JETI model®

electronics for models

Receivers JBC (Jeti Box Compatible)

REX 4

REX 6

REX 8

CE

Receivers REX JBC (JETI BOX COMPATIBLE)

Technical Datas	Outside dimensions	Weight	Sensitivity	Antenna length	Number of servo outputs	Supply voltage	Service ambient temperature
REX 4 JBC	**35 x 20 x 7** mm	**6 g**	**8 µV**	**800** mm	**4**	3,5 – 8,4V	**-10 to +40°C**
REX 6 JBC	**45 x 23 x 12** mm	**13 g**	**6 µV**	**1000** mm	**6**	3,5 – 8,4V	**-10 to +40°C**
REX 8 JBC	**50 x 30 x 12** mm	**17 g**	**5 µV**	**1000** mm	**8**	3,5 – 8,4V	**-10 to+40°C**

REX JBC receivers are designed to receive **FM** signals in the 27, 35, 35B, 36, 40, 41 and 72 MHz bands. **REX JBC** receivers have microprocessor decoding and are capable of communicating with the **JETIBOX** (universal terminal) - this significantly extends the capability of the receiver.

REX JBC receivers are compatible with Futaba, Graupner/JR and Hitec connectors (power supply and servos).

The new **„JBC“** receivers were developed as a result of our long-term experience and offer the maximum possible performance, which is outstanding in this category of receiver. Main features of REX JBC receivers:

- Digital signal processing,
- any control adjustments that were only possible with expensive transmitters can now be made using the JETIBOX,
- ven more mixes and model setups are possible when using programmable transmitters,
- ll model setups are stored in the receiver and cannot be affected by the transmitter (for example ATV is exactly set and the servos will not be moved against the endstops when transmission is weak).

This feature also means that different models can be use on the same transmitter without having to change model memories. The possibility of a crash caused by selecting the wrong model memory is avoided.

The choice of the HF channel is simply realized by exchange of a standard FM crystal (insert the crystal into relevant socket on the receiver). We strongly recommend the application of **JETI model crystals**. It is also feasible to use Futaba, Graupner and Hitec crystals.

Remark: *Due to the relatively wide deviation of crystal parameters it is very difficult to grant a proper receiver function with all types of crystals. If after insertion of a crystal the receiver is not working then it is inevitable to check another crystal type. In Transmitters it is essential to use original TX crystals only.*

The voltage supply of the receiver may consist either of four **NiCd/NiMH** cells (4,8 V) or of the stabilized voltage 5V (BEC) of the motor controller (electric flying models) or of **LiXX** cells in combination with linear voltage regulator (for example MAX BEC). If all receiver servo outputs are occupied by servos it is necessary to insert into one of the servo output a V-cable for the voltage supply. The voltage supply batteries or linear regulator output or the V-cable may be connected to any of the servo outputs.

Installation: Wrap the receiver into soft foam and place it as far away as possible of interference generating sources (servos, electric flight motors). We recommend not to tamper in any way with the antenna. The receiver reacts sensitive to antenna placement adjacent to metal conductors (for instance parallel to bowden cables or to servo cables of servos positioned in the tail of the model). It is most advantageous to leave the antenna flying free behind the model or to use whip antenna oriented upright to metal conductors in the model. When using whip antenna on carbon fuselage, the antenna must be galvanically separated from the fuselage.

Warranty provision: 2 years warranty is provided from the date of sale. Warranty is void if the receiver is not used in compliance with this manual and/or is mechanically damaged and/or water damaged (receivers are not waterproof).

With best wishes for many pleasant flights, yours truly manufacturer:
JETI model s.r.o., Pribor, Czech Republic, www.jetimodel.com

JBC receiver setting by JETIBOX:

Plug the connector of link cable (comes with **JETIBOX**) into the socket marked **Impuls + -** (on the right sight of JETIBOX) and to any free output channel of the receiver. Switch on the transmitter and connect power supply to the receiver (as described above). For safety, avoid the possibility of motor activation, or demount the prop from the model.

The type of the receiver will appear on JETIBOX's display. You can get more information about the receiver (including number of channels) by pressing **LEFT** and **RIGHT** buttons on **JETIBOX**.

By pressing **DOWN** button you will get into the basic menu, where you may choose either reading of measured values (Measure) or receiver setting (Main setting, Channel set, Out Pin Set, Auto Set).

Don otd isconnectJ ETIBOXf romt her eceiverb eforet hep owers upplyi s disconnected!

Measure: allows to read measured and logged data from the last operational time of the receiver (i.e. the time when both receiver and transmitter were switched on; measured data are stored until both receiver and transmitter are switched on again). If you want to read logged data, switch on the receiver and keep the transmitter switched off (observe the safety and avoid the possibility of motor activation). After the transmitter is switched on again, logged data are erased and logging starts again.

- No. Of Errors: shows number of incorrectly received signal frames from the transmitter during operational time of the receiver (for correct measure of this item it is necessary to switch the receiver off before the transmitter is switched off).

- Volt Min / Act / Max: the receiver checks its power supply voltage, stores minimal and maximal values during operational time and shows actual voltage. These values are only informative and are not used for other functions of the receiver.

- Y1 - Y8: shows actual output (in milliseconds) on individual output pins of the receiver. It allows to show several outputs simultaneously in real time.

Main setting: common parameters for all output channels.

- Filter: allows to set the level of digital filtration of received signal. Higher value means that the receiver checks the signal more. Depending on previous incoming signal, the receiver observes the changes of signal and evaluates their correct behaviour.

- Signal Fault: allows to set reaction of the receiver when the signal is lost; *repeat*- repeats last valid output values, *out off* – sets the outputs off, *fail save* – sets outputs to individual values

which are set in menu ***Out Pin Set – Fail Save***.

- Fail Save Delay: sets the time within the individual outputs change into preset values (or off, depending on ***Signal Fault setting***). If that time is set more than zero, last valid output values are repeated within set ***Fail Save Delay*** time.

- Output Period: sets the period of output signals (default is 20ms). With lower values, analog servos have quicker response and higher current consumption.

Channel set: parameters of individual input (received) signals *CH*

- Set Input Channel: selection of input channel, which is to be set; value A shows actual input value of selected input channel.

- Set Center: sets neutral value of the channel; this parameter is important for other processing when using mixes, reverses, gains etc.

- Mix CHa and CHb: allows to create mix of selected channel with another channel.

- Mix Relation: sets the proportion of mix; mixed channel is always 50% (Mix CHa and CHb, relation 100% = 50% CHa and 50% CHb / relation 50% = 50% CHa and 25% CHb / relation 200% = 50% CHa and 100% CHb).

- Mix Sign: sets the + or – sign of mixed channel (will be increased or decreased)

Out Pin Set: function allocation to individual receiver output channels (pins) Y.

Set Output Pin: selection of output channel, which is to be displayed or set.

Set Input Channel: function allocation to selected output, any input channel or its mix (defined in menu Channel Set) may be chosen.

- Reverse A: allows to reverse the sense of out put in half-plane A; (half-planes are splitted by neutral value as set in menu Channel set - Set Center).

- Reverse B: allows to reverse the sense of output in half-plane B.

- Gain A: sets gain coefficient for output in half-plane A (100% = no changes).

- Gain B: sets gain coefficient for output in half-plane B (100% = no changes).

- Fail Save: sets value for selected output channel for the case that signal is lost.

- Delay: slowdown of servo move (output) reaction on input change; given time is equal for output change in range from 1ms to 2ms. This function is useful for landing gear control etc.

- Curve: sets output curve of selected channel.

- ATV High Limit: adjusts (reduces) maximum deflection of selected output (half-plane B).

- ***ATV Low Limit:*** adjusts (reduces) maximum deflection of selected output (half-plane A).

Auto Set: global setup of the receiver into predefined function. After having selected desired option, hold RIGHT and LEFT buttons on JETIBOX simultaneously for 3 seconds.

- ***Normal:*** basic setup, mixes off, individual input channels are allocated to relevant outputs (i.e. input CH1 to output Y1 etc.)
- ***MixCH1&CH2 Elevon:*** output channels Y1 & Y2 allocated to mix of inputs CH1 & CH
- ***MixCH2&CH4 V-Tail:*** output channels Y2 a Y4 allocated to mix of inputs CH2 a Ch4

Channel Set

SetInput Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
CH1	1,5ms	CH1 and CH1	100%	+
CH2	1,5ms	CH2 and CH2	100%	+
CH3	1,5ms	CH3 and CH3	100%	+
CH4	1,5ms	CH4 and CH4	100%	+
CH5	1,5ms	CH5 and CH5	100%	+
CH6	1,5ms	CH6 and CH6	100%	+
CH7	1,5ms	CH7 and CH7	100%	+
CH8	1,5ms	CH8 and CH8	100%	+

Out Pin Set

Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Y1	Ch1	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Y2	Ch2	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Y3	Ch3	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Y4	Ch4	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Y5	Ch5	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Y6	Ch6	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Y7	Ch7	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Y8	Ch8	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

Samples of receiver setup:

(changes against default values are marked **bold** in the tables)

1. V-tail: models with combined tail planes, each plane is controlled by one servo on channels Y2 and Y4, mix combines moves of rudder CH4 and elevator CH2. Motor on CH3. In case of reverse sense of the mix change the sign in menu **Mix Sign.**

Transmitter channel	Channel Set				
	Set Input Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
Elevator	Ch2	1,5ms	**Ch2 and CH4**	100%	**-**
Motor	CH3	1,5ms	CH3 and CH3	100%	+
Rudder	CH4	1,5ms	**CH4 and CH2**	100%	**+**

Functi-on	Out Pin Set										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Servo 1	Y2	**Mix CH2**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
ESC	Y3	CH3	off	off	100%	100%	**1,2m**	0s	linear	2,0ms	1,0ms
Servo 2	Y4	**Mix CH4**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

2. Elevon: both ailerons are controlled by independent servos on channels Y1 and Y2, move like standard ailerons on input CH1 (one up, second down) and at the same time like elevators on input CH2 (up/down simultaneously). In case of reverse sense of the mix change the sign in menu **Mix Sign.**

Transmitter channel	Channel Set				
	Set Input Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
Elevator	CH2	1,5ms	**CH2 and CH1**	100%	**+**
Ailerons	CH1	1,5ms	**CH1 and CH2**	100%	**-**

Function	Out Pin Set										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Servo 1	Y2	**Mix CH2**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Servo 2	Y1	**Mix CH1**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

3. Combination of rudder CH4 and front gear direction control(withd eflection reduced on 60% of rudder deflection), rudder on output Y4 and front gear turn (direction) on output Y7. Gear retraction on output Y8 (realistic retraction with set **Delay**, exact servo endstops set - **ATV**).

Function	Out Pin Set										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Rudder	Y4	**CH4**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Gear direction	Y7	**CH4**	off	off	**60%**	**60%**	1,5ms	0s	linear	2,0ms	1,0ms
Gear retraction	Y8	Ch8	off	off	100%	100%	**1,82ms**	**5,0s**	linear	**1,82ms**	**1,26ms**

4. Mix of ailerons Y1 and rudder Y4 (Combi - mix): rudder CH4 moves together with ailerons CH1 (mix); rudder can be still controlled in full range. Useful for scale models.

Transmitter channel	Channel Set				
	Set Input Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
Rudder	Ch4	1,5ms	**Ch4 and CH1**	**25%**	**+**
Ailerons	CH1	1,5ms	CH1 and CH1	100%	+

Function	Out Pin										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Rudder	Y4	**Mix CH4**	off	off	**200%**	**200%**	1,5ms	0s	linear	2,0ms	1,0ms
Ailerons	Y1	CH1	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

5. Mix of elevator CH2 and flaps CH6: when flaps Y6 move, also elevator Y2 moves in opposite direction.

Transmitter channel	Channel Set				
	Set Input Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
Flaps	Ch6	1,5ms	Ch6 and CH6	100%	+
Elevator	CH2	1,5ms	**CH2 and CH6**	25%	**-**

Function	Out Pin										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Elevator	Y2	**Mix CH2**	off	off	200%	200%	1,5ms	0s	linear	2,0ms	1,0ms
Flaps	Y6	**CH6**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

6. Flaperon: mixes aileron CH1 and flaps (or airbrakes) CH6. Each aileron is controlled by independent servo Y1 and Y2, ailerons work normally depending on stick position. At the same time, ailerons may move up (airbrakes) or down (flaps) – depending on flap control.

Transmitter channel	Channel Set				
	Set Input Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
Flaps	CH6	1,5ms	**CH6 and CH1**	100%	**+**
Ailerons	CH1	1,5ms	**CH1 and CH6**	100%	**-**

Function	Out Pin										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Servo 1	Y2	**Mix CH6**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Servo 2	Y1	**Mix CH1**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

7. Mix flaps-elevator: elevator CH2 automatically balances diving moment caused by move of flaps CH6. At the same time, there is a mix flaps-ailerons (ailerons act as flaps).

Transmitter channel	Channel Set				
	Set Input Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
Ailerons	Ch1	1,5ms	**CH1 and CH6**	100%	**-**
Elevator	CH2	1,5ms	**CH2 and CH6**	**25%**	**+**
Flaps	CH6	1,5ms	**CH6 and CH1**	100%	**+**

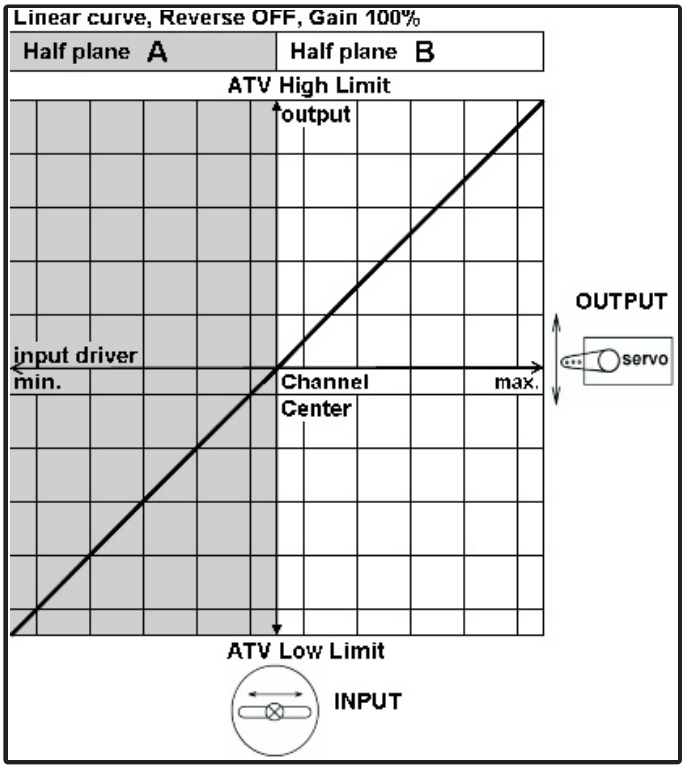
Function	Out Pin										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Aileron 1	Y1	**Mix CH1**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Elevator	Y2	**Mix CH2**	off	off	**200%**	**200%**	1,5ms	0s	linear	2,0ms	1,0ms
Aileron 2	Y6	**Mix CH6**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

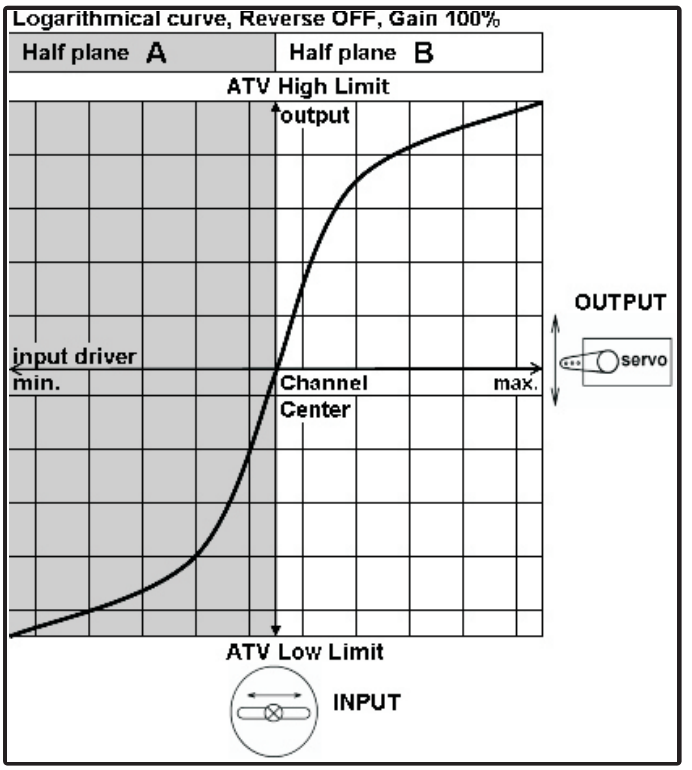
8. Mix ailerons-flaps: both flaps and ailerons are on the wings. CH1 controls ailerons (Y1 and Y5), CH6 controls flaps (Y6 and Y7). Mixes ailerons so that they work also like flaps.

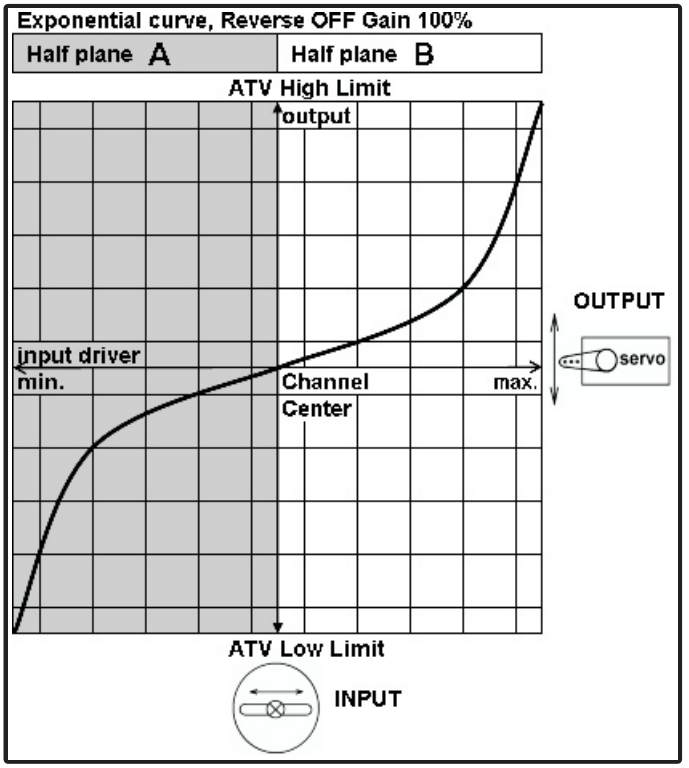
Transmitter channel	Channel Set				
	Set Input Channel CHx	Set Center	Mix CHx and CHy	Mix Relation	Mix Sign
Ailerons	Ch1	1,5ms	**CH1 and CH6**	100%	**+**
Flaps	CH6	1,5ms	**CH6 and CH1**	100%	**-**

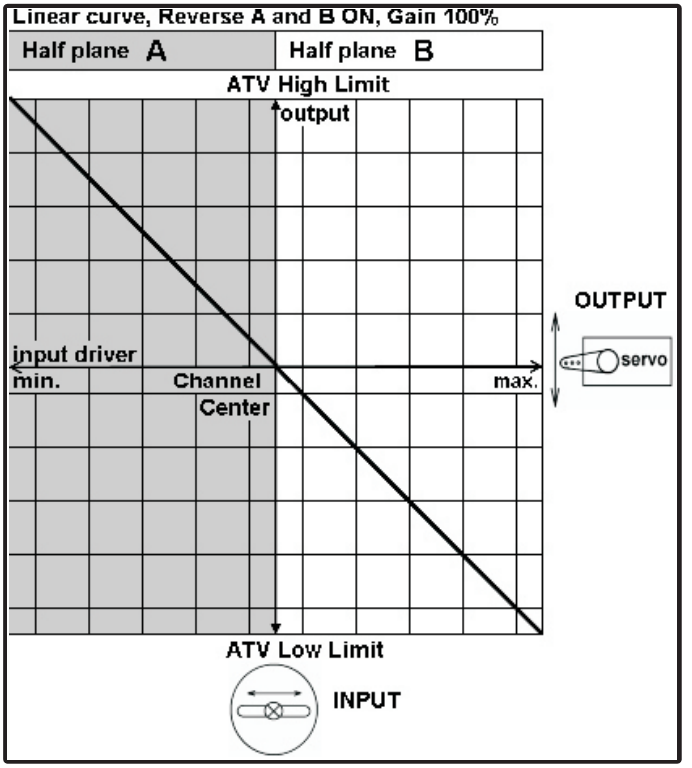
Function	Out Pin										
	Set Output Pin	Set In Channel	Reverse A	Reverse B	Gain A	Gain B	Fail Save	Delay	Curve	ATV High Limit	ATV Low Limit
Aileron 1	Y1	**Mix CH1**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Aileron 2	Y5	**Mix CH6**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Flap 1	Y6	**CH6**	off	off	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms
Flap 2	Y7	**CH6**	**on**	**on**	100%	100%	1,5ms	0s	linear	2,0ms	1,0ms

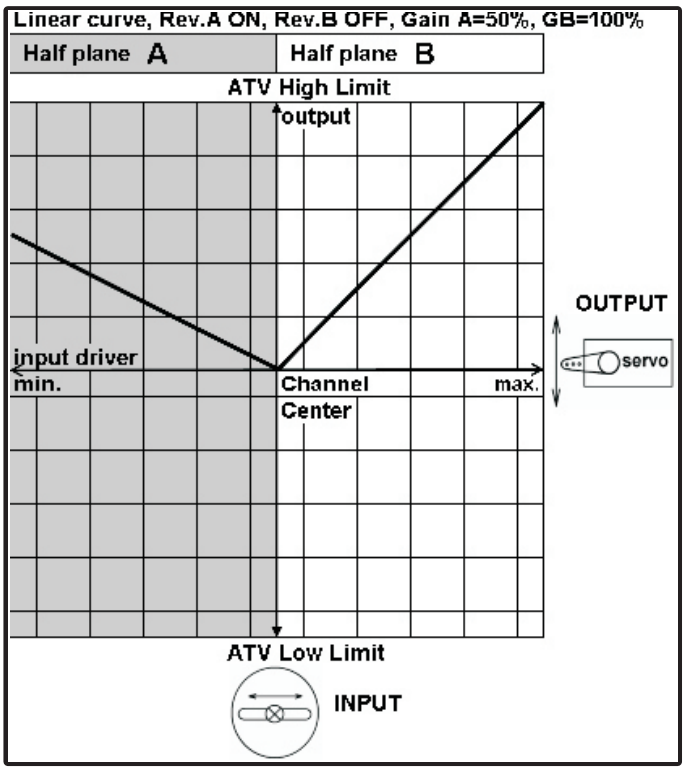
Samples of output channels depending on inputs and receiver setup:

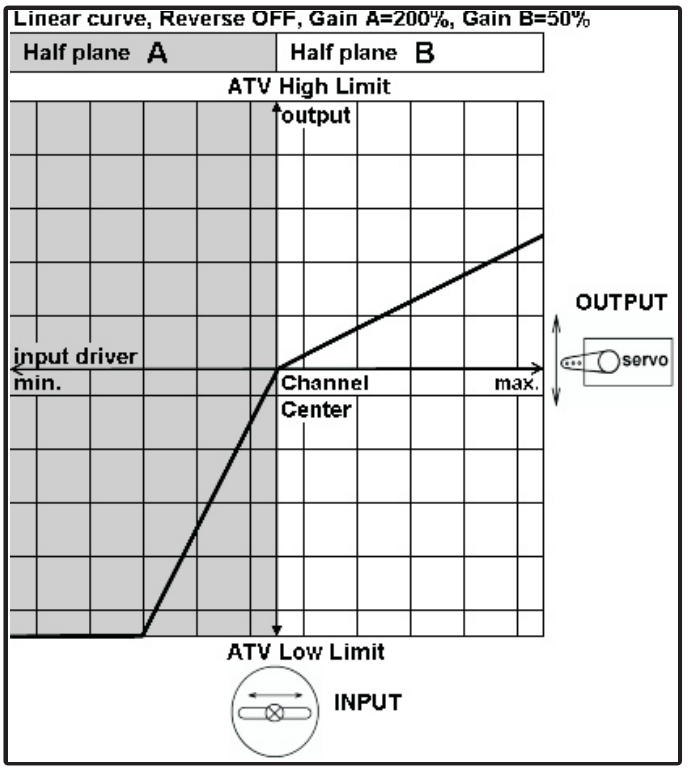


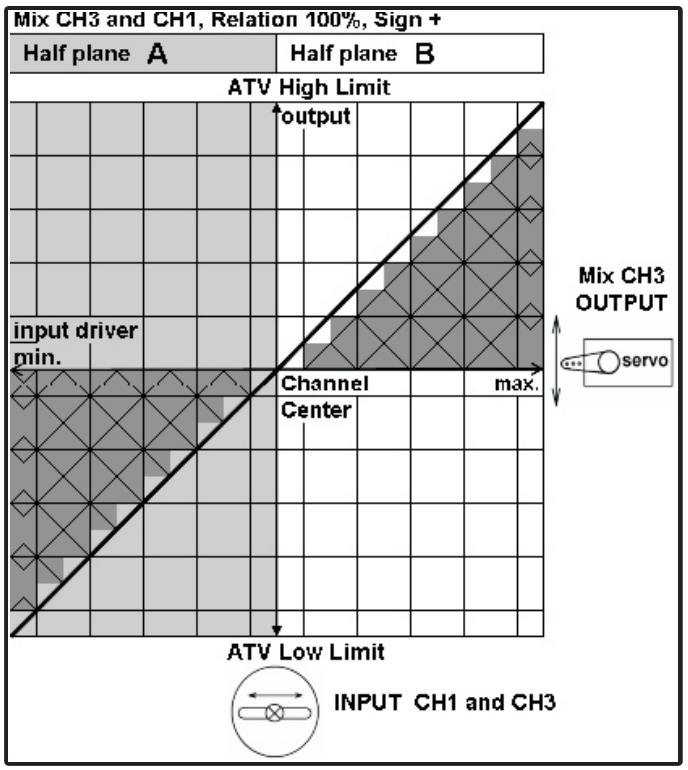


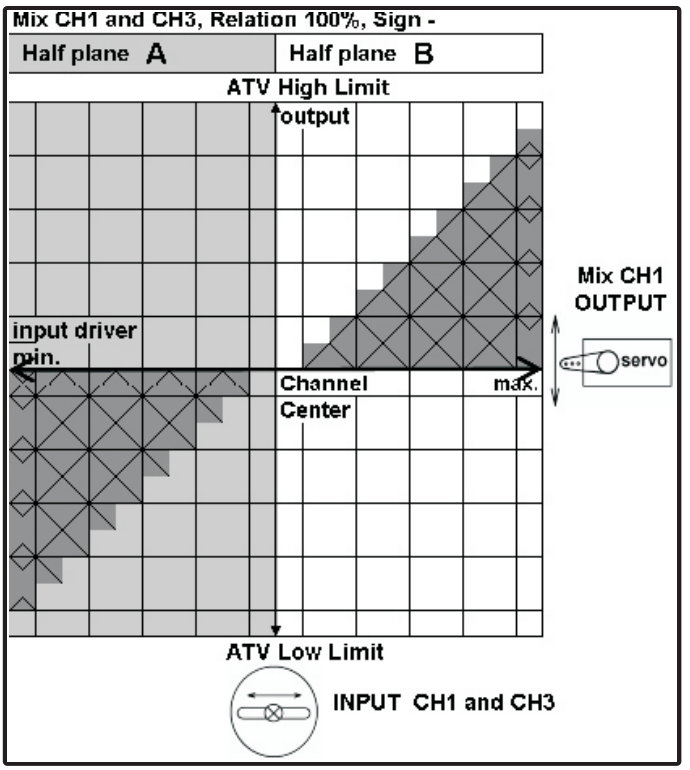





Linear curve, Rev.A ON, Rev.B OFF, Gain A=50%, GB=100%
Half plane A
Half plane B
ATV High Limit
output
OUTPUT
servo
input driver
min.
Channel
Center
max.
ATV Low Limit
INPUT


Linear curve, Reverse OFF, Gain A=200%, Gain B=50%
Half plane A
Half plane B
ATV High Limit
output
OUTPUT
servo
input driver
min.
Channel
Center
max.
ATV Low Limit
INPUT


Mix CH3 and CH1, Relation 100%, Sign +
Half plane A
Half plane B
ATV High Limit
output
Mix CH3
OUTPUT
servo
input driver
min.
Channel
Center
max.
ATV Low Limit
INPUT CH1 and CH3


Mix CH1 and CH3, Relation 100%, Sign -
Half plane A
Half plane B
ATV High Limit
output
Mix CH1
OUTPUT
servo
input driver
min.
Channel
Center
max.
ATV Low Limit
INPUT CH1 and CH3