Example: Zaggi

Requirements

The model is a combat flying wing, made of foam and EPP, with two control surfaces that will act as ailerons and elevator. Originally, it has no throttle, but has an add on kit with batteries and a motor.

Programming

Looking at the template summary table, the DELTA template is the one that will satisfy our initial and possible enhancements.

We will use the default control/switch assignment, which is POWER.

As we have a 4 channel receiver, and non Multiplex servos, the servo configuration which better matches is **FUTABA**.

To use aileron and elevator in the right stick, the Mode to use is 2.

We have completed steps choose a template, servo configuration, stick mode, and choosing an assignment from the general procedure to set up a model. After confirming the next thing to do is entering a model name.

Servos

In the servo assignment, we could delete Throttle to simplify Control menu, but we leave it because e could use it in the future, and only one more control does not disturb so much. 4, Deleting/reassigning servos is complete.

Servo number 1 is left aileron.

Servo number 2 is right aileron.

The initial test of aileron and elevator sticks showed us that:

- applying up elevator (stick down), control surfaces moved right aileron down, left aileron up
- applying down elevator (stick up), control surfaces moved right aileron up, left aileron down
- applying left stick, both ailerons moved up
- applying right stick, both ailerons moved down

Now it is time to change servo sense.

Analyzing commands and movements, we see that right aileron (servo 2) moves according to commands for elevator and aileron, but left aileron (servo 1) moves the opposite. If we change the sign in the mixer input, we would be affecting both servos, thus reversing the 4 responses explained above. The solution in this case is to go to servo->calibrate->servo 1->Rev/Trm and reverse the curve. Doing so and checking again elevator and aileron

commands reveals that control surfaces move the appropiate sense. That completes step 5, servo rotation.

For step 6, servo limits measuring actual movement of servos, the setting are:

- servo 1:
  - p1 to 90 %
  - p5 to 100 %
- servo 2:
  - p1 to 90 %
  - p5 to 100 %.

For step 7, servo motion, no modification is needed in this model.

To simplify this example, assume that trim servo is already done.

Mixers

To setup mixers, the default elevator input in DELTA+ mixer is 80 % up and down, but I prefer it to be 50 % down and 65 % up. For aileron the default 50 % is changed to 80 % to be able to perform quick turns. As it is too sensitive to sticks movements, some tuning will be done next

Controls

Dual rates for elevator and aileron control are set to 75 % for quiet flying, and 100% for combat flying.

We are done with step Flight phases because we will use only one phase.

Finally, the resulting programming is summarized in this page.

Arriba

Model Name: DELTA

Changed values compared from the default of the template are marked this color.

Disabled entries compared from the default of the template are marked this color.

Assignment Used: POWER

Functions Used:

Sum Timer (Throttle) Dual Rates (A/E/R) Throttle-Cut Phase1-3

Functions Not Used:

Flap Spoiler Combi-Switch

Controls

CONTROL	Trim % (x4 Flight Phases)	Step %	D/R %	Travel % (x4 Flight Phases)	Expo %
Aileron	Main 0 1 0 2 0 3 0	1.5	75	Main 0 1 0 2 0 3 0	0
Elevator	Main 0 1 0 2 0 3 0	1.5	75	Main 0 1 0 2 0 3 0	0

CONTROL	Idle %	Step %	Slow sg.
Throttle	0	1.5	0.0

Control Switches (Analog Switches)

CONTROL	ON Position (Up / Down)	Switch Value %
Stick D	Down	-50%

Slider E	Down	0
Slider F	Down	0

Mixers

Combi Switch

	Aileron <--> Rudder
Positive: Aileron to Rudder	OFF
Negative: Rudder to Aileron	

Aileron Differential

Mode	Differential % (x4 Flight Phases)	
OFF	Main	OFF
	1	OFF
	2	OFF
	3	OFF

DELTA+

FUNCTION	Mixer Option	Parameter 1 Name	Parameter 1 Value	Parameter 2 Name	Parameter 2 Value	Activate Input with ...	
						Mix # (1/2/3)	Switch
Aileron	Symmetrical	-	-	Travel	80		
Elevator	Asymmetrical	Travel Up	50	Travel Down	65		
Thr -Tr	Single-Sided/Linear with Dead Zone	Dead	OFF	Travel	OFF		

Servos

Servo # Assignment			Function	Signal Format (UNI/MPX)	# Points (2/3/5)	Trim	P1	P2	P3	P4	P5
JR	Futaba	MPX									
2	1	1	DELTA+	UNI	3	0	-90	-	0	-	100
1	3	4	Throttle	UNI	3	0	-100	-	0	-	100
5	2	5	DELTA+	UNI	3	0	-90	-	0	-	100

Atrás | Arriba | Siguiente

F5J Glider

Requirements

The model is a glider with ailerons that will be used as spoilers during landing, a rudder and elevator. The throttle is provided by a electric 600 type motor. No flight phase is needed.

Analysis

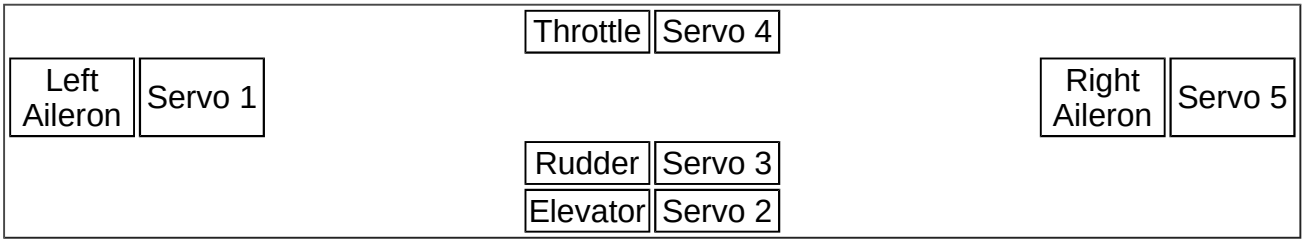
The predefined mixers supply our needs. A default standard assignment is also enough.

Programming

Looking at the template summary table, the GLIDER template is the one that will satisfy our initial and possible enhancements.

We will use the default control/switch assignment, which is GLIDER+.

We have a 7 channel receiver available, and non Multiplex servos. As it has to be programmed from the beginning, the possible servo configurations are **FUTABA**, **JR** and **MPX-UNI**. We choose **MPX-UNI**.



To use aileron and elevator in the right stick, the Mode to use is 2.

We have completed steps choose a template, servo configuration, stick mode, and choosing an assignment from the general procedure to set up a model. After confirming the next thing to do is entering a model name.

Servos

In the servo assignment, we delete servos 6 and 7 with are dedicated to spoilers, function which will be supplied by raising ailerons. 4, Deleting/reassigning servos is complete.

The initial test of rudder, elevator and aileron sticks showed us that:

Stick function test	Servo movement	Results
push elevator	elevator **down**	WRONG
pull elevator	elevator **up**	WRONG
left rudder	rudder **right**	WRONG
right rudder	rudder **left**	WRONG

left aileron	left aileron **up**, right aileron **up** rudder **right**	left aileron OK right aileron WRONG rudder WRONG
right aileron	left aileron **down**, right aileron **down** rudder **left**	left aileron OK right aileron WRONG rudder WRONG
up spoiler	left aileron **no movement**, right aileron **no movement** elevator **up**	left aileron WRONG right aileron WRONG elevator **OK**

To enable the "up spoiler" function stick, let's go to servo menu - AILERON+ mix - spoiler input, and then set Offset to 0 (OFF) and Travel to +90%.

Stick function test	Servo movement	Results
up spoiler	left aileron **down**, right aileron **up** elevator **up**	left aileron WRONG right aileron OK elevator **OK**

Now let's proceed to fix the motion sense of servos

Elevator

This is a mixed function with more than one input used, so the reversing method is change the mixer input sign.

In mixer menu, ELEVATR+ , Elevator input, reverse the sense of travel up and down and set -100% and -100%.

Stick function test	Servo movement	Results
push elevator	elevator **up**	OK
pull elevator	elevator **down**	OK

Rudder

This is a non mixed function, so the reversing method is reverse the servo curve.

In servo menu, calibrate, servo 3 (rudder), REV/TRM, the values of P1 / P5 are changed from +100% / -100% to -100% / +100% respectively.

Stick function test	Servo movement	Results
left rudder	rudder **left**	OK
right rudder	rudder **right**	OK
left aileron	rudder **left**	rudder OK
right aileron	rudder **right**	rudder OK

Ailerons

Revising the first and second tables above, using the aileron stick function makes left aileron move OK, but for spoiler stick function left aileron moves WRONG

In order to obtain a homogeneous left aileron servo movement, let's change AILERON+ mix - spoiler input, and then and set Travel to -90%, thus having

Stick function test	Servo movement	Results
up spoiler	left aileron **down**, right aileron **up** elevator **up**	left aileron OK right aileron WRONG elevator **OK**

We have left aileron servo always moving to the correct sense, and right aileron always moving to the WRONG sense.

This is a mixed function assigned to more than one servo, and as we have left aileron servo moves always the correct sense and the right servo always in the wrong sense, we can reverse the right aileron servo in Servo - Calibrate - Rev/Trim.
P1 / P5 change from -100% / +100% to +100% / -100%.

Stick function test	Servo movement	Results
left aileron	left aileron **up**, right aileron **down** rudder **left**	left aileron OK right aileron OK rudder OK (from rudder setup)
right aileron	left aileron **down**, right aileron **up** rudder **right**	left aileron OK right aileron OK rudder OK (from rudder setup)
up spoiler	left aileron **down**, right aileron **up** elevator **up**	left aileron OK right aileron WRONG elevator **OK**

Now that all servos move the correct sense, it is time to check the limits of servo motion.

I don't like to use the <STU7> menu button in Servo menu - calibrate - Pi, because it moves the servo so quickly that if it encounters a stall condition due to mechanical linkages it can be damaged. If it moved to the position slowly, I would consider using it. To check limits I use other method. Read hereafter.

During sense checking, I have noticed that aileron servos were stalling. To temporary obtain maximum servo movement, I set AILERON+ mixer, spoiler input, travel to -100%. Then go to servo menu, monitor, display the percentage screen, and then slowly move spoiler stick forward. When I heard left aileron (servo 1) stall, move the stick slightly backwards, and write down the percentage shown for servo 1. And the same applies for right aileron, servo 5. Now go to servo menu, calibrate, servo 1, and set P1 to the value written in the previous step. Repeat the same for servo 5.

In our case servo 1, P1 was set to -88%, and servo 5 , P1 to +88%. Then, I restored the AILERON+ mixer, spoiler input to the previous value, -90% in this case.

For the down movement, I used the same procedure, but using the FLAP function on the F

slider.

Elevator and Rudder

They can be done in a similar way as ailerons.

Throttle

I have no experience with internal combustion motors, but to preserve battery using electric motors, I set in servo menu, calibrate, servo 4 (throttle), P1 to -110%, yes, it is no mistake -110%. Also I set throttle trim to the lowest position.

As the mechanical installation was carefully done, the calibrate servo motion step is not required in this model.

Trim servo step is not intended for the initial setup of a model, so let's move on the next step.

Mixers

Combi Switch

I change the value from +50% to +20% (Aileron function moves rudder servo). Flight tests will be done to tune it.

Aileron Differential

Mode is left unchanged to +SPOILER, to disable differential when spoilers are raised. Differential value is changed from +50% to +35%. Flight tests will be done to tune this value.

ELEVATR+

The values for Spoiler input will be tuned in flight tests.

AILERON+

For smooth handling I set an exponential of 30%.

I disable the flap input, setting 0% (OFF).

Controls

For smooth handling I set an exponential of 30% to Aileron Control.

The other controls are left to their default values.

Flight Phases

I won't use them for this model. See the example for a F3B glider.

Finally, the resulting programming is summarized in this page.

Arriba

Model Name: F5J Glider

Changed values compared from the default of the template are marked this color.

Disabled entries compared from the default of the template are marked this color.

Assignment Used: GLIDER+

Functions Used:

Sum Timer: (Throttle) E slider	Dual Rates (A/E/R): L switch	Combi-Switch: N switch	Throttle-Cut: H switch, but not useful here
Mix1 (ele-ail)		Main Phase: M button, the only one really used.	

Functions Not Used:

Flaps	Phase1-3: O switch, but not used.

Controls

CONTROL	Trim % (x4 Flight Phases)	Step %	D/R %	Travel % (x4 Flight Phases)	Expo %
Aileron	Main 0 1 0 2 0 3 0	1.5	100	Main 100 1 100 2 100 3 100	0
Elevator	Main 0 1 0 2 0 3 0	1.5	100	Main 100 1 100 2 100 3 100	0
Rudder	Main 0 1 0 2 0 3 0	1.5	100	Main 100 1 100 2 100 3 100	0

CONTROL	Idle %	Step %	Slow sg.
Throttle	0	1.5	0.0

CONTROL	Run Time sg.	Fixed Value % (x4 Flight Phases)	
Spoiler	0.0	Main	OFF
		1	OFF
		2	OFF
		3	OFF
Flap	0.0	Main	OFF
		1	20
		2	OFF
		3	-25

Control Switches (Analog Switches)

CONTROL	ON Position (Up / Down)	Switch Value %
Stick D	Down	-50 %
Slider E	Down	0
Slider F	Down	0

Mixers

Combi Switch

	Aileron <--> Rudder
Positive: Aileron to Rudder	+20 %
Negative: Rudder to Aileron	

Aileron Differential

Mode	Differential % (x4 Flight Phases)	
+SPOILER	Main	35
	1	50
	2	50

	3	50

ELEVATR+

FUNCTION	Mixer Option	Parameter 1 Name	Parameter 1 Value	Parameter 2 Name	Parameter 2 Value	Activate Input with ...	
						Mix # (1/2/3)	Switch
Elevator	Asymmetrical	Travel Up	-100	Travel Down	-100		
Spoiler	Single-Sided with Curve	Point 1	5	Point 2	10		
Flap	Asymmetrical	Travel Up	OFF	Travel D	OFF		
Thr -Tr	Single-Sided/Linear with Dead Zone	Dead	OFF	Travel	OFF		

AILERON+

FUNCTION	Mixer Option	Parameter 1 Name	Parameter 1 Value	Parameter 2 Name	Parameter 2 Value	Activate Input with ...	
						Mix # (1/2/3)	Switch
Aileron	Symmetrical	-	-	Travel	80		
Spoiler	Single-Sided/Linear with Offset	Offset	OFF	Travel	-90		
Flap	Asymmetrical	Travel Up	OFF	Travel Down	OFF		
Ele -Tr	Asymmetrical	Travel Up	OFF	Travel Down	OFF		

Servos

Servo #		Signal	#						

Assignment			Function	Format (UNI/MPX)	Points (2/3/5)	Trim	P1	P2	P3	P4	P5
JR	Futaba	MPX									
2	1	1	AILERON+	UNI	3	0	-87	-	0	-	80
3	2	2	ELEVATR+	UNI	3	0	-100	-	0	-	100
4	4	3	Rudder	UNI	3	0	-100	-	0	-	100
7	3	4	Throttle	UNI	3	0	-110	-	0	-	100
5	5	5	AILERON+	UNI	3	0	+87	-	0	-	-100
1	6	6	Spoiler	UNI	3	0	-100	-	0	-	100
6	7	7	Spoiler	UNI	3	0	-100	-	0	-	100

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Setup an F3B Glider

Requirements

The model has 4 servos in the main wing, and a T-tail with rudder and elevator. Initially, we want to have 4 flight phases, but if possible, we want a fifth phase. The trim settings are:

	Launch	Thermal	Distance	Speed
Flaps	Down 14 mm	Neutral	Up 1 mm	Up 1 mm
Ailerons	Down 6 mm	Neutral	Up 1 mm	Up 1 mm
Elevator	Up 1 mm	Neutral	Up 1 mm	Up 1 mm

The fifth phase would be for a slightly different trim during launch. Yes, it is not an error, we will simulate a fifth flight mode setting.

The desired mixes per flight phases are:

	Launch	Thermal	Distance	Speed
Aileron to Rudder	50 %	50 %	NO	NO
Aileron differential	50 %	80 %	40 %	40 %
Flaps as ailerons	NO	NO	80 %	80 %
Elevator to Flaps	NO	NO	only down to 10 %	only down to 10 %
Elevator to Ailerons	NO	NO	only down to 10 %	only down to 10 %
Butterfly	YES	YES	YES	YES

Use as few switches as possible. Also we want to program Dual-Rates. We want to have shorter movements on ailerons and flaps on distance and specially on speed.

Analysis

The default mixers provide the needed inputs. However, as we will enable/disable some of the inputs depending on the flight phase, a replica of them are created.

For the settings of flap and aileron control surfaces, we will use the flap control, which is already as an input in the mixers. A different fixed value will be used per flight phase.

As Mix1, Mix2 or Mix3 will be used, we decide to create a new assignment.

We will use a 3 position switch for Phase1-3, and a two positions for Main Phase.

For Launch we will use EVO main phase (sw L), and for thermal, distance and speed EVO phases1-3 (sw O). This forces to use another switch (sw N down) for snapflap (Elevator to Flaps and Elevator to Ailerons), and also to use flaps as ailerons.

To activate Aileron to Rudder the CombiSwitch must be assigned to another switch, for example I, even if it is not used. This have the undesired side effect of accidentally disable

it by error.

Initial Assignment :

Main Phase M up ON
Phase1-3 O up on
DualRate ail G down off
DualRate ele G down off
DualRate rud G down off
Mix1 N down off (for snapflap and flaps as ailerons)
CombiSwitch I down off

The switch sequence during the flight will be:

1. launch setting (EVO flight phase START1)
   Set M on, Main Phase ACTIVE
   Set O up, Phase1 inactive overrided by Main Phase
   Set I up CombiSwitch ON
   Set G down DualRate off
   Mix1 J off
2. normal flight, (EVO flight phase NORMAL)
   Set M off Main Phase inactive,
   Phase 1 becomes ACTIVE.
3. distance mode (EVO flight phase CRUISE)
   Toggle O from top to middle, Phase 2 ACTIVE.
   Set G up DualRate (ail/ele/rud) ON
   Set J up ON (Mix1 for snapflap)
4. speed mode (EVO flight phase SPEED1)
   Toggle O from middle to down, Phase 3 ACTIVE.
   Toggle I from top to down.

Revising the sequence, it seems to be too much workload for the pilot, when entering distance or speed mode, and prone to pilot error. This has another drawback, it only allows to have two different settings for dual rates.

If we reorder the logical flight modes in respect to EVO flight modes, so that we can "reuse" switch positions to enter a flight mode and activate a mix, it will become simpler. The goal is to only change a single switch to enter a new flight phase. We want distance and speed mode to have a switch at a common position but different of the other modes.

We can also assign functions to not physically installed switches to avoid accidental de/activation, in our case the CombiSwitch to switch K.

For dual rates we will use the travel parameter instead of D/R for the aileron and rudder control.

The reviewed assignment is:

Main Phase M up on
Phase1-3 O up on
DualRate ail not assigned
DualRate ele not assigned

DualRate rud not assigned
Mix1 O down on (for snapflap and flaps as ailerons).
This is the same switch that controls the Phase1-3, but note the ON position are reversed.
CombiSwitch K (not installed) up on

The new sequence would be:

1. launch setting (EVO flight phase START1)
   Set M off, Main Phase inactive
   Set O up, Phase1 ACTIVE
   Mix1 is off.
2. normal flight, (EVO flight phase NORMAL)
   Toggle O from top to middle, Phase 2 becomes ACTIVE.
3. distance mode (EVO flight phase CRUISE)
   Toggle O from middle to down, Phase 3 ACTIVE.
   Mix1 is now on, due to the position of switch O (snapflap, flaps as ailerons are active)
4. speed mode (EVO flight phase SPEED1)
   Set M on, Main Phase ACTIVE
   Mix1 remains on.

Now with this simple sequence, we will introduce the fifth flight phase. As there is a free input in mixers, we can add again the flap control to the aileron and flap mixers. The original flap input will be always enabled. The repeated flap input will be activated only when a switch is set to on, activating a Mix2, and thus enabling the mixer input. We prefer to use Mix2 with a pushbutton. As the flap input is repeated, the flap fixed value at the start phase should be lower, to set surface throws as needed in the second half of launch.

Control	First half of Launch	Second half of Launch
Flaps	Down 7 mm	Down 14 mm
Ailerons	Down 3 mm	Down 6 mm
Elevator	Down 1 mm	Up 1 mm

The second review of the assignment is:

Main Phase N up on
Phase1-3 O up on
Mix1 O down on (for snapflap and flaps as ailerons).
Mix2 M as pushbutton

pre- launch setting:
Set N off, Main Phase inactive
Set O up, Phase1 ACTIVE
Mix1 is off.

The new switch sequence for the flight will be:

1. During the first half of the launch: (EVO flight phase START1)
   Press M button, so more flaps/ailerons are deployed

2. During the second half of the launch: (EVO flight phase START1)
   Release M button, less flaps/ailerons are deployed
3. normal flight, (EVO flight phase NORMAL)
   Toggle O from top to middle, Phase 2 becomes ACTIVE.
4. distance mode (EVO flight phase CRUISE)
   Toggle O from middle to down, Phase 3 ACTIVE.
   Mix1 is now on, due to the position of switch O (snapflap, flaps as ailerons are active)
5. speed mode (EVO flight phase SPEED1)
   Set N on, Main Phase ACTIVE
   Mix1 remains on as O switch is down.

Not too much complicated, only one change at a time, and only two switches are used. We can forget of the M button since the very beginning.

Regarding the dual rates, we can select up to four different dual rates. We will use three, one for launch and normal, one for distance and one for speed.

Mixer Definition

With the above explanation, we can define three new mixers.

ELE-F3B+

Input Name	Input active when ...	input option
Elevator	always	Asymmetrical
Spoiler	always	Single-Sided With Curve
Flap	always	Asymmetrical
Thr -Tr	always	Single-Sided/Linear With Dead Zone
Flap	Mix2	Asymmetrical

AIL-F3B+

Input Name	Input active when ...	input option
Aileron	always	Symmetrical
Spoiler	always	Single-Sided/Linear With Offset
Flap	always	Asymmetrical
Ele -Tr	always	Asymmetrical
Flap	Mix2	Asymmetrical

FLP-F3B+

Input	Input active	input option

Name	when ...	
Flap	always	Asymmetrical
Spoiler	always	Single-Sided/Linear With Offset
Aileron	Mix1	Asymmetrical
Ele -Tr	always	Asymmetrical
Flap	Mix2	Asymmetrical

Programming

Servos

Mixers

Controls

Finally, the resulting programming is summarized in this page.

Arriba

Template Name: 4-FLAPS

Changed values compared from the default of the template are marked this color.

Disabled entries compared from the default of the template are marked this color.

Assignment Used: GLIDER+

Suitable for:

F3B, F3J, glider with four flaps, with electric power, with V-Tail

Functions Used:

Sum Timer (Throttle)	Dual Rates (A/E/R)	Combi-Switch	Throttle-Cut
Mix1(ele-ail)	Phase1-3	Throttle	Flap

Functions Not Used:

Controls

CONTROL	Trim % (x4 Flight Phases)	Step %	D/R %	Travel % (x4 Flight Phases)	Expo %
Aileron	Main 0 1 0 2 0 3 0	1.5	100	Main 100 1 100 2 100 3 100	0
Elevator	Main 0 1 0 2 0 3 0	1.5	100	Main 100 1 100 2 100 3 100	0
Rudder	Main 0 1 0 2 0 3 0	1.5	100	Main 100 1 100 2 100 3 100	0

CONTROL	Idle %	Step %	Slow sg.

Throttle	30	1.5	0.0

CONTROL	Run Time sg.	Fixed Value % (x4 Flight Phases)	
Spoiler	0.0	Main	OFF
		1	OFF
		2	OFF
		3	OFF
Flap	0.0	Main	OFF
		1	OFF
		2	OFF
		3	-25

Control Switches (Analog Switches)

CONTROL	ON Position (Up / Down)	Switch Value %
Stick D	Down	-50 %
Slider E	Down	0
Slider F	Down	0

Mixers

Combi Switch

	Aileron <--> Rudder
Positive: Aileron to Rudder	+50 %
Negative: Rudder to Aileron	

Aileron Differential

Mode	Differential % (x4 Flight Phases)	
+SPOILER	Main	50
	1	50
	2	50
	3	50

ELEVATR+

						Activate Input

FUNCTION	Mixer Option	Parameter 1 Name	Parameter 1 Value	Parameter 2 Name	Parameter 2 Value	Activate Input with ...	
						Mix # (1/2/3)	Switch
Elevator	Asymmetrical	Travel Up	100	Travel Down	100		
Spoiler	Single-Sided with Curve	Point 1	5	Point 2	10		
Flap	Asymmetrical	Travel Up	OFF	Travel D	OFF		
Thr -Tr	Single-Sided/Linear with Dead Zone	Dead	OFF	Travel	OFF		

AILERON+

FUNCTION	Mixer Option	Parameter 1 Name	Parameter 1 Value	Parameter 2 Name	Parameter 2 Value	Activate Input with ...	
						Mix # (1/2/3)	Switch
Aileron	Symmetrical	-	-	Travel	80		
Spoiler	Single-Sided/Linear with Offset	Offset	OFF	Travel	70		
Flap	Asymmetrical	Travel Up	10	Travel Down	15		
Ele -Tr	Asymmetrical	Travel Up	OFF	Travel Down	OFF		

FLAP+

FUNCTION	Mixer Option	Parameter 1 Name	Parameter 1 Value	Parameter 2 Name	Parameter 2 Value	Activate Input with ...	
						Mix # (1/2/3)	Switch
Flap	Asymmetrical	Travel Up	10	Travel Down	15		
Spoiler	Single-Sided/Linear with Offset	Offset	OFF	Travel	100		
Aileron	Asymmetrical	Travel Up	OFF	Travel Down	40		
				Travel			

Ele -Tr	Asymmetrical	Travel Up	OFF	Down	OFF		

Servos

Servo # Assignment			Function	Signal Format (UNI/MPX)	# Points (2/3/5)	Trim	P1	P2	P3	P4	P5
JR	Futaba	MPX									
2	1	1	AILERON+	UNI	3	0	-100	-	0	-	100
3	2	2	ELEVATR+	UNI	3	0	-100	-	0	-	100
4	4	3	Rudder	UNI	3	0	-100	-	0	-	100
9	3	4	Throttle	UNI	3	0	-100	-	0	-	100
5	5	5	AILERON+	UNI	3	0	-100	-	0	-	100
6	6	6	FLAP+	UNI	3	0	-100	-	0	-	100
7	7	7	FLAP+	UNI	3	0	-100	-	0	-	100
1	8	8	Spoiler	UNI	3	0	-100	-	0	-	100
8	9	9	Spoiler	UNI	3	0	-100	-	0	-	100

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