain: Gyro base gain setting

This parameter sets the base gain of the gyro. This can be used to adjust the gain % if your actual transmitter gain does not match the gain on the CGY760R correctly. Use the $[\blacktriangle /+]$ or $[\blacktriangledown /-]$ key to setting the gain.

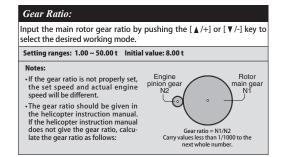
Setting ranges: 0 ~ 150% Initial value: 100%

Gear Ratio and Pole number

When the Governor function is INH, gear ratio and pole number can be set.







Pole Num.: Pole number

This parameter is used when using a direct phase sensor attachment to a brushless motor lead. Input the motor pole count as specified by the brushless motor manufacturer. When using any revolution sensor other than a direct phase sensor type, set the pole number to 2 p.

Note: For nitro use, set to 2 p.

Note: The input signal range of the CGY760R is 0.0 v - 3.0 v. Exceeding this voltage range may cause damage to the CGY760R.

Setting ranges: 2 ~ 24 P Initial value: 2 P

Writes data saved in GPB-1 to CGY760R

You can copy data when replacing the CGY760R in your machine.

- The data to be written is the "BASIC" menu and "EXPERT" menu.
- With the exception, the setting of ACT / INH of "Internal" on the "RECEIV-ER" screen of the GPB-1 menu is written.

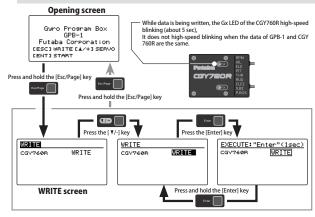
⚠ WARNING

After writing, if the setting is "INH", the internal receiver is operating without turning off the power supply once. If the receiver is connected while it is operating, the helicopter crashes with inoperable state.

 When copying from another CGY760R, connect the copy source CGY760R to the GPB-1 in advance and let the GPB-1 read the setting data.

A CAUTION

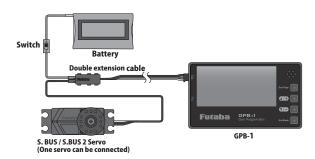
If you press [Ent] start from the opening screen and display the home screen, the setting data of the connected CGY760R will be saved in GPB-1. Please save the setting data to be written again to GPB-1.



S.BUS SERVO SETTING

An S.BUS servo can memorize the channel and various settings you input. Servo setting can be performed on the GPB-1 screen by wiring the servo as shown in the figure.

*With some S.BUS(2) servos, there are some functions which cannot be used. If a function cannot be used, the display screen will change.



ACAUTION

Be sure to connect each servo and set it.

If multiple servos are connected at the same time, the servo may be damaged.

Be sure to turn off the power when replacing the servo.

Servo may be damaged if servo is replaced while power is on.

• Please match the voltage of the battery to be used with the specifications of the servo to be connected.

Servo will be damaged if voltage higher than specified is applied.

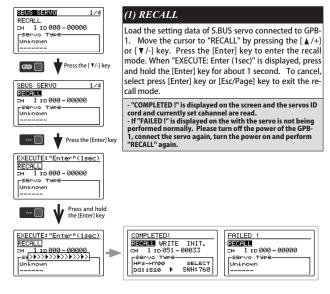
↑WARNING

- Never connect CGY760R and GPB1 when setting S.BUS servo. The helicopter becomes uncontrollable and crashes.
- * Even if the servo is operating on the bench, it could be damaged.

From the opening screen, hold down the $[\blacktriangle /+]$ key to display the SBUS servo screen.



S.BUS / S.BUS2 servo recall, writing, initialization





(2) WRITE

Write the data set with GPB-1 to the connected S.BUS servo. Move the cursor to "WRITE" by pressing the [▲ /+] or [▼ /-] key. Press the [Enter] key to enter the writung mode. When "EXECUTE: Enter (1 sec)" is displayed, press and hold the [Enter] key for about 1 second. To cancel, select press [Enter] key or [Esc/Page] key to exit the recall mode.

- "COMPLETED!" is displayed on the screen and the setting
- It is displayed on the screen and the setting data is written to servo.
 If "FAILED" is displayed on the screen, repeat [WRITE] or turn the power off and confirm the connection, then turn the power on and perform the operation again.





(3) INIT.

Write the factory set servo setting data to the connected servo. Move the cursor to "INIT" by pressing the [▲ /+] or [▼ /-] key. Press the [Enter] key to enter the writing mode. When "EXECUTE: Enter (1 sec)" is displayed, press and hold the [Enter] key for about 1 second. To cancel, select press [Enter] key or [Esc/ Page] key to exit the recall mode. The setting of the channel setting and servo type (760 us / 1520 us) is not initialized

- "COMPLETED!" is displayed on the screen and the
- initialize a setting data is written to servo.

 If "FAILED" is displayed on the screen, repeat [INIT] or turn the power off and confirm the connection, then turn the power of and confirm the connection, then turn the power on and perform the operation again.



FAILED !	
RECALL WRITE	
сн 1 го 051 -	- 00033
PSERVO TYPE-	SELECT
DG: 1520 >	SWH: 760

Change servo type

Changing the servo pulse width from 1520 to 760 is possible with the servo type function

Display of "servo type" when reading

* When "RECALL" is executed, the servo type name is displayed on the left side of the screen, and the current 760 or 1520 type is displayed below it. The S.BUS servo not supporting servo type change displays "Unsupported"



The S.BUS servo which can change the servo type of 760 $\,\mu$ s and 1520 $\,\mu$ s is indicated as "SELECT" on the right side and DG: 760 or SWH 760 below it. The servo whose servo type can not be changed is indicated as "Unsupported" in the servo type name.





* Current type









Change servo type DG:1520 ⇔DG:760)

Change the servo type (760 µs / 1520 µs) to the connected servo. Move the cursor to the type under "SELECT" by pressing the [▲ /+] or [▼ /-] key. Press the [Enter] key to enter the changing mode. When "EXE-CUTE: Enter (1sec)" is displayed, use the [▲ /+] or [▼ /-] keys to select the servo type to change, press and hold the [Enter] key for about 1 second. To cancel, select press [Enter] key or [Esc/Page] key to exit the changing mode.

- "COMPLETED!" is displayed on the screen and The type display on the left side is updated to the changed type. Initialize each parameter.
 If "FAILED" is displayed on the screen, please go again or turn the power off and confirm the connection, then turn the power on and perform the operation again.





Updated servo type

* A new S.BUS servo (example: HPS-H700) that can set both parameters for swash (SWH: 760) and Rudder (RUD: 760) is loaded first, the servo type name on the left side, DG: 1520, SWH: 760 is displayed under "SELECT" on the right side. Changing the servo type from SWH: 760 to RUD: 760 will display RUD: 760 under the servo type name the next time you load it. However, if you change the parameter of RUD: 760, the subsequent reading will show SWH: 760. Please mark so that the set servo type can be determined.

Notes on servo set to 760 μs To connect the servo set to "DG: 760" or "SWH: 760" to AIL / ELE / PIT / ELE 2, set the servo type to "DG: 760".

To use the servo set to "DG: 760" or "RUD: 760" for RUD, set the servo type to "DG: 760". Please set the servo type to "DG: 285 Hz" for the AIL / ELE / PIT / ELE 2 servo set to "DG: 1520". For RUD servo, set the servo type to "DG: 1520".

∧ CAUTION

 Be sure to connect the servo and CGY760R with the same setting. If you connect a different setting servo with CGY760R, the servo may be damaged.

Servo type: 760 µs







Servo type: 1520 µs





When the CH setting is DG1 or DG2

If the CH setting is DG1 or DG2, the servo type can not be changed. Before changing to Servo type, you need to set it to CH 1 to 16 with CH setting and execute "WRITE".



⚠ CAUTION

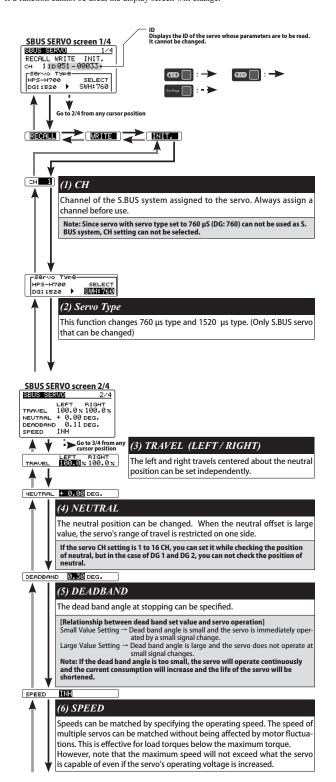
 \odot The servo of 760 μs is not connected to ordinary CH, S.BUS / S.BUS 2 connector such as receiver not compatible.

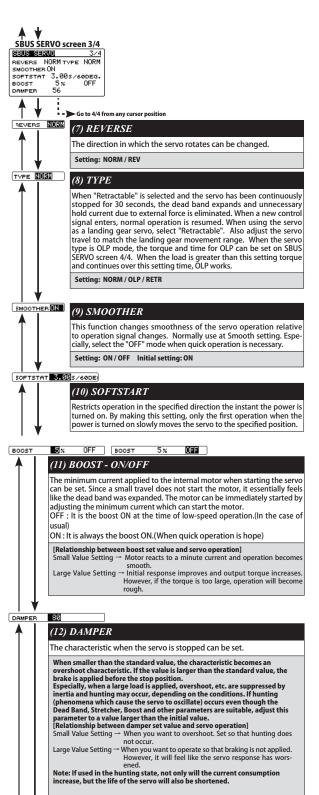
○ Do not set 760 µs servo parameters with transmitter unsupported to 760 μs and PC S-LINK software. Be sure to set parameters with GPB-1.

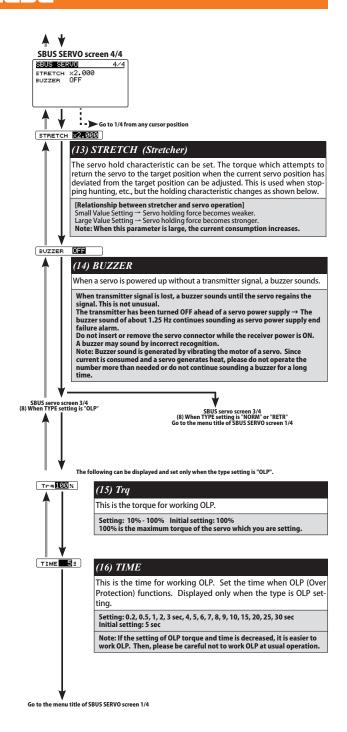
The servo may be damaged.

Description of function of each parameter

With some S.BUS(2) servos, there are some functions which cannot be used. If a function cannot be used, the display screen will change.





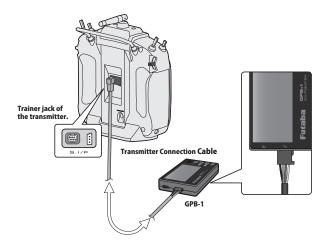


The changeable S. BUS servo of 760 μs and 1520 μs HPS-H700 / HPS-HC700

(As of May 2023)

VIA TRAINER FUNCTION

When using "Via Trainer" which wirelessly transfers gyro setting data from the transmitter, connect the transmitter and the GPB-1 as shown below.



∆CAUTION

- Be sure to check the operation for all conditions 1 to 5 before flying.
- Be sure to connect and disconnect the transmitter and GPB-1 connection cable with the power off.

3D VIA TRAINER Screen FUNCTION LIST 1/10 -FLT. TUNE CYC. Rt: Cyclic rate setting Cnt. AuthAlL: Control Authority Aileron Cnt. AuthELE: Control Authority Elevator <HIL/ELE> cvc.Rt C1 300 a/s cnt.AuthAIL C1 40% cnt.AuthELE C1 40% EXPO.: Exponential FLT. Styl: Flight style EXPO. FLT.St91 C1 -20 % C1 +50 n C1 0 % ELE. Comp: Elevator pre compensation Via Trainer ⟨SWASH⟩ 4/16 -SWH. BASIC SWS. Rate: Rate adjustment PIT. Rate: Rate adjustment SWS. Ring C1 50 x C1 50 x C1 130 x - GOV. BASIC GOV Gain: Governor gain L Lmt. L rmp : Low limit hovering RPM L Lmt. H rmp: Low limit idling RPM C1 40% C1 25% C1 45% L LMt.L rpm L LMt.H rpm -FLT. EXPERT 6/10 HeadHld A : Head hold aileron StopTune A : Stop tune aileron HeadResp: Head Response 7/16 HeadHld E: Head hold elevator StopTune E: Stop tune elevator HeadHid E C1 80% StpTune E C1 80% Via Trainer -RUD, EXPERT EXP. AVCS: Rudder exponential AVCS EXP. NORM: Rudder exponential NORMAL Via Trainer 9/10 CNT. Dlln: Control delay in CNT. DlOut: Control delay out Via Trainer <RUD> 10/10 ANG: Pirouette speed Tail Resp: Tail response 720 d 1 ANG Tail Resp.