

Phoenix (Open9x)

General Model Settings

Name: Phoenix2
EEprom Size: 327
Timer1: 00:00, ABS, Count UP
Timer2: 00:00, TH%, Count Up
Protocol: PPM: 8 Channels, 300usec Delay
Pulse Polarity: POS
Throttle Trim: Disabled
Throttle Expo: Disabled
Trim Increment: Exponential
Center Beep: Throttle

Flight Phases Settings

Phase name	Fades		Trims				Switch
	IN	OUT	Rud	Ele	Thr	Ail	
FP0 Simple	1	1	0	0	0	0	----
FP1 Start	1	1	0	0	0	0	CS1
FP2 Glide	1	1	0	0	0	0	CS2
FP3 Break	1	1	0	0	0	0	CS3
FP4	0	0	0	0	0	0	----

Custom Switches

CS1	THR AND ID0
CS2	THR AND ID1
CS3	THR AND ID2

Function Switches

	Switch	Function	Parameter	Enabled
FSW1	!RUD	Safety Ch07	-100	ON

Limits

When the servos are at neutral, the flaps are about 30 degree down. Adjust the offset for the flaps, so they are neutral with sticks neutral and set the limits according to the servos.

	CH 01	CH 02	CH 03	CH 04	CH 05	CH 06	CH 07-16
Offset	0.0	36.0	36.0	0.0	0.0	0.0	0.0
Min	-100	-70	-70	-100	-100	-100	-100
Max	100	100	100	100	100	100	100
Invert	NOR	NOR	NOR	NOR	NOR	NOR	NOR

This setup (model) is ment for an electric glider with 4 servos in the wings, one servo rudder, one servo elevator and an ESC for the motor

Before powering on the radio, set all switches down/away from your body and set throttle stick to motor stop position. I intentionally do not use a safety switch but the RUD Switch as main switch for the motor. (Elevator down for motor throw compensation does not work correctly when using a safety switch. Motor throw compensation must be active only when the motor is running. But when using a channel with safety switch in a mix, the channel value at the mixer is not affected by the safety switch so it may be high with motor off.)

All phases fade in/ out slowly with 1 sec.

All phases (except FP0) add a certain amount of low elevator (curve 2) depending on the amount of throttle to compensate for the motor thrust.

Channel 1; right aileron

Channel 2: right flap

Channel 3: left flap

Channel 4: left aileron

Channel 5: elevator

Channel 6: rudder

Channel 7: throttle

Flight Phase selection:

Flightphases are selected with switches THR and ID0/1/2

Throttle switch off -> FP0 (Simple mode)

Throttle switch on -> FP1 - FP3 depending on ID0/1/2

Trottle switch on, ID0 -> FP1 (Start)

Trottle switch on, ID1 -> FP2 (Glide)

Trottle switch on, ID2 -> FP3 (Break)

FP0 (Simple):

THR is OFF

This is my emergency mode.

RUD switch ON to get control of the motor

Motor, aileron, elevator and rudder are directly controlled without any additional mixes.

FP1 (Start):

Switch THR to ON (up)

Throttle fully controls the motor.

The flaps are synchronized with the ailerons, but with less throw.

Rudder is still controlled with the rudder stick

FP2 (Glide):

Switch from ID0 to ID1

Rudder gets a partial mix from aileron (Combi switch)

Flaps get a partial mix from elevator high (Kick-flaps)

Throttle stick no longer controls the motor. Instead of, it controlls camber for all four surfaces with a maximum of 15 degrees up for speed flying and maximum of 15 degrees down for soaring.

The motor can be activated with switch ELE and controlled with P3.

FP3 (Break):

Switch from ID1 to ID2

Rudder stick controls the rudder

Throttle stick is split into three parts; crow range, a dead band and the throttle range.

The dead band is about 15 % wide and allows you to easily have the throttle stick in the neutral area.

Crow works in the lower half, that is from neutral (no crow) to minimum stick position towards your body (maximum crow).

The high end of the throttle stick via curve C3 controls the full range of the throttle channel.

With maximum crow, ailerons go up to about 80% and the flaps go fully down.

Depending on the amount of crow, elevator low is added according to curve 1 to compensate for the increased lift due to the low flaps. Maximum low elevator is mixed in for intermediate crow.

To get an acceptable action of the ailerons with crow, Ch 16 adds in a multiply mix from throttle stick that allows to drive the curve outer aileron down to the normal position (as if no crow was active on that surface).

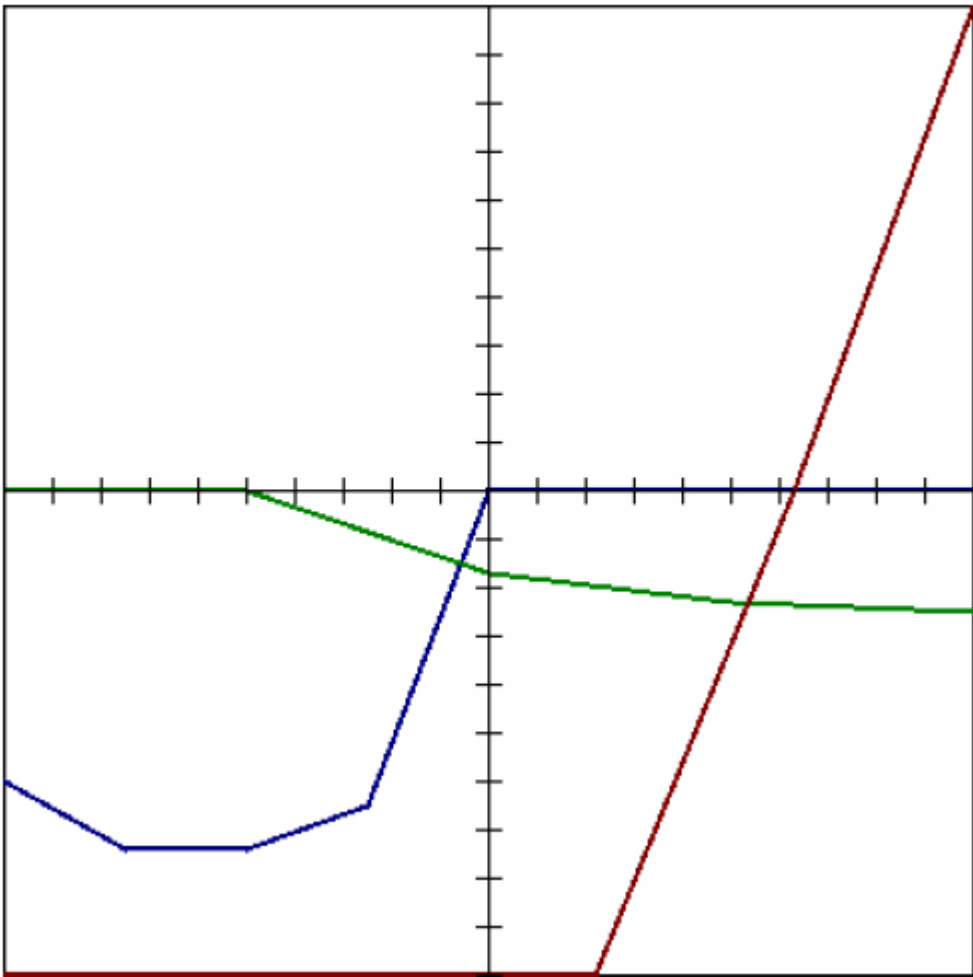
Mixes

CH01	basic aileron with differential (+80%)Ail Diff (30%)
	Camber: all wing surfaces plus minus 20% (+20%)Thr Phase(Glide)
	Crow: Aileron 80% up for break (-80%)Thr Curve(x<0) Phase(Break) but maximum aileron down (-100%)CH16 noTrim Phase(Break)
CH02	Flaps synchronized with aileron but only half throw (+50%)CH01 Phase(Start)
	Kick-Flaps,Camber and Crow are mixed in Ch15 (+100%)Ch15 Phases(Start, Glide, Break)
CH03	Flaps synchronized with aileron but only half throw (+50%)CH04 Phase(Start)
	Kick-Flaps,Camber and Crow are mixed in Ch15 (+100%)Ch15 Phases(Start, Glide, Break)
CH04	basic aileron with differential (-80%)Ail Diff (30%)
	Camber: all wing surfaces plus minus 20% (+20%)Thr Phase(Glide)
	Crow: Aileron 80% up for break (-80%)Thr Curve(x<0) Phase(Break) but maximum aileron down (+100%)CH16 Phase(Break)

CH05	basic elevator (-100%)Ele
	elevator down to compensate for motor throw (+100%)CH07 Switch(RUD) Curve(Curve 2) Phases(Start, Glide, Break)
	elevator down to compensate for increased lift, when using crow (+100%)Thr Curve(Curve 1) Phase(Break)
CH06	basic rudder (+100%)Rud
	some throw from aileron (Kombi switch) (+30%)Ail noTrim Phase(Glide)
CH07	basic throttle (+100%)Thr Phases(Simple, Start)
	motor control in glide phase via switch ELE and P3. Uses Ch14 so slow up is working (+100%) CH14 Phase (Glide)
	On Crow, motor is fully controlled with upper third of throttle stick. (+100%)Thr Curve(Curve 3) Phase(Break)

CH14	<p>throttle control with P3: is used on separate channel in glide mode so that slow up is working as expected. (-100%)Max Phase Glide</p> <p>R(+50%)P3 Switch(ELE) Phase(Glide)</p>
CH15	<p>Camber: for glide mode (+8%)Thr noTrim Phase(Glide)</p>
	<p>Kick-Flaps: for glide mode (+15%)Ele noTrim Curve (x<0) Phase(Glide)</p>
	<p>Crow: flaps fully down with lower half of throttle stick (+50%)Thr noTrim Curve (x<0) Phase(Break)</p>
CH16	<p>To get a normal amount of aileron down when using crow, an additional amount of throw is mixed in, depending on throttle stick and aileronstick position. Due to the multiply mix, the maximum aileron down is constant and independent of crow.</p> <p>(+80%)Thr noTrim Curve(Curve x<0) Phase(Break)</p> <p>this mixes AIL and THR and gives the additional throw for the aileron that goes down</p> <p>* (+100%)Ail noTrim Phase(Break)</p>

Curves



		pt 1	pt 2	pt 3	pt 4	pt 5
Curve 1 blue	Y	-60	-74	-74	-65	0
Curve 2 green	Y	0	0	-17	-23	-25
Curve 3 red	Y1-5	-100	-100	-100	-100	-100
	Y6-9	-100	-34	34	100	