Differential throttle

In Pitlab FPV System since version 2.71

Differential throttle is designed for two motor (twin motor) airplanes. It allows control of two engines. System can differentiate engines thrust helps making tighter turns or turns without use of rudder.
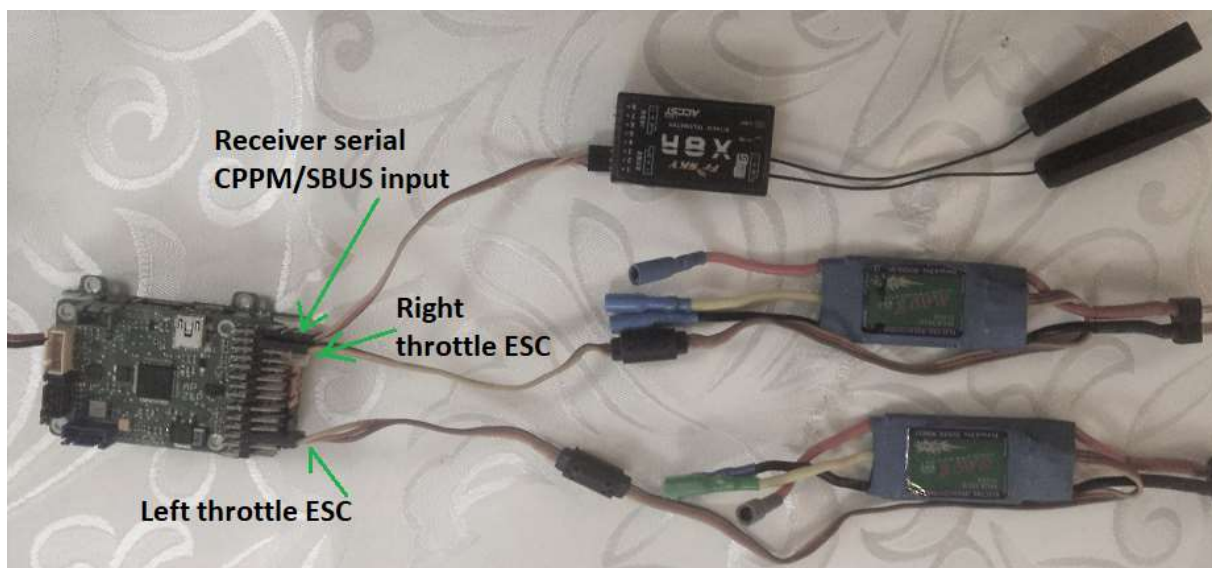
Differential throttle is available and works only with CPPM/SBUS/Diversity (serial) RC input modes. It is not available in parallel RC channels connections.
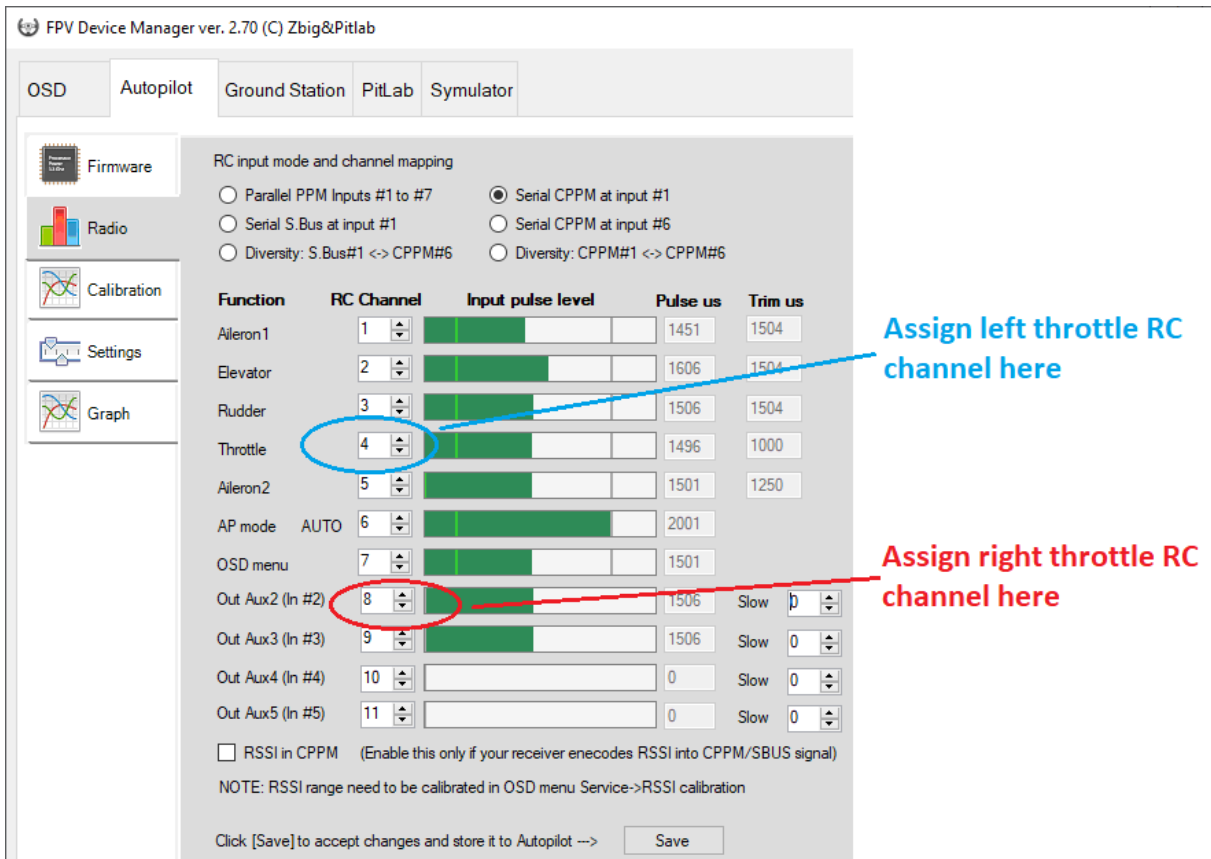
For proper differential throttle operation user have to configure his RC system (RC transmitter) for manual two engine (throttle) control, which depending on RC system will require proper channel assignment and rudder->differential throttle mixer settings.

In OFF (MANU) mode autopilot do not changes RC signals in any way, just transfer it from RC receiver into servo/ESC outputs, so all necessary mixers/reverses should be properly set in RC transmitter.

Autopilot uses fixed throttle channels assignment:

-Left throttle RC signal have to be assigned to autopilot's „Throttle" function

-Left engine ESC have to be connected to autopilot's regular throttle output (Out #4)

-Right throttle RC signal have to be assigned to autopilot's „Aux2" function

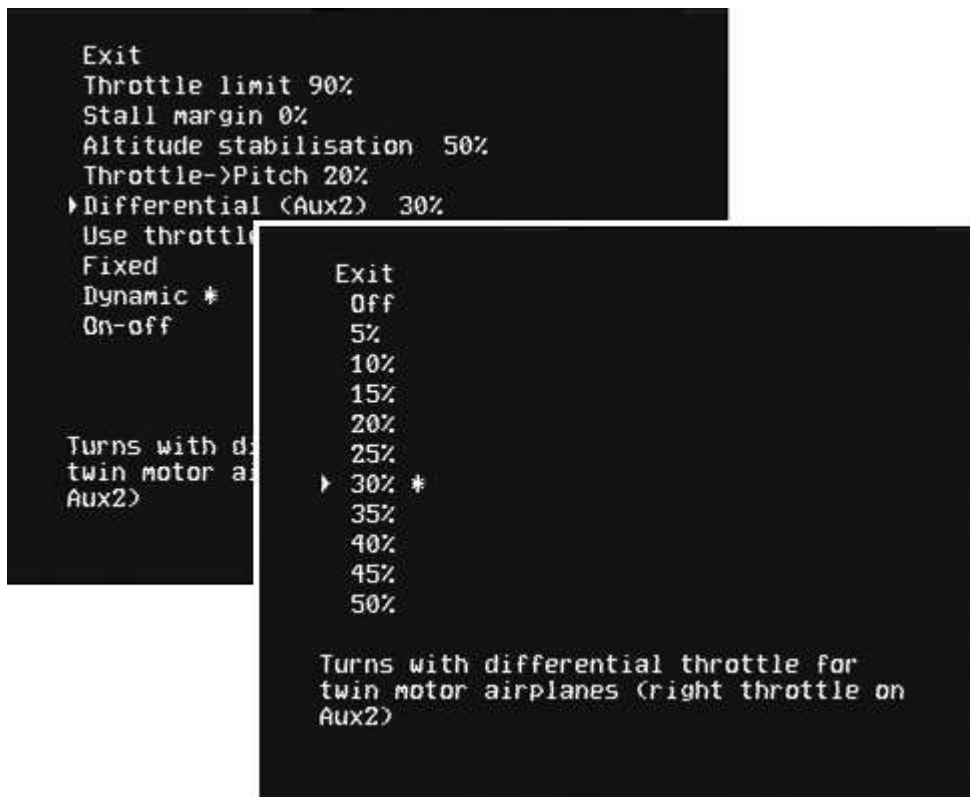-Right engine ESC have to be connected to autopilot's AUX2 output (In#2)

To enable differential throttle open **OSD menu ->Autopilot->AUTO flight->Throttle mode** menu and open new **Differential (Aux2)** submenu.

In this option you may disable differentia throttle (default settings) by selecting **OFF**, or enable it by selecting proper differential throttle mixer value (percentage). In most cases this value should be equal to transmitter's **rudder->differential throttle** mixer value.

```
Exit
Throttle limit 90%
Stall margin 0%
Altitude stabilisation  50%
Throttle->Pitch 20%
▶Differential (Aux2)  30%
Use throttle          Exit
Fixed                  Off
Dynamic *              5%
On-off                 10%
                       15%
                       20%
                       25%
Turns with di      ▶  30% *
twin motor ai          35%
Aux2)                  40%
                       45%
                       50%

                   Turns with differential throttle for
                   twin motor airplanes (right throttle on
                   Aux2)
```

When differential throttle option is enabled, slow function for Aux2 output (available in FPV_manager) is automatically disabled.

In STAB mode, when heading stabilisation option is enabled autopilot may change throttle difference between left and right motor to help keeping straight line of flight.

In AUTO mode autopilot will differentiate throttle between left and right motor to make turn or to keep desired course.

We wish you many safe flights

Pitlab team