PSX Firmware for Flysky GT3B/C Manual

https://github.com/semerad/gt3b/tree/master/Releases

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1. Parts of the Transmitter

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4 – Battery	5 – Dual Rate selector	6 – Channel 3 trim
7 – Power button		

B – LCD Display	C – Back button	D – Bind button
E – End button	F – Select (rotate) & Enter (push)	G – Throttle trim down
H – Throttle trim up	I – Steering trim left	J – Steering trim right

2. Binding a receiver to the radio

The following steps can be used to bind or match a receiver to the radio. The radio needs batteries and the receiver needs to be connected to an ESC or a battery. If using a battery do not connect the battery to the receiver until instructed. Start with the radio and receiver off.

1. Insert the binding plug to the BIND/ CH3 port on the receiver (see figure 1)
2. If using a battery connect it to the VCC port of the receiver, otherwise turn on the ESC
3. The receiver's LED should be flashing. This means the receiver is in matching mode.
4. Press and hold the BIND button on the radio then turn the radio on. Continue to hold the BIND button.
5. Observe the LED on the receiver, if the receiver LED stops flashing that indicates the receiver has been bound to the radio. This may take several seconds.
6. Release the BIND button, turn off the receiver and the radio, remove the binding plug.
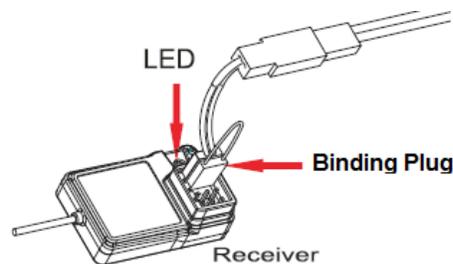
Figure 1

3. LCD Display
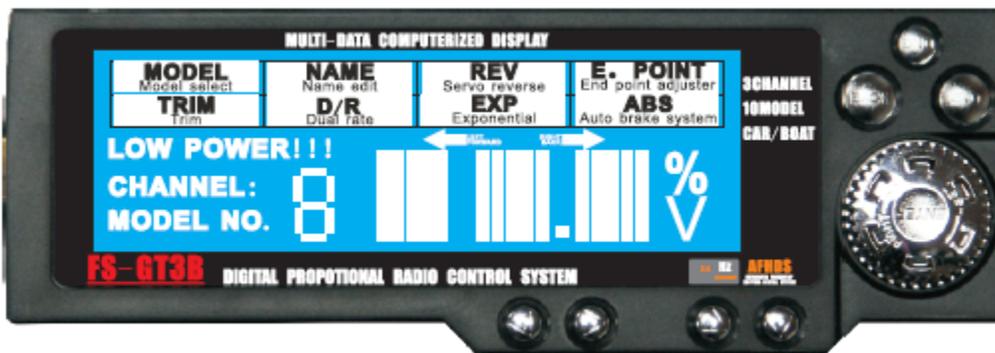
Figure 2

Button Functions:

Turn the **ENTER** button clockwise to increase the rate or to move the selection to the right
Turn the **ENTER** button counterclockwise to decrease the rate or to move the selection to the left
Press **ENTER** to select an item
Press **BACK** to return to the Home screen
Press **END** to return to the previous menu

Pressing a button for more than 1 second if referring in this document as a long key press. For example, pressing and holding the **ENTER** button is referred to as **ENTER-LONG**

3.1 Power on display

When the radio is initially turned on, it displays the current model number along with the name assigned to it. For reference the left digit (shown as 8 in the picture above) is referred to the number display and the 3 characters (shown as ACB) is referred to as the alphanumeric display.

This screen is referred to as the Home screen. Only the model number and name are displayed.

If the battery voltage of the radio is lower than the low power voltage threshold (see Global setup menu), the radio will beep and LOW POWER! will be blinking as can been seen in figure 2.

Rotating the SELECT, will move between the model number, the battery voltage and the 2 timers (indicated by the Left/Forward arrow or the Right/Back arrow (see section 3.3 Timers).

3.2 Models

As of version 0.6.1 of the firmware, the radio is capable of 63 model memories. The first 8 models are stored in EEPROM and the rest in Flash.

- Models 10-19 will show with Right/Back arrow
- Models 20-29 will show with Left/Forward arrow
- Models 30-39 will show with Left and Right arrow
- Models 40-79 will show like 0-39 but with the addition of the % symbol.

To select a model, you must be at the home screen with just the model number and name displayed or on the battery voltage display. Press **ENTER** and Model will be highlighted. Press **ENTER** again and the model number will flash. Rotate **SELECT** to change the model selection, then press **ENTER**.

3.3 Timers

There are 2 built in timers that can be viewed from the Home screen. To access the timers, rotate **SELECT**. Timer 1 is indicated by the Left/Forward arrow and Timer 2 is indicated by the Right/Back arrow.

The timers can provide a lap counter, lap timer, count up timer or count down timer. For the lap functions these are displayed on the alphanumeric display. Time is displayed in two ways. For time under 100 seconds, the display will show % and the time will be represented by 4 digits. The first 2 digits the seconds and the last 2 digits the hundredths of seconds.

Timers are operated by programming buttons on the radio to start, stop and reset the timer. These buttons are specific to the model that's selected, so it's important to remember that programming a button to start the timer must be done for each model. For reference the button assigned to start a timer is referred to TxS where x is the timer number. TxR is the timer reset. See section 4.14 Key Mapping for more information.

To set the options for the timers, select the timer then press **ENTER**. The following are options for each timer. The option is selected when the number display is flashing by rotating **SELECT.** To change the value, press **ENTER** and rotate **SELECT** to select the value for that option. Pressing **ENTER** to return to the option selection.

Option	Parameters
H – Start the timer when the throttle is applied. Useful for starting a timer at the beginning of a race.	On or Off
A – Set an alarm. When the alarm value is reached, the radio beeps	For lap functions, the number of laps. For time functions the number of minutes
P - Timer type	OFF – Timer is off UP – Up timer TxS will start/pause the timer, TxR will stop and reset it. DWN – Down timer. The timer will start at the value set on the alarm option. When the timer reaches 0, the radio will beep, a V will displayed and the timer will start counting up. LAP – Lap timer (up to 100 lap times). TxS will record the lap time which flash on the display for 3 seconds. TxR will stop the timer (this does not record a lap time). If an alarm is set the timer will automatically stop when that time is reached. LPC – Lap counter (up to 255 laps). TxS counts a lap. There is a minimum of 3 seconds between laps to eliminate accidental double counts. TxR resets the counter

For the lap timer, it's possible to view the saved lap times once the timer has stopped. To view the lap times, press ENTER-LONG. This will bring you to the Lap menu which is indicated by an L in the number display. Different display functions can be reached by rotating **SELECT**.

L RES – Reset, any time RES is displayed, pressing ENTER will erase all lap information and take you back to the timer screen.

L T – Displays the number of laps. Pressing **ENTER** will display the total time recorded by laps (not the total time the timer ran). Rotating **SELECT** will show you the times of the laps. Pressing **ENTER** on any display other than RES takes you back to the Lap menu.

L A – Displays the number of laps. Pressing ENTER, will display the average lap time. Rotating **SELECT** shows you the same total time and lap time information at above. Pressing **ENTER** on any display other than RES takes you back to the Lap menu.

L # - Allows you to select a specific lap. Pressing **ENTER** will display the lap time for this lap. Rotating **SELECT** changes the lap selection and will show you the total time as above.   Pressing **ENTER** on any display other than RES takes you back to the Lap menu.

4. Model Settings

Each model memory can have a wide range of settings specific to that model. To access these settings press **ENTER** from the Home screen.

4.1 Model Name

This function allow you to assign a 3 digit name (letters and numbers) to the selected model. To set the model name rotate **SELECT** until NAME is highlighted and press **ENTER**.

Rotate **SELECT** to select the value for that digit and press **ENTER** to move to the next digit. Pressing **END** takes you back to the menu selection and pressing **BACK** takes you back to the Home screen.

4.2 Copy Model Settings

Copy model settings allows you to copy all the settings of one model memory to another. First select the model to copy (see section 3.2). To copy rotate **SELECT** until MODEL is highlighted and press **ENTER-LONG**. The menu MODEL will be blinking. Rotate **SELECT** again to choose the model memory position to copy to and press **ENTER** or **BACK** to save it.

4.3 Reverse

This function reverses the direction of the operation of the servos. For example, turning the radio's steering wheel to the left causes the vehicles wheels to turn right needs to have the steering servo reversed.

Each channel can have either a setting of Normal which is displayed as NOR or Reverse which is displayed as REV.

To change the server reverse settings, from the Home screen, press **ENTER** to access the menu, and rotate **SELECT** until REV Servo Reverse is highlighted and press **ENTER.** The channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**. Rotate **SELECT** to select the setting. Pressing **ENTER** will take you back to the channel selection.

4.4 End Points

End points allow independent travel adjustment of the servo throw in each direction of all channels (steering, throttle, etc). They can also be used to limit the amount of throttle or brake applied through an electronic speed control.

The default maximum end point is 120%. This value can be changed in the Global setup menu (see…).

To change end points, from the Home screen press **ENTER** and rotate **SELECT** until E. POINT is highlighted and press **ENTER**. The channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**.

Once the end point value is flashing, you can set the value for Left/Forward or Right/Back is indicated by the arrow above it. To set the end point rotate **SELECT**. A higher value means more servo throw and a lower value means less. You select the Left/Forward or Right/Back portion of the setting by moving the steering wheel or throttle in the appropriate direction.

Once the settings for that channel have been made, press **ENTER** to return to the channel selection.

4.5 Trims

Trims are used to adjust the neutral position of steering, throttle, etc.

Trims can be set either using the various trim buttons on the radio or by accessing the TRIM menu.

A trim can be reset to 0 via the trim buttons by pressing and holding both trim buttons for 1 second.

To change end points via the TRIM menu, from the Home screen press **ENTER** and rotate **SELECT** until TRIM is highlighted and press **ENTER**. The channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**. Once the trim value is flashing, you can set the value rotating **SELECT**.

Once the settings for that channel have been made, press **ENTER** to return to the channel selection.

4.6 Sub Trims

The Sub Trim function is normally used to correct for minor angular inaccuracies that occur when placing the servo horn on the servo. In many cases, the servo horn is not exactly perpendicular to the servo (or in the exact optimum desired position). Minor sub trim values can be used to correct this offset inaccuracy, however, it's important to understand that large sub trim values can limit the total throw of the servo in that direction so small sub trim values only are recommended along with adjusting the placement of the servo horn.

To change the sub trims, from the Home screen press **ENTER** and rotate **SELECT** until TRIM is highlighted and press **ENTER-LONG**. TRIM and the channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**.

Change the sub trim value for that channel by pressing **ENTER**. Pressing ENTER will return you to the channel selection.

4.7 Dual Rates

Dual rates or D/R limit the total travel of each individual channel in equal amounts in both directions. Adjustments can be made between 100% (full servo travel) and 0% (no servo travel).

By default the steering D/R can be adjusted using the D/R selector on the radio's grip. D/R can also be adjusted via the D/R menu.

To change the dual rate via the D/R menu, from the Home screen press **ENTER** and rotate **SELECT** until D/R is highlighted and press **ENTER**. The channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**. Once the D/R value is flashing, you can set the value rotating **SELECT**.

The dual rate for channel 2 (throttle) has separate values for forward and back. If channel 2 is selected, separate dual rates can be selected as indicated by the arrows above the D/R value. To change between forward and back, use either the steering wheel or throttle.

Once the settings for that channel have been made, press **ENTER** to return to the channel selection.

4.8 Expo

Exponential or Expo for short, is used to affect the response rate of the steering, throttle and/or brake. Typically positive Expo is used for steering, reducing steering sensitivity around neutral, making it easier to drive the car at high speeds in a straight line but exponential still allows for the maximum turning radius.

Positive and negative Expo values are available. A positive Expo value results in the center being less sensitive (desirable most of the time) while a negative value increases the sensitivity around center (normally not used).

To change exponential, from the Home screen press **ENTER** and rotate **SELECT** until EXP is highlighted and press **ENTER**. The channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**. Once the Expo value is flashing, you can set the value rotating **SELECT**.

Exponential for channel 2 (throttle) has separate values for forward and back. If channel 2 is selected, separate exponential rates can be selected as indicated by the arrows above the EXP value. To change between forward and back, use either the steering wheel or throttle.

Once the settings for that channel have been made, press **ENTER** to return to the channel selection.

4.9 ABS

When applying the brakes, it's possible to lock them which can cause your vehicle to spin out of control. This can be eliminated by pulsing the brakes, so that better control can be archived. The ABS function of the radio operates in a similar fashion to the ABS brakes on a real car, where the application of brakes is pulsed.

To change ABS, from the Home screen press **ENTER** and rotate **SELECT** until ABS is highlighted and press **ENTER**. Channel 2 will blink since it's only possible to apply ABS to the throttle. Select the ABS value by rotating SELECT. There are 4 possible ABS settings:
> OFF – The ABS function is off
> SLW – Slow pulse
> NOR – Normal pulse
> FST – Fast pulse

Each car and ESC/braking servo responds differently to different ABS settings.

4.10   Channel Speed

Channel speed controls the rate the radio sends the receiver commands to go from neutral to full (and everything in between). Channel speed can't make them faster, only slower. It's most useful to control throttle

and brake when the vehicle itself lacks methods to control these. Using channel speed on steering in not common.

To change channel speed, from the Home screen press **ENTER** and rotate **SELECT** until D/R is highlighted and press **ENTER-LONG**. D/R and channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**. Once the channel speed value is flashing, you can set the value rotating **SELECT**.

The speed is entered as a percentage of full speed. A setting of 100% means no delay, while a setting of 1% is about a 2 second delay from neutral/center to full.

Channel speed has separate values, indicated by the arrow above the value. This can be selected by turning the steering wheel or moving the throttle.

> Channel 1 & Left Arrow: Turn speed
> Channel 1 & Right Arrow: Steering return to center speed
> Channel 2 & Right Arrow: Throttle speed
> Channel 2 & Left Arrow: Brake speed

Once the settings for that channel have been made, press **ENTER** to return to the channel selection.

4.11   Direct Channel Value

Direct channel value, allows you to set a specific value for channels 3-8 when activated. When this value is set, there are only 2 states for that channel, off/neutral or on at the value set. It is useful when you have a servo where the control is either centered or at a specific position (not necessarily full).

To change the channel value, from the Home screen press **ENTER** and rotate **SELECT** until EXP is highlighted and press **ENTER-LONG**. EXP and the channel number will blink. You select the channel you want to change by rotating **SELECT** then pressing **ENTER**. Once the channel value is flashing, you can set the value between -100 and 100 by rotating **SELECT**.

Once the settings for that channel have been made, press **ENTER** to return to the channel selection.

4.12   Number of channels and Model reset

You can reduce the number of channels available to a specific model or reset all the settings of a specific model to their default values. You cannot set the number of channels higher than the firmware supports, even though this menu allows it.

From the Home screen press **ENTER** and rotate **SELECT** until NAME is highlighted and press **ENTER-LONG**. Name will blink. You select the option you want to change by rotating **SELECT** then pressing **ENTER**. The parameter for the option is set by rotating **SELECT.** Press ENTER to return to the option selection.

> C – Number of channels
> r – Reset model settings (Select Yes to confirm or No to cancel)

4.13   Channel mixes

This section needs to be completed.

4.14   Button Mapping

Each model can have the buttons of the radio assigned to a specific function that varies from the default.

To access the button mapping menu, from the Home screen press **ENTER** and rotate **SELECT** until REV is highlighted and press **ENTER-LONG**. The REV menu will flash indicating you are in the button mapping menu.

The number display shows the button being programed and the alphanumeric display will show the function currently assigned to that button. There are 2 types of buttons, trim buttons and regular buttons. Additionally, individual Trim buttons can be mapped to specific functions. Table 4.14 lists the buttons on the radio and the display code for that button:

Table 4.14

Display	Button(s) on radio	Type
1	Steering trim	Trim
2	Throttle trim	Trim
3	Ch3 Trim	Trim
d	D/R buttons	Trim
C	Ch3 button	Regular
b	Back button	Regular
E	End button	Regular
1←	ST Trim Left	Regular*
1→	ST Trim Right	Regular*
2←	TH Trim Back (Throttle)	Regular*
2→	TH Trim Forward (Brake)	Regular*
3←	Ch3 Trim Back	Regular*
3→	Ch3 Trim Forward	Regular*
d←	D/R -	Regular*
d→	D/R +	Regular*

* Only available when the setting for that specific trim button is set to off.

4.14.1 Mapping Trim Buttons

Trim buttons can be assigned the functions listed in Table 4.14.1 below.

Table 4.14.1

Option	Function
OFF	Turn normal trim function off. Turns on programming of individual trim buttons
TR1, TR2	Normal trim function channel 1/2
DRS, DRF, DRB	Dual Rate of Steering/Forward/Brake
EXS, EXF, EXB	Expo of Steering/Forward/Brake
CHn	Change channel "n" to value in range -100 to 100
STn	Subtrim channel "n"
SST	Steering speed turn 1% to 100%
SSR	Steering speed return to center 1% to 100%
CSn	Channel Speed for channel "n" 1% to 100%
4WS	4 Wheel Steering Mix -100% to 100%

DIG	DIG Throttle mix -100% to 100%
MPn	Multi-Position "n", switches position up/down

The mapping sequence for all settings other than OFF is:

Function → Button Option → Step[1] → Reverse → Opposite Reset[2] → Previous Value[1] → Rotate[3]

1 – Not available when Button Option set to MO or function is set to Multi-Position
2 – Not available when Button Option set to MO
3 – Only available if function is set to Multi-Function

Button Options, controls the effects of pressing and holding a button:

BMO – Momentary, holding trim button sets the value of the function to it's minimum (left trim button) or maximum (right trim button). When neither button is pushed, value is default.
BNL – No Long button, disables long button presses
BAR – Auto repeat is on
BRS – Long press of one trim button resets to center/neutral value
BEN – Long press of trim key will set the value to maximum in that direction

Step (indicated by the symbol "V"), selects the number of trim steps for every button press. Not available when Button Option is set to BMO or Function is set to Multi-Position.

Reverse:

RE0 – Normal trim direction
RE1 – Swap left and right trim buttons

Opposite Reset:

OR0 – Normal trim operation, each button press increases or decreases it's value
OR1 – When trim button is pressed and the current value is opposite of center/neutral of the button being pushed, set the value to center/neutral. For example if the steering trim is currently R5, pressing the Left Steering Trim will set the steering trim to center.

Previous Value:

PV0 – No change in function
PV1 – Instead of setting value to center/neutral when button is released, it is set to the previous value, the value the function had before the button was pressed.

Rotate:

RO0 – No rotation
RO1 – Rotate from max item to first item and back

4.14.2 Mapping Normal Buttons

Normal buttons can be assigned the functions listed in Table 4.14.2 below.

Table 4.14.2

Option	Function
OFF	Turns button off
CHn	Switch channel "n" value from one end value to opposite end value

CnR	Reset value of channel "n" to center/neutral
4WS	Switch between crab (CRB) and no-crab (NOC) for 4 wheel steering
DIG	Switch DIG mix between -100 and 100. Most useful when used with the return to previous value key setting
DGR	Reset DIG mix to center
MPn	Multi-Position "n", switches position up
MRn	Multi-Position "n", switches position to first one
T1S, T2S	Start and Pause Timer 1/2
T1R, T2R	Stop and reset Timer 1/2
BRK	Switch on full brake, overrides throttle position
BLS	Turn off Battery Low Voltage alarm (predefined as **END-LONG**)

The mapping sequence for all settings other than OFF is:

Function → Momentary[1] → Reverse[1] → Previous Value[1] → Function-Long → Reverse-Long → Previous Value-Long

1 – Only available for 2 state functions

Function:
Desired function from table 4.14.2, when the button is pressed

Momentary, controls the effects of pressing button:
MO0 – Momentary off. Pressing the button, switches the values
MO1 – Momentary on. Pressing the button, switches the values only while the button is held

Reverse:
RE0 – Default value, no-press or default value is left endpoint
RE1 – Reverse value, no-presss or default value is right endpoint

Previous Value:
PV0 – Key release or OFF state set value to endpoint defined with Reverse (default is left endpoint)
PV1 –When button is released, it is set to the previous value, the value the function had before the button was pressed.

Function-Long:
Desired function from table 4.14.2, when the button is pressed and held for 1 second or longer. Identified by the symbol "V" displayed.

Reverse-Long:
Same settings as Reverse. . Identified by the symbol "V" displayed.

Previous Value-Long:
Same settings as Previous Value . Identified by the symbol "V" displayed.

5. Global Setup

To access the global setup menu, from the Home screen press **ENTER-LONG**. Menu items MODEL and NAME will blink. The option is selected when the number display is flashing by rotating **SELECT.** To change the value, press **ENTER** and rotate **SELECT** to select the value for that option. Press **ENTER** to return to the option selection.

Option	Parameters
F – Firmware version	Can't be changed.
L – Backlight time, sets how long the backlight stays on after menu activity.	5 seconds, 10 seconds,…1 minute…10 minute, MAX (never turn off)
I – Inactivity alarm in minutes.	OFF, 1m…10m
LOW POWER! – Voltage threshold before the radio sets the low power alarm	2.0v to 10.5v
C – Default number of channels	2 to 8
E – Maximum allowed endpoint value	100-150%, **DANGER** - values greater than 120% can damage your servo or may not work because of limitations of the 2.4GHz hardware. A setting of more than 120% will result in a flashing % symbol.
A – Analog settings	S00-S50 – Steering dead zone T00-T50 – Throttle dead zone A_4/A_1 – Number of ADC (Analog to Digital) values to sample
b - Beeps	K_N/K_Y – Key press beep V_N/V_Y – Beep on trim values set to center/neutral or reset P_N/P_Y – Power on beep C_N/C_Y – Beep if wheel or throttle not centered when powered on
d – Long press key delay	100-1000ms
H – Hardware features	E_N/E_R – Rotate encoder either Normal or Reverse (for GT3C) P3N/P3Y – Ch3 is potentiometer, No or Yes PTS/PTF – Select PPM Sync/frame Lxx – Select PPM length in ms. 3-18ms for constant SYNC length, 9-24ms for constant frame length
r – Reset	G_N/G_Y – Reset all radio settings and models to default M_N/M_Y – Reset all model settings to default
o – Lock keys until **ENTER-LONG** is pressed	No/Yes

6. Key and Display Test

This function can be used to test the display to make sure every element is working as well as all the buttons are function properly.

To start the test, turn the steering wheel left and press **ENTER-LONG**. As long as ENTER is pressed, all the segments on the display will be lighted. Once ENTER is released, the radio will go to the key test.

Pressing a key will display its name in the alphanumeric display. If a key is pressed and held for 1 second or longer, the key name will be displayed along with an L to the left.

Press **BACK-LONG** or **ENTER-LONG** to exit the key test.