Lateral cyc.source: AIL is usually selected from the Inputs.

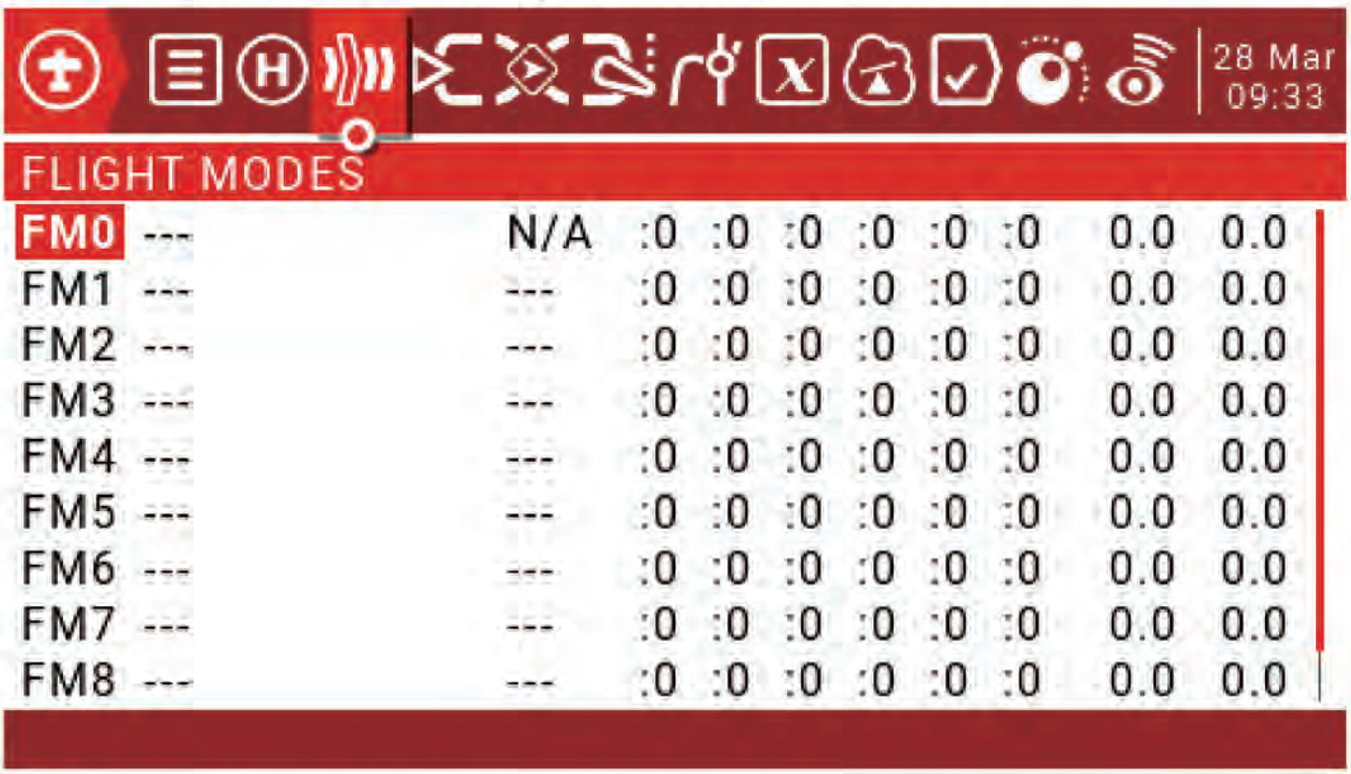
Weight: 0-100.

Collective pitch source: Usually an input defined with one or more pitch curves.

Weight: 0-100.

3.7. Flight Modes

Airplane mode allows you to set up a model for a specific mission or flight behavior. Fixed-wing aircraft may have flight modes that allow for normal, precise flight and slow roll and roll cycles. Helicopters have some modes, such as normal for ascent and descent/landing, such as 1 for aerobatics and 2 for 3D.



There are 8 flight modes plus the default FM0 available.

The first switch of FM1-8 is valid. When no switch is turned on, the default FM0 is valid. This explains why FM0 has no switches.

Name: Each flight mode can have a 10-character name.

Switch: Each flight mode has an optional activation switch (physical or logical)

Trim selection array: Fine-tuning arrays have the following features.

Fine-tuning off (--): Fine-tuning will not be activated in this FM. The spinner tab will not do anything

Use FMx(:x) for fine-tuning settings, for example, if we are on FM3, then selecting: 3 will cause the flight mode to use its own FM3 fine-tuning settings for that channel. However, selecting: 5 will cause the FM5's fine-tuning settings to be used for FM3.

Add your own fine-tuning to the fine-tuning of FMx (+x): The fine-tuning key only affects the current mode, but the current mode is also affected when you change the FMx fine-tuning.

Fade in, Fade Out: Specifies the time between smooth transitions between modes.

Check Flight Mode Trims: At the bottom of the screen (below FM8) reminds you to check the fine-tuning of each flight mode. Based on the activated FM number, the reminder will tell you to check the relevant fine-tuning. For example, if flight mode 2 is active, it will display "Check FM2 trims".

Inputs->Mixer->Outputs: This is the top 3 pages of the remote control.

Because JumperTX is very flexible and powerful, there is no standard mixing settings, and there are many ways to set the same effect. For this reason, the best practice is to describe the actual operation directly, so that you can develop a logic and a consistent way to write all the models. This will help ensure that you still understand how your model programming works when you return to it after a while.

This method goes from the physical model to the logical model and then back to the physical model again.

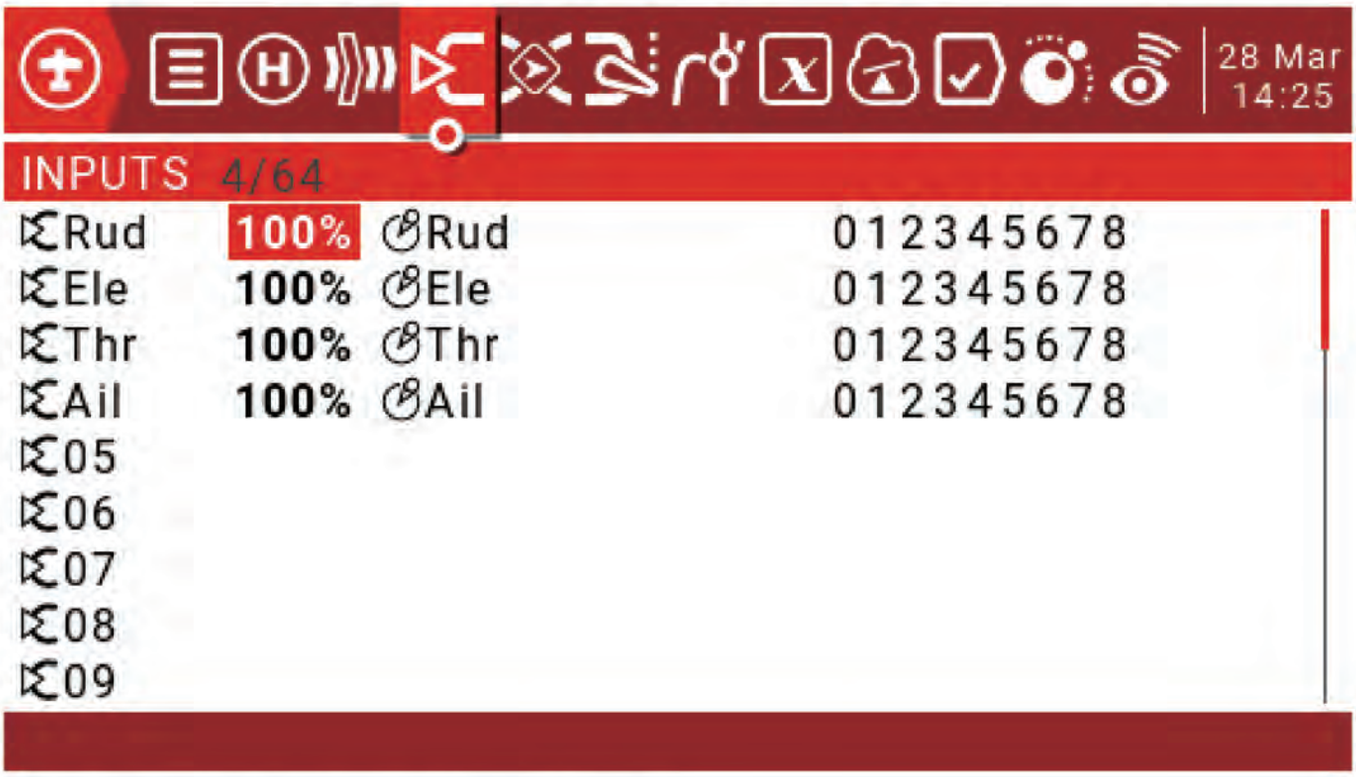
The Inputs section defines the conversion of logic inputs from physical inputs (rockers, switches, potentiometers, sliders, etc.) to models (ailerons, elevators, rudders, throttles, flaps, pitches, gyroscopes, etc.). Sources can also include basic mixing and more advanced features such as logic switches.

Physical inputs can be adjusted by defining weights/rates and adding curves (such asExpo).

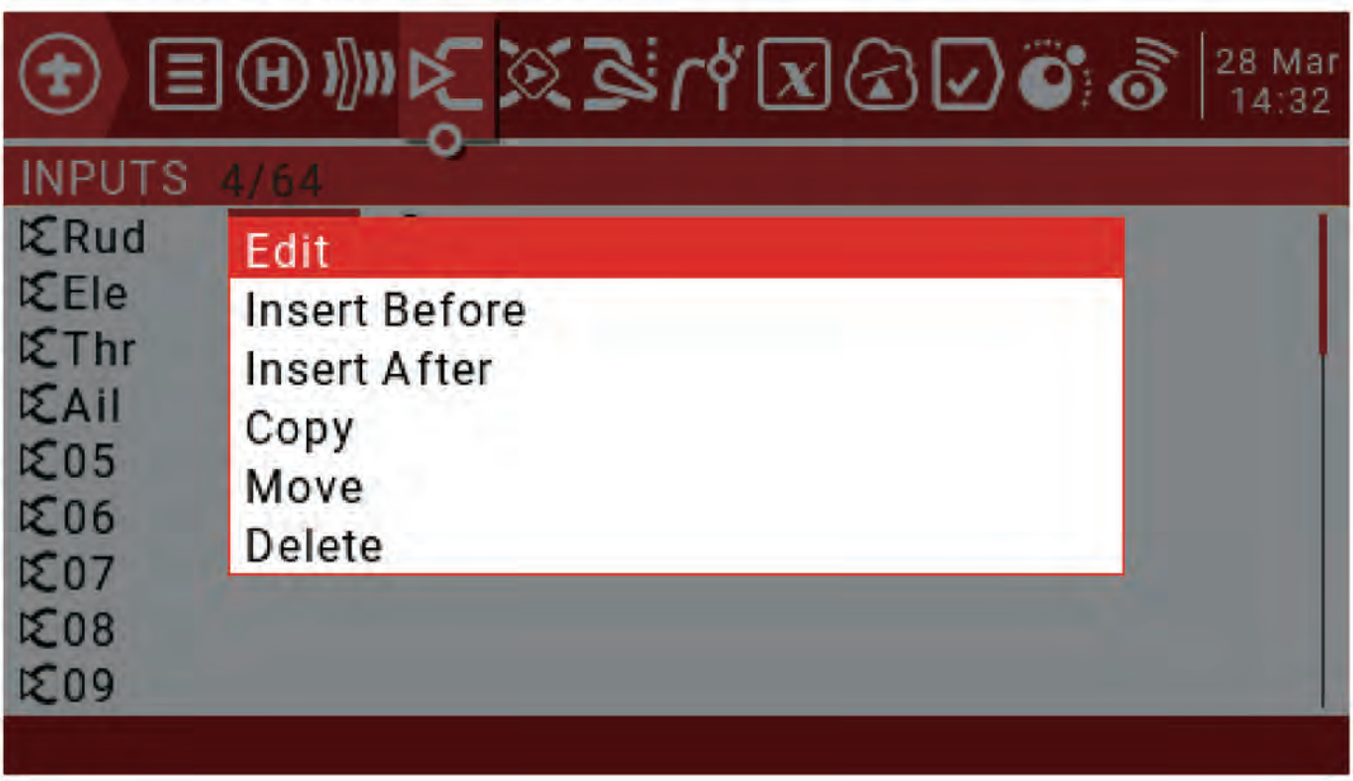
The Mixer section allows any of a number of input sources to be combined as needed and mapped to any of the 32 output channels. There is no standard mixing settings, which means you have complete flexibility to control mixing from any input to any output channel. You can design new blends to control unique model types.

The Outputs section allows pure logic output to accommodate the mechanical properties of the model. You can set the minimum and maximum outputs, reverse the channel, and use the PPM center adjustment to adjust the servo or channel center point, or use sub-trim to add the offset. You can also define curves to correct any actual response problems.

3.8 . Inputs



Press and hold the ENT key to enter the submenu.



It is highly recommended to always create a last line that is not restricted by the switch or flight mode. This is to ensure that even if an invalid logic or switch failure invalidates other lines, at least the line will still be active, thus avoiding this. One channel cannot be controlled.

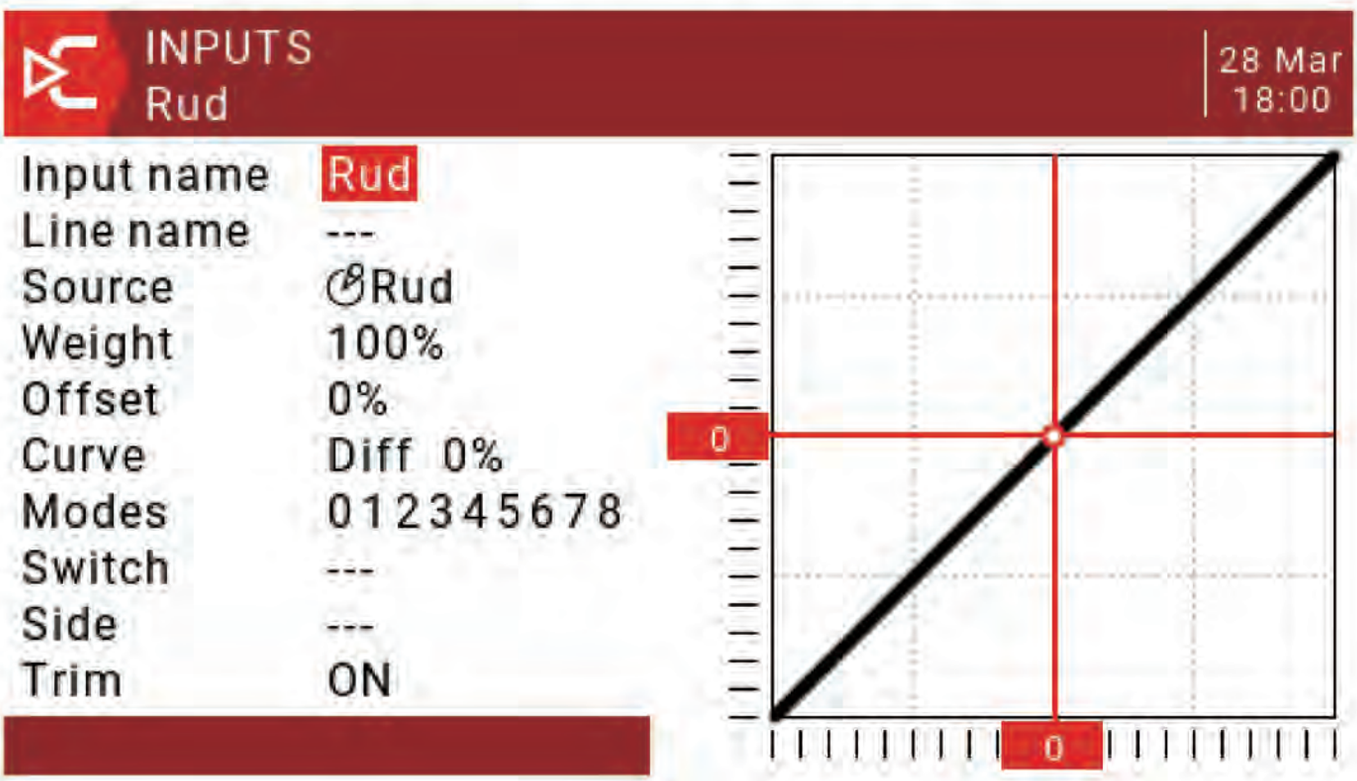
The rate sets the ratio of joystick movement to channel movement. In each of the three processing layers (Inputs, Mixer, and Outputs), each has a rate (=Weight) parameter. These rates are cumulatively applied, so the final servo command is the product of all rates:

OutputValue= SourceValue x InputWeight x MixerWeight x OutputRate (note that OutputRate is a function of Min/Max and curve settings).

Initially keep all input (Inputs), Mixer (Outputs) and Output (Outputs) rates as default(100%)

In the "Outputs" menu, adjust Min/Max to get the maximum stroke within the mechanical limit while ensuring that the paired control surfaces have the same stroke. Alternatively, you can use the Outputs curve to set these limits.

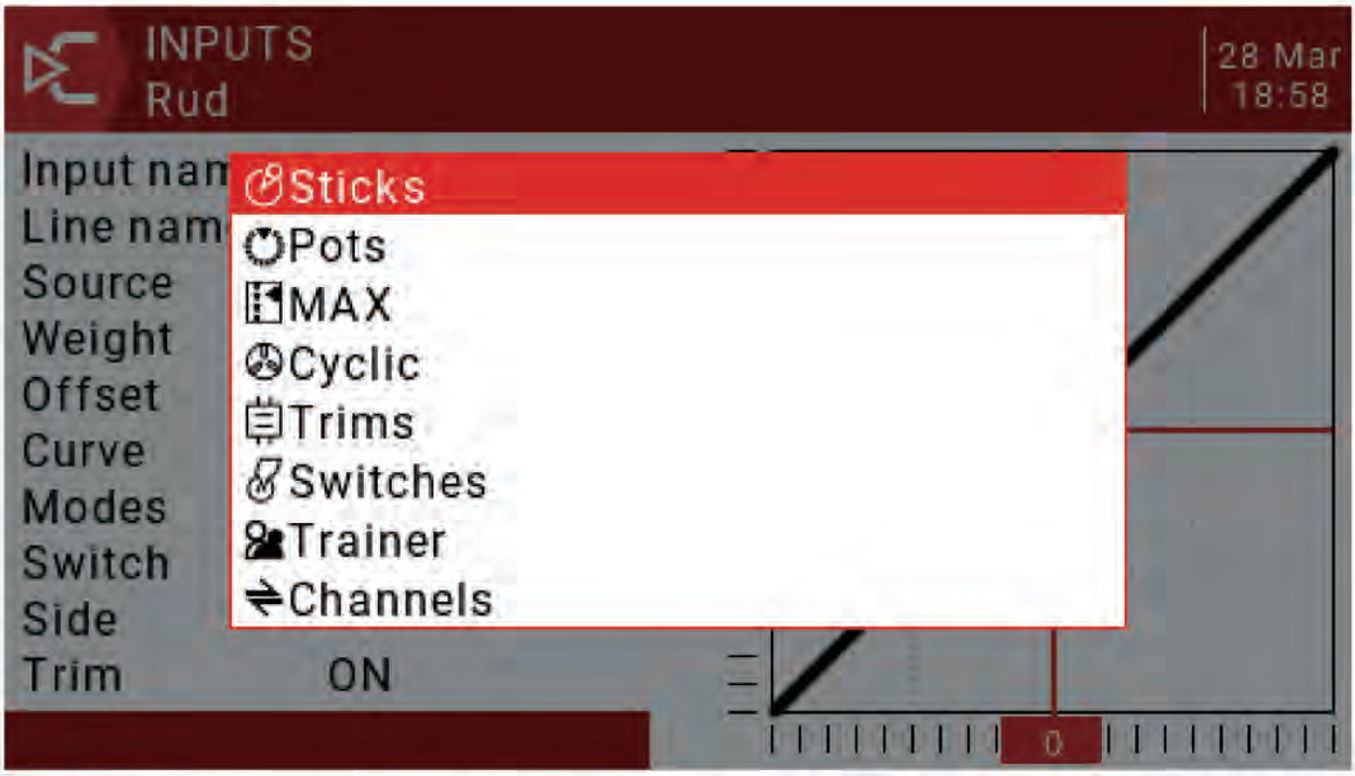
Press and hold the ENT key to select Edit and enter the input settings page.



Input name: Use the scroll wheel to select letters or numbers, long press the ENT key to switch between upper and lower case, short press the ENT key to switch to the next character.

Line name: Because there can be multiple lines of configuration input, naming each line provides a label indicating the purpose of the line to avoid confusion.

Source: Press and hold the ENT key to enter the input source selection menu. Scroll up and down to the desired category and press ENT, it will return to the input page with the cursor on the first item in the selected category. Then you can scroll up/down there and press ENT to select the source.



Weight: The normal range is -100 / + The value between 100.0 and 100 will scale the source signal by the source percentage. A negative value will reverse the response. Note that servo reversal should not be done with a negative value in the input, and the reverse channel should be reversed on the Outputs page.

Offset: You can add an offset to the input value, either positive or negative. In the input, a common use of offsets is to convert the range of -100 / + 100 to a range of 0-100.

(SrcValue x weight)+Offset =Result
(100 x -50/100)+50=0
(0 x -50/100)+50=50
(-100 x -50/100)+50=100

Curve:

Diff: The differential (usually down the aileron stroke) is used to reduce unfavorable yaw and improve cornering/maneuvering characteristics. (Default = 0, range -100 to +100). Although available here, it is best to set it on the mixing page.

Expo: The default curve is Expo, the default value is 0. This means that the response is linear (ie no curve). A positive value will make the response weaker around 0, while a negative value will make the response sharper around 0.

Func: If the setting is changed to Func. (predefined function curve type):

--- (output is always equal to source)

X>0 If the source is >0, then enter the follower source.

If source <0, then enter=0.

X<0 If source <0, then enter the follower source.

If the source > 0, then enter = 0.

|X| Input follows the source, but is always positive (also known as "absolute value")

f>0 if source >0, then enter = 100%

If source <0, then enter = 0

f<0 if source <0, then input = -100%

If source >0, then enter = 0

|f| If source >0. Then enter = 100%

If source <0, then enter = -100%

Cstm: Select the predefined custom curves numbered CV1 to CV32 (or their reverse, ie !CV1 to !CV32). After selecting the curve number, press and hold the ENT key to open the curve page. After configuring the curve, press the RTN button to return.

Modes: Allows you to select the flight mode that this line can activate. By default, all flight modes are active, but if the flight mode number has been blanked, the flight mode will not be activated.

Switch: The switch position (physical or logical) can enable/disable this input line.

The Side: Side parameter limits the effect of the line to only one side of the source:

--- (enabled within the full source range)

x>0 (enabled only when source > 0)

x<0 (enabled only when source > 0)

Trim: Here you select the spinner source to add to the input source:

Off (no fine-tuning source enabled)

On (Enable the fine tuning source of this joystick)

Add rudder trimming to Rud input

Add elevator trimming in Ele input

Add throttle trimming in the Thr input

Func: If the setting is changed to Func. (predefined function curve type):

--- (output is always equal to source)

X>0 If the source is >0, then enter the follower source.

If source <0, then enter=0.

X<0 If source <0, then enter the follower source.

If the source > 0, then enter = 0.

|X| Input follows the source, but is always positive (also known as "absolute value")

f>0 if source >0, then enter = 100%

If source <0, then enter = 0

f<0 if source <0, then input = -100%

If source >0, then enter = 0

|f| If source >0, Then enter = 100%

If source <0, then enter = -100%

Cstm: Select the predefined custom curves numbered CV1 to CV32 (or their reverse, ie !CV1 to !CV32). After selecting the curve number, press and hold the ENT key to open the curve page. After configuring the curve, press the RTN button to return.

Modes: Allows you to select the flight mode that this line can activate. By default, all flight modes are active, but if the flight mode number has been blanked, the flight mode will not be activated.

Switch: The switch position (physical or logical) can enable/disable this input line.

The Side: Side parameter limits the effect of the line to only one side of the source:

--- (enabled within the full source range)

x>0 (enabled only when source > 0)

x<0 (enabled only when source > 0)

Trim: Here you select the spinner source to add to the input source:

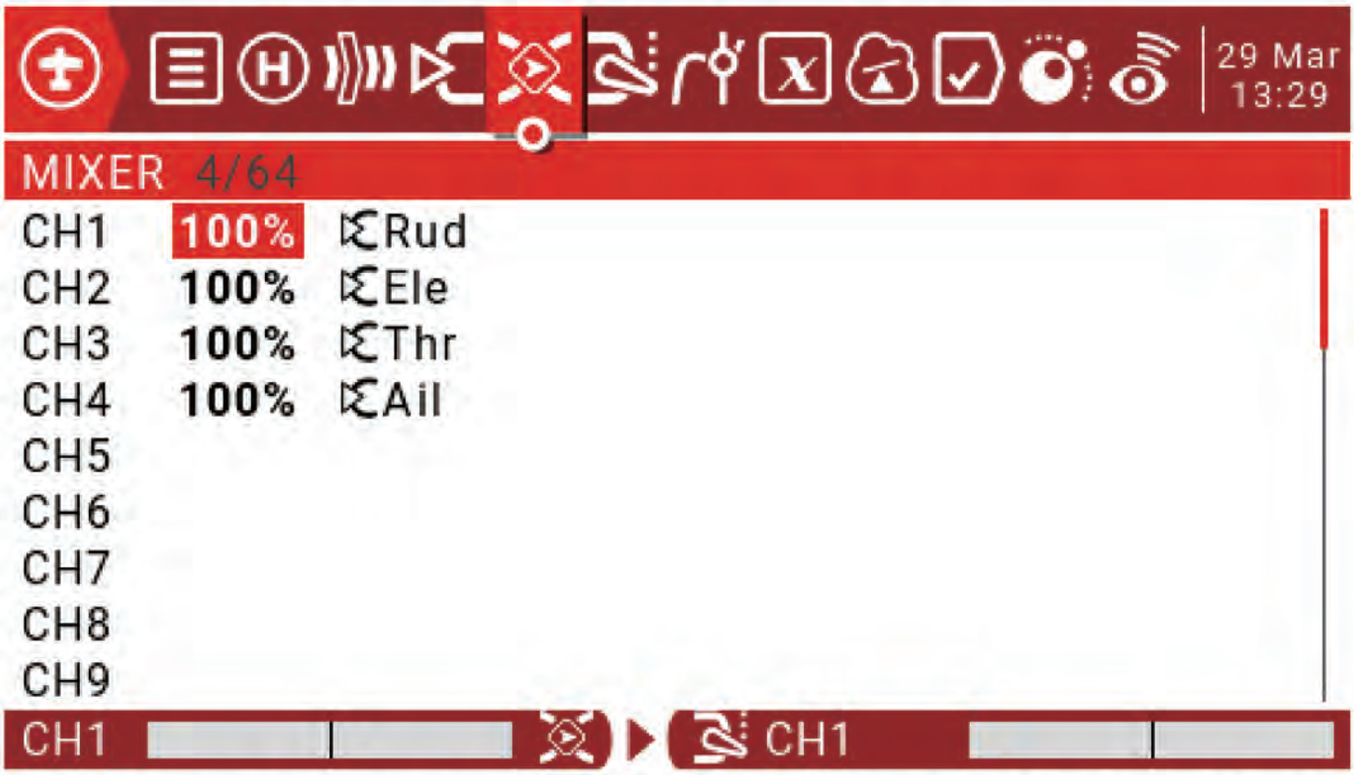
Off (no fine-tuning source enabled)

On (Enable the fine tuning source of this joystick)

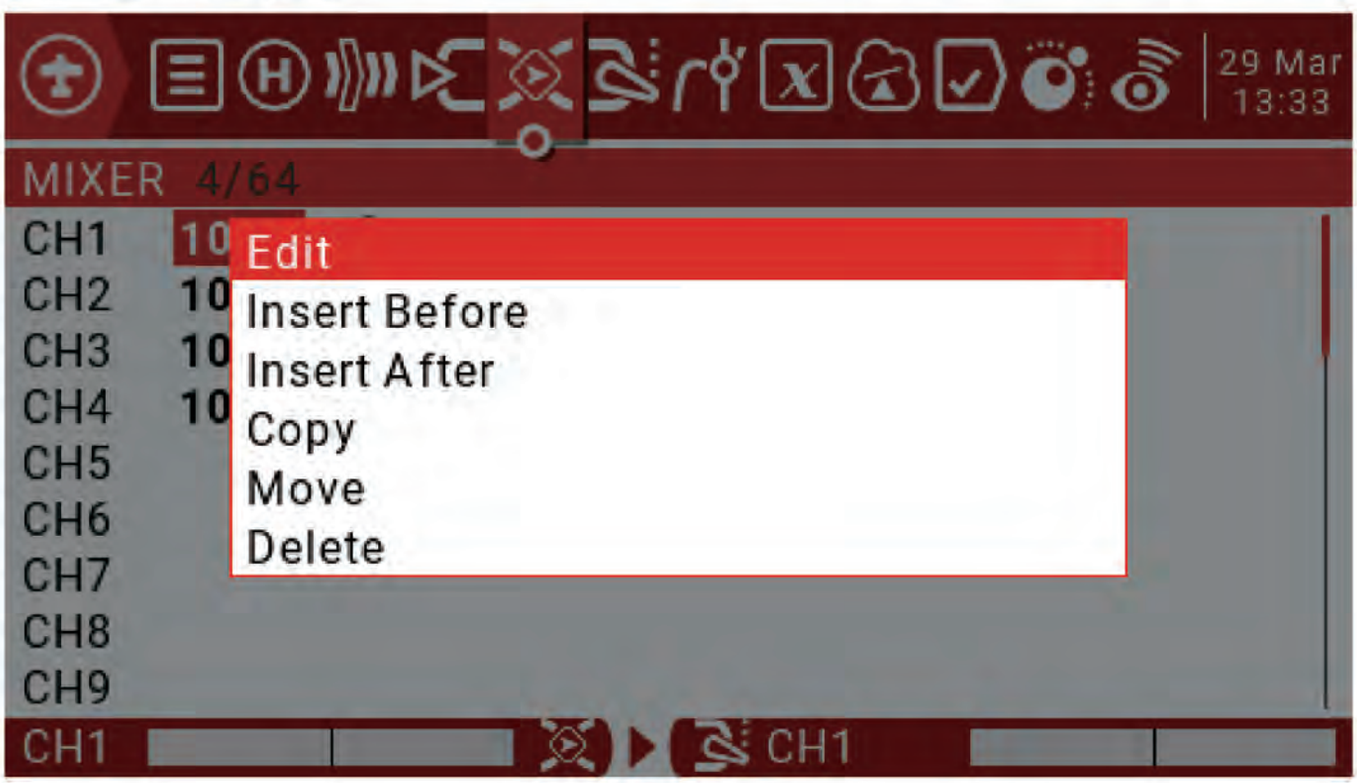
Add rudder trimming to Rud input

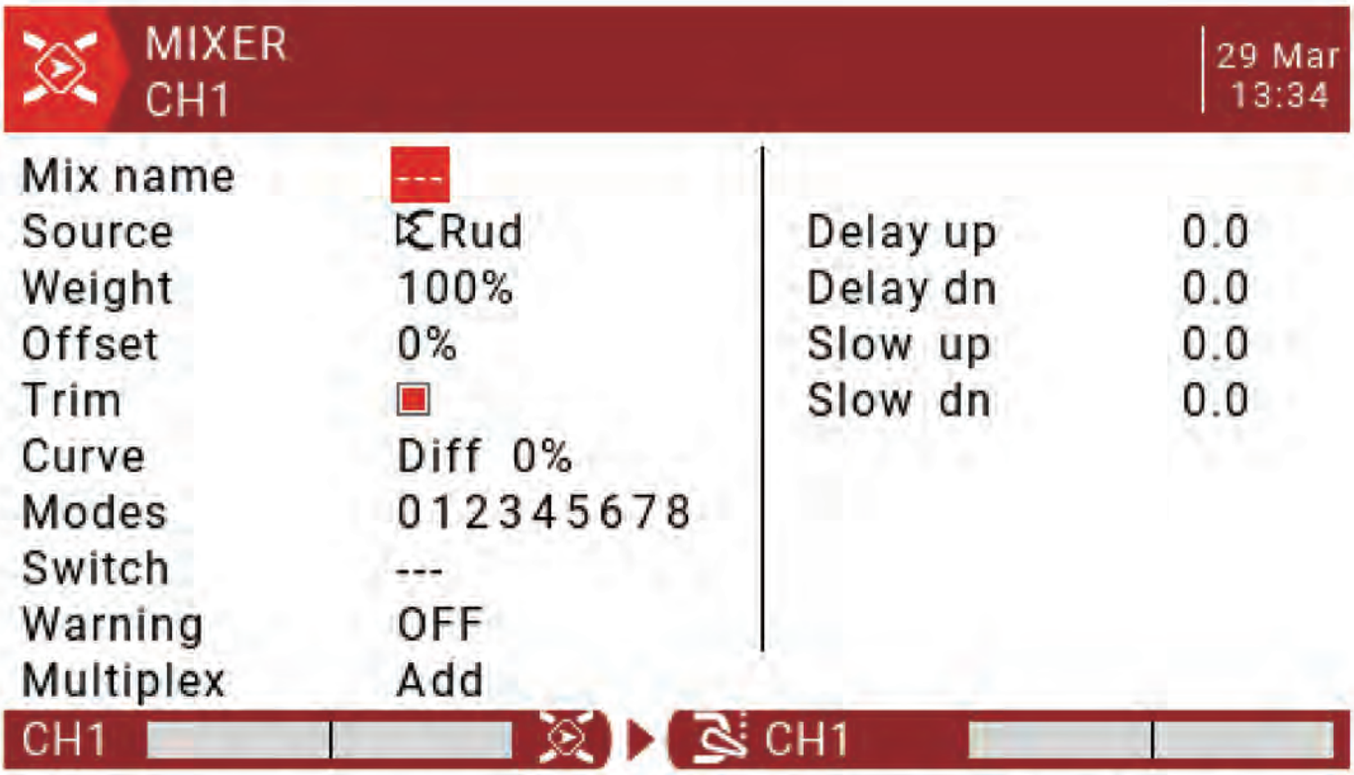
Add elevator trimming in Ele input

Add throttle trimming in the Thr input



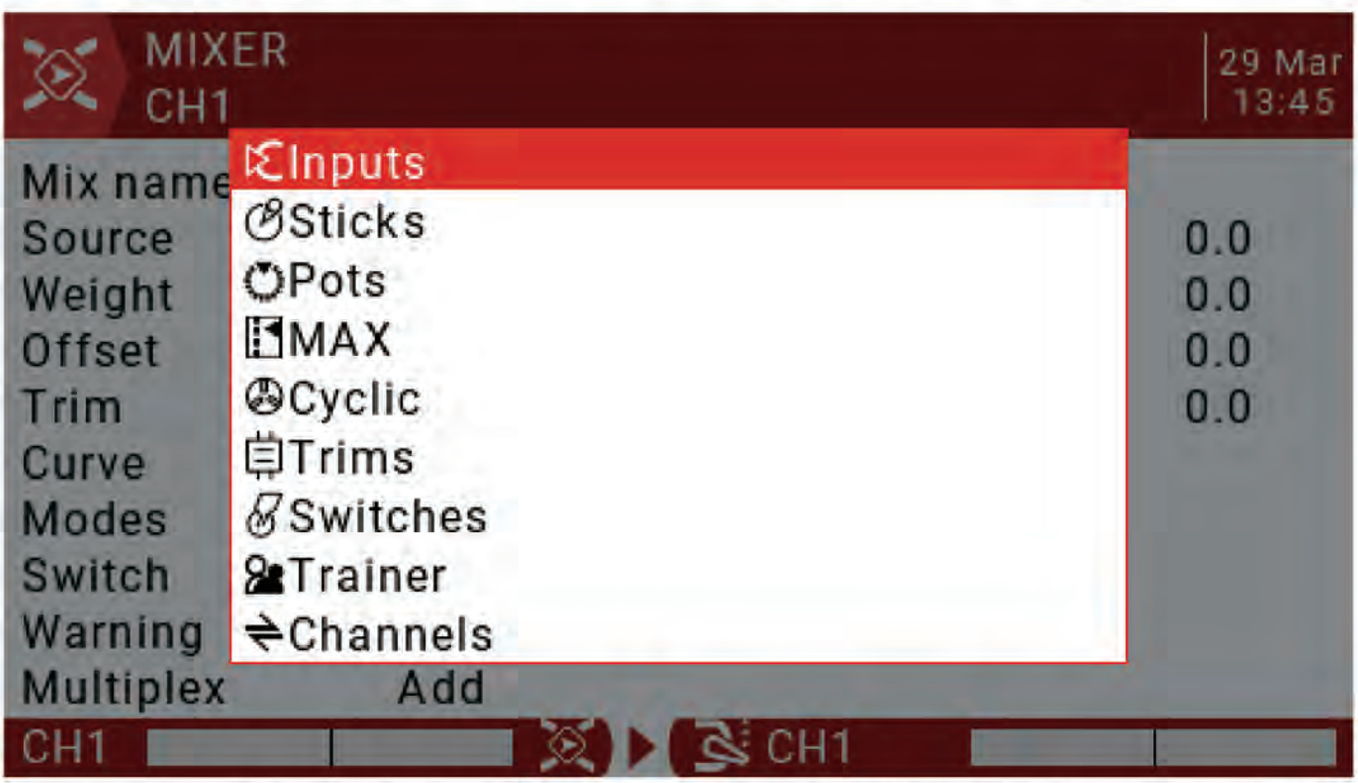
Use the scroll wheel to select the mix list, press and hold the ENT key to enter the edit submenu. Select Edit and short press the ENT key.





Mix name: Use the scroll wheel to select letters and numbers, long press the ENT key to switch between upper and lower case. Short press the ENT key to set the next character.

Source: Long press the ENT key to open the submenu for selecting the input source by category.



Use the scroll wheel to select the desired category, then press the ENT key briefly, then use the scroll wheel to press the ENT key to select the sub-item.

Weight: The range is -500 / + 500. The default value is 100. A negative value will reverse the response.

Offset: You can add an offset to the input value, positive or negative. The range is -500 / + 500.

Trim: The Trim parameter "ON" works like a mix and allows the application to fine-tune the current flight mode specific to the specified input channel. However, if the user disables fine-tuning in the INPUTS page, the specific channel will not be fine-tuned.

Curve:

Diff: The differential (usually lower than the aileron stroke) is used to reduce unfavorable yaw and improve steering/maneuvering characteristics. (Default = 0, range -100 to +100) Although Diff can also be used in input, it is usually used in mixing.

Expo: The default curve is Expo, which by default is 0, which means that the response is linear (ie no curve) positive values make the response weaker around 0, while negative values make the response sharper. Although available here, Expo is usually applied to the input to conform to the idea of converting in the input and to use the mixing phase to combine the signals.

Func: If the setting is changed to Func.

(Predefined function curve type:)

--- (mixed line always = source)

X>0 If the source > 0, the mix line follows the source.

If source <0, mix control line = 0

X<0 If source <0, the mix line follows the source.

If source >0, mix control line = 0

|X| The mix line follows the source, but is always positive (also known as "absolutevalue")

f>0 If source >0, mix control line = 100%

If source >0, mix control line = 0

f<0 if source <0, mix control line = -100%

If source >0, mix control line = 0

|f| If source >0, mix control line = 100%

If source <0, mix control line = -100%

Cstm: Select the predefined custom curves numbered CV1 to CV32 (or their reverse, ie !CV1 to !CV32). After selecting the curve number, long press ENT to open the curve page. After configuring the curve, press RTN to return.

Modes: Allows you to select the flight mode that this line can activate. By default, all flight modes are active, but if the flight mode number has been blanked, the flight mode will not be activated.

Switch: The switch position (physical or logical) can be configured to enable or disable this mix line.

Warning: As long as the line is active, you can set an audible warning (1, 2 or 3 beeps).

Multpx: The Multpx setting defines how the current mix-line interacts with other mix-lines on the same channel.

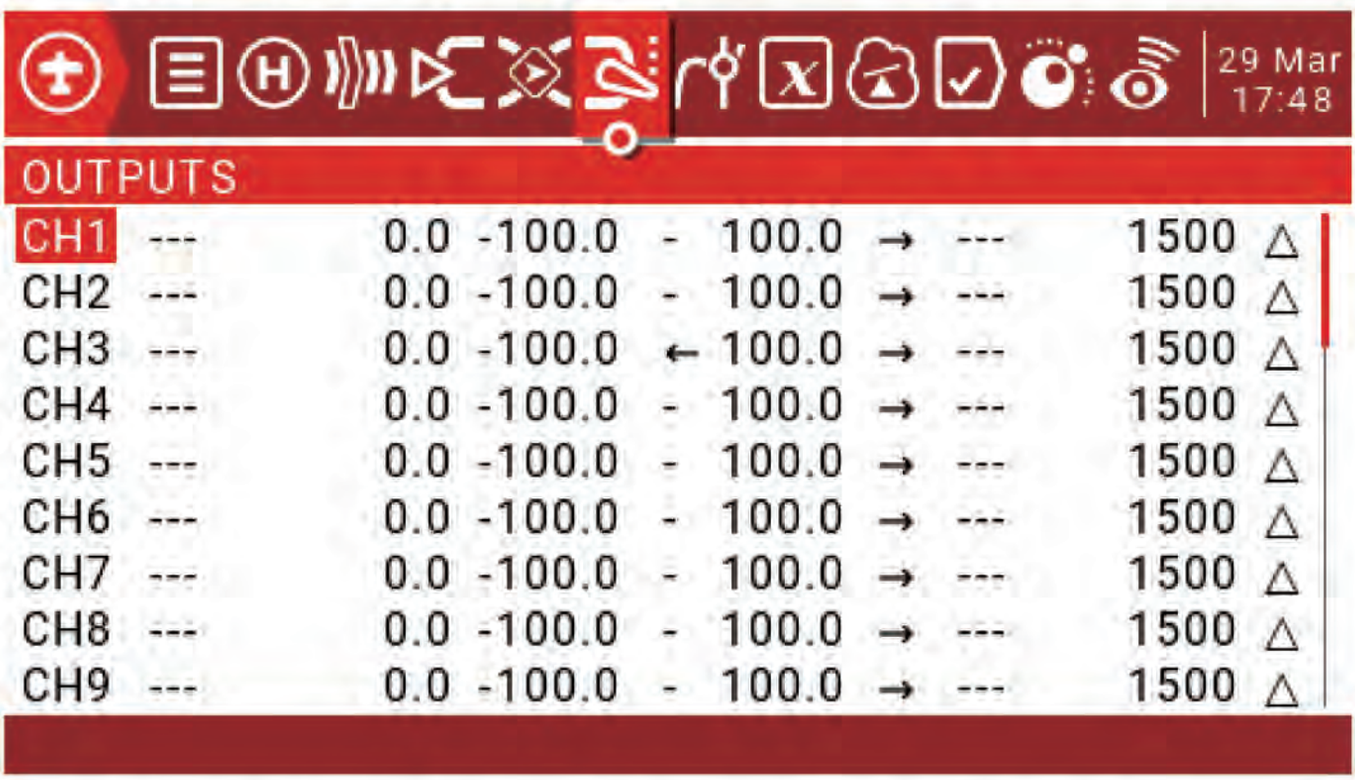
Add: Add to output.

Multiply: Multiplies the results.

Replace: Replace.

The combination of these operations allows for the creation of complex mathematical operations and is often considered one of the biggest benefits of using JumperTX. Delay Up/Dn: The output response can be delayed depending on the input change. (in seconds).

Slow Up/Dn: Regarding the input change, the response of the output can be slowed down. For example, slow speed can be used to slow down the retraction driven by a normal proportional servo. The output will cover the time in seconds (in seconds) from 100 to +100%. 4.0. Outputs



Name: This name will be displayed on the Channel Monitoring and Runaway Protection Settings page.

Sub-trim: Used to introduce an offset on the output. A common use is to transfer the fine- tuning to Sub-trims using the "Trims =>Sub-trims" feature at the bottom of this page. By shifting the offset to Sub-trim, you can fine tune the button again after fine-tuning the model.

Multpx: The Multpx setting defines how the current mix-line interacts with other mix-lines on the same channel.

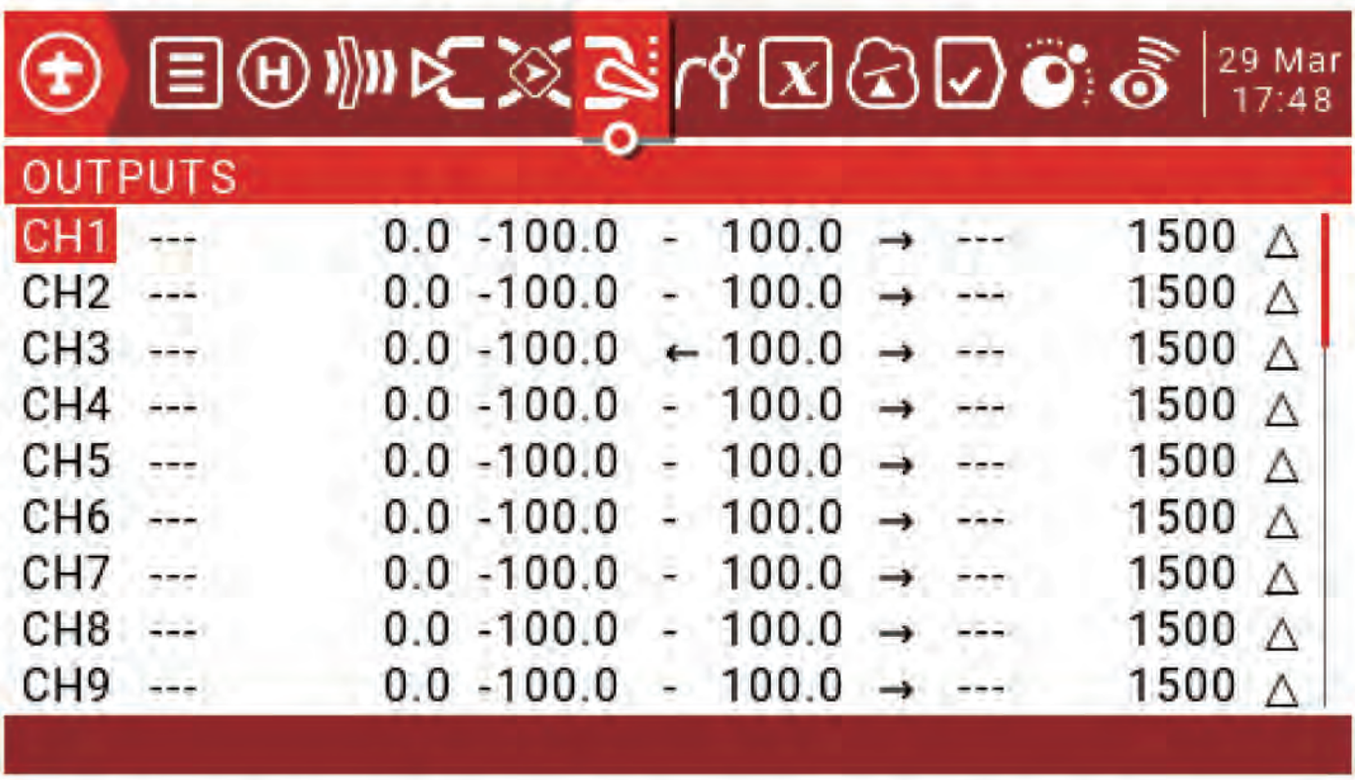
Add: Add to output.

Multiply: Multiplies the results.

Replace: Replace.

The combination of these operations allows for the creation of complex mathematical operations and is often considered one of the biggest benefits of using JumperTX. Delay Up/Dn: The output response can be delayed depending on the input change. (in seconds).

Slow Up/Dn: Regarding the input change, the response of the output can be slowed down. For example, slow speed can be used to slow down the retraction driven by a normal proportional servo. The output will cover the time in seconds (in seconds) from 100 to +100%. 4.0. Outputs



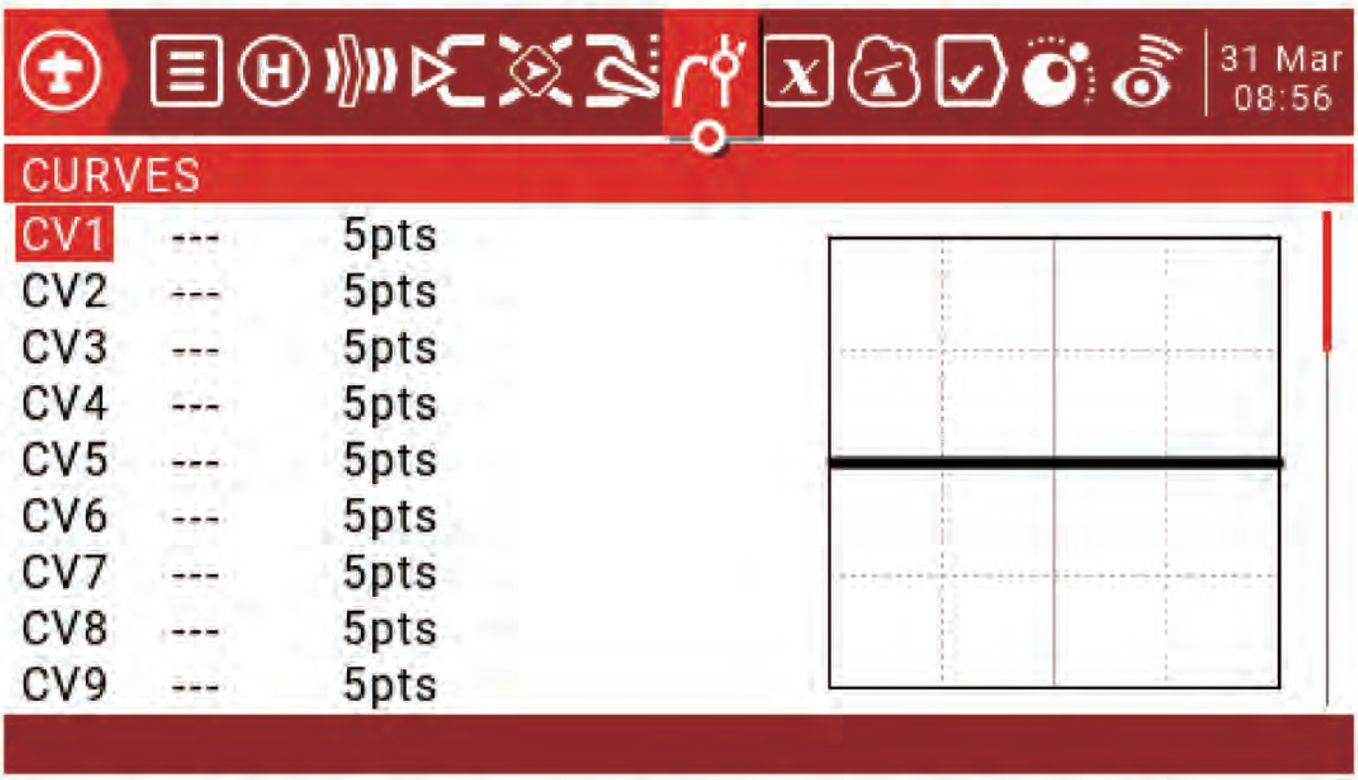
Name: This name will be displayed on the Channel Monitoring and Runaway Protection Settings page.

Sub-trim: Used to introduce an offset on the output. A common use is to transfer the fine- tuning to Sub-trims using the "Trims =>Sub-trims" feature at the bottom of this page. By shifting the offset to Sub-trim, you can fine tune the button again after fine-tuning the model.

4.1. Curves

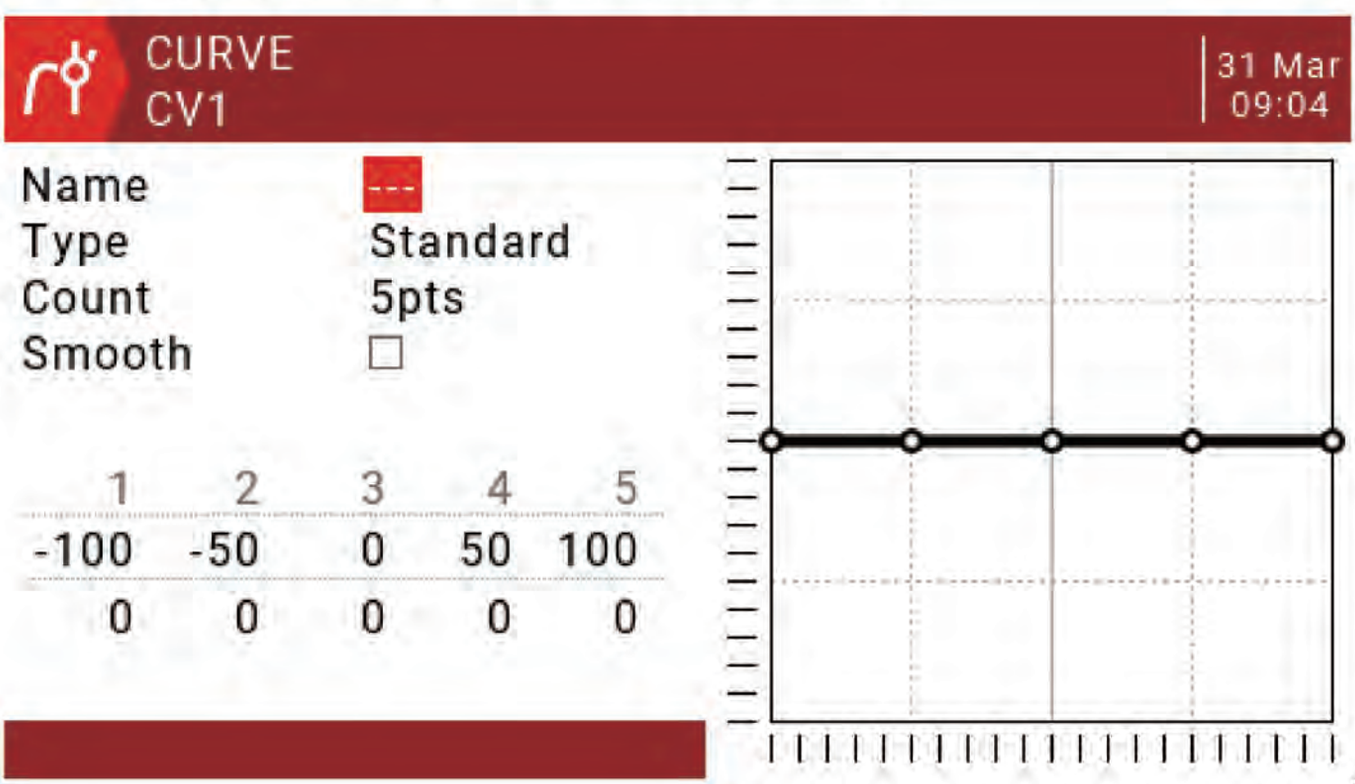
The curve can be used to modify the control response in the input, mix or output page. Standard curves containing Expo and Differential can be used directly in these sections, and this page is used to define any custom curves that may be needed.

There are 32 curves to choose from.



The curve can be between 2 and 17 points and can have a fixed or user definable x coordinate.

The X value represents the input and the Y value represents the output.



Name: For convenience, you can name the curve.

Standard: Only Y points can be edited, ranging from -100 to 100.

Custom: Both X and Y points are editable, ranging from -100 to 100.

Count: The number of points on the curve, between 2 and 17.

Smooth: If checked, creates a smooth curve from all points.

Edit Coordinates: Moves the cursor to the X and Y coordinates.

Depending on the type selected above, this allows writing the X coordinate of the standard curve, or the X and Y coordinates of the custom curve.

Press and hold the ENT key on the coordinate point to enter the submenu:

Preset: Allows selection of standard preset linear curves with slopes of -45, -33, -22, -11, 0, 11, 22, 33, 45. These can also be used as a starting point for more complex curves.

Mirror: The curve will be mirrored vertically.

Clear: All points will be reset.

4.2. Global Variables

Ideally there is an adjustment value that is used in multiple places.

For example, a glider uses ailerons as flaps when landing.

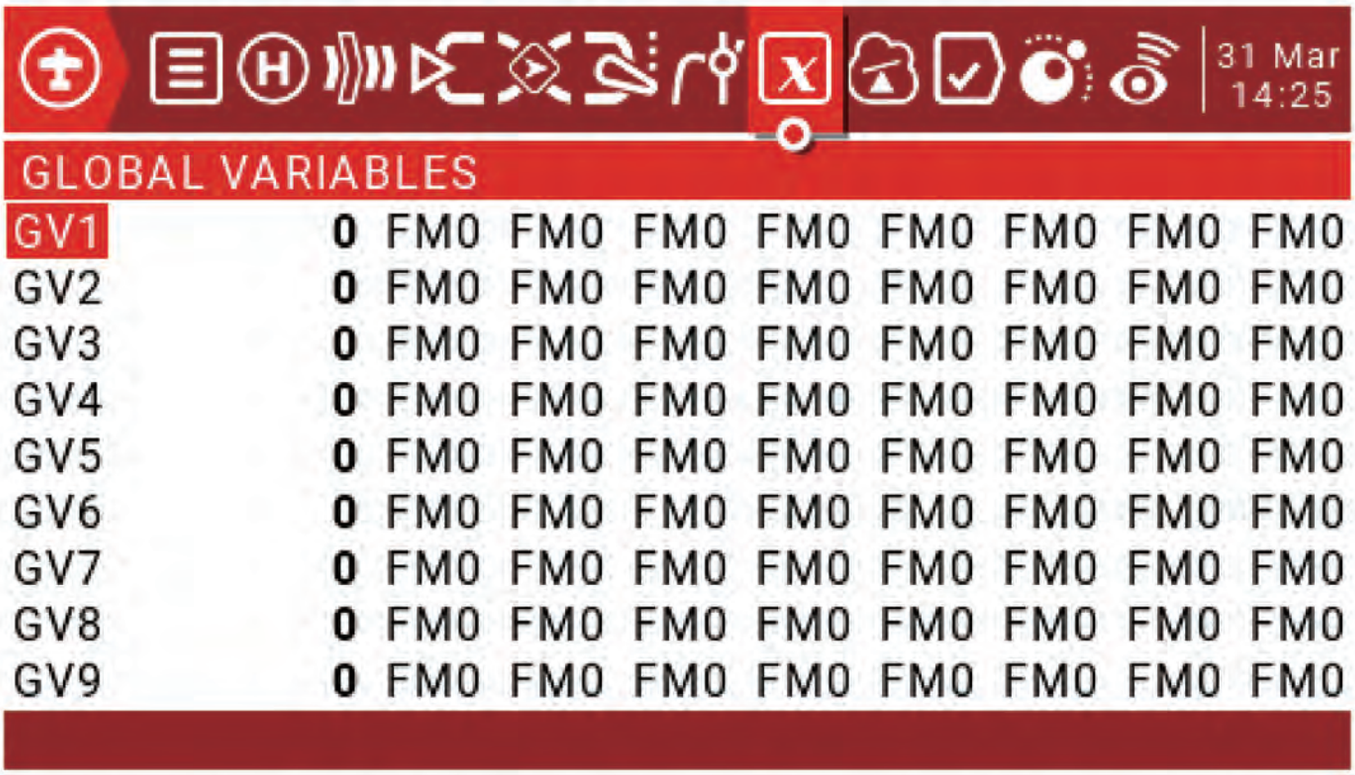
Global variables can replace normal values in each Weight, Offset, Differential, or Expo setting.

They are also specific flight modes, which avoids having to use separate mixing lines with different values for each flight mode. This greatly simplifies the mixing of the pages and makes them easier to understand.

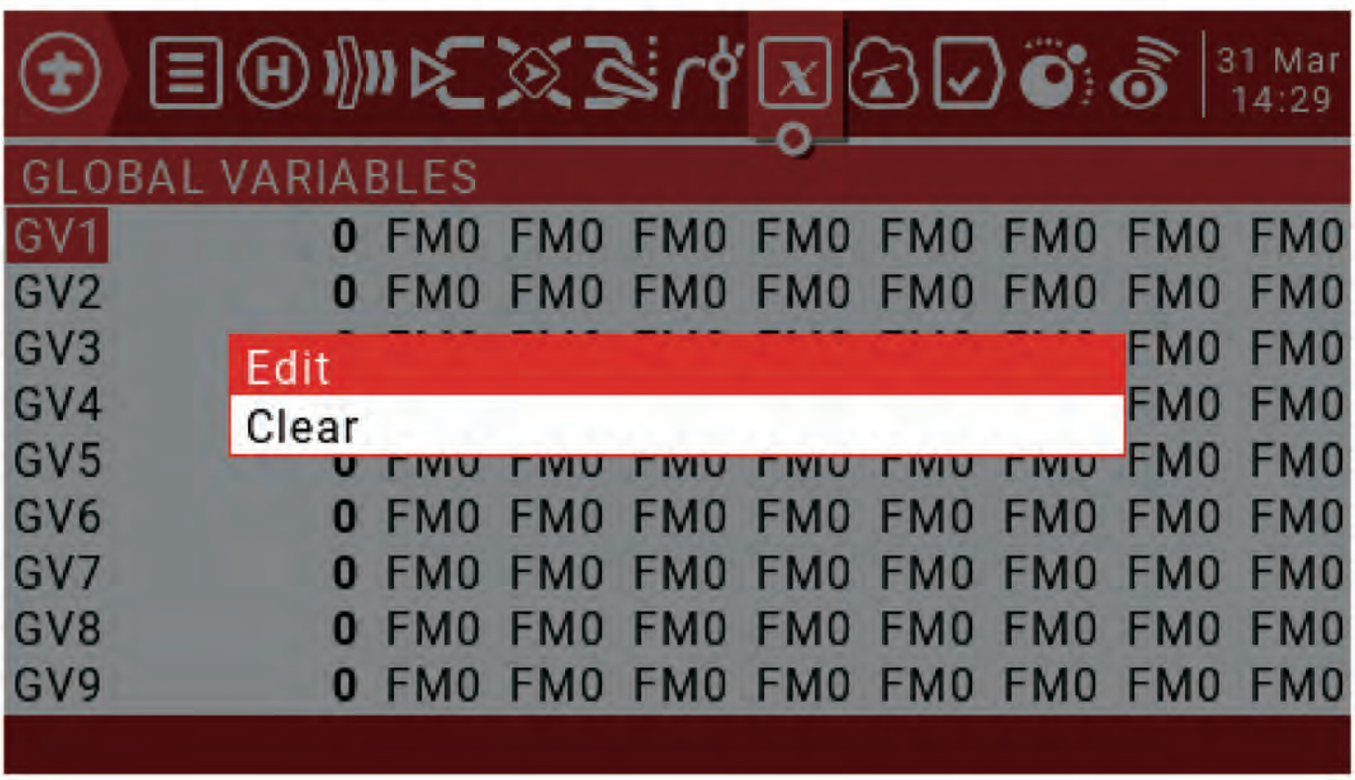
By using the "Adjust GVx" option in Special Functions, you can even adjust global variables in flight, so you can quickly optimize settings such as double rate ratio, expo, differential, flap to elevator transform, and more. If a pop-up is enabled (indicated by ! next to the GV tag), a pop- up window with the variable name and new value will be displayed on the main view when the variable is updated.

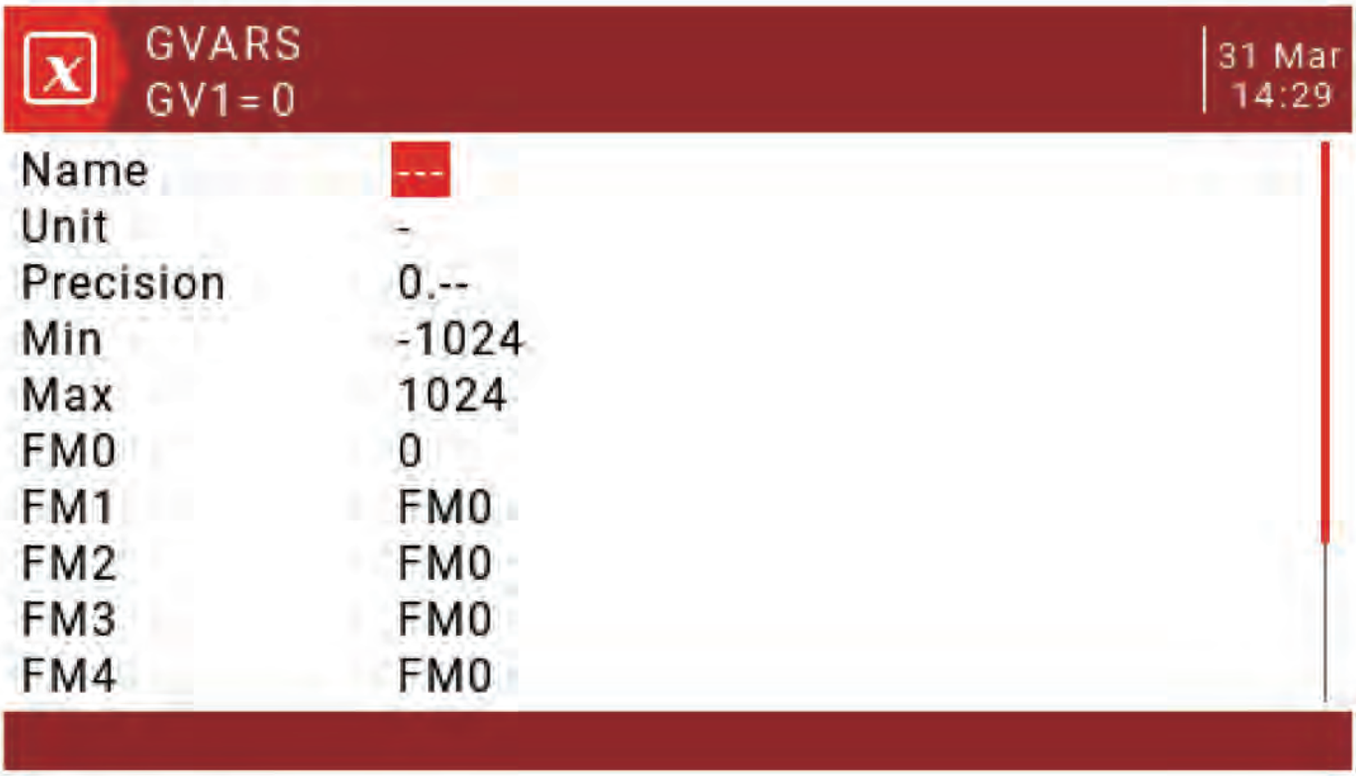
The term global means that global variables can be used to set pages for the entire model, but not for all models. Each model has its own set of global variables.

There are 9 global variables available.



Press and hold the ENT key to display the edit menu and then press the ENT key briefly to open the edit window.





Name: Set the name.

Unit: For reference only, switch between normal and %.

Precision: When switching to "0.0", the Gvar value is divided by 10 for the logic switch.

This is necessary because, for example, Thr: -100 to 100 and GVars: -1024 to 1024. When switching to "0.--", Gvar will not be modified.

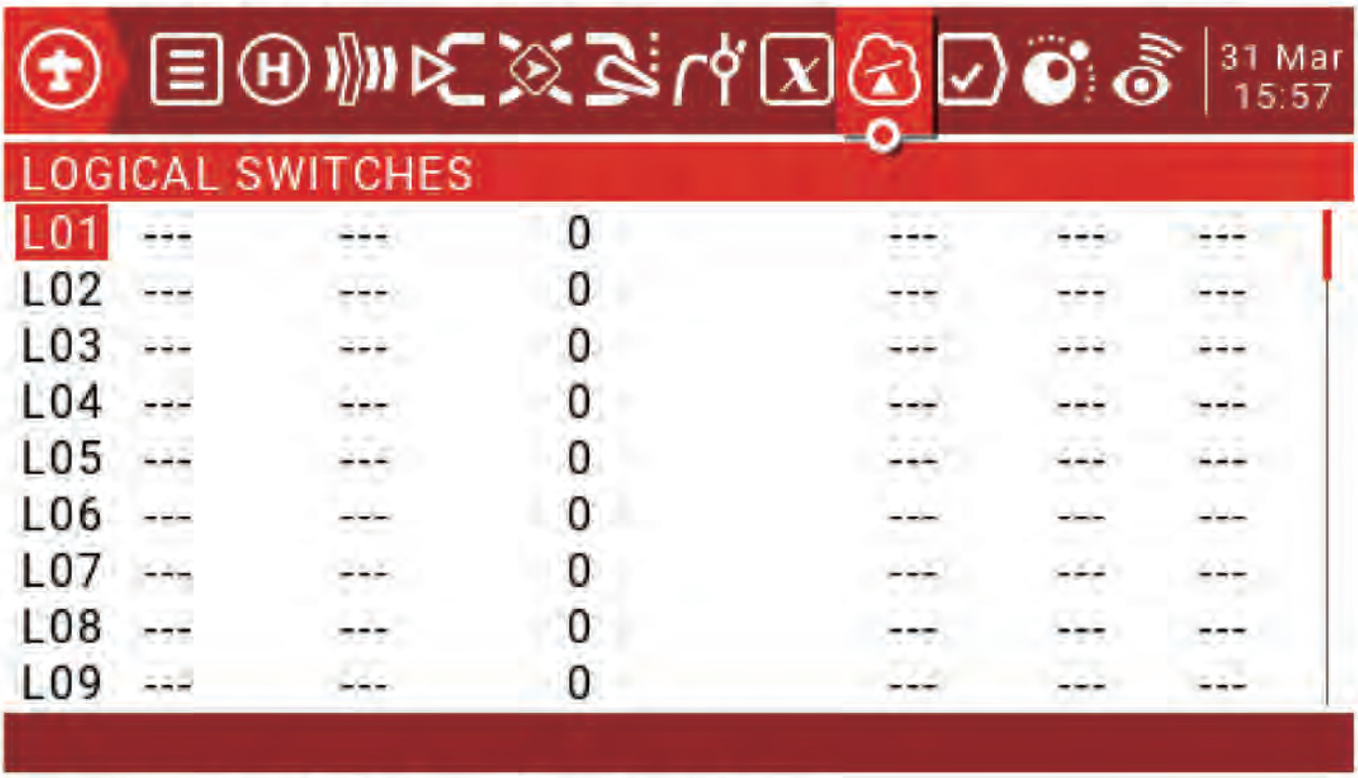
Min: For users who use button increment/decrement values, you can set the Gvar boundary.

Max: For users who use button increment/decrement values, you can set the Gvar boundary.

FM0-FM8: You can specify a value for each flight mode or set it to be the same as other flight modes. Press and hold the ENT key to switch the input value and select the flight mode on this field. When you edit a value, it increments/decrements by 1 or 0.1, depending on the Precision setting above.

4.3. Logical Switches

The logic switch is a user-programmed virtual switch. They are not physical switches that flip from one location to another, but they can be used as program triggers just like any physical switch. By evaluating the input conditions for the programming of the logic switches, they are turned on and off (logically they become true or false). They can use a variety of inputs, such as physical controls and switches, other logic switches, and other sources such as telemetry values, channel values, timer values, or global variables. They can even use the values returned by the LUA model script.



There are up to 64 logical switches, each with three types of operators:

Arithmetic operations either compare two variables "a" and "b" or compare one variable "a" with a constant "x". Variables can be of any source, such as hardware sources, logic inputs, mixed channels, 9 global variables, or telemetry values. The constant "x" is the value to be compared when the input V2 is set.

Logical operations can be performed on binary inputs (such as hardware sources or logic inputs) and include logical AND, OR, and XOR functions.

The difference operation compares the magnitude of the change in the variable "a" with another value "x".

Functions

a=x: If the value of the selected source "a" (V1) is "accurate" equal to "x" (V2) (programmed value), the condition is True. Care must be taken when using "Exact" equals the function. For example, when the test voltage is equal to the 8.4v setting, the actual telemetry reading may jump from 8.5V to 8.35V, so the logic switch never opens if the condition is never met.

a~x: If the value of the selected source "a" (V1) is approximately equal to (within about 10%) to "x" (V2), the programmed value, the condition is True. In most cases, it is best to use an approximation equal to a function instead of "exact" equal to a function.

a>x: If the value of the selected source "a" (V1) is greater than "x" (V2), the condition is True, which is the programmed value..

a<x: If the value of the selected source "a" (V1) is less than "x" (V2), the condition is True, which is the programmed value.

|a|>x: If the absolute value of the selected source "a" (V1) is greater than "x" (V2), the programmed value, the condition is True. (Absolutely means that "a" is ignored or not, and only that value is used).

|a|<x: If the absolute value of the selected source "a" (V1) is less than "x" (V2), the programmed value, the condition is True. (Absolutely means that "a" is ignored or not, and only that value is used).

AND: If both sources selected in V1 and V2 are true (ie ON), the condition is True.

OR: If any of the selected sources in V1 and V2 is true (ie ON), the condition is True.

XOR: If the V1 source or V2 is true (ie ON) instead of both, the condition is True.

Edge: is a momentary switch (lasting about 30 milliseconds) that turns True when its V1 source is triggered.

V1: The value of the selected trigger source.

V2: Divided into two parts [t1:t2], t1 is the minimum value, and t2 is the maximum duration of V1. The logic switch becomes True only after the trigger V1 is true at least t1 and is released before t2.

If t2 is reserved as "---" then only t1 is applied. When V1 transitions from True to False (ie, falling edge), the logic switch is triggered and the logic switch will be TRUE for 1 processing cycle (~30ms). If t2 is set to "<<", the logic switch (ie the rising edge) will be triggered when V1 transitions from False to True.

If the AND Switch parameter is used, the AND switch must be True to trigger the Edge function. If the AND switch changes to False when the Edge function is activated, the LS will not be reset but will be timed out.

a=b: If the value of the selected source "a" (V1) is "accurate" equal to the value of the second selected source "b" (V2), the condition is True. Care must be taken when using the "Exact" equal function. For example, when comparing two voltages, the actual telemetry readings may be 4.5V and 4.55V in one scan, and jump to 4.54V and 4.45v on the next scan, so the condition is never met and the logic switch never turns on. .

a>b: If the value of the selected source "a" (V1) is greater than the value of the second selected source "b" (V2), the condition is True.

a<b: If the value of the selected source "a" (V1) is less than the value of the second selected source "b" (V2), the condition is True.

Note: It can be seen that the main difference between "b" and "x" in a function is to select "a" and "b" to define the source, and "x" is a programmed value or constant.

d>x: The condition is true if the value of the selected source (V1) changes "d" greater than the programmed value "x" (V2).

|d|>x: If the absolute value of "| d |" is changed, the condition is True in the selected source (V1), greater than "x" (V2), a programmed value. (Absolutely means to ignore whether a is positive or negative.)

Timer: The logic switch is turned on and off continuously. It turns on time (V1) and turns off time (V2).

Sticky: When V1 switches from False to True, the Sticky function is locked (ie: becomes True) and its value is maintained until it is forced to False when V2 switches from False to True. This can be gated by the optional AND Switch parameter on the same line. This means that if the AND Switch condition is True, the logic switch output will follow the conditions of the Sticky function. However, if the AND Switch condition is False, the logic switch output remains False.

Note that the Sticky function continues to run even if its output is gated by the AND switch. Once the AND switch condition becomes True, the state of the Sticky function switches to the LS output.

AND Switch: The AND Switch provides the final logical condition to be met. The selected function is first evaluated on V1 and V2, and then the AND Switch condition is applied to the result. If the AND Switch condition is False, the logic switch will never turn on.

Conversely, the LS can only be turned on when the remaining switching conditions are True, and the AND switch condition is also True. This is important, especially the Sticky feature.

Any physical, fine-tuning or logic switch flight mode can be selected for the AND Switch.

Note that if the AND switch condition then becomes false, it will not reset the LS and the LS will remain on until other conditions cause it to close.

Duration:

--- or 0.0: The logic switch does not time out, but remains open until the condition causes the switch to close.

0.1-25s: The length of time that the logic switch will remain open, after which the switch will turn off, even if the condition is still true.

Delay: This is the delay time before the switch is turned on after the condition is true. The range is from 0.0 to 25 seconds.

4.4. Special Functions

Combining logic switches with special features and telemetry opens up exciting new features for JumperTX. For example, a change in telemetry data of the receiver battery voltage returned from the model can trigger a voice alert. One of the more complex applications written using lua scripts uses GPS sensors as timers for drone games, which can store game and circle data for analysis on a computer.

Special features include:

Override - Forces the channel output to a specific value.

Control coaching functions.

Set and reset the timer.

Reset the telemetry value.

Adjust global variables - Allows neat features, such as optimizing settings in flight.

Adjust the volume.

Play sounds, tracks, background music and/or vibration (tactile) feedback.

Run the Lua script.

Adjust the screen backlight.

Save the screenshot to the SD card.

Control data logging.

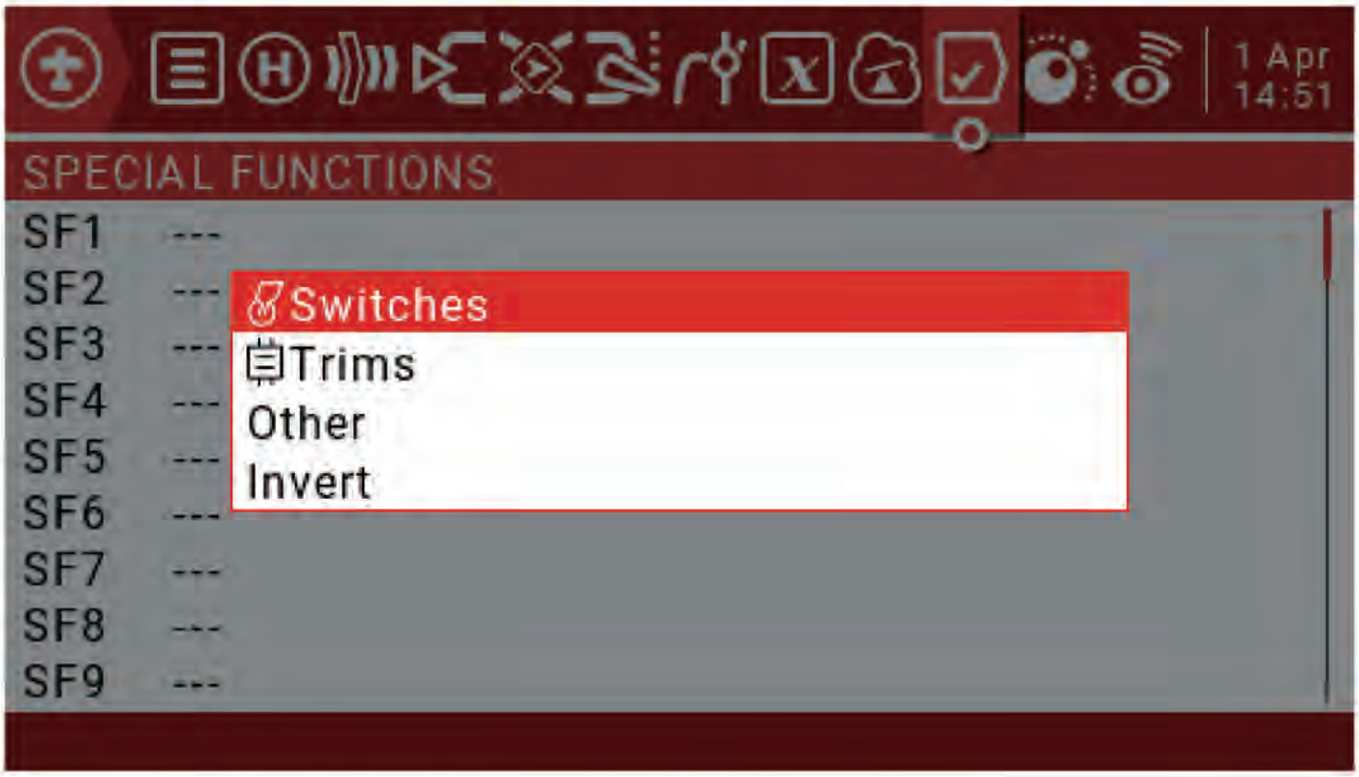
Record the position of the joystick as a fine-tuning setting to store your runaway protection settings.

Each model can have 64 special features. In addition, there are 64 global features available for standard features of all models. These can be accessed from the "Radio Setup" section.

Switch:

This can be any physical switch or fine-tuning at any location, 64 logic switches, ON (always enabled), One (trigger only once) and 9 flight modes.

Press and hold the ENT key to enter the submenu that displays the source by category. Scroll up or down to select the desired category, then press the ENT key.



Then you can scroll up/down from there and press ENT to select the source.

Function:

The following functions are triggered by the switch selected above.

Override: Forces the selected channel output (CH1 to CH32) to be a specific value between -100 and +100. This check box enables or disables this line.

Caution: This function does not consider the minimum/maximum value and direction specified in the output menu, so the servo may be overdriven.

Trainer:

"---" Enables the coach mode on all four channels.

Rud/Ele/Thr/Ail: Allows coach mode to be enabled only for selected controls. The checkbox enables or disables this line. Add an SF for each control.

Inst.Trim: This function adds the current joystick position to the corresponding trim value when the selected switch is activated. It's best to assign it to a switch that you can easily reach, and then use it to quickly set up fine-tuning when flying in a straight line and horizontally. This setting should be removed or disabled after the flight is completed to avoid accidentally turning the switch back on and tuning the fine-tuning. Check the box to enable or disable this line.

Reset: When the selected switch is activated, the following will be reset (depending onthe selected option):

Timer1,2,3: The selected timer value is reset to the value set by the timer parameter inthe Model Settings screen.

Flight: Reset telemetry and timers.

Telemetry: Reset all telemetry values.

Sensor: Allows selection of active sensors so that they can be reset individually, for example. VSpd, Alt, Cels, RSSI, RxBt, Cmin, Cmax.

Checkbox: Enable/disable this line.

Set: Time1, 2, 3: This function will preset the selected timer (00:00:00). Check the box to enable or disable this line.
Adjust: Allows adjustment of global variables (GV1 to GV9).

There are four options for "---":

Value (between -500 and +500)

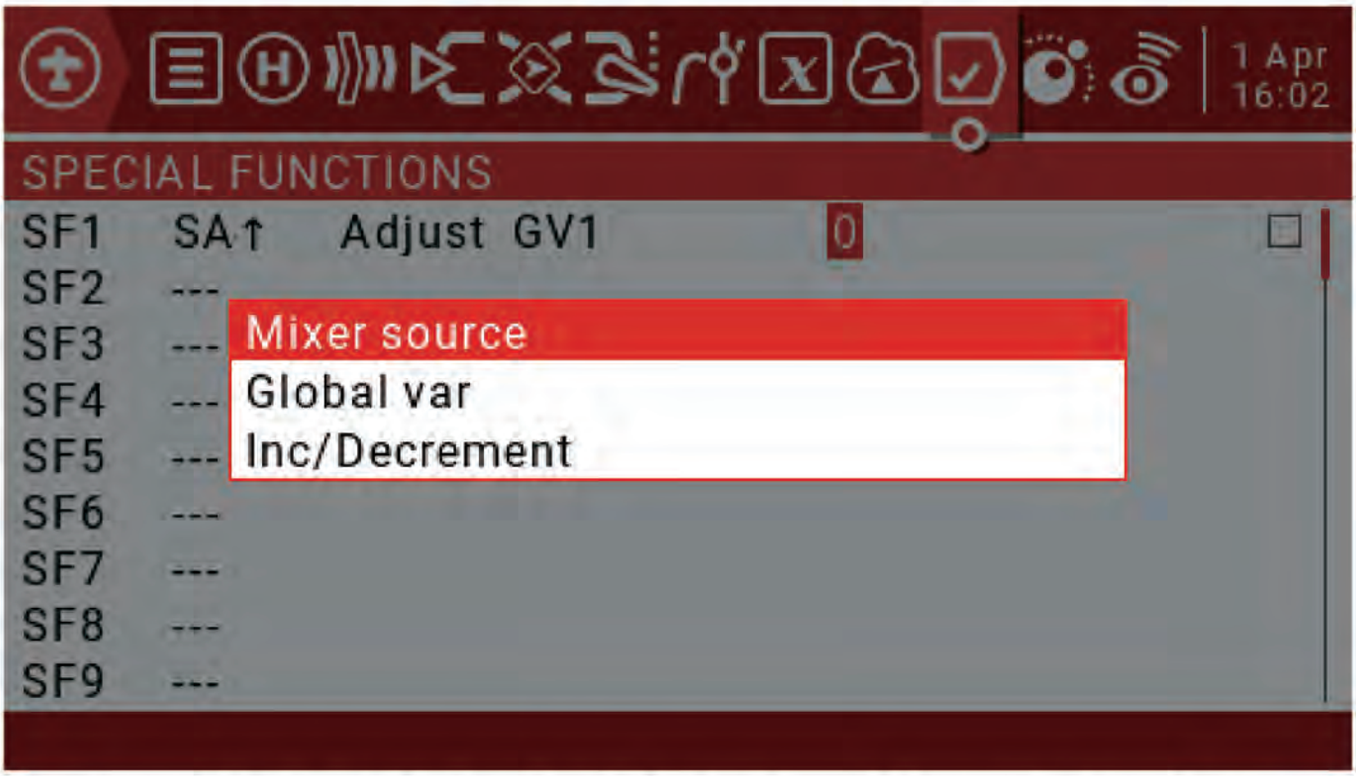
Source (normal control range)

GVAR, another global variable

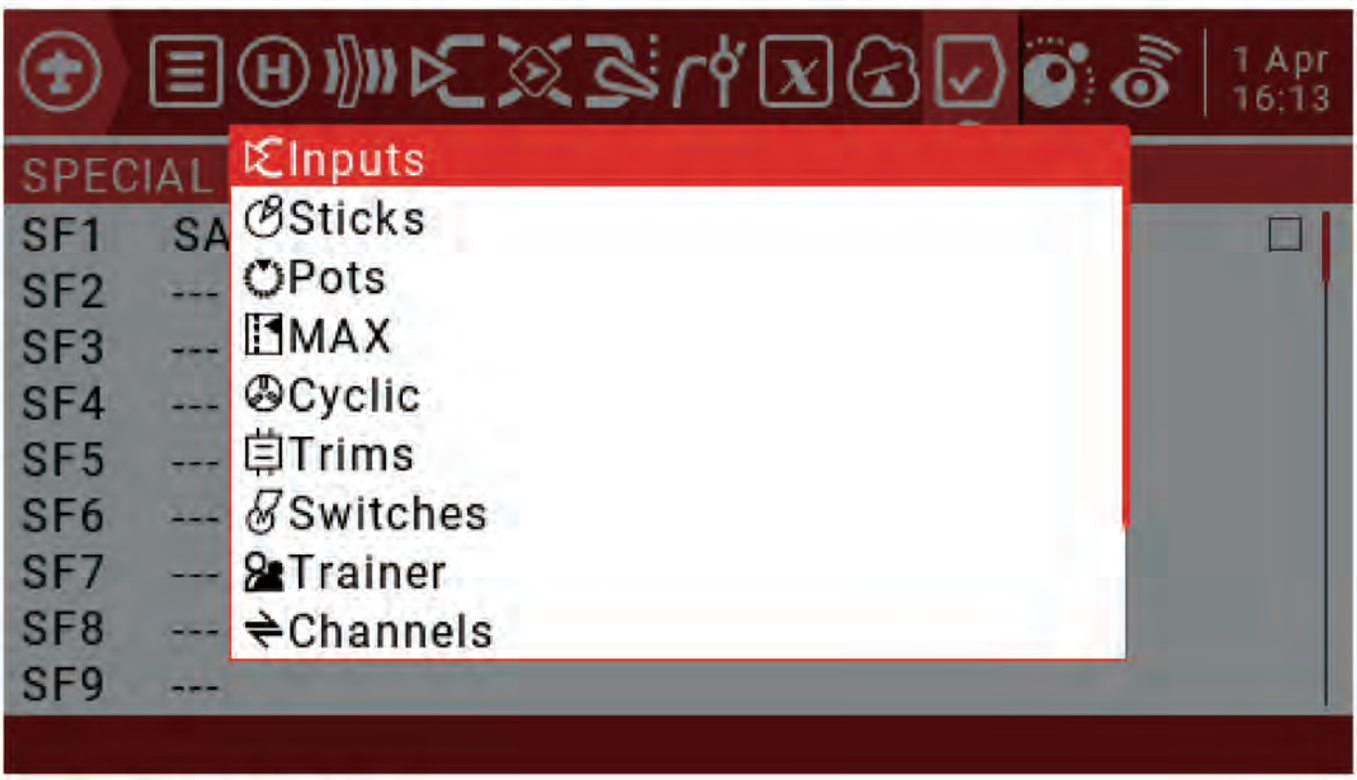
Increment (+1 or -1)

Checking "---" and long pressing the ENT button will bring up a pop-up menu that allows you to choose between Constant, Global Var and Increment / Decrement.

If you press the ENT key on any of the four source types, Constant, Mixer Source, Global Var or Increment/-Decrement, it will pop up a pop-up menu that allows you to choose between the other three types.



Pressing the ENT key while the mixing source is active will display the submenu of the source by category. Scroll up/down to the desired category and press the ENT key. It takes you back to the parameter being edited on the first item in the selected category. Then you can scroll up/down from there and press ENT to select the source.



Checkbox: Enable/disable this line.

Volume: The selected source will adjust the volume. A simple app will use the knob to control the volume. Check the box to enable or disable this line.

Set Failsafe Int. Module: Allows dynamic setting of runaway protection on the ground or in the air. Set the control interface to runaway protection and press the selected switch to store the runaway protection value. This feature is available for internal XJT modules. The checkbox enables or disables this line.

Set Failsafe Ext.Module: As mentioned above, but for the external module of the emitter. The checkbox enables or disables this line.

Play Sound: Any simple sounds listed in the drop-down parameter box will be played.

!1x: Play the sound once, not at startup.

1x: Play a sound once.

1s-60s: Repeats the sound at the specified interval.

Play Track: Play any wav sound file stored on the SD card. The list of available sounds will be displayed in the parameter column of the drop-down box.

!1x: Play the sound once, not at startup.

1x: Play a sound once.

1s-60s: Repeats the sound at specified intervals.

Play Value: Say the value of any controls available in the parameter menu. These can include switch or joystick values, or telemetry values or time.

Select "---" and press and hold the ENT key to pop up the menu showing the source by category. Scroll up/down to the desired category and press ENT, which takes you back to the special features page with the cursor on the first item in the selected category. Then you can scroll up/down from there and press ENT to select the source.

!1x: Play the sound once, not at startup.

1x: Play a sound once.

1s-60s: Repeats the sound at specified intervals.

Lua Script: This field is used for function type scripts that run on demand using this special feature. The script should be placed in the /SCRIPTS / FUNCTIONS / folder of the SD card.

Background Music Pause: Pause the background music. Play music when the source is enabled, pause when disabled. Resume playback when re-enabled.

Vario: Vario only sounds when the specified switch is enabled.

Haptic: The vibration function needs to be enabled in RADIO SETUP.

Intensity: 0-3

!1x: Vibration once, does not vibrate when turned on.

1x: Vibration once.

1s-60s: Repeat the vibration at the specified time.

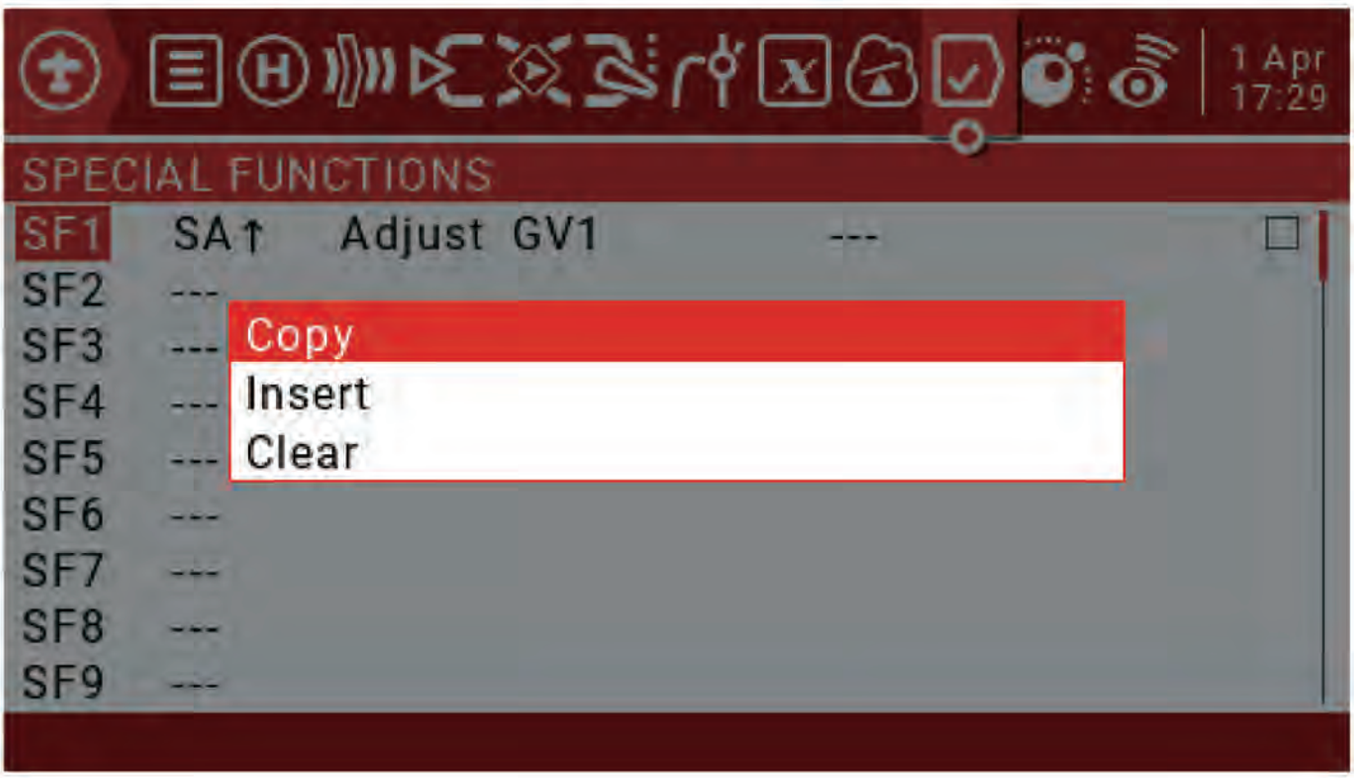
SD Logs: Sets the frequency (in seconds) at which the data records are sampled and stored on the SD card.

"---" does not create a log.

0.2-25.5s: Log records are saved at specified intervals.

Backlight: This parameter displays a slider that sets the level of the screen backlight. Used to conserve battery power or to compensate for different lighting conditions.

Press and hold the ENT key on a defined special function to bring up a menu to copy, insert or clear the function.



4.5. Custom Scripts

Custom scripts allow you to modify the behavior of the remote to add specialized features to your custom tasks. The scripting language used is Lua, a lightweight, embeddable scripting language designed to be used from games to games.

Various applications for web applications and image processing, in this case for implementing custom functions in the radio. There are three basic types:

One-time: The script only runs once and then terminates. For example, the receiver and flight controller setup scripts, as well as the new Create Model Wizard. They are executed from the /SCRIPTS/folder on the SD card.

Mix: The script becomes part of the control loop in the radio and runs repeatedly. These are set using this custom script page. They usually read one or more values, do some processing on them, and then output one or more values. These scripts should be as short as possible, because exceeding the script execution runtime limit will cause the script to be forced to stop and disable.

Function: Scripts run on demand using special features, usually triggered by events orswitches.

There are some caveats - if the script stops executing, you should never use Lua model scripts to control any aspects of the model that might cause a crash. The reason is that if the script tries to use too much CPU time or memory, it will be shut down and will not run again when the model is selected.

CUSTOM SCRIPTS

LUA1	---
LUA2	---
LUA3	---
LUA4	---
LUA5	---
LUA6	---
LUA7	---
LUA8	---
LUA9	---

The Custom Scripts page is used for mixed-type scripts that run continuously. These scripts should be placed in the SD card / SCRIPTS / MIXES / folder.

Up to 9 custom scripts

Script	---
Name	---
Inputs	

You can select a script in the first line and optionally define a custom name to know what to use in the second line. The screen also displays the inputs and outputs used by the script.

Basic layout of Lua scripts

The user-written lua script is basically a subroutine called by the main loop of the remote control code. A subroutine is a block of code that can be called to perform a task when needed and then return control to the calling code. A custom Lua script can contain four basic subroutines (input, output, initialization, and run), three of which can be optional. You must define these four subroutines in the return statement at the end of the script.

Input: This is usually how the script gets the information passed to it. The Input subroutine is optional and not required.

Output: This subroutine defines the variables that the script will return. Allows you to return up to seven values, which can only be numbers for this stage. The output is also optional and not required.

Init: This subroutine is used to initialize the script. You should set an initial value for the variable and perform any preparations. The subroutine runs once each time the model is selected or the remote is turned on when the model is activated. This subroutine is also optional and not required.

Run: This is where the work of the lua script is done. It can be compared to main() in languages such as C# or Java. Like those languages, variables can be passed to it. This routine will return the variables defined in the Output subroutine.

4.6. Telemetry

JumperTX supports a very comprehensive data transmission system for Frsky and third party sensors.

Smart Port telemetry(S.port)

Through this connection, the receiver can achieve full-duplex (bidirectional) high-speed communication.

main feature:

Each value received through a digital transmission is treated as a separate sensor with its own attributes. Multiple identical sensor types can be connected, but the physical ID must be changed. For example, sensors for each of the 2 - 6S lithium batteries, or monitor individual motor currents in a multi-motor model. Each sensor can be individually reset by special functions.

The digital sensor can:

Play the value by voice.

Used for logic switches.

Input for proportional operation.

Displayed in the custom data transfer screen.

sensor type:

RSSI

Receiver Signal Strength Indicator (RSSI): The value transmitted by the receiver in the model to the remote control, indicating the strength of the received signal. Warnings can be set to warn below the minimum value, indicating that you are out of range. Factors affecting signal quality include external interference, excessive distance, poor orientation, or antenna damage.

It is not an absolute measurement, but a number that represents the ratio of the signal to some initial "good" value. This number is relative, but can indicate that the model may be close to the range limit of the control aircraft.

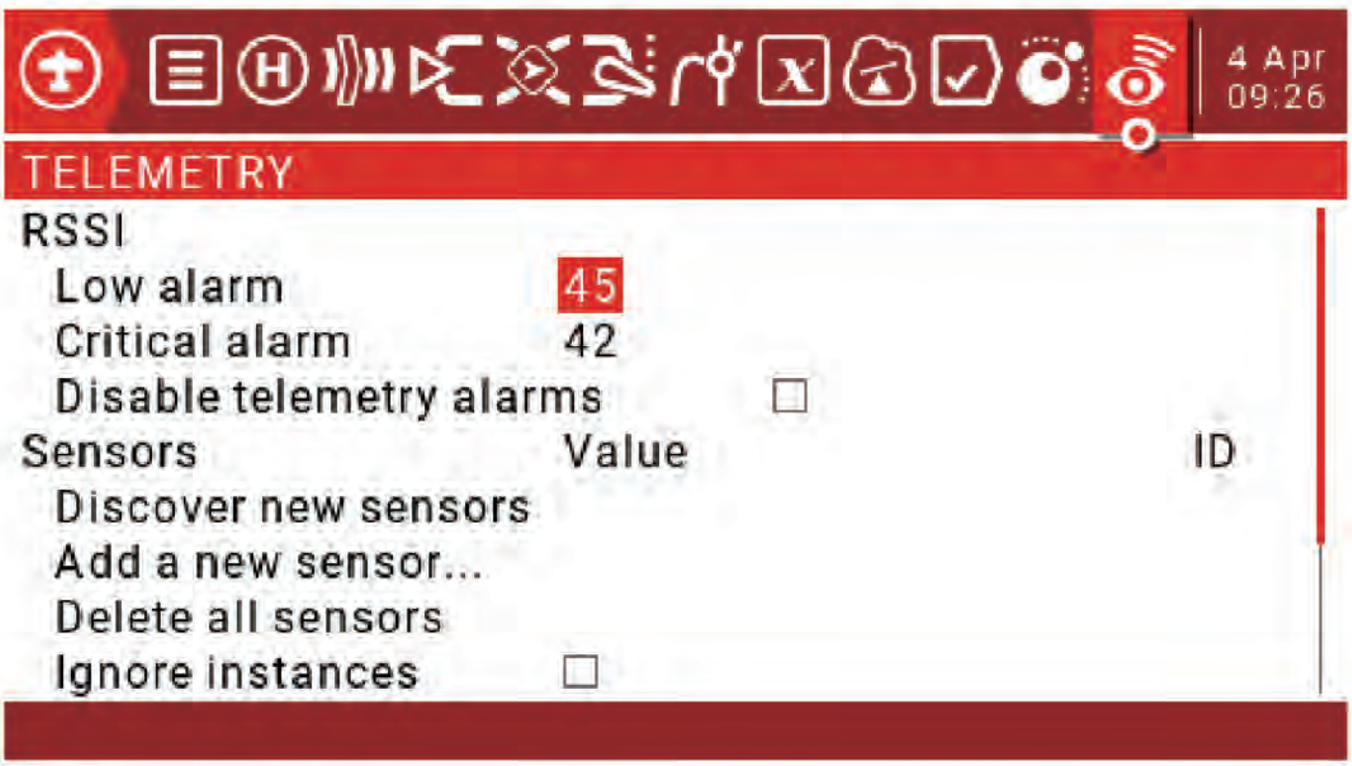
When the return signal is completely lost, the remote controller will have a "return signal lost" prompt. Please note that due to a fault in the return link, the remote can no longer warn you of RSSI or any other alarm condition, so no further beep will sound.

Digital transmission settings:

RSSI:

Low Alarm: Range 15-75, default 45.

Critical Alarm: Range 12-72, default 42.



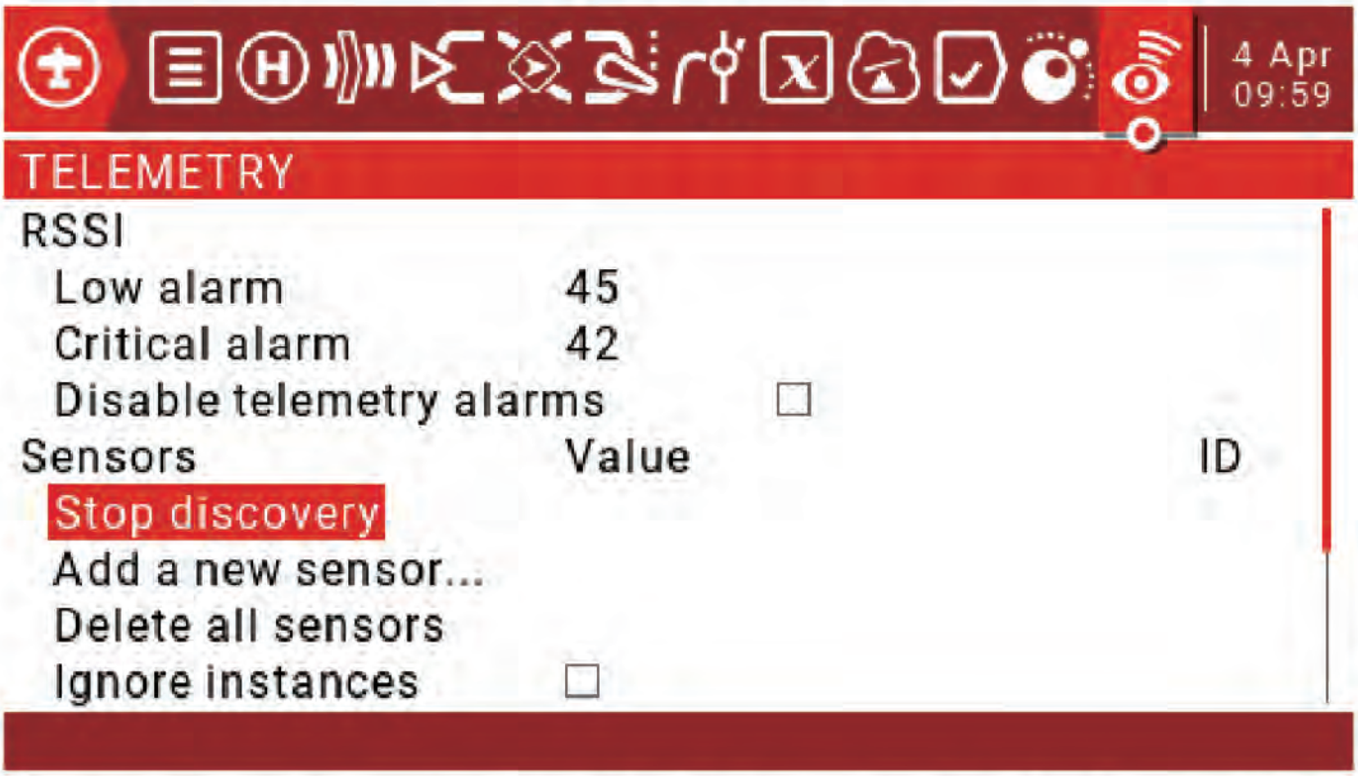
Sensors:

Discover new sensors: Short press the ENT key to find a new sensor for the first time.

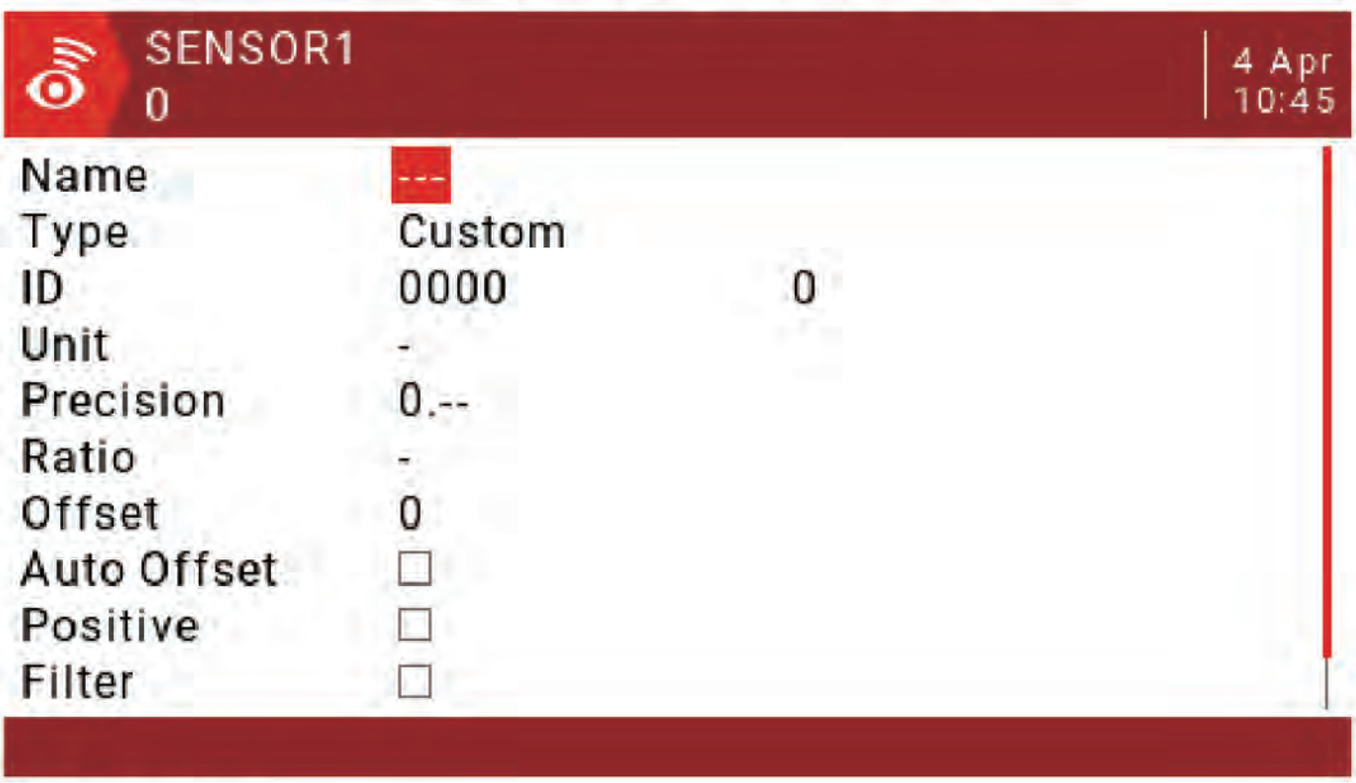
Stop Discovery: Short press the ENT key to stop discovering the sensor.

Delete all sensors: This option will delete all sensors so that you can start adding sensors again.

Ignore instances: Normally, you will see a pop-up window showing "all telemetry slots are full" and you will not be able to close. Turn off the receiver, then close the pop-up window, enter the telemetry screen and delete the duplicated items. Then check this option to prevent this sensor from repeating errors .



All found sensors are automatically displayed during the discovery process. If no S-port sensor is plugged into the receiver, only the sensor that comes with the receiver can be found and set. Add a new sensor: Allows you to manually add new sensors. Short press the ENT key to call up the Add New Sensor menu.



Name: Set the name.

Type: Available with Custom and Calculated.

Custom sensor settings:

Type: Custom

ID: Sport ID number (4-digit hexadecimal), usually read from the sensor. The second field is the physical ID number to be entered.

Unit: V, A, mA, kts, m/s, f/s, kmh, mph, m, ft, degC, degF, %, mAh, W, dB, rpm, g, deg, ml, fOz

Precision: Shift the decimal to 0 or 0.0 or 0.00.

Ratio: "-" 0-3000.0.

If Ratio is "-", the telemetry value is calculated as follows: (sensing value divided by 10)

(received value/10) + Offset=displayed value

Or, if Ratio is not "-", the telemetry value is calculated as follows:

[(received value / 255) * Ratio] + Offset = displayed value

The ratio allows the received sensor values to be corrected or converted, for example between km / h or between sections.

Offset: between -3000 - +3000.

Auto Offset: When checked, it will be automatically reset to zero. For example, when the Vario sensor is at ground level when the power is turned on, it stores the first value received after reset as zero. This provides an "AGL" reading instead of a "above sea level" reading.

Positive: Limit any negative value to zero.

Filter: When selected, the moving average of 4 past values will be calculated.

Logs: If checked, the SD card will be logged. Please note that the log record must still be started by the Special Function. This option only makes the data available for recording.

Calculate sensor settings:

Type: Calculated

Formula:

Add, Average, Multiply: Values can be added, averaged, or multiplied.

Min, Max: You can extract up to or up to a set of 4 values.

Totalize: This function adds each value as it is received.

Consumption: This value will be integrated over time.

Unit: "-", V, A, mA, kts, m/s, f/s, kmh, mph, m, ft, degC, degF, %, mAh, W, dB, rpm, g, deg, ml, fOz

Precision: Shift the decimal to 0 or 0.0 or 0.00.

Source1-Source4: Select from any active sensor.

Auto Offset: Automatically resets to zero when checked.

Filter: When selected, the moving average of 4 past values will be calculated.

Persistent: When selected, this value is retained during a power outage and resumes during power up. Very useful for functions such as mAh consumption.

Logs: If checked, the SD card will be logged. Please note that the log record must still be started by the Special Function.

Professional features:

Lithium battery cell voltage:

The Lipo voltage sensor FLVSS adds the following parameters to the list:

Cels: Total battery voltage. In order to get a single battery voltage, a new calculation sensor needs to be defined.

Name: Cmin or Cmax.

Type: Calculated

Formula: Cell

Cell sensor: Select from active Lipo voltage sensors, for example, Cels.

Cell Index: lowest, 1, 2, 3, 4, 5, 6, highest.

Log: If checked, it will be logged to the SD card. Please note that the record must still be started by the Special Function.

Distance:

The GPS sensor adds the following parameters to the list:

GPS: Longitude and latitude.

Galt: Height.

GSpd: Speed.

Date: date, time.

To get the distance from the GPS power-up position to the current position, define a new calculation sensor.

Name: Dist

Type: Calculated

Formula: Distance

Unit: m

GPS sensor: Set this to "---" and we do not use height values for this calculation.

Alt sensor: Select the "Galt" entry from the list of activity parameters.

Logs: If checked, will be logged to the SD card. Please note that the record must still be started by the Special Function.

Current sensor 40A

The 40A current sensor adds the following parameters to the list:

Curr: Current

To get the consumption (battery in mAh), define another new calculation sensor:

Name:

Type: Calculated

Formula: Consumpt

Sensor: Curr

Unit: mAh

Persistent: When selected, this value will remain during power down and resume during power up.

Logs: If checked, will be logged to the SD card. Please note that the record must still be started by the Special Function.

Variometer settings:

The vario sensor adds the Vspd and Alt parameters to the sensor list.